

# WALK+BIKE



FINAL  
August • 2018

Beaufort | NC | bicycle and pedestrian master plan

*A plan to enhance the safety and mobility of Beaufort's citizens, visitors, businesses that celebrates the unique cultural identity and heritage of **Beaufort, North Carolina.***



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## ACKNOWLEDGEMENTS

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### *Thank You*

*Credit goes to these Steering Committee Members and officials  
that directed us, as well as the public, pirates, wild horses that  
can tell time, coffee shop patrons, staff and appointed / elected  
officials of Beaufort.*

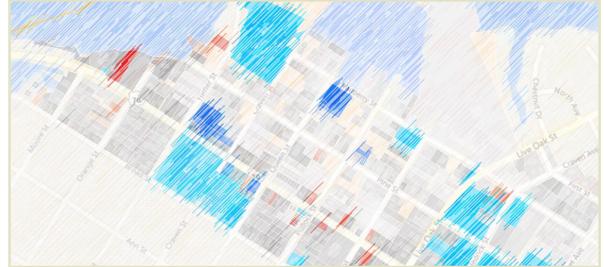
*The good parts are yours; any missteps are ours.*



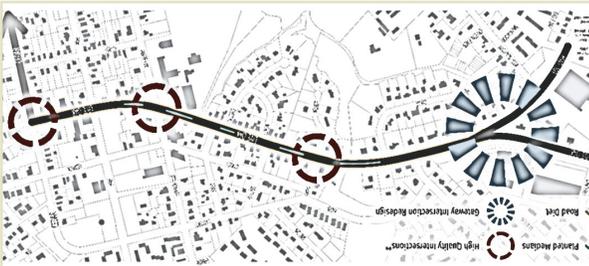
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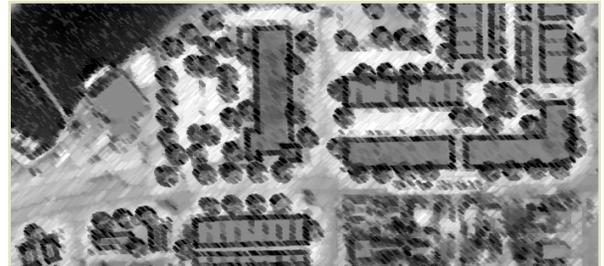
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**Waiting on the first train into Beaufort in 1907. Since there was no “wye” to turn around, the train would back into Beaufort before moving out again.**

*source: Mamre Marsh Wislon, “Beaufort, North Carolina, Beaufort Historical Association, 2002. Page 126*

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## THE TEAM’S MESSAGE

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**A** lot of people enjoy Beaufort - North Carolina, not to be confused with its heteronym sibling in South Carolina (although that one isn’t bad, either). Its waterscape, sea-facing downtown, natural preserves, oceanographic studies, long history, and great weather come together to make an experience as much as a place. Perhaps most importantly, Beaufort is still a place that you can call a real town. While no longer the hard-working fishing village it once was, Beaufort is still largely a working-class town that, while it recognizes the importance of tourism to its economy, is still a complete place to live, raise a family, and eventually retire. People here walk and bike to shops, schools, place of worship, and work. This balance is fragile, and keeping the character of this place - the *Beaufortness* - was important to us in our work.

On behalf of the staff and consulting team, we hope that you enjoy looking through this Bicycle and Pedestrian Master Plan as much as we did making it with you. Public meetings, project websites, and some long hours creating graphics, text, and pondering what to do to make a great walking and biking town even better made us arrive at this place. Part of our work was wrapped up in the Small Area Plan that was being undertaken simultaneously to take advantage of the positive aspects of the Highway 70 high-level bridge and re-routing occurring in the middle of the planning process. You will see products of that effort in here as well, since both plans speak strongly to the benefits and necessity of biking and walking in Beaufort. Work to make the recommendations reality: this plan is just the beginning.

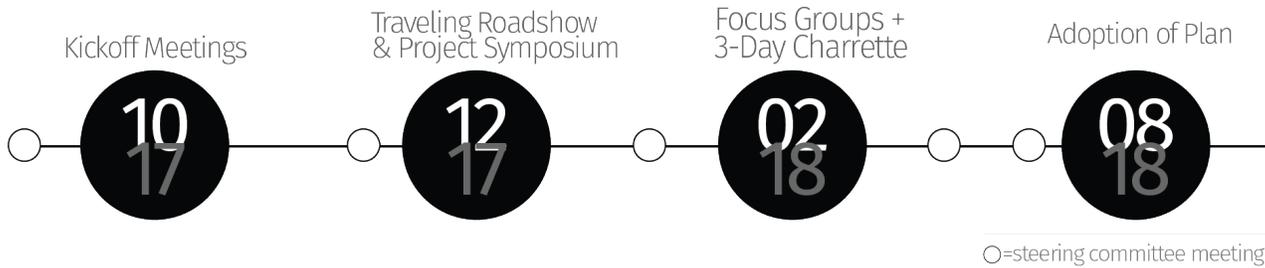
We like to say that walking through a place is as different from driving through it as driving is to flying in an airplane. Biking and walking allow a person to experience a place like Beaufort the way it was originally designed to be taken in: slowly, using your feet.

**J. Scott Lane, AICP**

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# Executive Summary

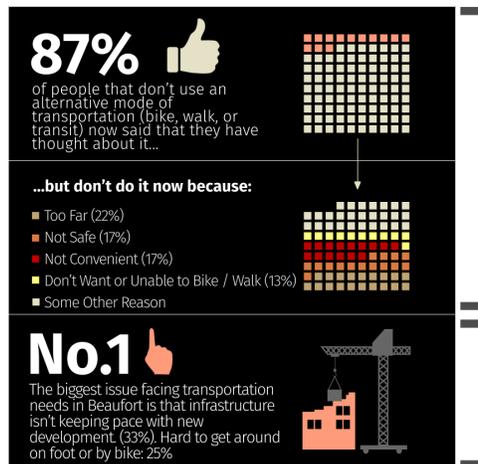
The Town of Beaufort developed recommendations for bicycle and pedestrian connectivity and street beautification for its historic community as part of a new Bike and Pedestrian Plan. This study evaluated the potential impacts associated with the new US 70 Bypass, and made specific, conceptual design recommendations for locations that need improvement according to crash data and public input. Residents and business owners provided neighborhood recommendations to town planners and local officials. Ultimately, the goal of the Bike and Pedestrian Plan is to enhance the quality of life in each distinct community, while ensuring that the endorsed recommendations were a result of informed decision-making and a process that allowed constituents the opportunity to make changes and justify the outcome.



The community has done a wonderful job of keeping its waterfront vibrant, active and attractive. However, for select areas outside of Front Street, there are challenges that make it difficult to traverse as a pedestrian and bicyclist as well as to develop as an attractive destination. With the construction and opening of the Beaufort Bypass, traffic is expected to shift and divert from some corridors while potential adversely affecting others through increase in cut through traffic. Once plagued with high levels of through traffic and crashes, some corridors (like Cedar, Turner and Live Oaks are now facing different challenges, such as automobile/bicycle speed differential for on-road cyclists, lack of pedestrian amenities away from the waterfront blocks, and overdue street and sidewalk maintenance.

To respond to these challenges, the Small Area Plan & Bicycle/Pedestrian Master Plan included Committee coordination, extensive public outreach, a visioning process, an analysis of modal travel deficiencies, public workshops, project symposium, scenario planning, multi-modal transportation elements, a strategic implementation plan, and agency/stakeholder coordination. Based on the direction provided by the community, its leadership, NCDOT, development community and residents, the following Guiding Principles were developed to guide the design team. It is here that the core values were applied to decisions related to Complete Streets, stormwater, multi-modal elements, safety and development within Beaufort's street network.

## YOU SAID...



## WE RESPONDED...

Over 80 recommendations for new and improved sidewalks, bikeways, greenways, and safer / easier intersection crossings

Policy recommendations including a complete streets policy and gateway design ordinance

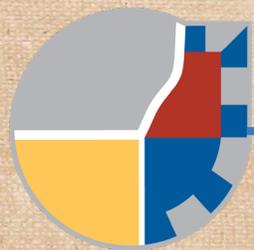
**47%** "Walking and Biking should have a level playing field with cars – every place should be reachable by walking or biking, safely."



"Beaufort is a Town where everyone can walk or bike to popular destinations like parks, schools, waterfront, and retail places. This goal is accomplished by making spot improvements to address barriers, as well as to generally level the playing field with automotive travel, improve intersections, and increase the quality of active mode environments through better maintenance and enhancing the appearance of the streetscape."

-Vision Statement compiled from  
Public Workshop meeting held in  
December.





# Existing Conditions

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# Beaufort's History

**Understanding the historical context of Beaufort reveals a unique story and a set of design elements that make the Town highly accessible by foot and bicycle. Perhaps more than any other town in North Carolina, a plan in Beaufort has to start with, and consider, its history.**

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**T**he Town of Beaufort Bicycle and Pedestrian Master Plan develops recommendations for multimodal improvements; bicycle and pedestrian connectivity; and street beautification for the community. This study evaluates the potential impacts associated with the new US 70 Bypass, and makes specific, conceptual design recommendations for locations that need improvement according to crash data and public input. For each planning area, residents, property owners, and business owners provide neighborhood recommendations to town planners and local officials, resulting in a plan that adopted by the town. Ultimately, the goal of the Bike and Pedestrian Plan is to enhance the quality of life, business opportunities, safety, and community.

Beaufort, a historic seaside town just under three hours' drive from Raleigh, North Carolina, is presented with the opportunity to enhance their already promising bike and pedestrian environments. Founded in 1709, Beaufort is the third-oldest town in North Carolina and its historic influences are felt throughout the town: live oak-lined streets, narrow passageways, historic homes, and a mixture of land uses create a welcoming environment for an evening stroll or casual bicycle ride. Beaufort isn't a "boutique town" given over to catering only to its (significant) tourism business: the town boasts a fishing industry, maritime museum, Duke-sponsored aquatic research center, and an array of housing choices both old and new.

There are few places in North Carolina where the past reaches forward and is so clearly articulated as it is Beaufort. Like its identically named – but not identically pronounced, as citizens of either Beaufort in the Carolinas are quick to point out – the town is much about the sea. Protected from the worst of the Atlantic by barrier islands, an attraction to the many eager tourists here for their preserved wilderness and wild horses, Beaufort has had the opportunity to grow over the centuries – but that growth has mostly been, as the Greeks are fond of saying, "siga-siga" ("slowly, slowly").

Sailing and ships are the translators between Beaufort and the sea. From the exploratory Voyages of Verrazano and Raleigh in the 1500s, to later settlement and eventual incorporation in 1723, Beaufort's history is deeply intertwined with that of America. The interaction of early settlers with native American tribes like the Algonquin, Coree, and Tuscarora were friendly, but turned hostile and slowed settlement in Beaufort until several years after the end of Tuscarora War in 1713. The Lords Proprietors of England, notably George Carteret and his progeny, had an early influence on the Beaufort area but the town's name originates (probably) from an important English family that included the royal lineage of Somerset. Land rents that were relatively cheap compared to northern standards, also prompting more migration to the area that the Coree called Cwarioc, meaning "fish town," a nickname that is still familiar here after more than 300 years. The historical role and financial success of fishing, particularly the menhaden that spawned an industry, made the name appropriate.

Naming conventions for Beaufort's early street names favored royalty, lords proprietor, and a governor: Queen, Anne, Craven, Orange, and Pollock. On Front Street, homeowners were also boat captains who could lash their boats to their front porch across a narrow path. The only road into town was Turner Street, named after a merchant: the first causeway to Morehead City was not completed until 1927 at the end of Anne, not Cedar, Street. One of the elements that



**Clockwise, from top-left:** Josiah Bell House / Beaufort General Store / Beaufort Harbor/ Front Street / The Old Burying Ground



the study team dealt with, that the larger streets often sit on 66 feet of right-of-way, descended from the original survey after the town's incorporation after 1723, when lots were generally 330 feet deep and 66 feet wide. These dimensions, built around a 330-foot lot depth for the waterfront lots (and 430 feet to 460 feet for blocks further inland), create the short distances and fine urban fabric that supported walking then, and still do today. East of Pollock Street, small inlets lapped at the breakwaters of homes; eventually, these inlets were filled with dredging from Taylor's Creek, allowing Front Street to be extended. Not surprisingly, Front Street was the first road in town to be paved, creating a place for young people to skate and ride bicycles. (Bicycles were also used for another good purpose: delivering groceries ordered at Bell's Drug Store and C.D. Jones's grocery on Front Street.) Rail-related transportation curiosities were also evident: the original train entered town backwards over the Gallant Channel trestle, as there was no "wye" to execute a turn. Later, rail buses – literally, a gas-powered bus that ran on the train tracks – proved a more economical choice for transportation during and after the Great Depression. Buses, and in the 1930's after the construction of the airport, air travel, became commonplace in later eras.

While pirates may capture the imagination of visitors, a more influential event was the March 1862 capture of Beaufort by federal troops. Many in town sympathized with the federal cause, and this atmosphere created a relatively safe haven for freed slaves from 1863 onward. A refugee camp named "Union Town" was created in an area north of Broad and Cedar streets and west of Live Oak. African-Americans received education and trades, albeit often attending school in the evenings. This tradition continued when the American Missionary Association and Congregational Church purchased a lot on Cedar Street between Craven and Pollack streets. The Washburn Male and Female Seminary of Beaufort was subsequently incorporated in 1867. Students attended from all over the county during the week, often being boarded by residents before returning to their homes on the weekends. While the two-story school building has been removed, the St. Stephen's Congregational Church built adjacent still stands today at the corner of Craven and Cedar streets. This era is important for many reasons, one of which is that it represents one of the longest, sustained periods of growth in the town's history, 4.2% from 1860 to 1870.

Beaufort "is made up of the descendants of those who came to the area seeking new opportunities and freedom to live as they desired. They came with the courage to establish homes surrounded by woods and water, with nothing but good soil to grow their farms, fish and wildlife to maintain their bodies, and the power of their faith to sustain their souls." Hostile natives, embargoes, earthquakes, war, fires, storms, influenza, and, yes, even pirates have been no match for Beaufort or its inhabitants. The success of Beaufort is a source of both pride and concern, since many love the character, beauty, and historic charm of the town but often view change as a detriment. While tourism has been and remains the top industry, Beaufort is a complete, robust, and working town. The Beaufort Small Area Plan and Bicycle/Pedestrian Master Plan are opportunities to ensure that as change occurs, it happens in a way to support and build upon that history.

*sources:*

*Fleming, Sandy, docent at Beaufort Historic Site, conversation on February 28, 2018.*

*Wilson, Mamre' Marsh, "Beaufort North Carolina," The Making of America Series, Beaufort Historical Association, Charleston, SC: Arcadia Publishing, 2002.*



**Praises on tombstones are but idly spent / Good deeds are man's best monument**

Epitaph of Samuel Leffers, Beaufort schoolmaster, surveyor, and farmer, composed prior to his death in 1822

The citizens of Beaufort are proud of their history and want to preserve and protect the historic feel as Beaufort's Small Area Plan and Comprehensive Bike and Pedestrian Plan move forward. To continue to plan for the future, Beaufort's citizens will need to stay engaged and diligent to not only protect the town's historic and natural elements, but to highlight them for education, celebration, and tourism assistance through the Main Street Solutions Fund Revolving Loan & Grant Program, HUD funding, VEDIC (an Equal Opportunity Lender), USDA Intermediary Re-Lending Program IRP, USDA Micro-Entrepreneur Assistance Program RMAP, Valdese Revolving Loan Program, and the Burke Business Loan Program.

Through several discussions with the town staff, this study began as a corridor review with a focus on Cedar Sand Live Oak streets. It has since evolved into a small area plan with a focus on those two transitioning corridors. In addition, the Town of Beaufort was awarded a grant from NCDOT for conducting this Bicycle/Pedestrian Master Plan. These two projects are combined in this

scope of work to recognize economies of scale, specifically as relates to public outreach, meetings, and coordination. Combining the two projects also allowed for additional products not normally delivered in a bicycle and pedestrian plan of this scale, such as a market analysis and two corridor concept designs.

Ultimately, the new bridge and US Highway 70 Bypass will have a profound impact on the Town of Beaufort. Through traffic and redevelopment patterns are likely going to be altered after the opening of the roadway (which occurred during the preparation of this plan). This massive roadway improvement will certainly affect the level of traffic and multimodal needs of Cedar and Live Oak Streets, as well as the network of two-lane roads that support the Beaufort community. Both key corridors must function as streets for people and cars. The study area encompasses the Town of Beaufort and the existing bicycle and pedestrian facilities, and will work to identify deficiencies in the current facilities to frame recommendations for future improvements.

## Population History

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- 1707 Farnifold Green purchases 780 acres the area of Beaufort.
  - 1718 Blackbeard scuttled his ship the Queen Anne's Revenge in the Topsail Inlet.
  - 1723 November 23, Beaufort was incorporated and five lots were sold
  - 1728 New Town was added with Pollock Street as the dividing line.
  - 1747 The Spanish invaded Beaufort, the local militia forced them to leave.
  - 1764 Samuel Leffers came from New York to be the Schoolmaster in Beaufort and at the school in Straits.
  - 1796 The third Court House was built in the intersection of Ann and Turner Streets. Today it sits, fully restored, on the grounds of the Beaufort Historical Association.
  - 1811 An earthquake in Charleston, SC shook the area.
  - 1850s Public schools were established.
  - 1851 The first steam sawmill was erected on Gallants Channel.
  - 1854 The Atlantic Hotel overlooking Taylor's Creek was built, as were three churches, the Baptist, Episcopal and Methodist.
  - 1863-5 "Union Town" was established on the north side of Beaufort as a refugee camp for freedmen and former slaves.
  - 1867 Washburn Male & Female Seminary and St. Stephen's Congregational Church were built by the American Missionary Society of the Congregational Church.
  - 1885 John Hopkin's established the first marine scientific laboratory in Beaufort.
  - 1899 A laboratory was established by the Federal Government on Piver's Island for marine biological study, known today as NOAA/NMFS/NOS.
  - 1907 The Core Creek Canal was built, and the railroad came to Beaufort.
  - 1910 A library was started in Beaufort
  - 1927 A new road bridge was built over Gallants Channel using Ann Street leading to Morehead City.
  - 1933 The Duke University Marine Laboratory was built on the south end of Piver's Island.
  - 1940s The Menhaden plant was running in Beaufort and surrounding areas.
  - 1950s The Beaufort Historical Association was organized, and NC Maritime Museum started
  - 1970s Urban renewal was begun on Front Street.
  - 1986 Michael J. Smith Field named after US Navy pilot that died in this year as a result of the space shuttle Challenger disaster
  - 2017 Beaufort contracts with Stantec consulting to conduct small area and bicycle-pedestrian plans
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Figure 1 A brief history of Beaufort and some of its important transportation milestones.

# Adopted Plans

History isn't the only influence on Beaufort or its Bicycle and Pedestrian Master Plan. The current Plan cannot and should not be created in a vacuum: other plans and policies put into place before it still resonate today, and therefore have to be incorporated, or at least identify where potential conflicts exist.

Fortunately, there are very few conflicting statements that do not support a walking and biking environment. Beaufort and its citizens have consistently backed measures to create better walking and cycling environments. Examples include a call for street trees, wayfinding signage, lighting, gateway treatments, park construction, educational programs, and overlay districts that specify design details.

## Parks & Recreation

### Comprehensive Plan (2011)

Updated in 2013, this Parks & Rec Plan supports a number of relevant biking and walking concepts.

Relevancy to this Plan:

- Connection of water access sites to a comprehensive greenway system
- Be a bike-friendly community
- Two of the top four survey responses were walking and biking trails
- Recognizes Beaufort Bike Trail



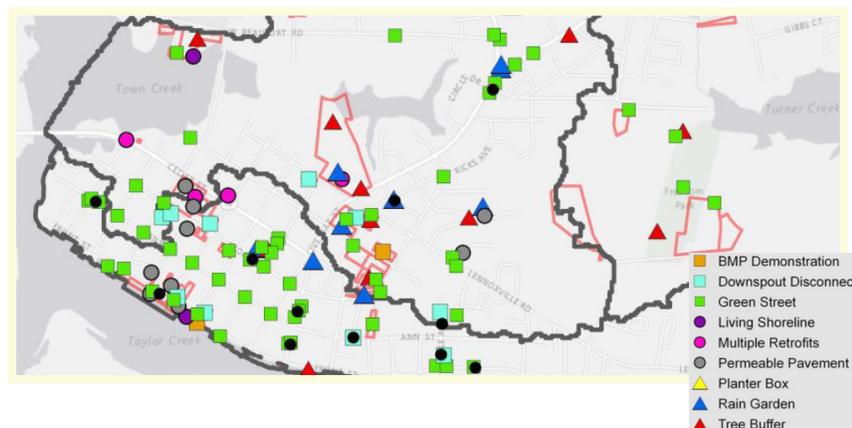
### Watersheds Restoration Plan (2017)

This plan, reviewed in draft format, purports to provide “an overview of the past and present conditions of the Beaufort Watersheds and proposes methods and strategies intended to reduce the volume of stormwater runoff to improve water quality in the watersheds.” Community outreach, implementation schedules, and monitoring are key components of this plan to help improve water quality and manage stormwater flooding.

Relevancy to this Plan:

The long slate of potential projects described includes rain gardens, planting trees, installing planter boxes, and financing educational programs that include a walking tour.

Image: Potential projects



### Entry Master Plan (2012)

Beaufort wanted to be prepared for the future changes that the new alignment of US Highway 70 will bring. This Entry Master Plan was done to guide the creation of the new gateways and corridors that Highway 70 will create. The purpose of the Beaufort Entry Master Plan is to provide recommendations for the following components: beautification, gateways, and wayfinding projects throughout the town.

Relevancy to this Plan:

- The Plan reinforces human-scaled signage and wayfinding, pedestrian- and bicycle-oriented transportation, and aesthetics - important components in this Bicycle and Pedestrian Master Plan.
- Turner Street – Turner Street will become the new gateway into the Historic District. This includes a proposed bridge on Turner Street.
- NC-101 will be a major entrance into the Town of Beaufort for locals and commercial traffic. The entry corridor will be anchored with two gateways at the US Highway 70 and Live Oak Intersections.

## Comprehensive Bicycle Plan (2009)

In 2009, Beaufort took a step towards becoming more bicycle friendly by creating its Comprehensive Bicycle Plan. The vision of this Plan was to help Beaufort become a town where it is safe to ride a bicycle both on and away from the roads as part of an integrated policy framework and transportation system that connects Beaufort's citizens with each other and the places we want to reach. To meet that vision, this Plan studied the Town and its zoning jurisdiction and provided recommendations on physical infrastructure, programs, policies, and implementation concepts that will help Beaufort to improve its overall cycling environment, increase safety, and encourage more cycling for all types (skill levels) of bicyclists.

### Relevancy to this Plan:

- Recommends improvements to intersections at Live Oak/Campen and Carrarway Drive/Live Oak.
- This plan calls for sharrows along Live Oak Street, where the Small Area Plan wants to improve upon that and add bike lanes.
- Calls out Rails to Trails plan for abandoned Railroad Tracks from Live Oak Street to Stanton Road, much like the concept design in the Small Area Plan.
- Considers safety, and suggests educational programs to help drivers and cyclists interact in a safe manner on the roads.
- Recommends that bicycle accommodations are considered in every new development review, policy, ordinance and resolution.
- A wide range of construction projects were identified and to make Beaufort more bicycle-friendly. Thirty-seven projects were identified as areas that could introduce more bike-friendly measures.
- Bicycle facilities will increase tourists who enjoy biking and offer activities that will ultimately extend their stay and create commerce.



- Front Street Bike Route has been signed as outlined in the Comprehensive Bike Plan
- Plans to improve Mulberry Street/Lennoxville are recommended in both plans,



## Croatan Regional Bicycle and Trails Plan (2014)

The purpose of the Croatan Regional Bicycle and Trails Plan is to identify multijurisdictional bicycle routes and trail corridors that will connect communities and destinations throughout the region. A network of bicycle routes and trails is sought that can be used by pedestrians and bicyclists of all comfort levels to provide for the needs and enjoyment of locals and visitors alike. Trail corridors through the Croatan National Forest and parts of the surrounding counties, including a preferred route and alignment for two major statewide and multi-state trails that intersect in this region: the North Carolina Mountains-to-Sea Trail and the East Coast Greenway.

### Relevancy to this Plan:

- Provide a safe environment for bicyclists and pedestrians
- Provide a well-designed, connected, and convenient network of on-road bicycle facilities and trails for pedestrian and bicycle transportation
- Boost tourism and economic vitality
- Encourage healthy, active lifestyles for local residents
- Reduce traffic congestion

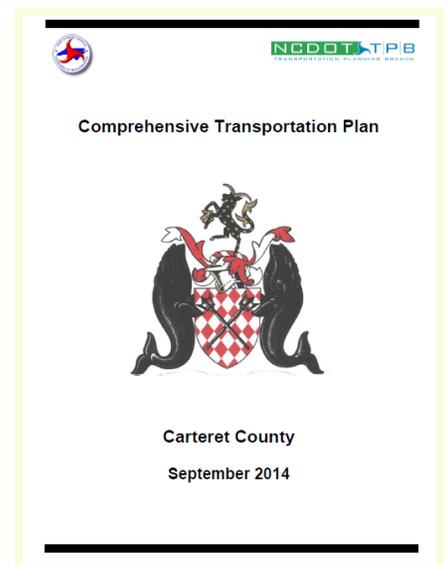
## Carteret County Comprehensive

### Transportation Plan (2014)

In February of 2010, the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) and Carteret County initiated a study to cooperatively develop the Carteret County Comprehensive Transportation Plan (CTP), which includes the following municipalities: Atlantic Beach, Beaufort, Bogue, Cape Carteret, Cedar Point, Emerald Isle, Indian Beach, Morehead City, Newport, Pine Knoll Shores, and Peletier. This is a long-range multi-modal transportation plan that covers transportation needs through the year 2040. Modes of transportation evaluated as part of this plan include: highway, public transportation and rail, bicycle, and pedestrian.

### Relevancy to this Plan:

- The county plans calls for bike and pedestrian improvements at the Live Oak Street and Campen Road intersection.
- The SmallArea Plan expands on the county's plan to updated bike and pedestrian facilities along Live Oak Street beginning at Cedar Street.
- Focuses on making it easier for travelers to get where they need to go.
- Encourages the use of alternative forms of transportation.
- Emphasizes building a more sustainable community centered around alternative modes of transportation.
- Recommends increasing connectivity between neighborhoods, streets, and transit systems. Highlights the need to improve safety for pedestrians, cyclists, and motorists.

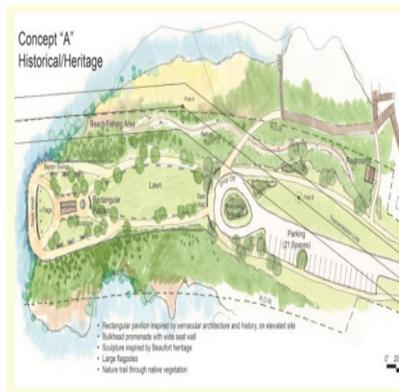


## Cedar Street Waterfront Park (2016)

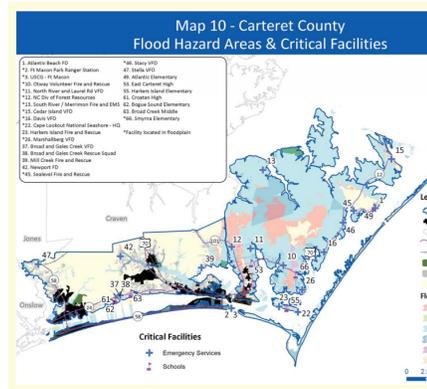
Cedar Street Park will be a wonderful addition to the Town of Beaufort. The park will be designed by architect Susan Hatchell with Landscape Architecture PLLC. The park features a 21-space parking lot, a turn-around/drop-off area, bicycle parking, restrooms, picnic areas, weaving paths, and elevated site, seat steps, a lawn area, bench swings, and a fishing bench area. The plan includes designs for part of Cedar Street leading up to the park. It proposes a two-lane street with a 10-foot wide, multi-use path on its south side. Additional street lighting and planting areas are also included in the design. Park construction will not begin until after the completion of the new Gallants Channel Drawbridge.

### Relevancy to this Plan:

This park highlights many components of what the Small Area Plan is trying to achieve. The park wants to bring a sense of “Beaufort-ness” to it. This park would be an extension of the Historic District which will attract tourist who are visiting nearby. The park is incorporating a multi-use path, which is vital for pedestrians and bicyclists. You will be able to see the park from the new Highway 70 as you enter Beaufort.



*Awarded for its efforts: Beaufort has made great strides in preserving and managing the community tree canopy, and was named a Tree City in 2015 as a result*



## Pamlico Sound Hazard Mitigation Plan (2015)

The following focus areas define the various aspects of mitigation and provide guidance toward the development of a truly comprehensive solution to mitigation planning.

- Prevention Mechanisms include regulatory methods such as planning and zoning, building regulations, open space planning, land development regulations, and stormwater management.
- Natural Resource Protection can soften hazard impacts through mechanisms such as erosion and sediment control or wetlands protection.
- Emergency Services measures include warning, response capabilities, Town critical infrastructures protection, and health and safety maintenance.
- Structural Mitigation controls natural hazards through projects such as reservoirs, levees, diversions, channel modifications and storm sewers.
- Public Education includes providing hazard maps and information, outreach programs, real estate disclosure, technical assistance and education.
- Craven County will take the lead in undertaking all strategies outlined within this plan relation to the region overall, with support and assistance from Beaufort, Carteret, Hyde, and Pamlico counties, as well as participating jurisdictions.

## Land Development Ordinance (2013)

The purpose of the LDO is to promote the health, safety, and general welfare of Beaufort’s citizens. Within the town corporate limits and the Extra-Territorial Jurisdiction (ETJ), the ordinance’s intent is to:

- Regulate the use of all structures and lands
- Regulate lot coverage, population density and structure, and the location and size of all structures
- Regulate development

The LDO creates several designated zoning districts including: Residential, Transitional, Nonresidential, and Overlay.

### Relevancy to this Plan:

This Ordinance document provides guidance for residents and business owners on how land may be developed within the town. The ordinance controls zoning, subdivision of land, building appearance, landscaping, signs, parking and other aspects of development - all elements that contribute to a quality walking and biking environment. Regulations that are done well provide clear guidance to developers and support important town objectives without unduly restricting innovation in design, financing opportunities, or economic growth. Ordinances regulate the design of the built environment including streets, sidewalks, greenway provisions, bicycle parking in new developments, signage, landscape and appearance, subdivisions, land use, and density. Also describes requirements for streetscaping, such as tree planting type.

*Image: Beau Coast, WithersRavenel*



# Existing Conditions

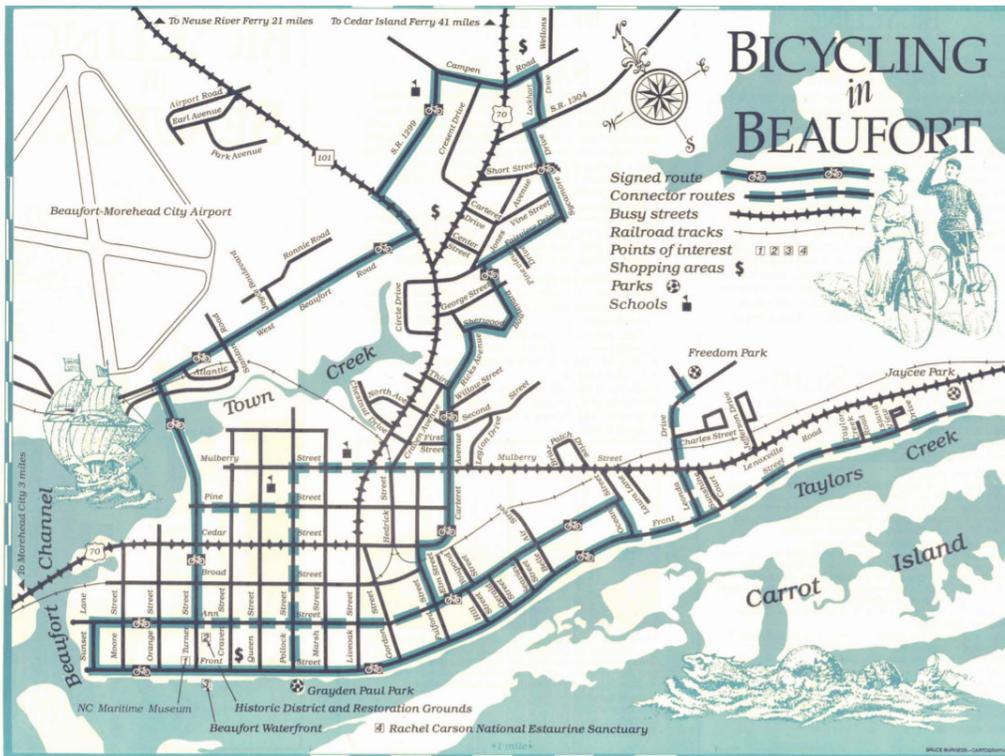
The current walking and biking conditions are important to us, since without knowing where you are you can't understand how to get to your destination. People, data, and hours spent in the community walking and biking informed this piece.

Beaufort is located in Cartaret County. Beaufort is located on Beaufort Inlet, a channel leading to the Atlantic Ocean. US Highway 70 passes through Beaufort, leading west across the Newport Rive to Morehead City and northeast approximately 30 miles to its end in the town of Atlantic.

Currently there are 211 centerline miles of roads and 15.6 miles of existing sidewalk in Beaufort. Figure 2 identifies the existing facilities in the Town. A tour of the town reveals many intersections are currently signalized, but lack pedestrian signals and/or crosswalks and many high-traffic corridors lack sidewalks on both sides of the road. Beaufort includes one official NCDOT Bike Route. The route, created in 2009, points the way with green and white bike route signs which mark a six-mile loop around downtown. Currently, there are no existing bike lanes, multi-use paths, or 4' paved shoulders. Future proposed bicycle facilities will better connect the historic district with the grocery and hardware stores located north of town.

From April to October, Beaufort's tourism season is in full swing. Many tourists enjoy walking and biking through the historic district, but the town lacks the proper facilities to do so safely at all times. NCDOT reports 28 bicycle and pedestrian crashes from 2007-2014. This includes Live Oak Street and Turner Street. Over 40% of residents surveyed reported they do not feel safe at all as a pedestrian on Live Oak Street. Other roads that could see pedestrian improvements include the cross streets running east to west in the Historic District.

The Historic District is where a majority of residents and tourists frequent. Front Street provides waterfront access and many great restaurants. Most of the Historic District streets carry a low volume of traffic making it safe for bicyclists and pedestrians, but the following streets do not provide an adequate level of service for bicyclists: Cedar Street, Turner Street, Live Oak Street, and Craven Avenue. Forty percent of residents would like to see bike lanes adjacent to vehicular traffic. This measure would greatly improve the level of service provided to cyclists and improve connectivity in the process.



Beaufort's Bike Route Map



Beaufort Bike Route Signs

Road Name	Ownership	Lane width
Live Oak Street	NCDOT (SR 1440)	12-foot lanes
Cedar Street	Town	12-foot lanes
Turner Street	NCDOT (SR 1174)	11-foot lanes
Pine Street	Town	11-foot lanes
Front Street	NCDOT (SR 1312)	12-foot lanes
Mulberry Street	Town	11-foot lanes

Road Ownership in Beaufort

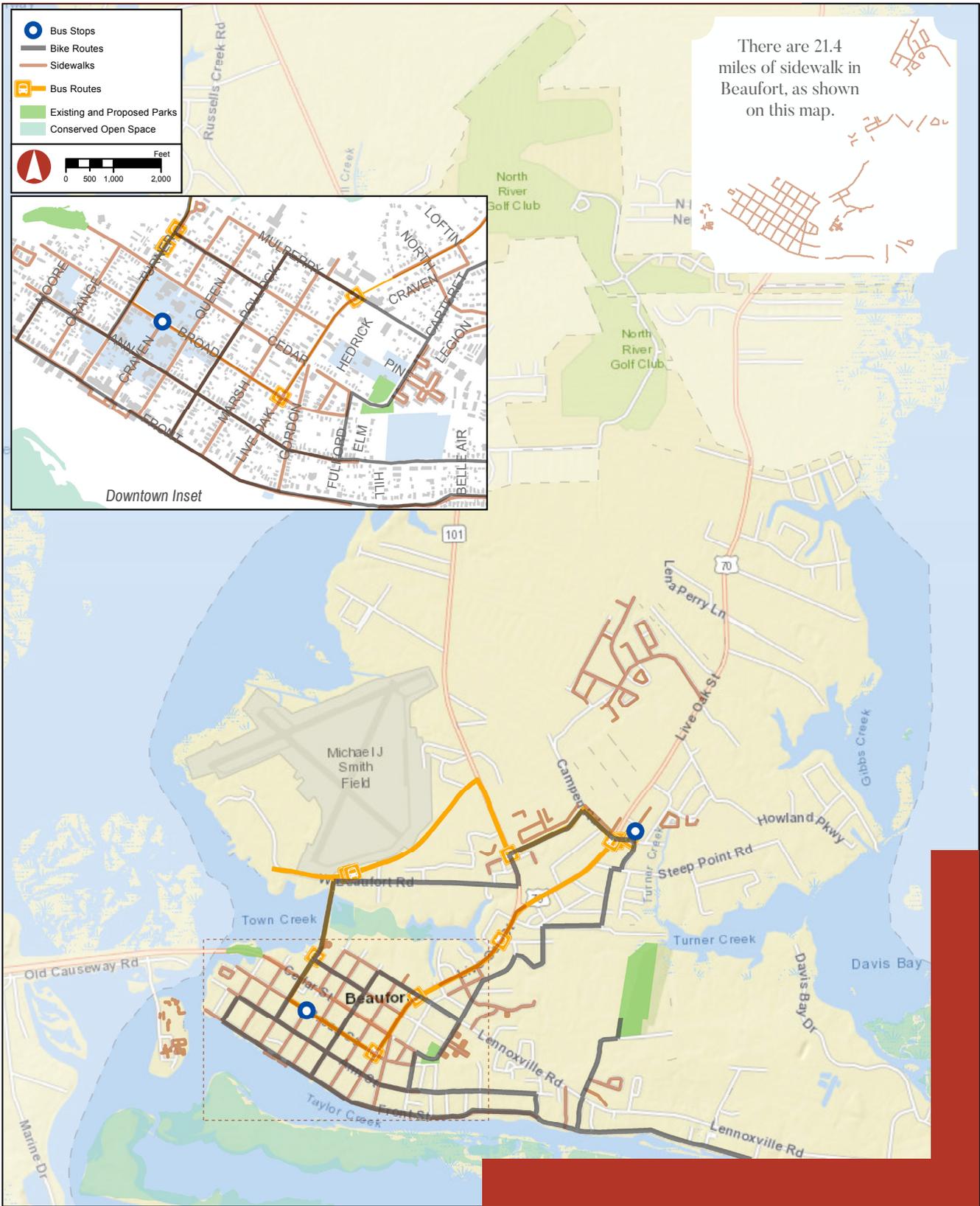


Figure 2: Bicycle and Pedestrian Facilities, 2018

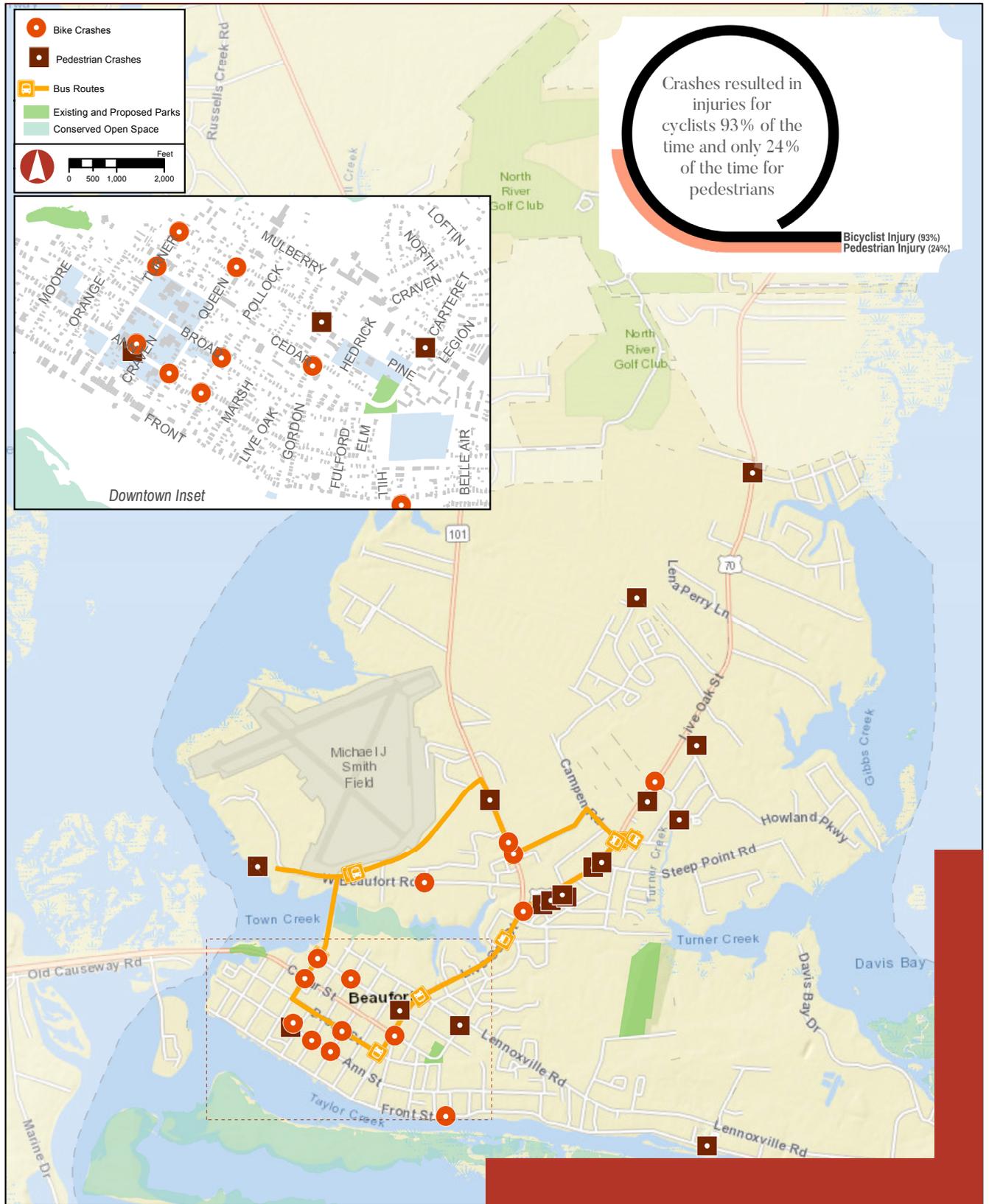


Figure 3: Reported Bicycle and Pedestrian Crashes, 2007 - 2014

# Health and Economic Benefits

Having a bicycle and pedestrian friendly community will increase physical activity and promote better health among all citizens of Beaufort. Some of the health benefits associated with bicycling and walking include reduced risk of heart disease, stroke, and other life-threatening illnesses. Older adults can also benefit from bicycling and walking. Regular exercise provides myriad health benefits for senior adults including a stronger heart, a positive mental outlook, and an increased chance of remaining indefinitely independent—a benefit that will become increasingly important as our population ages in the coming years. Bicycling and walking as a form of exercise can help bikers regulate their blood pressure. Regular exercise boosts high-density lipoprotein (HDL), or “good,” cholesterol while decreasing low-density lipoprotein (LDL), or “bad,” cholesterol. Bicycling and walking can help to improve your mood, combat chronic diseases, manage your weight, strengthen your heart and lungs, promote better sleep and can be fun.

Bicycling is an affordable mode of transportation. Implementation of the plan will create a sense of connectivity in Beaufort that will increase opportunities for further economic development within the Town, such as increased tourism and off-season boaters. Bicycling facilities will make visiting bicyclists feel safer in an unfamiliar area. In 2007, the American Automobile Association (AAA) determined that the average cost per mile to operate a motor vehicle is 62.1 cents (based on traveling 10,000 miles in a year). Bicycling costs less than driving; therefore, people will save money on fuel costs and have more money to spend on other things. Since Beaufort’s economy benefits from tourism, visitors who bike are more likely to stay longer and return to the area if bicycling facilities are available and they have a good experience. Providing bicycling facilities in Beaufort may increase sales at local restaurants and retail stores. Other economic benefits of bicycling include reduced health care costs and reduced dependency on auto ownership.

# Public Involvement

Two surveys, an interactive map that allowed people to point out issues and another survey with tailored questions in paper and on-line formats, formed some of the broad public engagement for the Beaufort Bicycle and Pedestrian Master Plan. Focus groups and two public meetings or workshops (charrettes) were also conducted, as was a walk audit of Live Oak and Cedar streets. Perhaps most importantly, an Advisory Committee was formed to help oversee the process and provide input to the planning process at several points. This Committee was formed of private business owners, residents, NCDOT, and town staff representing law enforcement, planning, parks/recreation, and management. Collectively, these sources provided a wealth of detailed information that is represented on the following pages.



**Project Symposium** participants did visual preference and anonymous, instant polling.



Walk audit on a cool day in Beaufort. Participants completed surveys about what they liked (or not).



(Above) Focus groups informed us about details on specific issues and ideas for the Plan.



(Right) People report out. Peter, top-right, is an advocate for sight-restricted and overall walking improvements



The first Project Symposium generated many ideas from its attendees, compiled later to produce this map.

Figure 4

# PUBLIC MAPPING EXERCISE RESULTS

## KEY TAKEAWAYS



Live Oak and Cedar Streets identified as main corridors for vehicular, bike, & pedestrian improvements



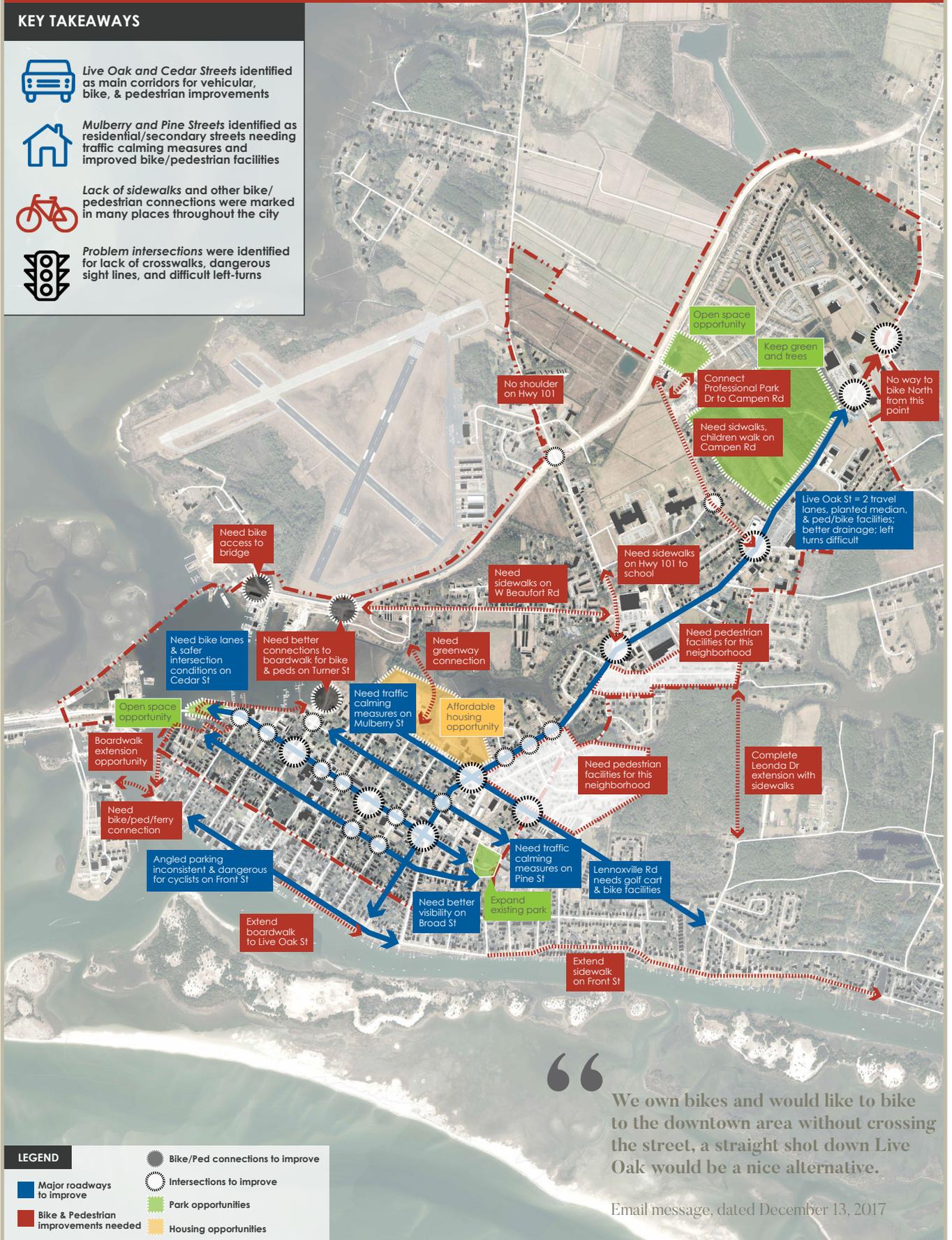
Mulberry and Pine Streets identified as residential/secondary streets needing traffic calming measures and improved bike/pedestrian facilities



Lack of sidewalks and other bike/pedestrian connections were marked in many places throughout the city



Problem intersections were identified for lack of crosswalks, dangerous sight lines, and difficult left-turns



### LEGEND

- Major roadways to improve
- Bike & Pedestrian improvements needed
- Park opportunities
- Housing opportunities
- Bike/Ped connections to improve
- Intersections to improve

“ We own bikes and would like to bike to the downtown area without crossing the street, a straight shot down Live Oak would be a nice alternative.

Email message, dated December 13, 2017

One of the advantages of conducting this Master Bicycle and Pedestrian Plan alongside the Small Area Plan was that a market analysis was completed for Beaufort that helps inform the demographics of the Town.

Population growth for comparable coastal communities has been modest over the past two decades, at least compared to some of the similarly sized towns closer to major metropolitan areas such as Charlotte or Raleigh. The Beaufort East Village and related developments have been approved for 791 units to be phased in over 10 years, potentially adding more than 1,500 residents based upon the historic household size of just under two people.

Beaufort has retained a working-age population, unlike more retirement-oriented communities such as Oriental or Ocean Isle. The Town has also kept some diversity in its population compared to several of its peer coastal communities, with an age composition (12% children under 15), household income (\$44,539), and average household size (1.96) that represents a balanced population, split among seniors (25% of the population) and families headed by working-age adults (63%). The study area has a generally lower income and considerably higher walk/bike-to-work rates (nearly 22%). **At right: Beaufort's renter-owned properties tend towards more one- and two-car households than resident-owner households.**

DEMOGRAPHIC PROFILE OF BEAUFORT  
US Census, ESRI Business Analyst Online

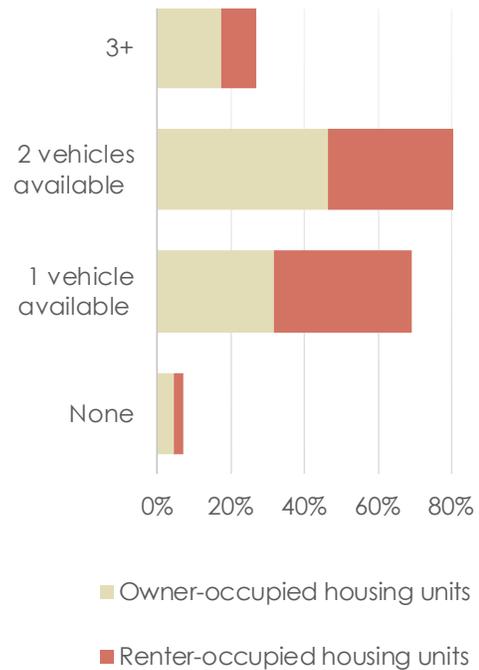
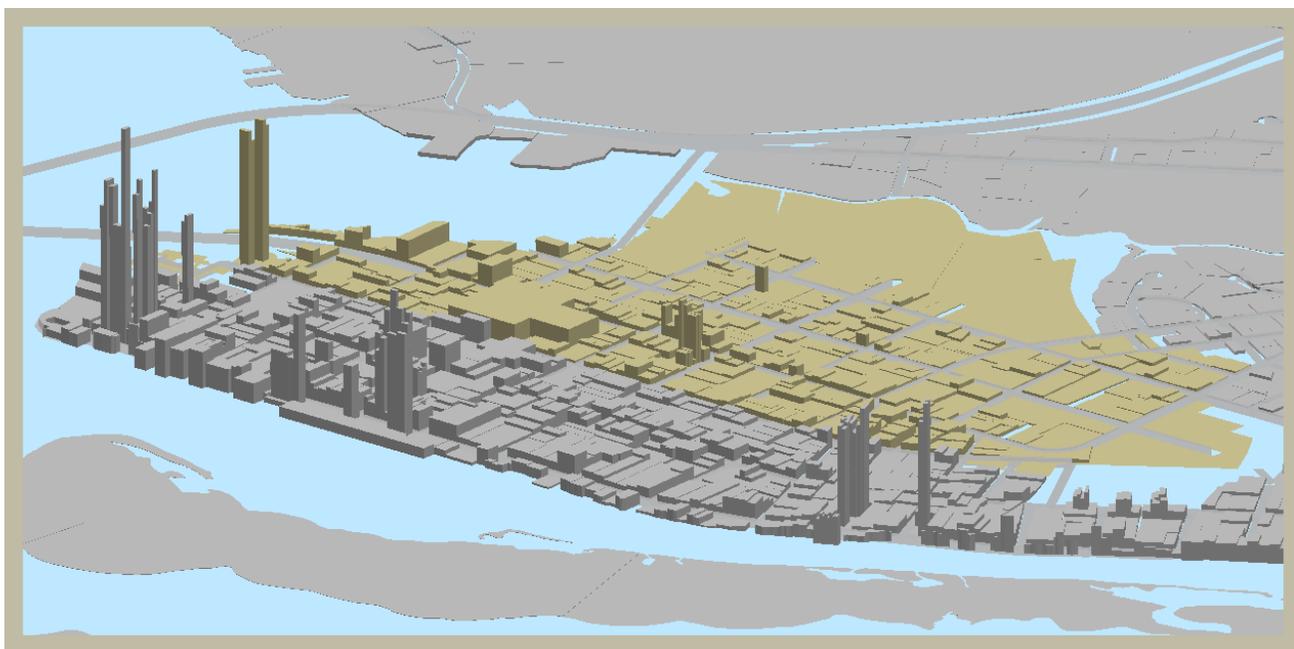


Figure 5



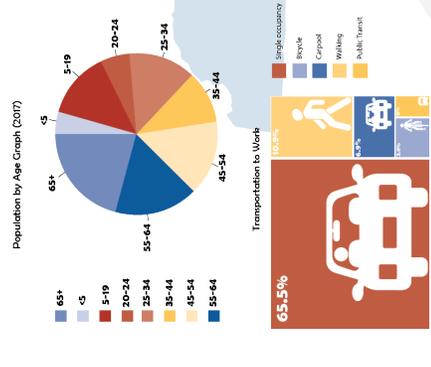
Property values (showing small-area study boundary in lighter color)

source: parcel database, Town of Beaufort

# Demographics & Economics Comparisons



Sources: US Census Bureau 2010-2015 Estimates; Housing Added forecasts based on demographic forecasts and current household size and own/rent propensity; NCDOT Crash Data from 2014 to 2017; US Census 1990-2015; NC Budget & Management County and State Forecasts; Woods & Poole (Carteret); trend line forecast for municipal values; 2020 through 2040; N.C. Labor & Economic Analysis Division Quarterly Census Employment & Wages (Carteret County); Woods & Poole Moorehead Micropolitan 2017 (for growth rate)



### Bicycle and Pedestrian Crash Data

Municipality	2014-17 Total		Mode		Fatalities	
	Bike	Ped	Bike	Ped	Bike	Ped
Beaufort	28	13	13	0	0	0
Swansboro	6	3	3	0	0	0
Morehead City	77	25	25	0	0	0
Elizabeth City	90	40	40	0	0	0
Oriental	1	0	0	0	0	0
Ocean Isle	5	2	2	0	0	0
<b>North Carolina</b>	<b>28430</b>	<b>7867</b>	<b>152</b>	<b>1340</b>	<b>2</b>	<b>8</b>
<b>Carteret County</b>	<b>256</b>	<b>149</b>	<b>2</b>	<b>8</b>	<b>0</b>	<b>0</b>

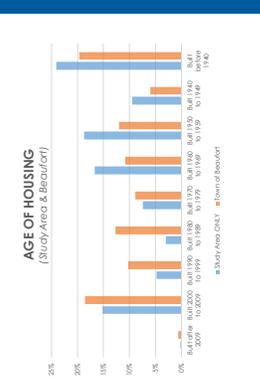
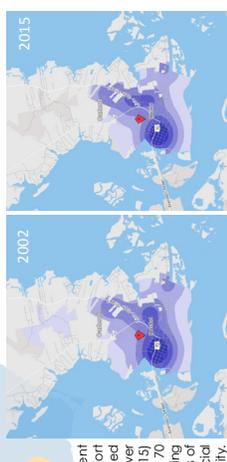
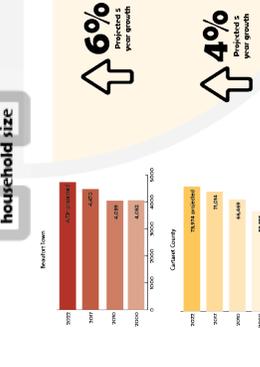
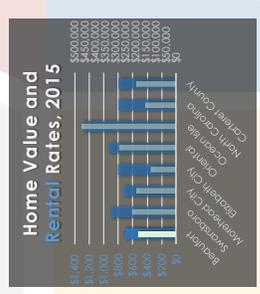
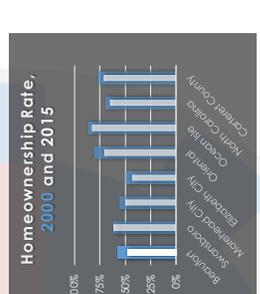
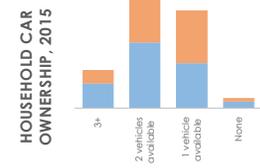
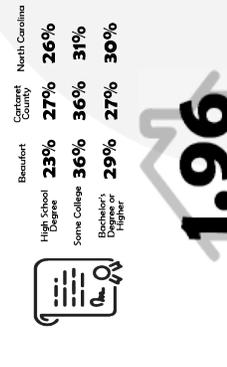
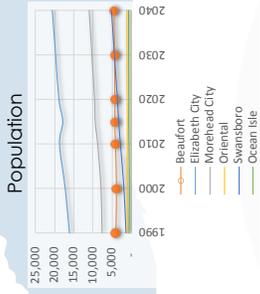
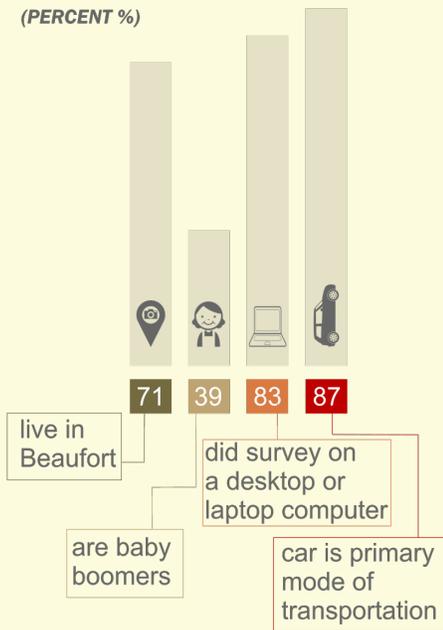


Figure 6 Demographic summary sources: US Census, US Business Census, NC-DOT

**OUR SURVEY RESPONDENTS...**  
(PERCENT %)



**OTHER SUPPORTING STATEMENTS...**

- No. 1: Greenways & Trails as most desirable public space in Beaufort
- No. 1: Providing for All Modes of Transportation is most important transportation issue in Beaufort
- No. 1: Better Street Maintenance as the best way to improve street appearances (No. 2: street trees and lighting)

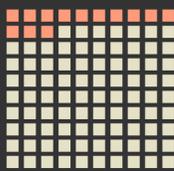
The infographics and statements on this page came directly from the results of an on-line survey (some paper results are also added from meeting participants). The survey captured the opinions of 67 people, so the results may not be entirely representative of the population.

Generally, people were supportive of greenways, bicycle parking, improved maintenance (the Town was undergoing a substantial investigation of street conditions during the preparation of this Plan), and accommodating all modes of transportation. Some countering opinions about concerns with bikes, pedestrians, golf carts, and cars all being on the same road were voiced, as were general concerns about speeding traffic and increasing traffic pressures from current and proposed developments. Distance and safety were the most-often stated reasons why people did not take an active mode of transportation now.

Survey Responses (n=67)  
compilation of survey responses and comments

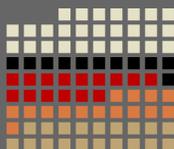
**87%**

of people that don't use an alternative mode of transportation (bike, walk, or transit) now said that they have thought about it...



...but don't do it now because:

- Too Far (22%)
- Not Safe (17%)
- Not Convenient (17%)
- Don't Want or Unable to Bike / Walk (13%)
- Some Other Reason



**No. 1**

The biggest issue facing transportation needs in Beaufort is that infrastructure isn't keeping pace with new development. (33%)  
*Hard to get around on foot or by bike: 25%*



“

**Bike racks at grocery store, post office, restaurants**

Survey Respondent, December 22, 2017

“

Cars are too fast, and places to ride bikes and walk are limited and dangerous

Survey Respondent, January 4, 2018

“

I used to bike in beaufort for commuting and exercise. I don't anymore, it is just too dangerous...

Survey Respondent, December 15, 2017

“

Concerned about the increased traffic that we will have on Lennoxville Road

Survey Respondent, December 5, 2017

**PUBLIC MEETING & PROJECT CHARRETTE HERE!**

MEETING:  
TUES, FEB 27 -- 5:30 PM - 7 PM

CHARRETTE:  
TUES, FEB 27 -- THURS, MAR 1



When asked, "What Makes Our Place," the top answer given was:



**"Walking and Biking should have a level playing field with cars –every place should be reachable by walking or biking, safely."**

If (re)development is to occur, what type would you support in Beaufort?



Pick the top places to reach by bicycle or walking.



What traffic calming techniques do you prefer?



How can we improve our streets?



How would you rate the quality of your streets for attracting new business and redevelopment?



What do you value the most in your streets?



The images on this page are derived from the Project Symposium, illustrating the opinions of the participants on an array of topics, from traffic calming to quality-of-life valuations.

People attending the meeting preferred intersection improvements as a way of improving traffic and safety; mixed-use development; and reaching parks/recreation areas and downtown (schools were cited as the third most-chosen answer). Again, maintenance was a significant concern voiced repeatedly.

The image below shows a preference for bicycle lanes (although survey respondents made it clear that separated facilities were also popular), street trees, and highly visible crosswalk treatments.

**Project Symposium  
Polling and Visual Preference Survey Results**



# "DOT" MOCRACY PREFERENCE SURVEYS

As the Town of Beaufort considers traffic calming measures, access management techniques, and multi-modal mobility, they would like your input on the types of facilities you would like to see in your community.

## Multi-Modal Transportation

**Bicycle Facilities: Which is your preferred approach to cycling facilities? Choose up to 3.**



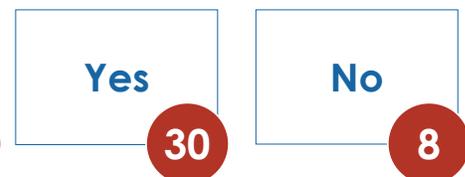
**Streetscape: Which elements are most important to you? Choose up to 3.**



**Crosswalk Treatments: What is your favorite?**



**Would you like to see on-street parking on Cedar Street?**



# Directions

what's it mean?

---

The data presented in the previous pages represents the project team's best understanding of the conditions that currently influence walking and bicycling in Beaufort. The data only tells a portion of the story, however, and the study relies heavily on citizen input to help gain a more detailed understanding of the project and study area. The principles at right reflect how the project team interpreted this information, and how it in turn shaped project, program, and policy recommendations presented in the subsequent sections of the report.

## Guiding Principles

Beaufort is an attractive coastal community for its citizens, businesses and visitors alike. The community has done a wonderful job of keeping its waterfront vibrant, active and attractive. However, for select areas outside of Front Street, there are challenges that make it difficult to traverse as a pedestrian and bicyclist. With the construction and opening of the Beaufort Bypass, traffic is expected to shift and divert from some corridors while potentially adversely affecting others through increase in cut through traffic. Once plagued with high levels of through traffic and crashes, some corridors like Cedar, Turner, and Live Oak are now facing different challenges from changes not only in traffic but from development and redevelopment. Safety is an issue, but one that is more related to speed on major streets (cyclists) or encounters in parking areas (pedestrians). Both maintenance of existing sidewalks and a lack of facilities, particularly connecting the historic waterfront areas to the newly developing residential areas to the east and north sides of town, are important issues. Based on the direction provided by the community, its leadership, NCDOT, development community and residents, the following Guiding Principles were developed to guide the design team along the planning process. It is here that the core values were applied to decisions related to Complete Streets, stormwater, multi-modal elements, safety, and development within Beaufort's street network.



### Principle #1: Pedestrian and Bicyclist Considerations Come First

Every great community and successful downtown has three characteristics in common – they are walkable, safe for ALL users and attractive. Just as important, every downtown street priority should be for pedestrians and bicyclists. In Beaufort, walking and (later) biking have been ways of life for three centuries, and the town is organized around active, human-scaled transportation. This Plan should focus on retrofitting quality design features for bicycle and pedestrian facilities along and across select street network: where mobility trade-offs with cars happen, the pedestrians



### Principle #2: Stormwater and Maintenance are Important Here

Street maintenance has become an issue for the Town of Beaufort. The Town is trying to catch up on simple maintenance, utility coordination, and fixing crumbling infrastructure (i.e., sidewalks, curb & gutter, and signals). Neglected for decades, the stormwater issues (i.e., flooding) along some segments of Beaufort's street network has become problematic and a safety issue for the traveling public regardless of their choice of mode. Addressing these long-standing problems will enhance environmental stewardship and create opportunities for constructing curb ramps,



### Principle #3: Safety is a Priority for Everyone

Part of creating pedestrian- and bicycle-friendly environments is the concept that a street should be safe for everyone to move across and along. Many of the comments received from the public invoked safety-related language, whether it be a lack of crosswalks, lighting, unsafe design, missing sidewalks, and bikeways. As traffic patterns change and development/redevelopment intensifies within the Beaufort community, safety concerns are likely to increase. Safe Routes to School (SRTS), bicycle safety clinics, and other programs can be inexpensively implemented and help



### Principle #4: Quality Design is as Important as Quantity

Anyone that has walked down a street with high-speed traffic on one side and a blank wall on the other understands the relationship between street design and urban design. The function of our streets are more than how rapidly it can move people and things through space, streets serve as a way of getting to jobs, businesses, neighborhoods, upholding land values, and encouraging favored redevelopment. Policies that support the creation of an aesthetic environment through the use of improved streetscaping details, building / corridor design standards, access management,



### Principle #5: Connectivity Supports a Lot of Other Objectives

Repeatedly, people noted the importance of connectivity to travel - and with a beautiful historic grid like Beaufort's, it is easy to understand why connectivity is more popular here than in other, newer places with more separated developments that divide communities and create longer, more car-oriented trips. Filling sidewalk gaps, creating new pathways, and making street crossings more accessible to the young, infirm, elderly, or mobility challenged is sometimes a matter of large, visionary projects but more often relies on consistent implementation of small-budget,





# Facility Recommendations

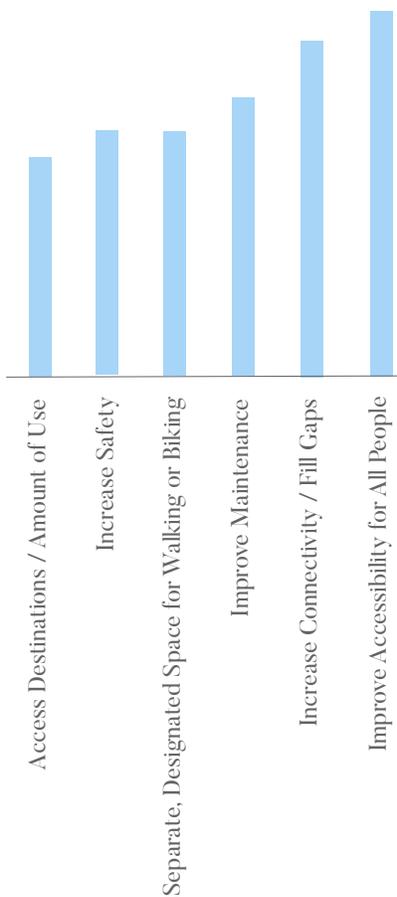
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# Projects

The physical recommendations for improving streets, making pedestrian crossings safer, and installing bicycle facilities get the most attention in this Plan, although they are not the only kinds of meaningful actions Beaufort can take. The following chapter includes a listing and map of proposed projects, cost estimates and priority ranking information.

Beaufort, along with partners like NC-DOT and private developers, has already undertaken many past projects to install and repair sidewalks, signals, crosswalks, signage, and other treatments to enhance biking and walking around the town. The projects (locations) chosen were identified primarily by the public; these projects were prioritized based on input from the Steering Committee at the outset of the project, as well as public input. Opinions of probable costs play a factor in the prioritization of projects: lower-cost projects are more likely to be completed. Implementation funding opportunities and program and best practice resources are described in the final chapter of this Plan. The Steering Committee noted both accessibility and connectivity as higher priorities for new projects, but also said that maintenance was a primary concern. These priorities were mirrored by the public, with the additional insights of emphasizing intersections and aesthetics. This input was used to prioritize projects. Note that some metrics (e.g., a location near a school) are products of the project location, while other metrics (ADA accommodation) are part of the project design. Also mapped are proposed accessibility improvements (e.g., accessible curb ramps) identified by NCDOT in 2017. Generally, these projects are all viable, and the opportunity to complete a project should be taken regardless of priority.

The project scores can be found in Appendix A.



PRIORITIZATION FACTORS & WEIGHTS	
<b>Access to Destinations / Use within 1/4-mile of project</b>	
1	School
1	Neighborhood
1	Tourist Destination
1	Commercial District
1	Library, Park or Rec Center
<b>Increase Safety</b>	
1	Bike / Ped Crash (each)
1	Poor Geometry
<b>Separate Space</b>	
1	Increase Buffer from Road
1	Bike Lane or Buffer
1	On-Street Parking
<b>Improve Maintenance</b>	
1.3	Update to Existing Facility
<b>Increase Connectivity</b>	
1.5	Connects to Existing Facility
<b>Increase Access for All People</b>	
2	Detectable Warnings
2	ADA Accommodation
2	Other (e.g., signage)

Map (left) and Charts (top): Project Priority Factors and Weights  
 - Sources: Steering Committee, October 30, 2017 and Public Input

# System Plan Element Priority Scores



Figure 7: System Plan Element Priority Scores

As Beaufort continues to grow, this Plan can be a useful tool to guide future needs. The build-out plan identifies projects that should be considered when developing future budget needs. At times leaders may see an opportunity for moving forward with a project sooner than anticipated. The plan must be flexible enough to change with an evolving and growing community. Priority should be given to the ideas that help achieve the Town's vision through innovative design. These ideals, along with this Plan, will help Town leaders prioritize the best projects.

The projects were organized by score to determine the appropriate phased implementation schedule. Projects which received high ratings were placed in the short-term project category, whereas projects with low ratings were placed in the long-term project category. Mid-term projects included those projects that fit in between the lower and higher ratings. By organizing projects in a short-term, mid-term, and long-term fashion, the Town has a list of projects that it can implement quickly in order to take immediate steps towards making Beaufort more pedestrian-friendly in the interim before more intensive, long-term projects are undertaken.

This section describes the project build-out schedule as well as the opinion of probable costs estimated using a NCDOT project cost estimator workbook. Project costs shown in the report include estimation of Right-of-Way, environmental documentation, construction, and contingency fees associated with project construction. Development constraints can hinder project development. Data may

be present a project as the best solution in the short term with a reasonable price to address issues hindering an area. Further studies can reveal issues that can send the cost of a project soaring or and cause major delays. With the locality of Beaufort near the coast of North Carolina and less than 10 feet above sea level, flooding can be a significant issue. Stormwater improvement projects are beneficial and needed but are often accompanied with a high cost.

Projects recommended in the section include sidewalk facilities, crossing improvements, signage and pavement marking needs and bicycle facilities. Attention to traffic volumes, safety concerns, connectivity, community needs and overall improvement needs were considered when making recommendations for the Town. Typical facility recommendations include 6' sidewalks, 12' travel lanes, high-visibility crossings near schools and high pedestrian activity areas, pedestrian signals, sharrow markings, bike boulevards and bicycle lanes. In general, the projects have common design features. Design guidelines can be found in the Guidelines section of the report. Recommendations were determined after carefully understanding the needs from Town leadership, citizens and stakeholders. Along with input, best practices were reviewed from similar Towns such as New Bern and Morehead City to determine projects that would be most successful for Beaufort.

Detailed information on the project rankings can be found in Appendix A.



Rendering outlining recommendations from the 2018 Beaufort Small Area Plan- Cedar Street

Construction Cost	Sidewalk (0.25-mile)	Bicycle Lane (0.25-mile)	Shared Use Path (0.25-mile)	Mid-block Crosswalk (1)	Paved Shoulder (0.25-mile)	Pedestrian Intersection Treatments (1)	Bicycle / Pedestrian Bridge (100 ft)	Shared Lane Markings (0.25-mile)
Minimum Cost	\$25,760	\$33,153	\$12,393	\$3,340	\$20,532	\$14,343	\$122,992	\$7,781
Percentile (10)	\$50,320	\$54,366	\$25,380	\$3,542	\$29,324	\$16,133	\$124,934	\$11,528
Percentile (25)	\$65,571	\$77,505	\$32,236	\$3,809	\$41,226	\$20,081	\$126,062	\$16,355
Percentile (50)	\$89,364	\$112,490	\$46,152	\$4,323	\$64,468	\$24,546	\$128,121	\$26,185
<b>Average Cost</b>	<b>\$82,918</b>	<b>\$105,099</b>	<b>\$70,264</b>	<b>\$4,940</b>	<b>\$84,092</b>	<b>\$25,923</b>	<b>\$130,120</b>	<b>\$37,829</b>
Percentile (75)	\$121,661	\$156,596	\$72,398	\$5,132	\$93,438	\$28,563	\$130,972	\$41,919
Percentile (90)	\$164,125	\$203,395	\$108,479	\$5,966	\$126,145	\$32,629	\$135,146	\$57,410
Maximum Cost	\$534,578	\$552,659	\$437,238	\$14,167	\$438,737	\$56,897	\$162,890	\$209,319

Table 3: Typical Construction Costs

1: Source: Pulugurtha, S. (2017). "Cost of Independent Bicycle and Pedestrian Facilities." a Presentation to the Participants of GLC MPO Training Session, March 2, 2017.

# Facility Recommendation Elements

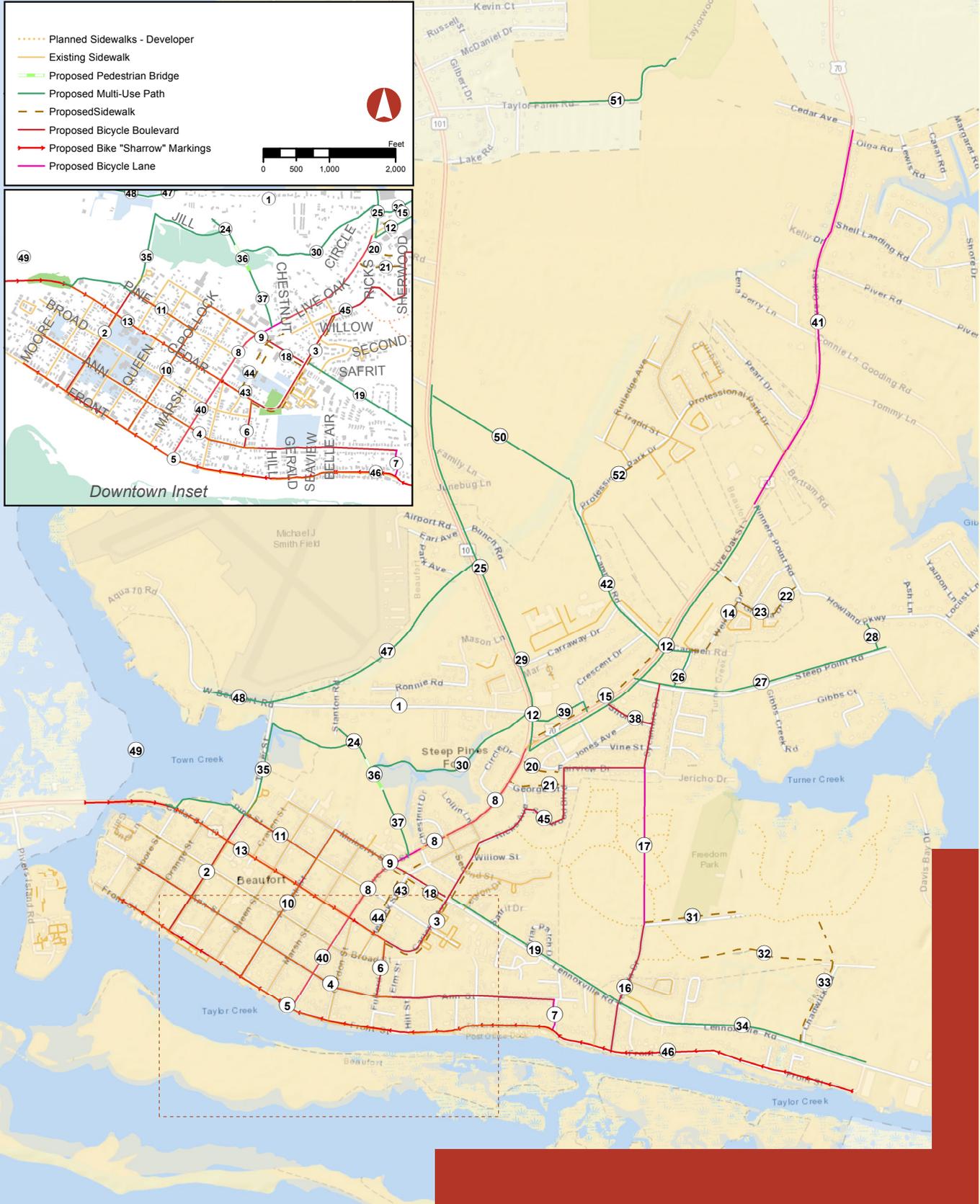


Figure 8: Facility Recommendations

Map	Facility Type	On Road	From	To	Cost	Term	Map	Facility Type	On Road	From	To	Cost	Term
1	Bike Sharrow Markings	W. Beaufort Rd	NC 101	Turner Av	\$8,867	Mid	28	Multi-Use Path	New Location	Howland Parkway	Steep Point Landing	\$75,817	Short
2	Bike Boulevard	Turner St	Pine St	Front St	\$4,661	Long	29	Sidewalk	Carraway	NC 101	End of sidewalk	\$70,440	Mid
3	Sidewalk	Carteret Ave	Third Street	Fulford Street	\$764,604	Mid	30	Multi-Use Path	Off-Road	NC 101 / Ace Hardware	Proposed Trail	\$553,410	Mid
4	Bike Boulevard	Ann St	Ocean St	Turner Ave	\$14,552	Long	31	Sidewalk	Freedom Park Dr	Chadwick Rd	Leonda Dr	\$449,329	Mid
5	Bike Sharrow Markings	Front St	Moore St	Bel Air St	\$13,642	Mid	32	Sidewalk	Conway Rd			\$649,789	Mid
6	Bike Boulevard	Fulford St	Broad St	Ann St	\$2,274	Mid	33	Sidewalk	Chadwick Rd	Freedom Park Dr	Lennoxville Rd	\$617,827	Mid
7	Bike Lane	Ocean Rd	Ann St	Front St	\$34,881	Short	34	Multi-Use Path	Lennoxville Rd	Leonda Dr	Chadwick Rd	\$716,850	Mid
8	Bike Lane	Live Oak Rd	NC 101	Cedar St	\$304,119	Mid	35	Multi-Use Path	Turner Ave Off-Road	Proposed Trail	Cedar St	\$774,036	Mid
9	Bike Boulevard	Mulberry St	Pollock St	Cedar St	\$4,434	Mid	36	Pedestrian Bridge	New Location	N/A	N/A	\$998,451	Short
10	Bike Boulevard	Pollock St	Mulberry St	Front St	\$5,684	Mid	37	Multi-Use Path	New Location	N/A	N/A	\$194,800	Short
11	Bike Boulevard	Pine St	Carteret Av	Turner Av	\$3,183	Mid	38	Bike Boulevard	Short St	Sycamore Dr	Live Oak St	\$2,160	Short
12	Multi-Use Path	Live Oak St (Ph. I)	Pinners Point Rd	NC 101	\$487,001	Long	39	Multi-Use Path	Ace Parking Lot (redesign)	Live Oak St	NC 101	\$176,169	Mid
13	Bike Sharrow Markings	Cedar St	Fulford St	Turner Av	\$10,345	Mid	40	Bike Lane	Live Oak Rd	Cedar St	Front St	\$82,585	Short
14	Sidewalk	Wellons Dr	Live Oak St	Lockhart Dr	\$563,213	Mid	41	Bike Lane	Live Oak St (Ph. II)	Olga Rd	Pinners Point Rd	\$436,441	Mid
15	Sidewalk	Live Oak St	NC 101	Campen Rd	\$735,204	Long	42	Multi-Use Path	Campen Rd	Lockhart Dr	US 70 Bypass	\$637,344	Long
16	Bike Boulevard	Lenoda Dr	Freedom Park Rd	Front St	\$4,547	Short	43	Sidewalk	Hedrick St	Lennoxville Rd	Cedar St	\$274,624	Mid
17	Bike Lane	Future Leonda Dr Extension	Freedom Park Rd	Fairview Dr	\$174,931	Short	44	Sidewalk	Hedrick St	1st St	Cedar Av	\$397,197	Mid
18	Sidewalk	Carteret Ave	Cedar St	Live Oak St	\$273,383	Long	45	Bike Boulevard	Carteret/Ricks/Sherwood/Sycamore	Steep Point Rd	Fulford St	\$3,638	Long
19	Multi-Use Path	Lennoxville Rd	Carteret Ave	Leonda Dr	\$542,895	Mid	46	Bike Sharrow Markings	Front St	Bel Air St	End	\$11,027	Mid
20	Sidewalk	Fairview Rd	Sherwood Rd	Live Oak St	\$102,565	Mid	47	Multi-Use Path	US 70 Bypass	NC 101	Turner St	\$697,112	Mid
21	Sidewalk	George St	Live Oak St	Sherwood Rd	\$141,120	Mid	48	Multi-Use Path	US 70 Bypass	Turner St	US 70 Bridge	\$201,810	Mid
22	Sidewalk	Glenda Rd	Wellons St	Howland Rd	\$199,043	Mid	49	Striped Shoulder	US 70 Bypass	W Beaufort Rd	Hwy 70	\$126,891	Mid
23	Sidewalk	Glenda Rd	Wellons St	Howland Rd	\$199,043	Mid	50	Multi-Use Path	New Location	Live Oak St	NC 101	\$437,747	Short
24	Multi-Use Path	New Location	N/A	N/A	\$114,925	Short	51	Multi-Use Path	Taylorwood Farm Rd	Taylor Farm Dr	City Limits	\$488,661	Long
25	Multi-Use Path	NC 101	Copeland Rd	Live Oak St	\$1.1 million	Long	52	Sidewalk	Professional Park Dr	Existing Sidewalk	Calhoun St	\$148,638	Short
26	Multi-Use Path	Lockhart Dr	Campen Rd	Steep Point Rd	\$110,682	Long							
27	Multi-Use Path	Steep Point Rd (north side)	Steep Point Landing	Live Oak St	\$ 720,909	Long							

\*Facilities for each project are for one side of a roadway.

Table : Facility  
2 : Recommendations

# Intersection Recommendation Elements

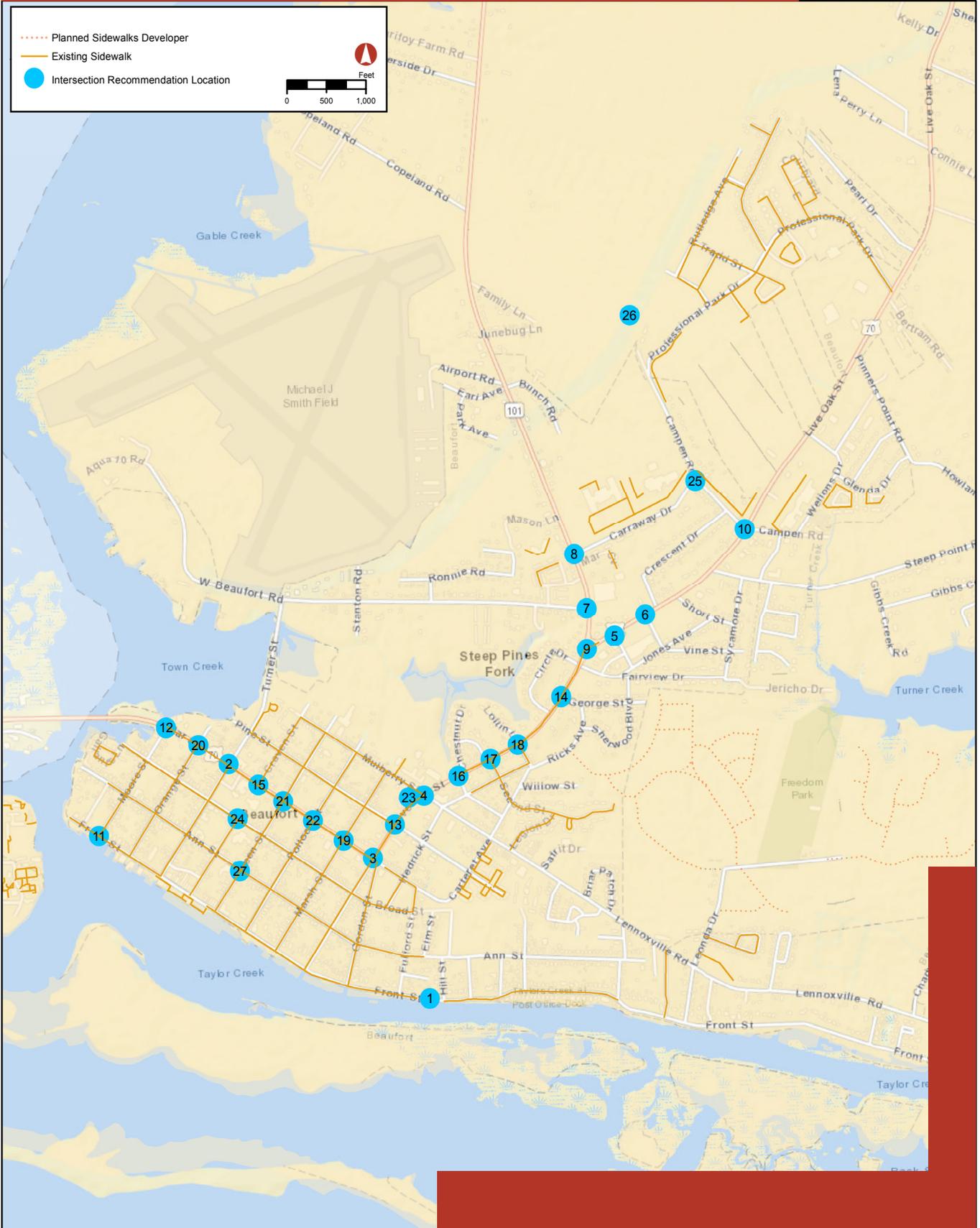


Figure 9: Intersection Recommendations

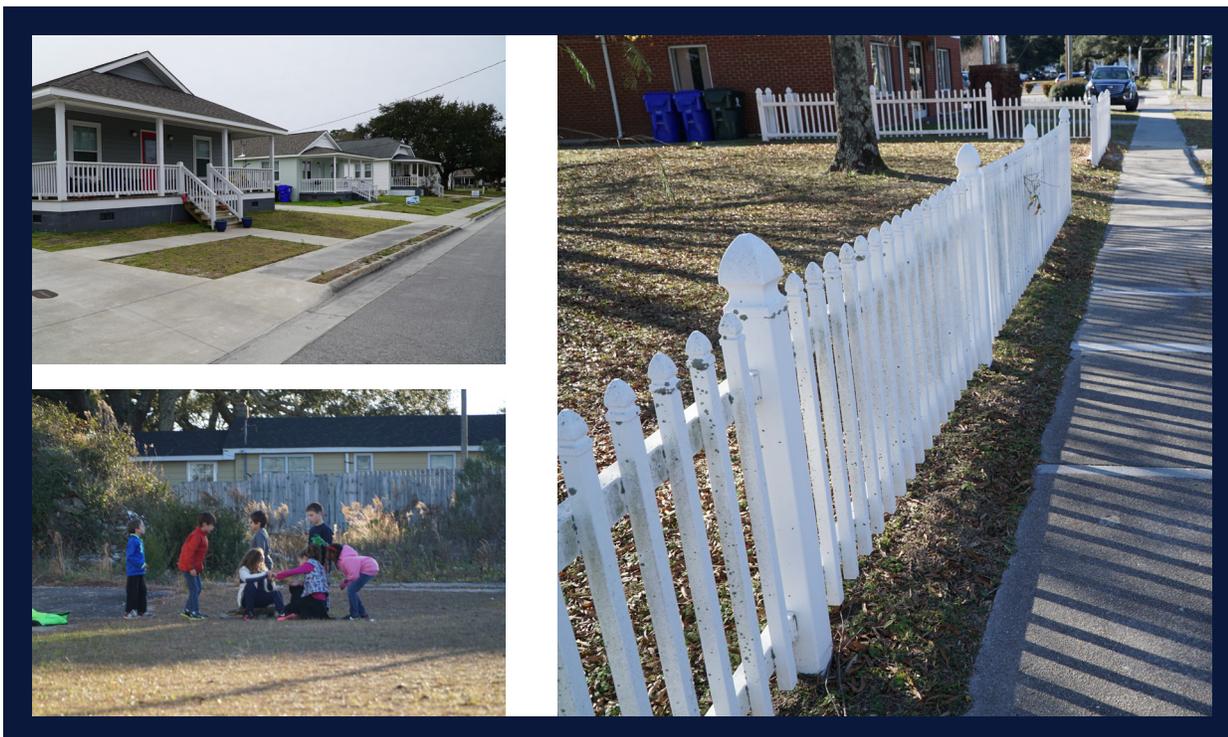
Map Id No.	Location	Facility	Cost	Term
1	Front St (Between Hill St & Fullford St)	Mid-block crossing	\$8,100	Short
2	Tuner St & Cedar St	Pedestrian signals, crosswalks, drive-way closings	\$54,600	Long
3	Live Oak St & Cedar St	High-Visibility Crosswalk, Signals, ADA Facilities	\$42,500	Mid
4	Live Oak St & Mulberry St	Pedestrian signals (3), high-visibility crosswalks, ADA Curb Ramps	\$54,400	Mid
5	Center St & Live Oak St	Crosswalk	\$3,600	Short
6	Carteret St & Live Oak St	Crosswalk	\$3,600	Short
7	NC 101 & W Beaufort Rd	Crosswalk	\$2,700	Short
8	Carraway Dr & NC 101	High-Visibility Crosswalk, Signals, ADA Facilities	\$42,500	Short
9	NC 101 & Live Oak St	Construct roundabout, crosswalks	\$1,200,000	Short
10	Live Oak St & Campen Rd	High-Visibility Crosswalk, Signals, ADA Facilities	\$42,500	Short
11	Front St & Moore St	ADA curb ramps	\$3,600	Mid
12	Cedar St & Moore St	ADA curb ramps, Crosswalk	\$4,500	Short
13	Pine St & Live Oak St	ADA curb ramps, Crosswalk	\$20,000	Mid
14	Live Oak St & George St	ADA curb ramps, Crosswalk	\$3,600	Short
15	Craven St & Cedar St	ADA curb ramps, Crosswalk	\$20,000	Mid
16	Chestnut St & Live Oak St	ADA curb ramps, Crosswalk	\$4,500	Short
17	Second St & Live Oak St	ADA curb ramps, Crosswalk	\$4,500	Short
18	Third St & Live Oak St	ADA curb ramps, Crosswalk	\$4,500	Short
19	Marsh St & Cedar St	ADA curb ramps, Crosswalk	\$20,000	Mid
20	Orange St & Cedar St	ADA curb ramps, Crosswalk	\$20,000	Mid
21	Queen St & Cedar St	ADA curb ramps, Crosswalk	\$20,000	Mid
22	Pollock St & Cedar St	ADA curb ramps, Crosswalk	\$20,000	Mid
23	Live Oak St & NC 101	ADA curb ramps, Crosswalk	\$14,500	Mid
24	Craven St & Broad St	Add shelter, seating, and schedule signage, crosswalks, ADA curb ramps	\$38,100	Long
25	Campen Rd & Carraway Dr	Pedestrian-Activated Signal	\$16,000	Long
26	NC 101 & Campen St	Ramps, Crosswalk, Pedestrian Signal	\$31,000	Short
27	Queen St & Ann St	Crosswalk, ADA Facilities, Increase Curb Radi	\$10,000	Short

Table 3: Intersection Recommendations

# Small Area Studies

The following includes a detailed investigation into five(5) areas in Beaufort that were identified as having a high presence of pedestrians, cyclists and need to calm traffic. Photographic renderings were completed of each area to depict potential enhancement solutions identified in the Plan. Recommendations including sidewalks, crossings, signals, and small width medians were recommended in many of the areas to increase pedestrian safety as well as dedicated cycling lanes for safe bike travels. These projects are highlighted in the Plan because the project either provides a connection to existing infrastructure or high pedestrian traffic and/or was heard input during the public involvement process. Further studies are recommended for each during the design phase to determine the most appropriate solutions and placements of pedestrian amenities.

1. Lennoxville Road
2. Queen Street & Anne Street
3. Carraway Street & NC 101
4. Cedar Street
5. Live Oak Street



# Lennoxville Road

improve, connect, prepare

Lennoxville Road is currently a popular corridor for cycling. It provides a connection from the east side of Town to the popular water front area. Mixed use development is currently planned for this area which will pose greater safety risk for pedestrians and cyclist. A twelve foot multi-use trail is proposed along Lennoxville Road from Carteret Avenue to Front Street.

### Details

Total Project Cost: \$449,329

Facilities Map No.: 19 & 34

Project Length: 6,829 ft

Improvements:

- 12 foot multi- use path
- Signage
- Lighting



Lennoxville Road Before



Lennoxville Road After

# Queen St/ Ann St

connecting old to new, better

Queen St is a one-way collector street traveling from Front St to Mulberry St. Land use is primarily residential with on street parking and sidewalk for most of the corridor. Data shows a report of a bicycle accident at this location. Citizens also reported this intersection as a difficult area to cross. The proposed recommendations for this area include increasing the curb radi and adding extra pavement to prevent on street parking in and near the crosswalk and intersection.



Queen St & Ann St Intersection Before



Queen St & Ann St Intersection After

## Details

Intersection Map No. 30

Total Project Cost: \$7K

Improvements:

- Crosswalk re-striping

- ADA Facilities

- Increase curb radi

# Carroway Dr & NC 101

gateway to town

This intersection serves as the gateway entrance to the Beaufort Elementary School where significant foot traffic as well as vehicular traffic occurs on a daily basis when school is in session. Compounding this issue is a large residential development planned for the area surrounded by Professional Park Drive. It is expected that this development will use Carraway Drive to access NC 101. With this in mind, it is recommended that this intersection be improved to include a new signal, high visibility crosswalks with a pedestrian refuge (NC 101), and pedestrian countdowns. Sidewalks are proposed on the southside approach of NC 101 as well as a new 10' meandering multi-use path along Carraway Drive to the existing sidewalks at the school entrance. Utility impact could pose development constraints and increase the final cost of the project.



Carroway Drive and NC 101 Before

## Details

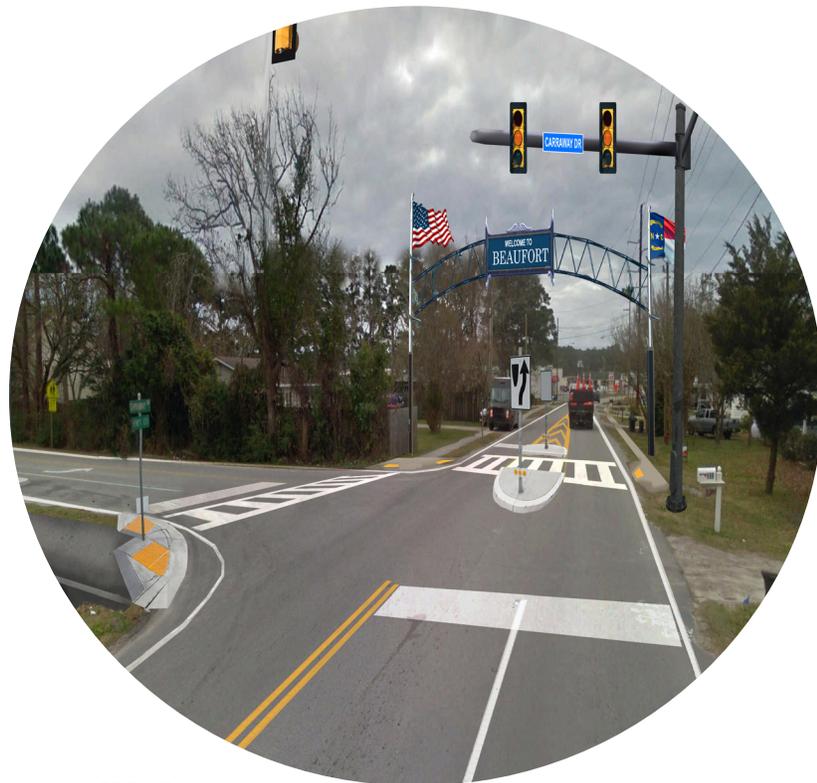
Total Project Cost: \$113,000

Facilities Map No.: 29

Intersection Map No: 8

Improvements:

- 6' Sidewalk
- Curb & Gutter
- ADA Facilities
- Pedestrian Signals
- Median
- Crosswalks



Carroway Drive and NC 101 After

# Cedar Street

from barrier to boulevard

The Cedar Street corridor (Live Oak St to Moore St) will likely be the most-impacted place in Beaufort from the opening of the new high-level bridge over Gallants Channel and bypass of US 70. Formerly crowded with traffic moving through at high speeds, the road has served as a barrier to pedestrian travel and access to the waterfront areas.

With re-envisioned intersections and the conversion of five lanes to three with on-street parking to support business redevelopment, a new perception of Cedar Street, one more in line with the quieter streets to the north and south, is coming.

**Cedar & Turner Concept**  
- Source: Stantec Consulting



**“If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places.”**  
*- Fred Kent, Project for Public Spaces*

**Details**

Total Project Cost: \$2.7 Million

Facilities Map No.: 13

Extent: Live Oak Street to Moore Street

Intersection Map No: 2, 3, 12, 15, 19, 20, 21, 22

Development Constraints: Historic Property Impact, Residential Property Impacts

Stakeholder Involvement

Improvements:

- 6' Sidewalk (replace, upgrade or fill in sections)
- Curb & Gutter (replace damaged and/or fill in sections)
- ADA Facilities
- Pedestrian Signals
- Bicycle Sharrow Markings
- Bicycle and Pedestrian Signs
- Pedestrian Lighting
- Crosswalks
- Increase curb radii at intersections



**Cedar & Live Oak Concept**  
*- Source: Stantec Consulting*

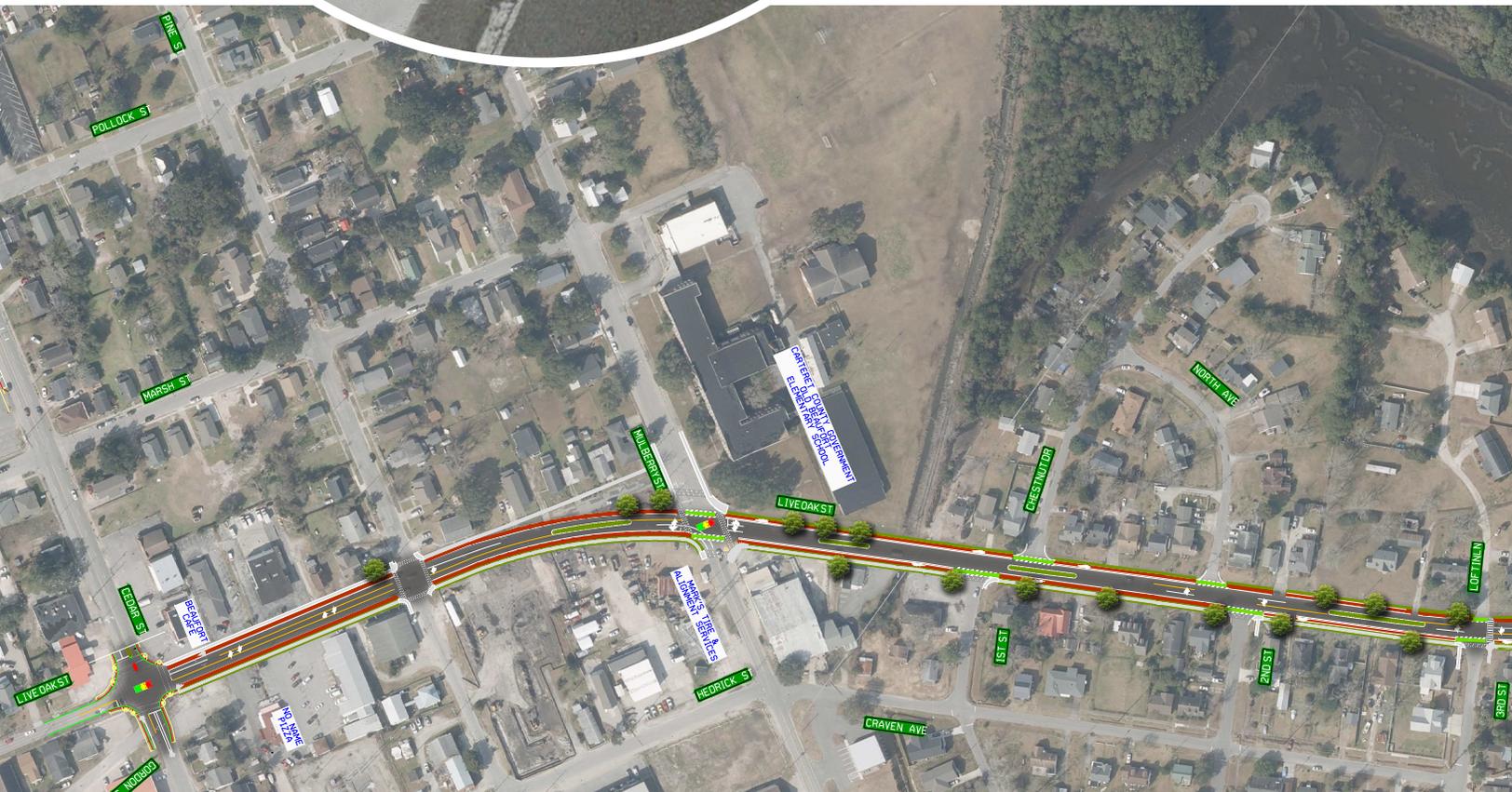


# Live Oak Street

connecting old to new, better

New housing developments on the north end of town bring more opportunities with them and their residents, but connecting them together is Live Oak Street. Long a car-centric connection between two very different-feeling places, the roadway cross-section proposed for the future will take advantage of reduced through traffic and help promote quality redevelopment, carefully transitioning a “stroad” (the worst parts of a street and a road) into a true multi-modal corridor that announces the importance of place, regardless of the direction of travel.

Live Oak and Campen Concept  
- Source: Stantec Consulting



**Details**

Total Project Cost: \$2.7 Million (TIP U-6058 includes roundabout \$1.2 million)

Facilities Map No.: 12, 15, 42, 8

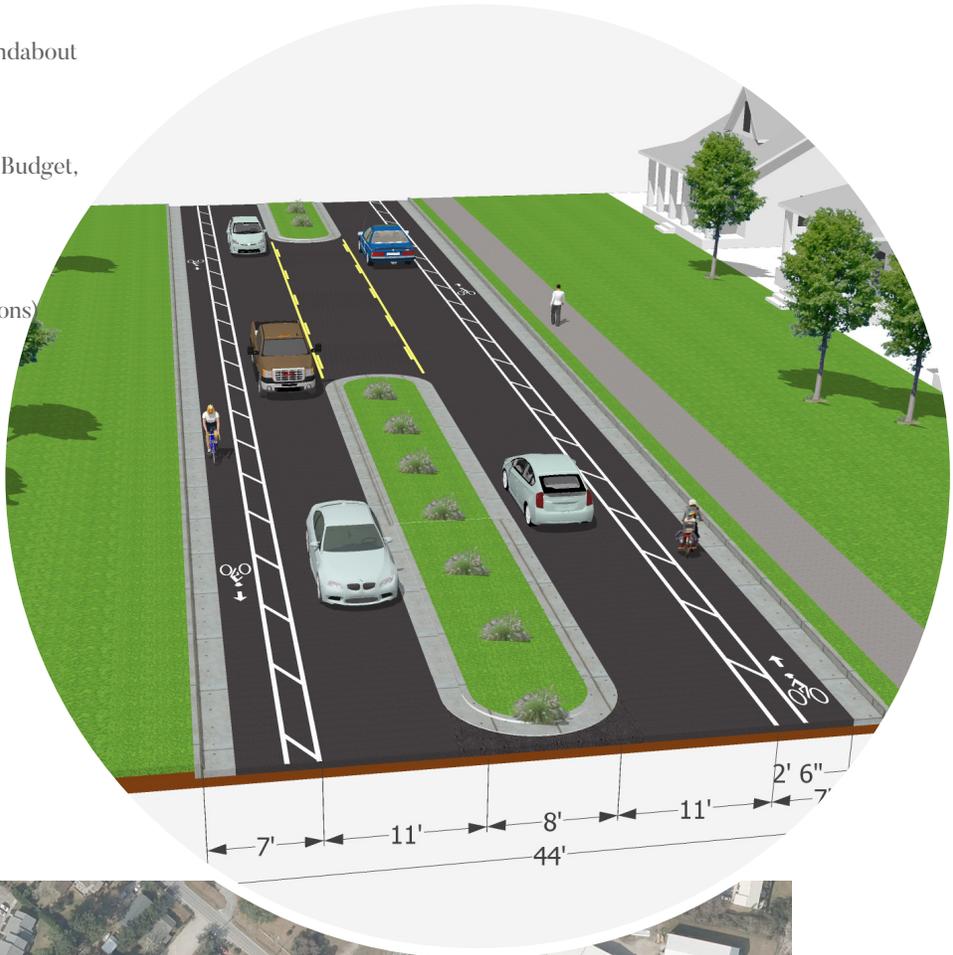
Extent: Campen Road to Ceadr Street

Development Constraints: Flood Zone, Land Owner Impacts, Budget, Stakeholder Involvement

Intersection Map No: 4, 5, 6, 9, 13, 16, 17, 24

**Improvements:**

- 6' Sidewalk (replace, upgrade or fill in sections)
- Curb & Gutter (replace damaged and/or fill in sections)
- ADA Facilities
- Pedestrian Signals
- Bicycle Lanes
- Bicycle and Pedestrian Signs
- Pedestrian Lighting
- Crosswalks



**Proposed Live Oak Cross-Section**

- Source: Stantec Consulting







# Design Guidelines, Policies and Program Recommendations

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# Design Guidelines

The number of design guidelines available to the transportation practitioner has greatly increased in recent years. The USDOT (Federal Highway Administration) Manual on Uniform Traffic Control and American Association of Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets have been joined by a plethora of guidance documents prepared by these and other agencies. The following is not a comprehensive listing, but helps identify the major guidance for complete street planning and design in common use in North America, and a few that are notable in coastal and urban environments like Beaufort. This chapter begins with a listing of typical, national guidelines (below), addresses complete street design factors, bicycle/pedestrian design challenges, stormwater management, and culminates with programs that the town can use to educate, enforce, and encourage safe walking and cycling.

## Design Guideline References

### American Association of Highway and Transportation Officials (AASHTO)

- A Guide for Achieving Flexibility in Highway Design
- Guide for the Development of Bicycle Facilities
- Guide for the Planning, Design, and Operation of Pedestrian Facilities
- Roadway Lighting Design Guide
- Drainage Manual

### National Association of City Transportation Officials (NACTO)

- Urban Street Design Guide
- Global Street Design Guide
- Urban Bikeway Design Guide
- Transit Street Design Guide

### USDOT (Federal Highway and Federal Transit Administrations)

- Revision of Thirteen Controlling Criteria for Design and Documentation of Design Exceptions
- Mitigation Strategies for Design Exceptions
- AASHTO Roadside Design Guide
- Americans with Disabilities Act (ADA) Accessibility Guidelines and Detectable Warnings

Additional resources include PedBike.net, National Complete Streets Association, Pedestrian and Bicycle Information Center, National Center for Safe Routes to School, and the book, “Greenways: A Guide To Planning Design And Development.” Security resources often fall under the rubric of Crime Prevention through Environmental Design (CPTED), and are available for transit (American Public Transportation Association (APTA) recommended practice SS-SIS-RP-007-10) and the book, “Crime Prevention Through Environmental Design,” by C. Ray Jeffries. CPTED also offers a way to merge the missions of Beaufort’s transportation and law enforcement staffs in a common goal: making the urban environment more secure. The ideal of making better transportation systems loses much of its value when people are afraid to walk outside, navigate through a dark parking lot, or leave their car in on-street parking to patronize businesses. Finally, accessibility standards for those with impaired personal mobility are provided by Americans with Disability Act Accessibility Guidelines and proposed Public Rights of Way Accessibility Guidelines.

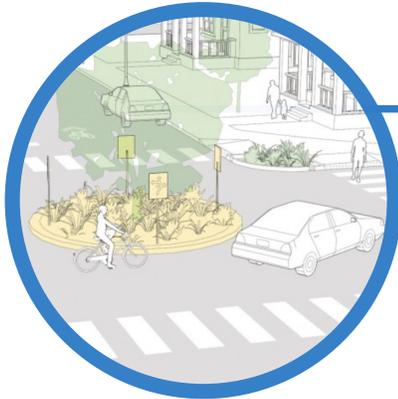
The following pages are provided to help the town and others address some of the more commonplace situations confronting complete street implementation in Beaufort arranged simply by being either “Along the Street” or “Across the Street.” It should be obvious that in an environment as fundamentally rich and varied as Beaufort that the real way to implement complete streets is through a collaborative and consistent process undertaken led by city staff, accompanied by the strong participation of NCDOT and partnering entities. To this end, there is one final section on special topics that Beaufort can undertake to more generally support complete street development.



# Key Design Concepts

for construction of bicycle & pedestrian facilities in Beaufort

Chosen based on public feedback of issues, the concepts shown for pedestrian (left) and biking (right) come from NACTO guidance; all of them incur additional construction and maintenance costs, and are ideally considered along with other improvements along an entire street for at least a two or three blocks in length.



## Mini-Roundabout

- Mini-roundabouts help control speeds and, in their best form, beautify streets
- Consider them in conjunction with a Bicycle Boulevard, or even as a pilot project on a low-volume street where additional measures are being taken to manage speeds
- Note that more landscaping = more maintenance requirements, but consider working with a neighborhood to take over plantings if the town builds the initial construction; also, plantings should be designed to maintain good sightlines (skinny trees with higher canopies or low shrubs)
- Appropriate lighting at the intersection is important, considering the number of out-of-town visitors that may not be expecting to navigate the mini-roundabout

## Residential Sidewalk

- Design for a buffer of equal width to the sidewalk
- Standard is five feet in width
- Use colors or textures to demarcate conflict points, intersections
- Pervious pavements and plantings help mitigate stormwater runoff

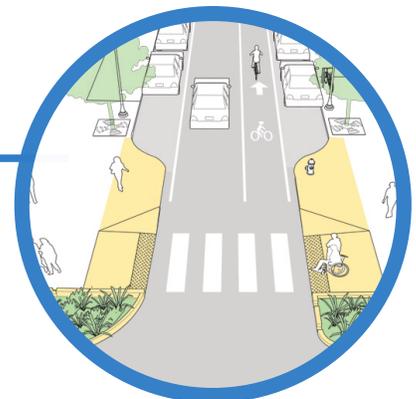


## Interim Separated Facility Treatments

- NACTO describes an extruded curb to buffer pedestrians from vehicular travel lanes
- Painted curb lines could be used in Beaufort on local streets, but they should be considered temporary and appropriately signed
- Planters provide attractive landscaping and enhance safety by buffering pedestrians and cautioning motorists
- These areas can be utilized to locate amenities such as bike racks and seating
- This treatment could provide an opportunity to engage local artists and/or students to design patterns and collaborate with the installation
- Construct a permanent curb extension as funds allow

## Curb Extensions / Extrusions / Bulb-Outs

- On-Street parking should extend 1' to 2' beyond edge of curbline
- Useful as gateways to caution motorists of changing conditions, speeds, or levels of pedestrian activity
- Combine curb extensions with stormwater mitigation measures such as bioswales, raingardens





## Bicycle Boulevards

- Bicycle Boulevards are streets, preferably part of a network, that design streets to place bike travel on an equal footing with car travel - they are also favored by some residents because they help manage speeds, depending on design features incorporated into the boulevard
- At their core, Bicycle Boulevards reinforce the acceptance and presence of cyclists through signs and markings; refer to the NACTO design guidance on the following page as well as the appropriate NACTO [website](#) for additional guidance

## Buffered Bike Lanes

- More appropriate for Beaufort's high crash rates
- Helps to mitigate sideswipe crashes - including with other cyclists
- Nearly 9 in 10 cyclists prefer buffered lanes, and these appeal to wider range of cyclists with varying skill levels
- Needs adequate right of way to avoid door opening-related conflicts with on-street, parked vehicles



## Intersection Crossings

- On-Street bicycle facilities need specialized intersection treatments
- "Elephant's Feet" markings (shown here) or green paint highlighting conflict points with through and turning vehicles reinforce space sharing
- Increases visibility of cyclists and provides additional assurance to cyclists in the delineated space for their travel

## Painted Bike Lanes

- Useful for conflict points such as on-street parking door swing areas, intersection approaches, turning areas, and busy driveways
- Highlights use of space, slows some traffic, discourages illegal parking
- Budget for additional, minor maintenance costs



# Bicycle Boulevard

design elements (NACTO)

## Design Guidance

Signs and Pavement Markings

**2** Where the bicycle boulevard turns or jogs onto another street, signs and/or markings shall be provided to indicate how users can remain on the route.



**5** Decision and turn signs should include destinations with arrows and distance and/or bicycling times.



**1** Identification/wayfinding signs provide a strong visual identity for the street and designate the corridor as a bicycle route.



### Required Features

**1** Bicycle wayfinding signage and pavement markings shall be included on bicycle boulevards. Pavement markings and identification/wayfinding signs provide a strong visual identity for the street and designate the corridor as a bicycle route.

**2** Where the bicycle boulevard turns or jogs onto another street, signs and/or markings shall be provided to indicate how users can remain on the route.

**3** Center line stripes (if present) shall be removed or not repainted, except for short sections on intersection approaches that

have a stop line or traffic circle. Drivers have an easier time passing bicyclists on roads that do not have centerline stripes. If vehicles cannot easily pass each other using the full width of the street, it is likely that there is too much traffic for the street to be a successful bicycle boulevard.<sup>128</sup>

### Recommended Features

**4** Pavement markings should be large enough to be visible to all road users; 112 inches by 40 inches (the standard size of a shared lane marking) is the minimum recommended size.

**5** Decision and turn signs should include destinations with arrows and distance and/or bicycling times. Bicycling time should assume a typical speed of 10 mph.

**6** Advanced crossing warning signs such as MUTCD sign W11-1 (bicycle crossing; may be supplemented with AHEAD plaque) should be placed on intersecting streets with more than 5,000 vpd. A non-standard sign using the coloration and style of other bicycle boulevard signs may be used with an arrow showing bi-directional cross traffic.

**7** On narrow local streets where it can be difficult for cars traveling in opposite directions to pass, pavement markings should be applied in closer intervals near the center of the travel lane.

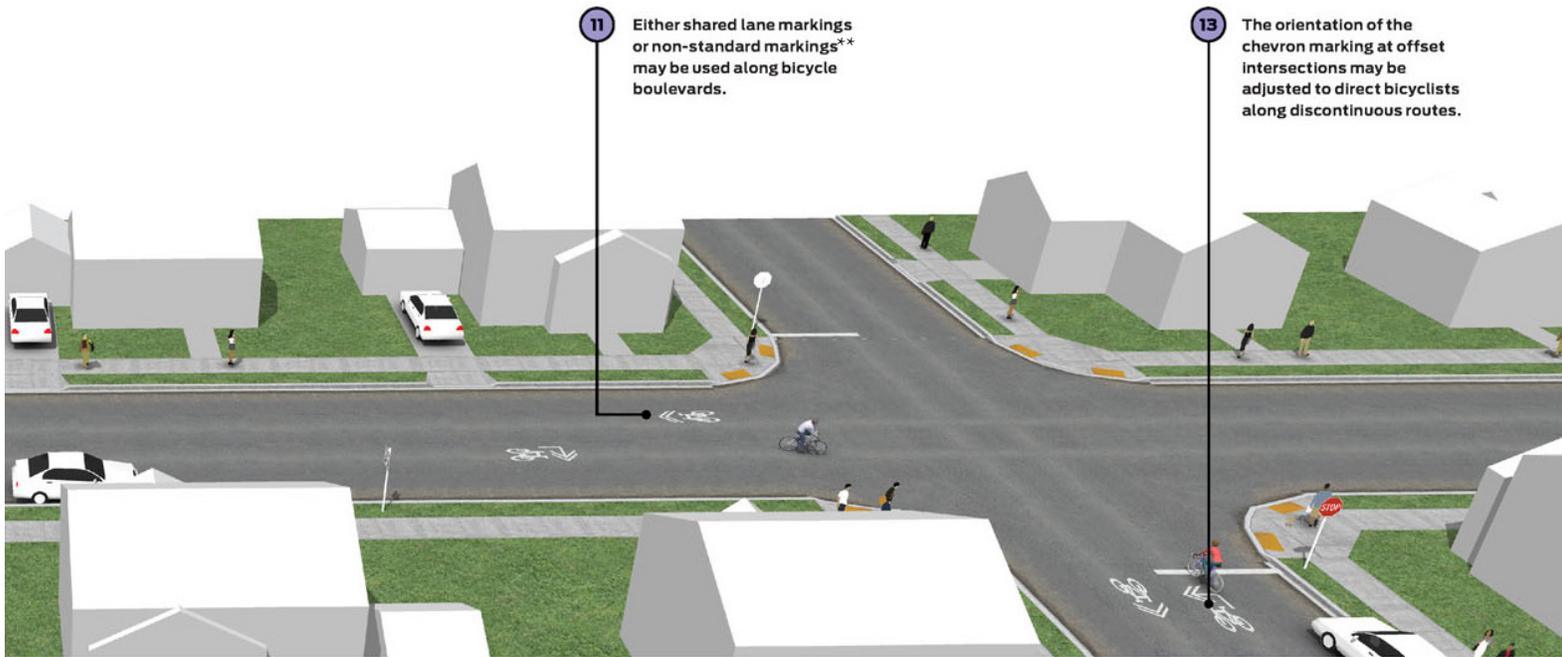
### Optional Features

**8** Signs may differ from those outlined in the MUTCD to highlight or brand the bicycle boulevard network. If used, signs shall be consistent in content, design, and intent; colors reserved by the MUTCD Section 1A.12 for regulatory and warning road signs (red, yellow, orange, etc.) are not recommended. Green, blue and purple are commonly used.

A number of recommendations included in this plan are for the creation of bicycle boulevards. Working with the communities that these facilities pass through is strongly encouraged to account for variations in on-street parking, speed concerns, and other site-specific issues.

### Bike Boulevard Design Guidance

- Source: NACTO



**11** Either shared lane markings or non-standard markings\*\* may be used along bicycle boulevards.

**13** The orientation of the chevron marking at offset intersections may be adjusted to direct bicyclists along discontinuous routes.

**9** Confirmation signs may include destinations and distance and/or bicycling times.

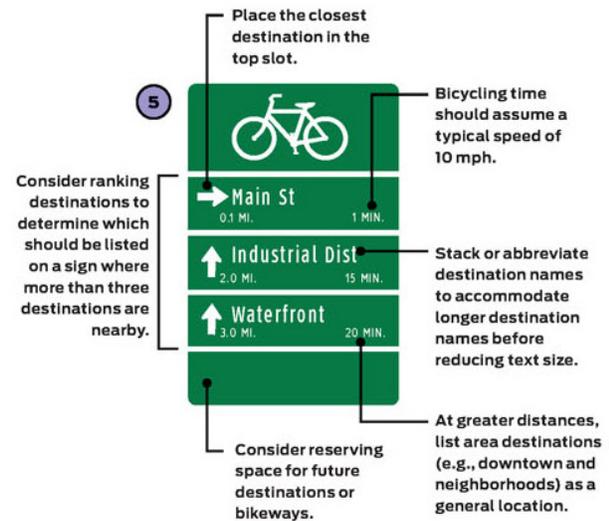
**10** To minimize sign clutter, a bicycle symbol may be placed on a standard street name sign, along with distinctive coloration.<sup>129</sup>

**11** Either shared lane markings or non-standard markings may be used along bicycle boulevards.

**12** On particularly narrow streets (approximately 25 feet wide with parking), shared lane marking stencils may be placed either in the center of the lane facing each other, or with the bicycle marking in the center of the roadway and two sets of chevrons offset 1 foot in each direction or travel.

**13** For wayfinding purposes, the orientation of the chevron marking at offset intersections may be adjusted to direct bicyclists along discontinuous routes. Alternately, an arrow may be used with the chevrons to indicate the direction of the turn.

**14** On-street parking spaces may be delineated with paint or other materials to clearly indicate where a vehicle should be parked and to discourage motorists from parking their vehicles too far into the adjacent travel lane.<sup>130</sup>

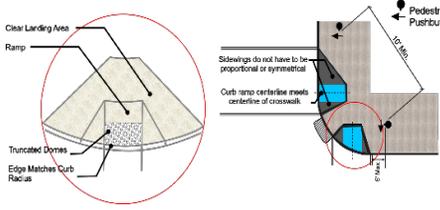
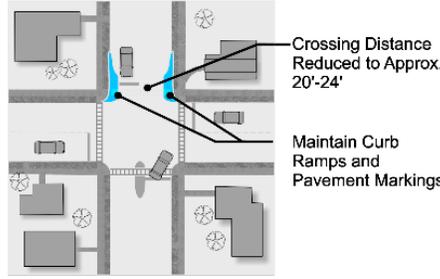


\*\*Non-standard markings are those that are not identified by MUTCD guidance. Local entities may implement context solutions such as color enhancements and markings.

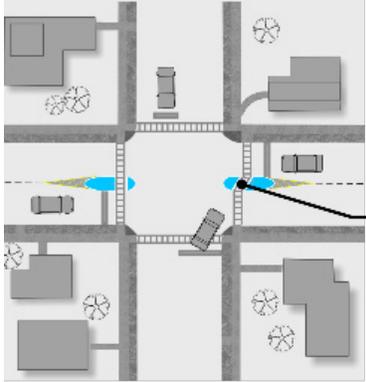
# Along the Street

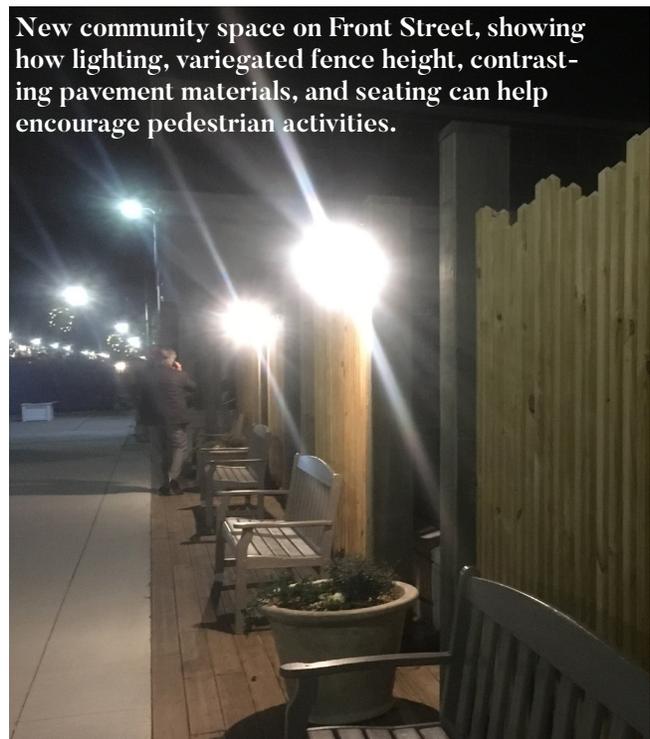
WHAT	WHERE	HOW	GRAPHIC
<p><b>Pedestrian and Sidewalk Gaps Infill</b></p>	<p>Any street with missing or poorly maintained sidewalk</p>	<p>Fill the gap, replace broken or uneven sidewalk</p>	
<p><b>WHY</b></p>	<p>Gap infill increases connectivity, and offers an opportunity to improve design if substandard cross-slopes (e.g., more than 2%) are present – but it requires a dedicated funding pool and proactive identification of problems “bundled” into cost-effective repair and construction contracts. Don’t prioritize, except for doing low-cost projects first.</p>		
<p><b>Improve Management of Stormwater and Street Flooding</b></p>	<p>Low-lying areas or streets with historically poor drainage</p>	<p>Storm sewer improvements, raingardens, on-site runoff management, and pervious pavements (note additional maintenance requirements)</p>	
<p><b>WHY</b></p>	<p>Tree canopy and raingardens provide an excellent buffer for the first ½-inch of rainfall, but also creates the attractive streetscape that favors pedestrians and reduces urban heat island effects. Expect and budget for additional maintenance expense.</p>		
<p><b>Strong Access Management Policy and Program</b></p>	<p>High-crash areas where the frequency and design of driveways create many conflict points for drivers, cyclists, and pedestrians</p>	<p>Close secondary driveways, require side-street access and rear parking in walkable commercial areas; be prepared to compensate loss of driveway access</p>	
<p><b>WHY</b></p>	<p>An ounce of prevention is worth pounds of cure: access management is easier to accomplish in locations where there are no or few developed parcels or existing driveways. Policies that require shared access, backage roads, and full or partial median controls (see graphic) are individually minor but collectively enormous in their impact on safety and reducing traffic congestion (over 25% of traffic delay is caused by crashes in urban areas).</p>		

# Across the Street

WHAT	WHERE	HOW	GRAPHIC
<p><b>Ensure Accessibility</b></p>	<p>Any street intersection crossing, including freeway ramps</p>	<p>Assess intersections, prioritize improvements, integrate improvements with utility or street maintenance actions</p>	 <p>Clear Landing Area Ramp Truncated Domes Edge Matches Curb Pedestrian Pushbutton</p> <p>Sidewalks do not have to be proportional or symmetrical Curb ramp centerline meets centerline of crosswalk</p>
<p><b>WHY</b></p>	<p>Cities have proactively turned to creating ADA accessibility evaluations, reports, and programs to help populations that are mobility challenged navigate city intersections. High numbers of tourists, occasional legal actions, and aging populations add to the urgency of improving accessibility for all populations.</p>		
<p><b>Better Access to Public Transportation</b></p>	<p>Known high-crash transit stops; stops with high ridership; stops on busier main streets</p>	<p>Improve lighting, surrounding bike/ped networks, station design elements</p>	 <p>1. Taper (25' – 30') 2. Clearance to Crosswalk (10') 3. Bike Lane to left of bus loading area Source: NACTO</p>
<p><b>WHY</b></p>	<p>Incomplete networks of sidewalks, unfavorable stop locations relative to crossings, and other design problems pose threats to riders and translate into lower ridership. The issues are especially problematic on multi-lane roadways where multiple and blind threats present several potential obstacles or hazards to safe access.</p>		
<p><b>Curbs that Support Pedestrians</b></p>	<p>High-Speed corners in residential areas, schools, or other places where pedestrians often cross</p>	<p>Reduce curb radii to 15'-20' or use curb extrusions (bulb-outs) to shorten crossing distances and reduce speeds of turning vehicles</p>	 <p>Crossing Distance Reduced to Approx. 20'-24' Maintain Curb Ramps and Pavement Markings</p>
<p><b>WHY</b></p>	<p>Lower speeds at corners translate typically into more rear-end crashes but fewer high-energy turning-type crashes with pedestrians and cyclists. Free-flow right-turn “slip lanes” should be used never or only when necessary to prevent a severe and dangerous queuing condition upstream.</p>		

# Across the Street (continued)

WHAT	WHERE	HOW	GRAPHIC
<p><b>Good Intersection Control</b> (choose the right pedestrian crossing option)</p>	<p>Street crossings, including freeway ramps; assign in part by crash types or crash potential suggested by substandard design elements</p>	<p>See below</p>	 <p>Use "Z"-style crossing to increase visibility of oncoming traffic</p>
<p><b>WHY</b></p>	<p>Pedestrians are told repeatedly to cross at intersections, so the provisions at these locations need to respect their importance since it is the location where pedestrians and cars interact directly. Consider the following ideal minimum standards for identifying crossing treatments:</p>		
<p><b>HOW</b></p>	<p><b>CROSSING TYPE</b></p>	<p><b>TRAFFIC VOLUMES</b></p>	<p><b>PRIMARY DESIGN CONSIDERATIONS</b></p>
	<p>Parallel Stripes</p>	<p>Low</p>	<p>Signal or STOP control; low pedestrian volumes</p>
	<p>High-Visibility Ladder</p>	<p>Moderate</p>	<p>Wide, multi-lane crossings; high turn volumes</p>
	<p>Median Refuge (see image)</p>	<p>High</p>	<p>Ideally use with "Z" crossing to improve visibility</p>
	<p>Mid-Block Crossing</p>	<p>Low-Moderate</p>	<p>Seldom, high-pedestrian traffic, off-road paths</p>
	<p>Traffic Signal</p>	<p>High</p>	<p>Meets warrants, improves vehicular traffic operations</p>



# Special Situations

WHAT	WHERE	HOW
<p><b>Woonerf</b> (streets that accommodate cars and people together)</p>	<p>Highly pedestrian-focused streets that still have to serve very low-speed car traffic (less than 15mph).</p>	<p>Pilot project first; consult with other places that have already gone through the process.</p>



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OUTDOOR SEATING IS ENCOURAGED (ADHERE TO ADA / PROWAG)
- 

WORK WITH PROPERTY OWNERS TO INCLUDE GREENERY
- 

INTEGRATE BICYCLE PARKING INTO STREETScape
- 

TEXTURE, COLOR DELINEATES CAR AND PEOPLE SPACES, NOT VERTICAL SEPARATION
- 

AT TRANSITION POINTS, MAINTAIN SIGN, MARKING, AND DESIGN STANDARDS

<p><b>WHY</b></p>	<p>While true woonerf streets are rare in the U.S., the concept of mixing pedestrians and (very low-speed) car traffic, including at “naked” (uncontrolled) intersections has application in open street marketplaces and event spaces.</p>
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<p><b>Complete Street Design Process and Standards</b></p>	<p>This program is town-wide, and applicable to every street up to major arterials and freeway classifications.</p>	<p>Additional elements, such as design guidance, should be added after an initial resolution and detailed process have been adopted and put into place.</p>
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<p><b>WHY</b></p>	<p>The physical elements of complete streets are important to understand, but they are generally well-understood. Adherence to consistent planning and design steps is the soul of making headway in maximizing complete streets in Beaufort. The City of Charlotte, NC has become renowned for its six-step process and guidance document; this process and many other resources are located on the Complete Streets Coalition section of Smart Growth America (<a href="https://smartgrowthamerica.org/program/national-complete-streets-coalition/">https://smartgrowthamerica.org/program/national-complete-streets-coalition/</a>).</p>
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# Stormwater

best management practices

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An important factor in the design of Beaufort's streets and public spaces is the impact that stormwater has on their operations and safety, as well as that of nearby homes and businesses. The Stormwater Best Management Practices ("BMPs") Infrastructure Plan (Appendix A) summarized here provides a collection of generic stormwater BMPs for potential use along Beaufort's corridors. The proposed stormwater BMPs address a range of stormwater volume and pollution control tools. Many BMPs have the potential to be scaled to match the discharge volumes, pollutant loads, and anticipated site conditions.

The BMP Infrastructure Plan emphasizes structural BMPs and includes a recommendation for incorporating both Green-Infrastructure ("GI") and Low-Impact Development ("LID") techniques. This document could be incorporated within the development document standards currently in place, and used by the town and county during private development site plan reviews and municipal capital improvement projects along various corridors. The complete BMP Infrastructure Plan contains:

- Guidance on the selection of BMPs,
- Fact sheets for each BMP,
- A BMP selection matrix (reproduced below),
- A technical guidance section that focuses on Low Impact Development Techniques (LID), and
- General guidance of BMP placement based on location along the corridor.

The BMP Infrastructure Plan should be updated as new regulations and guidelines are implemented and accepted by the North Carolina Department of Environmental Quality (NCDEQ) and the engineering community.

## Decision Matrix for Stormwater BMP

- Source: Stantec Consulting

BMP Type	TARGET POLLUTANTS				APPLICABILITY						UNIT PROCESS				Construction Cost Range	
	Nutrients	Bacteria	Metal	TSS Removal	Suitable for Redevelopment	Provides Ground Recharge	Land Requirement	Maintenance Needs <sup>3</sup>	Requires Pretreatment	Soil Requirements	Drainage Area (Acres)	Volume Reduction	Peak Flow Reduction	Sedimentation		Filtration & Absorption
Bioretention	M	H	H	H	•	•	M	H	•	None	1-2	M	L	H	H	\$5 - \$30 per SF
Constructed Stormwater Wetland	M	L	H	H			H	L		None	Varies	L	H	H	M	Varies
Disconnect Impervious Areas	H	L	L	H	•		M	L		None	Varies	H	M	H	M	\$20 to \$30 per SF
Dry Stormwater Ponds	L	L	M	M			VH	M		None	Varies	L	H	M	M	Varies
Dry Wells	L	L	L	H	•	•	L	H		Perm.	0-1	H	M	H	M	\$500 - \$1,000 Each
Enhanced Swales	L	L	M	H	•	•	H	L	•	Perm.	5 Max	L	L	H	L	\$10 per LF
Green Roofs	H	L	L	L	•		N/A	M		None	N/A	H	M	L	L	Varies
Infiltration Basins	H	H	H	H	•	•	M	H	•	Perm.	5 Max	H	M	H	H	Varies
Infiltration Trenches	H	M	M	H	•	•	M	H	•	Perm.	5 Max	H	L	M	M	\$50 - \$80 per LF
Manufactured Separator Devices	L	L	L	M	•		L	H		None	N/A	L	L	M	L	\$8,000 to \$15,000 ea.
Open Vegetated Conveyance	M	L	M	M			M	M		None	5 Max	L	M	L	M	\$10 - \$30 per LF
Planter Box	M	H	H	H	•		M	M	•	None	0-1	M	L	M	H	\$24 - \$32 per SF
Porous Pavement	M	L	H	H	•	•	H	M		Perm.	Varies	H	M	H	M	\$8 - \$15 per SF
Sand Filters	M	M	H	H	•		H	H	•	None	5 Max	L	L	M	H	\$10k to \$50k per Acre
Subsurface Infiltration Systems	L	L	L	H	•	•	M	M	•	Perm.	Varies	H	M	H	M	Varies
Tree Box	H	H	M	H	•		L	M		None	0-1	L	L	M	M	\$50 - \$100 per LF
Underground Detention Structures	L	L	L	H	•		L	M	•	None	Varies	L	H	L	L	Varies
Vegetative Filter Strips	L	L	L	M	•		M	L		None	2 Max	M	M	M	M	\$50 - \$100 per LF
Wet Stormwater Ponds	H	H	H	H			VH	L		None	Varies	H	H	M	L	Varies

### Examples of Stormwater Best Management Practices

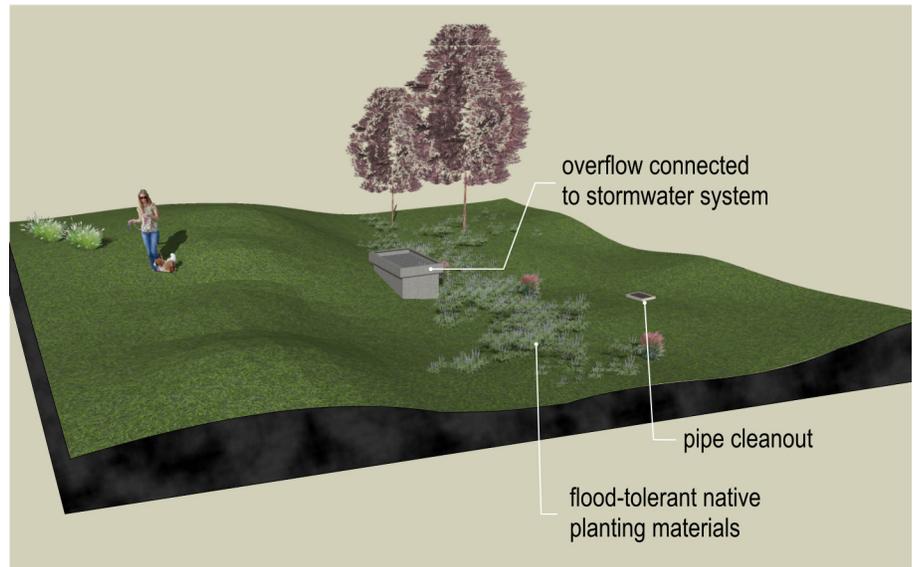
- Source: Stantec Consulting

- A** **Planter Boxes** are bioretention treatment control measures that are completely contained within an impermeable structure with an underdrain (they do not infiltrate). The boxes can be comprised of a variety of materials, such as brick or concrete, and are usually chosen to be the same material as the adjacent building or sidewalk. Planter boxes are filled with gravel on the bottom to house an underdrain system, planting soil media, and vegetation. As stormwater passes down through the planting soil, pollutants are filtered, adsorbed, and biodegraded by the soil and plants. The example shown on the opposite page includes drainage to the stormwater system as well as inlets from an adjacent parking area and building downspout.
- B** **Dry Stormwater Detention Ponds** provide temporary storage of stormwater runoff. Dry ponds have an outlet structure that detains runoff inflows and promotes the settlement of pollutants. Unlike wet ponds, dry detention ponds do not have a permanent pool. A dry pond is designed as a multistage facility that provides runoff storage and attenuation for both stormwater quality and quantity. The lower stages of a dry pond are controlled by outlets designed to detain the stormwater runoff for the water quality volume for a minimum duration of 24 hours, which allow sediment particles and associated pollutants to settle out. Higher stages in the pond detain the peak rates of runoff from larger storms for flood and erosion control. Dry Detention ponds are designed for complete drawdown of runoff and normally remain dry between storm events. The example shown here includes overflow drainage connected to the stormwater system as well as a pipe cleanout box. These areas may be connected to greenways, but visually separated with a berm and signage since the downslope areas are obviously associated with periodic flooding.
- C** **Subsurface Infiltration Systems** are underground systems that capture and infiltrate runoff into the groundwater through highly permeable rock and gravel. It is usually not practical to infiltrate runoff at the same rate that it is generated; therefore, these facilities generally include both a storage component and a drainage component. Typical subsurface infiltration systems that can be installed to enhance groundwater recharge include pre-cast concrete or plastic pits, chambers (manufactured pipes), and perforated pipes.

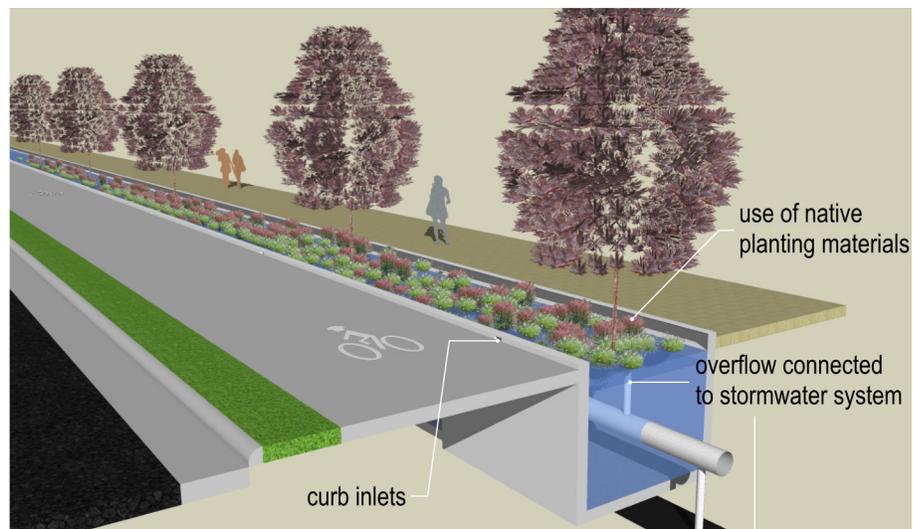
A



B



C



The built environment of Beaufort has been shaped over centuries, and the next phase of growth is likely to have more of an impact and occur much faster than in previous eras. Sound policy, practice and programs will be necessary to help shape walking, biking, and the town itself if the character and vibrancy that are here now are to remain in the future.



The following Complete Streets Context Guide presents a high-level overview of the functional considerations of Complete Streets design elements; a strong, proactive process must also be the foundation for a consistent application of complete streets principles.

## Context Zone

- Defined by the overall environment and framework of the corridor and surrounding network of streets and adjacent land uses
- Stresses context-specific treatment for three primary areas:
  - › Building form and massing
  - › Pedestrian space and design treatments
  - › Travelway modal integration (bike, walk, transit, & vehicular)



## Travelway Zone

- Defined by the edge of pavement or curb line that traditionally accommodates the travel or parking lanes needed for vehicles in the transportation corridor
- Recommendations focus on modes of travel and medians
- Travelway zone focuses on two objectives:
  - › Achieve balance between travel modes sharing the corridor
  - › Promote human scale for the street and minimize pedestrian crossing distances and vehicular conflict points / speeds



## Pedestrian Zone

- Extends between the outside edge of the sidewalk and the face-of-curb located along the street
- Quality of the pedestrian realm is achieved through four primary channels:
  - › Continuous pedestrian facilities (on both sides of the road if possible) to maximize safety and mobility needs
  - › High-quality buffers between pedestrians and moving traffic
  - › Safe and convenient opportunities to cross the street
  - › Consideration for shade, lighting, and amenities



## Building Zone

- Define and frame the roadway and its purposes
- Streets should serve these adjacent uses, unless the roadway is primarily used for through travelers (focus on reducing or managing conflict points)
- Building scale and massing focus on two areas:
  - › Orientation (setbacks, accessibility, etc.)
  - › Design & architectural character (height, wall/void ratio, etc.)
  - › Ground floor activities, seating, shops, restaurants



# Complete Streets Policy Development

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The creation of a complete street policy should be undertaken during a detailed process, preferably embedded within a transportation plan update or as an individual effort focused on complete streets and related policies. The effort ideally requires the inputs of citizens, technical staff, elected/appointed officials, business interests, real estate developers, and other members of the community to ensure a policy tailored to the specific interests and needs of the community. A “study team” comprised of municipal staff and (possibly) private consulting staff is assumed to be present and technically competent to perform the necessary work that the policy implies. Note also that, since complete streets are part of an overall design objective that includes land use and other elements of the public and realms, the study team should represent public works, planning/zoning, law enforcement, and other departments within the town.

The following is a suggested starting point, and one that is borrowed from established, proven resources such as the Charlotte, NC Complete Streets Policy and National Complete Streets Coalition. The latter is the best starting point for staff to undertake development of their own policy, as well as identifying training, samples of complete streets policies from around the country, and other resources to help communities understand the importance, development, and effects of a complete streets policy.

The National Complete Streets Coalition (a subsidiary of Smart Growth America) notes that the following are ten vital components of a policy framework to ensure that streets are designed for everyone, at every age, at every level of physical ability:

1. Vision: The policy establishes a motivating vision for why the community wants Complete Streets: to improve safety, promote better health, make overall travel more efficient, improve the convenience of choices, or for other reasons.
2. All users and modes: The policy specifies that “all modes” includes walking, bicycling, riding public transportation, driving trucks, buses and automobiles and “all users” includes people of all ages and abilities.
3. All projects and phases: All types of transportation projects are subject to the policy, including design, planning, construction, maintenance, and operations of new and existing streets and facilities.
4. Clear, accountable exceptions: Any exceptions to the policy are specified and approved by a high-level official.
5. Network: The policy recognizes the need to create a comprehensive, integrated and connected network for all modes and encourages street connectivity.
6. Jurisdiction: All other agencies that govern transportation activities can clearly understand the policy’s application and may be involved in the process as appropriate.
7. Design: The policy recommends use of the latest and best design criteria and guidelines, while recognizing the need for design flexibility to balance user needs in context.
8. Context sensitivity: The current and planned context—buildings, land use, transportation, and community needs—is considered in when planning and designing transportation solutions.
9. Performance measures: The policy includes performance standards with measurable outcomes.
10. Implementation steps: Specific next steps for implementing the policy are described.

## Complete Streets Policy Development (*continued*)

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**Sample Vision Statement (Park Forest, IL):** “This Complete Streets Policy shall direct Beaufort to develop and provide a safe and accessible, well-connected, and visually attractive surface transportation network that balances the needs of all users, including: motorists, pedestrians, bicyclists, public transportation riders and driver, emergency vehicles, freight carriers, agricultural vehicles and land uses and promote a more livable community for people of all ages and abilities, including children, youth, families, older adults and individuals with disabilities.”

**Sample Process Guidance (Charlotte, NC; Nashville, TN; Complete Streets Coalition):** The purpose of the following steps is to ensure that planning, design, and other processes contemplate all users and all modes of travel. This process will reflect the ten concepts identified previously, and is intentionally condensed to make it as simple and as broadly applicable as possible.

**Step 1.0: Technical Inventory of the Street and Surroundings.** The study team will develop a description of the project area/corridor that includes at a minimum the building types, densities, character, setbacks, and historic properties on adjacent lands as well as nearby and connected sidestreets. The subject corridor will be described in terms of geometry (lane widths, speed limits, design speed, cross-section(s), volumes of users by mode, signalization, crossing treatments, accommodations / demand for public transportation, walking, and bicycle users), crash histories from the most recent 3-5 year period, and a conditions analysis that includes safety/security, mobility/performance, and maintenance elements. A brief synopsis of the demographics of workers and residents in the corridor that includes comparisons to the larger geography (e.g., municipality or county) will also be included, mentioning age, race/ethnicity, language spoken at home, and income levels, at a minimum.

Technical Products: Crash mapping; aerial photography underplaying labeled buildings/structures; zoning / land use map; transit stop locations; multimodal level-of-service analysis using accepted methods such as MUTCD and Florida DOT Quality/Level-of-Service. Future demand and automobile performance measures may also be available through travel demand model outputs. A summary of the existing conditions, including adopted plans, policies, and “pipeline” actions, will complete this step but remain internal to the study team pending completion of Step 2.0.

**Step 2.0: Community Context.** The study team will work with representatives of the community, preferably in a collaborative process (e.g., workshop or charrette) to enhance the understanding of the corridor and its strengths, challenges, and opportunities. The output of this public exercise will include the following:

- Barriers, including poor access, lighting, inadequate street crossings, dangerous conditions, and lack of capacity for users such as transit stops, turning lanes, and pedestrian crossing distances greater than 1,000’ apart;
- Opportunities and Resources, such as parks, schools, office complexes, shopping centers, underutilized spaces, and underutilized parking areas; and
- Aesthetics, especially elements that support alternative modes of travel as well as businesses/customers, such as streetscaping, street furniture, pedestrian-scale lighting, wayfinding.

The public forum will also work to identify and weight community objectives that reflect the importance of answering concerns about mobility, access, safety, security, environment, economics, and other impact areas that the street may directly or indirectly influence through its design.

## Complete Streets Policy Development (*continued*)

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*Technical Products: SWOT (Strength, Weakness, Opportunity, Threat) mapping generated by the public stakeholders; and a set of technical performance metrics that specifically address those issues. Examples include: car/bus travel time ratio; travel time/average speeds; intersection delays crossing the street; auto/pedestrian/bicycle/transit Q/LOS values (see Step 1.0); economic return-on-investment; vacancy rates; ADAAG / PROWAG (mobility-challenged user requirements) accessibility issues; maintenance concerns per 1,000'; crash / injury rate compared to comparable streets elsewhere; conflict points per 1,000'; estimated emissions; mode shares; ratings by residents and business owners on satisfaction with street characteristics (e.g., freight/delivery, bike/walk access, aesthetics, parking, etc.), incidence of violent and non-violent crimes, ratio of sidewalks to street centerline miles (2.0 maximum). Other performance metrics are described here, and in many other places. The final product of this step is a draft Existing Conditions+Directions Report summarizing both the technical assessment (Step 1.0) and public-driven assessment (Step 2.0); the final section should contain specific "directions" for the remainder of the project, including design criteria, performance measures/targets, and specific preservation, enhancement, and avoidance goals. Ideally, this entire "report" is less than five pages in length, including 1-2 maps and written in clear, accessible language (translations to languages other than English may be warranted depending on the demographics of those residing and working in the corridor).*

**Step 3.0: Selection of a Preferred Option.** Unlike other practices narrowly defined by the street itself, the preferred option in a complete street study should (1) include actions outside the street right-of-way, including development, zoning, and other policy actions; and (2) clearly identify options that were considered and why they were not chosen based on performance measures, alignment with current plan/policy, and/or alignment with public/stakeholder input from Step 2.0. At a minimum, documentation describing the selection process should answer the following questions:

- How does the preferred option compare to other considered options in terms of the performance measures selected for the project and public inputs?
- What were the public comments on the preferred option, and how did the study team respond to each of the main categories of commentary? How did the comments change the design, policy, or other recommendations contained in the project plan? [In order to answer this question a public forum has to be held specifically to review the preferred option, effectively and inclusively getting public input from the affected communities.]
- A conceptual corridor map should be created on an aerial map (1"=200') describing the structures, design features, resources, aesthetic/streetscape improvements, and multimodal treatments throughout the corridor. A separate map and accompanying text may contain descriptions of cross-access between properties and other access management treatments; suggested land use/design recommendations/policies; wayfinding/gateway treatments, and other suggestions that support identified economic and community goals.
- Any changes to adopted plans, policies, ordinances, or other existing documentation to bring them into compliance with the recommendations should also be briefly identified.

*Technical Products: The total report, building on the Existing Conditions+Directions report from Step 2.0, will be as brief as possible without sacrificing a thorough response to the above elements; no more than 10-20 pages in length is suggested. Additional details that may lengthen the final report include the following: (1) The most important aspects of the report are contained in an explicit set of design criteria that will be carried forward into final design and construction bid documentation to ensure that the major elements of the study that are important to the community are fairly reflected in the ultimate product; and (2) Specific design elements, such as crossing treatments, on-road bicycle facilities, signal improvements, intersection improvements, ADAAG/PROWAG-related improvements, cross-access / access management features, and the like have to be clearly identified so that they can be implemented during private development actions as well as during street reconstruction, maintenance, and utility actions taken by the local and state governments.*

# Program Recommendations

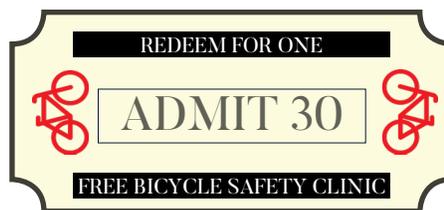
**P**edestrian and bicycle facilities alone do not make a town pedestrian- or bike-friendly. A variety of programs should also be implemented to create and support a culture of excellence. A pedestrian-friendly culture has several different characteristics, including the behavior of people when they are walking, the attitude of motorists in the community towards pedestrians, and the role of police and other law officials to enforce pedestrian safety. To address all of these elements, programs are often created to fit within four of the “Five E’s” of successful bicycle and pedestrian planning: education, encouragement, enforcement, and evaluation (the other “E” being engineering, for projects).

Education programs teach others about safe pedestrian behaviors, the benefits of walking, and can assist people in feeling more comfortable with their “new” mode of travel. Education programs can also be used to teach motorists how to interact safely with pedestrians. Encouragement programs, like education programs, can also teach about the benefits of walking, and serve to promote walking and pedestrian-friendly behavior through various activities and incentives. Enforcement programs provide the “teeth” of a safe and legal pedestrian environment. When law enforcement officers and other officials protect pedestrians and encourage walking, this sends a clear message that the presence of pedestrians is a legitimate and permanent condition in the town’s transportation network. Lastly, **evaluating** a complex, interdependent system like an entire town and its many partnering agencies requires periodic evaluation of past actions that, in turn, adjust recommendations and future actions - and celebrate past successes. Additional resources for educational and enforcement resources are available at [www.pedbikeinfo.org](http://www.pedbikeinfo.org).

There are many sources of funding to draw from when considering possible funding sources for programs, planning, design, implementation and construction for active mode projects. It is important to consider several different sources as not all planning, design or construction activities or programs will be accomplished with a single funding source. This section outlines potential sources of funding from the federal, state, and local government sectors, as well as private and non-profit sources. The funding amounts, cycles, and the programs themselves change periodically, so it is advised to contact the funding source liaison.

This Plan will not attempt to list every possible bicycle or pedestrian program, but instead focus on those programs that most closely suit the interests, needs and environment found in Beaufort. Stakeholders and citizenry spoke often about maintenance issues, historical context, and safety at intersections for children, tourists, and residents of all ages. Programs were included in the recommendations that support further education to drivers as well as children to develop better walking behaviors.

Above all, the Town can and should build on the interests of its partners as well as on existing programs. Beaufort has a very important resource: retirees and people that want to be engaged in their community with time to do so. The Beaufort Historical Association expressed enthusiasm for refining and promoting walking tours; the Boys’ and Girls’ Club representatives told us of their interest in promoting bicycle safety for their charges; and we heard passionate and well-informed calls for accessibility measures for sight- and hearing-challenged members of the community. When a place is made safe for youth, elderly, those unfamiliar with the environment, and with mobility needs then it becomes a great walking community. Time and commitment, not money, are the most important ingredients.



### **Safe Routes to School / Lets Go NC!**

Safe Routes to School is a national and international movement to enable and encourage children, including those with disabilities, to walk and bicycle to school. Successful Safe Routes to School programs involve the whole community and take a comprehensive approach to improving safety, which benefits all pedestrians and bicyclists. Through a joint partnership between NCDOT's Safe Routes to School Program and NC Division of Public Health, Active Routes to School Regional Coordinators help to implement Safe Routes to School strategies in partnership with local communities across North Carolina. More information on NCDOT's SRTS Program is available at [https://connect.ncdot.gov/projects/BikePed/Documents/NCDOT\\_SRTS\\_Description.pdf](https://connect.ncdot.gov/projects/BikePed/Documents/NCDOT_SRTS_Description.pdf). Information on Active Routes to School is available at [www.communityclinicalconnections.com/activeroutes](http://www.communityclinicalconnections.com/activeroutes). Another NCDOT-sponsored program, Let's Go NC teaches children how to walk and bike safely. This program was developed for NCDOT and SRTS to provide a curriculum that offers children the skills to build safe habits while practicing an active lifestyle. More information regarding the program can be found at [www.ncdot.gov/bikeped/safetyeducation/letsگونc](http://www.ncdot.gov/bikeped/safetyeducation/letsگونc).

### **Conduct an Open Streets Event**

The Open Street Initiative closes streets to traffic to provide an open area for physical activity including playing, walking and biking, providing a temporary area for the community to see streets and neighborhoods as real places where people live and move. For example, Raleigh closes several downtown streets for music and food events. Carrboro opens space in the streets for yoga, Zumba, craft activities and bike races.

### **Eat Smart Move More NC**

Eat Smart Move More NC is a movement that promotes healthy lifestyles and active living. The initiative offers a variety of tools and programs for communities to promote healthy eating and physical activity. More information can be found here [www.eatsmartmovemorenc.com/ProgramsNTools/ProgramsNTools.html](http://www.eatsmartmovemorenc.com/ProgramsNTools/ProgramsNTools.html).

### **Speed Campaign Tool Kit**

The NHTSA designed a toolkit providing tools and marketing ideas for supporting local speed management initiatives. Slowing drivers to enforced speed limits can reduce risks of pedestrian accidents and encourage more people to walk and bike. Tools developed by the NHTSA include media materials, billboards, posters and logo ideas. More information on the initiative can be found at <http://icsw.nhtsa.gov/newtsm/tk-speeding>.

### **Walking / Bicycling Club**

Parents, educators, and health professionals all bemoan the lack of walking, biking, and general level of inactivity among children. Starting a club that centers on bicycling or walking, along with parents and educators willing to volunteer their time to facilitate the program, is one way that some schools are approaching the problem. Consider the following to get started: [www.healthiersf.org/Nutrition/Action6/6-Seek\\_Inspiration/3inactionWalkingClub.php](http://www.healthiersf.org/Nutrition/Action6/6-Seek_Inspiration/3inactionWalkingClub.php).

### **Bicycle Safety Clinic**

The League of American Bicyclists (LAB) is one of the oldest transportation organizations in the country. Among other things, LAB sponsors youth education and training. This plan's consultant project manager, Scott Lane, is a certified Master Instructor with the LAB (#3102), helped found a volunteer organization to teach bike safety, and has offered to work with the Boys' and Girls' Club of Carteret (or another group) to do an adult training class followed by a kid's training. See the LAB site for information ([www.bikeleague.org](http://www.bikeleague.org)) or contact Scott Lane ([scott.lane@stantec.com](mailto:scott.lane@stantec.com)) to get rolling.

### **Watch for Me NC**

The "Watch for Me NC" program aims to reduce pedestrian and bicycle injuries and deaths through a comprehensive, targeted approach of public education, community engagement, and high visibility law enforcement. On this site you can learn more about how to be a safer driver, bicyclist, and pedestrian, and ultimately, reduce the number of people hit or killed by vehicles on North Carolina streets.

### **Bicycle Helmet Initiative**

Funded by the proceeds from North Carolina's "Share the Road" speciality license plate, the program distributes helmets to government and non-government agencies conducting bicycle safety events for underprivileged children. The Division of Bicycle and Pedestrian Transportation accepts applications and distributes helmets each year. Check <https://www.ncdot.gov/initiatives-policies/safety/bicycle-helmets/Pages/default.aspx> for information on application details.

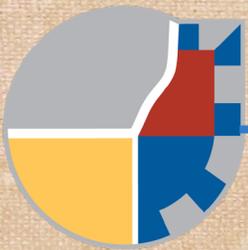
# Best Practices Recommendations

- **Countdown Pedestrian Signals.** Continue installing “countdown” pedestrian signal heads and crosswalks with the installation of all new signalized intersections. Provide pedestrian signals even in locations without sidewalk on one or both sides of an intersection.
- **School Zones.** Create a policy that requires “safe zones” around schools (i.e. school zones) in which speeds are reduced by 10 mph within a quarter mile of the school and signs are posted warning of school and student presence. Typical school zone speeds are 25mph or 35mph. “School” crossing pavement markings are used to reinforce signage, and flashing beacons often accompany speed limit signage.
- **Signage.** Restrict use of free-flowing turn lanes, utilizing “No Right Turn on Red” signage at signalized intersections with high pedestrian volumes. Provide appropriate treatments to warn both motorists and pedestrians of potential conflicts when free-flow turn lanes are used (e.g. “Yield to Pedestrians” signage).
- **Signal Timing.** At intersections with protected right-on-red for automobiles, provide signal phases which specifically create protected crossing intervals for pedestrians.
- **UDO Role.** Update language in the UDO to require greenway connections/easements for all new development within a 1/4 mile of greenways included in local and state plans.
- **Water Allocation Policy.** Update the Water Allocation Policy to give more points for building greenways on developing properties.
- **Sidewalk Petition Process.** Develop a sidewalk petition process and budget allocation to handle “spot improvements,” allowing citizens to make requests for short sidewalk connections that will quickly and easily fill gaps in the pedestrian network. Once program is implemented, promote the program to citizens and educate residents on details in order to ensure its success and utility.
- **Education.** Create education programs for the public about the benefits and the means to incorporate walking into their daily lives
- **Crosswalk Installations.** Create a policy of installing high-visibility (zebra-striped) crosswalks at all intersections within a school zone, as well as in the Central Business District (downtown). Though motorists are required by law to yield the right-of-way to pedestrians at marked and unmarked intersections, crosswalks can be an awareness-building treatment and their visibility is very important in key locations.
- **Sidewalk & Crosswalk Maintenance.** Existing sidewalks that are cracked, uneven and impassable should be checked and repaired immediately. A regular maintenance schedule should then be established for periodic repairs of sidewalk cracking and restriping of crosswalks that fade with weather and wear.
- **Parks & Open Space Planning.** Update the Town’s Recreation, Park, and Open Space Plan to incorporate and expand upon the ultimate recommendations of this plan
- **Pedestrian Design Standards.** Develop Engineering & Design Standards for pedestrian accommodations. Ensure that such guidelines explicitly state that all facilities must comply with the requirements outlined in the American Disabilities Act Accessibility Guidelines for Buildings and Facilities. These standards should generally follow those provided by this Plan, NACTO, and MUTCD.
- **ROW dedication.** Create a policy to require right-of-way (ROW) dedication, instead of ROW “reservation”
- **Bridge Accommodations.** All new and retrofitted roadway bridges should accommodate pedestrians through the inclusion of sidewalks on at least one side of the facility (preferably both) and pedestrian-safe railings (42ft minimum height).
- **Ordinance.** Beaufort should consider policy changes and new ordinance language that requires dedication of trail easements for future construction and/or construction of connector trails to proposed and existing greenways during all new development.
- **Improvement Plan.** Improvements included in this Plan should be included in the next Capital Improvement Program update.
- **Comfort Items.** Include items that provide comfort when upgrading or adding new pedestrian facilities. Items such as street trees, benches, parklets and barriers provide a feeling of comfort and safety to pedestrians and can increase walking trips.
- **Design Guidance.** Design of pedestrian facilities around transit stops should be based on guidance (<https://nacto.org/publication/urban-street-design-guide/street-design-elements/transit-streets/bus-stops/> and [http://www.pedbikeinfo.org/pdf/PlanDesign\\_Tools\\_Audits\\_EasterSealsBusStopAccess2006.pdf](http://www.pedbikeinfo.org/pdf/PlanDesign_Tools_Audits_EasterSealsBusStopAccess2006.pdf)) for pedestrian access and ADA access around the stop.

- Action/Administrative Actions
- Policies/Updates
- Projects/Maintenance
- Design Guidance/ Best

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# Implementation Plan

# Implementation Plan

## programs, action plan/steps, funding sources

Implementing the recommendations contained in the Beaufort Bicycle and Pedestrian Master Plan is the work of years, not months. In an era of fiscal constraint and continuing development from federal to state to local governments, traditional tax-based revenue streams will have to be supplemented by private sector and policy actions.

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Completion of the Beaufort Plan is only the first step in creating a walkable community. The implementation of the Plan will require a coordinated effort amongst Town officials, leaders, and citizen volunteers. This section provides a series of actions steps for moving forward with the recommendations of the Plan.

**1) Adopt this Plan.** Adoption of this Plan will be the first step to implementation for Beaufort. Once adopted, the Plan should be forwarded to regional and state decision-makers, such as the MPO and NCDOT Division office, for inclusion in a regional planning and development processes.

**2) Form a Bicycle and Pedestrian Advisory Committee.** The planning process has engaged many citizens in visioning and goal-setting for Beaufort. Building on this momentum to keep citizens engaged in a permanent committee structure will allow continued citizen involvement in the Plan's implementation.

**3) Secure funding for the short term projects.** In order for Beaufort to become a more pedestrian and cycling-friendly Town, it must have the priorities and the funding available to proceed with implementation. The Town should work to secure funding for implementation of several short term projects (see the System Plan section) and develop a long-term funding strategy. This will help reinforce the commitment to the Plan and reaffirm to residents that the Plan is moving forward.

**4) Begin work on top priority projects.** In addition to committing local funds to high-priority projects in the Plan, the Town should work with NCDOT on a local Safe Routes to School (SRTS) project and/or seek other state, national or private funding sources for continued, long-term success in implementing the Plan.

**5) Adopt policy changes that support the goals of the Plan.** Proposed ordinance changes that will be crucial to balancing the public/private burden of implementing this Bicycle and Pedestrian Plan are listed in the implementation section of the Plan.

**6) Develop supportive education, encouragement and enforcement programs.** Pedestrian and bike facilities alone do not make a town pedestrian and bike friendly. A variety of programs should also be implemented to create and support a multi modal friendly culture. Programs and policy priorities should be implemented alongside infrastructure improvements.

**7) Embark on complementary planning efforts.** The Town should incorporate the recommendations of the Plan into future and existing Plans developed and updated at the local, regional and statewide level.

# Performance Measures

Performance measures developed early in the planning process is useful in assessing whether the plan is meeting the goals over time. The three measures outlined below are how Beaufort can track successful whether improvement is being made to make Beaufort more walkable and bikable.

## Safety

- Reduce crash rate by half in ten years.
- Reduce crashes to zero by 2040.

## Access

- Intersections within 1/2 mile from school are complete with cross-walks and ADA ramps within 2 years.
- Completed network around schools within 3 years.

## Connectivity

- A recognized route from the southern part of Town to the northern part will be signed for cyclists within 2 years.
- Complete recommendations in Plan by 2040.



## Action Plan for Implementation

Task	Lead	Support	Details	Phase
Newly formed BPAC should review and assist in implementing the Plan	BPAC/Town Commissioners	Town Commissioners/ Staff	The BPAC should focus on implementation of this Plan and coordinate with regional partners to promote walking and biking in Beaufort	Short-Term
Begin annual meeting with key project partners	Town Commissioners, Staff, BPAC	NCDOT, Local and Regional Stakeholders	Project partners discussed throughout the implementation section of this Plan should meet on an annual bases with the Town to evaluate the implementation of the Plan.	Short-term (ongoing)
Monitor NCDOT bridge replacement projects, resurfacing and STIP allocations	Town Staff	NCDOT, Down East RPO	The Division 2 road resurfacing schedule presents potential for opportunities to accomplish the projects that require pavement markings, such as intersection improvements. For implementation of pavement markings, it is essential that Cities and Towns stay in close touch with the local highway Division operations and maintenance staff, to stay on top of the resurfacing schedule and keep closely abreast of any updates or changes to the schedule. It's easy with staff turnover and other factors to miss an opportunity for pavement re-striping; talking and checking back with the Division at least once every quarter is not too often! Resurfacing is a very important part of implementing crossing facilities and comes at very little cost, so definitely indicate these actions and details in the table. The Town should not rely on the Division to inform the Town when resurfacing will be done; rather, the Town needs to stay on top of this and initiate quarterly check-ins with Div O&M personnel.	Short-term (ongoing)

Table 4 : Action Plan

## Action Plan for Implementation

Task	Lead	Support	Details	Phase
Update Plan	Town Staff, Commissioners, BPAC	NCDOT, Down East RPO	This Plan should be updated every 5 years. If many projects and programs have been completed within that time frame, a new list of priorities should be established.	Long Term
Implement Programs	Town Staff, BPAC	Town Commissioners	Implementation of Programs recommended in the Plan should begin immediately. New programs that fit the Town's needs should be considered and added to the list.	Short Term (ongoing)
Update Policies	Commissioners	Town Staff	Policy update recommendations (discussed in the previous chapter) should be undertaken to assist in promoting walking and biking into future development. Guidance policy manuals should be used when updating policies.	Short Term
Create a Complete Streets Policy	Commissioners	Town Staff	As discussed on page 65, the Town should develop a Complete Streets Policy	Short Term
Develop a process for Applying the Newly Created Complete Streets Policy	Commissioners	Town Staff	A detailed process for implementing Completing Streets Policy should be implemented. Pages 65-67 detail the design analysis process.	Short Term
Designate Staff	Town Commissioners, Staff	Town Staff	Designate staff to oversee the implementation of this Plan and the proposer maintenance of the facilities.	Short Term
Launch Programs as New Projects are Built	BPAC	Town Staff	Assist in the coordination of education and encouragement programs.	Mid Term (ongoing)

Table 4 : Action Plan (cont'd)

# Potential Financing Sources

How projects get implemented

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Today's funding picture requires a palette of sources comprised of many organizations and players, sometimes in collaboration to complete construction or maintenance of active mode infrastructure or programs. Below is a basic guide to the main sources of funding; grants and even state-level funding are always subject to some change, however, so early and proactive are watchwords when seeking project funding.

**Federal / State.** These two are best considered together, since federal funds frequently have to pass through the state (NCDOT) before being disseminated to local government. Major streets are typically the purview of the state, and any improvements are required to be approved by local staff. Powell Bill funds are distributed to local governments based on their population and miles of local streets; they can be used to construct sidewalks or safety-related projects but are a minor source (\$122,250 in fiscal year 2018) stretched thinly to address key maintenance issues. The state's transportation funding is allocated on a formulaic and competitive basis. Beaufort's active mode projects would generally have to compete with other areas for Division-level funding, about 30% of the total programmed funds - none of which can be state funds, based on past legislative action. Although qualitative inputs are important, quantitative information about primary and secondary destinations (e.g., schools, parks, tourism attraction, mixed-use neighborhoods), crashes, on-road speed limit, and cost / local matching funds are factors. Finally, towns need to have frequent (quarterly) communication with NCDOT Division / District staff to understand repaving schedules that may result in markings and signage for bicycle lanes, intersection treatments, and so forth.



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Increase walkability and connectivity within the town and make sidewalk repairs.

*Fiscal Year 2018 goal for Beaufort Public Works*

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**Local (Town of Beaufort/Carteret County).** The town may direct their own staff or engage contractors to implement projects, and wisely seek to partner with NCDOT (Division) staff when possible. A recent example is the work being done by the town to conduct a pavement assessment to understand priority resurfacing and rehabilitation projects on all (local and state) streets. Not all funds collected can be used for any purpose (general fund); fees collected for water and sewer must be used for those purposes - although resetting drainage facilities sometimes requires modifying curb ramps that can also be updated with ADA-compliant tactile/visual warnings. Beaufort's part of the county-applied ad valorem sales tax amounted to \$1.1 million in fiscal year 2018. The town's Public Works Department is busy: it maintains 1,400 feet of boardwalk, seven parks, manages recycling, and repaired 32,000 square feet of sidewalk among many other tasks in 2017.

**Private Sector.** In 2016 Beaufort received a one-time donation of \$2 million from an individual; although an unusual occurrence, it illustrates the commitment and power of the town's citizens, which may include volunteers to help with typical clean-up or landscaping (e.g., Beaufort Garden Club). More commonly, private development is required to create sidewalks or make intersection improvements as part of addressing their impacts on the transportation system from new users.

**Grant Programs.** A kaleidoscope of grant programs is available, although all have differing target project criteria and timelines for applications. Having a dedicated person deal with these funds is advisable; working through the Council of Governments may help multiple towns compete for grants cost effectively.

Table 5 provides an overview of how some of the higher-priority projects could be financed; potential funding sources are discussed in greater detail beginning on page 80.

LOCATION	BENEFITS	DESCRIPTION	FUNDING SOURCE & RESPONSIBLE PARTIES			
			S	L	P	O
CEDAR ST / LIVE OAK	   +	Install curb ramps, pedestrian signals, high-visibility crosswalks	●	●		
CEDAR STREET CORRIDOR (LIVE OAK TO TURNER)	  	Add on-street parking, sharrow pavement markings, streetscaping, lighting, and repair existing sidewalks	●	●		
LIVE OAK ST CORRIDOR (CEDAR STREET TO NC 101)	  	Add bike lanes, pocket medians, streetscaping, lighting	●	●	●	
LIVE OAK ST / NC 101	+	Construct one-lane roundabout, lighting, high-visibility crosswalks	●			
FRONT STREET		Double the density of sharrow pavement markings as currently in place		●		
LENNOXVILLE ROAD (LEONDA DR TO CARTERET AVE)	  	Construction of parallel multi-use path on north side of roadway	●	●	●	
VARIOUS LOCATIONS		Gateway signage (four locations)		●		●
FAIRVIEW ROAD (LIVE OAK ST TO SHERWOOD RD)	 	Construct sidewalk on north side at school, signage, crosswalks	●	●		●
CARTERET AVENUE (FULFORD AVE TO THIRD)	 	Construct sidewalk on east side of street, crosswalks, curb ramps		●		

**Legend for Symbols Used**

-  BICYCLE
-  PEDESTRIAN
-  MOBILITY IMPROVEMENTS
- +** SAFETY IMPROVEMENTS
- (S)tate Funding
- (L)ocal Funding
- (P)rivate Construction
- (O)ther, e.g., grants

**Table 5: Potential Financing Sources**

Note: sources indicated for various projects indicate best opportunities; all funding sources should be considered as they become available

## Federal Funding Sources

### Fixing America's Surface Transportation (FAST) Act

The "Fast" Act was signed into law in 2015 and will create a 5-year certainty for states and local governments to fund specific projects. The bill's total 5-year funding pot is \$305 billion, with \$835 million in 2016 and 2017, and \$850 million in 2018-2020 dedicated to bicycle and pedestrian projects. The FAST Act is the first ever federal transportation bill to include Complete Streets Guidelines. The requirements help ensure that new National Highway System roadways offer better transportation options and keep pedestrians safe in and around roadway corridors. It also requires the use of NACTO's Urban Streets Design Guide when designing roadways, as well as permitting local governments to use their own adopted design guidelines if they are the direct recipient of federal funds, even if it differs from state standards. Part of the federal funding program, the Surface Transportation Block Grant (STBG) provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure.

### Federal Transit Administration

This program provides funding for transportation projects at the federal level and is allocated to State Department of Transportations. The State then applies funding to eligible projects. Projects including pedestrian projects are eligible as they increase safety for users and enhances interaction of all users on the full transportation network. One often-overlooked potential resource is funding for connecting transit stops with pedestrian facilities. <https://cms.fta.dot.gov/>

### Safe Routes To School (SRTS)

The Federal Safe Routes to School program was established in 2006 and provided funding to all State Departments of Transportation. More recent legislation did not include funds specifically for Safe Routes to School, though projects to improve walking and bicycling safety are still eligible under the Transportation Alternatives Program. Infrastructure projects can only be considered Safe Routes to School projects if they are located within two miles of an elementary or middle school. Visit [https://connect.ncdot.gov/projects/BikePed/Documents/NCDOT\\_SRTS\\_Description.pdf](https://connect.ncdot.gov/projects/BikePed/Documents/NCDOT_SRTS_Description.pdf) for more information.

### Transportation Alternatives Program Grants

The Fixing America's Surface Transportation (FAST) Act set-aside program funding for transportation alternatives. These funds include all projects and activities that were previously eligible under TAP, encompassing a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity. The town should continue to apply for grants to support funding for the projects in this Plan.

## **State/Local Funding Sources**

### **Capital Improvement Program (CIP)**

Currently Beaufort has a CIP that outlines funded prioritized improvement projects. Future multi-modal transportation projects should be considered when amending the CIP each year.

### **Powell Bill**

This program is paid to municipalities for the purposes of maintaining or constructing local streets that are the responsibility of the municipalities. Funds can be used for planning, construction, and maintenance of bikeways and sidewalks.

### **NCDOT State Transportation Improvement Program Projects**

NCDOT funds projects both incidental to highway construction / widening and independent bicycle/pedestrian projects based on established project selection criteria. Approval of metropolitan or rural planning organizations is required.

### **Transportation Bonds**

Revenue, general obligation, special assessment are used by various government entities – after a public referendum approving the bond proposal – to construct a variety of transportation improvements.

### **Down East Rural Planning Organization**

The local RPO serves as an intergovernmental organization that works cooperatively to address transportation issues in the area. The goal of this agency is to ensure federal dollars are effectively appropriated to rural areas in the RPO area (Wayne, Greene, Duplin, Lenoir, Craven, Jones, Onslow, Pamlico and Carteret Counties)

### **Governor's Highway Safety Program**

The Governor's Highway Safety Program (GHSP) offers grants for safety improvement projects for state highways in North Carolina. Projects must focus on reducing crashes, injuries and fatalities as conditional requirements for qualifying for a potential grant. Learn more about the GHSP <https://connect.ncdot.gov/municipalities/Law-Enforcement/Pages/Law-Enforcement-Reporting.aspx>.

### **Annual Budget Allocations**

The town should set aside a budget each year so it can be prepared to participate in funding opportunities. Typically federal or foundation funds require a certain percentage of matching funds by a local government. Preparedness would eliminate the chances of losing funding due to time needed for planning and locating funds for a match.

### **North Carolina Health and Wellness Trust Fund**

The NC Health and Wellness Trust Fund was created by the General Assembly as one of 3 entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement. HWTF receives one-fourth of the state's tobacco settlement funds, which are paid in annual installments over a 25-year period. Fit Together, a partnership of the NC Health and Wellness Trust Fund (HWTF) and Blue Cross and Blue Shield of North Carolina (BCBSNC) established the Fit Community designation and grant program to recognize and rewards North Carolina communities' efforts to support physical activity and healthy eating initiatives, as well as tobacco-free school environments. Fit Community is one component of the jointly sponsored Fit Together initiative, a statewide prevention campaign designed to raise awareness about obesity and to equip individuals, families and communities with the tools they need to address this important issue. All North Carolina municipalities and counties are eligible to apply for a Fit Community designation, which will be awarded to those that have excelled in supporting physical activity,

## Grant Funding Sources

### Recreational Trails Program

NCDENR manages a trails grant program with amounts up to \$75,000 with a 25% match requirement. All grants are matched 1:1 with cash, donated property value, or in-kind services.

### Land and Water Conservation Funds (LWCF)

The LWCF program is managed by NCDENR for acquiring land at a single site with grants up to \$250,000 for permanent outdoor recreation uses.

### Parks and Recreation Trust Fund (PARTF)

The North Carolina Division of Parks and Recreation provide a matching grant through the PARTF to local governments for parks and recreational projects to serve the public.

### Community Development Block Grant

CDBG funding is intended to help communities provide housing, create suitable living environments, and expand economic opportunities primarily in low- and medium-income areas. could use these grant funds for recreation facilities and planning. It should be noted that CDBG Funds are highly competitive and the requirements are extensive. For more information, please see: [www.hud.gov/offices/cpd/communitydevelopment/programs](http://www.hud.gov/offices/cpd/communitydevelopment/programs).

### Governors Highway Safety Program (GHSP)

The mission of the GHSP is to promote highway safety awareness and reduce the number of traffic crashes in the state of North Carolina through the planning and execution of safety programs. GHSP funding is provided through an annual program, upon approval of specific project requests. Amounts of GHSP funds vary from year to year, according to the specific amounts requested. Communities may apply for a GHSP grant to be used as seed money to start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis. Evidence of reductions in crashes, injuries, and fatalities is required. For information on applying for GHSP funding, visit: [www.ncdot.org/programs/ghsp/](http://www.ncdot.org/programs/ghsp/).

### North Carolina Conservation Tax Credit

Persons donating their land through conservation easements for public trails (among other uses) can receive up to \$250,000 or 25% of the fair market value of the land conserved. Credits are not transferable to new property owners.

### Z. Smith Reynolds Foundation

This Winston-Salem based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. The foundation has two grant cycles per year and generally does not fund land acquisition. However, the foundation may be able to support municipalities in other areas of greenways development. More information is available at [www.zsr.org](http://www.zsr.org).

### Blue Cross Blue Shield of North Carolina Foundation Grants

The Blue Cross Blue Shield (BCBS) Foundation's mission is to improve the health and well-being of all North Carolinians by supporting living in active communities. BCBS's Healthy Living priority area emphasizes that healthy choices are made in communities and schools through access to safe, inviting places to be active such as sidewalks and safe places to bike. The program's strategy focuses on planning, promotion and consumer demand to get people out and active on sidewalks and existing trails. Local government entities are eligible to apply, and be able to submit select components of a certified public accounting audit, dependent on annual revenues. In addition to grant-making, the Foundation also supports programs such as Be Active Kids and Healthy Community Institute, which are direct service programs that address healthy communities. More information: <http://www.bcbsncfoundation.org/grantees/available-grants/>

### Alliance for Biking and Walking: Advocacy Advance Grants

Advocacy Advance's Rapid Response Grants are predominately for advocacy efforts to help local organizations win, increase, and preserve public funding in their communities. The grants are short-term campaigns and aims to support how active transportation investments, whether from federal, state or local sources, are spent. More information: <http://www.advocacyadvance.org/grants#rapidresponsegrants>

## Grant Funding Sources (continued)

### North Carolina Community Foundation

The North Carolina Community Foundation provides funding assistance through their community grant-making program which helps to meet local needs in the form of education, human services, basic needs, health, recreation, youth development, environment, and others. More information: <http://www.nccommunityfoundation.org/grants-scholarships/grants/grantmaking-guidelines>

### Project For Public Spaces

Project for Public Spaces Heart of the Community grants provide financial and technical assistance to connect people and strengthen communities. The grant aims to support approximately six projects per year, and looks to address clear needs in the local community and have the potential for catalytic improvements. Grants have ranged between \$50,000 and \$100,000 to the grantee, plus an equivalent amount of in-kind support in the form of technical assistance from PPS staff, so the total values of the grants could be between \$100,000 and \$200,000. More information: <http://www.pps.org/hotc-faq/>

### Duke Energy Foundation

The Duke Energy Foundation provides support to address the needs of the communities their customers live and work, with one of their focus areas being community impact.

The foundation receives grant requests for funding during the request for proposal cycle, which are published online and in the grant application. More information: <https://www.duke-energy.com/community/foundation.asp>

### Impact Fees

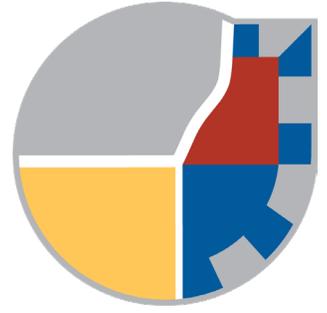
Impact fees are permissible in North Carolina only by authorization from the State of North Carolina. As time passes, this option may become more feasible than it is today. Impact fees can be placed on new development (usually by square footage of building footprint) to finance parks, utilities, transportation, and school (in counties) construction. Greenway sections may be purchased with stormwater fees, for example, if the property in question is used to mitigate floodwater or filter pollutants. Impervious surfaces (such as rooftops and paved areas) increase both the amount and rate of stormwater runoff compared to natural conditions. Such surfaces cause runoff that directly or indirectly discharges into public storm drainage facilities and creates a need for stormwater management services. Thus, users with more impervious surface are charged more for stormwater service than users with less impervious surface.

# WALK+BIKE

## Appendix

Beaufort | nc | bicycle and pedestrian master plan

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- Source: Hungry Town Tours

# Appendix A - Recommended Project Scores and Rankings

Map ID	Recommendation	On Road	From Road	To Road	Destination	Safety	Separation	Maintain	Connectivity	Access	Score	Length (ft.)	"Term"
1	Bike Sharrow Marking	W Beaufort Rd	Turner Av	NC 101	3	1	0	0	0	0	4	3,822	Mid
2	Bike Boulevard	Turner St	Front St	Pine St	6	2	1	1	1	0	12	2,114	Long
3	Sidewalk	Carteret Ave	Fulford Street	Third Street	2	1	2	0	4	1	13	2,464	Mid
4	Bike Boulevard	Ann St	Turner Ave	Ocean St	3	4	0	0	0	0	7	6,831	Long
5	Bike Sharrow Markings	Front St	Moore St	Bel Air ST	2	2	0	1	1	0	7	6,054	Mid
6	Bike Boulevard	Fulford St	Ann St	Broad St	3	0	0	1	0	1	6	852	Mid
7	Bike Lane	Ocean Rd	Ann St	Front St	0	0	1	1	0	0	2	467	Short
8	Bike Lane	Live Oak Rd	Cedar St	NC 101	2	2	1	1	0	0	6	4,174	Mid
9	Bike Boulevard	Mulberry St	Pollack St	Cedar St	4	1	0	0	0	0	5	1,943	Mid
10	Bike Boulevard	Pollock St	Front St	Mulberry St	3	2	0	1	1	0	8	2,641	Mid
11	Bike Boulevard	Pine St	Turner Av	Carteret Av	2	2	0	0	0	0	4	1,278	Mid
12	Multi-Use Path	Live Oak St (Ph. I)	NC 101	Pinners Point Rd	5	9	2	1	1	0	19	5,188	Long
13	Bike Sharrow Markings	Cedar St	Turner Av	Fulford St	4	0	0	0	0	0	4	5,134	Mid
14	Sidewalk	Wellons Dr	Lockhart Dr	Live Oak St	3	0	2	0	1	1	8	1,815	Mid
15	Sidewalk	Live Oak St	NC 101	Campan Rd	4	0	2	0	1	1	10	2,359	Long
16	Bike Boulevard	Lenoda Dr	Freedom Park Rd	Front St	1	0	0	0	1	0	2	2,000	Short
17	Bike Lane	Future Leonda Dr Extension	Fairview Dr	Freedom Park Rd	1	0	1	1	0	0	3	2,396	Short
18	Sidewalk	Carteret Ave	Cedar St	Live Oak St	3	1	2	0	2	1	11	881	Long
19	Multi-Use Path	Lennoxville Rd	Leonda Dr	Carteret Ave	2	1	2	0	0	1	7	2,943	Mid
20	Sidewalk	Fairview Rd	Live Oak St	Sherwood Rd	2	0	2	0	1	1	8	556	Mid
21	Sidewalk	George St	Sherwood Rd	Live Oak St	2	0	2	0	1	1	8	765	Mid
22	Sidewalk	Glenda Rd	Howland Rd	Wellons St	3	1	2	0	0	1	8	1,079	Mid
23	Sidewalk	Glenda Rd	Howland Rd	Wellons St	2	1	2	0	2	1	10	1,079	Mid
24	Multi-Use Path	New Location			0	0	2	0	0	1	4	623	Short
25	Multi-Use Path	NC 101	Live Oak St	Copeland Rd	2	4	2	0	1	1	12	5,826	Long
26	Multi-Use Path	Lockhart Dr	Steep Point Rd	Campan Rd	4	0	2	0	1	1	10	600	Long
27	Multi-Use Path	Steep Point Rd (north side)	Live Oak St	Sleep Point Landing	5	0	2	0	1	1	10	3,908	Long
28	Multi-Use Path	New Location	Howland Parkway	Steep Point Rd	0	0	2	0	0	1	4	411	Short
29	Sidewalk	Carraway	End of sidewalk	NC 101	2	0	2	0	2	1	9	227	Mid
30	Multi-Use Path	Off-Road	Proposed Trail	NC 101 / Ace Hardware	2	0	2	0	1	1	8	3,000	Mid
31	Sidewalk	Freedom Park Dr	Leonda Dr	Chadwick Rd	1	0	2	0	0	1	5	1,448	Mid
32	Sidewalk	Conway Rd			1	0	2	0	0	1	5	2,094	Mid
33	Sidewalk	Chadwick Rd	Lennoxville Rd	Freedom Park Dr	2	0	2	0	0	1	6	1,991	Mid
34	Multi-Use Path	Lennoxville Rd	Chadwick Rd	Leonda Dr	3	0	2	0	0	1	7	3,886	Mid
35	Multi-Use Path	Turner Ave Off-Road	Cedar St	Proposed Trail	3	0	2	0	1	1	8	4,196	Mid
36	Pedestrian Bridge	New Location			0	0	2	0	0	1	4	549	Short
37	Multi-Use Path	New Location			0	0	2	0	0	1	4	1,056	Short
38	Bike Boulevard	Short St	Live Oak St	Sycamore Dr	3	0	0	0	0	0	3	735	Short
39	Multi-Use Path	Ace Parking Lot (redesign)	NC 101	Live Oak St	2	0	2	0	0	1	6	955	Mid
40	Bike Lane	Live Oak Rd	Front St	Cedar St	2	0	0	0	1	0	4	1,119	Short
41	Bike Lane	Live Oak St (Ph. II)	Pinners Point Rd	Olga Rd	1	1	1	1	0	0	4	5,986	Mid
42	Multi-Use Path	Campan Rd	US 70 Bypass	Lockhart Dr	4	0	2	0	2	1	11	3,455	Long
43	Sidewalk	Hedrick St	Cedar St	Lennoxville Rd	2	0	2	0	2	1	9	885	Mid
44	Sidewalk	Hedrick St	Cedar Av	1st St	2	0	2	0	3	1	10	1,280	Mid
45	Bike Boulevard	Carteret/Ricks/Sherwood/Sycamore	Fulford St	Steep Point Rd	6	1	0	1	0	0	8	7,234	Long
46	Bike Sharrow Markings	Front St	Bel Air St	End	2	2	0	1	1	0	7	5,780	Mid
47	Multi-Use Path	US 70 Bypass	Turner St	NC 101	1	2	2	0	2	1	10	3,779	Mid
48	Multi-Use Path	US 70 Bypass	US 70 Bridge	Turner St	1	2	2	0	2	1	10	1,094	Mid
49	Striped Shoulder	US 70 Bypass			1	2	1	0	2	1	9	3,044	Mid
50	Multi-Use Path	New Location	NC 101	Live Oak St	0	1	2	0	3	1	10	2,373	Short
51	Multi-Use Path	Taylorwood Farm Rd	City Limits	Taylor Farm Dr	2	1	2	0	2	1	10	2,649	Long
52	Sidewalk	Professional Park Dr	Calhoun St	Existing Sidewalk	2	0	1	0	2	1	8	479	Short



