

New Bern Bicycle & Pedestrian Plan

2022



Acknowledgements

Thank you to the community leaders, City staff, and residents that engaged in the development of this plan through meetings, mapping, and plan review. Special thanks to those who provided invaluable direction as Steering Committee members, listed below.

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Contents

Chapter 1: Introduction.....4

Chapter 2: Existing Conditions.....12

Chapter 3: Infrastructure Recommendations.....32

Chapter 4: Program Recommendations.....62

Chapter 5: Policy Recommendations.....72

Chapter 6: Implementation.....78

Appendix A: Design Resources

Appendix B: Funding Resources

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Introduction



Planning Process

Building on the existing walking/biking network in New Bern and previous planning, this document provides a framework for the City to continue strategically improving connectivity.

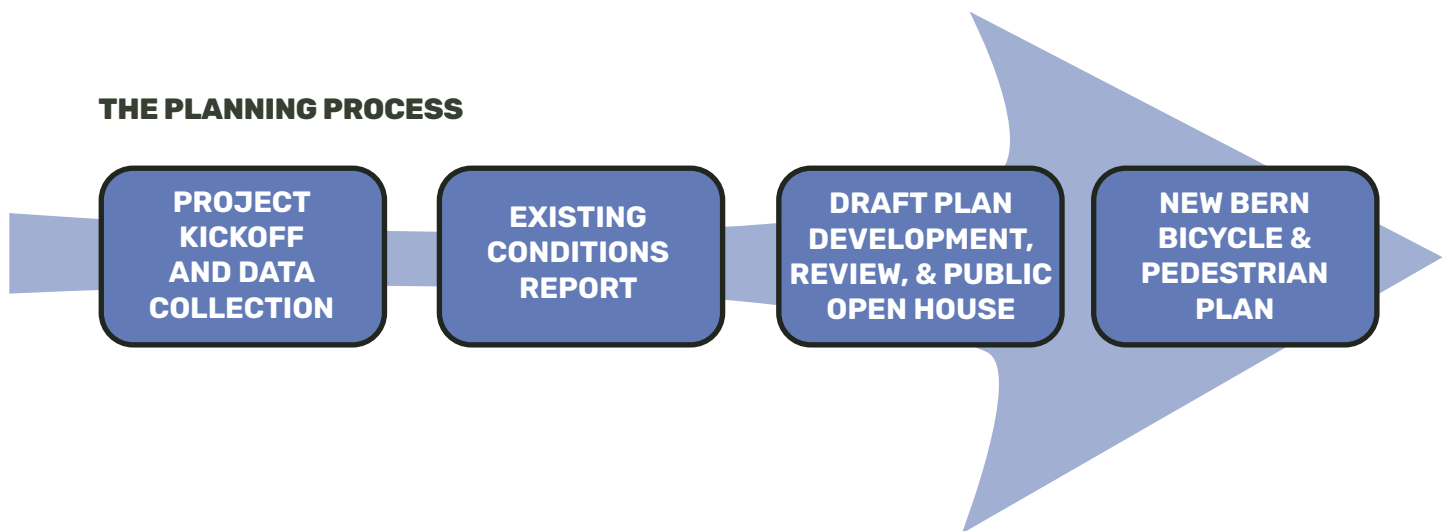
With this plan, New Bern has a guide for infrastructure, policy, and program improvements that can lead to a robust network for walking and bicycling, creating a more balanced transportation system.

The planning process began with a Kickoff Meeting in September 2021, which was the first of three project Steering Committee meetings.

The Steering Committee guided the plan's development throughout the planning process. Key steps included communicating their overall vision for the plan, identifying opportunities and challenges for walking and biking, and providing feedback on plan recommendations.

This planning effort was made possible by funding from the New Bern Area MPO and the City of New Bern.

THE PLANNING PROCESS

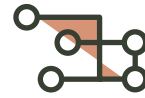


This planning process began in the Fall of 2021 and was completed in the Spring of 2022.

Project Vision

New Bern will have a walking and biking network for all ages and abilities that enhances connectivity to downtown, parks, schools, jobs, and outdoor recreation destinations on safe and accessible walkways and bikeways. This interconnected network of well-designed Complete Streets and greenways will showcase the historic small town character and scenic coastal setting of New Bern.

Project Goals



Enhance Connectivity



Improve Safety



Generate a Positive Economic Impact



Improve Health



Promote Equity



Provide Access to Natural Areas



Enhance Quality of Life through Active Transportation

The Value of Active Communities



ECONOMIC BENEFITS

Connected walking and biking trails often yield high returns on investment through economic diversification, recreational tourism, increased property values, and small business opportunities.

A 2018 study examining the economic impact of four greenways in North Carolina (Brevard Greenway, Little Sugar Creek Greenway, American Tobacco Trail, and Duck Trail) found that **every \$1.00** spent on trail construction **supports \$1.72 annually** from local business revenue, sales tax revenue, and benefits related to health and transportation.

Combined Study Results: A one-time \$26.7M capital investment in the four greenways supports:



\$19.4M

Estimated annual sales revenue at local businesses along the four greenways



\$684K

Estimated annual local and state sales tax revenue from businesses along the greenways



\$25.7M

Estimated annual savings due to more physical activity, less pollution and congestion, and fewer traffic injuries from use of the greenways



\$48.7M

Estimated business revenue from greenway construction



Source: Institute of Transportation Research and Education. (2017). Evaluating the Economic Impact of Shared Use Paths in North Carolina. <https://itre.ncsu.edu/focus/bike-ped/sup-economic-impacts/>

The study included extensive trail user surveys for each of the four greenways over a period of three years.





SAFETY BENEFITS

Dedicated walking and biking infrastructure and traffic calming help to balance multiple transportation options, and ultimately, save lives. The summary graphics below show key relationships between motor vehicle speeds as well as other crash reduction factors.

A pedestrian hit by a vehicle traveling at
25 MPH



has a **89%** chance of survival

A pedestrian hit by a vehicle traveling at
35 MPH



has a **68%** chance of survival

A pedestrian hit by a vehicle traveling at
45 MPH

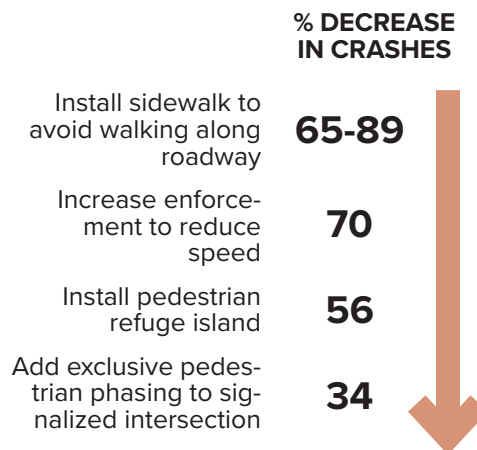


has a **35%** chance of survival

Rosén, E., & Sander, U. (2009). Pedestrian fatality risk as a function of car impact speed. *Accident Analysis & Prevention*, 41(3), 536-542.

"Communities designed to be walkable can improve safety not only for people who walk but for all community members."

- Surgeon General, 2015



Federal Highway Administration. (2008). "Desktop reference for crash reduction factors."



HEALTH BENEFITS

Walkways and bikeways offer safe and accessible opportunities for physical activity, and result in health benefits. People who walk are able to connect with places that they want or need to go.

For every
**0.6
MILES
WALKED**
there is a

5%

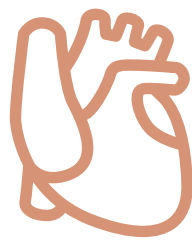
**REDUCTION IN
THE LIKELIHOOD
OF OBESITY.**

Frank, 2004



Those who are physically active generally live longer and have a lower risk for heart disease, stroke, Type 2 diabetes, depression, some cancers, and obesity.

CDC, 2015



20 MINUTES WALKING OR BIKING
each day is associated with a

21%
29%

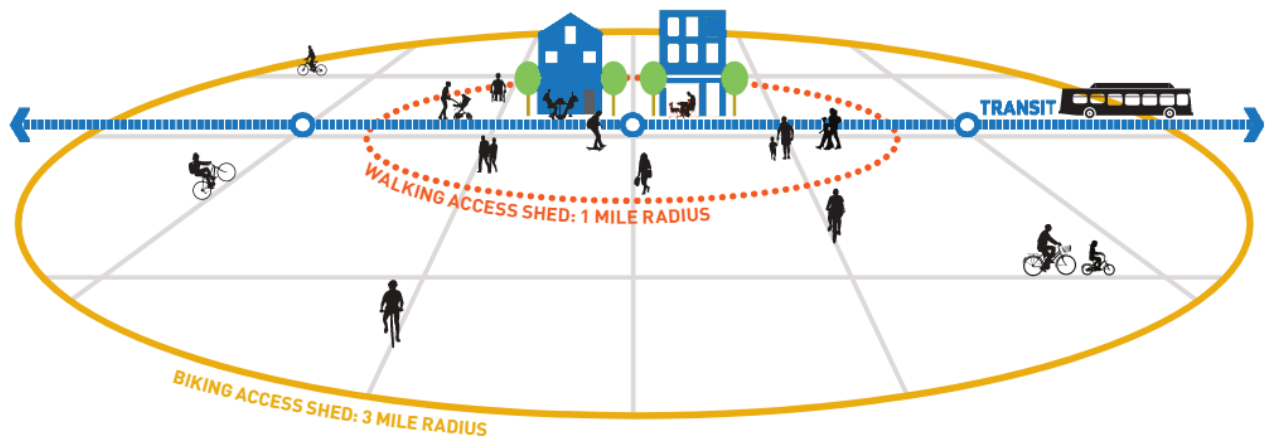
LOWER RISK OF HEART FAILURE FOR MEN
and
LOWER RISK FOR WOMEN

Rahman, 2014 and 2015



ACCESSIBILITY AND MOBILITY BENEFITS

Walkways and bikeways, when applied comprehensively, provide a critical element of freedom to those who may not have access to, or the ability to drive a motor vehicle.



40%

OF ALL TRIPS (IN THE US)
ARE TWO MILES (OR LESS),
A DISTANCE THAT CAN
EASILY BE COVERED BY A
10 MINUTE BIKE RIDE OR A
30 MINUTE WALK

NHTS, 2009

DRIVING 4 MILES/DAY COSTS*

\$905 / year
in fuel and vehicle wear and tear

*Costs are ~ \$9,300/
year for the 44 miles/
day driven by the
average driver in
North Carolina

AAA, 2019

while...

WALKING AND BICYCLING COSTS

\$0-350 / year

Your driving Costs: How Much are
you really Paying to Drive? (2019).
<https://exchange.aaa.com/wp-content/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf>



ENVIRONMENTAL BENEFITS

Decreasing reliance on automobiles and reducing congestion by utilizing walkways and bikeways will lead to improved air quality. Greenways trails can also serve as a tool for conserving open space and preserving wetlands.



IF 8% MORE CHILDREN LIVING WITHIN 2 MILES OF A SCHOOL WERE TO WALK OR BIKE TO SCHOOL, the air pollution reduced from not taking a car would be **EQUIVALENT TO REMOVING 60,000 CARS FROM THE ROAD** for one year, nationally.

Pedrosa, 2008, SRTS

\ 02 \

Existing Conditions



Introduction

Like many coastal communities, the City of New Bern, with its flat topography, has a competitive advantage in becoming a thoroughly walkable/bikeable destination as steep hills can be a significant barrier to entry for many would-be pedestrian or bicycle commuters. Furthermore, the compact downtown sidewalk grid provides many opportunities for pedestrian connections across the historic downtown core. However, several high traffic volume/speed corridors such as Dr MLK Jr. Blvd, Neuse Blvd, and US 17 in addition to geographical features such as the Neuse River and Trent River, provide key limitations to network connectivity beyond the downtown core.

On the following pages in this chapter, numerous opportunities and challenges for improving the overall walking/biking network are detailed, and are helpful starting points in developing recommendations (Chapter 3) and implementation action steps (Chapter 4).

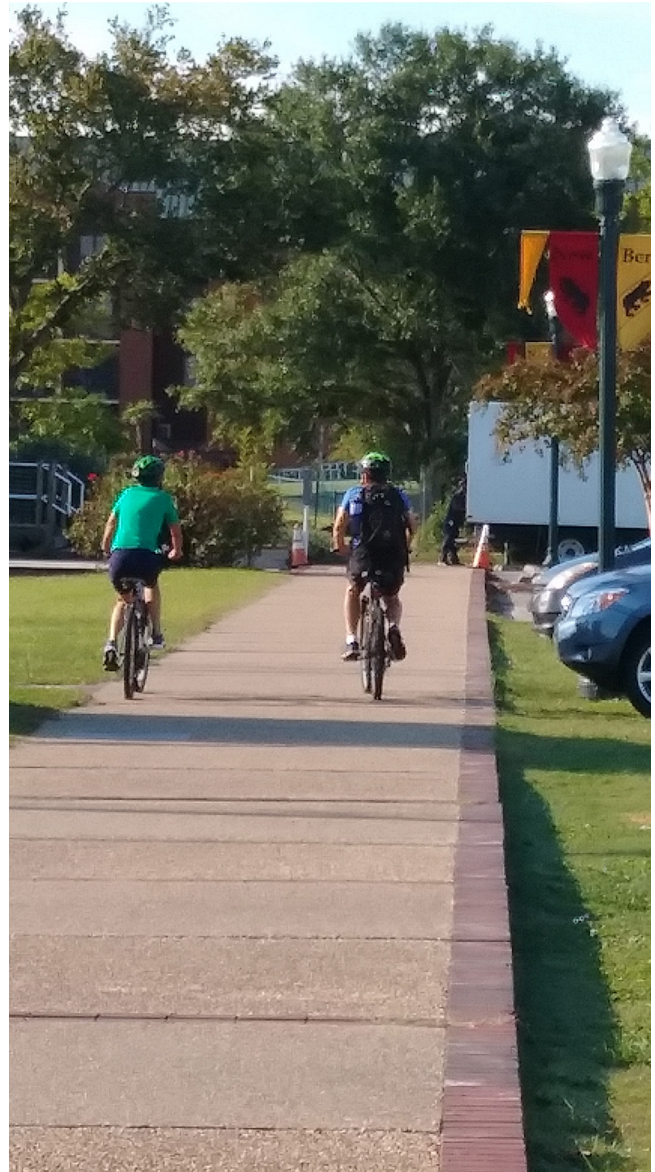
Table 1. Demographic Overview*

	NEW BERN	NORTH CAROLINA
Population**	31,291	10,439,388
Median Age	40.4	39.1
Median Household Income	\$43,204	\$57,341
%Households without a Vehicle	10.5%	5.8%
%Walk to Work	1.9%	1.8%
%Bike to Work	0.4%	0.2%

**2020 Decennial Census

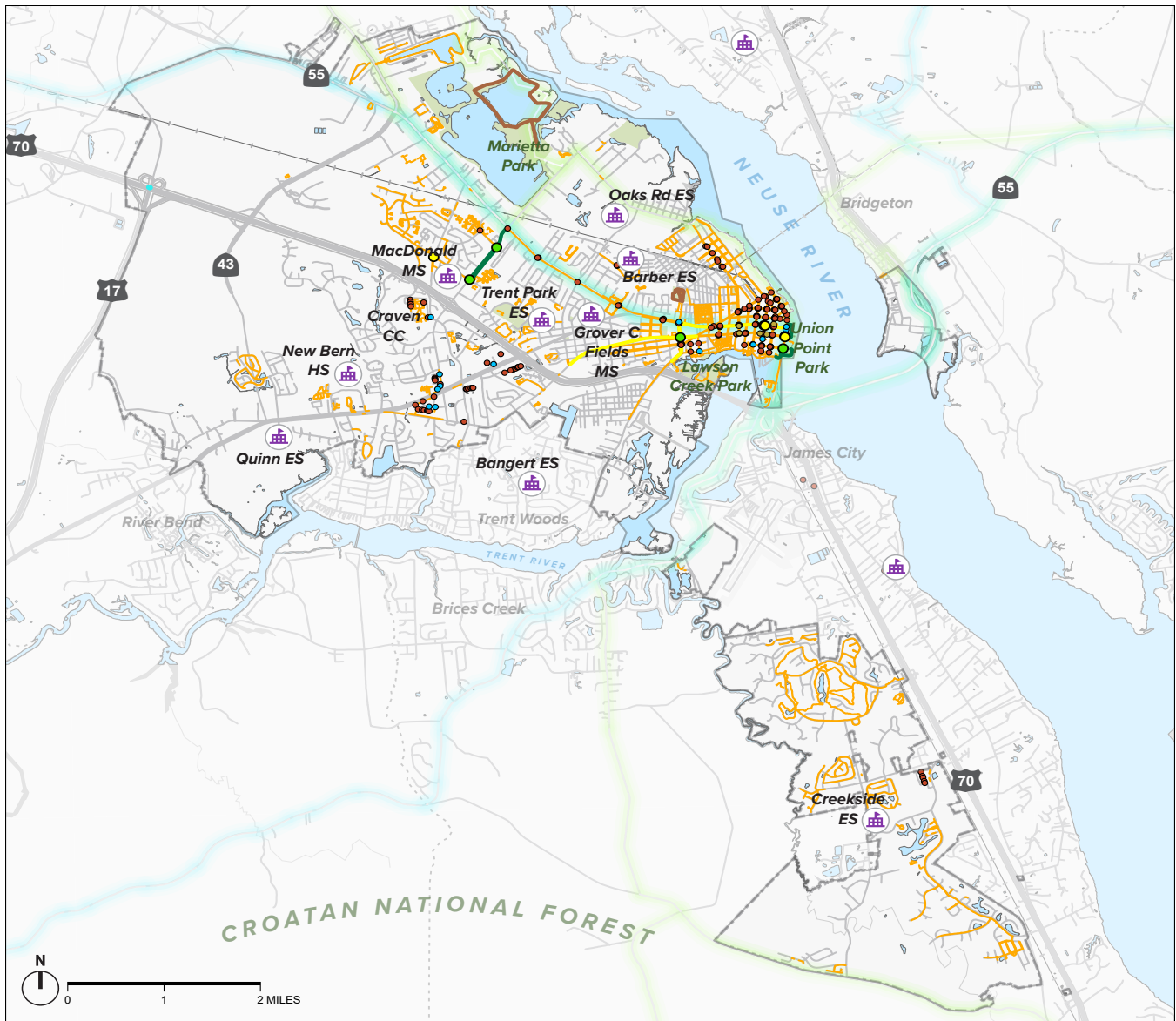
*(2019 American Community Survey 5-Year Estimates). The % of households without a vehicle highlights the importance of having a connected walking/biking network for transportation in addition to recreation. While walk to work and bike to work rates are slightly higher than the state average, with community-wide connectivity, these numbers could increase significantly.

Further general demographic information is summarized on the City of New Bern's website here - <https://datausa.io/profile/geo/new-bern-nc/>.



New Bern's Riverwalk is a popular walking/biking destination highlighting the downtown waterfront.

Existing Bicycle & Pedestrian Facilities



FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

EXISTING BIKE/PED FACILITIES

- PAVED SHARED USE PATH
- UNPAVED SHARED USE PATH
- BIKE LANE
- SIDEWALK
- STATE BIKE ROUTE
- GREAT TRAILS STATE CORRIDOR

CROSSWALK TYPE

- TWO-BAR CROSSWALK
- BRICK CROSSWALK
- HIGH-VISIBILITY CROSSWALK
- RECTANGULAR RAPID FLASHING BEACON (RRFB)
- PEDESTRIAN CROSSING SIGNAL

Existing Bicycle & Pedestrian Facilities (Downtown)



FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
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EXISTING BIKE/PED FACILITIES

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Walking and Biking in New Bern Today...

Opportunities

There are many opportunities for new or improved pedestrian and bicycle facilities in New Bern. The sidewalk network in and around the historic downtown, the developing shared use path system and bike network, the flat coastal plain topography, and continued improvements in roadway crossings are key elements of the existing network. Recent residential development across New Bern has included pedestrian facilities, expanding the sidewalk network. As growth continues, residential and commercial projects are an opportunity to continue incorporating pedestrian and bicycle facilities and close gaps in the current network.



Bicyclist in the new bike lane on 1st Street.



Rectangular Rapid Flashing Beacon (RRFB) at the Front St/Pollock St intersection.



Main Street is a key corridor that connects multiple neighborhoods and destinations, and is an important corridor for walking/biking connectivity.



The Riverwalk in downtown New Bern is a shining feature of the pedestrian network.

Challenges

While the active transportation network continues to grow incrementally, many key gaps remain. Crucial challenges include major roadway crossings; suburban automobile-oriented development patterns outside the downtown core, typically designed without pedestrian connectivity as a priority (although pedestrian circulation within them is typically sound, distances and connectivity beyond a given subdivision can be challenging to overcome). As the Town continues to make strides in ADA accessibility and pedestrian connectivity in the downtown area, there remain many locations that need additional crossing enhancements.



Narrow section of Main St - with narrow pavement width and right of way, it is challenging to create bike/ped accommodations.



Crosswalks across Broad St are needed at the Queen St intersection.

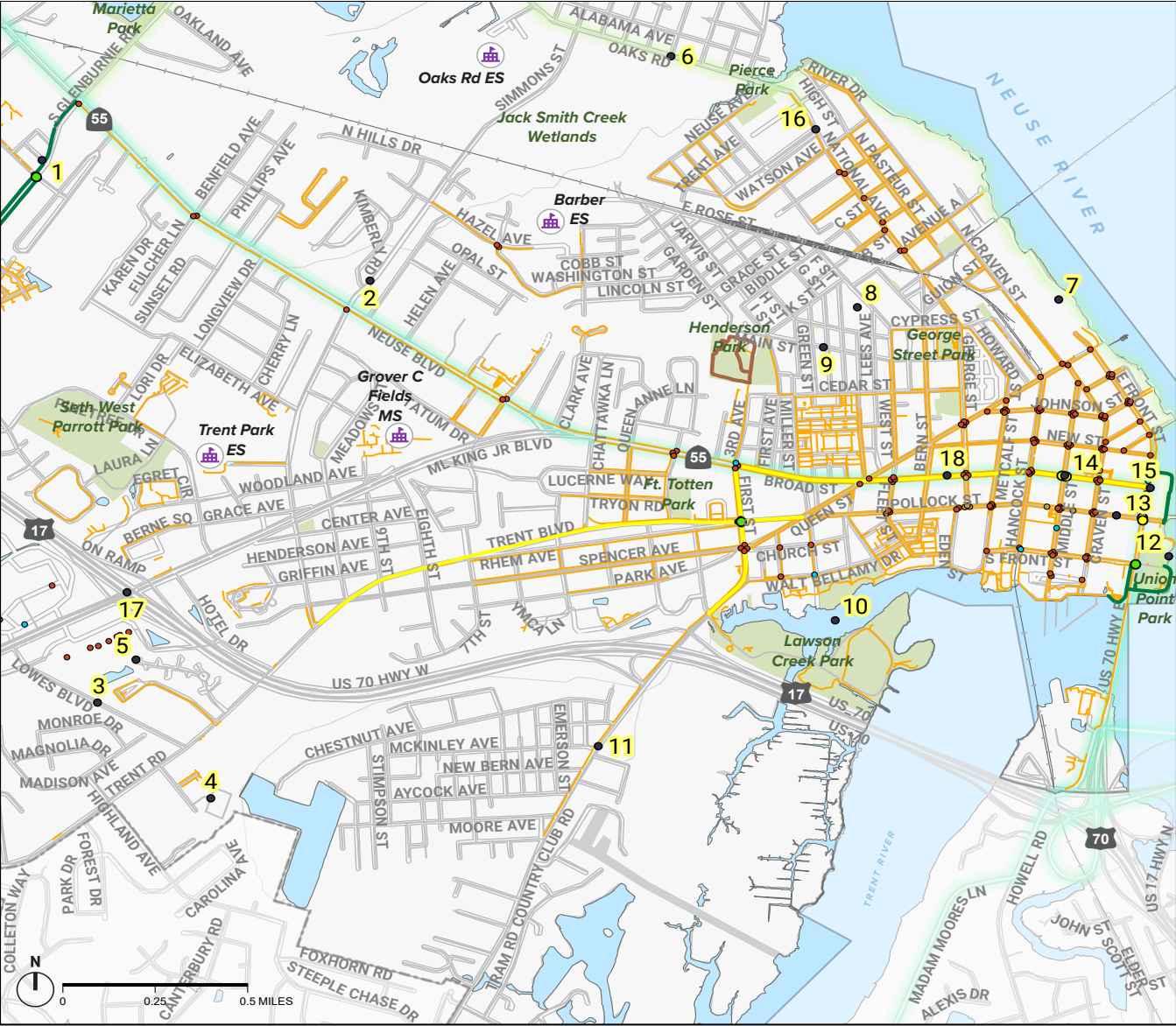


Major roads such as Dr MLK Jr Blvd are difficult to cross and separate key destinations such as Grover C Fields Middle School (pictured above) from nearby neighborhoods to the south.



Sidewalk gap along National Avenue, just north of the National Cemetery.

Opportunities and Challenges (Downtown)



FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

EXISTING BIKE/PED FACILITIES

- PAVED SHARED USE PATH
- UNPAVED SHARED USE PATH
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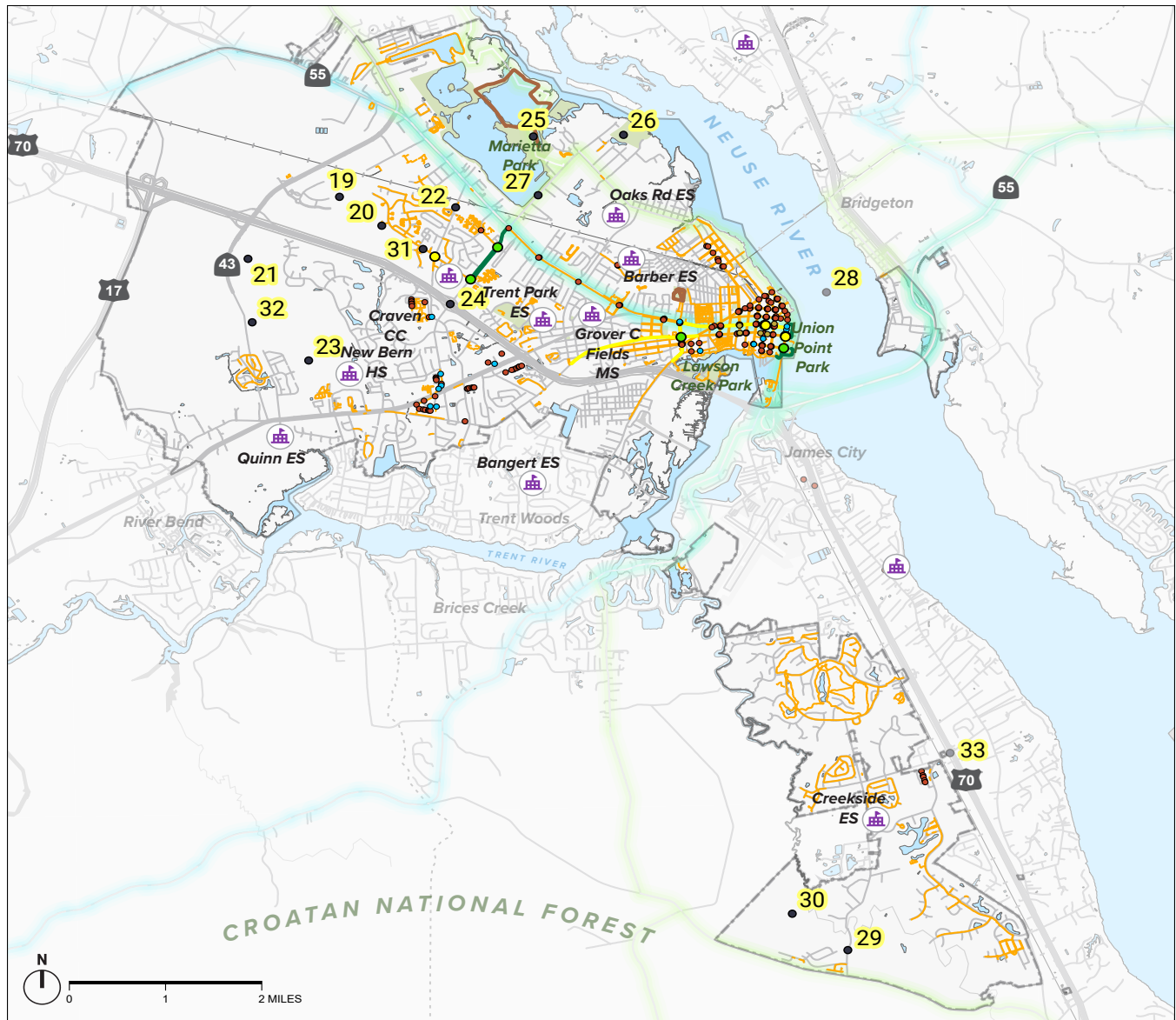
MAP NOTES

- OPPORTUNITIES & CONSTRAINTS

Table 2. *Opportunities and Challenges for Bike/Ped Connectivity in New Bern*

MAP ID	NOTES
1	Sidepaths constructed along Glenburnie Rd in 2015 as part of new roadway construction.
2	Simmons St is a strong four to three lane roadway reconfiguration opportunity. This road is scheduled for resurfacing in 2025.
3	Lowes Blvd has wide pavement width, potential to incorporate bicycle facilities.
4	Future development, need connectivity.
5	Need connectivity to the Rivertowne Square shopping center and beyond.
6	Need connectivity up National Ave/Oaks Rd - drainage/ROW challenges.
7	Previously proposed continuation of Riverwalk.
8	Future stormwater project that will include a greenway.
9	Main St - very narrow - tight ROW - key connection that needs improved bike/ped circulation.
10	Bike/ped bridge - direct connectivity desired between Riverwalk and Lawson Creek Park.
11	Recent sidewalk construction down to Hartford Ave.
12	Key gaps in the Riverwalk that need completion (likely with private development).
13	Need to continue improving crosswalks in the downtown area.
14	The Middle St/Broad St intersection was signalized before the downtown street reconfiguration project in 2008 - consider adding traffic signal.
15	Potential future development could connect eastern terminus of Broad St to the Riverwalk, and extend bike/ped connectivity.
16	Key potential sidewalk connection: National Ave & Oaks Rd.
17	Dr MLK Jr Blvd & Hwy 17 are high-growth corridors with a lot of retail. People often walk and bike along these corridors out of necessity but are some of the least bike/ped friendly corridors in New Bern.
18	Bike facilities in the downtown area need further connectivity to surrounding neighborhoods.

Opportunities and Challenges



FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
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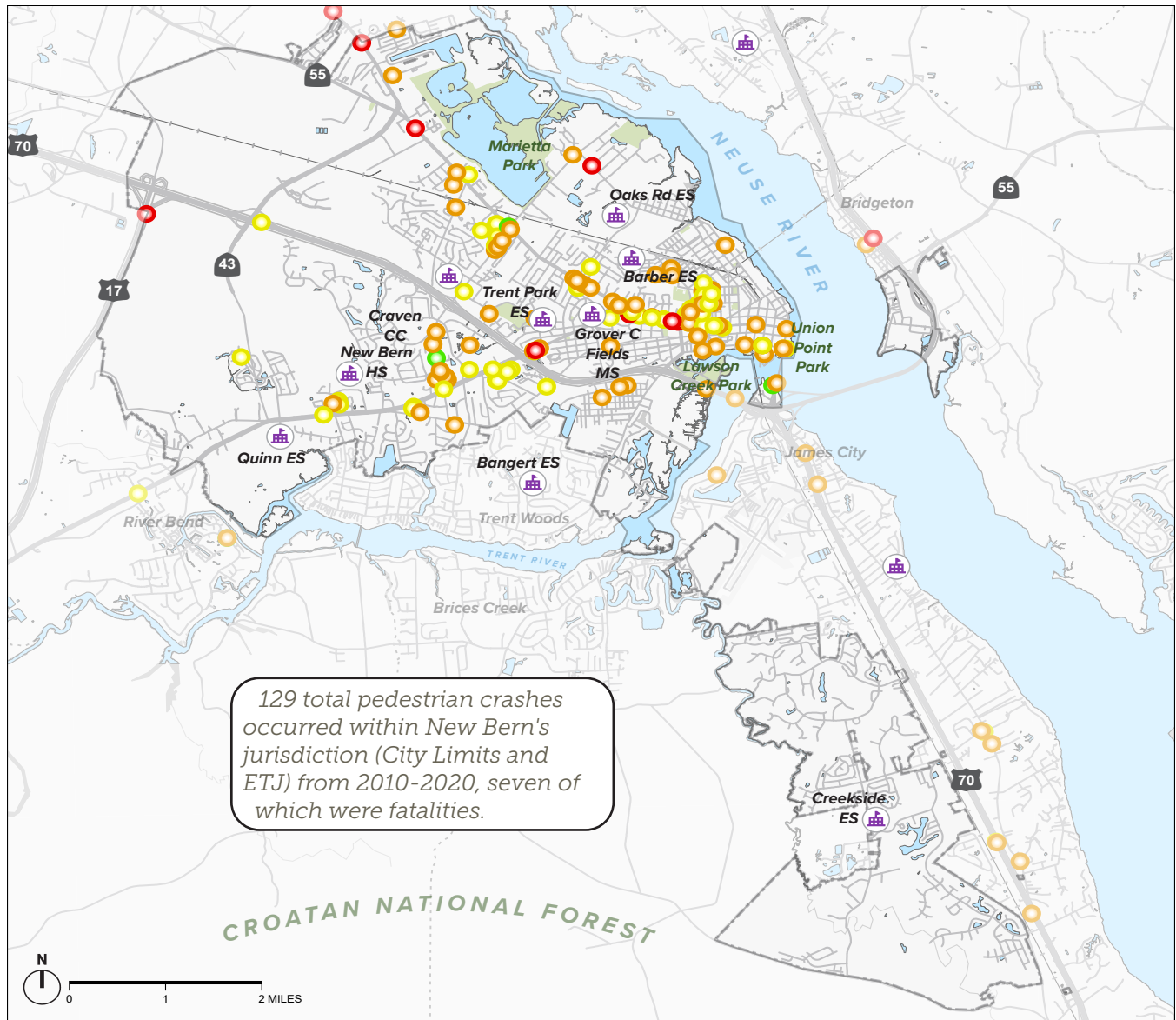
MAP NOTES

- OPPORTUNITIES & CONSTRAINTS

Table 2. *Opportunities and Challenges for Bike/Ped Connectivity in New Bern (Continued)*

MAP ID	NOTES
19	Large, future residential development that needs bike/ped connectivity.
20	Future development, need greenway connection to Elizabeth Ave.
21	Large future development in this area.
22	Racetrack Rd is a key road that needs bike/ped facilities to connect multiple neighborhoods.
23	Likely future major commercial development in this area.
24	The US 17 interchange at Glenburnie Rd is scheduled for improvement/reconstruction (STIP: U-6102) - bike/ped facilities have been requested as part of this project to allow bike/ped connectivity across US 17 in the future.
25	Martin Marietta Park is a new regional park (and also underdevelopment) with several miles of trails - needs bike/ped connectivity, especially along Glenburnie Rd.
26	Glenburnie Park needs bike/ped connectivity to adjacent neighborhoods (and along Oaks Rd).
27	The proposed East Coast Greenway (National Maine-Florida trail) and state trail system is proposed to connect through New Bern.
28	A Water Taxi was proposed in the Bridgeton Bike/Ped Plan to connect New Bern and Bridgeton without having to use the Neuse River bridge.
29	City owns Old Airport Rd and was recently widened by several feet.
30	Recently constructed residential development with some pedestrian circulation, needs bike/ped connectivity.
31	Elizabeth Avenue will be a key connection for new mixed-use development as New Bern grows to the west, need bike/ped connectivity.
32	NC 43 will be extended south to US 17B in the future, opportunity to include Complete Streets elements (STIP: R-4463A).
33	Two interchanges will be constructed along US 70 including at Thurman Rd (STIP: R-5777B) - opportunity to include bike/ped connectivity as part of the project.

Pedestrian Collisions



FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

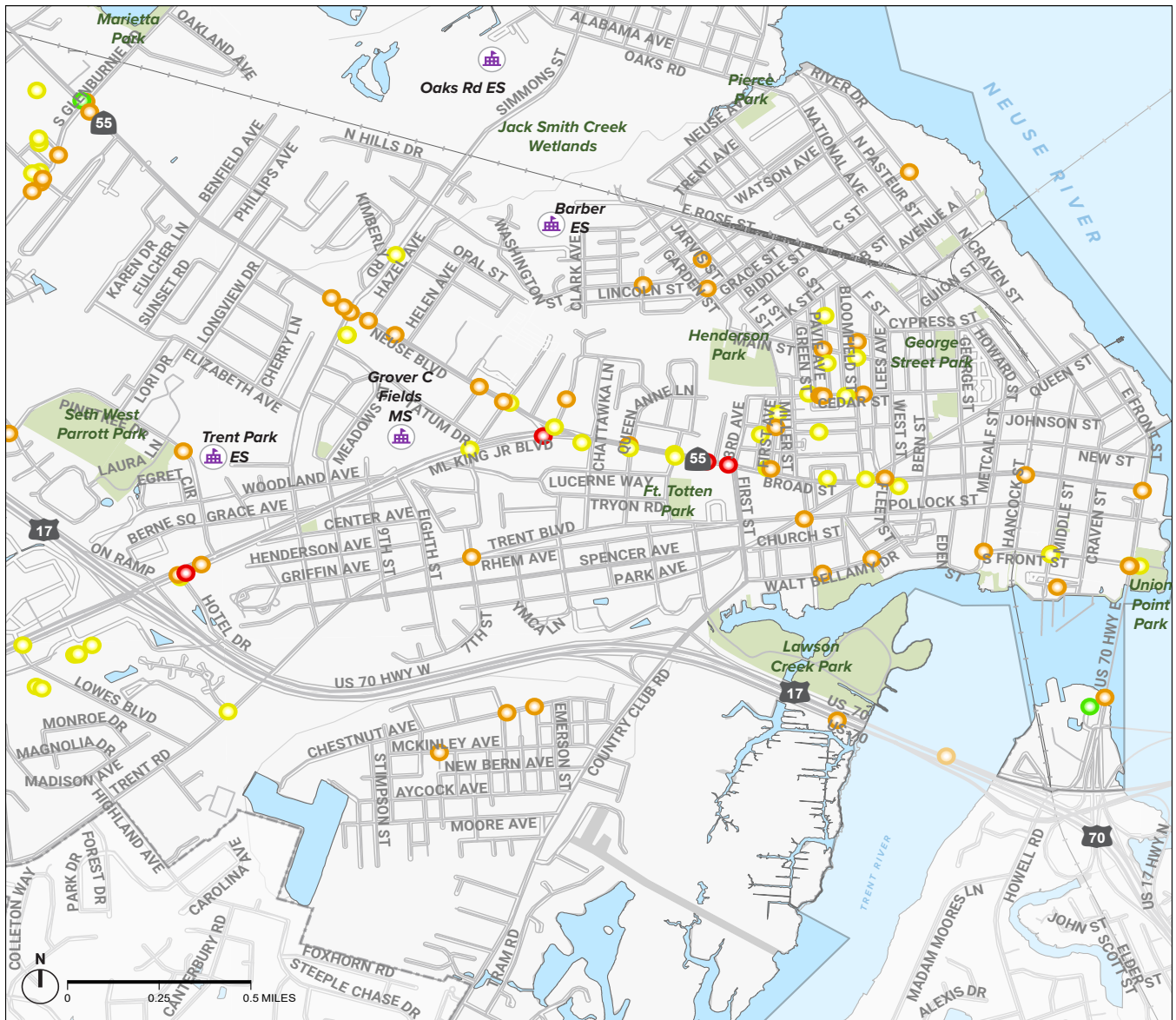
PEDESTRIAN INJURY SEVERITY, 2010-2020

- FATAL INJURY
- MINOR OR SERIOUS INJURY
- POSSIBLE OR UNKNOWN INJURY
- NO INJURY

Pedestrian Crashes

The majority of crashes involving pedestrians (and all crashes fatal to pedestrians) in New Bern took place on higher-speed roadways, with the most found along Neuse Blvd.

Pedestrian Collisions (Downtown)



FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

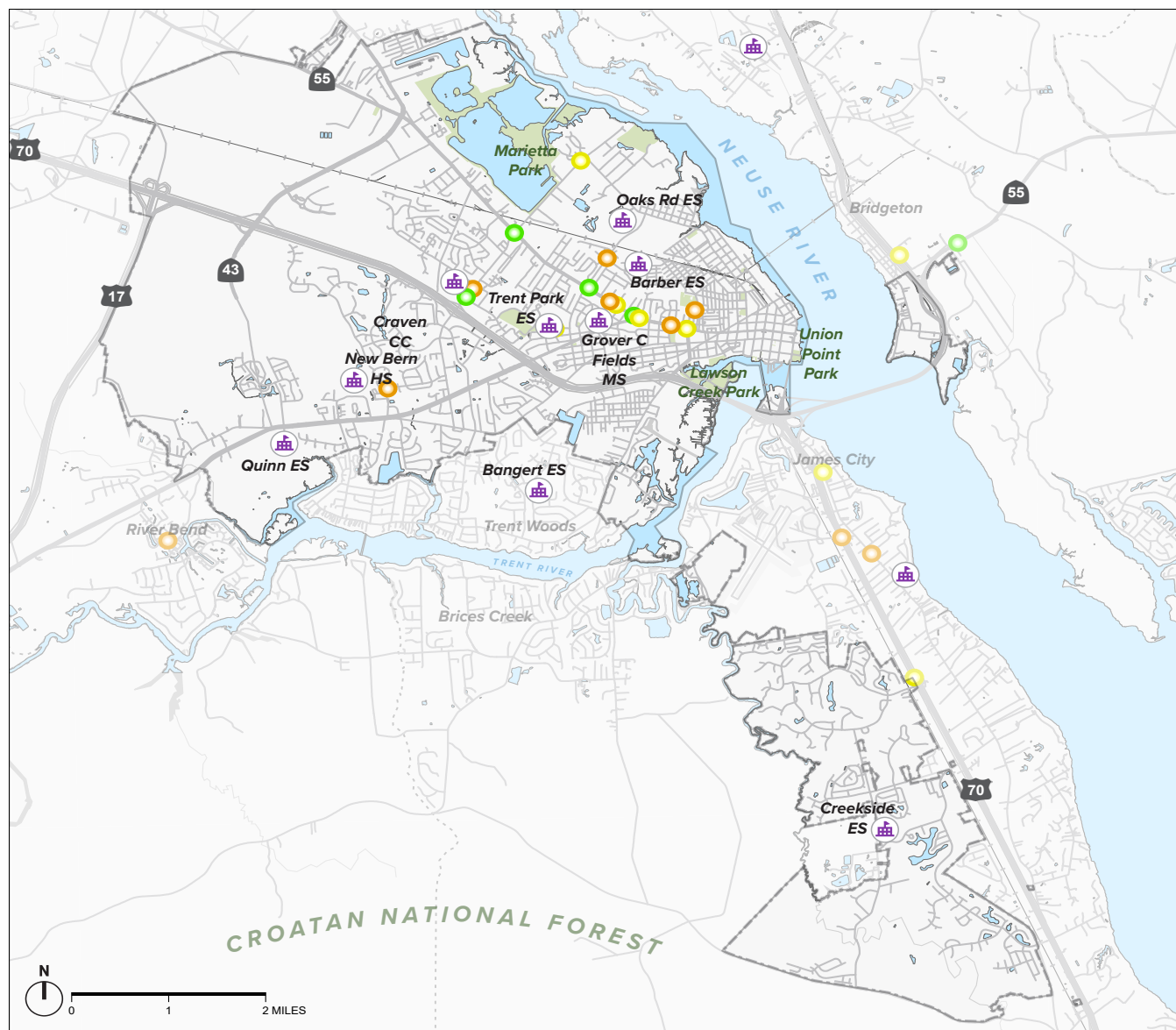
PEDESTRIAN INJURY SEVERITY, 2010-2020

- FATAL INJURY
- MINOR OR SERIOUS INJURY
- POSSIBLE OR UNKNOWN INJURY
- NO INJURY






Pedestrian Crashes

Accident clusters are noticeable along Neuse Blvd, Dr MLK Jr. Blvd, and Glenburnie Rd. The residential area between Broad St, Henderson Park, and George St Park saw higher pedestrian collisions than the downtown area.




Bicycle Collisions



FEATURES AND BOUNDARIES

-  SCHOOLS
-  RAILROAD
-  BODY OF WATER
-  PARKS
-  NEW BERN JURISDICTION

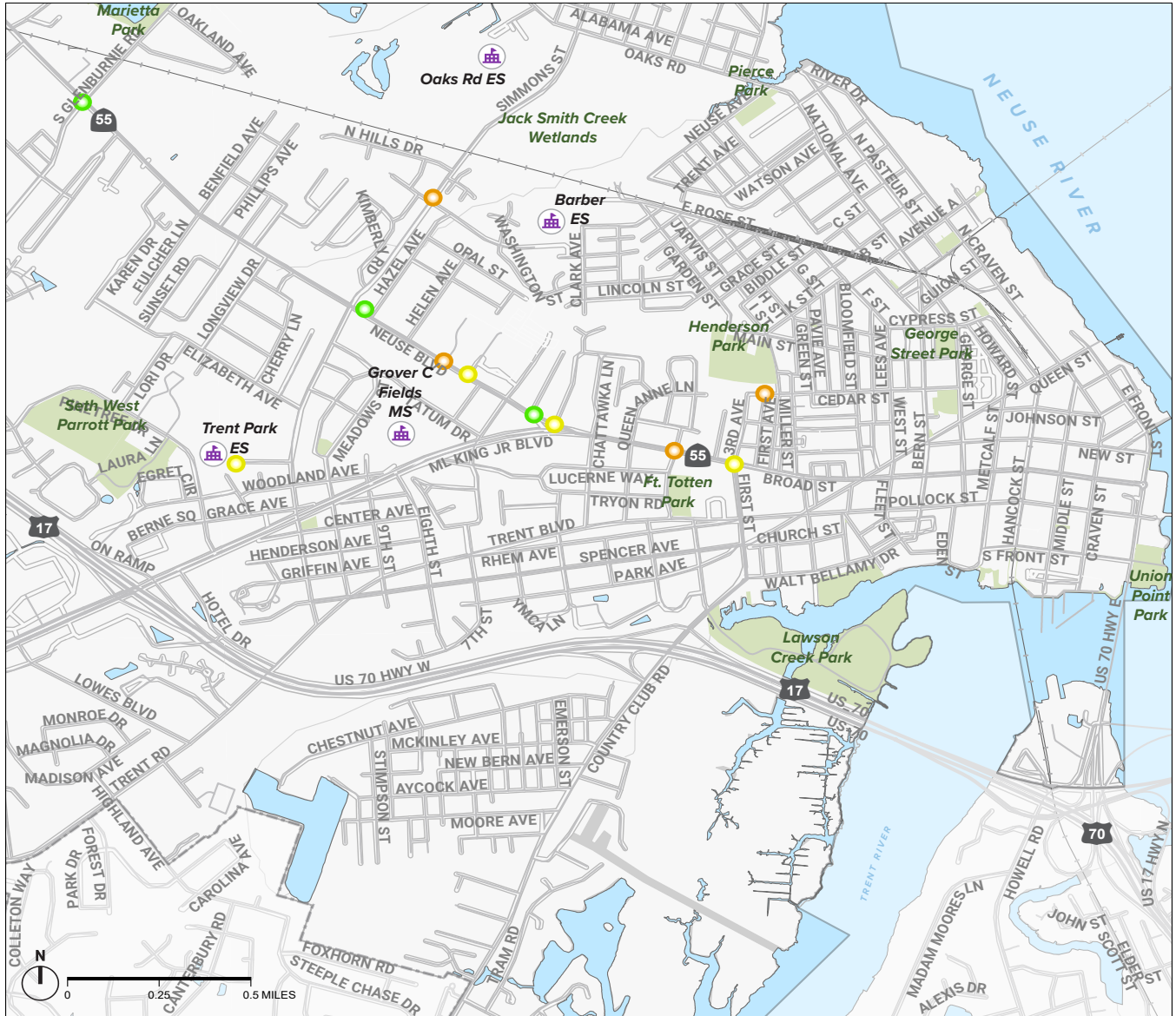
BICYCLIST INJURY SEVERITY, 2010-2020

-  MINOR OR SERIOUS INJURY
-  POSSIBLE OR UNKNOWN INJURY
-  NO INJURY

Bicycle Crashes

16 total bicycle crashes occurred within New Bern's jurisdiction (City Limits and ETJ) from 2010-2020.

Bicycle Collisions (Downtown)



FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

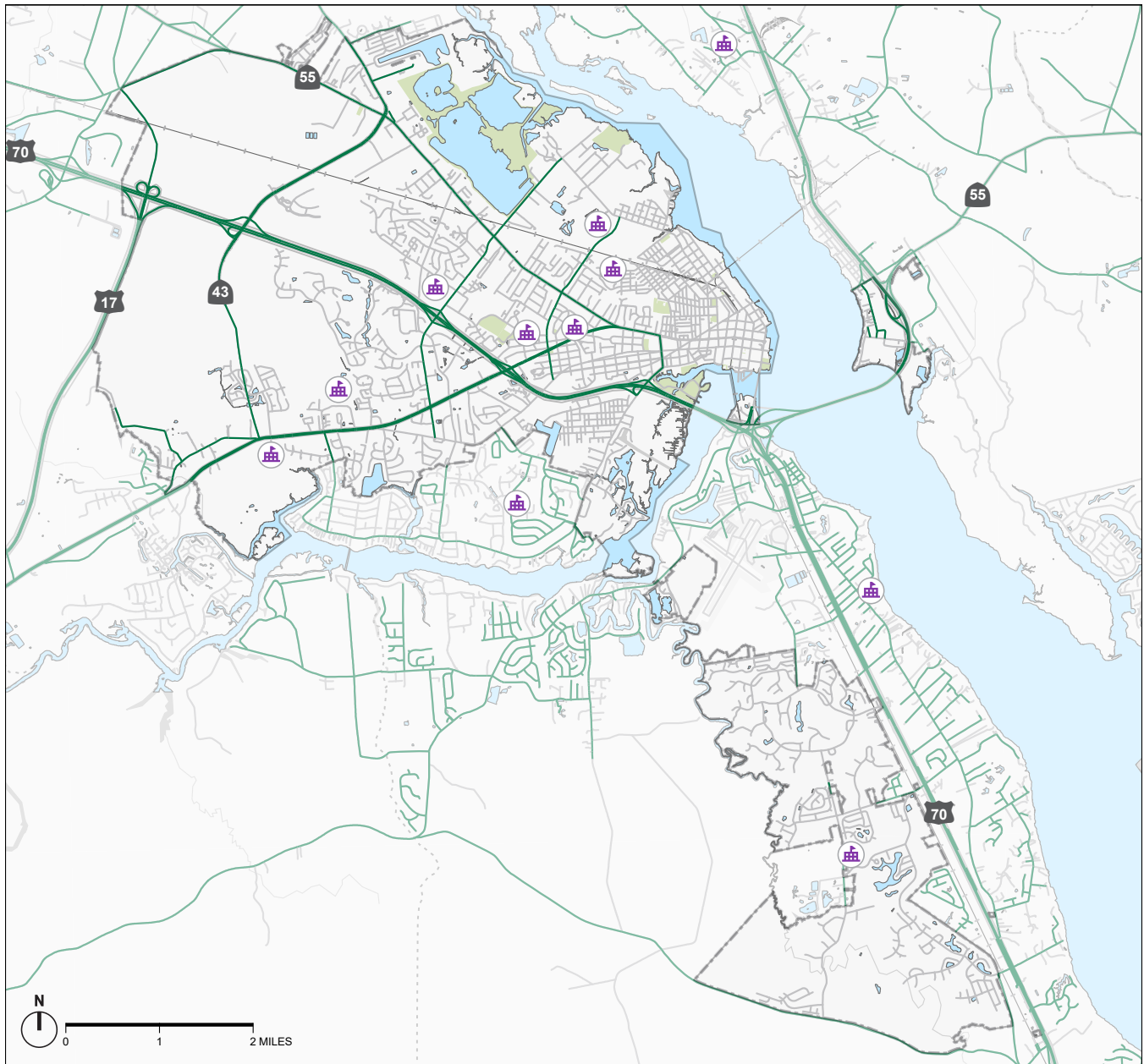
BICYCLIST INJURY SEVERITY, 2010-2020

- MINOR OR SERIOUS INJURY
- POSSIBLE OR UNKNOWN INJURY
- NO INJURY






Bicycle Crashes

Similar to pedestrian crashes, Neuse Blvd saw the highest amount of bicycle crashes in New Bern.

NCDOT-Owned Roads



FEATURES AND BOUNDARIES

-  SCHOOLS
-  RAILROAD
-  BODY OF WATER
-  PARKS
-  NEW BERN JURISDICTION

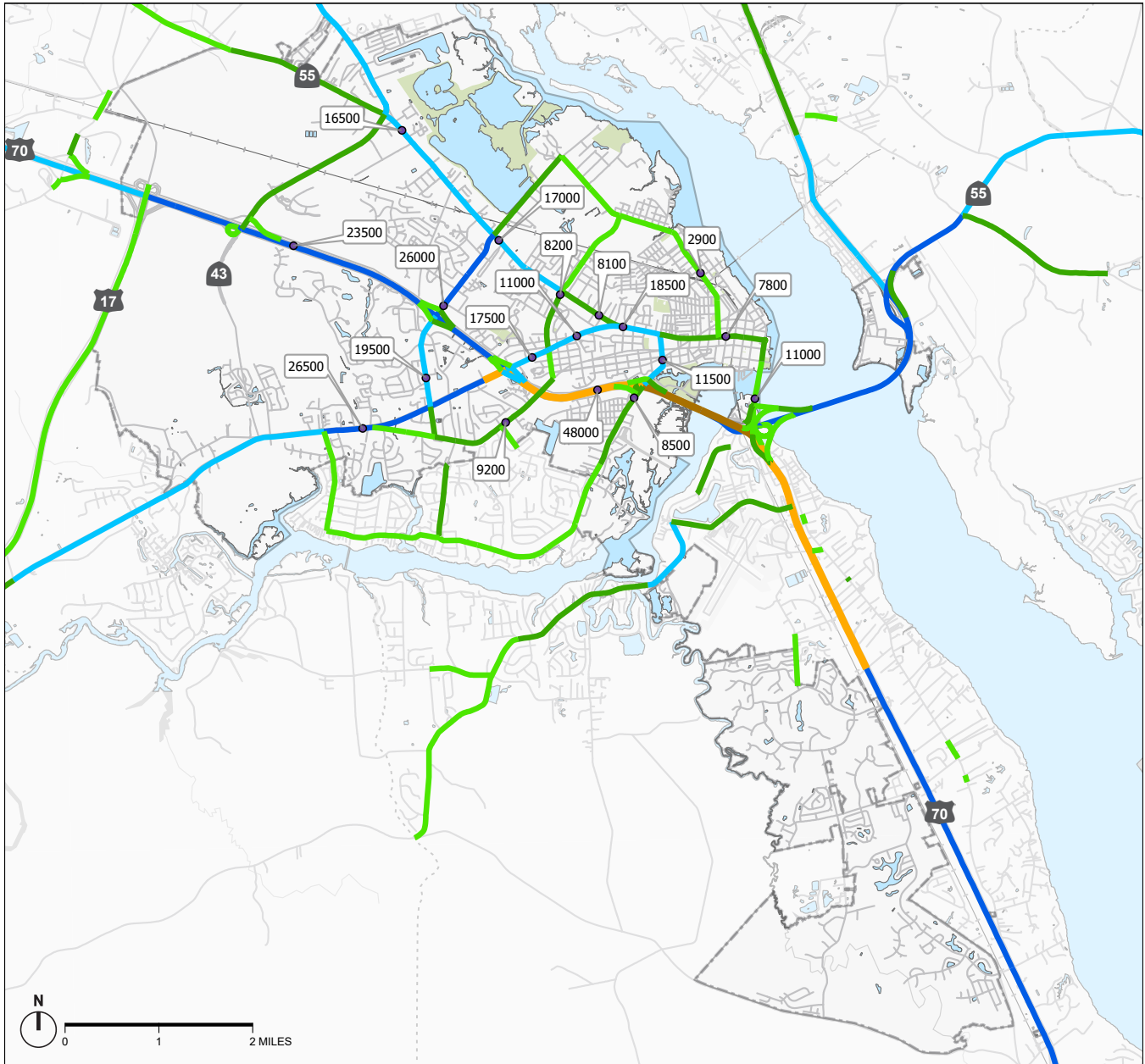
ROADWAY OWNERSHIP

-  NCDOT

NCDOT-Owned Roads

This map shows which roadways in New Bern are state-versus-locally-owned. The City of New Bern will need to coordinate with NCDOT Division 2 and the Integrated Mobility Division to implement this plan's recommended improvements along NCDOT roadways.

Traffic Volumes (AADT)



FEATURES AND BOUNDARIES

- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

NCDOT TRAFFIC COUNTS (AADT)

AADT 2019

- 2000 - 4999
- 5000 - 9999
- 10000 - 19999
- 20000 - 34999
- 35000 - 54999
- 55000 - 84999

Traffic Volumes (AADT)

NCDOT traffic counts around New Bern provide clues to roads where reconfigurations may be possible. Simmons St and Dr MLK Jr Blvd between Simmons St and Degrafenreid Ave particularly stand out as opportunities to create space for bicyclists and pedestrians within the existing pavement.

Plan Review

2006 COMPREHENSIVE BICYCLE PLAN

The City of New Bern's 2006 Bicycle Plan was the first active transportation plan adopted by the city. It identifies community deficits and opportunities around bicycle infrastructure and safety, recommends policies and programs that will make New Bern a bike-friendly city, and provides a vision for the future, including a plan for financially feasible implementation.

The City of New Bern's vision for a Comprehensive Bicycle Plan includes:

- ▶ A safe and convenient system that connects with the three adjacent communities of Trent Woods, James City, and Bridgeton
- ▶ Local ordinances and design standards, so that future development is bike-friendly
- ▶ An increase in bicycle awareness through strong public outreach programs, bicycle advocacy groups, and educational programs
- ▶ The involvement of partners (such as the NCDOT Division of Bicycle and Pedestrian Transportation, the NCDOT Transportation Planning Branch, and the New Bern City Police Department's Bicycle Unit) in education and safety programs like helmet laws, bike laws, and Safe Routes to School programs

One section of the plan identifies 16 specific locations with barriers to bicycle travel, and provides specific recommendations to



Visualization of the Downtown Neighborhood Bike Loop as proposed in the 2006 plan.

improve conditions for bicycling in those locations. It proposes a set of nine "named bicycle loops and connectors," consisting mainly of on-road facilities, to address gaps in the network. The plan also identifies "Bicycle Focus Areas," where many families without cars live, and where important destinations such as grocery stores, parks, and schools are located within cycling distance.

The goal of the recommendations was to provide all members of the community with a safe way to bicycle. Each proposed project includes cost estimates, and project prioritization is also discussed in the plan.

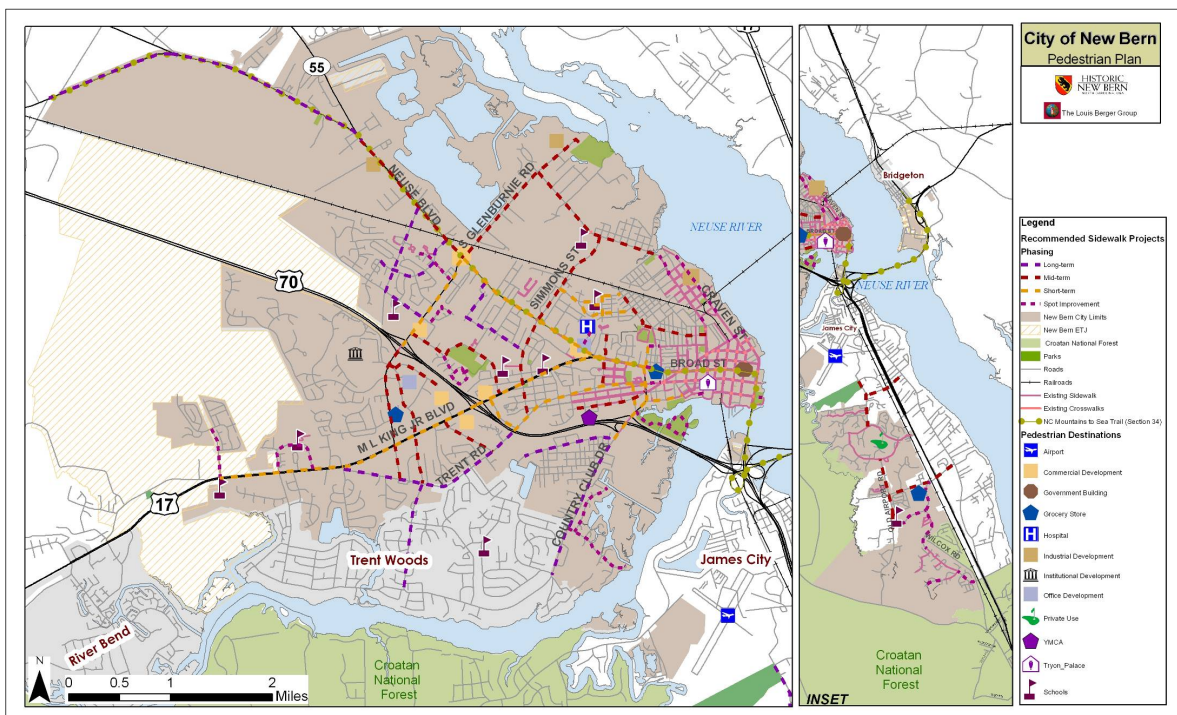
2009 PEDESTRIAN PLAN

This plan's main goal is "to provide guidance for making the City of New Bern a more pedestrian-friendly community." It will accomplish this in a few different ways: by promoting a better understanding of how to create a safer and more pleasant walking experience in New Bern; identifying a set of specific projects, programs, and policies that New Bern and its partners can implement to improve walking; and creating a better awareness of walking as a healthy, safe, and sustainable transportation option for people getting around in New Bern. The five major goals of the plan are:

- ▶ New Bern's pedestrian facilities are a well-connected network of sidewalks and greenways.
- ▶ Walking is a viable mode of transportation in New Bern.

- ▶ All residents can walk to popular destinations in New Bern.
- ▶ Walking is promoted and encouraged for transportation and recreation in New Bern.
- ▶ The City of New Bern makes steady progress to implement its pedestrian recommendations.

The plan discusses the condition of the existing sidewalk and greenway system in New Bern at the time of plan writing, as well as various important destinations within New Bern that are attractive for pedestrians, such as parks and schools. It lays out short-, mid-, and long-term recommendations for sidewalk corridor projects, intersection improvements, policies, and programs that will work in conjunction to improve conditions for walking in New Bern. It also proposes construction of new greenway trails.



Recommendations overview map from the 2009 Pedestrian Plan.

2020 CRAVEN COUNTY COMPREHENSIVE TRANSPORTATION PLAN (IN PROGRESS)

This document makes recommendations for the creation of a more connected and multimodal transportation system for Craven County. The plan evaluates highway, public transit and rail, and bicycle and pedestrian transportation systems, maps existing facilities for each of these transportation categories, and proposes recommendations based on environmental analysis, system deficiencies, and public input.

The bicycle and pedestrian recommendations build on the previous 2006 Bicycle Plan and 2009 Pedestrian Plan recommendations for New Bern, and serve as helpful starting points for this planning process (see map at bottom of this page).

OTHER RELEVANT PLANS

Redevelopment Commission of New Bern: Redevelopment Plan (2020)

In 2018 the Redevelopment Commission was established to create and deliver a plan that combines the idealism of 'The New Bern Gateway Renaissance Plan' with the execution of 'The Greater Five Points Transformation Plan'.

Objective T.2 'Establish Pedestrian Trails within and external to the Redevelopment Area' followed by Policy T.2.2 'Create a greenway trail along the Duffyfield canal and Policy T.2.3 'Support a pedestrian connection from Redevelopment Area to Carolina East Medical Center' highlights the desire for pedestrian circulation and connectivity.

Greater Five Points Transformation Plan (2016)

This plan targets the Greater Five Points area of New Bern, which has suffered in recent decades from the consequences of economic decline and disinvestment. Recommendations based on extensive community engagement include greater transportation choices for the many residents of these neighborhoods who are without a motor vehicle.

New Bern Gateway Renaissance Plan (2013)

This document lays out a plan for the revitalization of the Gateway District, an area west of Downtown New Bern, made up of both commercial and residential areas. The plan proposes strengthening connections to existing and proposed pedestrian and bicycle networks, as well as enhancing the streetscapes in the district to be more welcoming to pedestrians and cyclists.

City of New Bern Parks & Recreation Comprehensive Plan for a Healthy Community (2013)

This plan examines New Bern's parks and recreation facilities in the context of changing demographic and recreation trends in Eastern North Carolina. Retirees and families with young children are expected to make up a significant portion of New Bern's population growth in the coming decades, indicating a need for increased resources dedicated to making New Bern an even better place to experience the outdoors.

New Bern Historic Preservation Plan (2011)

New Bern's Historic Preservation Plan is an important piece in sustaining the city's reputation as an important part of North Carolina history. Tourists are drawn to New Bern's historic downtown and waterfront, as well as its stately historic homes. While

the plan does not recommend specific infrastructure or programming initiatives to improve walking in New Bern, it emphasizes the importance that the city's historic neighborhoods have as an area of beauty that attracts both locals and tourists to walk and take in the historic sites.

Table 3. Adjacent Communities & Regional Plans

Plan Name	Notes
NBAMPO Craven Area Rural Transit System (CARTS) Transit Development Plan (2017)	This document identifies specific strategies that should be considered in order to make improvements to local fixed-route CARTS service. Walking and bicycling are important to the CARTS development plan in that first- and last-mile transit connections (i.e. people traveling from their home to the bus stop or from the bus stop to their workplace) help to “close the loop” and make people more likely to choose transit for trips that are beyond normal walking and biking distance. Providing adequate pedestrian and bicycle infrastructure at and near transit stops will make people more likely to choose transit, improving the multimodal network on a region-wide scale.
Croatan Regional Bicycle & Trails Plan (2014)	The Regional Bicycle & Trails Plan identifies multi-jurisdictional bicycle routes and trail corridors that will connect communities and destinations throughout the region, which includes Craven, Pamlico, Carteret, Jones, and Onslow counties. The plan also includes preferred routes and alignments for both the Mountains-to-Sea Trail and the East Coast Greenway.
Town of Bridgeton Bicycle & Pedestrian Plan (2018)	This plan proposes several key projects that will enable greater bicycle and pedestrian connections both within Bridgeton, a small town located across from New Bern on the eastern/northern side of the Neuse River, and between Bridgeton and New Bern (as well as other surrounding communities). Proposed connections include a water taxi across the Neuse River and new shared use paths within the town.
Town of River Bend Bicycle & Pedestrian Plan (2018)	The River Bend Bicycle and Pedestrian Plan focuses on improving walking and biking circulation within and between neighborhoods and town destinations. This plan includes a series of strategic greenway links and bike/ped friendly streets.
Trent Woods Comprehensive Pedestrian Plan (2014)	Responding to the lack of any sidewalks or paths within the town limits of Trent Woods, the Citizens for Sidewalks Committee helped jump-start the Comprehensive Pedestrian Plan process in 2013. The plan recommends both infrastructure and programming initiatives that will improve pedestrian safety, encourage physical activity, and add pedestrian connectivity to surrounding communities, including New Bern.

\ 03 \

Infrastructure Recommendations



Introduction

The proposed bicycle and pedestrian network aims to reflect the plan's vision and goals, the core of which is to provide a connected, low stress network that is safe and comfortable for people of all ages and abilities. A connected network of sidewalks, neighborhood greenways, buffered and protected bike lanes and intersections, and shared use paths, aim to achieve this vision of a low stress network. These facility types are described in detail on the following pages. The proposed network was developed to:

- ▶ Build upon a strong existing downtown sidewalk grid
- ▶ Provide low stress facility recommendations, serving all ages and abilities
- ▶ Provide feasible alternative routes to arterials
- ▶ Provide connections to neighborhoods, schools, parks, and businesses
- ▶ Address gaps in the network to create a connected city-wide network

FACILITY TYPES

The facility types on the right and following pages make up the general toolbox of recommendations proposed in this plan. Each facility has its own set of guidance based on context and implementation feasibility. This section culminates in a series of maps showing the recommended strategic and comprehensive networks.



Sidewalks

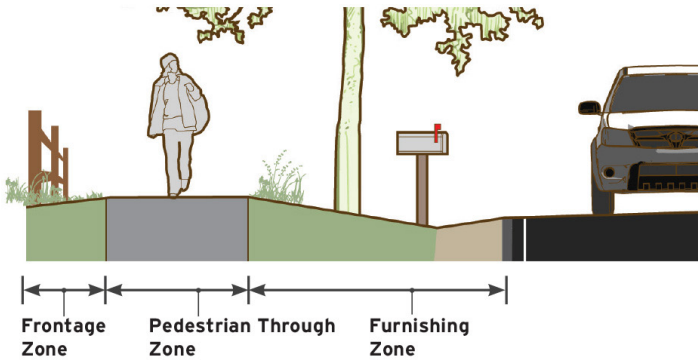


Description

Sidewalks are desirable to support pedestrian safety and comfort in areas with a mix of land uses and also in areas of the community where the roadway network connections have generally high traffic volumes or speeds. Sidewalks serve multiple important functions and should be designed with three distinct zones to accommodate these uses.

Frontage Zone

The frontage zone is a shy zone adjacent to the property line and provides space for people to enter and exit buildings. Next to buildings with active ground floor uses, the frontage zone may be widened to 4–6 ft to provide room for door swing, café seating, product display, and window shopping. On most sidewalks, a frontage zone of 1–2 ft allows for shy distance to fences and building walls. No frontage zone is necessary adjacent to parks or open space.



Sidewalks should be physically separated from the roadway by an unpaved buffer separation, barrier or curb edge.

Pedestrian Through Zone

The pedestrian through zone is the clear width needed for pedestrian travel activity and should be wide enough for two people to walk side-by-side.

The pedestrian through zone should be at least 5 ft wide. This permits side-by-side walking and meets accessibility guidelines for turning and maneuvering.

Furnishing Zone

The furnishing zone is closest to the street and provides space for mailboxes, signs, street lighting, and other utilities. This area serves as snow storage areas in winter climates and protects pedestrians from splash during rain events.

A furnishing zone of 4–6 ft is preferred for comfort and aesthetics. This width allows for trees, benches, and other large furnishing items.

Volume And User Mix	Frontage Zone	Pedestrian Through Zone	Furnishing Zone	Total Width
Constrained Minimum	1 ft (0.3 m)	5 ft (1.2 m)	2 ft (0.6 m)	8 ft (2.4 m)
Recommended Minimum	2 ft (0.6 m)	6 ft (1.5 m)	4 ft (1.2 m)	12 ft (3.6 m)

Minimum recommended dimensions for sidewalks

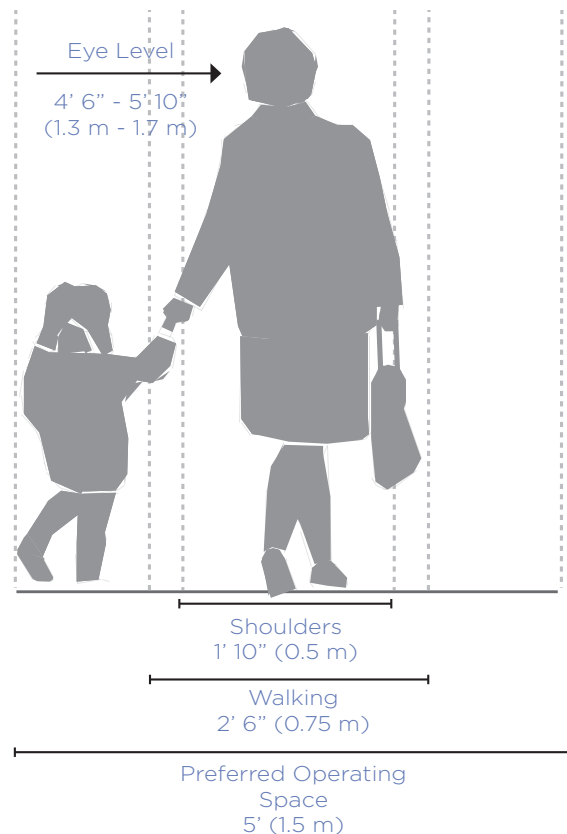
DESIGNING STREETS FOR ALL AGES

Types of Pedestrians

The transportation network should accommodate pedestrians with a variety of needs, abilities, and possible impairments. Age is one major factor that affects pedestrians' physical characteristics, walking speed, and environmental perception. Children have low eye height and walk at slower speeds than adults. Older adults walk more slowly and may require assistant devices to help with their walking stability, sight, and hearing. The table below summarizes common pedestrian characteristics for various age groups.

The Manual on Uniform Traffic Control Devices (MUTCD) recommends a normal walking speed of 3.5 feet per second when calculating the pedestrian clearance interval at traffic signals. The walking speed can drop to 3 feet per second for areas with older populations and persons with mobility impairments. The transportation system should accommodate these users to the greatest extent possible.

AGE	CHARACTERISTICS
0-4	Learning to walk
	Requires constant adult supervision
	Developing peripheral vision and depth perception
5-8	Increasing independence, but still requires supervision
	Poor depth perception
9-13	Susceptible to "darting out" in roadways
	Insufficient judgment
	Sense of invulnerability
14-18	Improved awareness of traffic environment
	Insufficient judgment
19-40	Active, aware of traffic environment
41-65	Slowing of reflexes
65+	Difficulty crossing street
	Vision loss
	Difficulty hearing vehicles approaching from behind



Neighborhood Greenways



Description

Neighborhood greenways (also known as bicycle boulevards) are streets with low vehicle volumes and speeds that prioritize bicycle travel through signage, pavement markings, and/or traffic calming. Cities with strong neighborhood greenway networks utilize the local street network instead of busy arterials. In residential neighborhoods, neighborhood greenways improve travel for bicyclists while calming traffic and adding green infrastructure where possible. Neighborhood greenways are shared by automobiles and bicycles, but at speeds and volumes that make travel more comfortable for all ages and abilities of bicyclists.

Benefits

- Provide a low stress route that is safe for all ages and abilities.
- Can be implemented with relatively low cost materials.
- Bicycle travel is prioritized using a variety of tools, from simple branding/signage to more robust traffic calming treatments such as speed humps or traffic diverters.

ELEMENTS OF NEIGHBORHOOD GREENWAYS

Distinct Visual Identity

Unique pavement markings and wayfinding signs increase visibility of neighborhood greenway routes, assist with navigation, and alert drivers that the roadway is a priority route for people bicycling.



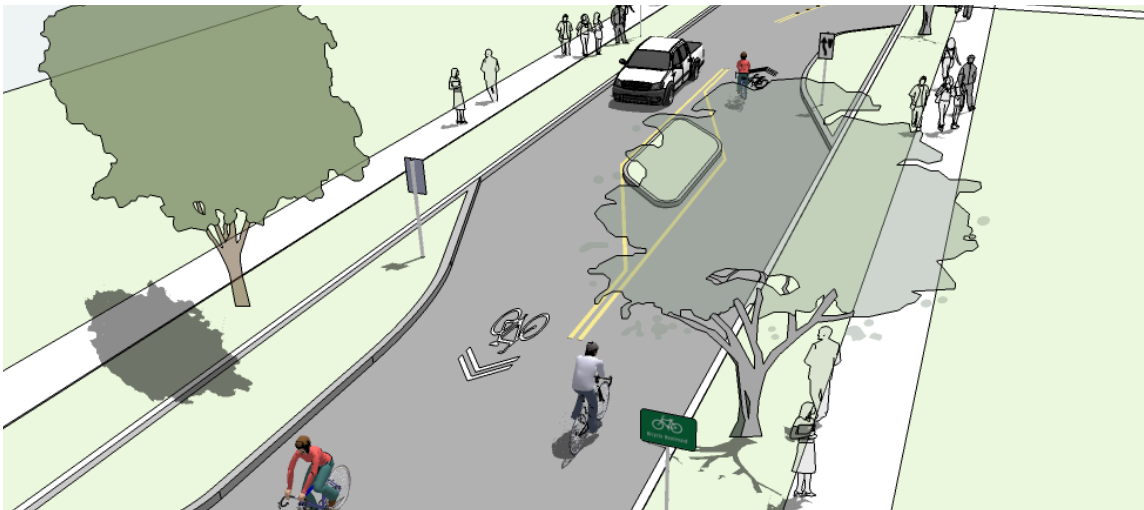
Safe, Convenient Crossings

Traffic controls, warning devices, and/or separated facilities at intersections help facilitate safe and convenient crossings of major streets along the neighborhood greenway network.



Bicycle Priority

Traffic calming treatments such as traffic circles, diverters, and chicanes, sometimes in place of existing stop signs, can help prioritize bicycle through travel and reduce motor vehicle traffic speeds.



Typical Use

- ▶ Parallel with, and in close proximity to major thoroughfares (1/4 mile or less) on low-volume, low-speed streets.
- ▶ Follow a desire line for bicycle travel that is ideally long and relatively continuous (2-5 miles).
- ▶ Avoid alignments with excessive zigzag or circuitous routing when possible. The bikeway should have less than 10% out of direction travel compared to shortest path of primary corridor.
- ▶ Local streets with traffic volumes of fewer than 1,500 vehicles per day and posted speed limits of 25 miles per hour or less.
- ▶ Utilize traffic calming to maintain or establish low volumes and discourage vehicle cut through / speeding.
- ▶ Signs and pavement markings are the minimum treatments necessary to designate a street as a bike boulevard.

Bike Lanes (Painted Buffer)



Description

Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is located adjacent to motor vehicle travel lanes and flows in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge, or parking lane. This facility type may be located on the left side when installed on one-way streets, or may be buffered if space permits.

Bike lanes enable bicyclists to ride at their preferred speed without interference from prevailing traffic conditions. Bike lanes also facilitate predictable behavior and movements between bicyclists and motorists. Bicyclists may leave the bike lane to pass other bicyclists, make left turns, avoid obstacles or debris, and avoid other conflicts with other users of the street.

Benefits

- ▶ Increases bicyclist comfort and confidence on busy streets.
- ▶ Creates separation between bicyclists and automobiles.
- ▶ Increases predictability of bicyclist and motorist positioning and interaction.
- ▶ Increases total capacities of streets carrying mixed bicycle and motor vehicle traffic.
- ▶ Visually reminds motorists of bicyclists' right to the street.

Elements of Bike Lanes

- ▶ The minimum width of a bike lane adjacent to a curb is 5 feet exclusive of a gutter, a desirable width is 6 feet.
- ▶ Parking Ts or hatch marks can highlight the vehicle door zone on constrained corridors with high parking turnover to guide bicyclists away from doors.
- ▶ Typically installed by reallocating street space.
- ▶ Can be used on one-way or two-way streets.
- ▶ Contra-flow bike lanes may be used to allow two-way bicycle travel on one-way streets for motorists, improving bicycle network connectivity.
- ▶ Stopping, standing and parking in bike lanes may be problematic in areas of high parking demand and deliveries, especially in commercial areas.
- ▶ Wider bike lanes or buffered bike lanes are preferred at locations with high parking turnover. Furthermore, on streets with higher speeds and higher traffic volumes, the greater the need for buffer space, and ideally, a physical barrier (see protected bike lane in the pages that follow.)

Typical Use

- ▶ May be appropriate for all ages and abilities of bicyclists when configured as 6+ ft wide lanes on lower-speed, lower-volume streets with one lane in each direction.
- ▶ On multi-lane and/or high speed streets, the most appropriate bicycle facility to provide for user comfort may be buffered bicycle lanes or physically protected bicycle lanes.
- ▶ While not as effective as protected bike lanes, research has documented that buffered bike lanes increase the perception of safety.
- ▶ Install buffered bike lanes where 7' of roadway width is available (on each side), rather than a striped bike lane.

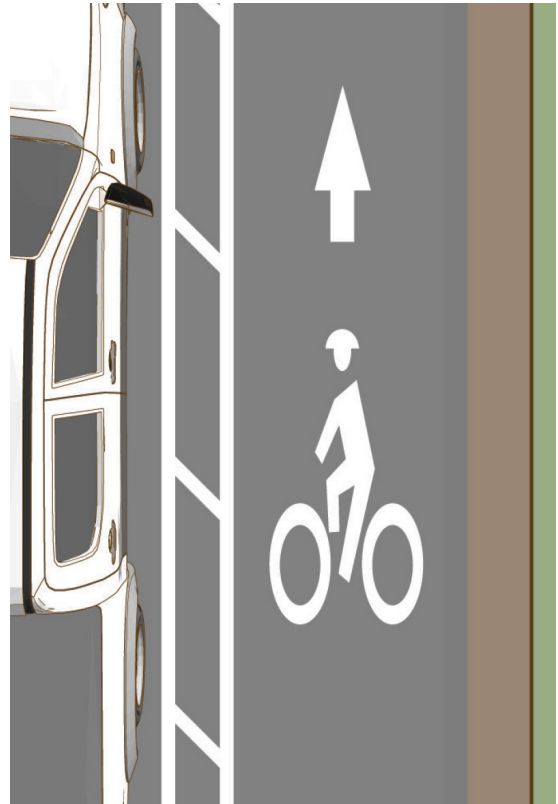
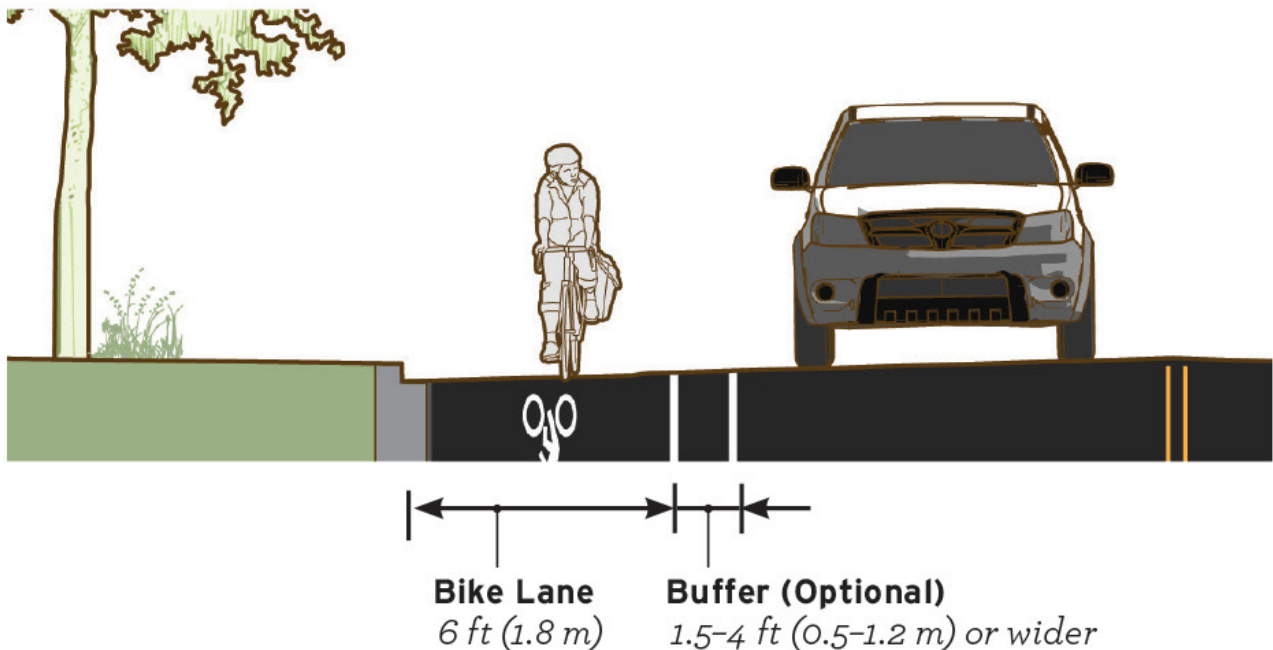


Figure: Bike lane dimensions with buffer
(graphics from the FHWA Small Town and Rural Multimodal Networks Design Guide)



Bike Lanes (Physical Buffer)



Description

Protected bike lanes are exclusive bicycle facilities where bicyclists are separated from sidewalks and motor vehicle traffic by physical features intended to prevent encroachment. They may also be referred to as cycle tracks or separated bike lanes. Protected bike lanes differ from standard bike lanes in two ways: there is a lateral separation between the protected bike lane and the nearest general purpose lane, and there is some type of physical feature that provides positive separation between the protected bike lane and the general purpose lane. The physical feature may include such things as curbs, flexible delineator posts, permanent planters, or other raised features (see graphic on the following page). Protected bike lanes may be one-way or two-way.

Benefits

- ▶ Completes networks where high-speed roads provide the only corridors available.
- ▶ Provides a more appropriate facility for users of all ages and abilities than shoulders or mixed traffic facilities on roads with moderate or high traffic intensity.
- ▶ Fills gaps in networks of low-stress local routes such as shared use paths and bicycle boulevards.
- ▶ Encourages bicycling and walking in areas where high-volume and high-speed motor vehicle traffic would otherwise discourage it.

Elements of Protected Bike Lanes

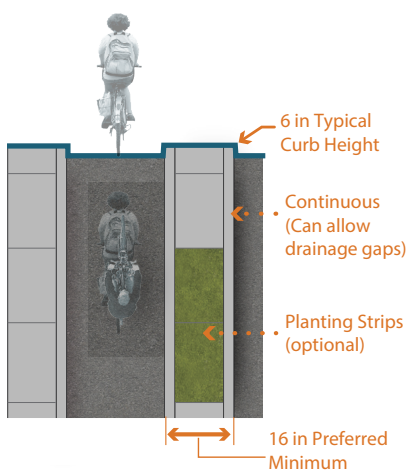
In addition to lateral separation and raised physical features, separation may also be achieved by adjusting the elevation of the bike lane surface relative to the elevations of the sidewalk and general purpose roadway.

General dimensions include:

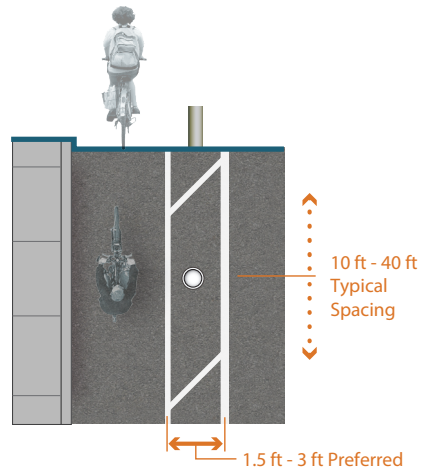
- ▶ 7 ft width preferred (5 ft minimum).
- ▶ 3 ft minimum buffer width adjacent to parking. 18 inch minimum adjacent to travel lanes (NACTO, 2012). Channelizing devices should be placed in the buffer area.
- ▶ If buffer area is 4 ft or wider, white chevron or diagonal markings should be used.

FORMS OF PHYSICAL BUFFER SEPARATION

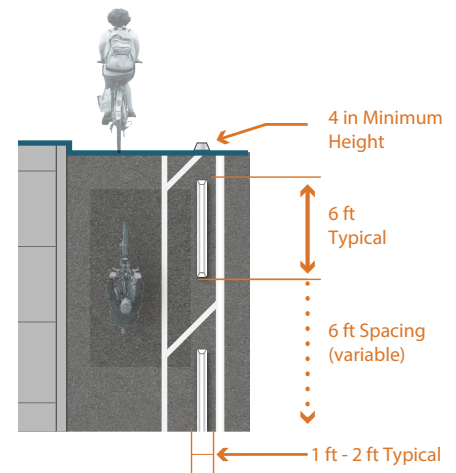
RAISED MEDIAN



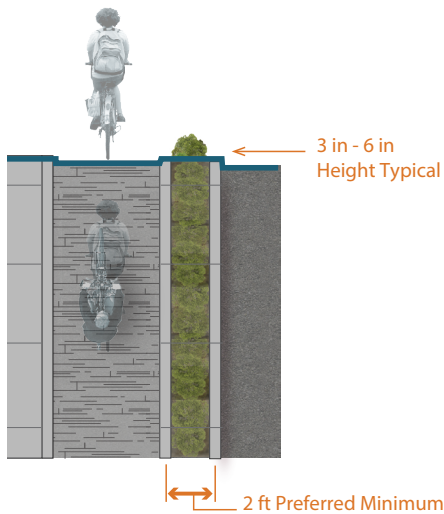
BOLLARDS



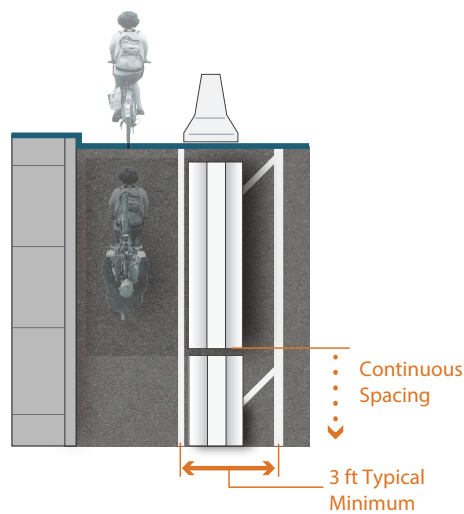
PARKING STOPS



RAISED LANE



CONCRETE BARRIER



PLANTERS

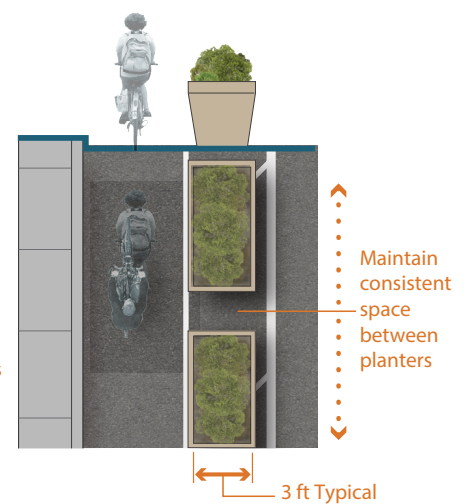


Figure: Forms of separation as outlined in the FHWA's Separated Bike Lane Planning and Design Guide.

Shared Use Paths



Description

Shared use paths are completely separated from motorized vehicular traffic and are constructed in their own corridor, often within an open-space area. Shared use paths should be a minimum of 10' wide. Pavement widths of 12-, 14-, and even 16-feet are appropriate in high-use urban contexts.

Benefits

- ▶ Provides a dedicated facility for users of all ages and abilities.
- ▶ Provides, in some cases, access to areas that are otherwise served only by limited-access roadways.
- ▶ Provides nonmotorized transportation access to natural and recreational areas, which can especially help individuals without access to an automobile obtain access to recreation.
- ▶ Provides, in some cases, a short-cut between cities or neighborhoods.
- ▶ Supports tourism through convenient access to natural areas or as an enjoyable recreational opportunity itself.

Elements of Shared Use Paths

- ▶ The minimum paved width for a trail is 10 feet. Anticipated future traffic volumes should be used to guide design decisions.
- ▶ Maximum grade should not exceed 5 percent.
- ▶ Provide a graded shoulder area of at least 2 feet.
- ▶ Lighting should be provided at path/roadway intersections at a minimum and at other locations where nighttime use is likely to be high.
- ▶ Sight distances are based on site conditions and user-based factors. Ensure sight distances are designed per the AASHTO Bike Guide.
- ▶ Provide protective railings/fences at 42 inches high if the trail is adjacent to a steep slope.

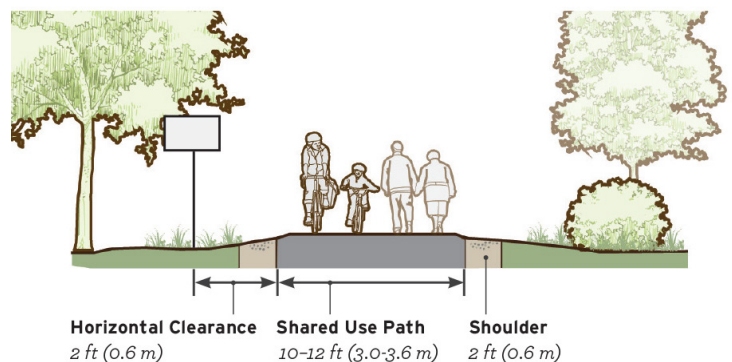


Figure: Shared Use Path graphic from the FHWA Small Town and Rural Multimodal Networks Design Guide

SIDEPATHS

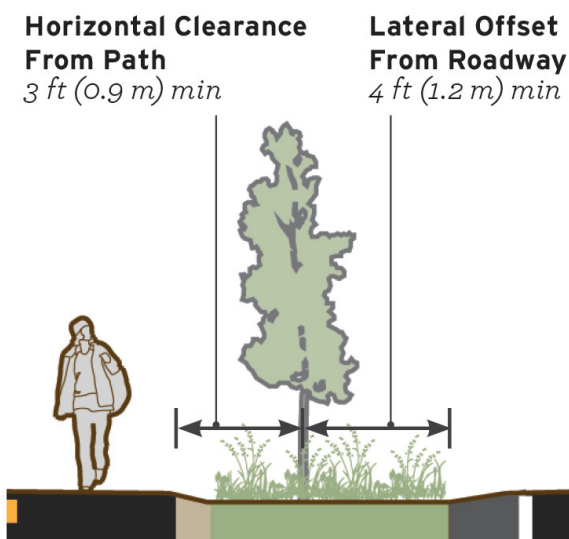
A sidepath is a bidirectional paved shared trail located immediately adjacent and parallel to a roadway. Sidepaths can offer a high-quality experience for users of all ages and abilities as compared to on-roadway facilities in heavy traffic environments, and can allow for reduced roadway crossing distances.

Design Strategies

- ▶ Reduce the frequency of driveways.
- ▶ Design intersections to reduce driver speeds and heighten awareness of path users.
- ▶ Encourage low speeds on pathway approaches.
- ▶ Maintain visibility for all users.
- ▶ Provide clear assignment of right-of-way with signs and markings and elevation change.



Figure: Existing sidepath on Glenburnie Rd



Adjacent Road Speed Limit (Mi/h)	Recommended Sidepath Separation Distance at Crossings
< 25 mi/h	6.5 ft (2.0 m)
35–45 mi/h	6.5–16.5 ft (2.0–5.0 m)
≥ 55 mi/h	16.5–24 ft (5.0–7.0 m)

Figure: Guidance for sidepath separation distance in various contexts (FHWA Small Town and Rural Multimodal Networks Design Guide)

Crossing Improvements



Description

Crossing improvements are locations where improvements are needed to maximize safe, comfortable, and convenient bike/ped crossing movements. Improvements include a variety of tools and specific improvements should be context-sensitive.

These recommendations are a critical piece of the low stress network. In several instances, crossing improvements should be coordinated with the implementation of the neighborhood greenway network to ensure a comfortable and safe network is able to continue across arterial and collector roads where necessary.

Benefits

- Support safer crossing of busy roadways, allowing for a more connected network.
- Provide enhanced connections between two bike/ped facilities and/or from a bike/ped facility to a destination.

BIKE/PED CROSSING IMPROVEMENT EXAMPLES



The photo above shows a protected bike/ped intersection using low cost materials such as plastic bollards and paint.



Bike boxes, above left, provide a dedicated space for bicyclists ahead of motor vehicle traffic at signalized intersections. Bicycle and pedestrian crossing markings, above right, provide clear direction for bicycle and pedestrian travel through an intersection.

Further Guidance

- National Association of City Transportation Officials (NACTO) [Don't Give Up at the Intersection](#)
- Alta Planning + Design: [Corner Design for All Users](#)

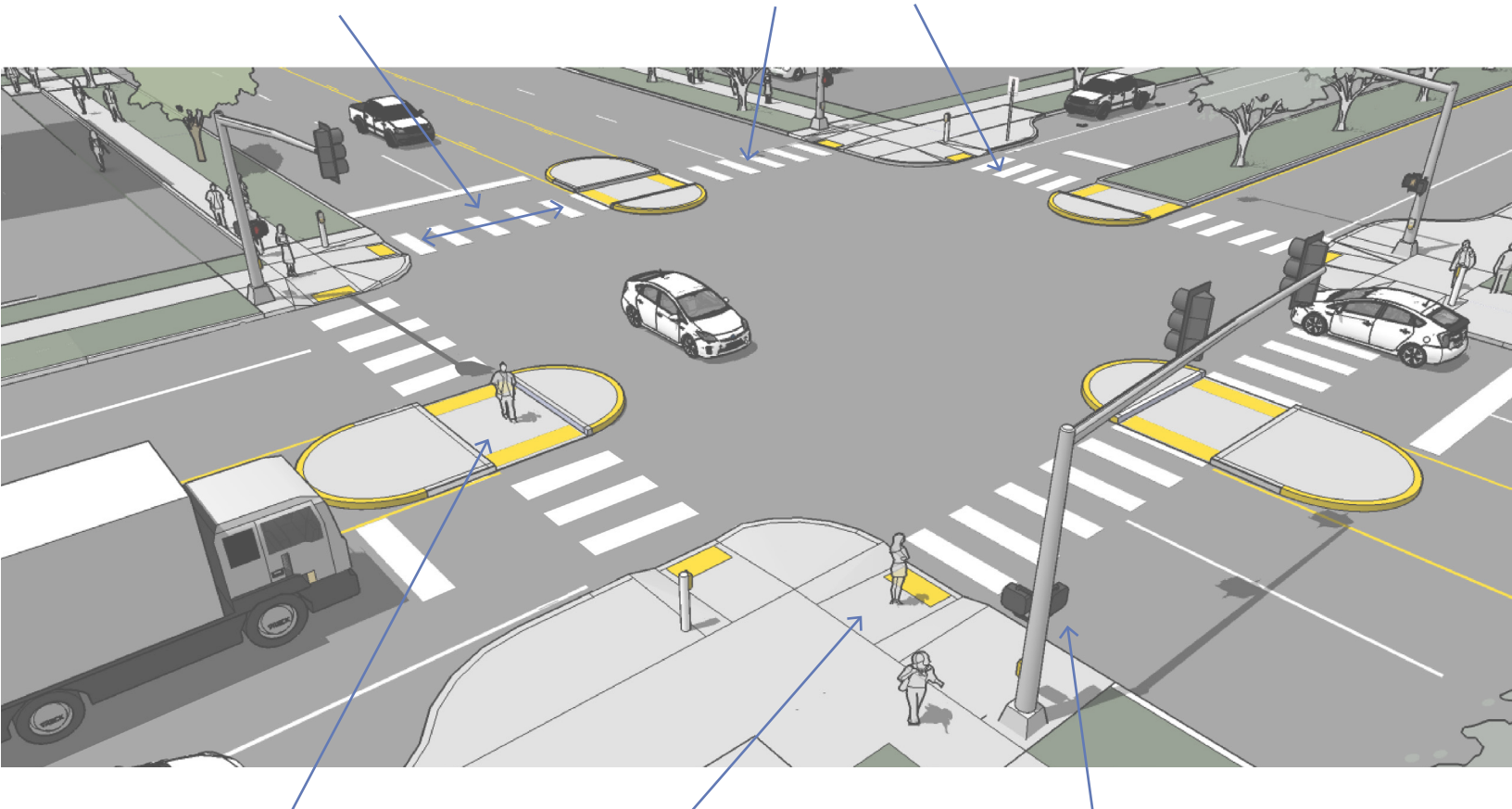
PEDESTRIANS AT SIGNALIZED INTERSECTIONS

Intersection crossings are a key component of the pedestrian network. Intersections have high potential conflict between pedestrians and vehicles. However, intersections can be designed to help reduce these conflicts, making them safer for all users.

The diagram below highlights best practices for pedestrian facility design at intersections.

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

High visibility markings provide additional visibility and are recommended for all crosswalk markings.



Median refuge islands increase visibility and allow pedestrians to cross one direction of traffic at a time.

ADA compliant curb ramps allow all users to transition from the street to a sidewalk. Perpendicular curb ramps are preferred to diagonal curb ramps.

The use of a Leading Pedestrian Interval (LPI) to provide additional traffic-protected crossing time to pedestrians should be considered.

PEDESTRIANS AT SIGNALIZED INTERSECTIONS (CONTINUED)

Pedestrian Signal Heads

Pedestrian signal heads indicate to pedestrians when to cross at a signalized crosswalk. Pedestrian signal indications are recommended at all traffic signals except where pedestrian crossing is prohibited by signage.

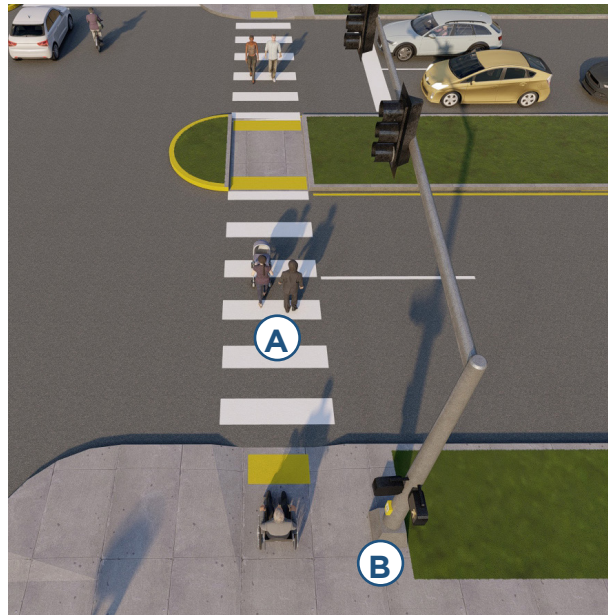
Countdown pedestrian signals should be retrofitted at existing signals with older style pedestrian signals and on any new installation. Countdown signals have a crash reduction factor of between 25 and 52% in varied studies¹.

Signal Timing and the Pedestrian Phase

Adequate pedestrian crossing time is a critical element of the walking environment at signalized intersections. The length of a signal phase with parallel pedestrian movements should provide sufficient time for a pedestrian to safely cross the adjacent street. The MUTCD recommends a walking speed of 3.5 ft per second.

At crossings where older pedestrians or pedestrians with disabilities are expected, crossing speeds as low as 3 ft per second should be assumed. Special pedestrian phases can be used to provide greater visibility or more crossing time for pedestrians at certain intersections.

Large pedestrian crossing distances can be broken up with median refuge islands. A pedestrian pushbutton can be provided on the median to create a two-stage pedestrian crossing if the pedestrian phase is actuated. This ensures that pedestrians are not stranded on the median, and is especially applicable



on large, multi-lane roadways with high vehicle volumes, where providing sufficient pedestrian crossing time for a single stage crossing may be an issue.

- A** Consider the use of a Leading Pedestrian Interval (LPI) to provide additional traffic-protected crossing time to pedestrians.
- B** Accessible Pedestrian Signals (APS) provide crossing assistance to pedestrians with vision impairment at signalized intersections.

Further Considerations

Pushbuttons should be located so that someone in a wheelchair can reach the button from a level area of the sidewalk without deviating significantly from the natural line of travel into the crosswalk. Pushbuttons should be marked (for example, with arrows) so that it is clear which signal is affected.

In areas with very heavy pedestrian traffic, consider an all-pedestrian signal phase to give pedestrians free passage in the intersection when all motor vehicle traffic movements are stopped. This may provide operational benefits as turning movements are then unimpeded.

¹ <http://www.cmfclearinghouse.org/index.cfm>

BIKE/PED CROSSINGS AT UNSIGNALIZED INTERSECTIONS



Rectangular rapid flashing beacons (RRFB) alert drivers at unsignalized intersections of people biking or walking.



Pedestrian Hybrid Beacons stop automobile traffic for bicyclists and pedestrians wishing to cross a high traffic volume/high speed roadway.

The chart to the right from the NCDOT Action Plan for Implementing Pedestrian Crossing Countermeasures at Uncontrolled Locations outlines parameters for choosing an appropriate crossing treatment.

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	① 2 4 5 6	① 5 6 7 9	① 5 6 7 9	① 4 5 6 7 9	① 5 6 7 9	① 5 6 7 9	① 4 5 6 7 9	① 5 6 7 9	① 5 6 9
3 lanes with raised median (1 lane in each direction)	① 2 3 4 5	① 3 5 7 9	① 3 5 7 9	① 3 4 5 7 9	① 3 5 7 9	① 3 5 7 9	① 3 4 5 7 9	① 3 5 7 9	① 3 5 9
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① 3 5 6 7 9	① 3 5 6 9	① 3 4 5 6 7 9	① 3 5 6 7 9	① 3 5 6 9	① 3 4 5 6 7 9	① 3 5 6 9	① 3 5 6 9
4+ lanes with raised median (2 or more lanes in each direction)	① 3 5 7 8 9	① 3 5 7 8 9	① 3 5 8 9	① 3 5 7 8 9	① 3 5 7 8 9	① 3 5 8 9	① 3 5 7 8 9	① 3 5 8 9	① 3 5 8 9
4+ lanes w/o raised median (2 or more lanes in each direction)	① 3 5 6 7 8 9	① 3 5 6 7 8 9	① 3 5 6 8 9	① 3 5 6 7 8 9	① 3 5 6 7 8 9	① 3 5 6 8 9	① 3 5 6 7 8 9	① 3 5 6 8 9	① 3 5 6 8 9

Given the set of conditions in a cell,

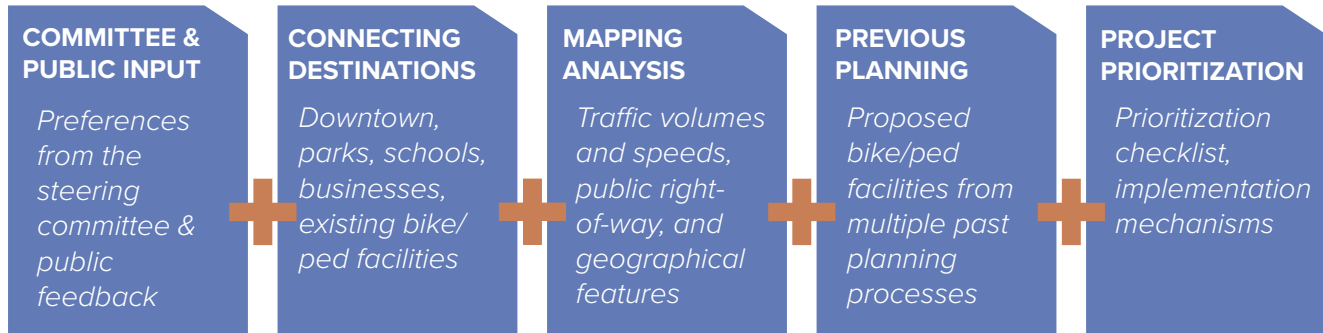
- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- 1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- 7 Rectangular Rapid-Flashing Beacon (RRFB)**
- 8 Road Diet
- 9 Pedestrian Hybrid Beacon (PHB)**

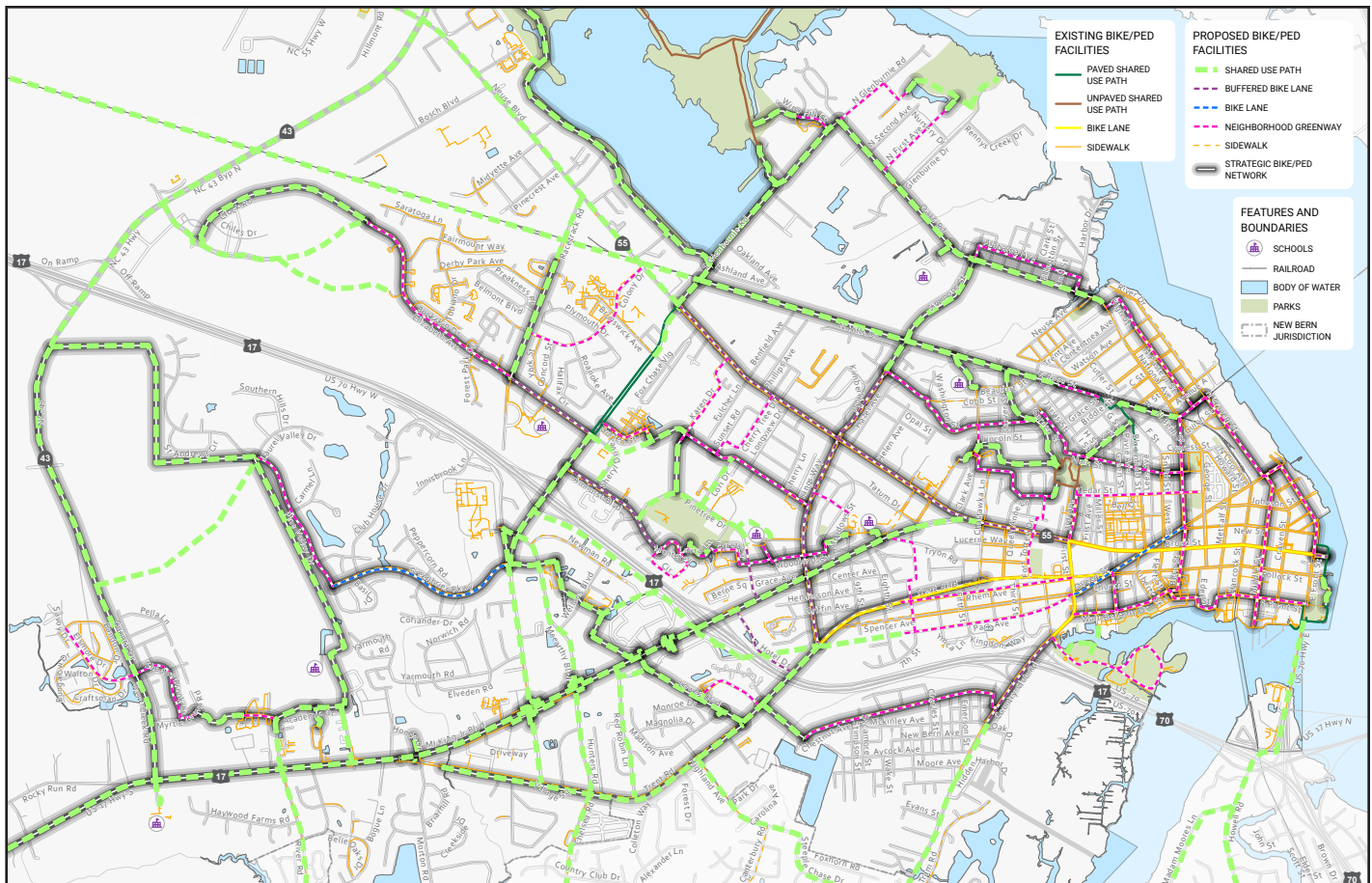
Basis of Recommendations

The proposed strategic network is a result of a collaborative planning process that involved a review of recent and past planning efforts, committee feedback, data collection, and technical analysis.



STRATEGIC BICYCLE & PEDESTRIAN NETWORK

The map below introduces the proposed Strategic bicycle and pedestrian network. It fills a variety of key needs by focusing on implementable gaps between neighborhoods, parks, schools, and businesses. Generally speaking, the strategic network is where more proactive efforts to implement bicycle and pedestrian infrastructure should be directed. The graphics on the following page highlight these components, and each are further detailed on the following pages.



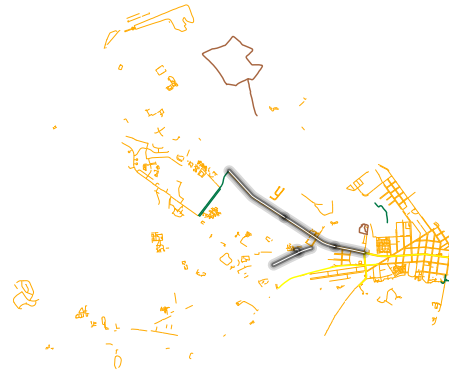
Strategic Network Components

STRATEGIC NETWORK COMPONENTS

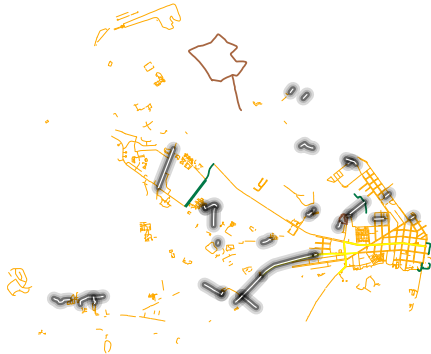
EXISTING NETWORK



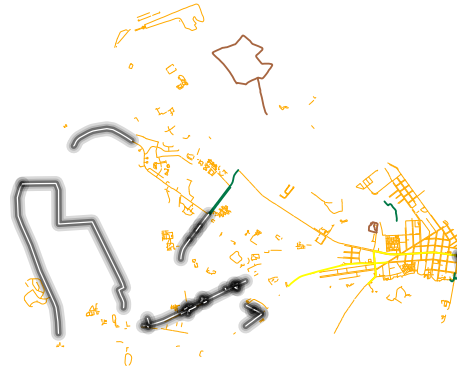
NEUSE BLVD AND DR MLK JR BLVD CORRIDOR STUDIES (2.6 MILES) (PG 54)



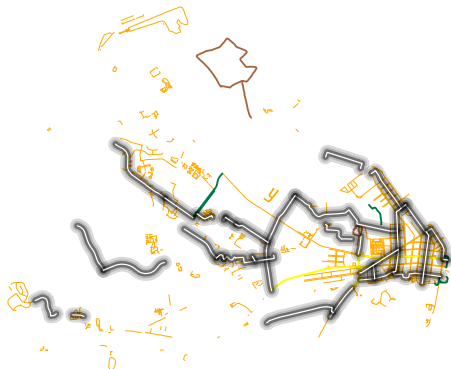
NEIGHBORHOOD GREENWAY & SIDEWALK GAPS (4.5 MILES) (PG 50)



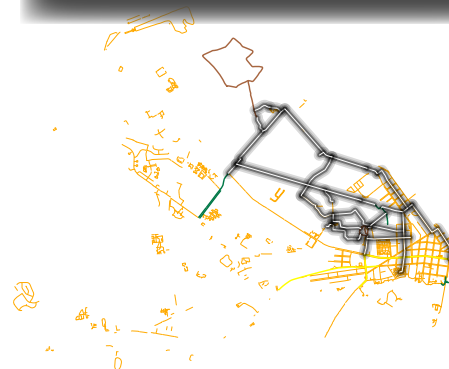
NCDOT PROGRAMMED ROADWAY PROJECTS AND PROJECTS WITH DEVELOPMENT (5-10 MILES) (PG 56)



NEIGHBORHOOD GREENWAYS (17 MILES) (PG 52)



EAST COAST GREENWAY FEASIBILITY STUDY (4-5 MILES) (PG 58)



STRATEGIC BICYCLE & PEDESTRIAN NETWORK: NEIGHBORHOOD GREENWAY & SIDEWALK GAPS (4.5 MILES)

These are short connections that fill in gaps in the sidewalk grid and connect destinations that are proximate but unconnected. These short projects make immediate connections between neighborhoods, schools, parks, businesses, and other existing bike/ped facilities. Combined with neighborhood greenway corridors on the following pages, these projects can facilitate the creation of a city-wide neighborhood greenway network.

EXISTING BIKE/PED FACILITIES

- PAVED SHARED USE PATH
- UNPAVED SHARED USE PATH
- BIKE LANE
- SIDEWALK

PROPOSED BIKE/PED FACILITIES

- SHARED USE PATH
- BUFFERED BIKE LANE
- BIKE LANE
- NEIGHBORHOOD GREENWAY
- SIDEWALK
- STRATEGIC BIKE/PED NETWORK
- NEIGHBORHOOD GREENWAY & SIDEWALK GAPS

FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

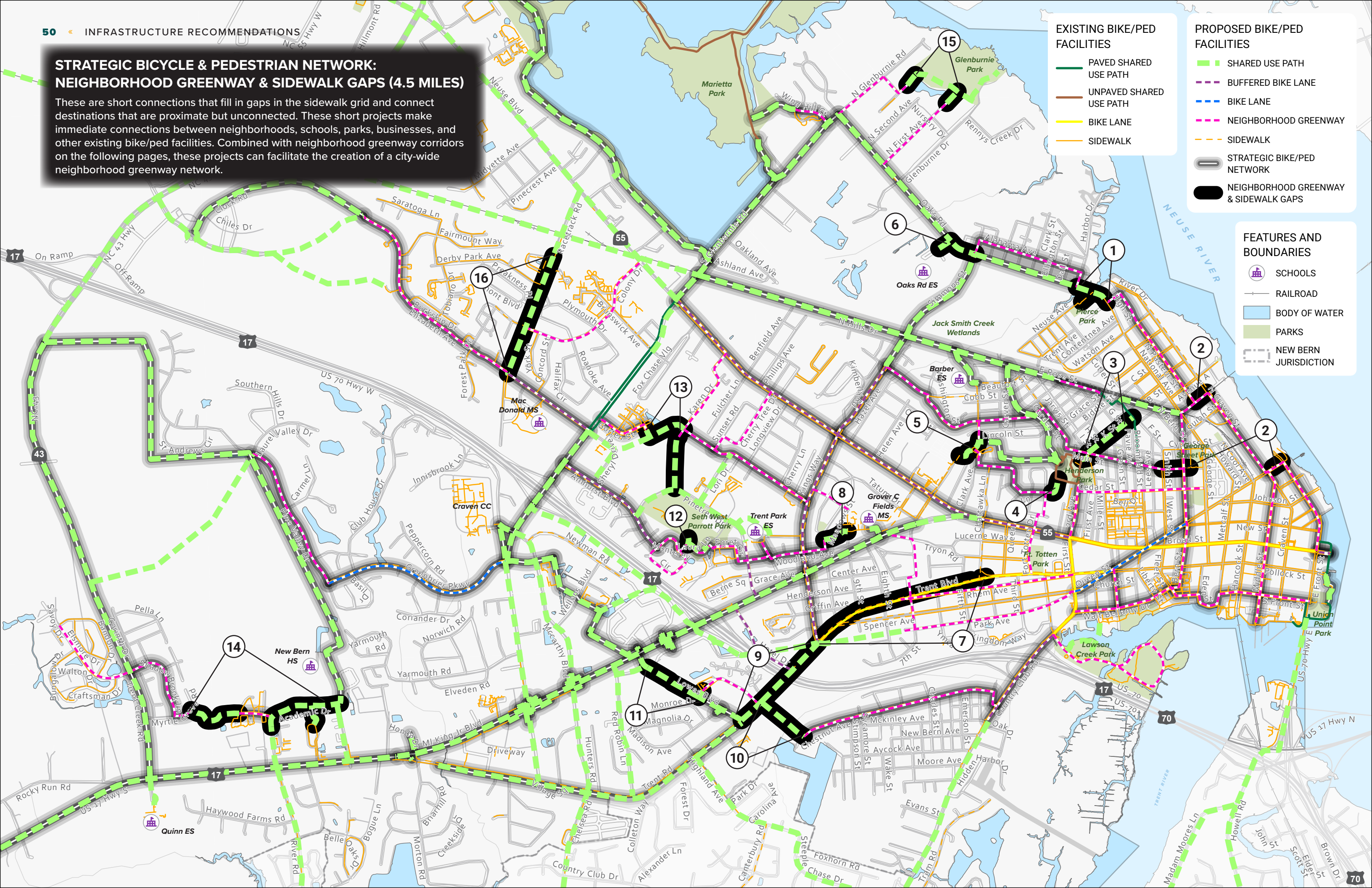


Table 4. Strategic Network Recommendation Notes (Greenway & Sidewalk Gaps)

MAP ID	NOTES	Prioritization Criteria					
		CONNECTS TO PARK OR SCHOOL	CONNECTS NEIGHBORHOOD	CONNECTS BUSINESSES	USES MOSTLY PUBLIC ROW	BIKE/PED CRASH ON OR NEAR CORRIDOR	LENGTH (FEET)
1	Construct a sidewalk along west/south side of National Ave to continue the sidewalk network to the northwest. Ideally, construct an 8'-10' wide sidepath here. However, given the environmental and right-of-way constraints, a minimum 5' sidewalk may need to be constructed here. Additionally, complete the 350' remaining sidewalk gap along the south side of Neuse Ave to National Ave along the edge of Pierce Park.	✓	✓	✓	✓		840' (National Ave); 350' (Neuse Ave)
2	Complete three short sidewalk gaps 1) A 340' section on the south side of Mallard Park (between Pasteur St and Craven St; 2) A 600' section on the north side of Main St between West St and George St Park (minimal space is a challenge for section east of Bern St); and 3) A 180' section on the north side of Queen St west of E. Front St	✓	✓		✓		1,120'
3	K St has a wide ROW and a sidepath could be constructed along it to connect DE Henderson Park to the future greenway (stormwater project).	✓	✓		✓		1,360'
4	If an agreement can be made with one landowner, construct a short greenway link through vacant land between the eastern terminus of Queen Anne Ln to connect this neighborhood to Henderson Park.	✓	✓			✓	390'
5	This connection between Clarke Ave and the Hospital Ave sidewalk could be made if an agreement can be reached with the Green Park Terrace property owner.		✓	✓		✓	600'
6	Construct a short greenway link along the west side of Oaks Rd (drainage ditch will be a challenge, coordinate with Ruths Chapel on exact alignment) from the Holly St/Oaks Rd/Simmons St intersection to the front entrance of Oaks Rd Elementary School. A pedestrian crossing will be needed at the Holly St/Oaks Rd/Simmons St intersection.	✓	✓		✓		1,025'
7	Sidewalk infill should take place along Trent Blvd, but may face cost challenges due to utilities, drainage, and limited ROW. Additionally, the existing bike lane is currently below standard width and should be widened to at least 5' in width from the gutter seam (ideally with a physical buffer between automobile traffic and the bike lane - similar improvements needed to the Broad St bike lane as well).		✓	✓	✓	✓	3,900'
8	Construct a greenway link between the western edge of the Middle School property to Meadows St utilizing city-owned land.	✓	✓		✓		615'
9	Construct a sidepath along Trent Rd from Simmons St to Lowes Blvd (likely along the south side of Trent Rd, further study needed).		✓	✓	✓	✓	2,510'
10	Construct a short greenway link here along town-owned property, making the connection between Chestnut Ave and Trent Rd. Also, include greenway connectivity to/through future development in the space just south of here.		✓	✓	✓	✓	1,310'
11	Construct a greenway link along the north/east side of Lowe's Blvd from the Camden Square Apartments toward the Rivertowne Square shopping center. Coordinate with the Rivertown Shopping Center owner on potential routing to connect the greenway link to the Walmart entrance.		✓	✓	✓		1,500'
12	A short greenway link on publicly owned land could make a direct connection for neighborhoods to the south to link into Seth West Parrott Park.	✓	✓		✓	✓	160'
13	Construct a greenway along the cleared section of public ROW from the southern terminus of Karen Dr to Parrott Park. Also, construct a greenway link from the southern terminus of Karen Dr to the Reserve at Glenburnie Apts (agreement needed with developer). With these greenway links, Elizabeth Ave between Karen Dr and Simmons St can serve as a neighborhood greenway connector with shared lane markings, wayfinding signage, and traffic calming (if needed)(ideally sidewalks as well).	✓	✓	✓	✓	✓	2,350'
14	Work with developers and the Trent Creek Homeowners Association to construct a greenway link between Myrtle Grove Rd and Tomlinson Blvd. Continue the neighborhood greenway with a sidepath along the north side of Academic Dr, connecting to the front door of the high school. Include short greenway links to the Southern Townes, Arbor Green Way, and Copperfield residences to the south. Another alternative to consider (due to constraints (drainage ditches & ROW) for constructing sidewalks or sidepaths between US 17 and adjacent residences) for Academic Dr would be to convert the roadway corridor to one-way, leaving half of the road to serve as a shared use path for bicyclists and pedestrians.	✓	✓		✓	✓	1,940'
15	Create short greenway links from the northern terminus of both Attmore Dr and N 1st Ave, connecting these neighborhoods directly into Glenburnie Park. In both of these cases, the public street right-of-way connects to the Glenburnie Park property/public property.	✓	✓		✓	✓	700'
16	Construct a sidewalk (or ideally a sidepath) along Racetrack Rd, serving as a link between multiple neighborhoods. This corridor is constrained due to drainage ditches on on both sides of the road, but may be more feasible along the south side of the road (further study needed).	✓	✓		✓	✓	3,200'

✓ fully fulfills the criteria
✓ partially fulfills the criteria

Table 5. Strategic Network Recommendation Notes (Neighborhood Greenways)

		Prioritization Criteria					
MAP ID	NOTES	CONNECTS TO PARK OR SCHOOL	CONNECTS NEIGHBORHOOD	CONNECTS BUSINESSES	BIKE/PED CRASH ON OR NEAR CORRIDOR	TRAFFIC CALMING POTENTIALLY NEEDED	LENGTH (MILES)
17	Create a neighborhood greenway/route through downtown via Middle St, providing north/south connectivity through downtown and connecting the Riverwalk. This also takes advantage of the RRFB at the Broad St intersection and brings bicyclists through the heart of downtown. State Bike Route 7 should utilize this section along Middle St to avoid bring bicyclists through downtown, and is safer than the parallel section of E. Front St.	✓	✓	✓	✓	✓	0.7
18	Main St - key connector - consider adding periodic speed cushions and neighborhood (mini) traffic circles at the K St, West St, and Pavie Ave intersections (as well as Garden St/Washington St and Washington St/Clarke Ave intersections). This is in addition to wayfinding and shared lane markings (sharrows).	✓	✓	✓	✓	✓	1.6
19	To continue to the north/west, both bicyclists and pedestrians should be directed along Alabama Ave. While sidewalk/sidepath construction along National Ave here is recommended here as well, Alabama Ave can be a strong shorter-term option.	✓	✓	✓			0.6
20	Pasteur St, Front St, Bern St, Walt Bellamy Dr, and S. Front St can serve as neighborhood greenway spines to multiple parts of New Bern. These streets currently have low traffic volumes and speeds. Key intersections needing improvement include: Bern St/Dunn St/National Ave, Bern St/Queen St/New St, Bern St/Broad St, and Bern St/ Pollock St.	✓	✓	✓	✓	✓	4.0
21	Queen St makes a key connection between several different walking/biking opportunities - implementing a bike lane would require removing parking or moving parking to one side of the street (does not appear to be highly utilized along this section). Otherwise, traffic calming, wayfinding, and shared lane markings, intersection crossings, reduction in speed limit (35mph-25 mph or 20 mph (neighborhood greenway treatments) could be implemented.	✓	✓	✓	✓	✓	0.6
22	This section of 3rd Ave was recently reconstructed with sidewalks - add wayfinding, shared lane markings (sharrows), and speed cushions to connect DE Henderson Park to the bike network to the south.	✓	✓	✓	✓	✓	0.24
23	Simmons St from Hazel Ave to Trent Rd should be reconfigured from 4 lanes to 3, and include buffered bike lanes (traffic volumes are several thousand cars/day lower than recent 4-3 conversion on First St/Country Club).	✓	✓	✓	✓		1.4
24	With the implementation of a 4-3 roadway conversion on Simmons St, creating neighborhood greenway crossings of Simmons St becomes safer and more implementable.	✓	✓				n/a
25	The First St/Country Club Rd 4-3 roadway reconfiguration could be continued to McKinley Ave. Combined with Map #29, this project would connect this neighborhood to downtown New Bern and destinations to the west.	✓	✓	✓			0.5
26	Monterey Cir, Laura Ln, Egret Cir, and Woodland Ave can serve as a neighborhood greenway spine that enhances east/west connectivity in New Bern. These streets currently have low traffic volumes and speeds. Key intersections needing improvement include: Woodland Ave/Simmons St and Pinetree Dr/Woodland Ave.	✓	✓	✓		✓	1.1
27	Amhurst Blvd has extra pavement width (33-34') and should have buffered bike lanes striped along it (sidewalks construction along one side as well). This can help make the link to Glenburnie Ave and Elizabeth Ave, serving greater community connectivity.	✓	✓	✓	✓		0.6
28	Elizabeth Ave between Racetrack Rd and Glenburnie Rd is a two-lane road with extra width (34') and currently allows on-street parking. Consider removing on-street parking, allowing for a two-way protected bike lane along the south side of the road, complementing and buffering the existing sidewalk in front of the Middle School even more - if on-street parking cannot be removed, implement neighborhood greenway treatments (traffic calming, shared lane markings, wayfinding signage).	✓	✓	✓		✓	0.45
29	Combined with Map #'s 25 and 10, Chestnut Ave can serve as a neighborhood greenway corridor for bicyclists and pedestrians with shared lane markings and wayfinding signage.		✓		✓		1.0
30	Combined with Map #15, Tomlinson Blvd, Myrtle Grove Rd, and Shadowbrook Ln can serve as a neighborhood greenway corridor for bicyclists and pedestrians with shared lane markings and wayfinding signage, linking multiple neighborhoods to New Bern High School.	✓	✓		✓		0.62
31	Elizabeth Ave includes sidewalks along its length. Combined with Map #28 and future development connecting to the north/west terminus of Elizabeth Ave, this corridor can serve as a neighborhood greenway corridor with shared lane markings and wayfinding signage. Traffic calming features such as speed tables, curb extensions, or neighborhood traffic circles (example found just south of Rose Run A) could be installed if traffic speeds become an issue when future development is connected to Elizabeth Ave.	✓	✓			✓	1.0
32	Greenbrier Pkwy from Pine Valley Dr to Glenburnie Rd is a two-lane road with 31-32' pavement width. During a future resurfacing, the motor vehicle travels lanes should be striped at 10' each, leaving space for formal bike lanes to be striped (5.5'-6' wide). Pine Valley Dr can serve as a neighborhood greenway with shared lane markings and wayfinding signage, connecting to future development to the west and north/west.		✓	✓	✓		1.6

✓ fully fulfills the criteria
✓ partially fulfills the criteria

Table 6. Strategic Network Recommendation Notes (Dr MLK Jr Blvd Corridor Study)

MAP ID	NOTES
1	<p>Reconfigure Dr MLK Jr Blvd between Simmons St and Degraffenreid Ave. This section of Dr MLK Jr Blvd has traffic volumes slightly lower than the section of First St/Country Club Rd (which was recently reconfigured from four lanes to three). This would fill a major gap in the bike/ped network and allow for the creation of a crossing ideally created at the Middle School entrance and between 8th St and Tryon Rd.</p> <p>To create a three lane cross-section from the current six lane configuration, a corridor study should be conducted to examine alternatives for reconfiguring this section from six lanes to three. Options to consider:</p> <p>1) Remove automobile traffic completely from either the west bound or east bound side and use this space to create a bike/ped only space/linear park. Because the pavement is 39'+ wide, the additional space beyond a typical 10-12' shared use path could be programmed for green infrastructure or other ancillary park facilities. For the automobile side of the road, reconfigure the road to a bi-directional three-lane road with a center turn lane.</p> <p>2) Construct a new, bi-directional three-lane road with a center turn lane in the center of the corridor by removing the existing road bed. In the ample remaining ROW space on each side of the road, create a linear park with a shared use path to accommodate pedestrian and bicycle movement on both sides of the corridor.</p> <p>In both of these scenarios, at least one mid-block crossing for pedestrians/bicyclists between Simmons St and Degraffenreid Ave should be constructed, providing direct connectivity to the Middle School and adjacent neighborhoods.</p>

Dr MLK Jr Dr between Simmons St and Degraffenreid Ave carries very low traffic volumes for a six lane road. The current traffic volumes (8,000-11,000 AADT) are more appropriate for a two-lane road with a center turn lane. With the existing 200' right of way, removing half of the lanes would allow space to potentially create a linear park that could serve Grover C Fields Middle School and neighborhoods on both sides of the road.



Table 7. Strategic Network Recommendation Notes (Neuse Blvd Corridor Study)

MAP ID	NOTES
2	<p>Conduct a corridor study of this section of Neuse Blvd from the future roundabout to First St to potentially reconfigure from five lanes to three lanes and include buffered bike lanes (ideally a physical buffer). This is a residential corridor, and although traffic volumes are 18,000-22,000 AADT, a reconfiguration would improve safety. The City of New Bern Fire Department is located on this corridor and should be engaged at the beginning of the study.</p>
3	<p>This section of Neuse Blvd between the future roundabout and Simmons St carries between 8,000 and 14,000 AADT. With driveway consolidation and evolving adjacent land use to better balance bike/ped mobility and automobile traffic, this road could be reconfigured from four lanes to three, and include buffered bike lanes (ideally a physical buffer), and sidewalks should be completed on the north side of the road. Corridor Study/Plan needed.</p>
4	<p>This section of Neuse Blvd from Simmons St to the Glenburnie Rd carries higher traffic volumes (15,000-18,000 AADT). With driveway consolidation and evolving adjacent land use to better balance bike/ped mobility and automobile traffic, this section needs sidewalks (or a sidepath) along the north/east side of the road and bike lanes (or sidepath) that are buffered (ideally physically separated) from automobile traffic. Corridor Study/Plan needed.</p> <p><i>Note: This corridor has recently undergone analysis for to be converted to a reduced collision intersection - the above considerations could be taken into consideration in any future analysis.</i></p>

Road diets have an overall crash reduction rate of 19%-47%. Table 1 (below) from The Federal Highway Administration's Road Diet Information Guide highlights key considerations for Road Diet Implementation

Table 1. Problems Potentially Correctable by Road Diet Implementation

Category	Problem	Rationale
Safety	Rear-end crashes with left-turning traffic due to speed discrepancies	Removing stopped vehicles attempting to turn left from the through lane could reduce rear-end crashes
	Sideswipe crashes due to lane changes	Eliminating the need to change lanes reduces sideswipe crashes
	Left-turn crashes due to negative offset left turns from the inside lanes	Eliminating the negative offset between opposing left-turn vehicles and increasing available sight distance can reduce left-turn crashes
	Bicycle and pedestrian crashes	Bicycle lanes separate bicycles from traffic; pedestrians have fewer lanes to cross and can use a refuge area, if provided
Operational	Delays associated with left-turning traffic	Separating left-turning traffic has been shown to reduce delays at signalized intersections
	Side street delays at unsignalized intersections	Side-street traffic requires shorter gaps to complete movements due to the consolidation of left turns into one lane
	Bicycle operational delay due to shared lane with vehicles or sidewalk use	Potential for including a bike lane eliminates such delays
Other	Bicycle and pedestrian accommodation due to lack of facilities	Opportunity to provide appropriate or required facilities, increasing accessibility to non-motorized users
	Unattractive aesthetic	Provisions can be made for traversable medians and other treatments
	Vehicles speeds discourage pedestrian activity	Potential for more uniform speeds; opportunity to encourage pedestrian activity

STRATEGIC BICYCLE & PEDESTRIAN NETWORK: NCDOT PROGRAMMED ROADWAY PROJECTS AND PROJECTS WITH DEVELOPMENT (5-10 MILES)

As new roadways are constructed or undergo major alterations, incorporating bicycle and pedestrian connectivity as part of these projects is critical for the success of New Bern's bicycle and pedestrian network.

EXISTING BIKE/PED FACILITIES

- PAVED SHARED USE PATH
- UNPAVED SHARED USE PATH
- BIKE LANE
- SIDEWALK

PROPOSED BIKE/PED FACILITIES

- SHARED USE PATH
- BUFFERED BIKE LANE
- BIKE LANE
- NEIGHBORHOOD GREENWAY
- SIDEWALK
- STRATEGIC BIKE/PED NETWORK
- UPCOMING DEVELOPMENT & NCDOT ROADWAY PROJECTS

FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

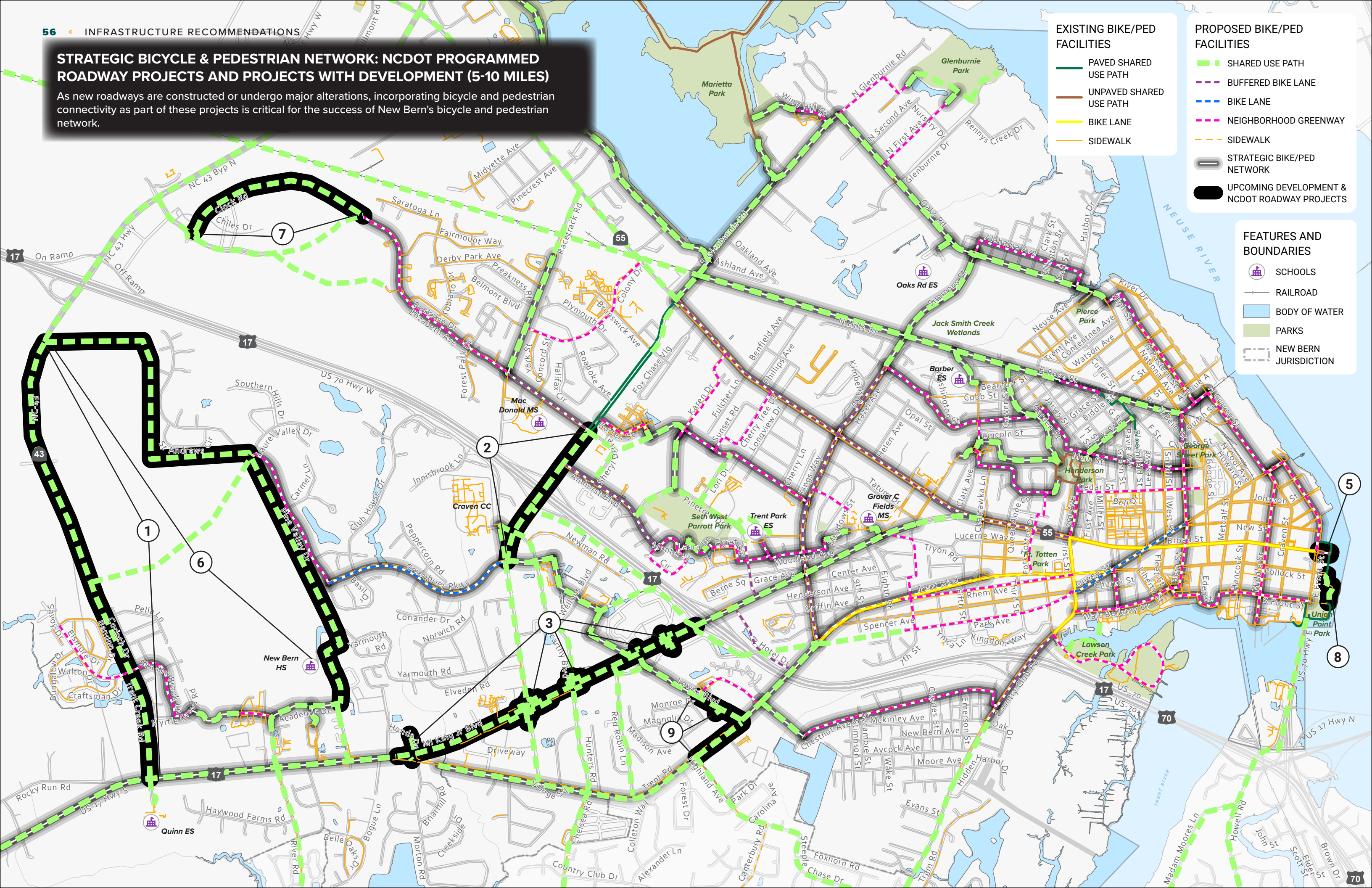


Table 8. Strategic Network Recommendation Notes (NCDOT Programmed Roadway Projects)

MAP ID	NOTES
1	NC 43 extension: (R-4463A): Construct a sidepath along the future extension of NC 43 extension: (R-4463A). As development continues to in this western area of New Bern, this sidepath will allow for bicycle and pedestrian connectivity between subdivisions and the Benn D Quinn Elementary School at the southern terminus of NC 43. Currently listed NCDOT construction year: 2025 (ROW 2022)
2	US 17/Glenburnie Rd Interchange Improvement (U-6102): Construct sidepaths along Glenburnie Rd from Elizabeth Ave to Greenbrier Pkwy (and across US 17) as part of the future interchange improvement. This will be an opportunity to connect businesses, Craven Community College, HJ Mac Donald Middle School, and nearby neighborhoods on either side of US 17. Currently listed NCDOT construction year: No year identified (ROW 2027).
3	Dr MLK Jr Dr Upgrade to Reduced Conflict Intersection (Superstreet) (U-6198): Reduced conflict intersections include various designs, but they all function the same by cutting more than half of the potential locations, or conflict points, where drivers and pedestrians can collide. This project is a key opportunity to complete sidewalks on both sides of the road (ideally sidepaths) and create formalized pedestrian crossings of Dr MLK Jr Dr between US 17 and Trent Rd, at the following intersections: Rivertowne Shopping Center/Twin Rivers Mall entrances; Lowes Blvd; McCarthy Blvd; Glenburnie Rd; and Trent Rd. While pedestrian and facilities are currently mostly lacking along this corridor, formalized bike/ped crossing facilities with sidepath/sidewalk connections to adjacent businesses (including filling in sidewalk gaps especially near the Glenburnie Rd intersection as well as the McCarthy Blvd intersection) should be constructed as part of this project. Currently listed NCDOT construction year: No year identified (ROW 2029). A second phase to this project will extend to NC 43 to the west - continue extending sidepaths/sidewalks in the future (including to River Bend).
4	West Thurman Rd/East Thurman Rd - conversion of at-grade intersection to interchange (R-5777A) and Taberna Way - conversion of at-grade intersection to interchange (R-5777B): These projects are scheduled for construction in the near-term, and are key opportunities to create bike/ped crossings of US 17.

Southern New Bern: Taberna Way and Thurman Rd - location of interchange construction (R-5777A/B)

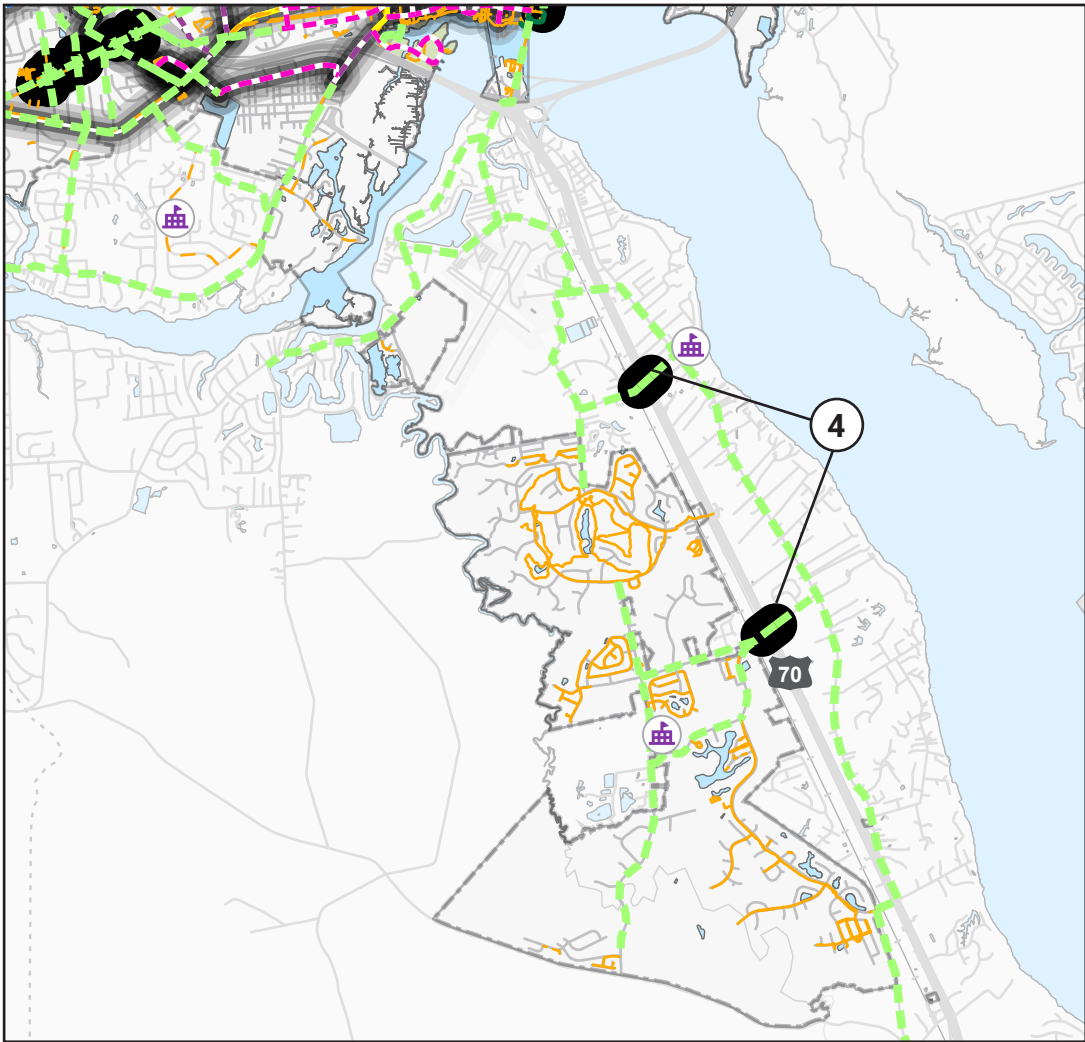


Table 9. Strategic Network Recommendation Notes (Potential Projects with Future Development)

MAP ID	NOTES
5	If future site development or roadway development extends Broad St to the Riverwalk, construct buffered bike lanes (with a physical buffer) and sidewalks as well.
6	Include sidepath and greenway connectivity into future development, ensuring connectivity to Pine Valley Dr/Laurel Valley Dr as well as to New Bern High School.
7	Include sidepath and greenway connectivity into future development, ensuring connectivity to Elizabeth Ave and beyond.
8	Complete the Riverwalk gap either with future development or by partnering with existing adjacent landowners.
9	Construct a sidepath along the north side of Lowes Blvd as part of future development between Trent Rd and the Camden Square Apts (connecting to the proposed greenway/sidepath link on page 50, map #'s 10 and 11). Continue sidepath (or sidewalk if constrained) development along the west side of Trent Rd as part of future development between Lowes Blvd and Highland Ave. Lastly, construct a short greenway link from the eastern terminus of Madison Ave to Lowe's Blvd, utilizing the existing public right-of-way here, and construct a high-visibility mid-block crosswalk across Lowe's Blvd.

The Courtyard by Marriot Hotel is located at the gap in New Bern's Riverwalk. Closing this gap in the Riverwalk will require landowner agreement and initiative.



STRATEGIC BICYCLE & PEDESTRIAN NETWORK: EAST COAST GREENWAY FEASIBILITY STUDY (4-5 MILES)

The East Coast Greenway (ECG), North Carolina's newest State Park (and State Trail), is proposed to connect through the heart of New Bern. One of the key missing links in New Bern's bicycle and pedestrian network is connectivity to Martin Marietta Park and Glenburnie Park. Coincidentally, the gap between these parks and New Bern's core also generally aligns with the envisioned ECG corridor through New Bern. With new funding opportunities for the ECG including feasibility study and design/ construction dollars, this ECG corridor in New Bern will likely compete well for available funding.

EXISTING BIKE/PED FACILITIES

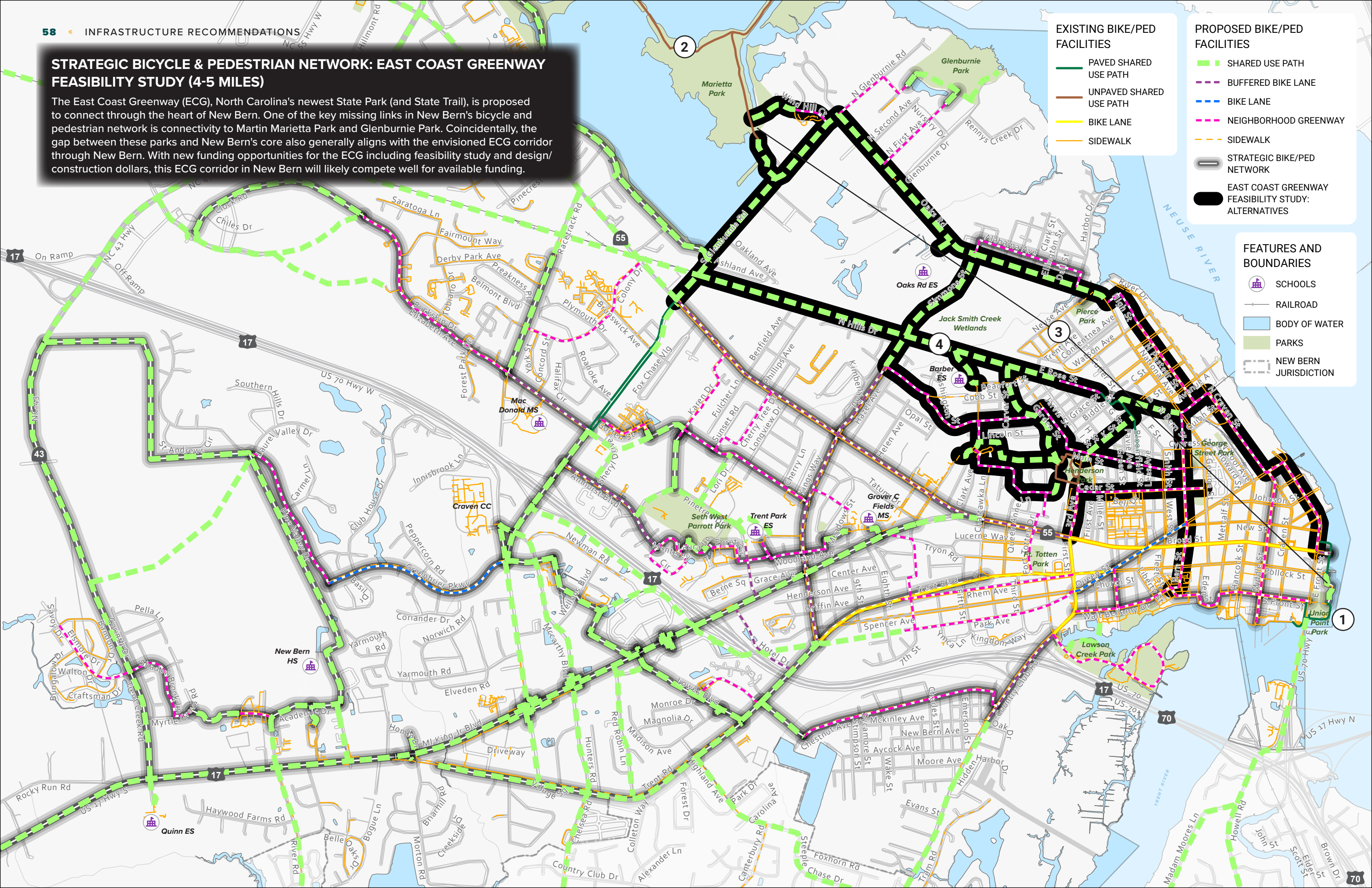
- PAVED SHARED USE PATH
- UNPAVED SHARED USE PATH
- BIKE LANE
- SIDEWALK

PROPOSED BIKE/PED FACILITIES

- SHARED USE PATH
- BUFFERED BIKE LANE
- BIKE LANE
- NEIGHBORHOOD GREENWAY
- SIDEWALK
- STRATEGIC BIKE/PED NETWORK
- EAST COAST GREENWAY FEASIBILITY STUDY: ALTERNATIVES

FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION



East Coast Greenway Feasibility Study

The East Coast Greenway (ECG) is a walking and biking route stretching 3,000 miles from Maine to Florida. In 2022, North Carolina designated the East Coast Greenway as part of the state park system. The East Coast Greenway coastal route is proposed to go through New Bern, potentially bringing a state park through the heart of the City. Currently, the East Coast Greenway is signed on the Riverwalk in Union Point Park and also as an on-road route through New Bern, following E. Front St, Craven St, Court St, National Ave, Oaks Rd, Glenburnie Rd, and Neuse Blvd as highlighted in the map to the right.

The goal of the East Coast Greenway is to create a completely off-road shared use path trail for the length of the route (currently, 35% of the 3,000 mile route is an off-road shared use path). To identify a preferred East Coast Greenway alignment through New Bern, a feasibility study should be conducted to analyze the options including those identified below and map to the right.

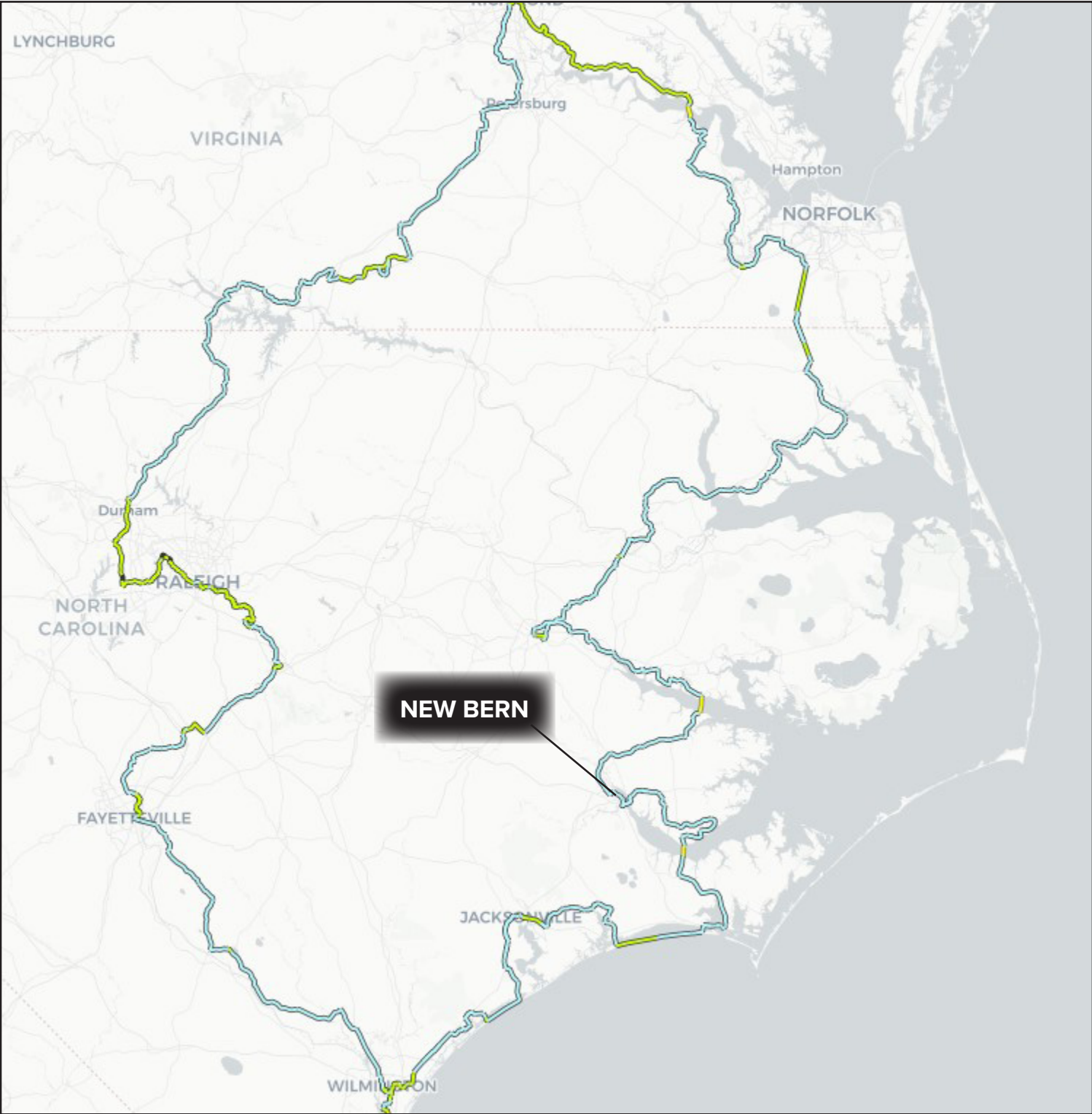
Table 10. Strategic Network Recommendation Notes (East Coast Greenway Feasibility Study)

MAP ID	NOTES
1	The Riverwalk in Union Point Park is currently signed as part of the ECG route, but has not been officially designated as part of the ECG. The City should coordinate with the ECG on officially designating New Bern's Riverwalk through Union Point Park as part of the ECG.
2	The shared use path through Martin Marietta Park should also be officially designated as part of the East Coast Greenway.

The feasibility study should focus on options for connecting Union Point Park to Martin Marietta park with a greenway. Options to consider (but not limited to), include:

MAP ID	NOTES
3	Simmons St, Oaks Rd, National Ave, Glenburnie Ave, Henderson Park to Clark St and Barber Elementary, should all be examined as part of the feasibility study. Ideally, the ECG would connect Union Point Park, Barber Elementary, Oaks Rd Elementary, Glenburnie Park, and Martin Marietta Park. The sidewalk grid/Broad St bike lanes/ neighborhood street network will likely be the only options for routing between Union Point Park and any potential greenway further west. A feasibility study should be conducted to identify a most feasible option for the trail through New Bern.
4	The Norfolk Southern railroad right-of-way encompasses 125' to 200' through New Bern depending on the location (for locations that are off-street). The corridor should be examined from the Queen St/Pasteur St intersection to Glenburnie Rd as a potential 'rail-with-trail' (active railroad corridor with adjacent trail). General guidance for these types of 'rail-with-trail' projects is well documented in the Federal Highway Administration & Federal Railroad Administration in <i>Rails with Trails: Best Practices and Lessons Learned</i> (2021). Any trail would require permission from and coordination with Norfolk Southern.

The ECG Online Mapping Tool: The Maine to Florida route greenway connects through North Carolina, including a coastal route that is envisioned to connect through New Bern.



STRATEGIC BICYCLE & PEDESTRIAN NETWORK: DOWNTOWN INTERSECTION IMPROVEMENTS

With a strong pedestrian network in New Bern's downtown core, these recommendations identify locations where crossing facilities could be strengthened or areas where crossing facilities are missing. Continuing to improve ADA accessibility and pedestrian and bicycle comfort and downtown, balanced with automobile traffic, will enhance downtown New Bern's business environment and neighborhood connectivity.

Table 11. Strategic Network Recommendation Notes (Downtown Intersection Improvements)

MAP ID	NOTES
1	Broad St/Fleet St: high visibility crosswalks (to replace the existing two-bar crosswalks); pedestrian signals; minimize curb radii; green skip lines (bicycle crossing markings) through the intersection for the Broad St bike lanes
2	Broad St/Bern St: Rectangular Rapid Flashing Beacon (RRFB) and high visibility crosswalks of Broad St; neighborhood greenway crossing treatments; minimize curb radii; green skip lines (bicycle crossing markings) through the intersection for the Broad St bike lanes
3	Broad St/George St: high visibility crosswalks (to replace the existing two-bar crosswalks); pedestrian signals; minimize curb radii; green skip lines (bicycle crossing markings) through the intersection for the Broad St bike lanes
4	Broad St/Metcalf St: Rectangular Rapid Flashing Beacon (RRFB) and high visibility crosswalks of Broad St; minimize curb radii; green skip lines (bicycle crossing markings) through the intersection for the Broad St bike lanes
5	Broad St/Hancock St: high visibility crosswalks (to replace the existing two-bar crosswalks); pedestrian signals; minimize curb radii; green skip lines (bicycle crossing markings) through the intersection for the Broad St bike lanes
6	Broad St/Middle St: green skip lines (bicycle crossing markings) through the intersection for the Broad St bike lanes
7	Broad St/Craven St: high visibility crosswalks (to replace the existing two-bar crosswalks); pedestrian signals; minimize curb radii; green skip lines (bicycle crossing markings) through the intersection for the Broad St bike lanes
8	Broad St/E Front St (west side of the roundabout (crossing of Broad St)): Rectangual Rapid Flashing Beacon (RRFB) and high visibility crosswalk of Broad St; existing curb ramps should be moved approximately 25' to the west such that the crosswalk is adjacent to the Broad St median.
9	Broad St/E Front St (south side of the roundabout (crossing of Front St)): Add a Rectangular Rapid Flashing Beacon (RRFB) to the existing high visibility crosswalk

10	S Front St/E Front St: high visibility crosswalks (to replace the existing two-bar crosswalks); minimize curb radii, especially on the southwest corner
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11	S Front St/Craven St: high visibility crosswalks (to replace the existing two-bar crosswalks); pedestrian signals; curb extensions
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FEATURES AND BOUNDARIES

- SCHOOLS
- RAILROAD
- BODY OF WATER
- PARKS
- NEW BERN JURISDICTION

EXISTING BIKE/PED FACILITIES

- PAVED SHARED USE PATH
- BIKE LANE
- SIDEWALK

EXISTING CROSSWALK TYPE

- TWO-BAR CROSSWALK
- BRICK CROSSWALK
- HIGH-VISIBILITY CROSSWALK
- RECTANGULAR RAPID FLASHING BEACON (RRFB)
- PEDESTRIAN CROSSING SIGNAL

RECOMMENDED BIKE/PED FACILITIES

- SHARED USE PATH
- BUFFERED BIKE LANE
- BIKE LANE
- NEIGHBORHOOD GREENWAY
- SIDEWALK

MAP ID	NOTES
12	S Front St/Middle St: high visibility crosswalks (to replace the existing two-bar crosswalks); pedestrian signals; curb extensions
13	S Front St/Hancock St: high visibility crosswalk (to replace the existing two-bar crosswalk along the north side); curb extensions
14	S Front St/Metcalf St: high visibility crosswalk (to replace the existing two-bar crosswalk along the east side); curb extensions
15	S Front St/Eden St: high visibility crosswalk; curb extensions (curb ramp orientation needs shifted on the southwest corner)
16	Fleet St/Walt Bellamy Dr/Bern St: high visibility crosswalks; curb ramps; curb extensions across Bern St and Fleet St
17	Walt Bellamy Dr/Liberty St: high visibility crosswalks; curb ramps; complete sidewalk gap on southwest corner (consider extending the curb in front of the former convenience store to create space for sidewalk)
18	Pollock St/Norwood St/Queen St: high visibility crosswalks; pedestrian signals
19	Pollock St/Jones St/Liberty St: high visibility crosswalks (including across Pollock St, curb ramps needed, consider installing curb extensions across Pollock St); create a median island for pedestrians crossing the long east/west (south leg) of the intersection
20	Pollock St/Fleet St: high visibility crosswalks (to replace the existing two-bar crosswalks); curb ramps on the southeast corner; curb extensions across Pollock St (east side of intersection)
21	Pollock St/Bern St: high visibility crosswalks; curb extensions across Pollock St
22	Pollock St/Metcalf St: high visibility crosswalks (to replace the existing two-bar crosswalks); pedestrian signals (or consider converting this to a four-way stop)
23	Pollock St/Hancock St: high visibility crosswalks (to replace the existing two-bar crosswalks); curb extensions across Pollock St
24	Pollock St/Middle St: high visibility crosswalks (to replace the existing two-bar crosswalks); curb extensions on all sides
25	Pollock St/Craven St: high visibility crosswalks (to replace the existing two-bar crosswalks); pedestrian signals; curb extensions on all sides
26	Queen St/Broad St/Roundtree St: high visibility crosswalks (to replace the existing two-bar crosswalks); high visibility crosswalk with pedestrian signal phase across Broad St (from NW corner of Broad St/Roundtree St to the SE corner of Broad St/Queen St); green skip lines (bicycle crossing markings) through the intersection for the Broad St bike lanes
27	Queen St/West St/Fleet St: high visibility crosswalk and curb ramps across Queen St along the west side of the intersection
28	Queen St/Bern St/New St: high visibility crosswalk and curb ramps across Queen St along the eastern side of the intersection; high visibility crosswalks across Bern St (north side and south side) and New St
29	Queen St/George St: high visibility crosswalks (to replace the existing two-bar crosswalks); curb ramps; curb extensions across George St

MAP ID	NOTES
30	Queen St/Metcalf St/Howard St: high visibility crosswalk and curb ramps across Queen St along the western side of the intersection; high visibility crosswalks (to replace the existing two-bar crosswalks) across Metcalf St and Howard St
31	Queen St/Craven St: high visibility crosswalk and curb ramps across Queen St from the NE corner of the intersection to the SW corner of the intersection; high visibility crosswalks (to replace the existing two-bar crosswalks) across both sides of Craven St
32	Queen St/E Front St: high visibility crosswalk to replace the existing two-bar crosswalk across the west side of the intersection; high visibility crosswalks and curb ramps on all sides of the intersection
33	George St/New St: high visibility crosswalks; curb extensions across George St
34	E Front St/Linden St: high visibility crosswalk, curb extensions, and curb ramps across north side of intersection
35	E Front St/New St: high visibility crosswalk, curb extensions, and curb ramps across south side of intersection
36	Pasteur St/Queen St: high visibility crosswalk to replace the existing two-bar crosswalk across the north side of the intersection; high visibility crosswalks on all sides of the intersection; updated curb ramps on the southeast corner
37	George St/Cypress St: high visibility crosswalks and curb ramps across George St on both sides of the intersection; high visibility crosswalks across Cypress St on both sides of the intersection; updated curb ramp at the northeast corner
38	Bern St/Cedar St: high visibility crosswalks on all sides of the intersection
39	Cedar St/West St: high visibility crosswalks on all sides of the intersection; updated curb ramps on each corner
40	Cedar St/Miller St: landing areas/curb ramps at both the NE and SW corners of the intersection; high visibility crosswalks on all sides of the intersection
41	West St/Elm St: high visibility crosswalk and curb ramps across the north side of the intersection; high visibility crosswalk and updated curb ramps across the west side of the intersection
42	Elm St/Roundtree St: high visibility crosswalk across the east side of the intersection; high visibility crosswalk and curb ramps across Roundtree St from the southeast corner of the intersection
43	Roundtree St/Reisenstein St: high visibility crosswalk across the east side of the intersection; high visibility crosswalk and curb ramps across Roundtree St from the southeast corner of the intersection
44	Main St/West St: high visibility crosswalks needed across the east and south side of the intersection
45	Bern St/Cypress St: high visibility crosswalks needed across the south and west sides of the intersection; updated curb ramps at the SW and SE corners of the intersection

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Program Recommendations

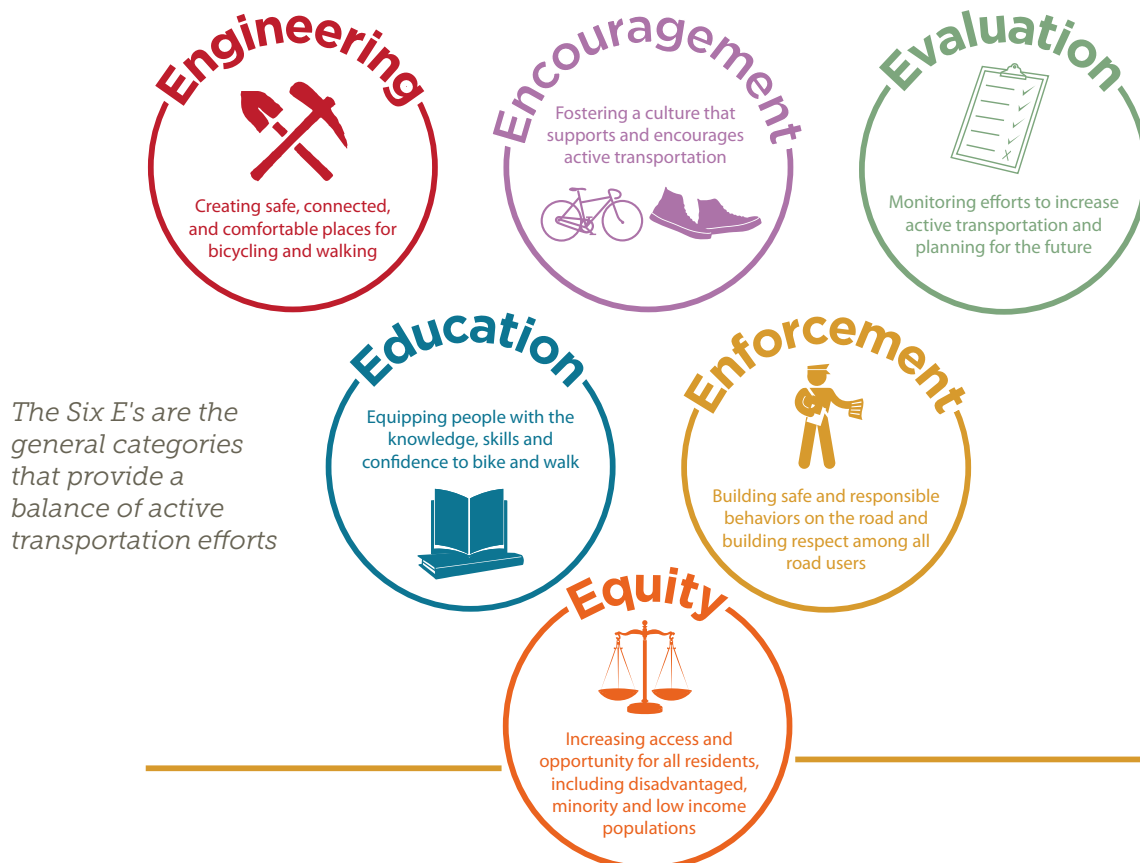


Introduction

Program recommendations are essential and complementary to the walking and biking infrastructure recommendations presented in the previous chapter.

Program recommendations in this chapter include:

- ▶ Form an Active Transportation Advisory Committee
- ▶ Become Designated as a Walk Friendly Community
- ▶ Continue Engaging the Walk for Me NC Campaign
- ▶ Safe Routes To Schools & Parks Action Plans
- ▶ Wayfinding
- ▶ Speed Management
- ▶ Traffic Calming Murals
- ▶ Bridgeton to New Bern Water Taxi



Form an Active Transportation Advisory Committee (ATAC)

Leadership from the City of New Bern, New Bern Area MPO, Development Services Department as well as the Parks & Recreation Department, and members of this project's steering committee should become the advisory committee for guiding the implementation of this plan (often called a Bicycle and Pedestrian Advisory Committee or Trails Committee). The ATAC should focus on implementation of this plan.

The ATAC should have representation from active pedestrians and bicyclists and should champion the recommendations of this plan. The formation of this group would be a significant step in becoming designated as a Walk Friendly Community (see next page). The committee would provide a communications link between the residents of the community and local government. They should also continue to meet periodically, and be tasked with assisting municipal staff in community outreach, marketing, and educational activities related to bicycle and pedestrian projects.

Role in Implementation

The Committee should be prepared to:

- ▶ Meet with City of New Bern staff and evaluate progress of the plan's implementation and offer input regarding pedestrian, bicycle, and trail-related issues.
- ▶ Assist City of New Bern staff in applying for grants and organizing pedestrian- and bicycle-related events and educational activities.
- ▶ Build upon current levels of local support for pedestrian and bicycle issues and advocate for local project funding.

Examples in Other NC Communities

[Wilson, NC](#); [Pinehurst, NC](#); [Southern Pines, NC](#)

Resources:

[Best Practices for Bicycle and Pedestrian Advisory Committees from the League of American Bicyclists and the Alliance for Biking & Walking](#)

Become Designated as a Walk Friendly Community

The WFC program is a national recognition program developed to encourage communities to support safer walking environments as a local priority. The program recognizes communities which have achieved high levels of walking and low rates of pedestrian crashes while also recognizing communities which are making progress in achieving these two goals through policies, projects and programs. The thorough and detailed application process is a key part of becoming more walk-friendly by:

- ▶ Building new local partnerships.
- ▶ Collecting data for future planning efforts.
- ▶ Documenting all local walking-related programs, projects, and policies.
- ▶ Identifying areas of needed improvement.
- ▶ Providing tools to develop specific solutions before the application is submitted.
- ▶ Offering feedback and further suggestions to the community after application review.
- ▶ Creating momentum for future projects.

Preparing a WFC application requires a multi-faceted approach to collecting and presenting information about a community. The core of the application effort is completion of the WFC Assessment Tool which assesses the community in Engineering, Education, Encouragement, Enforcement, and Evaluation as well as other elements such as planning. These are the combination of criteria that best assist communities to become more walkable and to set clear goals and plans for achieving those goals. The tool is also designed to recognize that there are many different ways that communities achieve walkability and that every location is unique.



With a strong downtown sidewalk grid, combined with this plan showing a commitment to improving walking and biking city-wide, the City of New Bern should be in a position to apply for and receive recognition as a Walk Friendly Community.

Continue Engaging the Watch for Me NC Campaign



Since 2014, New Bern has been engaged with NCDOT's *Watch for Me NC* campaign. These efforts should continue. New Bern's Police Department manages the program, working closely with several other groups to develop comprehensive education and enforcement activities about traffic safety, including walking and biking. Partners have included the New Bern Area MPO and the Sheriff's Office in Watch for Me NC activities. The North Carolina Department of Transportation Governor's Highway Safety Program has also been a crucial partner.

Education and Enforcement Activities

Watch for Me NC partners in New Bern have participated in several local events and festivals to raise awareness about safe bicycling and walking including the Vision Forward Festival and the Bike MS touring event. The Police Department has worked with area bike shops to draw attention to the program as well. Watch for Me NC banners have been posted at bike shops downtown and brochures have been distributed to downtown shoppers. Watch for Me NC partners also attended supervisory staff meetings of the Police Department and City of New Bern Board of Aldermen to engage decision-makers in the program.



Key Outcomes

The Watch for Me NC program has provided the resources needed to strengthen interest in improving traffic safety. This program and its support have helped provide education and materials such as bike lights to residents and tourists. Lt. Todd Conway of the New Bern Police Department emphasized that “people got lights who genuinely needed lights, it has been really positive.” Watch for Me NC has also generated local attention through public service announcements and accompanying news articles. One news article about the campaign pictured pedestrians enacting a remake of the Beatles’ “Abbey Road” album cover.



Lessons Learned

- ▶ Build a relationship with residents: Despite their targeted efforts towards tourists, New Bern found that Watch for Me NC education and enforcement activities were most successful when working closely with residents and community leaders. As Sgt. Conway explained, “If you get buy-in from the community, it will work.”
- ▶ Work within school schedules: The program found it more challenging than anticipated to conduct activities with schools due to conflicts with students’ learning schedules. In the future, this program will seek ways to better integrate programming with after-school activities, or work with day care providers.

Safe Routes to Schools & Parks Action Plans

Safe Routes to Schools and Parks enables and encourages children and adults to walk and bike to schools and parks. These programs facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools and parks. New Bern previously implemented Safe Route to School events at Ben D Quinn Elementary School and HJ Mac Donald Middle School, coordinating chaperones for walking/biking to school and police escorts. These types of efforts should be continued.

Both schools and parks are key local destinations with significant amounts of local travel (ie; shorter, walkable/ bikeable distances). If connected by all ages and abilities walking/biking infrastructure, they have the potential to influence a shift to more active modes of transportation.

Serving as ‘mini’ pedestrian/ bicycle plans for each school/ park, these planning processes could begin by supporting the recommendations from this plan - much of the strategic network connects New Bern schools and parks - and further explore opportunities and challenges for improving infrastructure, programming, and policy.

WALKING SCHOOL BUS / BIKE TRAINS

Walking School Buses and Bike Trains let students walk or bicycle to school as a group, often with an adult volunteer. They may be daily, weekly, or monthly events.

Best Practice Programs:

- » Pinehurst Elementary School in Pinehurst, NC, created a **Walking School Bus** that resulted in a 22% reduction in traffic.
- » **Michigan's SRTS** program developed Walking School Bus volunteer resources, sample parent letters, and resources to help develop a route.
- » Santa Clarita, CA, SRTS developed a **Walking School Bus Training Guidebook** to help parents form walking school buses.
- » Tampa Bay, FL, Washington, DC, Denver, CO, and Portland, OR, participated in a **Bike Train Webinar**.



Suggested Lead Agency:

- » Lincoln Heights SRTS Task Force

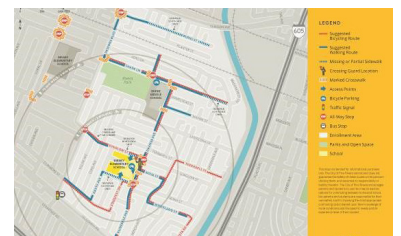
Cost: \$-\$\$

SUGGESTED ROUTE TO SCHOOL MAPS

Suggested route maps show existing sidewalks, trails, bikeways, crossing guards, and traffic control to help parents find the best walking and biking routes to school. An example and template for Lincoln Heights can be found on page 4-16. Involving students in the development of personal maps is recommended.

Best Practice Programs:

- » The **Institute of Transportation Engineers (ITE)** has a white paper on School Route Maps.
- » Washington State **requires school districts** to develop suggested route maps for all elementary schools.
- » Davis, CA, developed user-friendly **Suggested Route Maps** that include walking times and bicycle parking.



Suggested Lead Agency:

- » Lincoln Heights SRTS Task Force

Cost: \$-\$\$

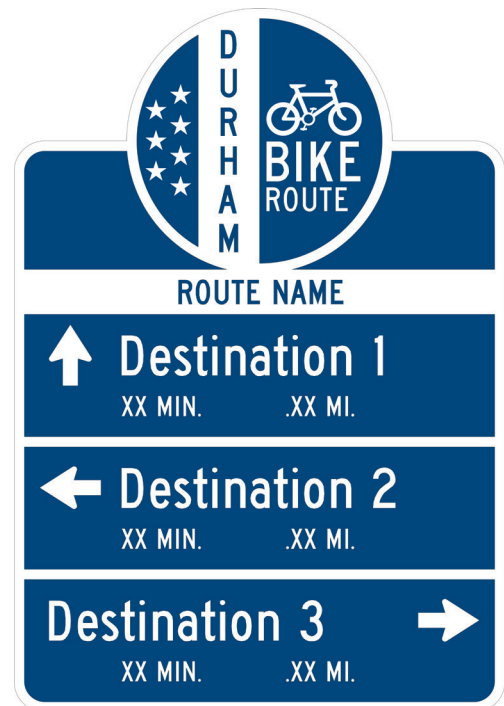
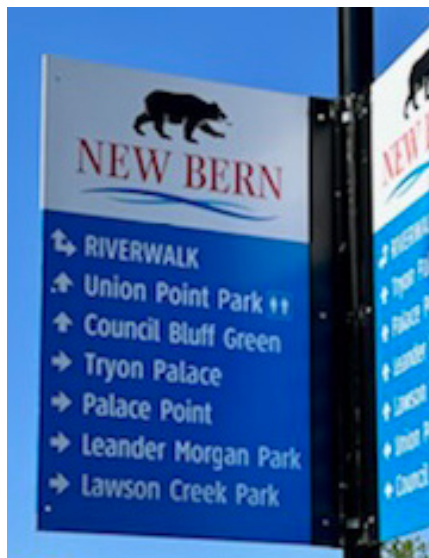
Above are examples of recommendations from the [Lincoln Heights Safe Routes to School Action Plan](#) in Fuquay-Varina, NC that could serve as a template for Safe Routes to Schools & Parks Plans in New Bern.

Wayfinding

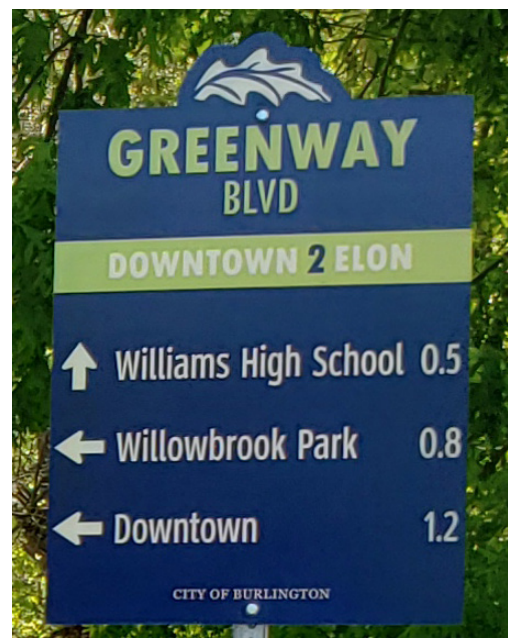
Create and implement a wayfinding plan as walking and biking facilities become connected across the City of New Bern. This will be of particular importance for the success of the proposed neighborhood greenway network. Wayfinding elements such as signage and mile markers will help pedestrians and bicyclists to identify the best routes, and enhance their ability to connect to key destinations.

A wayfinding system will give users a unique experience while improving safety by alerting both users and motorists of the presence of active transportation routes. As the City works to implement the recommended network, including neighborhood greenways, wayfinding schemes for these projects should build upon the City's existing wayfinding found in the downtown area (see photo below). Branding for different routes could also be customized per neighborhood or major destinations connected.

Existing wayfinding signage in downtown New Bern.



Example neighborhood greenway wayfinding signage from Durham, NC (above) and Burlington, NC (below) (sometimes called bike routes, bikeways, bike boulevards, shared streets, etc).



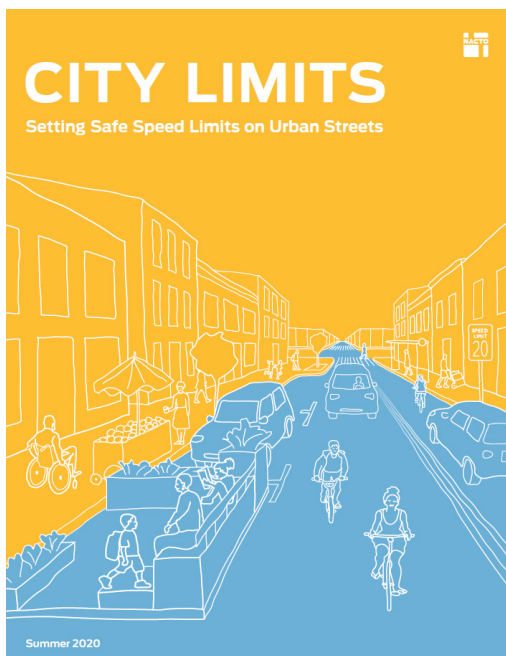
Speed Management

On major streets, where conditions vary widely, cities can conduct a Safe Speed Study to determine the safest maximum speed limit (see page 43 of the NACTO City Limits guide). In urban areas, a Safe Speed Study will most often result in a recommended maximum speed limit of 20 or 25 mph for major streets.

For streets that have well-protected places for people to walk and bike, and that are in low density areas with primarily manufacturing and residential uses, cities may find that a 30 or even 35 mph speed limit is appropriate. However, these higher speed limits should be used sparingly and only in cases where safe conditions can be met. Streets such as Trent Blvd, Queen St, Simmons St, and Oaks Rd are examples of corridors that would benefit from speed limit reductions of 5-10 mph. The City of New Bern should also consider lowering the citywide default speed limit from 35 mph to 25mph.

NACTO guidance for Speed Management

The [National Association of City Transportation Officials \(NACTO\)](#) created [a guide on speed limits](#). The document succinctly outlines why communities may want to revisit their speed limits, how to go about making changes, and what is recommended based on context and goals.



Traffic Calming Measures

Speed management needs to be approached holistically. In addition to signing appropriate speeds to a given street, street design plays a key role in creating safe motor vehicle speeds. There are three general types of speed reduction measures to consider when needed:

- ▶ Physical measures such as vertical deflections, horizontal shifts, and roadway narrowing intended to reduce speed and enhance the street environment for non-motorists.
- ▶ Non-physical measures using signs and markings are intended to raise awareness and reduce speed through visual indications.
- ▶ Diversion treatments reduce cut-through traffic by obstructing or otherwise preventing traffic movements in one or more directions.

Speed management can also enhance walking/ biking safety in downtown New Bern. Refer to the Transitions to Main Streets section in [FHWA Achieving Multimodal Networks](#) (2016) for more information on applying traffic calming in advance of built-up areas.

Traffic Calming Murals

Creative approaches to intersection design can include an artistic, community-based approach to improve an intersection for pedestrian use and community use in general. Residents and local artists decide on a pavement design that they feel reflects the local character of the neighborhood and paint the street to transform the intersection into a pedestrian plaza. The intersection remains open to motor vehicle traffic, but the design encourages drivers to slow down, watch for pedestrians, and treat the intersection as a plaza where pedestrians have priority. See examples from around the country below.

The City's main role and responsibility for these types of projects would include allowing this art on City-owned and maintained streets, any necessary permitting, and possibly some motorist education about driving in these areas. The actual painting, production and maintenance of these murals could be led by local residents, artists, and non-profit partners.



Bridgeton to New Bern Water Taxi

A water taxi service was recommended in the Bridgeton Bicycle and Pedestrian Plan to connect bicyclists and pedestrians directly from Bridgeton to New Bern. If Bridgeton were to initiate a water taxi service, the City of New Bern should work with the Town of Bridgeton in formalizing a regular or on-demand service. A water taxi could provide a unique attraction for walking and biking, weather for transportation or recreation (such as bicyclists traveling along the East Coast Greenway and the State Bike Route System).

The service would likely be privately operated, but could be supported by the Town of Bridgeton and City of New Bern by providing a dedicated launch point, and promoted by the City during large events. The service could be seasonally operated, with a regular schedule, or it could be on-demand for large events, and/or by appointment for large groups, including bicycle tour groups.

*Union Point Park
could be an ideal
water taxi launch
point in New Bern*



Example water taxis from other communities.

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Policy Recommendations



Introduction

One of the most cost-effective implementation strategies for New Bern is to establish land use and transportation policies, design standards, and development regulations that promote walkable/bikable new development, programs, and capital projects. Pedestrian, bicyclist, and motorist needs should be considered within the context of the New Bern transportation and land use system. Coordinating land-use and transportation planning activities in order to support the provision of transportation options such as walking and biking has many benefits to the community including improving safety, mobility and quality of life.

The tables below include recommendations for updating New Bern’s Code of Ordinances. Sidewalks, bicycle facilities, and streetscape amenities such as street trees and lighting are some of the most fundamental elements of Complete Streets for walking and biking. All of these elements and others noted below also provide safety and comfort benefits to all roadway users including motorists. Access management, multi-modal level of service assessments, and traffic calming are also critical for developing Complete Streets networks for safe and comfortable walking, biking, and driving infrastructure through the development review and capital project implementation process.

The recommendations in the tables that follow are organized into major categories of “Complete Streets and Greenways”, “Pedestrian-oriented Urban Design Elements”, and “Connectivity Requirements.” All of the major categories are interrelated.

Table 12. Policy Recommendations

Topics/Strategies	Current UDC or Adopted Plan/ Standards	Comments/Recommendations
		General Recommendations
Complete Streets and Greenways		
1.1 Implement Complete Streets Policy A Complete Streets policy allows New Bern to work towards creating a street network that encourages pedestrian and bicycle travel and provides safe and comfortable roadways for all users.	Needs Improvement The Craven County Comprehensive Transportation Plan includes a commitment to the NCDOT Complete Streets Policy update from 2019.	<p>The policy should reference the 2019 NCDOT Complete Streets Policy, which applies to all NCDOT-maintained streets in the Town. The policy can also reference the NCDOT Complete Streets Planning and Design Guidelines, which provides excellent guidance for locally maintained streets and street networks and Complete Streets planning and design and regulatory processes. (This table references elements from the Guidelines.)</p> <p>Smart Growth America provides great resources for designing streets that cater to all users, including a best practices guide co-authored with APA.</p> <p>Dunn, NC has one of the best complete street policy statements of any community in NC:</p> <p>Zoning Ordinance Sec. 22-352. Circulation and connectivity. (a) Purpose and intent. The purpose of this section is to support the creation of a highly connected transportation system with the city in order to provide choices for drivers, bicyclists, and pedestrians; promote walking and bicycling; connect neighborhoods to each other and to local destinations such as schools, parks, and shopping centers; reduce vehicle miles of travel and travel times; increase effectiveness of municipal service delivery, and free up arterial capacity to better serve regional long distance travel needs.</p>

Table 13. Policy Recommendations (Continued)

Topics/Strategies	Comments/Recommendations	
	Current UDC or Adopted Plan/Standards	General Recommendations
<p>1.2 Develop Complete Streets Design Guidelines for a variety of contexts and all street/roadway user groups</p> <p>The subsections below include recommendations for elements of Complete Streets and complete multi-modal networks. Sidewalks, bike lanes, greenways, and streetscape items such as street trees and lighting are some of the most fundamental elements of Complete Streets for walking and biking. Access management, multi-modal level of service assessments, and traffic calming are also critical for developing complete street networks through the development review and capital project implementation process.</p>	<p>Needs Improvement</p> <p>To begin with, consider adopting by reference for street design one or more of the following:</p> <ul style="list-style-type: none"> • NCDOT Complete Streets Policy and Roadway Design Manual • NACTO Urban Street Design Guide • The design resources included in this plan (see Appendix A) 	<p>The NCDOT Complete Street Guidelines include recommendations on Complete Street design elements for walking and biking. NCDOT could adopt and endorse the NCDOT guidelines and other national guidelines, including the NACTO Urban Street Design Guide.</p>
<p>1.3 Require pedestrian accommodations, including by roadway type</p> <p>Pedestrian facilities should be determined based on street types and land uses of a given roadway corridor.</p>	<p>New Bern has sidewalk requirements on one side of the road for all residential developments. Good but Needs Improvement</p> <p>Section 15-216. - Street width, sidewalk, and drainage requirements in subdivisions.</p> <p>(f) All developments, commercial and residential, requiring a departmental review by city staff shall be required to construct sidewalks and other pedestrian amenities along adjacent portions of roadway or internal drives and open spaces on-site when there are found to be pre-existing sidewalks and pedestrian amenities on adjoining properties or along road rights-of-way within 500 feet, except that the director of development services may waive this requirement when severe environmental constraints or other such conditions exist so as to make future connection unlikely or unreasonable. Such improvements shall be constructed consistent to the standard of adjacent pedestrian amenities or city standards, whichever are deemed to be greater, and with the intent that future pedestrian access between developments and along adjacent streets be achieved.</p>	<p>Consider requiring sidewalks on both sides of streets as well as a greater range of sidewalks requirements based on street and land use context. In areas such as downtown and pedestrian-oriented business districts with buildings at the back of the sidewalk and ground level retail, sidewalks should be as wide as 10-16 feet wide. See the NCDOT Complete Streets Planning and Design Guidelines for contextually-based streetscape and sidewalk design requirements. Consider including these guidelines by reference in local design guidance or requirements.</p> <p>Sidewalk minimum required widths should be updated from four feet to five feet per ADA requirements.</p> <p>Fee-in-lieu policy consideration: See the City of Albemarle, NC development regulations for an example Fee in-lieu of installation policy. The City of New Bern should consider a similar, optional, fee-in-lieu policy for situations where properties have demonstrated site constraints, etc. The City of New Bern should work with its legal counsel to determine the best approach.</p>
<p>1.4 Require designated bicycle facilities (bike lanes, greenways, etc) during new development or redevelopment or capital roadway projects</p>	<p>Good but Needs Improvement</p> <p>Section 15-216. - Street width, sidewalk, and drainage requirements in subdivisions.</p> <p>(e) In the event that greenways or bike and pedestrian trails are required in accordance with adopted plans, the developer may provide to the City a recorded easement of no less than 15 feet in width and in keeping with the general intent of adopted plans for the future construction of said features by the city.</p>	<p>A wider range of bicycle facility typologies should be incorporated into the City of New Bern Street Design Standards based on street typology including buffered and separated bike lanes as detailed in various publications including the NACTO Urban Bikeway Design Guide and the soon-to-be-released update to the AASHTO Guide for the Development of Bicycle Facilities.</p> <p>Also, see: Chapter 6 of Wake Forest, NC UDO for recommendations for bicycle facilities and greenways, esp. sections 6.8.2, 6.9, 6.10.</p> <p>Chapter 7 of the Wilson, NC UDO regarding greenways.</p>

Table 13. Policy Recommendations (Continued)

Topics/Strategies	Comments/Recommendations	
	Current UDC or Adopted Plan/Standards	General Recommendations
1.5 Require dedication, reservation or development of greenways	Good Section 15-199. - Dedication of open space. (a) If any portion of any tract proposed for residential development lies within an area designated in an officially adopted city park plan as a neighborhood park or part of any proposed greenway system or bikeway system, the area so designated (not exceeding five percent of the total tract area) shall be included as part of the area set aside to satisfy the requirement of section 15-196 (Usable open space). This area shall be dedicated to public use.	This requirement should also reference the greenways proposed in this plan, and should also include commercial development. See requirements in Wake Forest, NC UDO, Section 6.8.2 Greenways for additional detail on greenway widths and considerations.
1.6 Consider pedestrian concerns and Level of Service (LOS) in Traffic Impact Analyses and other engineering studies Beyond LOS for motor vehicle travel at intersections, New Bern should consider adopting multi-modal level of service standards where active transportation and transit use are expected to be high. Consideration of pedestrian and bicycle levels of service assure adequate facilities for pedestrians and bicyclists in new development and capital improvements. This also helps promote walking and biking and transit use as legitimate means of transportation.	Needs Improvement TIA reviews for new or existing land-development projects are a great opportunity for ensuring ped/bike and transit projects/improvements are considered along with highway/street improvements.	The NCDOT Complete Streets Planning and Design Guidelines provides factors of "Quality of Service" and LOS for bicycle, pedestrian, and transit modes (See Chapter 3, page 39 and Chapter 5). The City of Raleigh uses multimodal level of service approach in determining road improvements and traffic mitigation in their Street Design Manual . Charlotte, NC uses Pedestrian LOS and Bicycle LOS Methodologies for intersection improvements in their Traffic Impact Study process .
1.7 Adopt traffic calming programs, policies, and standards Traffic calming on local streets increases safety and comfort for all roadway users, including pedestrians and bicyclists, and will be of particular importance for the success of the proposed neighborhood greenway system in this plan.	Needs Improvement	FHWA has developed a comprehensive Traffic Calming ePrimer . The Town of Holly Springs has an excellent Traffic Calming and Pedestrian Safety Policy , which includes allowable design treatments and policy for implementation. See also the NACTO Urban Bikeway Design Guide section on Bicycle Boulevards, which includes traffic calming measures.
1.8 Develop an access management program or policy Limiting turning movements on major roadways and requiring cross-access between adjacent parcels of land, including commercial developments, is a great tool for reducing the amount of traffic and turning movements on major roads while increasing safety and connectivity for pedestrians, bicyclists, and cars.	Good Section 15-214. - Development connectivity. (b) (2) Shared Drives. Shared driveway access between new developments or through agreement with existing development is encouraged to reduce the need for curb cuts and changes to medians and traffic signalization on major roads. When such drives are provided no additional cross access points shall be necessary between subject properties.	The Complete Streets Planning and Design Guidelines provides recommended "Access Density" guidelines (See Chapter 4, page 61 and 62) based on context, and should be referenced to supplement New Bern's existing policy.

Table 13. Policy Recommendations (Continued)

Topics/Strategies	Comments/Recommendations	
	Current UDC or Adopted Plan/ Standards	General Recommendations
Pedestrian-oriented Urban Design Elements		
2.1 Require planting strips and street trees When planted in a planting strip between the sidewalk and the curb, street trees provide a buffer between the pedestrian zone and the street. In addition to their value for improving the air quality, water quality, and beauty of a community, street trees can also help slow traffic and improve comfort for pedestrians. Trees add visual interest to streets and narrow the street's visual corridor, which may cause drivers to slow down.	Good but Needs Improvement Sec. 78-4. - Public tree planting standards.	Street trees should be required for all street types and for all new development or capital projects, utilizing guidance from the City of New Bern Appearance Commission Tree Guide and Recommendations. Planting strips of eight feet or greater is recommended for large maturing trees and to provide greater separation between pedestrians and the roadway. Larger planting strips may be required to meet NCDOT requirements on NCDOT roadways. See NCDOT Complete Streets Planning and Design Guidelines (Chapter 4) for context-based pedestrian and "green" zone recommendations. See also, Town of Wendell UDO Chapter 8 , especially section 8.8, Street Trees.
2.2 Require/Specify pedestrian-scale street lighting	Good but Needs Improvement Section 15-251. - Lighting requirements.	Pedestrian-scale lighting along streets and at intersections is one of the most important tools for pedestrian crash prevention. See Town of Wendell UDO, Sections 11.10 and 11.11 for pedestrian-scaled lighting requirements by zoning district and for lighting requirements for greenways and walkways.
2.3 Update bicycle parking requirements	Needs Improvement Section 15-342. - Number of parking spaces required. (d) With respect to any parking lot that is required to be paved (see section 15-347 (Vehicle accommodation area surfaces)), the number of parking spaces required by this article may be reduced by one if the developer provides a bike rack or similar device that offers a secure parking area for at least five bicycles.	In general, bicycle parking should be required for all non-residential developments that have employees or visitors, all public or civic uses or sites, and all multi-family development. Different standards of bicycle parking are needed for short-term visitors and customers and for longer term users like employees, residents, and students. See City of Wilson UDO , Chapter 9: Parking & Driveways, Section 9.4 and 9.6. See City of Durham UDO Section 10.3.1 Required Motorized Vehicle and Bicycle Parking, and Section 10.4.4 Design Standards for Bicycle Parking Model standards for bicycle parking as well as design can be found through the Association of Pedestrian and Bicycle Professionals' Bicycle Parking Guidelines 2nd Edition. (www.apbp.org), and are recommended for the City of New Bern.

Table 13. Policy Recommendations (Continued)

Topics/Strategies	Comments/Recommendations	
	Current UDC or Adopted Plan/ Standards	General Recommendations
Connectivity Requirements		
3.1 Revise block size requirements “[A] Good [street] network provides more direct (shorter) routes for bicyclists and pedestrians to gain access to the thoroughfares and to the land uses along them (or allows them to avoid the thoroughfare altogether). Likewise, good connections can also allow short-range, local [motor] vehicular traffic more direct routes and access, resulting in less traffic and congestion on the thoroughfares. This can, in turn, help make the thoroughfare itself function as a better, more Complete Street. For all of these reasons, a complete local street network should generally provide for multiple points of access, short block lengths, and as many connections as possible.” (NCDOT Complete Streets Planning and Design Guidelines, p 59)	Needs Improvement Section 15-214. - Development connectivity. (a) Residential connectivity standards (b) Non-residential connectivity standards:	Maximum block length in any situation should rarely exceed 800-1000 feet for good connectivity. In areas with highest development density (urbanized, mixed use centers and high-density neighborhoods) block lengths can be as little as 200 feet. In areas with blocks as long as 800 feet or greater, a pedestrian and/or bicycle path through the block and/or alley should be required. See the example table on page 59 of the NCDOT Complete Streets Planning and Design Guidelines for a context-based approach to block size.
3.2 Require connectivity/cross-access between adjacent land parcels	Good Section 15-214. - Development connectivity. (a) Residential connectivity standards (b) Non-residential connectivity standards:	Requiring connectivity or cross-access between adjacent developments is a great tool for reducing the amount of traffic on major roads while increasing connectivity for pedestrians, bicycles, service vehicles, and neighborhood access. For good model language, see City of Wilson, NC UDO , Section 6.4: Connectivity Or Town of Wake Forest, NC UDO , Section 6.5, Connectivity. Both codes above also provide requirements for when bicycle/pedestrian connections between parcels, public open space, and between cul-de-sacs is required.
3.3 Limit dead end streets or cul-de-sacs Dead end streets or Cul-de-sacs, while good at limiting motor vehicular traffic in an area, are a severe hindrance for network connectivity and over all neighborhood/ community accessibility, including for emergency access and other services.	Good Section 15-216. - Street width, sidewalk, and drainage requirements in subdivisions. (g) Whenever the board of aldermen finds that a means of pedestrian access is necessary from the subdivision to schools, parks, playgrounds, or other roads or facilities and that such access is not conveniently provided by sidewalks adjacent to the streets, the developer may be required to reserve an unobstructed easement of at least ten feet in width to provide such access.	Make the maximum length for Cul-de-sacs 250-300 feet (except in “rural” or very low-density development; e.g., density of less than 1 du/a) to limit the distance that a person biking or walking would have to travel along a cul-de-sac. Consider requiring other traffic calming/traffic diversion measures that allow for connectivity and improve the pedestrian and biking environment such as street trees, narrow street width standards, traditional traffic calming devices, emergency and/or bike/ped connections only between streets and T intersections. For good model language, see City of Wilson, NC UDO , Section 6.4: Connectivity Or Town of Wake Forest, NC UDO , Section 6.5, Connectivity.

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Implementation



Introduction

The infrastructure, program, and policy recommendations in previous chapters provide strategies for making New Bern more pedestrian and bicycle friendly. The purpose of this chapter is to provide guidance and action steps for implementing the recommendations.

The implementation of this plan will require leadership and dedication on the part of a variety of city departments and partners. Equally critical, and perhaps more challenging, will be growing the annual budget for pedestrian and bicycle projects, and pursuing grants to the extent possible. Success will be realized through collaboration with regional and state agencies, the private sector, and non-profit organizations.

This chapter provides steps and guidance for delivering the recommendations of this plan. Further guidance on project delivery, maintenance, partnerships, funding, investment approach, and evaluation are provided.



Above: Sidepaths along Glenburnie Rd were constructed during the past decade, providing walking and biking connectivity between Elizabeth Ave and Neuse Blvd.

KEY IMPLEMENTATION STEPS:

1

PROACTIVELY FUND AND BUILD THE STRATEGIC BICYCLE & PEDESTRIAN NETWORK PROJECTS.

Chapter 3 features a strategic spine network developed out of this planning process and previous planning processes. The network components are displayed on pages 48-59 that summarize elements, and what the key opportunities and challenges are to implementation.

2

USE THE COMPREHENSIVE NETWORK OF RECOMMENDATIONS TO BUILD OTHER PROJECTS INCREMENTALLY OVER TIME.

As New Bern continues to grow, new development, roadway projects, and ongoing City public works projects should incorporate facilities recommended in the overall bicycle and pedestrian network. As progress is made on the strategic network, new projects should be selected from the comprehensive recommendations.

3

IMPLEMENT NEW PROGRAMS AND POLICIES THAT SUPPORT AND ENCOURAGE WALKING AND BIKING.

As new facilities are built, the programmatic and policy recommendations provide parallel efforts in fostering a thoroughly walkable/bikeable environment for all ages and abilities in New Bern.

Together, these recommendations make up the core of this plan, as featured in Chapters 3-5. They are supplemented by implementation guidance in this chapter, design resources in Appendix A, and funding resources in Appendix B.

How to Use This Plan

At the heart of every successful pedestrian and bicycle plan is a coordinated effort by city staff and other partners to support safe travel on foot and bike. Everyone has a key role to play in implementing this plan. City of New Bern staff and elected/appointed officials should use this report to establish programs and policies that educate, encourage, and prioritize infrastructure investments proposed throughout the city.

CITY OF NEW BERN



City staff can use this report to document opportunities, existing roadway design deficiencies, and specific improvements. Continuing to coordinate with the citizens, the development community, City public works projects, and NCDOT will be key to implementing bicycle and pedestrian facilities. This plan provides documentation and recommendations to refer to in shaping development or NCDOT projects and activities.

NCDOT



NCDOT staff, specifically within Division 2, can use this plan to get familiar with the proposed strategic network. NCDOT will play an integral role in the design, construction, and maintenance of bicycle and pedestrian facilities throughout the NCDOT maintained roadways. During the project scoping process, the City and New Bern Area MPO can communicate with NCDOT personnel to affect how STIP projects are formulated and designed.

DEVELOPERS



As development continues across New Bern, especially in western and southern New Bern, walking and biking facilities could and should be thoroughly incorporated into each site design.

ACTIVE TRANSPORTATION ADVISORY COMMITTEE



An Active Transportation Advisory Committee (ATAC) can use this plan as a framework for coordinating the development of the policies and programs recommended for New Bern. An Active Transportation Advisory Committee will be instrumental in implementing the plan.

LOCAL STAKEHOLDERS



Local stakeholders can use this plan to understand and confirm the conditions in their neighborhoods and near their organizations (if applicable) as well as become familiar with the ways in which they can support program goals. In many cases, education and encouragement programs require these dedicated volunteers. Local stakeholders can also provide input on City and NCDOT processes and projects.

Implementation Action Steps

The following represent key, immediate action steps for New Bern and its partners:

ADOPT THIS PLAN

Adoption does not obligate the City financially, but signals an intent to support the vision, goals, and recommendations of this plan in the coming years and decades.

AMEND CTP

Referencing facility recommendations from this plan will ensure projects that are implemented by NCDOT will not require a cost share from the City, per the NCDOT Complete Streets Policy.

FORM AN ACTIVE TRANSPORTATION ADVISORY COMMITTEE

Leadership from the Planning & Zoning Department and members of this project's steering committee should become the advisory committee for guiding the implementation of this plan.

The ATAC should have representation from active pedestrians/bicyclists and a diverse stakeholder group in New Bern. The formation of this group would be a significant step in becoming designated as a Walk Friendly Community (see program recommendations in Chapter 4). The committee would provide a communications link between the residents of the community and local government. They should also continue to meet quarterly, and be tasked with assisting municipal staff in community outreach, marketing, infrastructure decisions, and educational activities recommended by this plan.

CONTINUE COORDINATING WITH DEVELOPERS AND NCDOT

Continue coordinating with developers on bicycle and pedestrian infrastructure circulation within and to/from new developments. As roads are improved or newly constructed, coordinate with NCDOT on implementing Complete Streets.

ENGAGE NEW PROGRAMS & POLICIES

Program and policy recommendations can be found in Chapters 4 & 5. Planning & Zoning staff, partner departments, and the ATAC should work together to move program and policy recommendations forward.

SEEK MULTIPLE FUNDING SOURCES AND BEGIN THE DESIGN STAGE

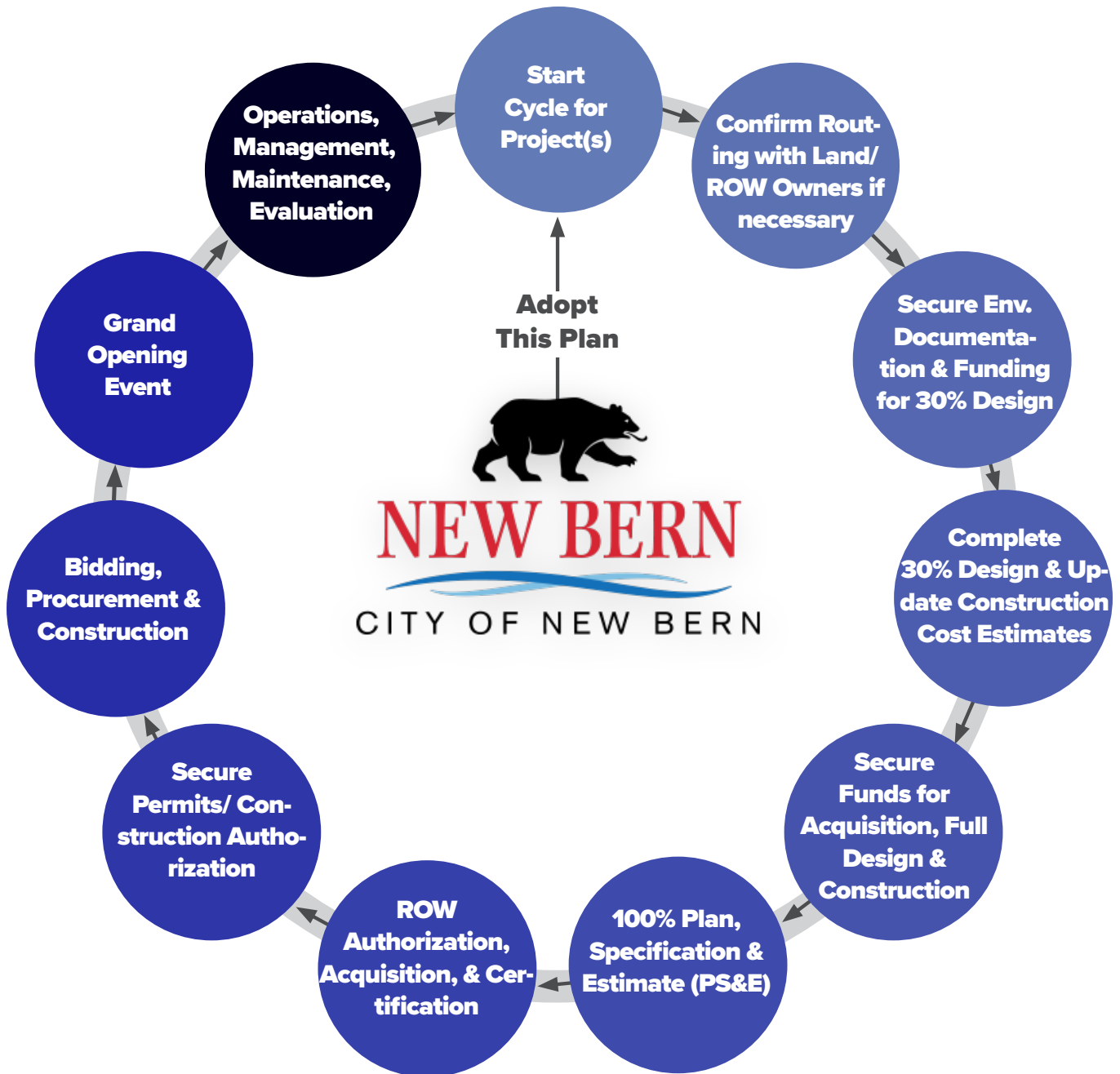
A strategic bicycle and pedestrian network is identified in Chapter 3, and potential funding opportunities are listed in Appendix B. Seek private partnerships with local businesses to aid in raising funds for grants that require a match. Completing or at least initiating the design phase for these projects will make them more competitive in grant applications.

BEGIN WORK ON INFRASTRUCTURE PROJECTS

The implementation of bicycle and pedestrian infrastructure projects will take time and will happen through multiple mechanisms including the NCDOT SPOT process, New Bern's CIP, land and roadway development, and park and open space development. Because infrastructure is the high dollar item of this plan, New Bern should consider expanding upon their current revenue stream for local match or standalone projects. The graphic on the following page highlights some of the key steps in the project implementation process.

Typical Project Development Process

These are the steps typically involved in bicycle and pedestrian facility development, when the project is being built independent of other major development or roadway projects. Certain funding sources may have additional requirements, and some steps may occur simultaneously or in a different order.



Key Partners in Implementation

ROLE OF THE BOARD OF ALDERMEN

The Board of Aldermen should be responsible for understanding and adopting this plan. The Board will ultimately determine the timing of action steps, and dedication of resources to implement this plan.

ROLE OF THE PLANNING AND ZONING BOARD

The Planning and Zoning Board serves as an advisory board to the Board of Aldermen on matters of planning and zoning. The Planning Board should be prepared to:

- ▶ Become familiar with the recommendations of this plan, and support its implementation.
- ▶ During subdivision plan review, ensure required space for recommended infrastructure projects if applicable.
- ▶ Include bike/ped/greenway infrastructure needs when updating ordinances.
- ▶ Learn about bicycle- and pedestrian-related policies in North Carolina. (see: <https://connect.ncdot.gov/projects/BikePed/Pages/Policies-Guidelines.aspx>)

ROLE OF THE ACTIVE TRANSPORTATION ADVISORY COMMITTEE (ATAC)

The Committee should be prepared to:

- ▶ Meet with New Bern staff and evaluate progress of the plan's implementation and offer input regarding pedestrian, bicycle, and trail-related issues.

- ▶ Assist New Bern staff in applying for grants and organizing pedestrian- and bicycle-related events and educational activities.
- ▶ Build upon current levels of local support for pedestrian and bicycle issues and advocate for local project funding.

ROLE OF THE LOCAL NCDOT DIVISION 2

Division 2 of the NCDOT is responsible for the construction and maintenance of pedestrian and bicycle facilities on NCDOT-owned and maintained roadways in New Bern, or is expected to allow for the municipalities to do so with encroachment agreements. New Bern should be proactive and take the lead in communicating with and working with Division 2, but Division 2 should also be prepared to do the following, as they are able:

- ▶ Recognize this plan as not only an adopted plan of New Bern but also as an approved plan of the NCDOT.
- ▶ Become familiar with the bicycle and pedestrian facility recommendations for NCDOT roadways in this plan (Chapter 3); take initiative in incorporating this plan's recommendations into the Division's schedule of improvements whenever possible.
- ▶ Become familiar with the design guidance listed in Appendix A of this plan; construct and maintain recommended facilities using the highest standards allowed by the State (including the use of innovative treatments on a trial basis).
- ▶ Notify New Bern staff of all upcoming roadway reconstruction projects in the city, no later than the design phase. Provide sufficient time for comments from city staff.
- ▶ If needed, seek guidance and direction from the NCDOT Integrated Mobility Division on issues related to this plan and its implementation.

ROLE OF THE POLICE DEPARTMENT

The New Bern Police Department should be prepared to:

- ▶ Become experts on pedestrian-and bicycle related laws in North Carolina (see: <https://www.ncdot.gov/divisions/bike-ped/Pages/bike-ped-laws.aspx>).
- ▶ Continue to enforce not only pedestrian-and bicycle-related laws, but also motorist laws that affect walking and bicycling, such as speeding, running red lights, aggressive driving, etc.
- ▶ Participate in pedestrian- and bicycle-related education programs (excellent existing program example: the Police Department has been involved in the Watch for Me NC education and encouragement program since 2014).
- ▶ Review safety considerations as projects are implemented.

ROLE OF DEVELOPERS

Developers in New Bern play an important role in bicycle and pedestrian facility development whenever a project requires the enhancement of transportation facilities or the dedication and development of sidewalks, bike lanes, sidepaths, greenways, or crossing facilities. In general, developers should be prepared to:

- ▶ Become familiar with the benefits, both financial and otherwise, of providing amenities for walking and biking (including trails) in residential and commercial developments.
- ▶ Be prepared to account for pedestrian and bicycle circulation and connectivity in developments.



The East Coast Greenway Alliance is a key regional partner that can assist in developing the ECG segment through New Bern.

ROLE OF LOCAL & REGIONAL STAKEHOLDERS

Stakeholders for bicycle and pedestrian facility development and related programs, such as New Bern Area MPO, the East Coast Greenway Alliance, members of this steering committee, and other local organizations play important roles in the implementation of this plan. Local and regional stakeholders should be prepared to:

- ▶ Become familiar with the recommendations of this plan, and communicate & coordinate with New Bern for implementation, specifically in relation to funding opportunities, such as grant writing and developing local matches for facility construction.
- ▶ The New Bern Area MPO should continue to work with New Bern on submitting pedestrian and bicycle infrastructure projects for evaluation within the State Transportation Improvement Program (STIP).

- ▶ Business owners and organizations should look for opportunities to partner on specific projects, such as trail connectivity, streetscape improvements, or comprehensive signage and wayfinding projects.

ROLE OF LOCAL RESIDENTS, CLUBS AND ADVOCACY GROUPS

Local residents, clubs, and advocacy groups also play a role in the success of this plan. The ATAC should be prepared to engage local residents and groups by:

- ▶ Asking for input regarding bicycle and pedestrian issues.
- ▶ Enlisting volunteers for bicycle- and pedestrian-related events and educational activities and/or to participate in such activities.
- ▶ Encouraging people to speak at Board of Aldermen meetings and advocate for local pedestrian and bicycle project and program funding.
- ▶ Fundraising for project implementation.

ROLE OF VOLUNTEERS

Services from volunteers, students, and seniors, or donations of material and equipment may be provided in-kind, to offset construction and maintenance costs. Formalized maintenance agreements, such as adopt-a-trail/greenway or adopt-a-highway can be used to provide a regulated service agreement with volunteers.

Advantages of utilizing volunteers include reduced or donated planning and construction costs, community pride and personal connections to New Bern's walking/biking network.

Performance Measures (Evaluation and Monitoring)

New Bern should establish performance measures to benchmark progress towards fulfilling the recommendations of this plan. ATAC should play a key role in presenting these performance measures in an annual evaluation update. Performance measures could address the following aspects of pedestrian transportation and recreation in New Bern:

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

Maintenance

The physical condition of walking and biking facilities is an important consideration when residents consider choosing walking or biking for transportation or other uses.

Continuing a maintenance management plan will be useful in ensuring that responsibility is assigned appropriately and that regular maintenance is done. The following recommendations provide a menu of

considerations that can help guide continued facility maintenance in New Bern.

Bicycle and pedestrian facilities should be viewed and maintained as a public resource, serving generations to come. The following guiding principles will help assure the preservation of a first class system:

- ▶ Good maintenance begins with sound planning and design.
- ▶ Promote and maintain a quality outdoor recreation and transportation experience.
- ▶ Develop a management plan that is reviewed and updated annually with tasks, operational policies, standards, and routine and remedial maintenance goals.
- ▶ Maintain quality control and conduct regular inspections.
- ▶ Include field crews, police and fire/rescue personnel in both the design review and on-going management process.
- ▶ Maintain an effective, responsive public feedback system and promote public participation.
- ▶ Be a good neighbor to adjacent properties.
- ▶ Operate a cost-effective program with sustainable funding sources.

FACILITY REPAIR OR REPLACEMENT

All facilities will require repair or replacement at one time or another. The time between observation and repair/replacement will depend on whether the needed repair is deemed a hazard, to what degree the needed repair will affect the safety of the user, and whether the needed repair can be performed by an in-house maintenance crew or if it is so extensive that the needed repair must be done by outside entities or replaced completely.

Longevity of Facilities

» Mulch	2-3 years
» Granular Stone	7-10 years
» Asphalt	7-15 years
» Concrete	20+ years
» Boardwalk	7-10 years
» Bridge/Underpass	100+ years

Range of Trail Maintenance Costs

Reported annual maintenance costs from cities and regions for greenways range widely, from just \$500/mile to over \$15,000/mile. The Town of Cary, NC uses \$6,000/mile for annual mowing and trash pick up, and minor repairs like replacing a fence rail; they budget asphalt and drainage repairs separately on case by case basis. Some key factors affecting these wide ranges include:

- » Quality of materials used, and frequency of sealing and reconstruction of the path
- » Amount of leaf drop affecting the trail that requires concentrated sweeping
- » Amount of flooding of the trail that has to be cleaned up
- » Amount of snow removal/grooming needed
- » Whether or not mowing, irrigation, and other care of adjacent open space is calculated in the cost
- » Presence of waste receptacles

The largest factor affecting the annual maintenance figures is whether or not the eventual trail reconstruction is accounted for in annual maintenance budgets, as opposed to being considered as separate capital item.

\ **Appendix A** \

Design Resources



Design Resources

Planners and project designers should refer to these standards and guidelines in developing the infrastructure projects recommended by this plan. The following resources are from the NCDOT website, for “Bicycle & Pedestrian Project Development & Design Guidance”, located here:

<https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>

All resources listed below are linked through the web page listed above, retrieved in April 2022.

National Guidelines

American Association of State Highway and Transportation Officials (AASHTO):

- » Guide for the Development of Bicycle Facilities
- » Guide for the Planning, Design, and Operation of Pedestrian Facilities

The Federal Highway Administration (FHWA):

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

Manual on Uniform Traffic Control Devices (MUTCD):

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

National Association of City Transportation Officials (NACTO):

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

Safe Routes to School (SRTS) Non-Infrastructure:

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

US Access board:

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

North Carolina Guidelines

North Carolina Department of Transportation (NCDOT):

- » WalkBikeNC: The Statewide Pedestrian and Bicycle Plan
- » Glossary of North Carolina Terminology for Active Transportation
- » NCDOT Complete Streets
- » Evaluating Temporary Accommodations for Pedestrians
- » NC Local Programs Handbook
- » Traditional Neighborhood Development Guidelines

Greenway Construction Standards:

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

Route Signing & Mapping

- » Bike Maps and Routes
- » Share the Road Initiative
- » How to Select Routes
- » NCDOT Bicycle Route Signing & Mapping Program

Additional FHWA resources not currently linked through the main NCDOT link above:

- » Achieving Multimodal Networks (2016)
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/
- » Separated Bike Lane Planning and Design Guide (2015)
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page00.cfm
- » Incorporating On-Road Bicycle Networks into Resurfacing Projects (2016)
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/resurfacing/
- » Small Town and Rural Multimodal Networks Design Guide (2017)
<http://ruralsdesignguide.com/>
- » Rails with Trails: Best Practices and Lessons Learned
<https://www.railstotrails.org/build-trails/trail-building-toolbox/basics/rail-with-trail/>

\ **Appendix B** \

Funding Resources



Overview

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

Federal Funding Sources

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

The Infrastructure Investment and Jobs Act (IIJA)

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

FORMULA FUNDS (STATE DOTS ADMINISTER TO LOCALS): TRANSPORTATION ALTERNATIVES PROGRAM (TAP)

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

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

States where more than 15% of all fatalities involve cyclists or pedestrians (Vulnerable Road Users or VRU), will be required to spend 15% of their Highway Safety Improvement Program (HSIP) funding on bicycle/pedestrian projects. This includes North Carolina, where about 15% of all fatalities involve VRUs. Projects are evaluated, prioritized, and selected at the NCDOT district level based on

three years of crash data (targeted funds) or systemic approved projects as outlined in the HSIP guidance.

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

DISCRETIONARY GRANTS (US DOT ADMINISTERS TO LOCALS):

REBUILDING AMERICAN INFRASTRUCTURE WITH SUSTAINABILITY AND EQUITY (RAISE)

In the first RAISE grant cycle, nearly one in five funded grant applications involved trail development. In addition, the selection committee awarded another 21% of funding to projects focused on making roads safer for vulnerable road users like cyclists and pedestrians.

Under the Infrastructure Investment and Jobs Act (IIJA), the RAISE grant program will have \$7.5 billion available over the next five years.

Competitive applications to this program have the following in common:

- ▶ The project can demonstrate broad community support and is a recognized local or regional priority.
- ▶ The project explicitly considers how it will address climate change and racial equity.

- ▶ The project documents direct and significantly favorable local or regional impact relative to the scoring criteria:
 - » Safety
 - » Environmental Sustainability
 - » Quality of Life
 - » Improves Mobility and Community Connectivity
 - » Economic Competitiveness
 - » State of Good Repair
 - » Innovation
 - » Partnership
- ▶ The project has a high benefit to cost ratio.
- ▶ The project demonstrates readiness by providing a detailed scope of work and budget, a realistic project delivery schedule, an understanding of the environmental risks, permit requirements, and mitigation measures, and is within the public right-of-way.
- ▶ A United States Senator or Congress member actively champions the project.

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

www.transportation.gov/RAISEgrants

HEALTHY STREETS PROGRAM (NEW)

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

ACTIVE TRANSPORTATION INFRASTRUCTURE INVESTMENT PROGRAM (NEW)

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

SAFE STREETS AND ROADS FOR ALL (NEW)

\$6 billion federal grant program to fund Vision Zero plans, infrastructure, and programs.

US DOT is developing grant program guidelines and will publish Notices of Funding Opportunities (NOFO) as they become available for each of the programs above.

SURFACE TRANSPORTATION BLOCK GRANT (STBG) PROGRAM

The FAST Act converted the Surface Transportation Program into the Surface Transportation Block Grant (STBG) program. This program is among the most flexible eligibilities among all Federal-aid and highway programs. The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of pedestrian improvements are eligible, including trails, sidewalks, crosswalks, pedestrian signals, and other ancillary facilities. Modification of

sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Safe Routes to School programs, congestion pricing projects and strategies, and recreational trails projects are other eligible activities. Under the FAST Act, a State may use STBG funds to create and operate a State office to help design, implement, and oversee public-private partnerships eligible to receive Federal highway or transit funding. In general, projects cannot be located on local roads or rural minor collectors. However, there are exceptions. These exceptions include recreational trails, pedestrian and bicycle projects, and Safe Routes to School programs.

For more information: <https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm>

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

HSIP provides \$2.4 billion for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds.

For more information: <http://www.fhwa.dot.gov/fastact/factsheets/hsipfs.cfm>

SAFE ROUTES TO SCHOOL (SRTS) PROGRAM

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

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

requested to support activities for community-wide, regional or statewide programs.

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

Other Federal Funding Sources

FEDERAL TRANSIT ADMINISTRATION ENHANCED MOBILITY OF SENIORS AND INDIVIDUALS WITH DISABILITIES

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

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

FEDERAL LANDS TRANSPORTATION PROGRAM (FLTP)

The FLTP funds projects that improve transportation infrastructure owned and maintained by the following Federal Lands Management Agencies: National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), USDA Forest Service, Bureau of Land Management (BLM), U.S. Army Corps

of Engineers, Bureau of Reclamation, and independent Federal agencies with land and natural resource management responsibilities. FLTP funds are available for program administration, transportation planning, research, engineering, rehabilitation, construction, and restoration of Federal Lands Transportation Facilities. Transportation projects that are on the public network that provide access to, adjacent to, or through Federal lands are also eligible for funding.

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

FEDERAL LAND AND WATER CONSERVATION FUND

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

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

year. This is hundreds of millions more per year than the fund typically receives.

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

RIVERS, TRAILS, AND CONSERVATION ASSISTANCE PROGRAM

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program that provides technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program only provides planning assistance; there are no implementation funds available. Projects are prioritized for assistance based on criteria, including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. Project applicants may be state and local agencies, tribes, nonprofit organizations, or citizen groups. National parks and other federal agencies may apply in partnership with other local organizations. This program may benefit trail development in North Carolina indirectly through technical assistance, particularly for community organizations, but is not a capital funding source.

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

ENVIRONMENTAL CONTAMINATION CLEANUP FUNDING SOURCES

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

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

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

The Five Star & Urban Waters Restoration Grant Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, riparian, forest and coastal habitat restoration, urban wildlife conservation, stormwater management as well as outreach, education and stewardship. Projects should focus on water quality, watersheds and the habitats they support.

The program focuses on five priorities: on-the-ground restoration, community partnerships, environmental outreach, education, and training, measurable results, and sustainability. Eligible applicants include nonprofit organizations, state government agencies, local governments, municipal governments, tribes, and educational institutions. Projects are required to meet or exceed a 1:1 match to be competitive.

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

State and State- Administered Funding Sources

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

North Carolina Department of Transportation (NCDOT) Strategic Transportation Investments (STI)

Passed in 2013, the Strategic Transportation Investments law (STI) allows NCDOT to use its funding more efficiently and effectively to enhance the state's infrastructure, while supporting economic growth, job creation

and a higher quality of life. This process encourages thinking from a statewide and regional perspective while also providing flexibility to address local needs. STI also establishes a way of allocating available revenues based on data-driven scoring and local input. It is used for the State Transportation Improvement Program (STIP), which identifies the transportation projects that will receive funding during a 10-year period. STIP is a state and federal requirement, which NCDOT updates it every two years.

STI'S QUANTITATIVE SCORING PROCESS

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

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

Bicycle and Pedestrian Project Eligibility Requirements

- ▶ Minimum total project cost = \$100,000
- ▶ Eligible costs include right-of-way, preliminary engineering, and construction
- ▶ Bicycle and pedestrian and public transportation facilities that appear in a state, regional or locally adopted

transportation plan will be included as part of the proposed roadway project. NCDOT will fully fund the cost of designing, acquiring right of way, and constructing the identified facilities.

Specific Improvement Types

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

Bundling Projects

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

More Info on Prioritization 6.0:

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

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

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

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

High Impact/Low Cost Funds

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

Project Selection Criteria

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

- ▶ The average daily traffic volume of a roadway and whether the proposed project will generate additional traffic.
- ▶ Any restrictions on a roadway.
- ▶ Any safety issues with a roadway.

- ▶ The condition of the lanes, shoulders, and pavement on a roadway.
- ▶ The site distance and radius of any intersection on a roadway.
 - » \$1.5M max per project unless otherwise approved by the Secretary of Transportation
 - » Projects are expected to be under contract within 12 months of funding approval by BOT

NCDOT Technical Review & Approval

- ▶ Division Engineer completes project scoring and determines eligibility.
- ▶ Division Engineer determines projects to be funded and requests approval of funding from the Chief Engineer. Division Engineer shall supply all necessary project information including funding request forms, project designs and cost estimates.
- ▶ The Project Review Committee will make a recommendation for further investigation or to include on the Board Agenda for action by the Secretary, NCDOT.

Incidental Projects

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

In addition, bicycle safe drainage grates and handicapped accessible sidewalk ramps are now a standard feature of all NCDOT highway construction. Most pedestrian safety accommodations built by NCDOT

are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds.

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

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

NC HIGHWAY SAFETY IMPROVEMENT PROGRAM

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

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

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

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

HIGHWAY HAZARD ELIMINATION PROGRAM

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

GOVERNOR'S HIGHWAY SAFETY PROGRAM

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

county level crash data. Local governments, including county governments and municipal governments, are eligible to apply.

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

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

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

- ▶ New trail or greenway construction
- ▶ Trail or greenway renovation
- ▶ Approved trail or greenway facilities
- ▶ Trail head/ trail markers
- ▶ Purchase of tools to construct and/or renovate trails/greenways
- ▶ Land acquisition for trail purposes
- ▶ Planning, legal, environmental, and

permitting costs - up to 10% of grant amount

- Combination of the above

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

NC PARKS AND RECREATION TRUST FUND (PARTF)

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

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

CLEAN WATER MANAGEMENT TRUST FUND

The Clean Water Management Trust Fund (CWMTF) is available to any state agency, local government, or non-profit organization whose primary purpose is the conservation,

preservation, and restoration of North Carolina's environmental and natural resources. Grant assistance is provided to conservation projects that:

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

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

URBAN AND COMMUNITY FORESTRY GRANT

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

For more information: https://www.ncforestservice.gov/Urban/urban_grant_program.htm

Local Funding Sources

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

PRIVATE AND NONPROFIT FUNDING SOURCES

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

RAILS-TO-TRAILS CONSERVANCY

Under the Doppelt Family Trail Development Fund, RTC will award approximately \$85,000 per year, distributed among several qualifying projects, through a competitive process. Eligible applicants include nonprofit organizations and state, regional, and local government agencies. Two types of grants are available - community support grants and

project transformation grants. Around three to four community support grants are awarded each year, ranging from \$5,000-\$10,000 each. Community Support Grants support nonprofit organizations or “Friends of the Trail” groups that need funding to get trail development or trail improvement efforts off the ground. Each year, 1-2 Project Transformation Grants are awarded that range from \$15,000-\$50,000. The intention of these grants is to enable an organization to complete a significant trail development or improvement project. For both types of grants, applications for projects on rail-trails and rails-with-trails are given preference, but rail-trail designation is not a requirement. The trail must serve multiple user types, such as bicycling, walking, and hiking, and must be considered a trail, greenway, or shared use path.

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

NATIONAL FISH AND WILDLIFE FOUNDATION (NFWF)

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

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

For more information: <http://www.nfwf.org/whatwedo/grants/Pages/home.aspx>

THE TRUST FOR PUBLIC LAND

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the TPL is the only national non-profit working exclusively to protect land for human enjoyment and well-being. TPL helps acquire land and transfer it to public agencies, land trusts, or other groups that intend to conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities.

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

LAND FOR TOMORROW CAMPAIGN

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals, and community groups committed to

securing support from the public and General Assembly for protecting land, water, and historic places. Land for Tomorrow works to enable North Carolina to reach a goal of ensuring that working farms and forests, sanctuaries for wildlife, land bordering streams, parks, and greenways, land that helps strengthen communities and promotes job growth, and historic downtowns and neighborhoods will be there to enhance the quality of life for generations to come. For more information: <http://www.land4tomorrow.org/>

THE CONSERVATION ALLIANCE

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

The project should seek to secure lasting and quantifiable protection of a specific wild land or waterway. We prioritize landscape-scale projects that have a clear benefit for habitat.

The campaign should engage grassroots citizen action in support of the conservation effort. We do not fund general education, restoration, stewardship, or scientific research projects.

All projects must have a clear recreational benefit.

For more information: <http://www.conservationalliance.com/grants/?yearly=2020>

BLUE CROSS BLUE SHIELD (BCBS) OF NORTH CAROLINA FOUNDATION

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

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

DUKE ENERGY FOUNDATION

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

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

Z. SMITH REYNOLDS FOUNDATION

This Winston-Salem-based Foundation is committed to improving the quality of life for all North Carolinians. The Z. Smith Reynolds Foundation is a statewide, private, family

foundation that has been a catalyst for positive change in North Carolina for more than 80 years. A variety of grant programs are available.

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

BANK OF AMERICA CHARITABLE FOUNDATION

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

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

LOCAL TRAIL SPONSORS

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

CORPORATE DONATIONS

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

civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fundraising, maintenance, and programming needs.

PRIVATE INDIVIDUAL DONATIONS

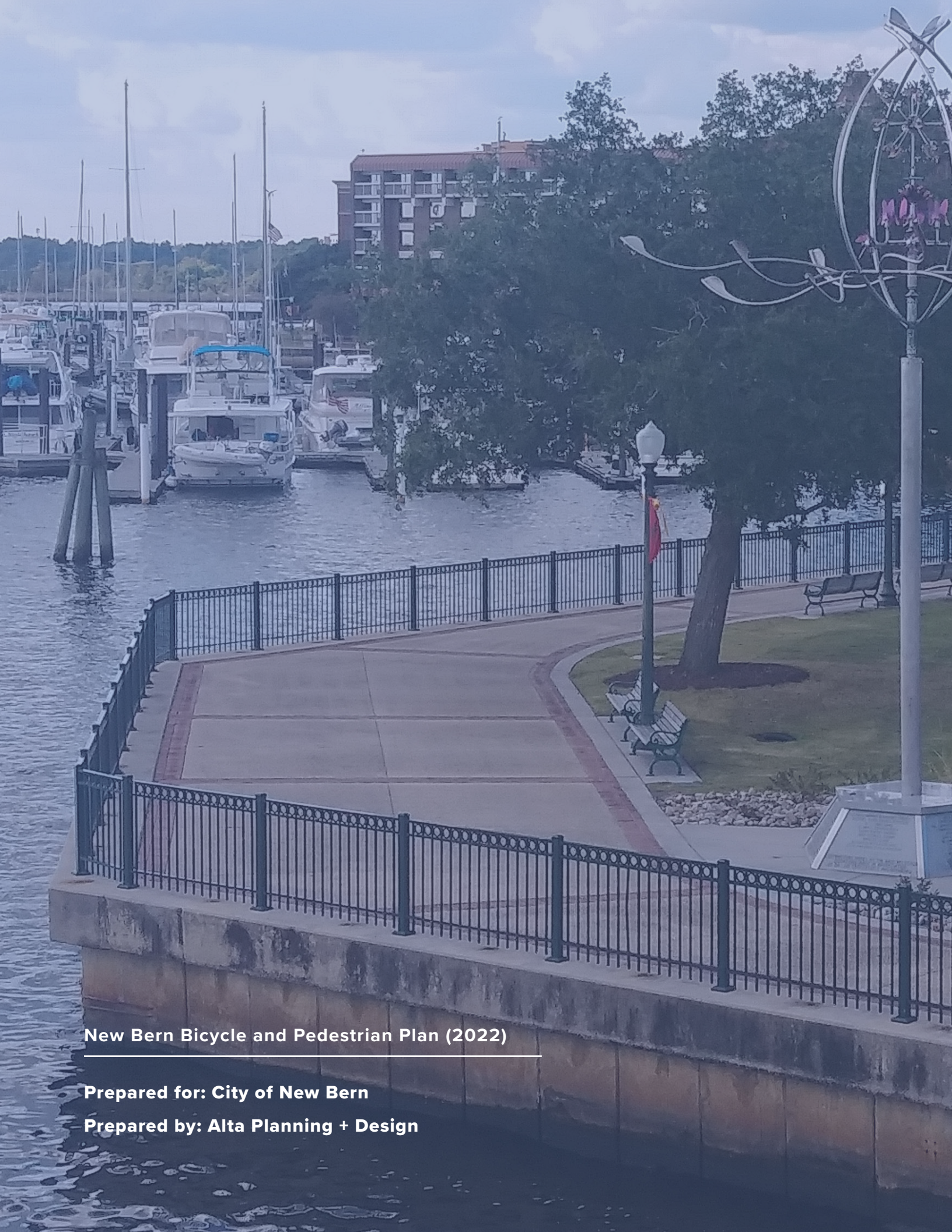
Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Local governments typically create funds to facilitate and simplify a transaction from an individual's donation to the given locality. Donations are mainly received when a widely supported capital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

FUNDRAISING/CAMPAIGN DRIVES

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

VOLUNTEER WORK

It is expected that many citizens will be excited about the development of a greenway corridor. Individual volunteers from the community can be brought together with groups of volunteers from church groups,



New Bern Bicycle and Pedestrian Plan (2022)

Prepared for: City of New Bern

Prepared by: Alta Planning + Design