



PREPARED BY ALTA PLANNING + DESIGN | 2017

PREPARED FOR THE GREENVILLE URBAN AREA METROPOLITAN PLANNING ORGANIZATION,
INCLUDING GREENVILLE, WINTERVILLE, AYDEN, SIMPSON, AND PARTS OF PITT COUNTY



ACKNOWLEDGMENTS

Thank you to the 1,000+ local residents, business owners, community leaders, students, and government staff that participated in the development of this plan through meetings, events, comment forms, and plan review. Special thanks to those who participated as project steering committee members, listed below.

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Prepared for the Greenville Urban Area Metropolitan Planning Organization, Including Greenville, Winterville, Ayden, Simpson, and parts of Pitt County

Project Website: www.WalkBikeGreenvilleNC.com



CONTENTS

Executive Summary	5
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CHAPTER 1: INTRODUCTION

Purpose	9
Background	9
Vision Statement.....	9
Goals.....	10
Planning Process.....	11
The Value of Walkable and Bicycle-Friendly Communities.....	12

CHAPTER 2: EXISTING CONDITIONS

Overview	21
Public Process	22
Existing Conditions Analysis.....	34
Existing Plans, Programs, and Policies	52
Demand & Benefit Forecast	54

CHAPTER 3: BICYCLE NETWORK

Overview	59
Planning the Bicycle & Greenway Trail Network	60
Types of Facilities in the Bicycle Network Maps	61
Bicycle & Greenway Trail Network Maps	70

CHAPTER 4: PEDESTRIAN NETWORK

Overview	83
Planning the Pedestrian & Greenway Trail Network.....	84
Types of Facilities in the Pedestrian Network Maps.....	85
Sidewalk & Greenway Trail Network Maps.....	88

CHAPTER 5: PRIORITY PROJECTS

Overview	101
Prioritization Process	101
Project Cut-Sheets.....	102

CHAPTER 6: RECOMMENDATIONS

Overview	157
Policy Recommendations.....	160
Program Recommendations	168
Design Recommendations.....	176
Implementation Strategies	184

CHAPTER 7: IMPLEMENTATION

Overview	195
Framework for Implementation.....	196
Facility Development Methods.....	197
Action Steps Table	202

APPENDIX

A: Public Input.....	A-1
B: Design Toolbox.....	B-1
C: Intersection Inventory.....	C-1
D: Funding	D-1

INTENDED AUDIENCES

The intended audience for this document includes residents, elected officials, government planners, developers, and all people interested in active transportation, recreation, health, wellness, environmental stewardship, economic development, tourism, and overall quality of life in the Greater Greenville Area.

ADDITIONAL INFORMATION

*Please contact the Greenville Urban Area Metropolitan Planning Organization for additional information on this plan and planning process: 200 West Fifth Street, Greenville, NC 27834
www.greenvillenc.gov/government/public-works
252.329.CITY (2489)*

Executive Summary

"Connectivity is a very important issue. People have to be able to get where they want to go and that involves connecting neighborhoods with shopping, restaurants and schools in a safe and convenient way. This can involve some of the existing roadways but not in their current state. If you make the routes to these desired locations reasonable to navigate by foot or bike people will use them."

- Public Comment,
2016

Executive Summary

The Greater Greenville Area is working together to create better walking and bicycling connections in our communities. In 2016, the City of Greenville and the Greenville Urban Area Metropolitan Planning Organization (MPO) began updating their 2011 Bicycle and Pedestrian Master Plan. The purpose of this update is to renew plan priorities, tools and programs for improving the bicycle and pedestrian environments in the Greenville urban area, which includes the City of Greenville, Town of Ayden, Town of Winterville, Village of Simpson, and portions of Pitt County. Another major update to the plan is the additional focus on shared use trails, or “greenways”. This updated plan for bicycle, pedestrian, and greenway infrastructure, programs, and policies is now known as the MPO’s “Active Transportation Plan”. The vision statement for this Plan (below) captures its main purpose and intent:

Vision Statement

“The Greater Greenville Area will offer residents and visitors many options for walking and bicycling, through well-designed and beautifully maintained greenway trails, and through walkable, bicycle-friendly streets. People of all ages, abilities, and incomes will be able to safely and conveniently get to where they want to go.”

– Vision Statement from the Active Transportation Plan Steering Committee

Plan Goals



Enhance Connectivity



Create a Positive Economic Impact



Protect the Environment



Promote Equity



Enhance Health



Increase Safety



Increase Livability

Planning Process

The development of this Plan was open and participatory, with area residents providing input through public events, workshops, committee meetings, public comment forms, and an online input map. This Plan features:

- A thorough analysis of current conditions and public feedback regarding walking, bicycling, and trails in the MPO
- A comprehensive recommended bicycle, pedestrian, and greenway network
- A strategic list of recommended top priority projects
- Recommended strategies for bicycle, pedestrian and trail policy, programs, design, and implementation.

Analysis & Public Input

Key Types of Meetings & Public Input (pages 22-31)

- 30+ Project Steering Committee Members
- 5 Steering Committee Meetings
- 200+ Comments through the Online Input Map
- 5 Input Stations Set Up Throughout MPO
- 3 Outreach Sessions at Local Events
- 4 Draft and Final Plan Presentations
- 1,000+ Public Comment Forms
- 3,000+ Average Monthly Visitors to the Project Website

1,008 Total number of survey respondents

With roughly proportional responses from Greenville, Winterville, Ayden, Simpson, and Pitt County

See Appendix A for full summary of comment form results.

About 75% of survey respondents



Say it is VERY important to improve walking, bicycling and greenway trail conditions in their community.

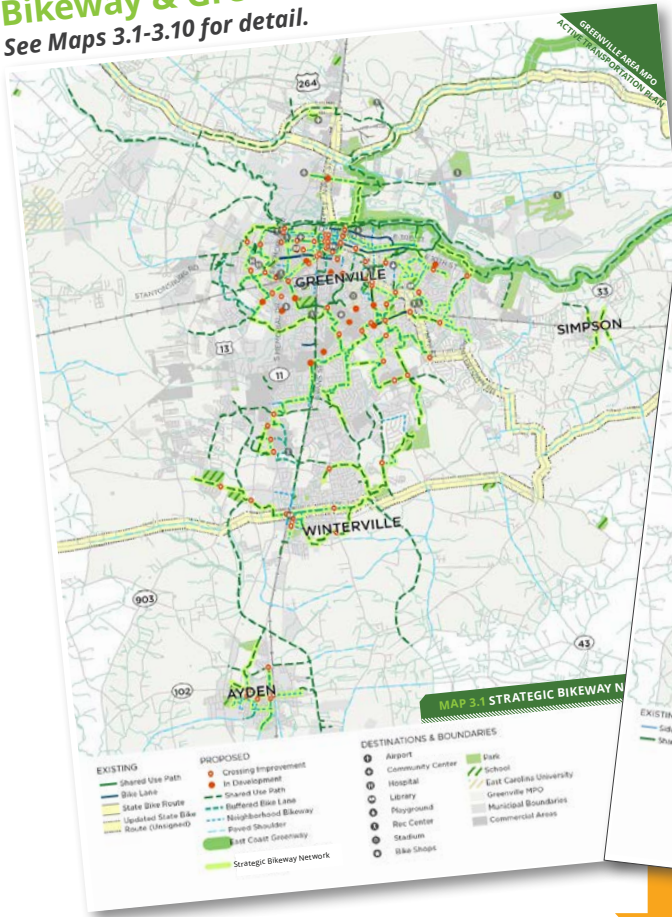
92 Crashes in Greenville Involving a Bicyclist or Pedestrian In 2016 ALONE

Of the 92 people involved in crashes, 5 people were killed and 37 people were disabled.

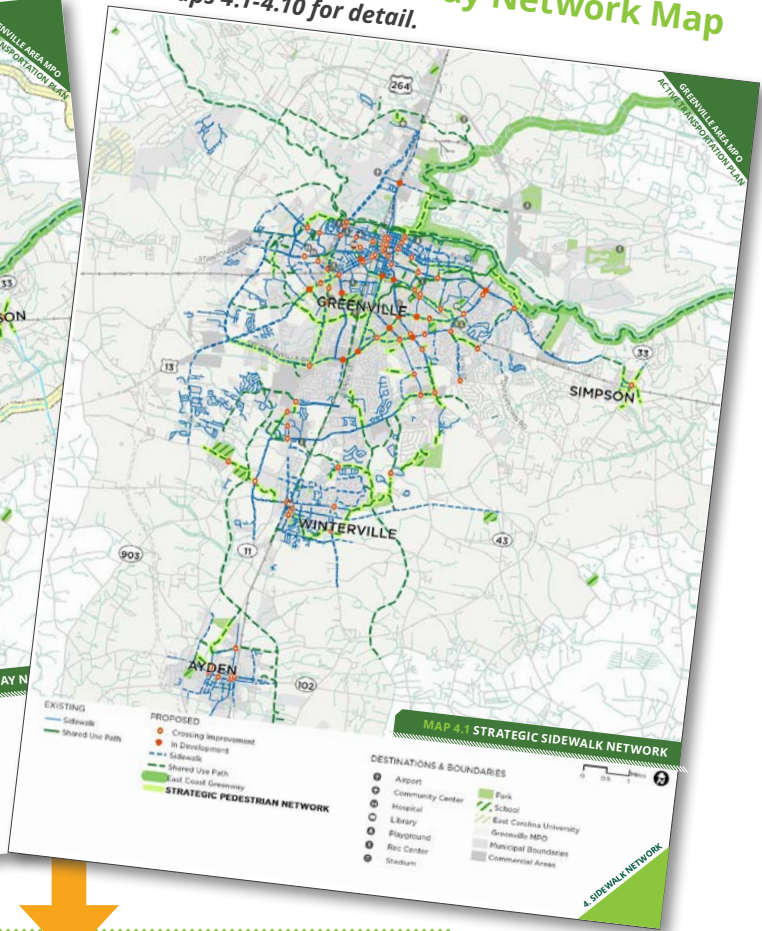
See Chapter 2 for more on this topic and other aspects of existing conditions.

Recommendations

Bikeway & Greenway Network Map See Maps 3.1-3.10 for detail.



Sidewalk & Greenway Network Map See Maps 4.1-4.10 for detail.



26

Priority Project Cutsheets Featuring individual project maps, cost estimates, and other details. Chapter 5

The priority projects have the greatest impact in terms of safety and connectivity. Examples include greenways, sidewalks, bicycle lanes, bicycle shared-lane markings, side paths, and similar facilities. These projects have the potential to spur momentum for longer-term projects.

39

Implementation Action Steps Along with detailed recommendations for policies, programs, design, and implementation. Chapter 6 & 7

Successful implementation will require a consistent, coordinated effort by local leaders, MPO transportation planners, municipal planners and engineers, multiple NCDOT agencies, private partners, stakeholders, and advocates in the region. The plan's facility design guidelines provide a go-to resource for statewide and national best practices. A combination of federal, state, local and private/non-profit funding sources are recommended to get these projects from planning and design stages to implementation.

1

Introduction

"Greenville is a beautiful city and would have so much more to offer if only it could be seen and traveled safely on foot and by bicycle."

- Public Comment, 2016



Purpose

The Greater Greenville Area is working together to create better walking and bicycling connections in our communities.

Background

The Greater Greenville Area is working together to create better walking and bicycling connections in our communities. In 2016, the City of Greenville and the Greenville Urban Area Metropolitan Planning Organization (MPO) began updating their 2011 Bicycle and Pedestrian Master Plan. The purpose of this update is to renew plan priorities, tools and programs for improving the bicycle and pedestrian environments in the Greenville urban area, which includes the City of Greenville, Town of Ayden, Town of Winterville, Village of Simpson, and portions of Pitt County. Another major update to the plan is the additional focus on shared use trails, or “greenways”. This updated plan for bicycle, pedestrian, and greenway infrastructure, programs, and policies is now known as the MPO’s “Active Transportation Plan”. The vision statement for this Plan (right) captures its main purpose and intent:

VISION STATEMENT

“The Greater Greenville Area will offer residents and visitors many options for walking and bicycling, through well-designed and beautifully maintained greenway trails, and through walkable, bicycle-friendly streets. People of all ages, abilities, and incomes will be able to safely and conveniently get to where they want to go.”

– Vision Statement from the Active Transportation Plan Steering Committee

Goals

The goals outlined below build upon the vision statement and key themes from local plans and Federal guidelines. For example, they align with key components of Greenville's Community Plan, Horizons 2026, including: "Building Great Places", "Enhancing Mobility", "Creating Complete Neighborhoods", "Fostering a Resilient City", and "Growing a Healthy City." They also tie directly to the Federal Highway Administration's (FHWA) *Guidebook for Developing Pedestrian and Bicycle Performance Measures*. Finally, the main themes within these goals also provide structure to many sections of this Plan's analysis and recommendations.



Enhance Connectivity

Create more trails and walkable, bicycle-friendly streets that allow people of all ages and abilities to safely and conveniently get where they want to go.



Create a Positive Economic Impact

Recognize the economic benefits of walkable, bicycle-friendly communities, and capitalize on trail-based tourism.



Protect the Environment

Increase air quality by replacing a percentage of automobile trips with walking and bicycling trips; Protect waterways, wildlife habitat, and natural areas along greenways.



Promote Equity

People who do not own cars should still be able to go places safely and conveniently; Ensure that walking and bicycling infrastructure is provided in places with lower car ownership rates.



Enhance Health

Improve access to outdoor recreation and active transportation for health and wellness.



Increase Safety

Address the safety of the transportation system for all users; Achieve a transportation system that has zero bicycle or pedestrian fatalities or serious injuries.



Increase Livability

Transportation systems have a direct impact on overall quality of life; Provide active transportation choices within the transportation system that support healthy, safe, and walkable/ bikeable neighborhoods, whether rural, urban, or suburban.



Planning Process

The development of this Plan was open and participatory, with area residents providing input through public events, workshops, committee meetings, public comment forms, and an online input map. The overall process and timeline is summarized in the list below:



Summer 2016: Begin analyzing existing conditions and initiate committee meetings and public outreach;



Fall 2016: Continue public outreach, review conditions in the field, and begin development of the draft plan;



Winter 2016/2017: Complete draft plan and collect draft plan feedback from stakeholders and the public;



Spring 2017: Revise draft plan, produce final plan, and present to elected officials for plan adoption



Summer 2017: Begin Implementation

This Plan features:

- A thorough analysis of current conditions and public feedback regarding walking, bicycling, and trails in the MPO
- A comprehensive recommended bicycle, pedestrian, and greenway network
- A strategic list of recommended top priority projects
- Recommended strategies for bicycle, pedestrian and trail policy, programs, design, and implementation.

STEERING COMMITTEE & STAKEHOLDERS

The Steering Committee is made up of representatives from the following agencies and organizations, among others (such as local faith organizations and minority businesses):

- Greenville Urban Area MPO
- City of Greenville
- Town of Ayden
- Town of Winterville
- Village of Simpson
- Pitt County
- Pitt County Development Commission
- North Carolina Department of Transportation
- Greenville Bicycle and Pedestrian Commission
- Greenville Neighborhood Advisory Board
- Greenville Environmental Advisory Commission
- Greenville Utilities Commission
- Friends of Greenville Greenways (FROGGS)
- East Carolina University
- Pitt Community College
- Uptown Greenville
- Eastern Carolina Injury Prevention Program
- Vidant Health
- Safe Kids Pitt County
- Association of Mexicans in NC
- Greenville Organization of Runners (GoRun)
- Young Professionals of Pitt County
- Alta Planning + Design (project consultants)

The Value of Walkable and Bicycle-Friendly Communities

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

Scores of studies from the fields of public health, urban planning, urban ecology, real estate, tourism, and transportation have demonstrated the value of supporting bicycling and walking. Communities across the United States and throughout the world are investing in improvements for bicycling, walking, and trails. They do this because of their obligations to promote health, safety and welfare, and also because of the growing awareness of the many benefits outlined in the sections that follow, which mirror the main themes of this plan's goals: *Connectivity, economic impact, environment, equity, health, safety, and livability.*



Connectivity

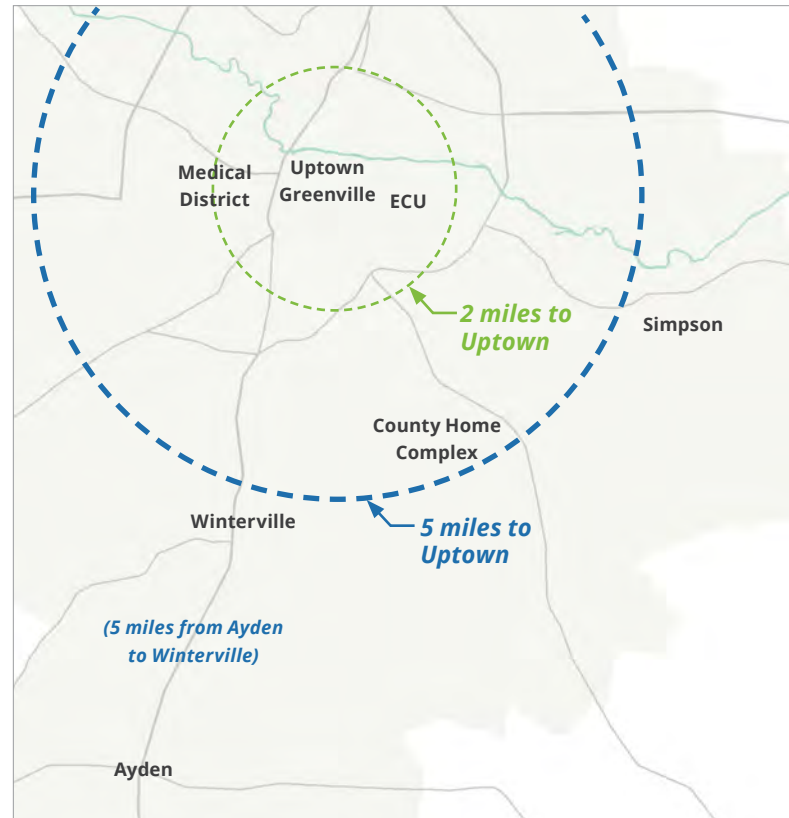
Surveys by the Federal Highway Administration show that Americans are willing to walk as far as two miles to a destination and bicycle as far as five miles.

In the Greenville area, the Medical District and East Carolina University's (ECU) campus core fall within a two-mile radius of Uptown Greenville, meaning some of the area's largest centers of employment, shopping, and culture are within a reasonable walking distance of one another. Similarly, the Town of Winterville, the County Home Complex, and the Village of Simpson are each about five miles from Uptown Greenville, a distance people are willing to bike. The challenge becomes making safe, comfortable, and convenient walking and bicycling connections across these distances, which is a goal of this plan.

In fact, **about 40% of all driving trips made in the U.S. are shorter than two miles, indicating an opportunity to accommodate those trips by providing the right environment for people to make them by foot or by bicycle, rather than in a car.** By doing so, citizens can help alleviate overall congestion since each pedestrian or bicyclist means less cars on the road.

Moreover, many area residents would simply prefer to have more options for getting around. According to the *Horizons 2026* plan, **people in Greenville are seeking a more balanced range of transportation options than they currently use today, with walking being the top choice for how people want to be able to travel.**

Example Trip Distances in the Greenville Area



Travel Preferences in Greenville

Source: Greenville's Horizons 2026 Plan (2016)

How people in Greenville **travel today**: % of trips by car, walking, biking, or transit.



How people in Greenville **want to travel**: % of trips by car, walking, biking, or transit



Economic Impact

The economic benefits of active transportation come in the form of increased property values, tourism, sales, and infrastructure savings.

From a property values standpoint, consider the positive impact of trails and greenways, which are essential components of a complete bicycle and pedestrian network. According to research conducted by Headwaters Economics,

“Trails can be associated with higher property value, especially when a trail is designed to provide neighborhood access and maintain residents’ privacy. Trails, like good schools or low crime, create an amenity that commands a higher price for nearby homes. Trails are valued by those who live nearby as places to recreate, convenient opportunities for physical activity and improving health, and safe corridors for walking or cycling to work or school.”

There are many examples, both nationally and in North Carolina, that affirm the positive connection between trails, active transportation, and property values. For example, the report *“Walking the Walk”* by CEO’s for Cities, which looked at 94,000 real estate transactions in 15 markets, found that in 13 of those markets, higher levels of “walkability”



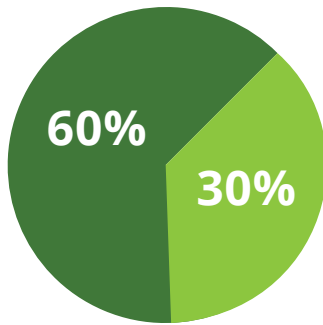
Developers in North Carolina understand the economic value of bicycling and trails.

Example marketing campaign from “Wendell Falls” in Wake County.

See below for more selected national examples of how walking and bicycling trails positively impact property values.

SELECTED RESEARCH HIGHLIGHTS FROM HEADWATERS ECONOMICS

- *In San Antonio, Texas, neighborhood trails were associated with a two percent house price premium. Trails that were surrounded by greenbelts were associated with a five percent house price premium.¹*
- *In southwestern Ohio, the Little Miami Scenic Trail is associated with higher property value in urban, suburban, and rural settings. Up to a mile away from the trail, for every foot closer to the trail, property values increase by about \$7. A home a half mile from the trail would sell for approximately nine percent less than a home adjacent to the trail.²*
- *In suburban New Castle County, Delaware, homes within 50 meters of bike paths commanded a four percent price premium.³*
- *In rural Methow Valley, Washington, homes within one-quarter mile of trails benefited from a 10 percent price premium.⁴*
- *Along a popular trail in Austin, Texas, the price premium ranged from 6 to 20 percent, depending on whether the neighborhood had views of the greenbelt surrounding the trail and whether it had direct neighborhood access to the trail.⁵ This price premium translated to roughly \$59,000 per year in additional tax revenue or five percent of the annual cost of trail construction and maintenance.⁶*
- *In Indianapolis, researchers found that a high-profile, destination trail was associated with an 11 percent price premium for homes within a half mile of the trail. Other trails had no price premium.⁷*
- *In Seattle, Washington⁸ and upstate New York⁹, adjacent property owners were concerned about trail-related crime before the trail was built. Researchers found no change in crime rate after the trail was built.*



National Neighborhood Preferences

A majority of Americans prefer a neighborhood with a mix of houses, stores and businesses that are **easy to walk** to over a neighborhood with houses only that requires driving to stores and businesses (National Association of Realtors).

- Neighborhood with mix of houses and stores and other businesses that are easy to walk to.
- Neighborhood with houses only and you have to drive to stores and other businesses.

were directly linked to higher home values. From a tourism perspective, consider the economic impact of bicycling on the Outer Banks, NC, where bicycling is estimated to have an annual economic impact of \$60 million; 1,407 jobs are supported by the 40,800 visitors for whom bicycling was an important reason for choosing to vacation in the area. The annual return on bicycle facility development in the Outer Banks is approximately nine times higher than the initial investment.⁷ Similarly, Damascus, VA, the self-proclaimed 'Friendliest Trail Town', features 34-miles of trail where approximately \$2.5 million is spent annually related to recreation visits. Of this amount, non-local visitors spend about \$1.2 million directly into the economies of Washington and Grayson counties.⁸

Bicyclists, pedestrians, and trail users can also add real value to local economies. For example, a 2014 study of the American Tobacco Trail Bridge in Durham, NC, found that:

"The completion of the bridge linking the Northern and Southern trail segments resulted in an estimated annual impact of 43 jobs, \$1.3 million in employee compensation, and \$4.9 million in total business gross revenues. As a comparison, the construction of the bridge and connecting trail segments cost approximately \$11.2 million" (Bridging the Gap: Economic, Health, and Transportation Impacts from Completing a Critical Link in a 22-Mile Rail Trail).

Furthermore, many businesses, residents, and visitors consider quality of life factors like walkability and bikability when choosing locations to settle.

According to a survey by the National Association of Realtors (NAR), the demand for the conventional suburban development patterns that predominated in the second half of the 20th century is shifting to more walkable, mixed-use communities—especially among the higher-educated work force that many businesses aim to attract and retain.

The NAR survey also showed that walkability and shorter commutes are key to community preference, indicating that as the demand for automobile-dependent development decreases, communities should be built (and retro-fitted) with walking and bicycling connectivity in mind.

It is also important to consider the relative costs of our transportation infrastructure investments, to put the cost of walking and bicycling projects into perspective. For example, the Greenville Southwest Bypass is projected to cost about \$12 million per mile (contracted at \$159 million for 12.9 miles). By contrast, one of the largest and most recent greenway examples in North Carolina is the Neuse River Trail, which cost about \$1.2 million per mile, and typical sidewalk and bicycle lane projects are even less per mile.

Environment

As demonstrated by the Southern Resource Center of the Federal Highway Administration, **when people get out of their cars and walk or bike, they reduce measurable volumes of pollutants.**⁹ Other environmental impacts include a reduction in overall neighborhood noise levels and improvements in local water quality as fewer automobile-related discharges wind up in the local rivers, streams, and lakes.

Trails and greenways convey unique environmental benefits, protecting and linking fragmented habitat and providing opportunities for protecting plant and animal species.

Aside from connecting places without the use of air-polluting automobiles, trails and greenways also reduce air pollution by protecting large areas of plants that create oxygen and filter air pollutants such as ozone, sulfur dioxide, carbon monoxide and airborne particles of heavy metal. **Greenways improve water quality** by creating a natural buffer zone that protects streams, rivers and lakes, preventing soil erosion and filtering pollution caused by agricultural and road runoff. Finally, **greenways also prevent losses of life and property from flood damages** by dedicating greenway and trail right-of-way in floodplains, rather than development in floodplains.

Greenways play an important role in the stewardship of our natural resources, particularly our waterways.

Greenville's Tar River Legacy Plan does an excellent job in communicating the value of our local natural resources, and how greenways and trails can play an important role in their protection. The Plan identifies environmentally-responsive, comprehensive strategies to improve Greenville's relationship to its River and other natural areas.

TAR
RIVER
LEGACY
PLAN



Equity

A key component of equity for this plan is providing facilities for all ages, abilities and incomes. For example, children under 16 and seniors with decreasing driving abilities deserve safe ways to access community destinations without depending on an automobile. Similarly, households without access to vehicles are not well-served by auto-oriented transportation solutions and require walking, bicycling, and transit infrastructure.

There are disparate costs and impacts of transportation decisions on populations of different income levels. Walking is virtually free and the cost of operating a bicycle is far less than operating a car. According to the National Household Travel Survey (NHTS), one in 12 U.S. households does not own an automobile and approximately 12 percent of persons 15 or older do not drive.¹⁰ **In the Greater Greenville Area, about seven percent of the population does not have access to an automobile.** See Chapter 2 of this plan for more on this

topic, including an equity analysis that takes these and other factors into account.

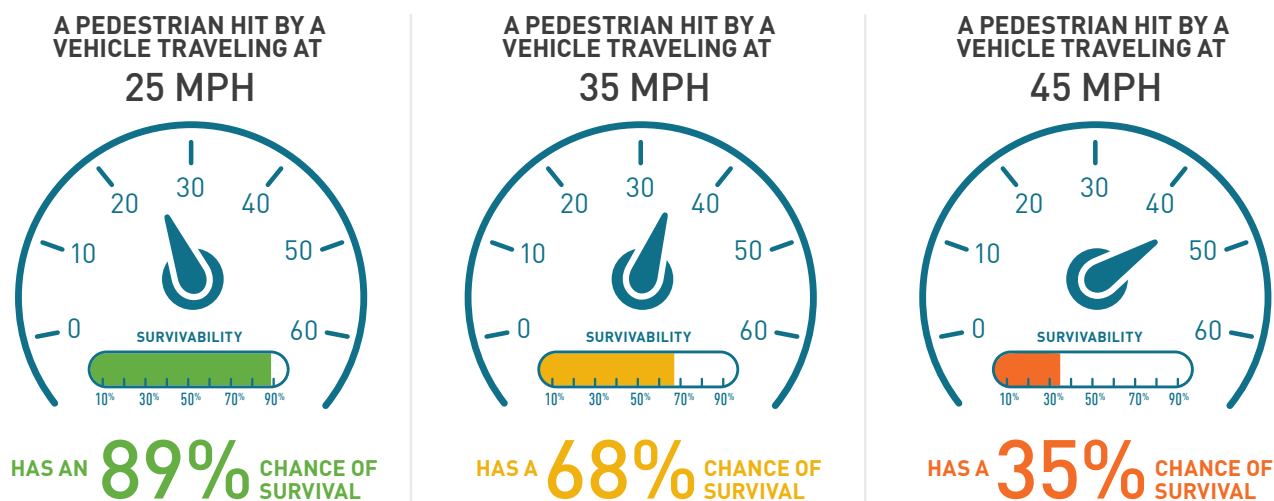
Walking and bicycling infrastructure, such as sidewalks, bike lanes, and trails, play a critical role in connecting people and communities to economic opportunity. This plan can help more people reach opportunity by ensuring that our transportation system provides reliable, safe, and affordable ways to reach jobs, education and other essential services. U.S. DOT's 2016 policy initiative, *Ladders of Opportunity*, notes that:

"The choices we make regarding transportation infrastructure at the Federal, State, and local levels can revitalize communities, create pathways to work, and connect hardworking Americans to a better quality of life."

INTERWOVEN EQUITY *The concept of "interwoven equity" was set forth for in Horizons 2026: Greenville's Community Plan, which states:*

"Recent decades have shown improvements in economic, health, and quality of life conditions for less privileged people throughout the Southeast. Disparities continue to exist, however, for minorities and children growing up in low income households. The theme of interwoven equity aims to create a city where fairness and equity are provided for in the housing services, health, safety, and livelihood needs of all citizens and groups in Greenville."

Health & Safety



Tefft, B. C. Impact speed and a pedestrian's risk of severe injury or death. *Accident Analysis & Prevention* 50 (2013) 871-878.

A growing number of studies show that the design of our communities—including neighborhoods, towns, transportation systems, parks, trails and other public recreational facilities—affects people's ability to reach the recommended daily 30 minutes of moderately intense physical activity (60 minutes for youth). According to the Centers for Disease Control and Prevention (CDC), "physical inactivity causes numerous physical and mental health problems, is responsible for an estimated 200,000 deaths per year, and contributes to the obesity epidemic." ¹

The CDC determined that creating and improving places to be active could result in a 25 percent increase in the number of people who exercise at least three times a week.

This is significant considering that for people who are inactive, even small increases in physical activity

can bring measurable health benefits. Establishing a safe and reliable network of sidewalks, bicycle lanes, and safe crossings throughout the Greater Greenville Area will positively impact the health and safety of local residents. The Rails-to-Trails Conservancy puts it simply: **"Individuals must choose to exercise, but communities can make that choice easier."** ³

In 2013, AAA Carolinas counted 4,572 collisions in 2013 in Pitt County, averaging 318 crashes per 100 million vehicle miles traveled. This made Pitt County the most dangerous county in the state for driving for the past six consecutive years. **Many of these crashes also involve bicyclists and pedestrians, who are much more vulnerable to serious injury or death** (See crash analysis in Chapter 2). Measures as simple as reducing the speed limit or adding sidewalk or crosswalks can make streets measurably safer for all users, especially pedestrians (see graphic above).

Livability

Many factors go into determining quality of life for the citizens of a community: the local education system, prevalence of quality employment opportunities, and affordability of housing are all items that are commonly cited. Increasingly though, citizens claim that access to alternative means of transportation and access to quality recreational opportunities such as parks, trails, greenways, and bicycle routes, are important factors for them in determining their overall pleasure within their community.

During the planning process for *Horizons 2026: Greenville's Community Plan*, **planners asked people, "What Change Would You Most Like to See in Greenville?" The second highest selection was "More transportation options (trails, bike paths, and sidewalks)",** second only to "More interesting shopping and entertainment." The *Horizons* plan also states that:

"Greenville is looking to modernize its transportation system to foster the growth of the city's 21st century economy. This helps retain and attract young professionals, and promotes livability for families and elderly individuals."

Communities with such amenities can also attract new businesses, industries, and in turn, new residents. Furthermore, quality of life is positively impacted by bicycling and walking through the increased social connections that take place by residents being active, talking to one another and spending more time outdoors and in their communities.

WHAT DO YOU LIKE MOST ABOUT WALKING AND BICYCLING IN YOUR COMMUNITY? *Select responses related to the topic of livability from this plan's 2016-2017 public comment form:*

"I enjoy walking in nature and I feel like it's a nice social thing where there are other people on the Greenway."

"Love the exercise and uplifting feeling from being outdoors. Like seeing/ greeting others. Like not using gas."

"Nice thing about walking is you don't have to get in, start, drive, stop, park, then walk to where you are going. It is just about as fast to walk as to drive when in university area."

"I enjoy walking for exercise. I currently have a toddler so being able to have sidewalks and safe areas to stroll are very important to me."

"It does not take long to get where I need to go; Greenville is not such a large place. Riding my bicycle feels good and makes me feel healthy. And I like the feeling of connection it gives me to my neighborhood and my city."

"Being able to connect with neighbors."

2

Existing Conditions

"I believe we need more bike lanes, more stop signs, and more sidewalks. It is not safe to walk or ride in a large portion of this city."

- Public Comment, 2016



Overview

This chapter contains a summary of the current conditions for walking and bicycling in the Greater Greenville Area, based on public feedback, Steering Committee input, and planning consultant analysis.

Progress Since the 2011 Plan

The Greenville Urban Area MPO, NCDOT, and other project partners have made progress in several areas of bicycle and pedestrian infrastructure, programming, and policies since the 2011 Plan. Example infrastructure improvements are listed at right, including a range of on-street bicycling improvements, greenway trail constructions, sidewalk additions, and key crossing improvements. Other projects are also underway, such as design of the 10th Street Connector bike lanes, and multiple sidewalk projects in Winterville.

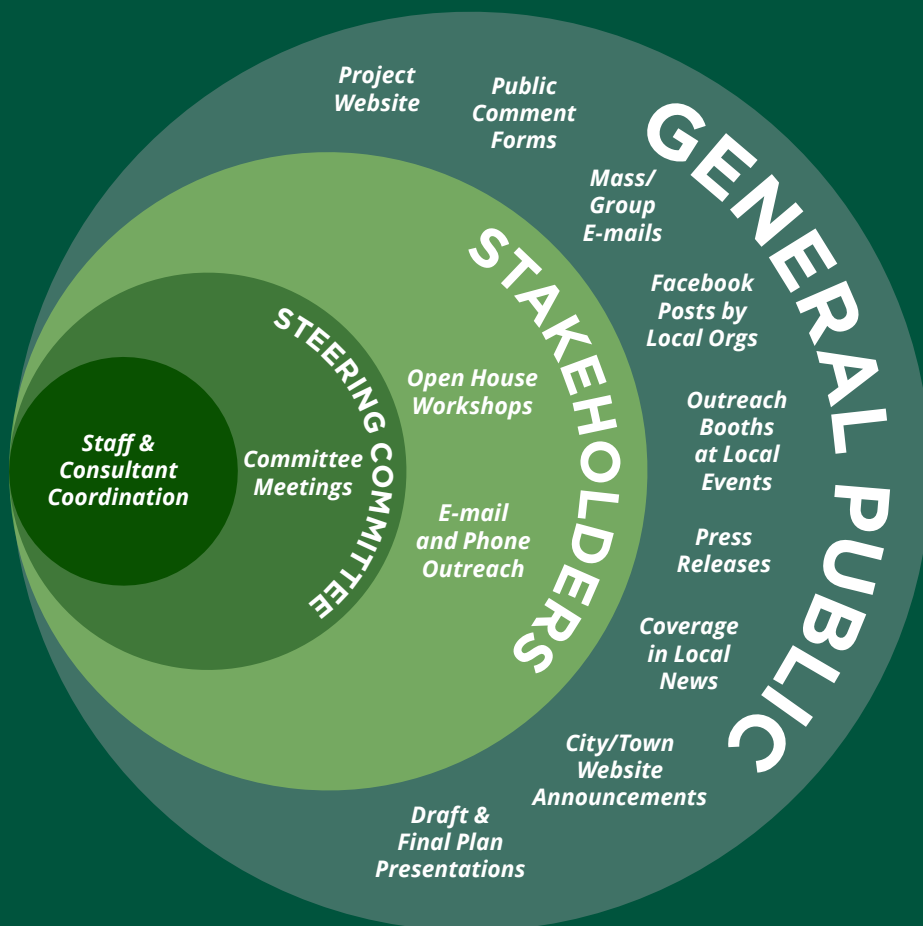
A major policy achievement for the City of Greenville was adoption of the *Horizons 2026 Plan*, which sets the tone for strong support of active transportation, including an entire chapter dedicated to “Enhancing Mobility”, which focuses on “offering well-connected, safe, and attractive travel networks for bicyclists, pedestrians, drivers, and users of public transportation.”

EXAMPLES OF PROGRESS SINCE THE 2011 PLAN

- *1st St bike lanes in front of Town Commons*
- *Elm St bike lanes*
- *Pitt St shared-lane markings*
- *Greens Mill Run Greenway*
- *South Tar River Greenway (underway)*
- *McDonald St sidewalk in Simpson*
- *Portions of new sidewalk on Evans St, Charles Blvd, and SW Greenville Blvd*
- *Mid-block crossing of County Home Rd*
- *New crosswalks, curb ramps, and sidewalks at multiple priority intersections*
- *Bike racks on GREAT buses & ECU buses*
- *ECU Silver-Level Bicycle-Friendly University designation*

Public Process

Public input was an overarching component of this plan and was gathered through multiple avenues and outlets. This plan will not only affect those who reside in the Greenville area but also those who work, own businesses, play, and enjoy leisure activities in the area. Feedback from the public guided this plan's recommendations. A full summary of public outreach can be found in Appendix A.



Key Types of Meetings & Public Input:

30+	STEERING COMMITTEE MEMBERS
5	STEERING COMMITTEE MEETINGS
200+	COMMENTS THROUGH THE ONLINE INPUT MAP
5	INPUT STATIONS SET UP THROUGHOUT MPO
3	OUTREACH SESSIONS AT LOCAL EVENTS
4	DRAFT AND FINAL PLAN PRESENTATIONS
1,000+	PUBLIC COMMENT FORMS
3,000+	AVERAGE MONTHLY VISITORS TO THE PROJECT WEBSITE

Public Outreach Events



REACHING OUT TO THE PUBLIC

The project team set a goal to reach as many residents as possible and to hear from diverse communities. To do this, the team tabled at public events, provided Spanish-language comment forms, and set up project input displays throughout the study area. In addition, more formal public meetings and stakeholder meetings were advertised for the entire public.

Images from the public outreach events during the 2016 and 2011 planning processes.

What We Heard

Below are direct quotes from the 2016-17 public comment form.

Our neighborhoods are so isolated from one another by busy roads that most of our citizens would not dare move about from place to place (even for short trips) without getting into a car, which only compounds the problems.

I use to bike everyday in Chapel Hill before moving here a little over a year ago, and have quit due to conditions here in Greenville.

I don't walk because there are not a lot of sidewalks and I don't feel safe walking near traffic. I will only walk or bike on the greenway during the day because it is more safe than anywhere else.

Very few people understand yielding to cross walks, let alone understand giving a cyclist 4 feet of space when passing.

My biggest concern is the cars speeding around and having to walk on the road since there aren't any side walks in my area without driving to a different subdivision.

The Greenway is wonderful, and I'm excited about the expansions happening with it.

I feel very unsafe walking and biking in Greenville. By FAR the least pedestrian / bike friendly place I have ever lived.



I believe we need more bike lanes, more stop signs, and more side-walks. It is not safe to walk or ride in a large portion of this city. Many motorists are inconsiderate, and don't observe common courtesies.

Not safe. Not enough bicycle lanes. I feel like one day I will get hit, but I have no choice but to ride bike or walk to campus where I work.

Greenville is a beautiful city and would have so much more to offer if only it could be seen and traveled safely on foot and by bicycle. Sadly, it is dominated by motor vehicles and is not at all walking and biking friendly.

I personally think it is most important to find a way to link and connect all our neighborhoods in Greenville together by greenways, trails and safe and wide on-street cycling lanes and crosswalks, so that all our citizens could safely travel throughout the city by bike or on foot, and without fear of being run over by motor vehicles.

The Greenway area is SUCH a nice addition to our community - it is peaceful and allows both myself and my children a convenient place to get closer to nature - it is a wonderful stress reliever to just walk through that area.

The larger streets are horrible, congested, FAST, and extremely dangerous.



Committee Meetings

COLLABORATING WITH THE STEERING COMMITTEE

The project team sought to collaborate with a variety of stakeholders, agencies, and the community leaders through the project Steering Committee. This plan will only be a success through continued collaboration among stakeholders and local leadership to accomplish the vision of this plan.



Images from the steering committee meetings during the 2016 and 2011 planning processes.

COMMITTEE MEETING #1 | JUNE 2016

At the project Kick-Off Meeting, the committee met to review the planning process, establish the project vision and goals, and to discuss lessons learned since the 2011 plan.

The committee also provided guidance on the public outreach strategy, existing plans to review, and current projects that are underway.

COMMITTEE MEETING #2 | SEPTEMBER 2016

At the second meeting, consultants presented findings from a bicycle and pedestrian crash analysis, a census-based equity analysis, and the review of plans, policies and programs.

The consultant also presented a working draft network of bicycle, pedestrian and greenway facilities, which the committee marked-up by hand on draft maps.

COMMITTEE MEETING #3 | NOVEMBER 2016

At the third meeting, the consultant presented findings from the public input received to-date, and a refined draft network of facilities, including a draft priority network for discussion. The committee marked up the draft maps, and weighed in on a range of potential criteria to be used for prioritization.

COMMITTEE MEETING #4 | FEBRUARY 2017

At the fourth meeting, the committee received a presentation on the full draft plan document, and provided their initial feedback.

The meeting also covered next steps for public outreach, final plan production, and implementation.

COMMITTEE MEETING #5 | SPRING 2017

At the fifth and final committee meeting, the committee reviewed the final plan products, and was asked to officially approve the plan and recommend it for adoption.

Project Website & Public Comment Forms

The project website and public comment form were promoted through press releases, social media, links on town and city home-pages, display booths, fliers and thousands of project information cards. As a result, there was an average of more than 3,000 visitors to the project website per month, and a total of more than 1,000 responses to the public comment form.

The public engagement process started in Summer 2016 with the launch of the project's website, **www.walkbikegreenvillenc.com**. This website, which was updated regularly, featured information about the plan, toolkits with outreach materials, meeting updates, and links to tools for the public to provide their thoughts and feedback.

The public comment form was launched in July 2016 shortly after the project kicked off. The focus of the comment form was to gather input about barriers and attitudes towards walking, bicycling, and the use of trails in the Greater Greenville Area.

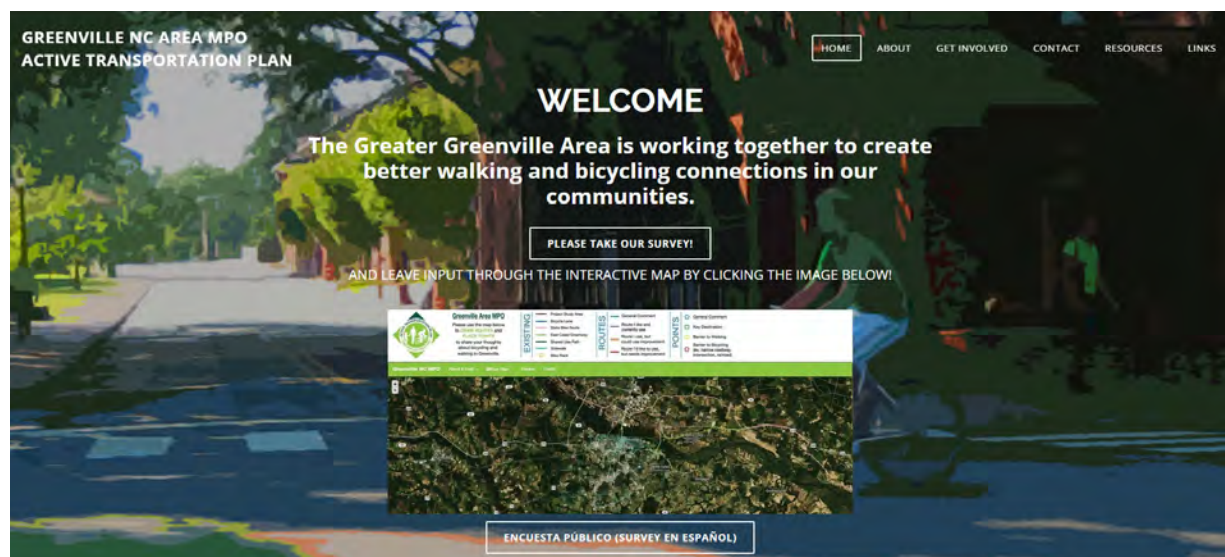


PROJECT VISION:

The Greater Greenville Area will offer residents and visitors many options for walking and bicycling, through well-designed and beautifully maintained greenway trails, and through walkable, bicycle-friendly streets. People of all ages, abilities, and incomes will be able to safely and conveniently get to where they want to go.

Thousands of project "business cards" were handed out during the planning process.

They were available at public events and for people to take away from displays throughout the study area during the planning process.



On average, about 3,000 people visited WalkBikeGreenvilleNC.com every month.

Above: A screenshot of the project website home page.

Comment Form Response Highlights

1,008 Total number of survey respondents

With roughly proportional responses from Greenville, Winterville, Ayden, Simpson, and Pitt County

81% Live
in the Greenville Area

68% Work
in the Greenville Area

42% Own
property in the Greenville Area



47% FEEL SAFE USING GREENWAY TRAILS.
14% do not feel safe on trails, and the rest are in between.



45% FEEL SOMEWHAT SAFE WALKING.
24% do feel safe walking, and 31% do not.



55% DON'T FEEL SAFE BICYCLING.
15% do feel safe bicycling, and the rest are in between.

About

75% of survey respondents



say it is **VERY** important to improve walking, bicycling and greenway trail conditions in their community.



70%

Say we should submit bicycle and pedestrian projects for state funding.

&

that we should leverage our taxes and bonds with outside sources.

See Appendix A for full summary of comment form results.

Online & Community Input Maps

The online public input map received over 200 individual comments about where people walk and bike today, and where they would like to see improvements.

An interactive mapping tool was developed to solicit comments about important destinations, favorite walking and bicycling routes, and needed improvements. The tool was used to gather input without requiring participants to travel to a specific location. The project team also brought large base maps of the county to community events and meetings for participants to draw and add comments that were later added to the online mapping tool.

Both the online tool and the community meeting mapping sessions provided essential public input into the sidewalk and bikeway network development process. The following map highlights the types of input that was received through these mapping exercises.



Map comments at outreach events were transcribed and added to the online input map comments. Above: A local resident adds his comments to the map at “Freeboot Friday” in Uptown Greenville in Fall 2016.

SELECTED EXAMPLES OF MAPPING COMMENTS FROM PUBLIC INPUT

These comments (along with nearly 200 others) were tied to specific routes and locations drawn on the input maps:

Example Uptown/ECU/Med Center Comments:

- “A greenway extension to the new bus depot”
- “This is a logical route to the bus station. The bus station would be a good place for Mclean’s Bicycles bicycle rental station, which is also next to a bicycle shop. This would also connect the new uptown of breweries and apartments to the Greenway.”
- “This is the route I use most often from Uptown/ECU to the Hospital / Med School. The median- and curb-cut at 5th St. has improved it significantly, but that’s still a little bit weird.”
- “Alternate route from Uptown to Medical District. Now seriously impeded by 10th St. Connector ramp which has blocked Chestnut between Grande and Columbia.

Example Greenway Comments:

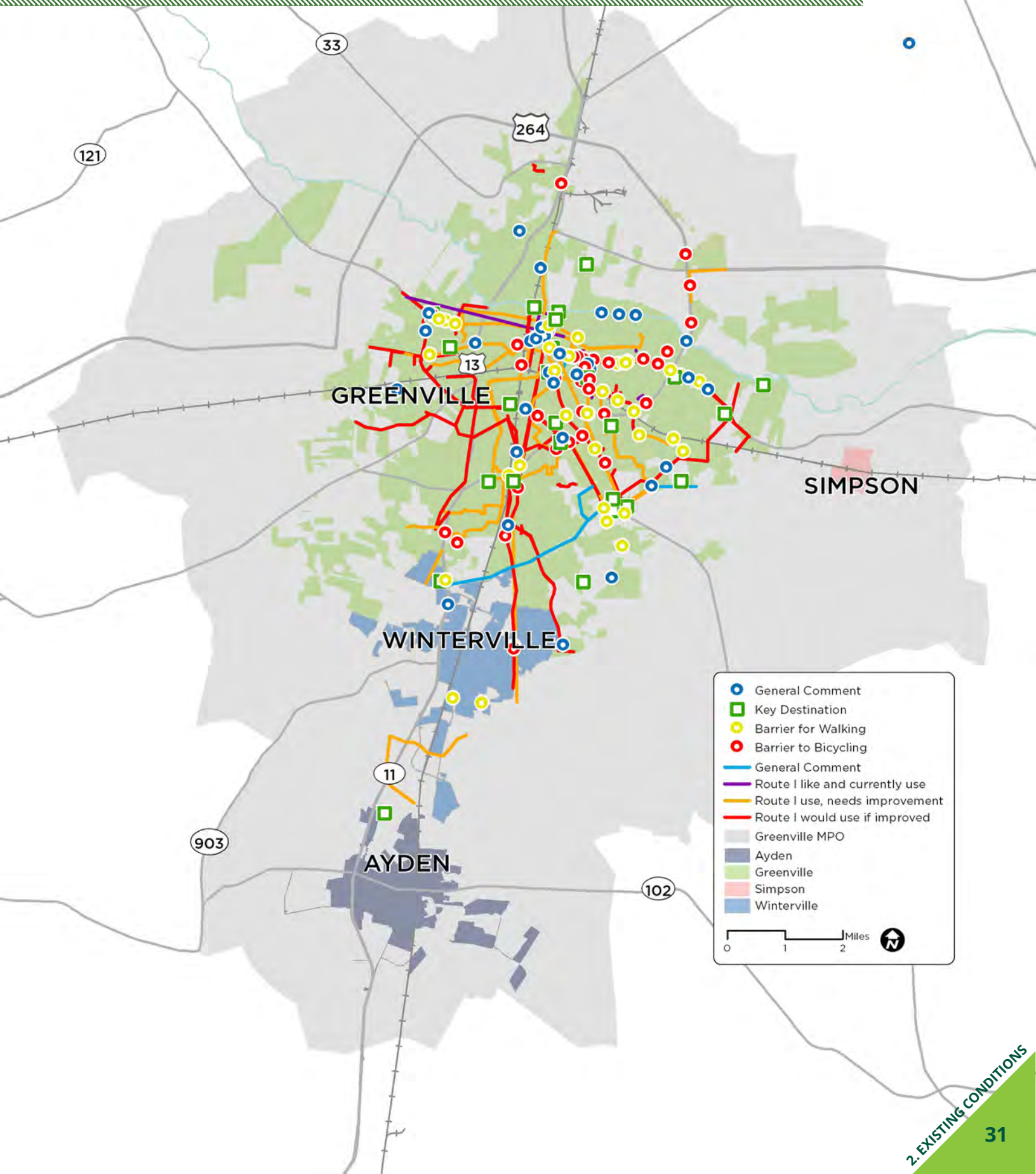
- “Greenway from Dickinson Av to the river”
- “Funding for the final section of South Tar River Greenway Phase III should be a top priority”
- “Many students and faculty living in the apartment complexes in this area walk or bike to class/work at the ECU Health Science Campus and must cross this busy intersection each day. A crosswalk would make this intersection much safer and more pedestrian-friendly.”

Example Connectivity Comments:

- “The BAPC has voted to request that this rather roundabout north-south route, connecting Greenville Blvd/Evans to Uptown via the GMR Greenway Phase II and ECU Campus, be marked with signage once GMR Phase II opens. Variations are possible. Until we get meaningful separated infrastructure on Evans, a north-south signed route is a must.”

MAP 2.1 TYPES OF COMMENTS RECEIVED FROM PUBLIC

This map shows the main types of comments received on the online public input map & on maps at community outreach events (examples listed on previous page)



Overarching Themes from Public & Committee Input

These are some the key themes that emerged from the input received, highlighting the main opportunities and constraints for walking, bicycling, and trail development facing the Greater Greenville Area.

SAFETY: As is the case in many U.S. communities, the development patterns of the past half-century in the Greater Greenville Area created a strong network of roadways that are designed to carry high volumes of automobiles. One unintended consequence of this is the way in which these same roadways serve as barriers to walking and bicycling. They not only serve as a barrier to safely traveling by bike or on foot *along* these roadways, but even just *crossing* them safely can be problematic. The names of these higher-volume and higher-speed “barrier roadways” surfaced in the different forms of input received. The corridors most often mentioned include the following (listed alphabetically and mapped on the following page):

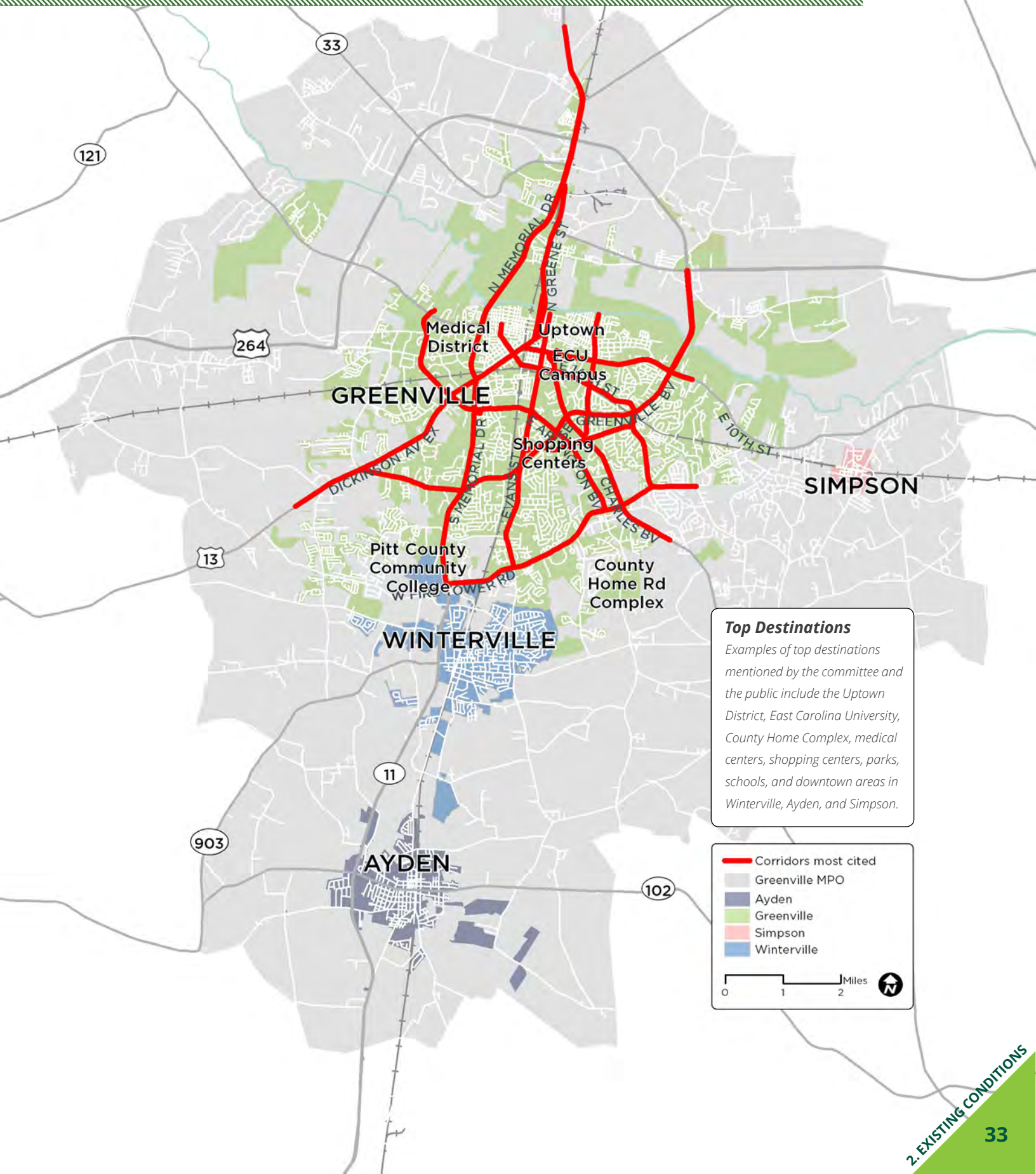
- **10th Street**
- **14th Street**
- **Arlington Boulevard**
- **Charles Boulevard**
- **Dickenson Avenue**
- **Elm Street**
- **Evans Street**
- **Greene Street**
- **Greenville Boulevard**
- **Fire Tower Road**
- **Memorial Drive**

Connectivity: Another result of the “barrier roadways” is the space left in-between them. Most of that space is in the form of residential neighborhoods, with streets that are relatively safe for walking and bicycling. Most of the streets in these neighborhoods offer some level of connectivity, so long as one does not have to cross a major roadway. These “islands of connectivity” between the barrier roadways were discussed during committee meetings, and are visible in **Maps 2.7 and 2.9**. Discussion centered around how best to provide connectivity between the residential areas and destinations, and how and where to cross busier roadways.

Quality of Life: The Greater Greenville Area has many traits that are well-suited for a successful active transportation system. Bicycling and walking are potentially more feasible in Greenville than in many parts of the country, with its relatively flat terrain, the absence of harsh winters, and the close proximity of major destinations such as Uptown Greenville, the Medical District, and the ECU Campus. Even destinations in Winterville, Ayden, Simpson, and Pitt County are close enough together to be connected by a regional network of bikeways and greenways. However, in order to capitalize on these traits, the safety issues associated with walking and bicycling for even short trips must be addressed. Many respondents to the comment form expressed that they enjoy being on greenways (even though there are few of them), and that the area has a lot to offer in terms of quality of life. But they also said they wish it were safer and more enjoyable to walk and bike in their community. This sentiment was echoed by the steering committee, many of whom have visited or lived in more bikable and walkable communities in the past, and who can see the potential for increasing quality of life by improving conditions for walking and bicycling.

MAP 2.2 ROADWAYS MOST MENTIONED IN INPUT RECEIVED

As “barrier roadways”, these corridors represent some of the region’s biggest challenges to connectivity and safety for those going on foot, by bike, and by trail.



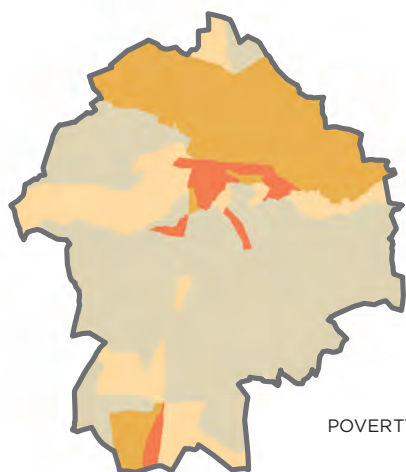
Existing Conditions Analysis

Demographic & Equity Analysis

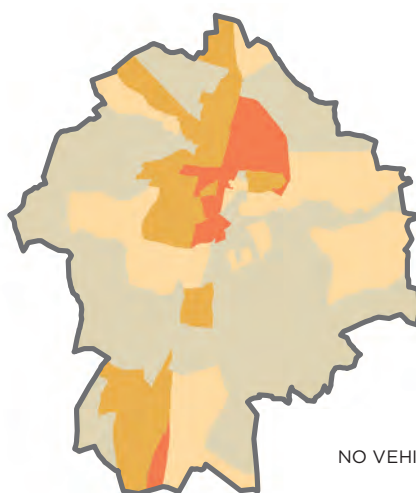
An equity analysis was conducted by mapping data sets from the US Census Bureau. This was done for the Greater Greenville Area, geographically defined for this plan as the study area of the Greenville Urban Area Metropolitan Planning Organization (GUAMPO). The following data sets were mapped as part of this process (shown below):

- Households living below or near the poverty line
- Households with no vehicle available
- Non-white populations
- Populations with limited English proficiency
- Populations with no high school diploma
- Children and senior citizens

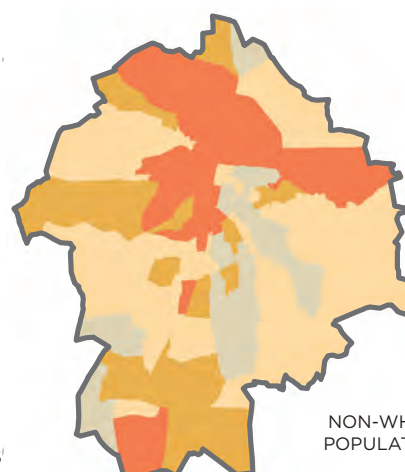
The maps show a range of colors from dark to light, with darker colors representing higher relative concentrations of the households and populations listed in the data sets above. **Map 2.3 Equity Analysis** (opposite page), combines all six of these demographic factors into a single map. This map can be used as one of several analysis tools, to see where there may be a greater need for the allocation of future bicycle and pedestrian facilities and improvements. Other analysis tools and factors include measures of safety, such as examining bicycle and pedestrian crash history, and measures of connectivity, based on roadway corridor conditions and existing facilities.



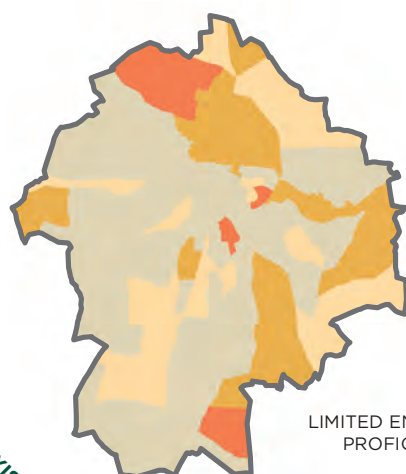
POVERTY STATUS



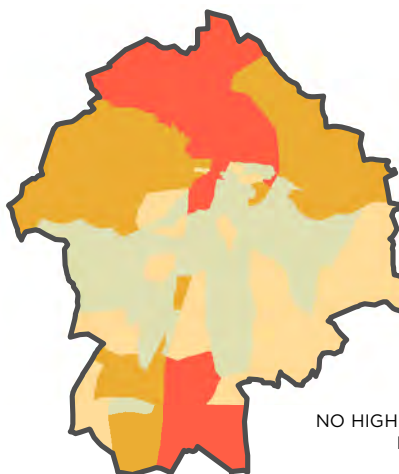
NO VEHICLE ACCESS



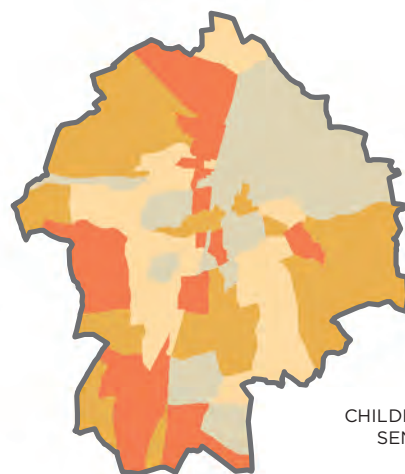
NON-WHITE
POPULATION



LIMITED ENGLISH
PROFICIENCY



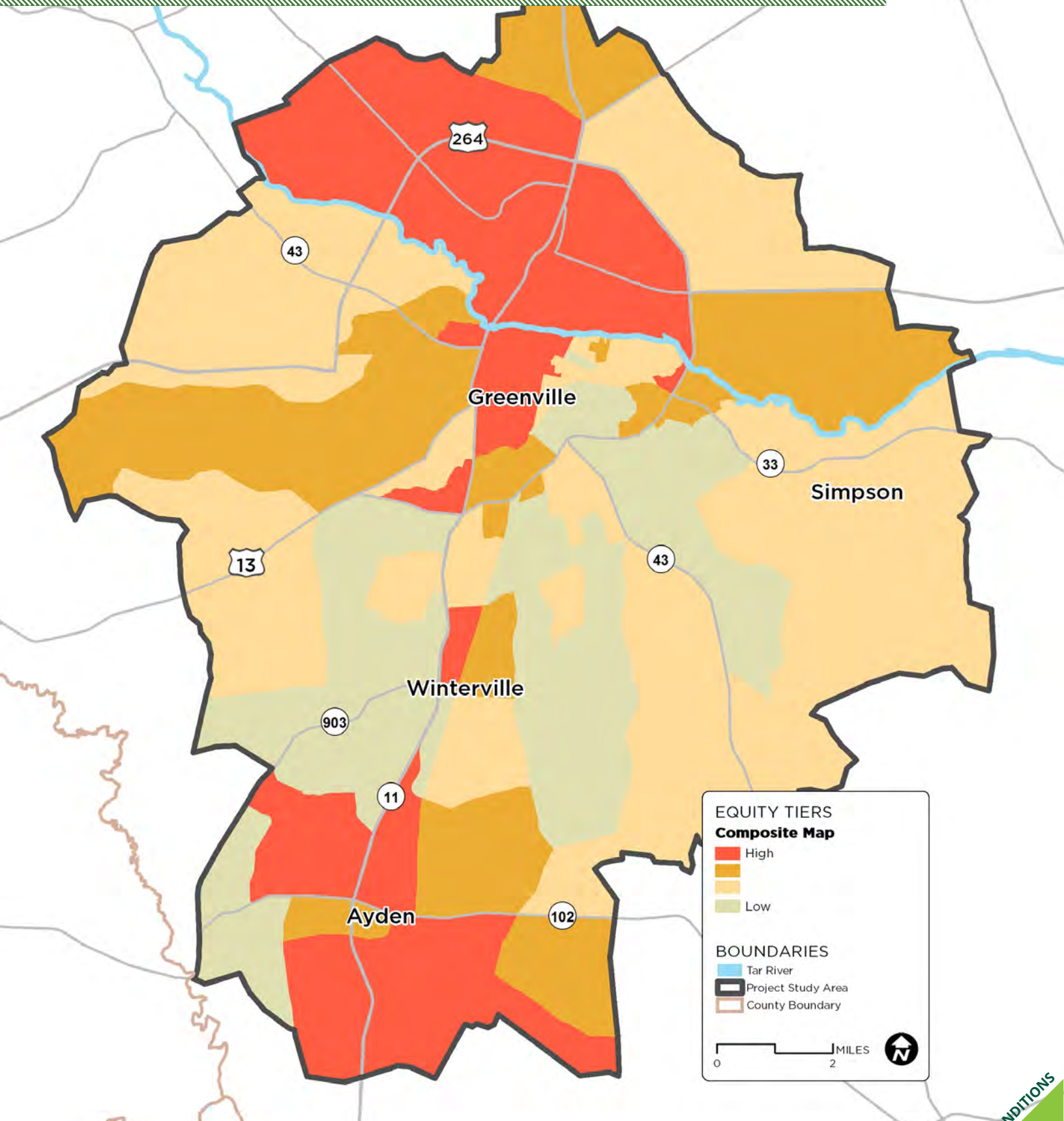
NO HIGH SCHOOL
DIPLOMA



CHILDREN &
SENIORS

MAP 2.3 EQUITY ANALYSIS

This map combines six demographic factors, showing where there may be a greater need for the allocation of future bicycle and pedestrian facilities and improvements.



Bicycle & Pedestrian Crash Analysis

92 CRASHES IN GREENVILLE INVOLVING A BICYCLIST OR PEDESTRIAN *IN 2016 ALONE*

Of the 92 people involved in crashes, 5 people were killed and 37 people were disabled.

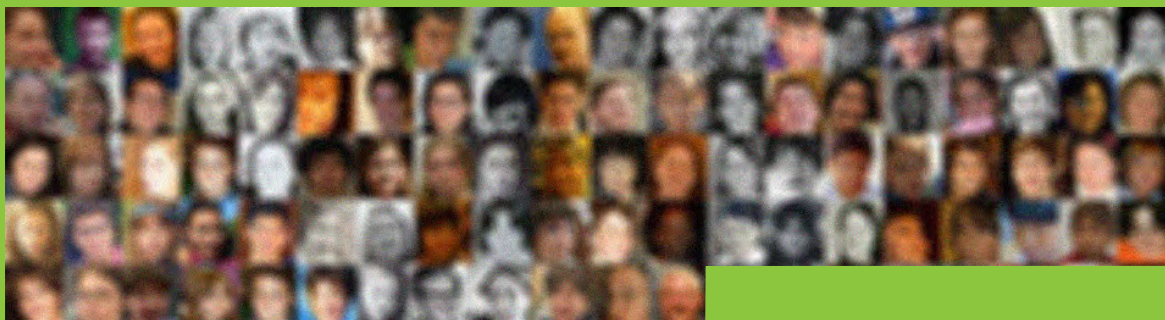


Image above for illustration only, to humanize the statistics; these are not the actual people involved in the crashes. Source for 2016 crash data: Greenville NC Police Department.

Data Collection: Data for all reported crashes that involved a bicyclist or a pedestrian in the Greenville Urban Area MPO were collected from the North Carolina Department of Transportation (NCDOT). The data covers the most recent 5-year reporting period available, which is 2009 through 2013. Additional reported crashes from the 2014-2016 period were also collected from the City of Greenville Police Department, and are also included in the analysis.

The High Injury Network Map (Map 2.4, opposite page) was created by first mapping the reported bicycle and pedestrian crash locations, and then determining which roadways had the most reported crashes. The map shows roadways with a range of cool to warm colors, with warmer colors indicating higher frequency of reported crashes. The roadways listed at right make up the higher injury roadways within the network.

The High Injury Network & Equity Overlay Map (Map 2.5, page 38) shows how these high injury corridors match up with the levels of need identified in the Equity Analysis. The map reveals that about 50% of the high injury streets fall within areas that also potentially have the highest levels of need (the darker orange/red areas on the map,

HIGH CRASH CORRIDORS (3 TO 6 REPORTED CRASHES)

- E 1st Street
- E 4th Street
- Arlington Boulevard
- Charles Boulevard
- College Hill Drive
- Evans Street
- Greenville Boulevard
- US 264/Martin Luther King Jr Highway
- Mumford Road
- Stantonsburg Road

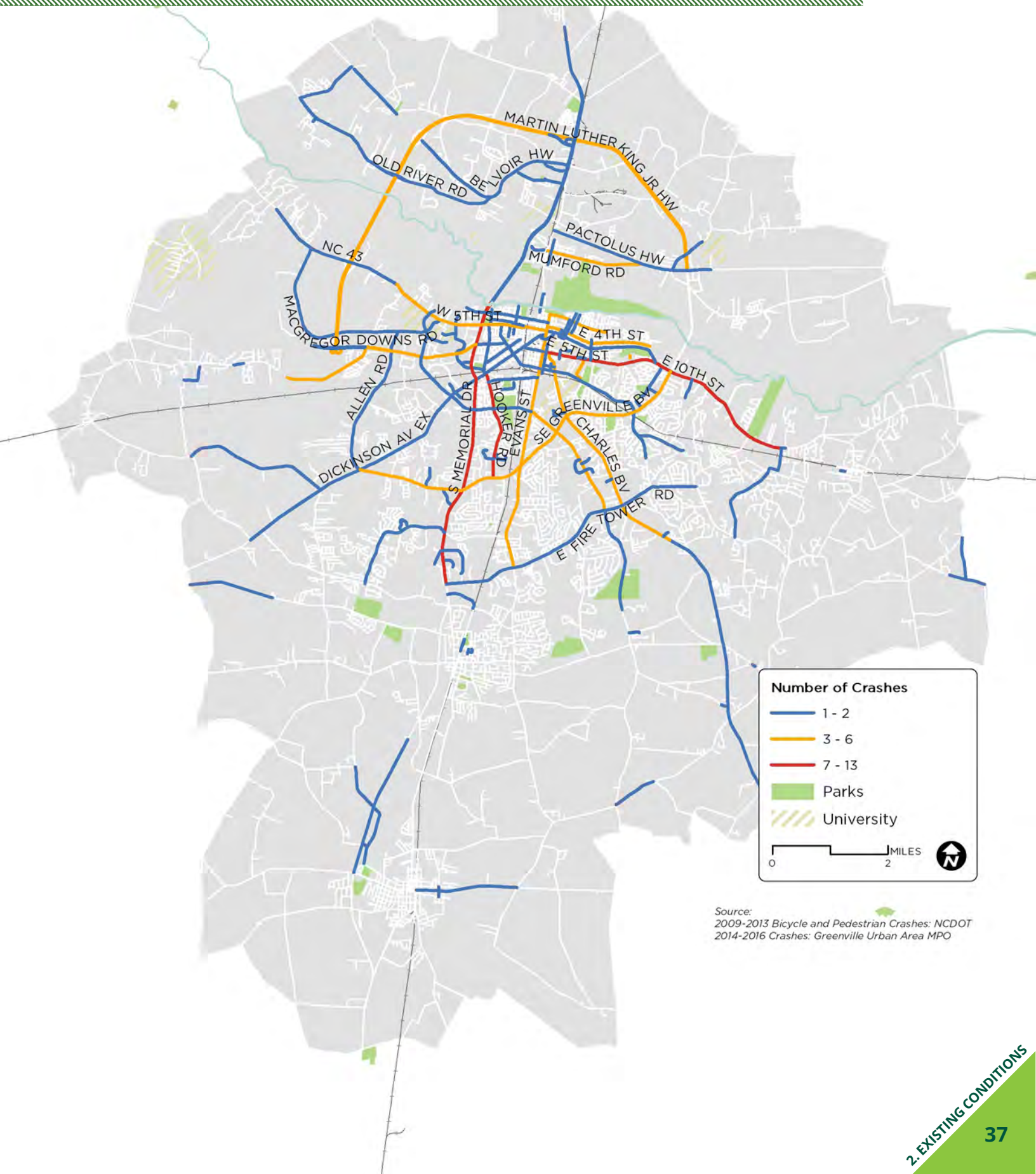
HIGHEST CRASH CORRIDORS (7 TO 13 REPORTED CRASHES)

- E 10th Street
- Hooker Road
- S Memorial Drive

particularly areas north of the Tar River, and in east central Greenville). This information can be used when evaluating potential project priorities. Ideally, all of these corridors would be improved for bicycle and pedestrian safety. Other options include identifying and improving viable alternative routes to these corridors (including greenway trails and connections along neighborhood streets), especially routes that can serve the same destinations along and between these busier roadway corridors.

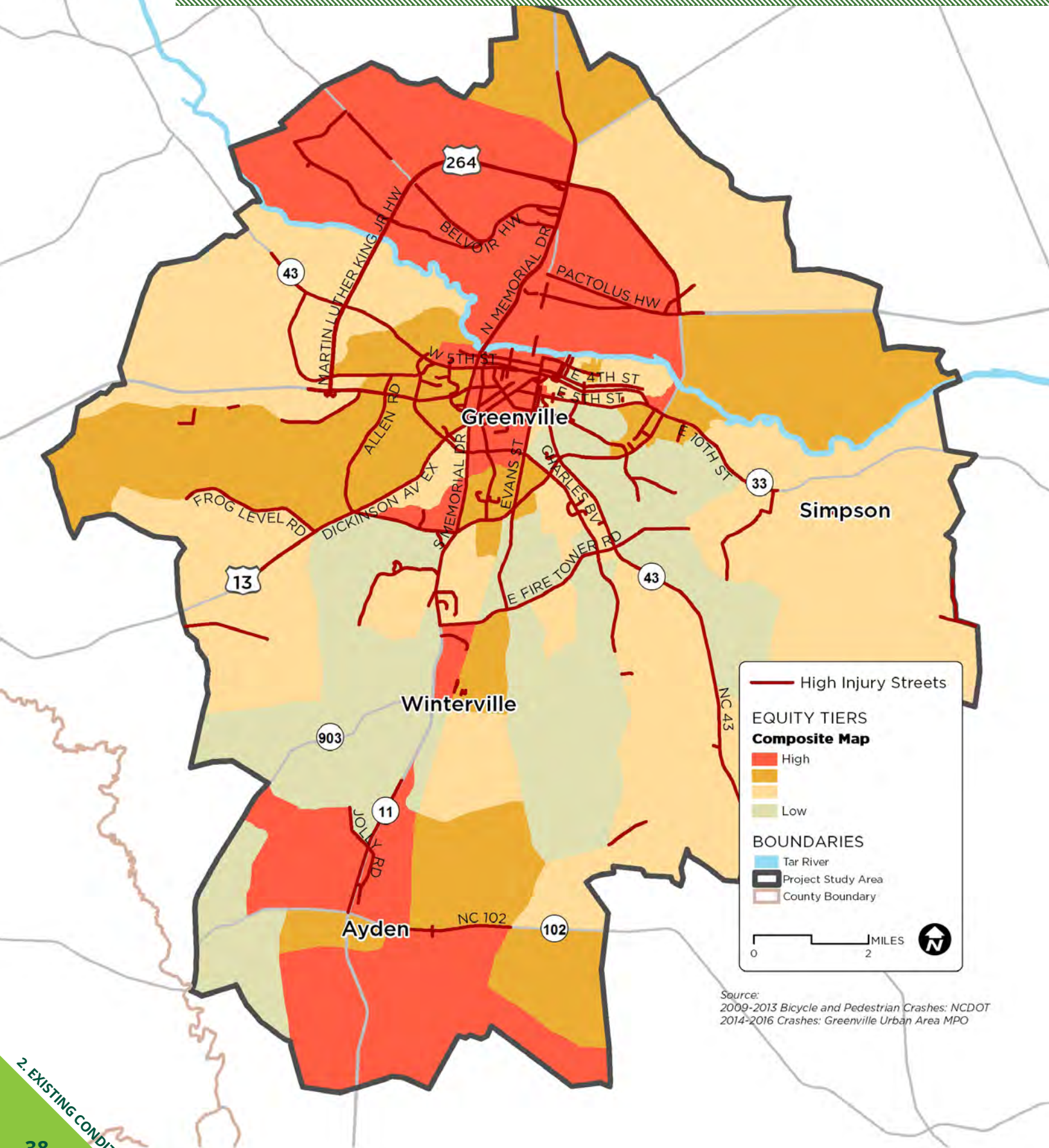
MAP 2.4 HIGH INJURY NETWORK

All fatal and severe injury pedestrian and bicycle crashes occur on just 15% of streets.



MAP 2.5 HIGH INJURY NETWORK & EQUITY OVERLAY

77% of the high injury streets fall within the most vulnerable communities.



Existing Bicycling Conditions

The Greater Greenville Area is generally not bicycle-friendly. There is a lack of a connected, bicycle facility system throughout the region.

The City of Greenville has taken several proactive steps to become more bicycle-friendly by installing bicycle lanes and bicycle racks around the downtown area. Greenville also has provided a number of trails and side paths throughout the city for recreation and transportation. These facilities provide a good foundation for a bicycle facility network throughout the city. Currently, downtown Greenville and neighborhoods close to the East Carolina University campus are generally easier for bicycling due to lower traffic speeds and street connectivity.

There are very limited bicycle facilities outside the City of Greenville. The only identified bicycle facilities are a few roadways with paved shoulders but these are often unconnected and located on busy roadways.

Existing Bicycle Facilities: There are various bicycle facilities throughout the Greenville MPO, mostly in the City of Greenville, with more in various stages of funding and design. A list of these facilities is below and shown on **Map 2.6**, page 41.



Bicycle facilities provide important connections for recreation and transportation in Greenville, but even where they exist, some are in need of repair and restriping.

Above: A fading section of bicycle lanes on E 5th Street (image from Google Streetview).

Existing Bicycle Routes: State Bicycle Route 2 (Mountains to Sea Route) serves as the main artery of the North Carolina bicycle route system, bisecting the state west to east, connecting many of North Carolina's larger cities. The original route went east-west through Greenville, north of the Tar River. Updates to this route were proposed in the 2012 WalkBikeNC Plan (the statewide pedestrian and bicycle plan), and NCDOT is in the process of making those updates official. The updates would bring portions of the route through the downtowns of both Greenville and Winterville.

The East Coast Greenway (ECG) is also planned to go through Greenville. The ECG is a developing trail system, linking many of the major cities of the Eastern Seaboard between Canada and Key West, FL. Over 30 percent of the route is already on traffic-free greenways. The planned section for Greenville goes from River Park North to points east along the Tar River (shown in Map 3.1).

Mileage/Amount per Existing Facility Type

- 39 Bicycle Racks
- 7.1 Miles of Bicycle Lanes
- 9.0 Miles of Greenways/Trails
- 0.7 Miles of Side Paths
- 25 Miles of Paved Shoulders

In addition, there are numerous roadways throughout the region that feature a wide outside lane. These provide opportunities for the implementation of bike lanes through simple striping rather than roadway widening.

Physical Barriers to Bicycling: In addition to a deficiency of on-street facilities for bicycling, a number of physical barriers may also deter people from venturing out on a bicycle. The most significant barriers include the following, many of which echo other aspects of this plan's analysis:

- **Connectivity issues:** There is a lack of connectivity between existing facilities and destinations.
- **High-volume, high-speed roadways:** There are many wide high-volume commercial roadways throughout the MPO with high speeds and little shoulder where bicyclists are not safe. Crossing these roadways by bicycle is also difficult and sometimes dangerous. Many of these roadways also have a high frequency of driveways and parking lot curb-cuts that present repeated hazards to cyclists as the automobile crosses the cyclists' paths of travel.
- **Narrow roadways and lanes:** There are also many roadways throughout the MPO that are too narrow for bicyclists to travel safely. These roads have little or no shoulder and have relatively high vehicle travel speeds which pose multiple hazards for bicyclists.



High speed and high volume roadways present the greatest challenges for bicyclists in Greenville.

Above: The intersection of Arlington Boulevard and Greenville Boulevard (image from Google Streetview).

- **Railroad crossing access issues:** There is poor access across railroad tracks. At-grade crossings are the most common type of crossing throughout the Greenville MPO and many of these are dangerous for bicyclists because of the uneven surfaces with the roadway and tracks (not to mention the hazards they cause for people with strollers, wheelchairs, or walkers).

Bicyclist Behavior: The areas of highest bicycle activity observed during fieldwork included:

- Neighborhoods near W 5th Street, W 14th Street, Dickinson Avenue and Memorial Drive
- Neighborhoods near the Uptown District & ECU Campus
- Downtown areas of Ayden or Winterville

The majority of bicyclists were seen biking against traffic (on the wrong side of the road) or on the sidewalk. Also, the majority of bicyclists were not wearing helmets. This is likely due to a lack of education and a perceived notion that it is safer to bike against traffic or on a sidewalk.

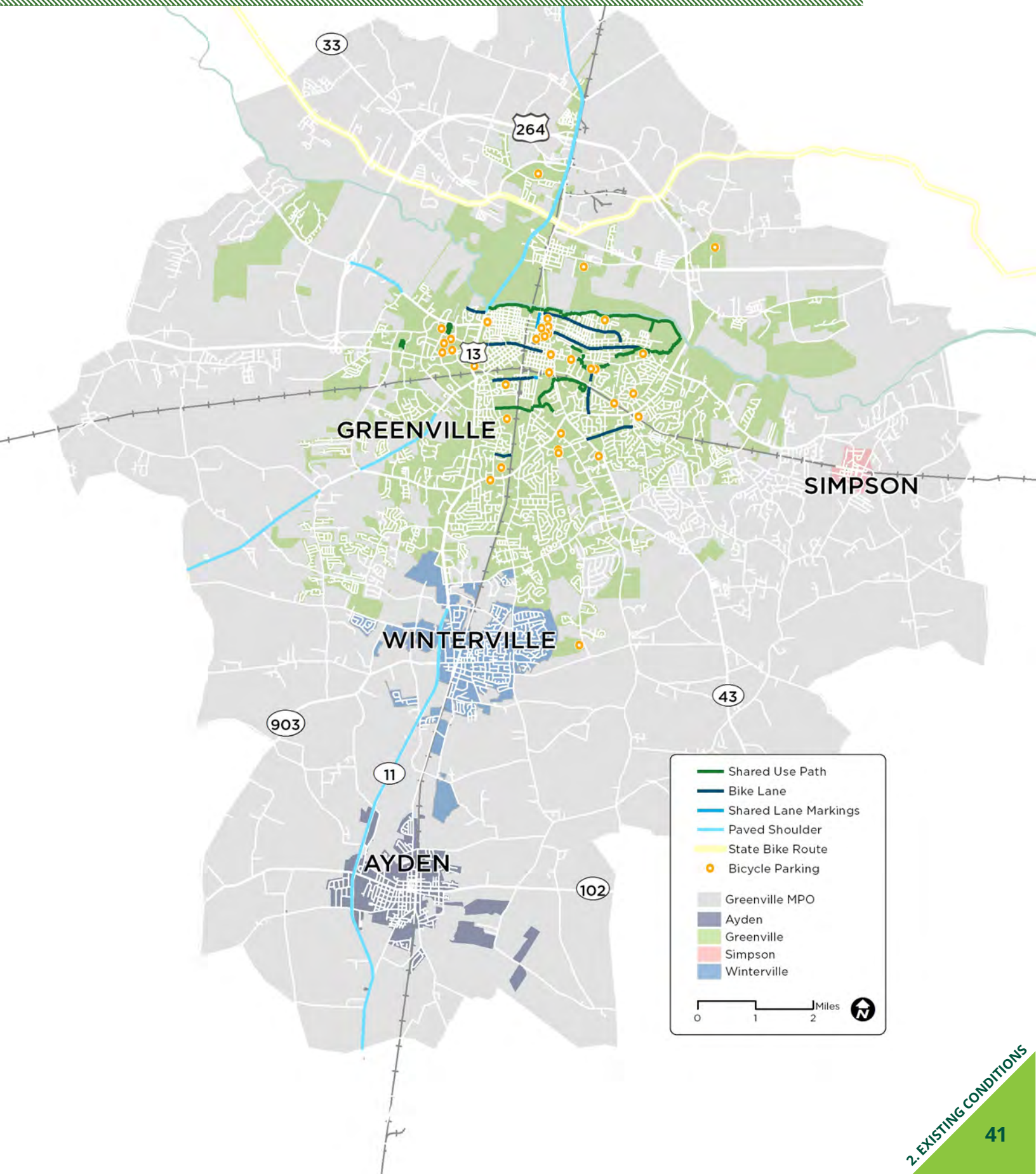


Many bicyclists in Greenville are more comfortable on sidewalks along busier roadways, where it is currently illegal to ride.

Above: A bicyclist riding along W 14th Street.

MAP 2.6 EXISTING BICYCLE FACILITIES

All existing bike lanes, shared-lane markings, and shared use paths (greenways) are located in the central part of the City of Greenville.



Level of Traffic Stress & Bicycle Connectivity

The methods used for the Level of Traffic Stress (LTS) Analysis were adapted from the Mineta Transportation Institute (MTI) report, *Low-Stress Bicycling and Network Connectivity*. **The approach used in this plan takes into account factors such as posted speed limit, the number of travel lanes, and the presence of bicycle lanes, as a proxy for bicyclist comfort level.** Road segments are then classified into one of four levels of traffic stress based on these factors. All four LTS definitions are listed at right, but LTS 1 and 2 are the most relevant, as they are used to define the “connectivity clusters” shown in **Map 2.7 Lower-Stress Clusters of Bicycle Connectivity (page 43)**.

On Map 2.7, each color represents a distinct cluster of roads where a bicyclist could travel with relative comfort, without using any link or crossing with a level of stress higher than LTS 2. The bicyclist would not be able to access another road network cluster (shown in a different color) without using a high-stress segment or crossing. Road segments classified as LTS 3 and 4 are deemphasized on the map, shown in white.

The downtown areas of Greenville, Winterville, and Ayden are each mostly connected at a low level of stress because of many roadways with lower posted speeds and investments that have been made to date. This is also true for several pockets of residential areas in southeastern Greenville.

Still, some of the connected clusters shown do not account for distance traveled. For example, the barrier roadways that separate the clusters may cause bicyclists to go far out of their way in order to make use of safe connections. More likely, they will opt for shorter, but more potentially dangerous routes.

For the rest of the study area, reduced road connectivity and higher-speed roads result in many separate islands of low stress connectivity. Bicyclists will not be able to travel far in these areas without making a high-stress crossing or using a high-stress segment.

LEVELS OF TRAFFIC STRESS (LTS) DEFINITIONS

LTS 1: Presenting little traffic stress and demanding little attention from cyclists, and attractive enough for a relaxing bike ride.

- *Suitable for almost all cyclists, including children trained to safely cross intersections that are easy to approach and cross. On links, cyclists are either physically separated from traffic, or are in an exclusive bicycling zone next to a slow traffic stream with no more than one lane per direction, or are on a shared road where they interact with only occasional motor vehicles with a low speed differential. Cyclists ride have ample operating space when riding alongside a parking lane.*

LTS 2: Presenting little traffic stress and therefore suitable to most adult cyclists but demanding more attention than might be expected from children.

- *On links, cyclists are either physically separated from traffic, or are in an exclusive bicycling zone next to a well-confined traffic stream with adequate clearance from a parking lane, or are on a shared road where they interact with only occasional motor vehicles with a low speed differential. Where a bike lane lies between a through lane and a right-turn lane, it is configured to give cyclists unambiguous priority where cars cross the bike lane and to keep car speed in the right-turn lane comparable to bicycling speeds. Crossings are not difficult for most adults.*

LTS 3: More traffic stress than LTS 2, yet markedly less than the stress of integrating with multilane traffic, and therefore welcome to many people currently riding bikes in American cities.

- *Offering cyclists either an exclusive riding zone (lane) next to moderate-speed traffic or shared lanes on streets that are not multilane and have moderately low speed. Crossings may be longer or across higher-speed roads than allowed by LTS 2, but are still considered acceptably safe to most adult pedestrians.*

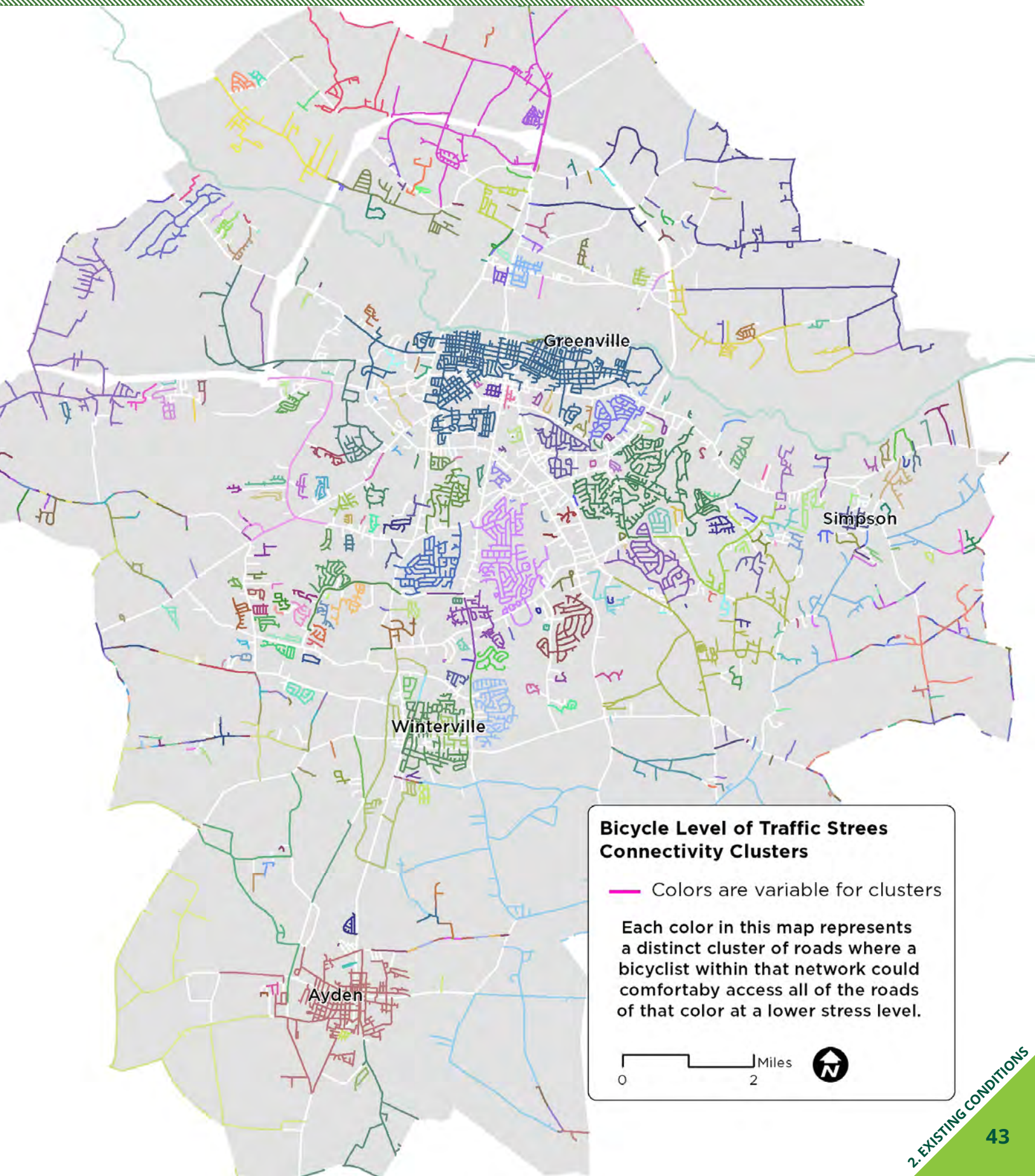
LTS 4: A level of stress beyond LTS3.

- *Only acceptable to “strong and fearless” bicyclists, who will tolerate riding on roadways with higher motorized traffic volumes and speeds.*

Source: Adapted from the Mineta Transportation Institute, Report 11-19

MAP 2.7 LOWER-STRESS CLUSTERS OF BICYCLE CONNECTIVITY

Each color represents a distinct cluster of roads where a bicyclist could travel with relative comfort (LTS 1 & 2), without using more difficult links or crossings.



Existing Pedestrian Conditions

The Greenville Area features some areas that are quite pedestrian-friendly. There are 168 miles of sidewalks in the MPO, mostly confined within the municipalities of Greenville, Winterville, and Ayden.

On any given day, hundreds of pedestrians can be observed throughout the Greater Greenville Area, especially near Downtown, near ECU, and in lower-income neighborhoods.

Sidewalks and crosswalks have existed in the Downtown areas in many cases since the early history of the cities. While some neighborhoods surrounding the Downtown areas have adequate pedestrian facilities, others, unfortunately contain none, leaving many areas disconnected from town cores, schools, parks, and businesses.

In recent years, area municipalities have taken proactive steps towards becoming more pedestrian-friendly. The City of Greenville has installed dozens of countdown signals and new sidewalks, and has an adopted greenway plan. In addition, the Greater Greenville Area has a number of trails and sidepaths for recreation and transportation. These facilities provide a good foundation for a more comprehensive pedestrian network throughout the region. Winterville recently adopted a pedestrian plan and is currently working on implementing the recommendations. Additionally, Ayden is actively constructing new sidewalks and crossings at the time of this study.

However, there are still many key gaps in the existing pedestrian network within the entire MPO. This lack of connectivity makes pedestrian travel difficult. The majority of intersections, despite having pedestrian accommodations, lack complete pedestrian solutions (see the Intersection Inventory in Appendix C).

Highlights of existing pedestrian conditions are presented below with recommendations in Chapter 3.

Existing Pedestrian Facilities: The majority of pedestrian facilities are found in the downtown cores and in scattered suburban neighborhoods. A table of these facility mileage totals is below and **Map 2.8** shows these facilities.

Existing Facility Types:

168	Miles of Sidewalk
9.0	Miles of Greenways/Trails
0.7	Miles of Side Path
25	Miles of Paved Shoulder

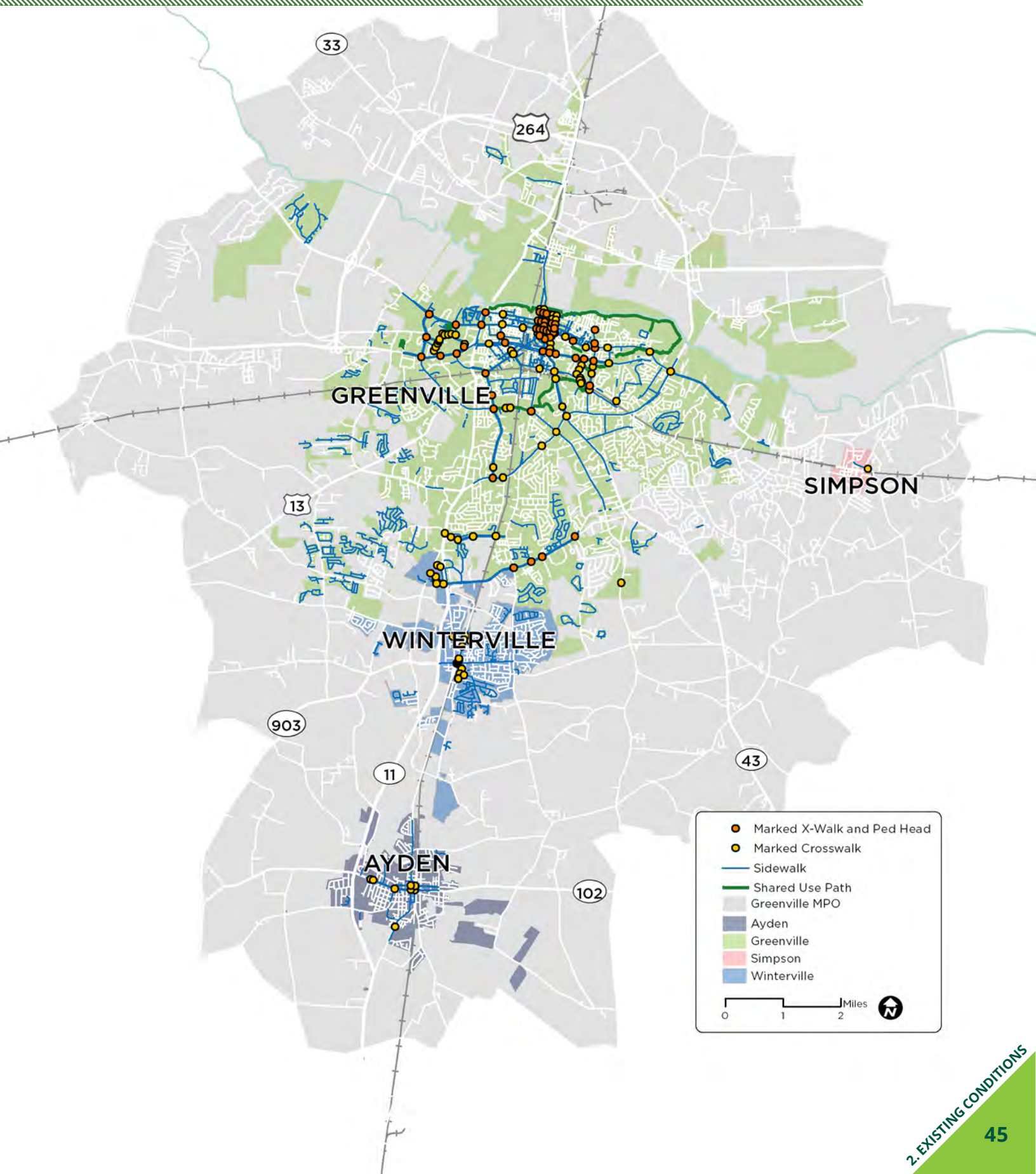
In addition to linear facilities, there are many crossing facilities found at intersections and at midblocks. Marked crosswalks, curb ramps, and signalization are common across the MPO but are largely inconsistent from crossing to crossing.

Many areas of the Greenville Urban Area MPO feature high-quality pedestrian environments. These include the following:

- Greenville Downtown:** Due to the grid road network, short blocks, low traffic speeds, and existing sidewalks/crosswalks, the Downtown is a safe, comfortable environment for pedestrians. With many sections of on-street parking, curb extensions are commonplace creating shorter crossing distances for pedestrians and serving as traffic calming devices. The Town Commons Park and Greenway bridge provide excellent pedestrian-friendly destinations. The highest concentration of marked crosswalks and pedestrian signalization is found in Downtown Greenville (See Map 2.8).

MAP 2.8 EXISTING PEDESTRIAN FACILITIES

Existing sidewalks and crosswalks are concentrated in downtown areas and some subdivision areas, with notable gaps between the small networks of sidewalk.





ECU provides a high quality pedestrian network within its campus. Above: Pedestrians walking along Faculty Way.

- **ECU and adjacent roadways** (particularly area bordered by 5th Street, Cotanche Street, 10th Street, and Maple Street): Numerous sidewalks, high-visibility crosswalks, and pedestrian signalizations are found along bordering streets and within campus. This is critical as hundreds of student pedestrians walk and bike across campus and adjacent roadways each day.
- **Downtown Ayden:** With building fronts accessible from the sidewalk, Downtown Ayden has a walkable small-town feel. At the major intersections, marked crosswalks are textured and highly-visible, making the designated walkways very clear.

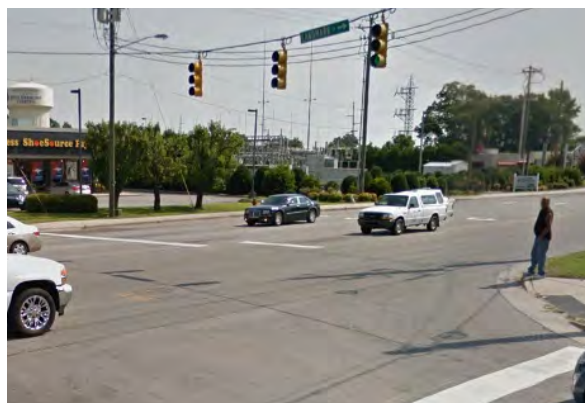
Physical Barriers to Walking

In addition to a deficiency of facilities for walking, a number of physical barriers may also deter people from venturing out on foot. An analysis of these barriers was developed by the consulting team and by input from the public through a “Community Walk” website. The most significant barriers include the following:

- **Sidewalk connectivity issues** (Maps 2.8-2.10 portray key gaps in the sidewalk system): There

is a lack of sidewalk connectivity between existing facilities and destinations, including major arterial and collector roadways. Many sidewalks are incomplete, with gaps, and force pedestrians to walk in unsafe conditions along-side busy roadways. In many cases, worn foot paths can be found indicating the presence of pedestrians. Example key roadways that lack sidewalk along long stretches include:

- Memorial Dr
- Red Banks Rd.
- Evans St. (from 14th St. to Fire Tower Rd.)
- Charles Blvd (from Greenville Blvd. to Fire Tower Rd)
- 14th Street (from ECU to Fire Tower Rd.)
- Greenville Blvd. (throughout town, sidewalk mostly just on one side)
- Dickinson Blvd. (from Hooker Rd. to Greenville Blvd.)
- **High-volume, high speed roadways:** There are numerous multi-lane, high-volume, high-speed roadways that are difficult to cross and navigate safely for pedestrians. These roads include Memorial Dr/NC11, 10th St, Greenville Blvd, Charles Blvd, Dickinson Ave, Arlington Blvd, Evans Street, Stantonsburg Road, and Fire Tower Road.



Intersections with high traffic volumes are problematic (and sometimes dangerous) for pedestrians, especially when there are no crossing facilities. Above: A pedestrian waits to cross Greenville Boulevard (image from Google Streetview).

- **Inadequate crossing facilities:**

- Most intersections do not feature high-visibility marked crosswalks (Most crosswalks are standard, parallel white stripes).
- Curb ramps are often incomplete or inadequate and quite variable within each intersection.
- The majority of key intersections do not feature pedestrian countdown signals (several do have signalization but without countdowns)
- Median refuge islands are not commonplace although there are opportunities for their provision, especially in three or five lane roadway cross sections.
- Marked crosswalks near schools often lack curb ramps, in-roadway signage, high-visibility marked crosswalks, and bulbouts (which would be particularly useful with on-street parking).
- Where sidewalks exist along arterials and collectors, marked crosswalks and curb ramps are often missing crossing intersecting minor roadways.

- **Railroad crossing access issues:** There is poor access across railroad tracks. At-grade crossings are the most common type of crossing throughout the Greenville MPO and many of these are dangerous for pedestrians because of the uneven surfaces with the roadway and tracks (not to mention the hazards they cause for people with strollers and wheelchairs).

- **Driveway access management:** High frequencies and sizes of driveways and parking lot curb-cuts present repeated hazards to pedestrians as the automobile crosses the pedestrians' path of travel. This is a common issue along



When each individual site has its own driveway and parking area, it creates repeated hazards for pedestrians. Above: Driveways for individual parking areas along

S Charles Boulevard.

major commercial arterial roadways including the following:

- Dickinson Avenue from Wilson Street to 10th Street
- 10th Street from Dickinson Avenue to Evans Street
- All major arterial commercial sections (Memorial, Greenville, Stantonsburg, Arlington)
- **Roadways currently designed for automobile only:** Many roads were designed around the automobile and need to be redesigned to become more pedestrian friendly. Adding traffic calming measures, improved crossings, planted medians, sidewalks, and shade trees would help reduce speeding and the hazards that speeding presents to pedestrians and drivers.
- **Non-pedestrian friendly bus stops:** Many bus stops feature only a sign with no sidewalk, shelter, or bench. While some stops did feature all of the above, these conditions should be consistent to create safe, accessible, and functional pedestrian spaces.

- **Sidewalk maintenance issues:** Many sidewalks are cracked, overgrown and/or are no longer level. This is a significant issue along stretches of 10th Street, Dickinson Avenue, and 14th Street near Downtown Greenville.

In addition to these barriers, a number of roadways and intersections were identified as needing significant pedestrian improvements. Without sidewalk and adequate crossing treatments, these roadways and intersections are barriers to walking. The Top roadway corridors are shown on Map 2.2

Pedestrian Behavior

Pedestrian activity is significant throughout portions of the Greenville Urban Area MPO. The areas of highest pedestrian activity include lower-income areas (where walking or biking is a transportation necessity), West Fifth Street/West 14th Street/Dickinson Avenue/Memorial Drive area, the Downtown areas, and ECU.

Pedestrians were often seen crossing roads not in the designated marked crosswalk. This is due to the pedestrian's decision to take the shortest route and the pedestrian's false perception that it is safer to cross at another location.

Pedestrian Level of Service

The results of the Pedestrian Level of Service (PLOS) analysis can be seen on **Map 2.9**. Similar to the Bicycle LTS, this map was created by analyzing a variety of roadway characteristics, such as existing sidewalks, number of travel lanes, traffic volumes, and traffic speeds.

Each color shown on the map represents a different level of comfort for pedestrians under the current conditions. "Islands of connectivity" can be seen among the more comfortable conditions (shown



Some sidewalk are cracked, overgrown and/or are no longer level. Above: Sidewalk on Dickinson Avenue.

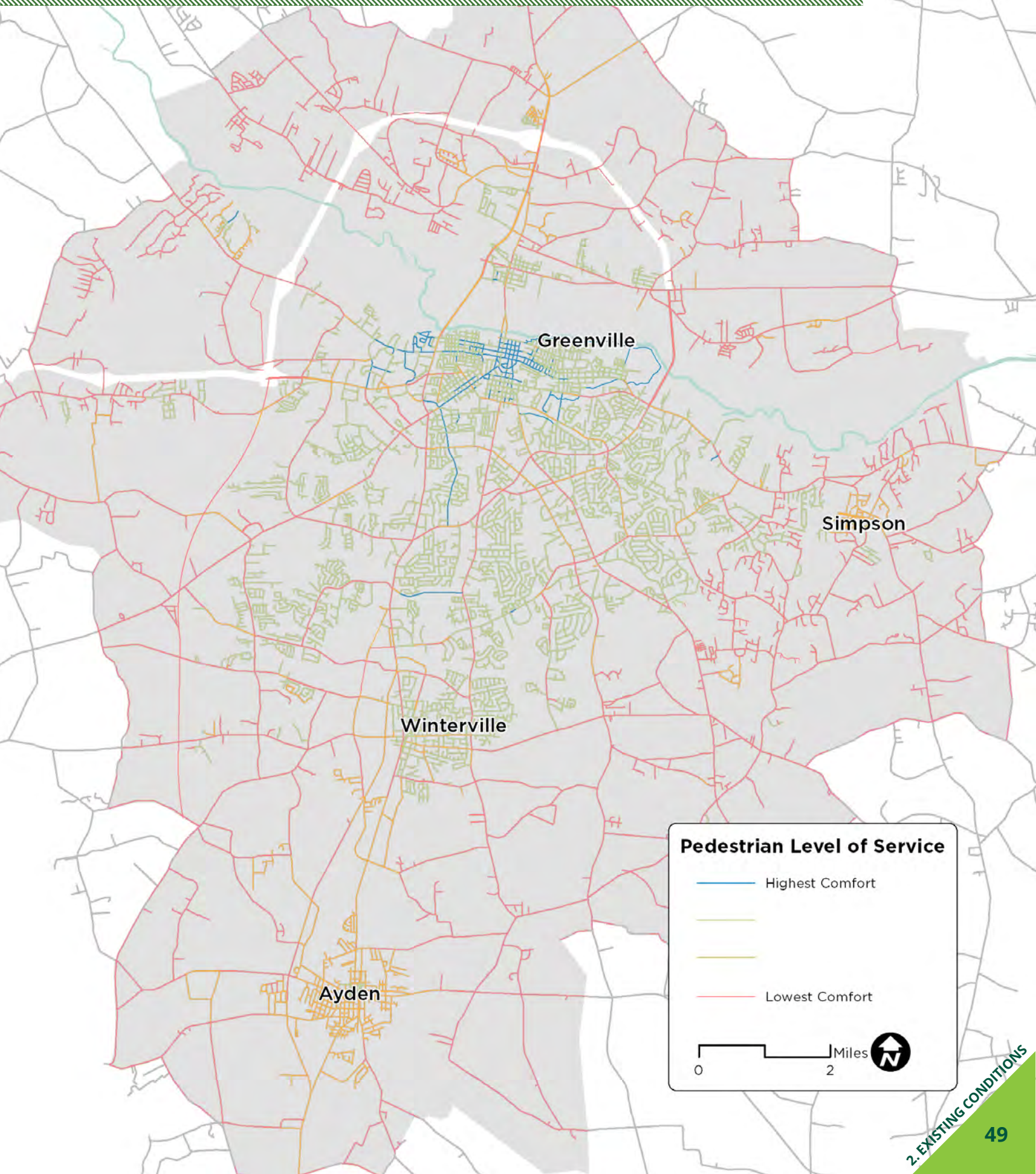


Some pedestrians choose not to use crosswalks even when they are nearby. Above: W 14th Ave and Chestnut Street.

in green & blue), bound by the less comfortable routes shown in red and orange. To a large degree, these "barrier" roadways match the ones seen and previously noted in the other analysis tools used in this planning process, in Maps 2.2, 2.4, and 2.7. This further supports the need for providing safe ways to walk along and across these major roadways.

MAP 2.9 PEDESTRIAN LEVEL OF SERVICE

Each color represents a different level of comfort for pedestrians under current conditions. Similar to the Bicycle LTS, "islands" of connectivity can be seen below (in green & blue).



Existing Greenway Trail Conditions

The total mileage for greenway trails in the study area nearly tripled since the 2011 Bicycle and Pedestrian Plan, going from just 3.3 miles to a total of nine miles in 2017 (with more underway).

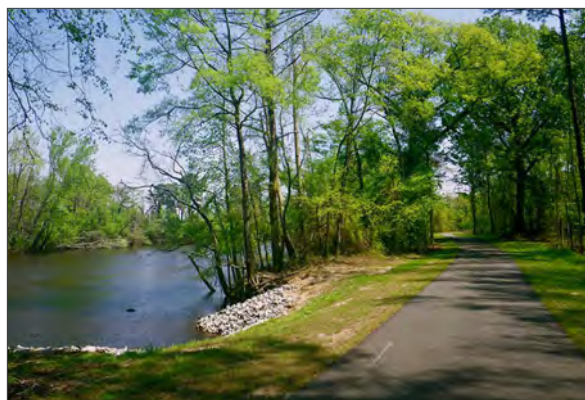
Even with the recent growth in greenway trails, when compared to other areas in North Carolina, there are not many greenway trails on the ground in the Greater Greenville Area. In fact, the only existing greenway trails are mostly concentrated in a relatively small area, bound by the Tar River to the north, Memorial Drive to the west, and Greenville Boulevard to the south and east.

The good news is (according to public comments received in the 2016-17 public comment form), people in this region love the few trails that they have, and they want more. There are many greenway trails proposed in past plans, most notably in the 2011 Bicycle and Pedestrian Plan, and in Pitt County's Greenways Plan. These and other past plans helped to inform the recommendations for trails that are highlighted in Chapters 3 and 4.

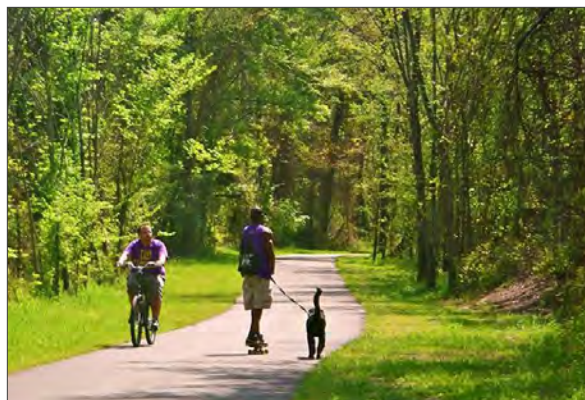
This region is also fortunate to have an excellent local non-profit focused on greenway advocacy and programming: The Friends of Greenville Greenways (FROGGS). FROGGS was founded in 2004, originating from the efforts of early advocates in the 1980s, and later by members of the former Greenville Greenways Committee (GGC). Today, FROGGS is led by a board of volunteers, and according to their mission, continues to “promote and elevate the quality of life for all citizens by maintaining existing greenways, planning expansions, and encouraging local communities and businesses to join in their advocacy for viable, environmentally conscious recreation and transportation opportunities.”



The Friends of Greenville Greenways (FROGGS) is a local non-profit that plays a critical role in the past, current, and future successes for greenways in the Greater Greenville Area . Photo from FROGGS.



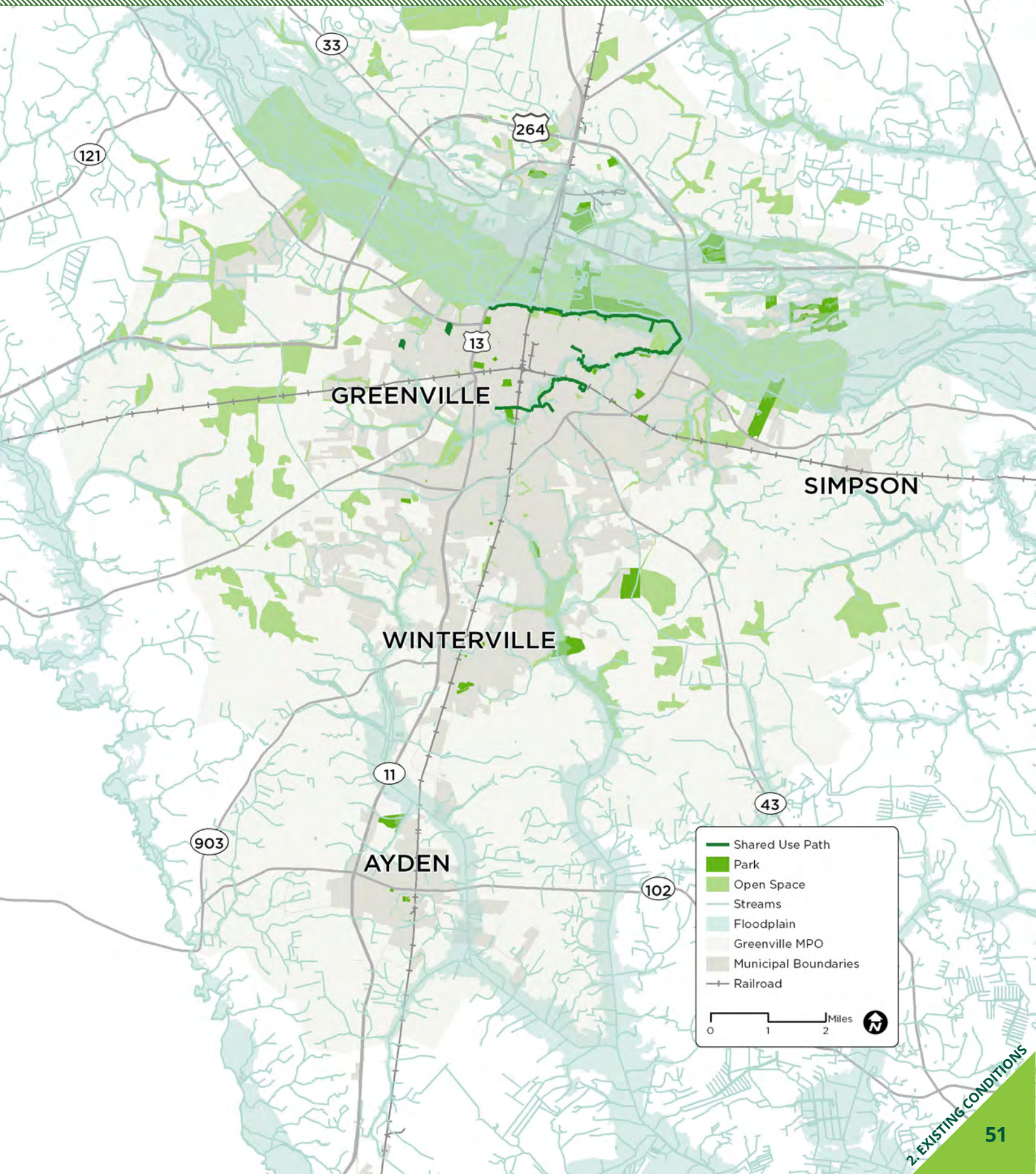
Beautiful sections of greenway trail were added in recent years. Above: South Tar River Greenway; photo from FROGGS.



Greenway trails accommodate multiple users, such as bicyclists, walkers, and runners. If you are lucky (and coordinated), you can also have your dog pull you on a skateboard! Photo from FROGGS.

MAP 2.10 EXISTING GREENWAY FACILITIES

Although there are few greenway trails on the ground today (a.k.a "shared use paths"), the system is growing, and is supported by local residents and advocacy groups.



Existing Plans, Programs, and Policies

Past Initiatives in the Greater Greenville Area Support Active Transportation

Relevant plans, programs and policies were reviewed in preparation of this plan. The recommendations in the chapters that follow build upon these efforts (listed on the opposite page). See Chapter 6 for more on the policy review and related policy recommendations.



This plan builds upon many past plans and recent efforts that relate to bicycling, walking, trails, health, transportation, recreation, and quality of life in the Greater Greenville Area.

RELATED PLANS & GUIDELINES

2011 Greenville Urban Area Bicycle and Pedestrian Master Plan
 Comprehensive Transportation Plan (Highway Map)
 2014-2040 Long Range Transportation Plan
 2012-2018 Metropolitan Transportation Improvement Program
 Horizons 2026, Greenville's Community Plan
 Greenville 2004 Greenway Master Plan
 Greenville Comprehensive Recreation and Parks Master Plan
 Greenville: Town Common Master Plan
 Greenville: Tar River Legacy Plan
 Greenville: Watershed Master Plans
 Winterville Comprehensive Pedestrian Plan
 Ayden 2009 Sidewalk Master Plan
 Pitt County Greenways Plan 2025
 Pitt County Comprehensive Land Use Plan 2030
 Pitt County Comprehensive Transportation Plan
 Pitt County Recreation and Parks Master Plan
 Alice F. Keene District Park Master Plan
 NCDOT Complete Streets Planning and Design Guidelines
 ECU Campus Bicycle and Pedestrian Plan
 Multiple FHWA, AASHTO & NACTO Guides

RELATED PROGRAMS & INITIATIVES

2013 Greenville Bike Map
 Greenville Bicycle and Pedestrian Commission
 Eastern Carolina Injury Prevention Program (ECIPP)
 Safe Communities Coalition of Pitt County
 Safe Kids Pitt County
 Safe Routes to School (SRTS)
 The Friends of Greenville Greenways (FROGGS)
 East Carolina Road Racing
 East Carolina Velo Cycling Club
 ProTown BMX
 Extreme Park
 Recycle Bicycle Shop
 Bicycle Post
 Trail and River Rovers of East Carolina
 Greenville Police Department Traffic Safety Unit

RELATED POLICIES & POLICY ANALYSIS

City of Greenville Zoning Ordinance and Subdivision Regulations
 City of Greenville Manual of Standard Designs and Details
 City of Greenville Development Code Review and Policy Gap Analysis
 Pitt County Zoning Ordinance
 Pitt County Subdivision Ordinance (applies to Pitt County communities, including Simpson)
 Winterville Municipal Ordinance
 Village of Simpson Zoning Ordinance
 Town of Ayden Zoning Ordinance & Subdivision Regulations

Demand & Benefit Forecast

Comparison Cities and Mode Share Forecasts

Through increased investment in infrastructure, programs, and policies that support active transportation, the percentage of people who walk or bike in the Greater Greenville Area will gradually increase. Area residents and workers will experience health, environmental, and transportation-related benefits due to an increase in walking and biking and a decrease in single-occupancy vehicle trips.

The project team carried out a benefits analysis to forecast mode share goals and its corresponding benefits. The analysis utilizes a standard methodology for calculating health-, environmental-, and transportation-related benefits. All projections are based on American Community Survey (ACS) 2011-2015 five-year estimates from the U.S. Census Bureau, which are then extrapolated through the use of various multipliers derived from national

studies and quantified in terms of monetary value where appropriate. The estimated monetary values are then calibrated to baseline values and compared to bicycling and pedestrian mode splits of peer cities that recently have implemented similar projects.

COMPARISON CITIES

In order to estimate anticipated increases in walking and biking rates in Greenville, the project team selected cities in the southeastern region of the United States that are considered to be peers of Greenville (the City of Greenville was used, as opposed to the Greenville Urban Area MPO, since city-to-city data is more readily available for comparison, especially when factoring Bicycle-Friendly Community status and Walk Friendly Community status, which are mostly municipally based designations). The comparison cities were also selected as “aspirational” cities in terms of their status as bicycle-friendly and walk-friendly communities (listed in the table below).

GENERAL CHARACTERISTICS OF COMPARISON CITIES

City	State	Population	Population Density (population per square mile) ¹	Bicycle Friendly Community (BFC) Designation ²	Walk Friendly Community (WFC) Designation ³
Greenville	NC	88,598	2443	None	None
Asheville	NC	86,789	1856	Bronze	Silver
Chapel Hill/Carrboro	NC	79,405	2710 (Chapel Hill) 3030 (Carrboro)	Silver (Carrboro), Bronze (Chapel Hill)	None
Wilmington	NC	111,998	2068	Bronze	None
Columbia	SC	131,958	977.8	Bronze	Bronze
Greenville	SC	61,734	2037	Bronze	None
Roanoke	VA	98,736	2280	Bronze	None

BICYCLE & WALK COMMUTE MODE SHARE FORECASTS

The project team analyzed data on how people commute to and from work in each city. Among the cities listed, Greenville has the lowest bicycle commute share (0.36%; this is to be expected since the comparison cities were chosen partially based on their Bicycle Friendly Community designation). The table below shows the existing bicycle commute shares for each city, as well as a range of forecasted commute mode shares for Greenville. The low, middle, and high forecasts are based on the 25th, 50th, and 75th percentile of existing commute mode shares in Greenville's comparison cities, respectively.

BICYCLE COMMUTE DATA IN GREENVILLE AND ITS PEER CITIES

City	Employed Population	Existing Bicycle Commute Trips per Day	Existing Bike Commute Mode Split	Forecasted Future Bicycle Mode Split		
				Low	Mid	High
Greenville	42,344	306	0.36%	0.61%	0.68%	1.30%
Asheville	42,730	634	0.74%			
Chapel Hill/Carrboro	39,903	2,446	3.06%			
Wilmington	53,164	1,582	1.49%			
Columbia	63,760	776	0.61%			
Greenville	30,432	368	0.60%			
Roanoke	45,584	486	0.53%			

Compared to the other cities, Greenville has the third lowest walk commute share (3.14%). The table below shows the range of walk commute shares in Greenville and its six comparison cities as well as the forecasted walk commute shares.

WALK COMMUTE DATA IN GREENVILLE AND ITS PEER CITIES

City	Employed Population	Existing Walk Commute Trips per Day	Existing Walk Commute Mode Split	Forecasted Future Walking Mode Split		
				Low	Mid	High
Greenville	42,344	2,660	3.14%	3.20%	4.56%	8.26%
Asheville	42,730	4,072	0.74%			
Chapel Hill/Carrboro	39,903	7,526	9.43%			
Wilmington	53,164	2,990	2.81%			
Columbia	63,760	27,282	21.39%			
Greenville	30,432	2,654	4.36%			
Roanoke	45,584	2,274	2.49%			

Mode share goals for walking and biking were based on the middle estimate of current walking and biking commute share in Greenville’s aspirational cities. **These mode share goals correspond to the 50th percentile of the existing commute mode shares in the six aspirational cities.** If Greenville were to increase its commute bicycle share to the 50th percentile of its six aspirational cities, it would see a 0.32% increase in the number of bicycle commuters (from 0.36% to 0.68%). This increase in the number of bicycle commuters might result in an estimated reduction of 1,111,000 vehicle-miles traveled (VMT). If Greenville were to increase its commute walk share to the 50th percentile of its 6 aspirational cities, it would see a 1.42% increase in the number of commuters who walk to work (from 3.14% to 4.56%). This would correspond to a reduction of 1,117,000 vehicle-miles traveled.

BENEFITS

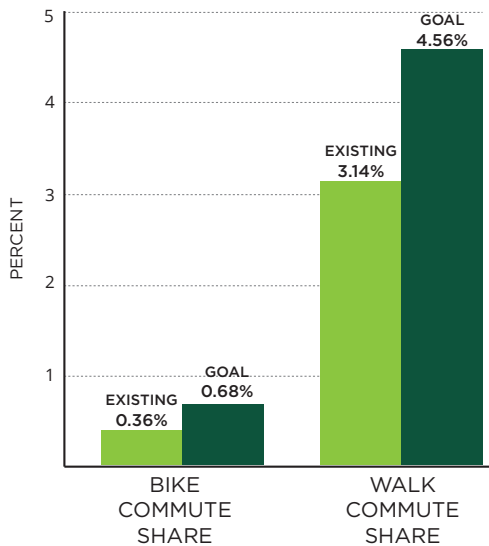
Based on these goals for walking and biking as a means of transportation to and from work, the project team estimated the potential benefits that

the city could experience. These benefits fall in three categories: health, environmental, and transportation. These benefits that could be realized due to a reduction in vehicle trips would greatly improve the overall quality of life in Greenville. The project team quantified health-related benefits, including estimated increase in hours of physical activity and annual savings from reduced healthcare costs. Estimates in reduction in VMT due to a greater number of commuters biking or walking were used to calculate changes in physical activity rates. In terms of environmental benefits, reductions in VMT were used to calculate changes in carbon dioxide emissions and other vehicle emissions. The most readily identifiable benefits of carrying out the recommendations in this plan is the increase in alternative modes of transportation and access to activity centers in Greenville. Savings can be estimated from the reduced costs associated with congestion, vehicle crashes, road maintenance, and household vehicle operations. The table below summarizes the health, environmental, and transportation benefits for Greenville.

FORECASTED ANNUAL HEALTH, ENVIRONMENTAL, & TRANSPORTATION BENEFITS

Benefits	Baseline		Mid Estimate (50 th percentile of peer cities’ existing commute mode shares)	
	Bike	Walk	Bike	Walk
HEALTH				
Annual trips	745,000	7,199,000	1,392,000	10,458,000
Annual miles	1,639,000	4,854,000	2,339,000	5,773,000
Annual hours of physical activity	164,000	1,618,000	234,000	1,924,000
Recommended physical activity minimum met	1,262	12,446	1,800	14,800
Regional physical activity need met	1.42%	14.05%	2.03%	16.70%
Healthcare cost savings	\$87,000	\$456,000	\$163,000	\$663,000
ENVIRONMENTAL				
CO2 emissions reduced (pounds)	2,492,000	2,492,000	4,657,000	3,620,000
Other vehicle emission reduced (pounds)	19,000	80,000	36,000	116,000
Total vehicle emission costs reduced	\$20,000	\$83,000	\$37,000	\$120,000
TRANSPORTATION				
Annual VMT reduced	595,000	2,469,000	1,111,000	3,586,000
Reduced traffic congestion costs	\$42,000	\$173,000	\$78,000	\$251,000
Reduced vehicle crash costs	\$297,000	\$1,234,000	\$556,000	\$1,793,000
Reduced road maintenance costs	\$89,000	\$370,000	\$167,000	\$538,000
Household vehicle operation cost savings	\$339,000	\$1,407,000	\$633,000	\$2,044,000
Total Benefits		\$4,597,000		\$7,043,000

Summary of Forecasted Annual Health, Environmental, and Transportation Benefits



If Greenville increased its bike mode share to 0.68% and increased its walk mode share to 4.56%, the city could experience a total of \$7,043,000 in health-, environmental-, and transportation-related benefits per year. This corresponds to a difference of \$2,446,000.

Limitations

The primary purpose of the analysis is to enable a more informed policy discussion on whether and how best to invest in a bicycle and pedestrian network. Even with extensive primary and secondary research incorporated into the analysis, it is impossible to accurately predict the exact impacts. Accordingly, all estimated benefit values are rounded and should be considered as estimates rather than exact amounts.



647,000

MORE BIKE TRIPS
PER YEAR



3,259,000

MORE WALK TRIPS
PER YEAR



\$826,000

IN HEALTH BENEFITS
PER YEAR



\$157,000

IN ENVIRONMENTAL BENEFITS
PER YEAR



\$6,060,000

IN TRANSPORTATION BENEFITS
PER YEAR

OVER

\$7 MILLION

IN TOTAL BENEFITS PER YEAR

3

Bicycle Network

"Riding my bicycle feels good and makes me feel healthy. And I like the feeling of connection it gives me to my neighborhood and my city."

- Public Comment, 2016



Overview

This chapter provides a summary of the key types of bicycle facilities (including greenway trails) and features a series of maps showing where those facilities are recommended.

Four Types of Cyclists

The most common classification system used to describe biking comfort level was originally developed by Roger Geller, Bicycle Coordinator for the City of Portland. Geller's "Four Types of Transportation Cyclists" classified the general population into categories of transportation cyclists by their different needs and biking comfort levels given different roadway conditions. Based on Geller's work, the population of a city can be classified into the four types of cyclists listed in the table below.

According to the 2016 public comment for this planning process, the majority of respondents don't feel safe bicycling in the Greater Greenville Area (55%), and only 15% do feel safe (the rest are in between). This would suggest that **area residents mostly fall somewhere in the "Interested but Concerned" group below**, with exceptions in each direction. This helps to inform the types of recommendations, as **this group is generally less comfortable on major streets, and prefers separated pathways and low traffic neighborhood streets.**

Four Types of Cyclists.

(2009). Roger Geller, City of Portland Bureau of Transportation. Supported by data collected nationally since 2005.

<1% STRONG AND FEARLESS: *This group is willing to ride a bike on any roadway regardless of traffic conditions. Comfortable taking the lane and riding in a vehicular manner on major streets without designated bike facilities.*

5-10% ENTHUSIASTIC AND CONFIDENT: *This group consists of people riding bikes who are confident riding in most roadway situations but prefer to have a designated facility. Comfortable riding on major streets with a bike lane.*

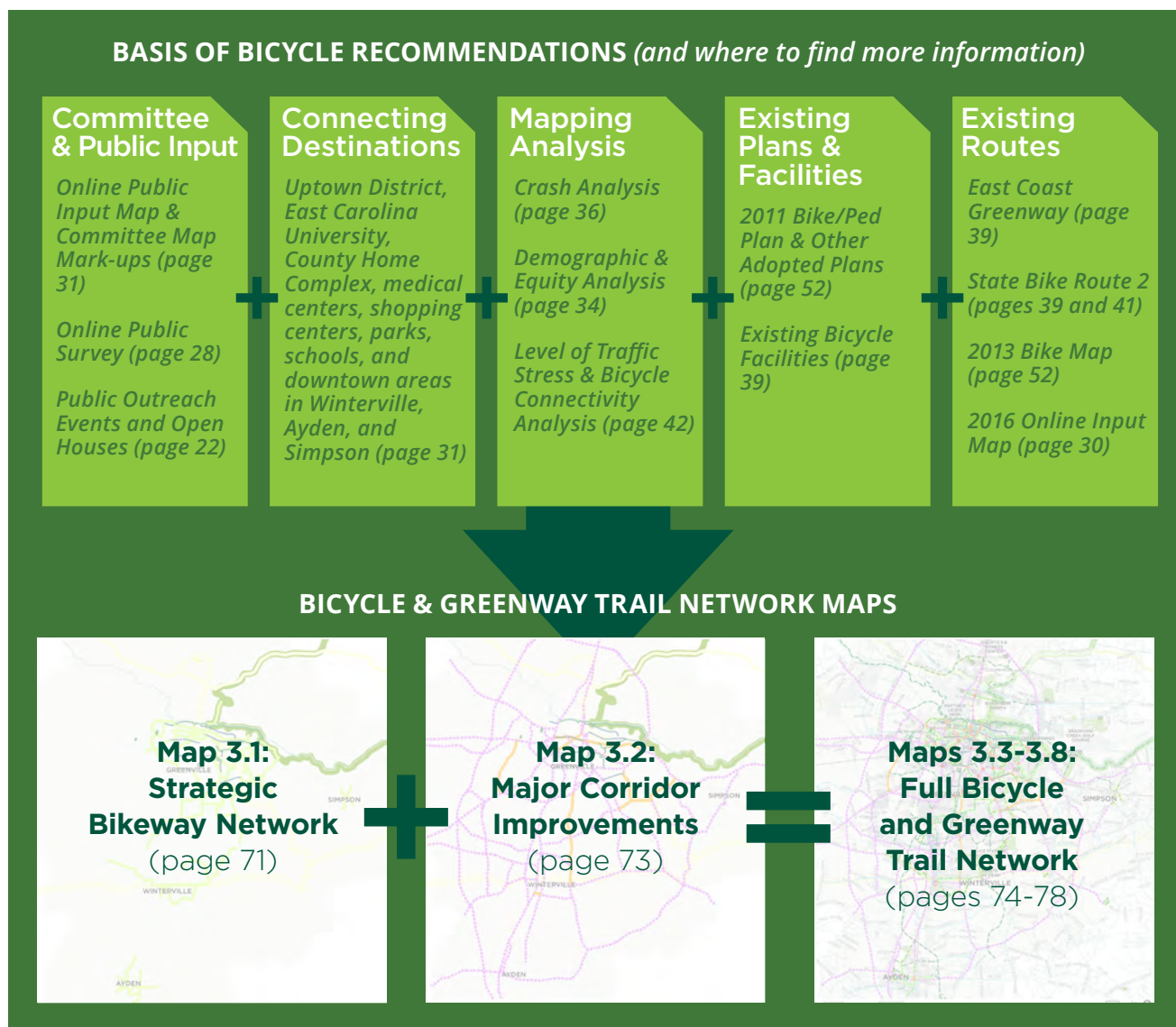
60% INTERESTED BUT CONCERNED: *This group is more cautious and has some inclination towards biking but are held back by concern over sharing the road with cars. Not very comfortable on major streets, even with a striped bike lane, and prefer separated pathways or low traffic neighborhood streets.*

30% NO WAY NO HOW: *This group comprises residents who simply aren't interested at all in biking, may be physically unable or don't know how to ride a bike, and they are unlikely to adopt biking.*

Planning the Bicycle and Greenway Trail Network

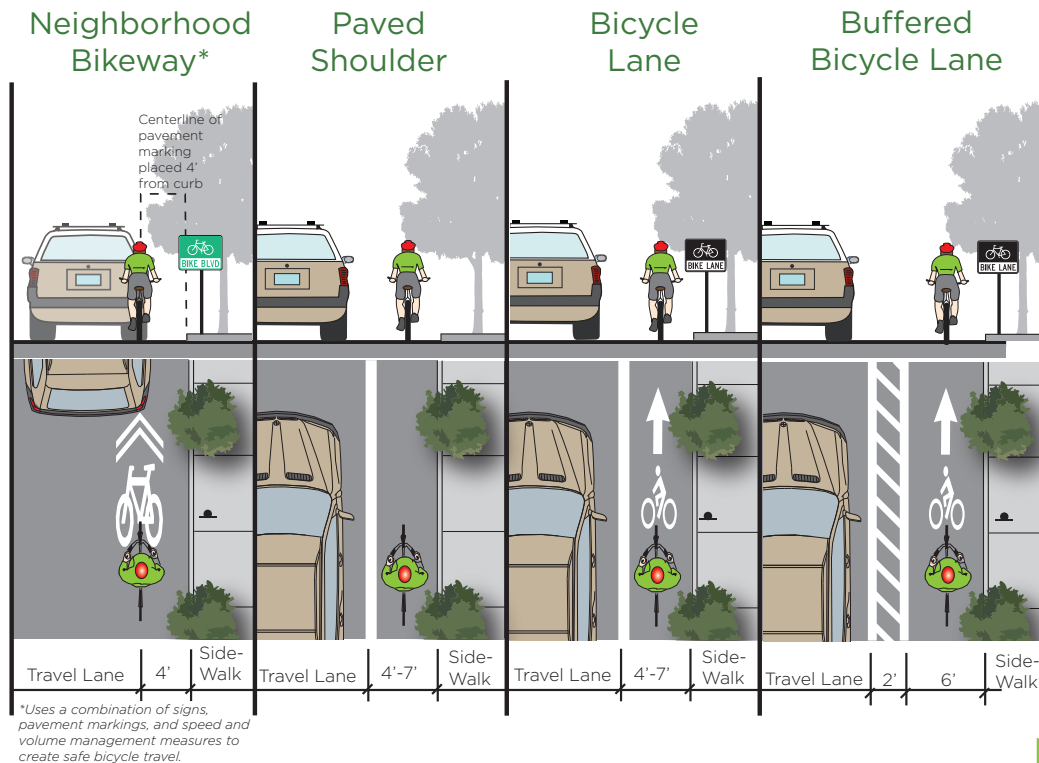
The proposed bike network is a result of a collaborative planning process that involved extensive public engagement, data collection, and technical analysis.

Findings from the equity analysis, crash analysis, and level of traffic stress analysis provided quantitative data that directly informed the network recommendations. Additionally, more qualitative input from the public and the steering committee helped to inform the project team in developing a recommended network of well-connected, low-stress facilities. The end result is a recommended bicycle and greenway network that is designed to align with the vision of this plan, creating safe and convenient bicycle-friendly streets and trails for people of all ages, abilities, and incomes.

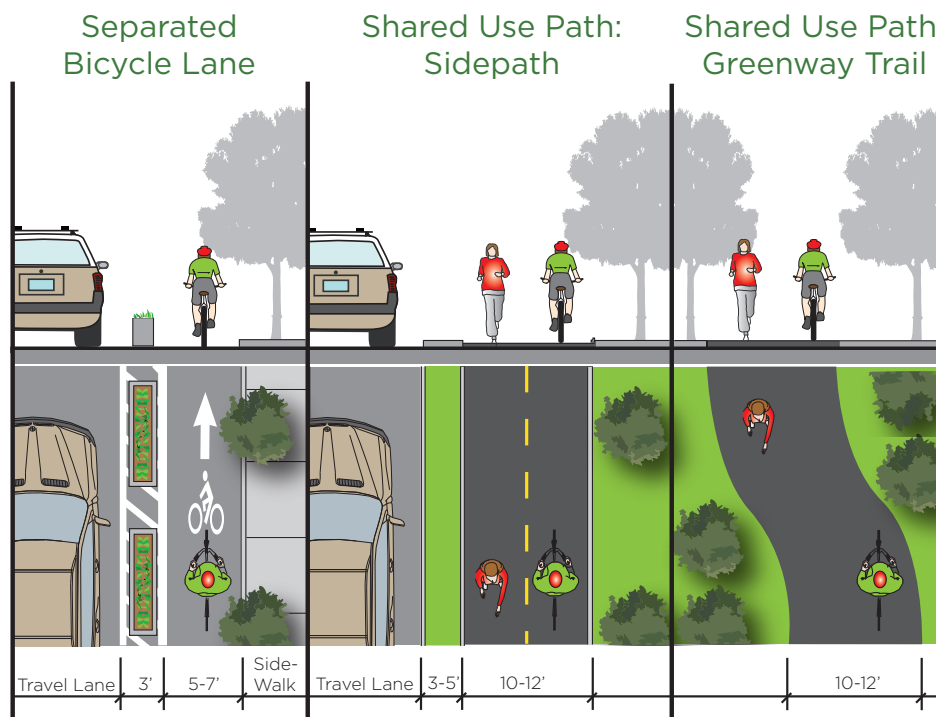


Types of Facilities in the Bikeway Network Maps

least separated



most separated



Neighborhood Bikeways

Neighborhood bikeways (also known as “bicycle boulevards”) are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.



Bike Boulevard Speed Bump Example, Portland, OR



Bike Boulevard Marking and traffic reduction example, San Luis Obispo, CA

DESIGN GUIDELINES:

Neighborhood Bikeways: Page B-34

Traffic Calming: Page B-36

Volume Management: Page B-38

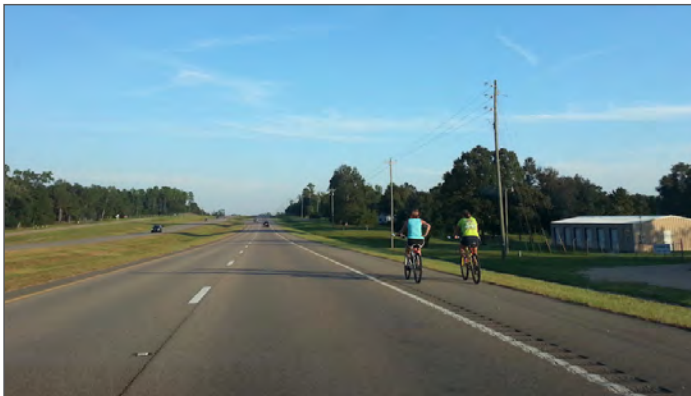
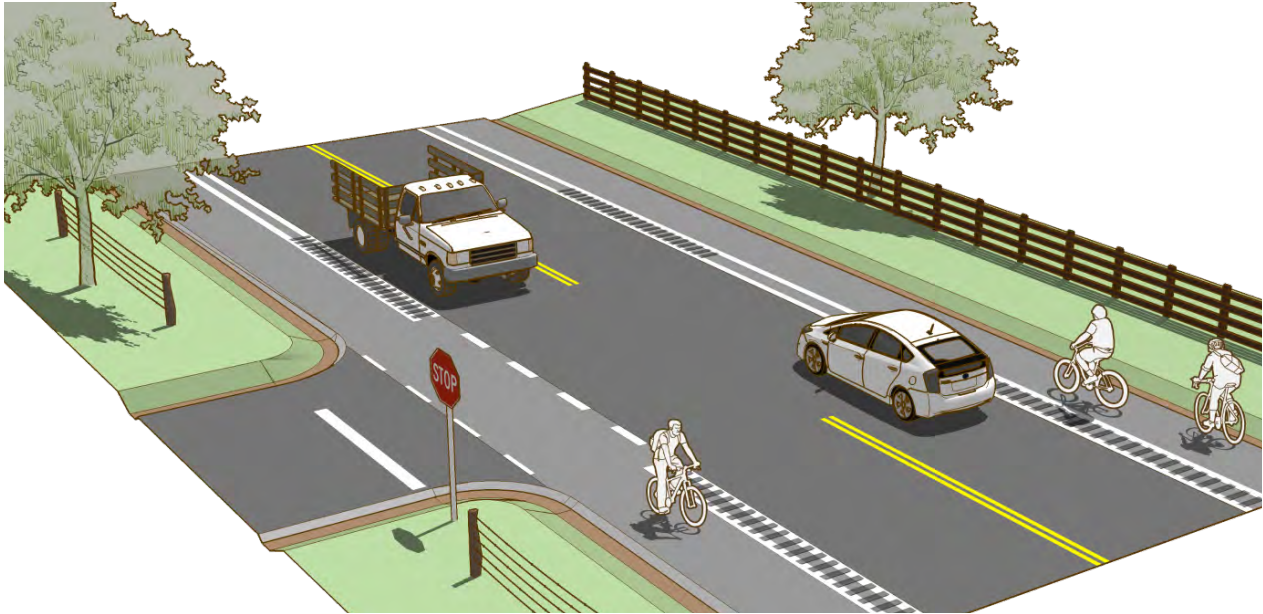
Minor Intersection Treatments: Page B-39

Major Intersection Treatments: Page B-40

Offset Intersection Treatments: Page B-41

Paved Shoulders

Paved shoulders on the edge of roadways can be enhanced to serve as a functional space for bicyclists and pedestrians to travel in the absence of other facilities with more separation. If rumble strips are used, they should be located on the edge line or within a buffer area that will not reduce usable space for bicyclists.



Paved shoulder example on a four-lane divided highway.



Paved shoulder example on a rural two-lane road.

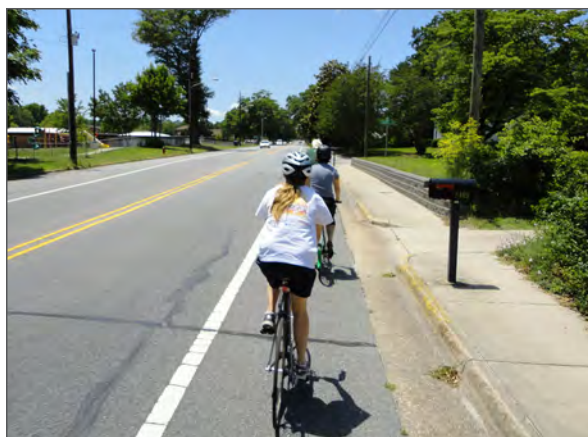
DESIGN GUIDELINES:

The Small Town and Rural Design Guide:

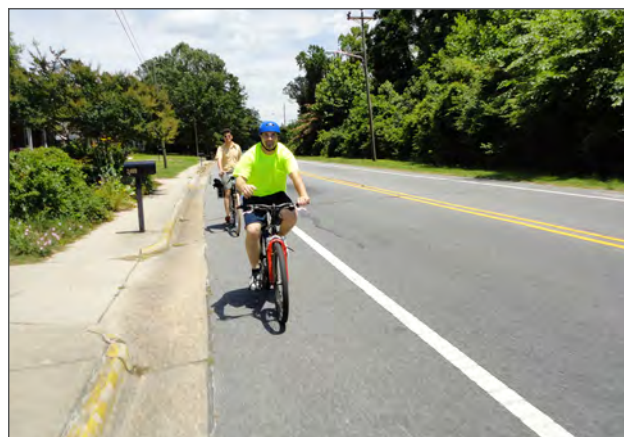
<http://ruralsdesignguide.com/visually-separated/paved-shoulder>

Bicycle Lanes

On-street bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signs. The bike lane is located directly adjacent to motor vehicle travel lanes and is used 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.



Bike Lane, Greenville, NC



Bike Lane, Greenville, NC

DESIGN GUIDELINES:

Bicycle Lanes: Page B-22

Buffered Bicycle Lanes: Page B-26

Intersection Crossing Markings: B-42

Bike Box: B-44

Bike Lanes at Added Right Turn Lanes: B-46

Combined Bike Lane/Turn Lane: B-48

Buffered Bicycle Lanes

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.



The use of pavement markings delineates space for cyclists to ride in a comfortable facility.



Buffered Bike Lane, Goldsboro, NC (from Google Street View)

DESIGN GUIDELINES:

Bicycle Lanes: Page B-22

Buffered Bicycle Lanes: Page B-26

Intersection Crossing Markings: B-42

Bike Box: B-44

Bike Lanes at Added Right Turn Lanes: B-46

Combined Bike Lane/Turn Lane: B-48

Separated Bicycle Lanes

When retrofitting separated bike lanes onto existing streets, a one-way street-level design may be most appropriate. This design provides protection through physical barriers and can include flexible delineators, curbs, on-street parking or other barriers. A street level separated bike lane shares the same elevation as adjacent travel lanes.



Separated Bikeway, Washington, D.C - Photo from FHWA



Separated Bikeways, Russellville, AR

DESIGN GUIDELINES:

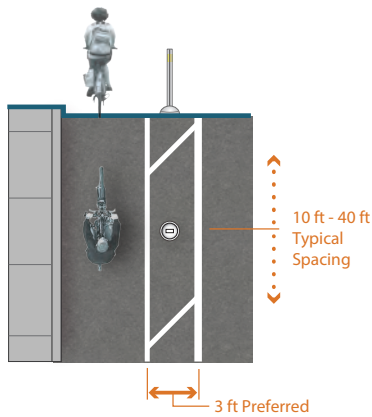
One-Way Separated Bicycle Lanes: Page B-28

Two-Way Separated Bicycle Lanes: Page B-30

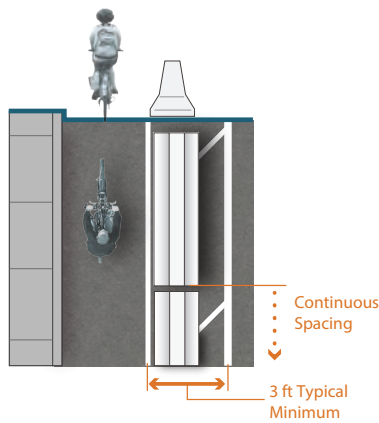
Separation Methods: Page B-32

Types of Physical Separators

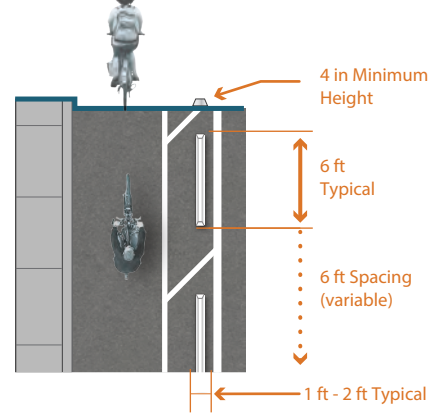
Delineator Posts



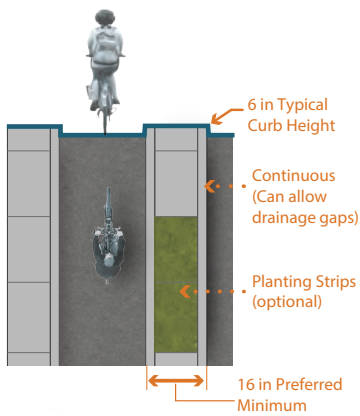
Concrete Barrier



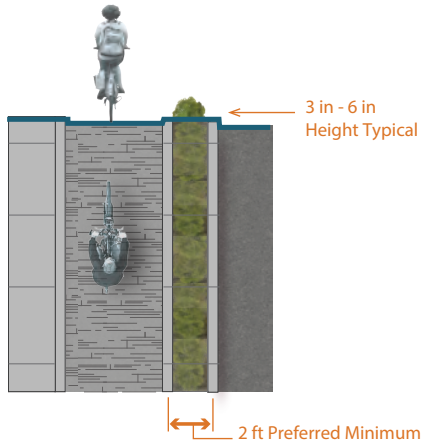
Parking Stops



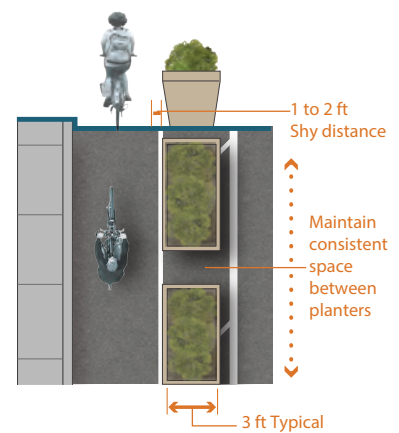
Raised Median



Raised Lane



Planters



Shared Use Paths

Shared Use Paths

Shared use paths are defined by the Federal Highway Administration as multi-use trails or other paths, physically separated from motorized vehicular traffic by an open space or barrier, either within a highway right-of-way or within an independent right-of-way, and usable for transportation purposes. Shared use paths can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic.

Greenway Trails

For the purposes of this plan, the term “greenway trail” refers to shared use paths that are independent of the roadway right-of-way, often along natural riparian corridors, utility corridors, or along railroad corridors.



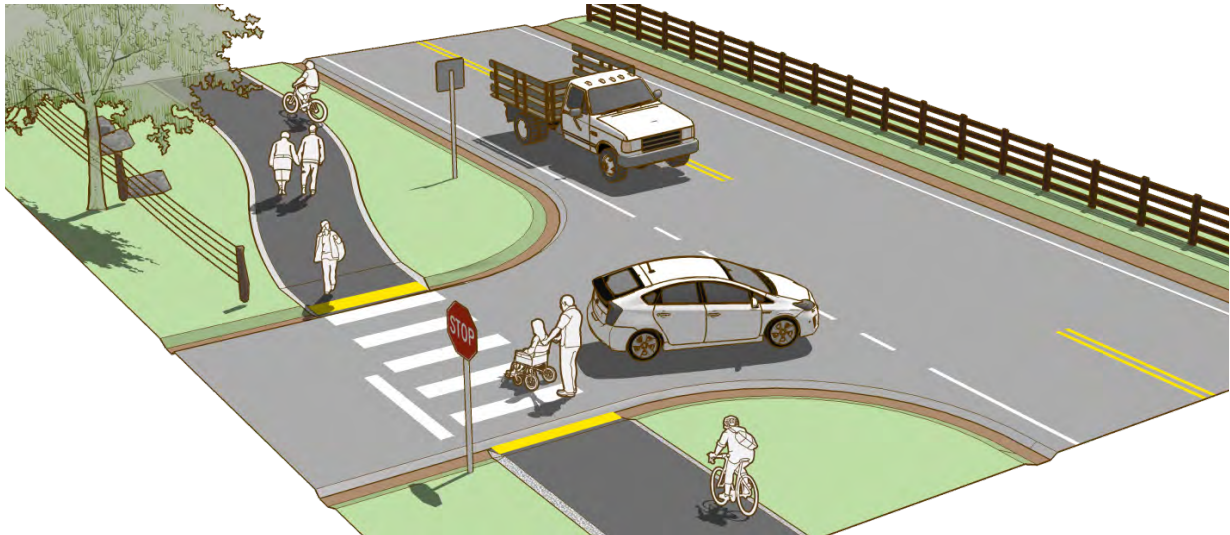
Tar River Greenway link to Town Commons, Greenville, NC - Photo from Google Streetview



Tar River Greenway, Greenville NC

Sidepaths

Sidepaths are shared use paths that are alongside roadways, often within the roadway right-of-way. They may be appropriate on streets with few intersections or driveways, such as along parkland or other large properties with few driveways and cross streets. Sidepaths are generally inappropriate in built-up areas with land use access desired on both sides of the street.



Sidepath in Conover, NC



Sidepath in Raleigh, NC

DESIGN GUIDELINES:

Shared Use Path: Page B-68

Local Neighborhood Accessways: Page B-70

Natural Surface Trails: Page B-71

Single Track Mountain Bike Trails: Page B-72

Accessible Trails: Page B-73

Boardwalks: Page B-74

Vegetative Screenings: Page B-75

Marked Trail Crossing: Page B-76

Median Trail Crossing: Page B-77

Active Enhanced Trail Crossing: Page B-78

Route Users to Signalized Crossing: Page B-79

Grade-Separated Crossings: Page B-80

Bicycle and Greenway Trail Network Maps

The Strategic Bikeway Network

The Strategic Bikeway Network builds upon existing infrastructure and areas that are bicycle friendly today, especially neighborhoods. These projects can be thought of as 'low-hanging fruit', consisting of lower cost, easier to implement projects that are critical to the overall network.

Map 3.1 on the following page shows an overview of this network; its key features include:

- Relative ease of implementation
- Potentially greater return on investment
- Connects to the existing greenway network
- Connects key destinations
- Avoids barrier roadway corridors that carry high automobile traffic volumes and speeds
- Uses neighborhood streets, many of which already have traffic calming features such as speed tables
- Uses some neighborhood streets that are very wide, allowing an opportunity to stripe buffered bike lanes (this space can also aid pedestrians).
- Highlights strategic crossings of major roadway corridors
- Proposes short sections of shared use paths to make key links where necessary
- Complements the ongoing process of improvements to major corridors (see pages 72-73) that presently do not accommodate bicyclists (and that only minimally accommodate pedestrians).

FEATURED FACILITY TYPES IN MAP 3.1 STRATEGIC BIKE NETWORK:

Neighborhood Bikeways

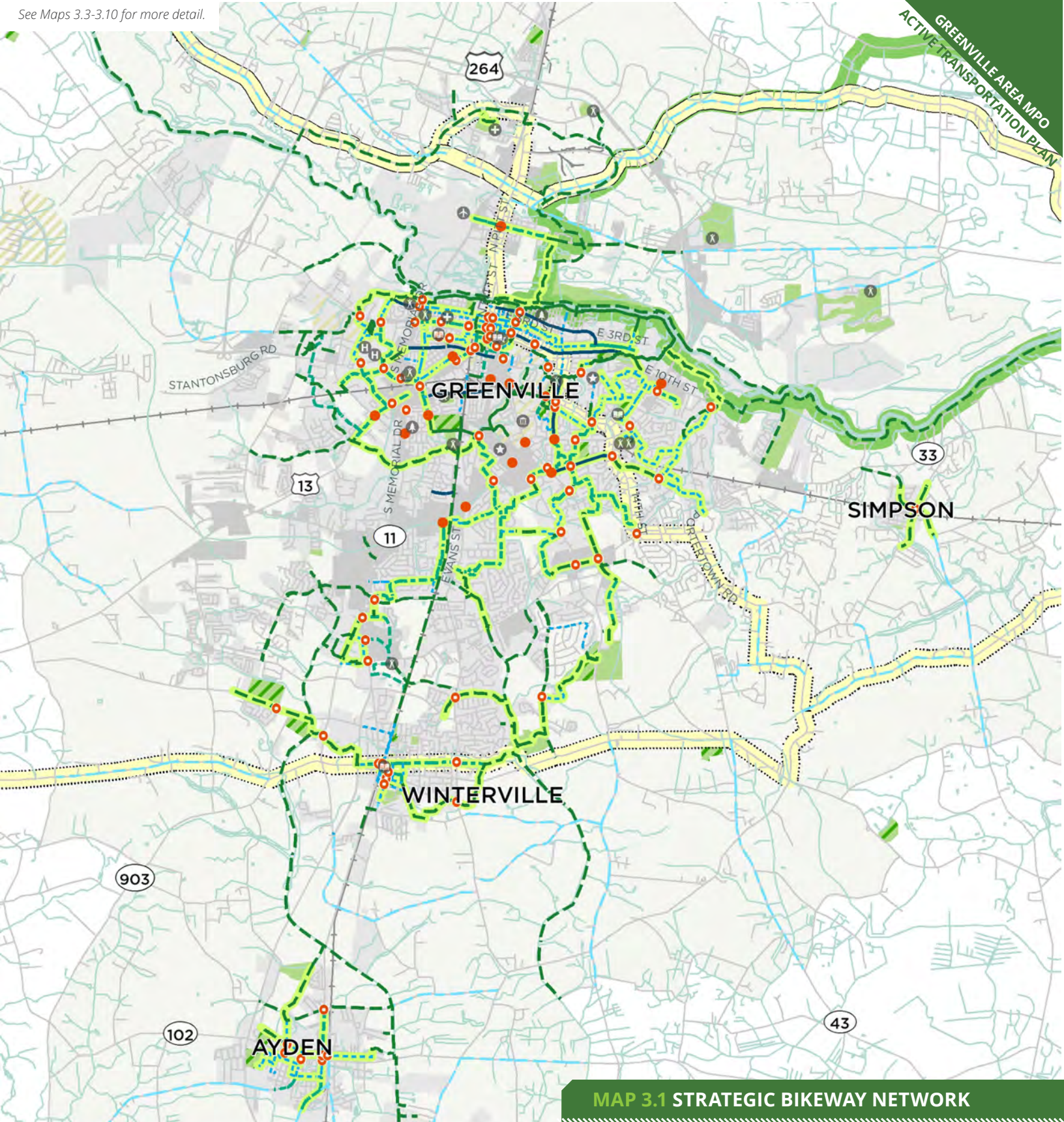


Buffered Bike Lanes



Shared Use Paths





MAP 3.1 STRATEGIC BIKEWAY NETWORK

EXISTING

- Shared Use Path
- Bike Lane
- State Bike Route
- - - Updated State Bike Route
- . . . Route (Unsigned)

PROPOSED

- Crossing Improvement
- In Development
- - - Shared Use Path
- - - Buffered Bike Lane
- - - Neighborhood Bikeway
- Paved Shoulder
- East Coast Greenway
- Strategic Bikeway Network

DESTINATIONS & BOUNDARIES

- ✈ Airport
- + Community Center
- H Hospital
- B Library
- P Playground
- A Rec Center
- M Stadium
- ★ Bike Shops
- Park
- ▨ School
- ▨ East Carolina University
- ▨ Greenville MPO
- ▨ Municipal Boundaries
- ▨ Commercial Areas



Major Corridor Improvements

Much of the analysis in Chapter Two revealed that **major corridors throughout the study area are serving as barriers to safe movement and community-wide connectivity for bicyclists and pedestrians.** Many people reported being able to bike and walk comfortably on neighborhood streets and greenways, while feeling unsafe biking and walking along or crossing major corridors. Unfortunately, many of these corridors cannot be made bicycle-friendly by the simple addition of a standard bicycle lane with no buffer. More substantial improvements are needed that will require additional roadway width, meaning significant changes to the overall corridor.

Map 3.2 identifies the major corridors that are in need of such improvements. In order to make the most cost-effective investments in the overall transportation network, this plan recommends that as these major corridors are planned for widening, resurfacing, and/or reconstruction, they should be redesigned as “complete streets”. NCDOT’s *Complete Streets Policy* defines Complete Streets as “North Carolina’s approach to interdependent, multi-modal transportation networks that safely accommodate access and travel for all users.”

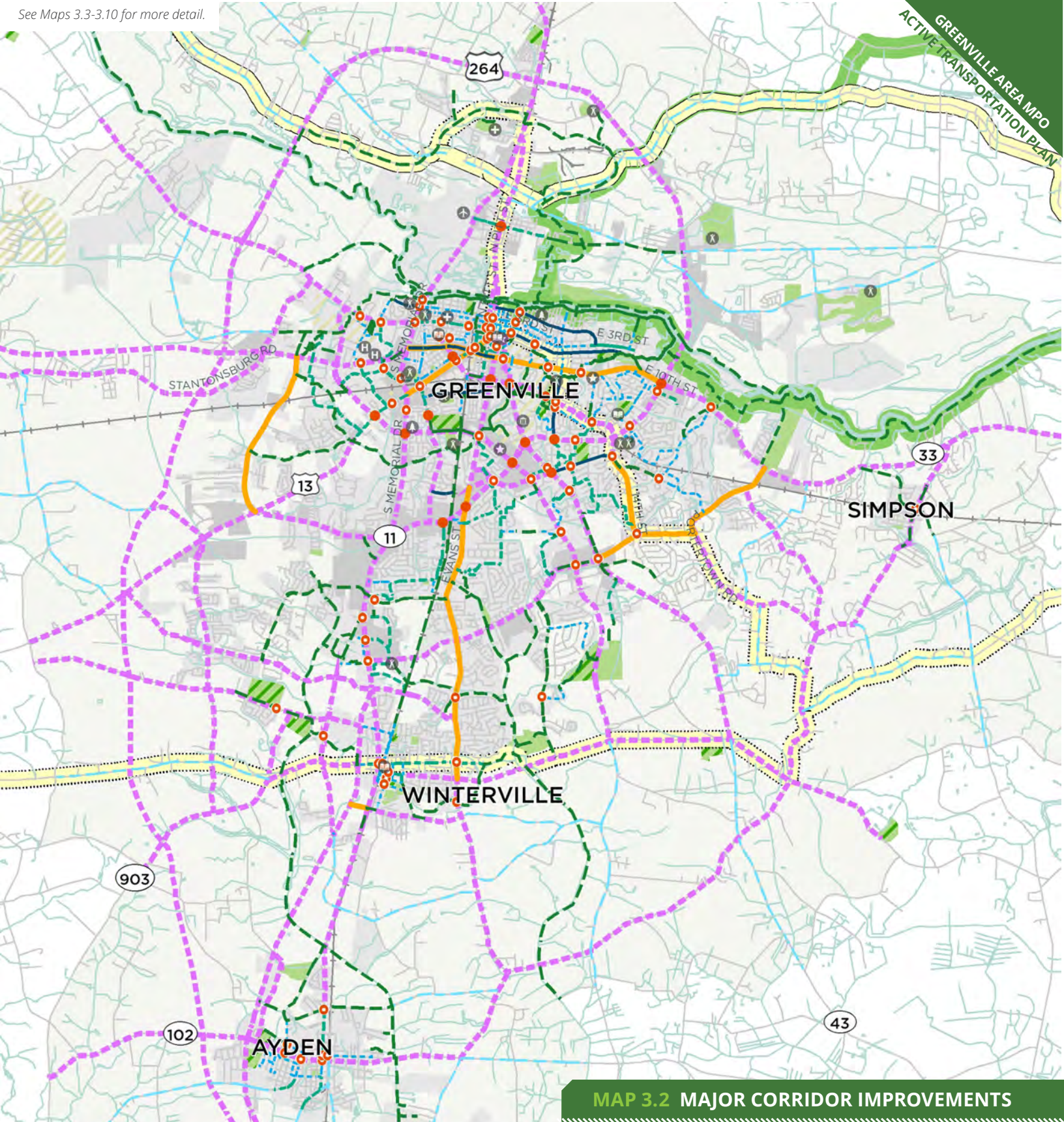
Implementing Complete Streets along roadway corridors originally designed for automobiles will require full redesign, involving driveway consolidation and reduction, landscaping, intersection improvements, possible lane reconfigurations, enhanced bus stops and transit facilities, and physical separation for bicyclists and pedestrians from automobile traffic. Full corridor studies are needed to address these issues during (or in advance of) the design phase. **This plan lays the groundwork for these future projects by identifying and recommending these corridors for future**

redesign, to include separated bikeways and pedestrian facilities with physical separation from motor vehicle traffic. The type of physical separation will depend on the context of the corridor. Separated bikeway examples are included on pages 66-67, and on pages B-28 to B-32 in Appendix B.

At the time of this writing, several major roadway corridors were at various stages of the reconstruction process (in orange on Map 3.2):

- Evans St/Old Tar Rd widening - Greenville Blvd in Greenville to Worthington Rd in Winterville
- 10th St Connector - 10th St extension from Evans St to Stantonsburg Rd.
- 10th St Corridor Study - 10th St from Evans St to Greenville Blvd
- Allen Rd widening - Stantonsburg Rd to Dickinson Ave
- Fire Tower Rd/Portertown Rd widening - Charles Blvd to NC 33
- 14th St improvements - Fire Tower Rd to Red Banks Rd
- Dickinson Ave improvements - Reade Cir to Memorial Dr
- Laurie Ellis Rd extension - from the existing western terminus at Mill St to NC 11

While the projects above will be completed at various points over the next 10 years, these as well as the next generation of major roadway improvement projects should be required to include separated bikeways and pedestrian facilities appropriate for people of all ages and abilities (in pink dash on Map 3.2).



MAP 3.2 MAJOR CORRIDOR IMPROVEMENTS

EXISTING

- Shared Use Path
- Bike Lane
- State Bike Route
- Updated State Bike Route
- Route (Unsigned)

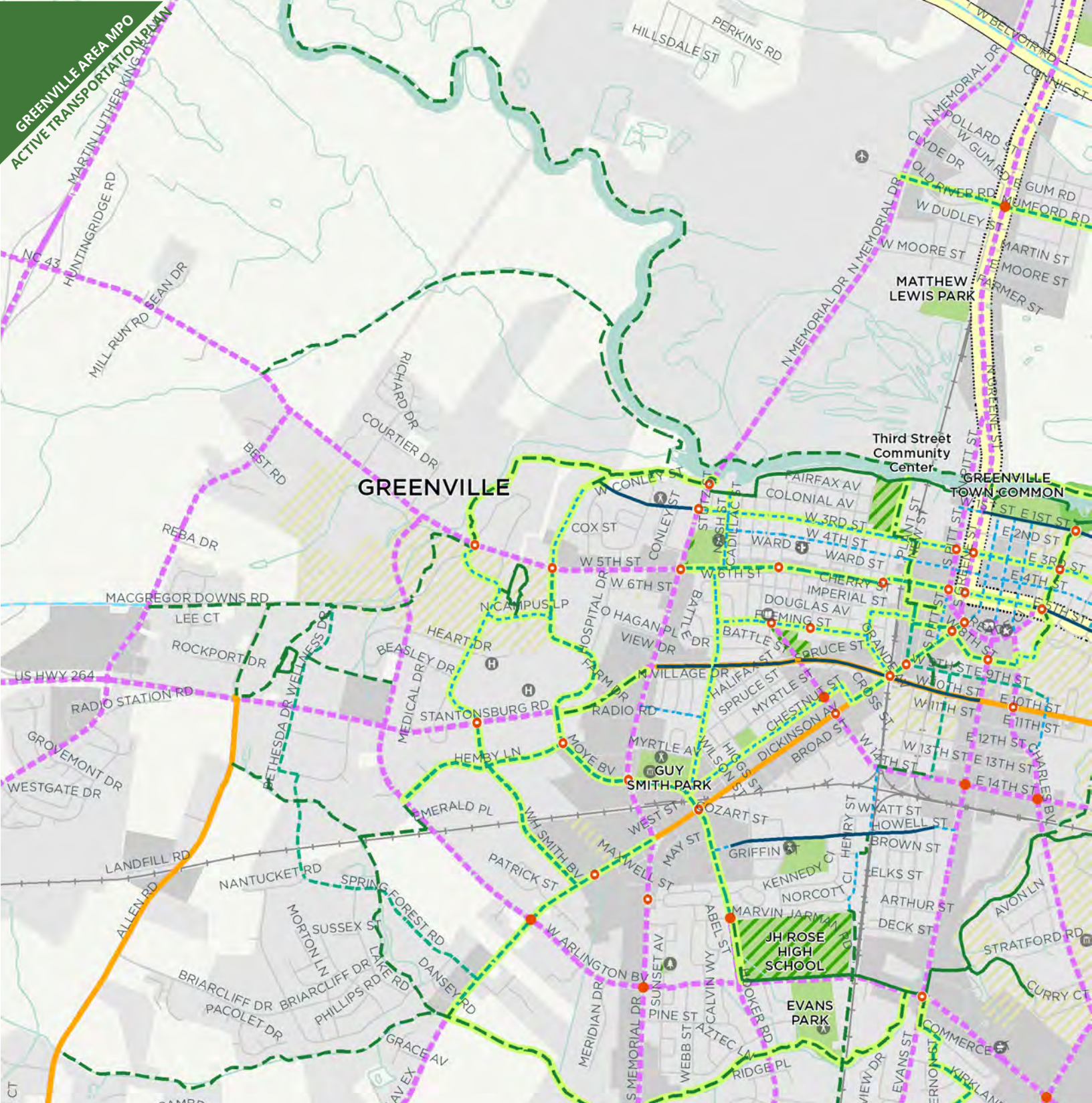
PROPOSED

- Crossing Improvement
- In Development
- Shared Use Path
- Buffered Bike Lane
- Neighborhood Bikeway
- Paved Shoulder
- █ East Coast Greenway
- Major Corridor Improvements:**
- In Development
- Separated Bikeways (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES

- Airport
- Community Center
- Hospital
- Library
- Playground
- Rec Center
- Stadium
- Bike Shops
- █ Park
- █ School
- █ East Carolina University
- █ Greenville MPO
- █ Municipal Boundaries
- █ Commercial Areas



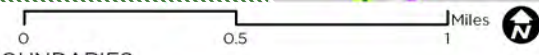


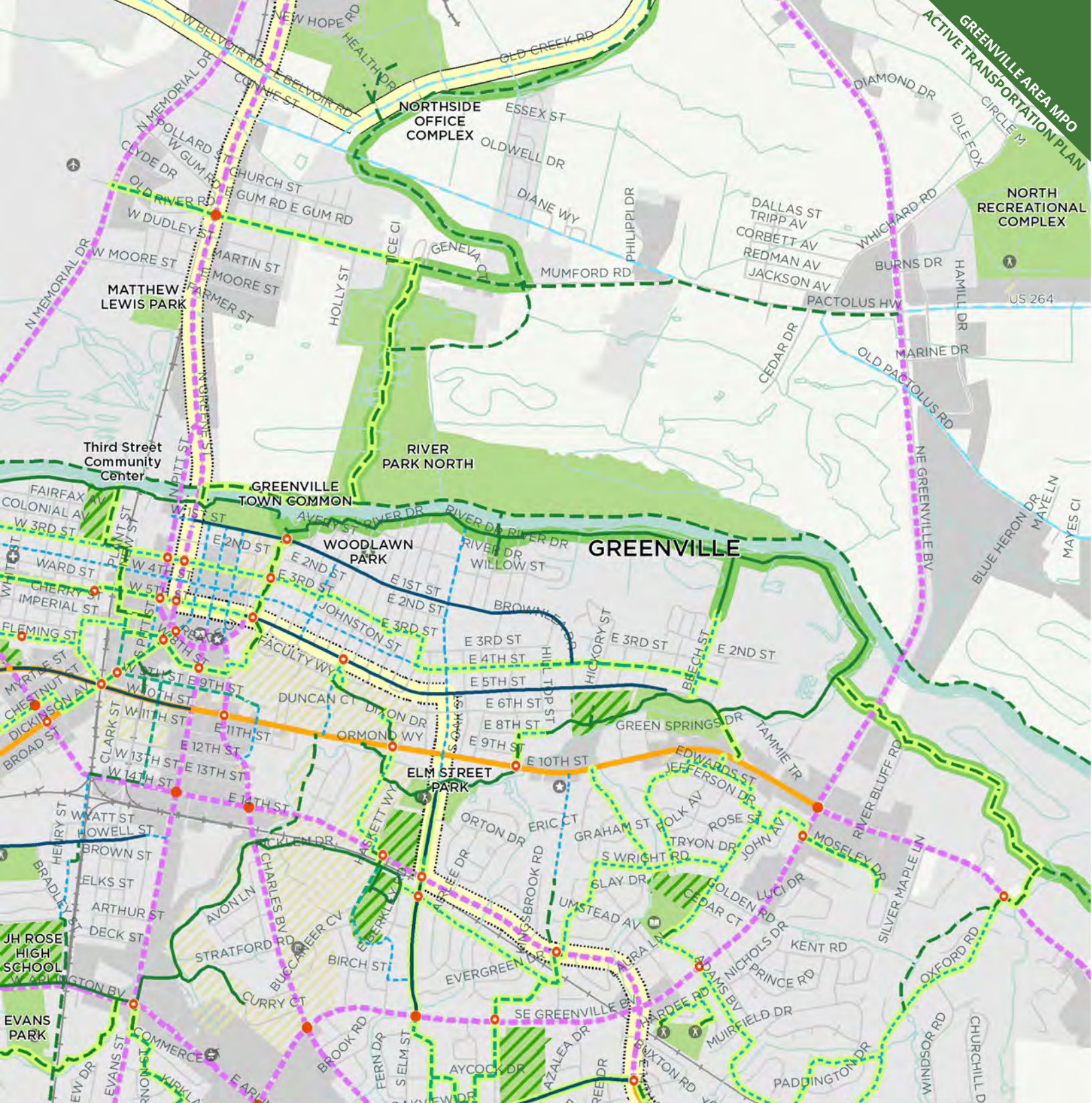
MAP 3.3 FULL BICYCLE & GREENWAY TRAIL NETWORK: NORTHWEST GREENVILLE

- EXISTING**
- Shared Use Path
 - Bike Lane
 - State Bike Route
 - Updated State Bike Route (Unsigned)

- PROPOSED**
- Crossing Improvement
 - In Development
 - Shared Use Path
 - Buffered Bike Lane
 - Neighborhood Bikeway
 - Paved Shoulder
 - East Coast Greenway
 - STRATEGIC BIKEWAY NETWORK**
 - MAJOR CORRIDOR IMPROVEMENTS**
 - In Development
 - Separated Bikeway (and Pedestrian Facilities)

- DESTINATIONS & BOUNDARIES**
- Airport
 - Community Center
 - Hospital
 - Library
 - Playground
 - Rec Center
 - Stadium
 - Bike Shops
 - Park
 - School
 - East Carolina University
 - Greenville MPO
 - Municipal Boundaries
 - Commercial Areas





MAP 3.4 FULL BICYCLE & GREENWAY TRAIL NETWORK: NORTHEAST GREENVILLE

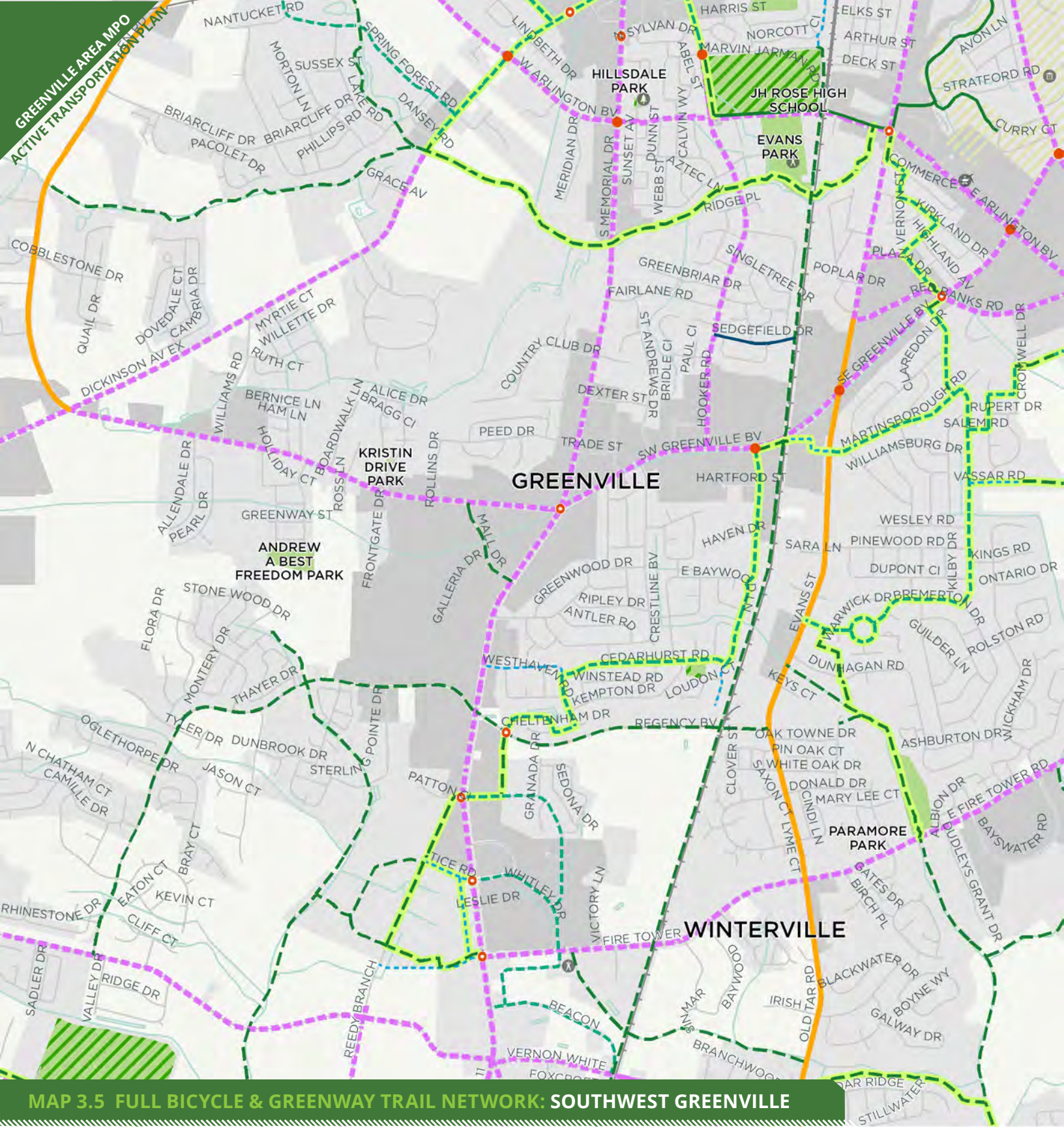
- EXISTING**
- Shared Use Path
 - Bike Lane
 - State Bike Route
 - Updated State Bike Route (Unsigned)

- PROPOSED**
- Crossing Improvement
 - In Development
 - Shared Use Path
 - Buffered Bike Lane
 - Neighborhood Bikeway
 - Paved Shoulder
 - East Coast Greenway
 - STRATEGIC BIKEWAY NETWORK**
 - MAJOR CORRIDOR IMPROVEMENTS**
 - In Development
 - Separated Bikeway (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES

- Airport
- Community Center
- Library
- Playground
- Rec Center
- Stadium
- Bike Shops
- Park
- School
- East Carolina University
- Greenville MPO
- Municipal Boundaries
- Commercial Areas





MAP 3.5 FULL BICYCLE & GREENWAY TRAIL NETWORK: SOUTHWEST GREENVILLE

EXISTING

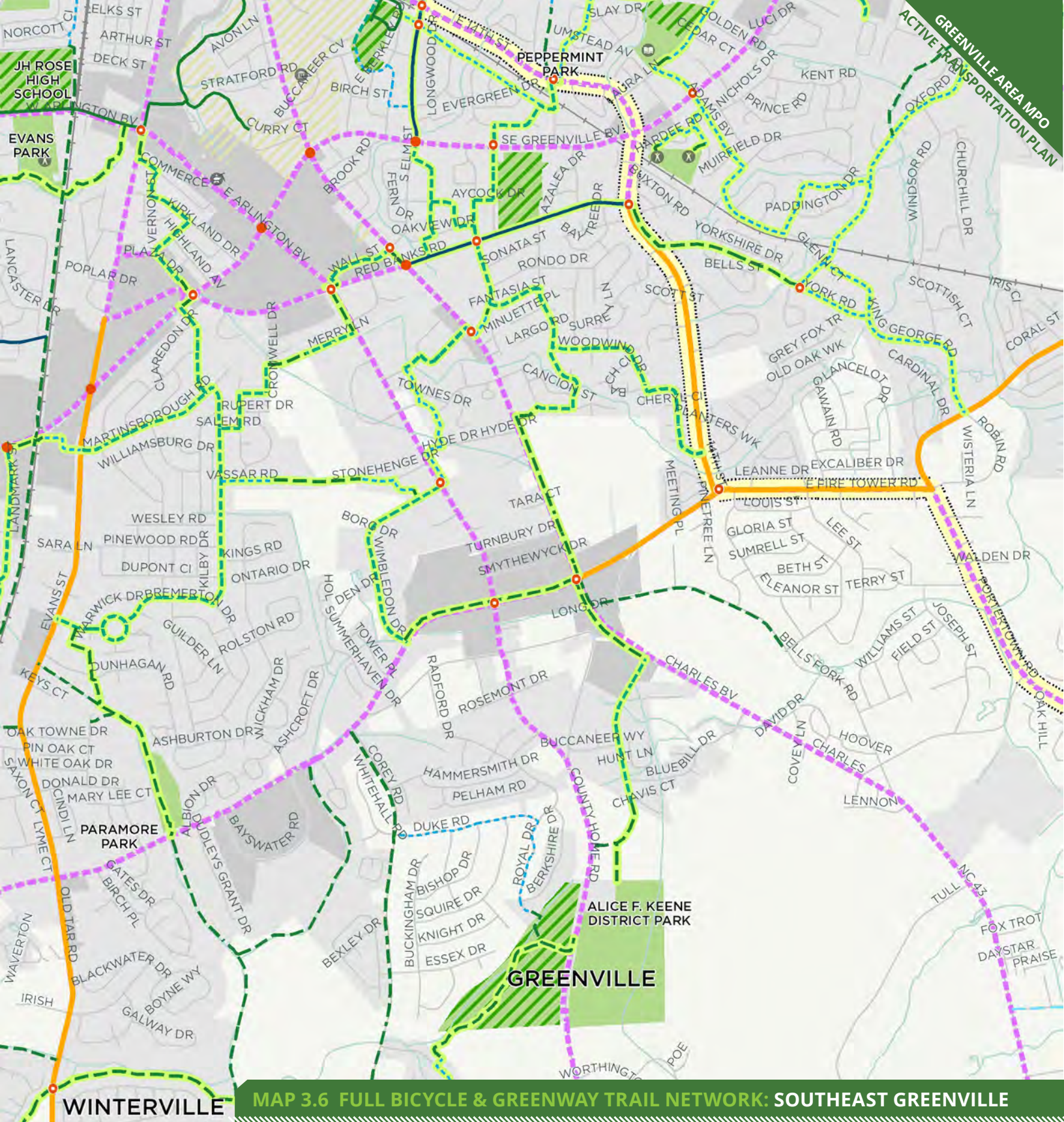
- Shared Use Path
- Bike Lane

PROPOSED

- Crossing Improvement
- In Development
- Shared Use Path
- Buffered Bike Lane
- Neighborhood Bikeway
- STRATEGIC BIKEWAY NETWORK**
- MAJOR CORRIDOR IMPROVEMENTS**
- In Development
- Separated Bikeway (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES

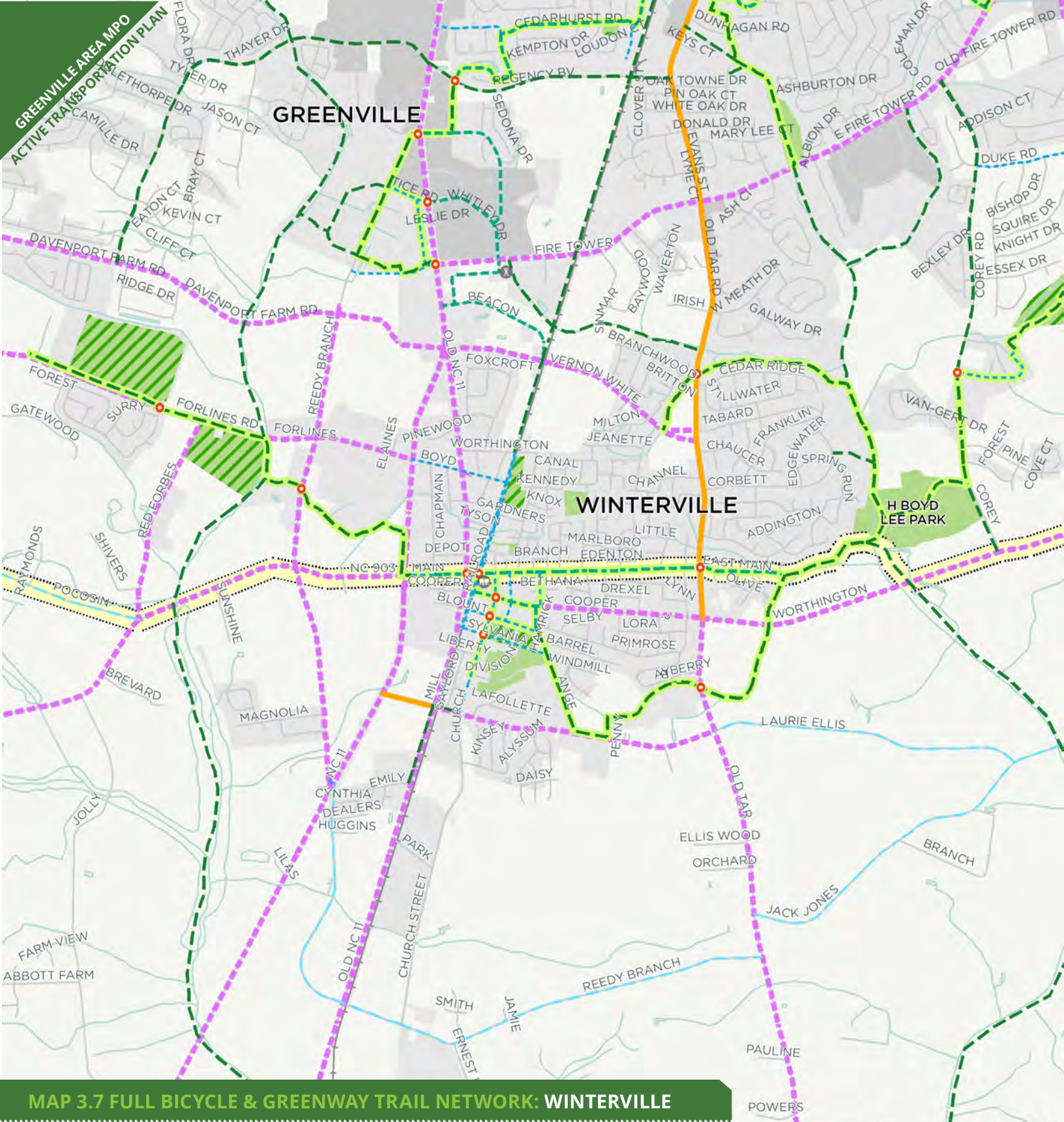
- Playground
- Rec Center
- Stadium
- Bike Shops
- Park
- School
- East Carolina University
- Greenville MPO
- Municipal Boundaries
- Commercial Areas



MAP 3.6 FULL BICYCLE & GREENWAY TRAIL NETWORK: SOUTHEAST GREENVILLE

- | | |
|-------------------------------------|---|
| EXISTING | PROPOSED |
| Shared Use Path | Crossing Improvement |
| Bike Lane | In Development |
| Updated State Bike Route (Unsigned) | Shared Use Path |
| | Buffered Bike Lane |
| | Neighborhood Bikeway |
| | Paved Shoulder |
| | East Coast Greenway |
| | STRATEGIC BIKEWAY NETWORK |
| | MAJOR CORRIDOR IMPROVEMENTS |
| | In Development |
| | Separated Bikeway (and Pedestrian Facilities) |

- DESTINATIONS & BOUNDARIES**
- | | |
|------------|--------------------------|
| Library | Park |
| Rec Center | School |
| Stadium | East Carolina University |
| Bike Shops | Greenville MPO |
| | Municipal Boundaries |
| | Commercial Areas |



MAP 3.7 FULL BICYCLE & GREENWAY TRAIL NETWORK: WINTERVILLE

EXISTING

- Updated State Bike Route (Unsigned)

PROPOSED

- Crossing Improvement
- Shared Use Path
- Buffered Bike Lane
- Neighborhood Bikeway
- Paved Shoulder

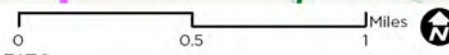
DESTINATIONS & BOUNDARIES

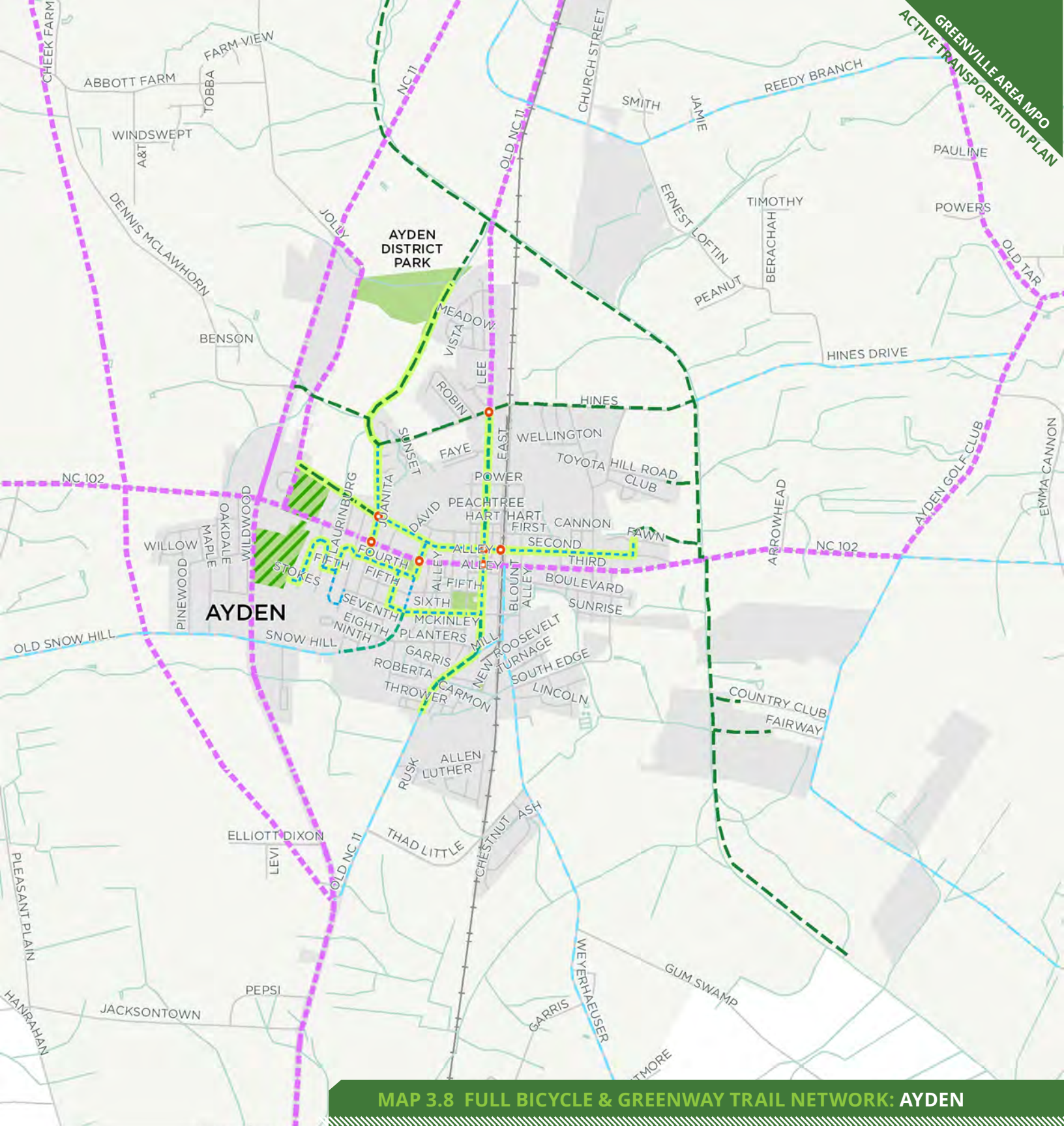
- Library
- Rec Center
- Park
- School
- Greenville MPO
- Municipal Boundaries
- Commercial Areas

STRATEGIC BIKEWAY NETWORK

MAJOR CORRIDOR IMPROVEMENTS

- In Development
- Separated Bikeway (and Pedestrian Facilities)





MAP 3.8 FULL BICYCLE & GREENWAY TRAIL NETWORK: AYDEN

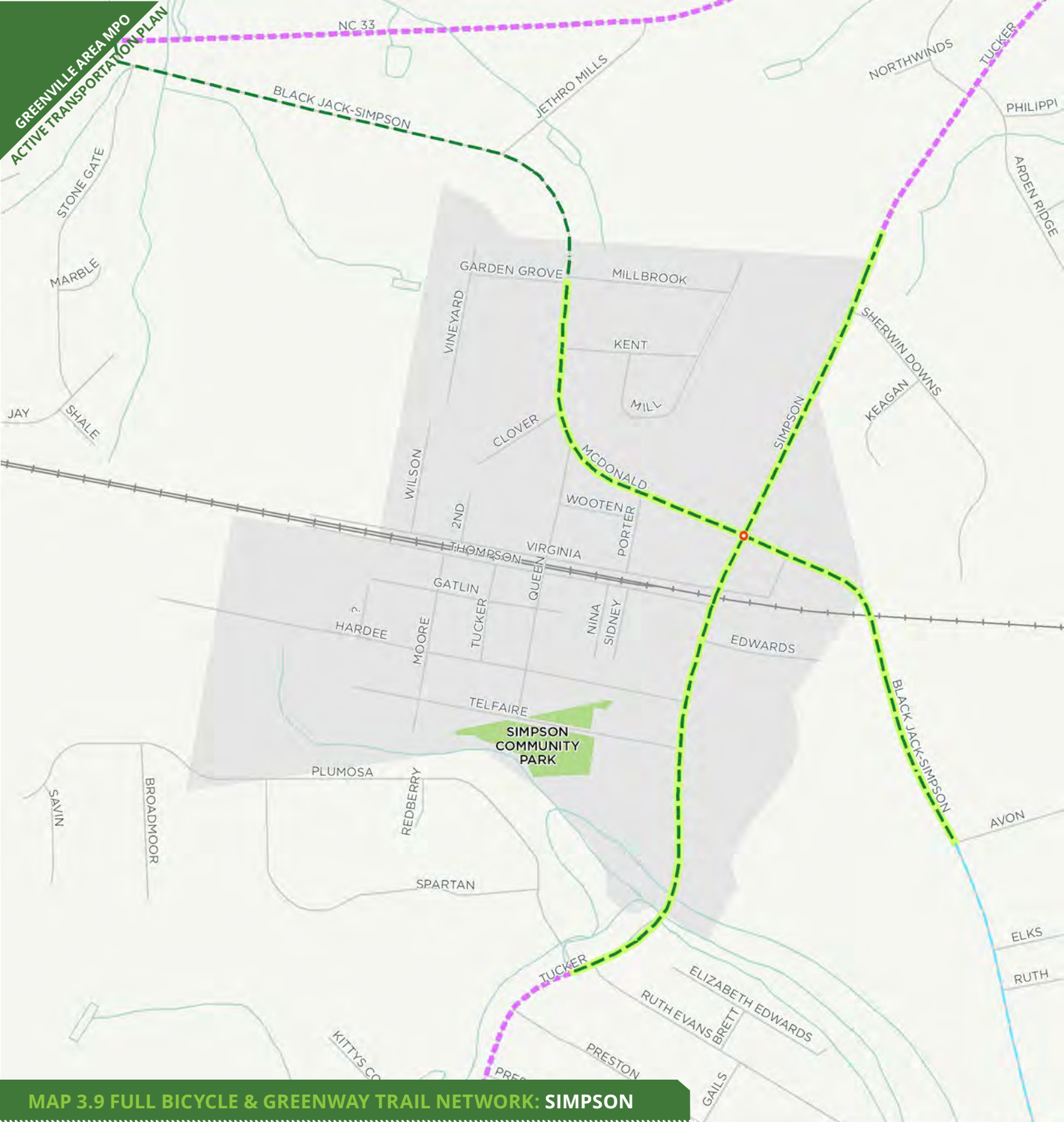
PROPOSED

- Crossing Improvement
- Shared Use Path
- - - Buffered Bike Lane
- . . . Neighborhood Bikeway
- Paved Shoulder
- **STRATEGIC BIKEWAY NETWORK**
- - - Separated Bikeway (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES

- Park
- School
- Greenville MPO
- Municipal Boundaries





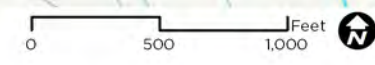
MAP 3.9 FULL BICYCLE & GREENWAY TRAIL NETWORK: SIMPSON

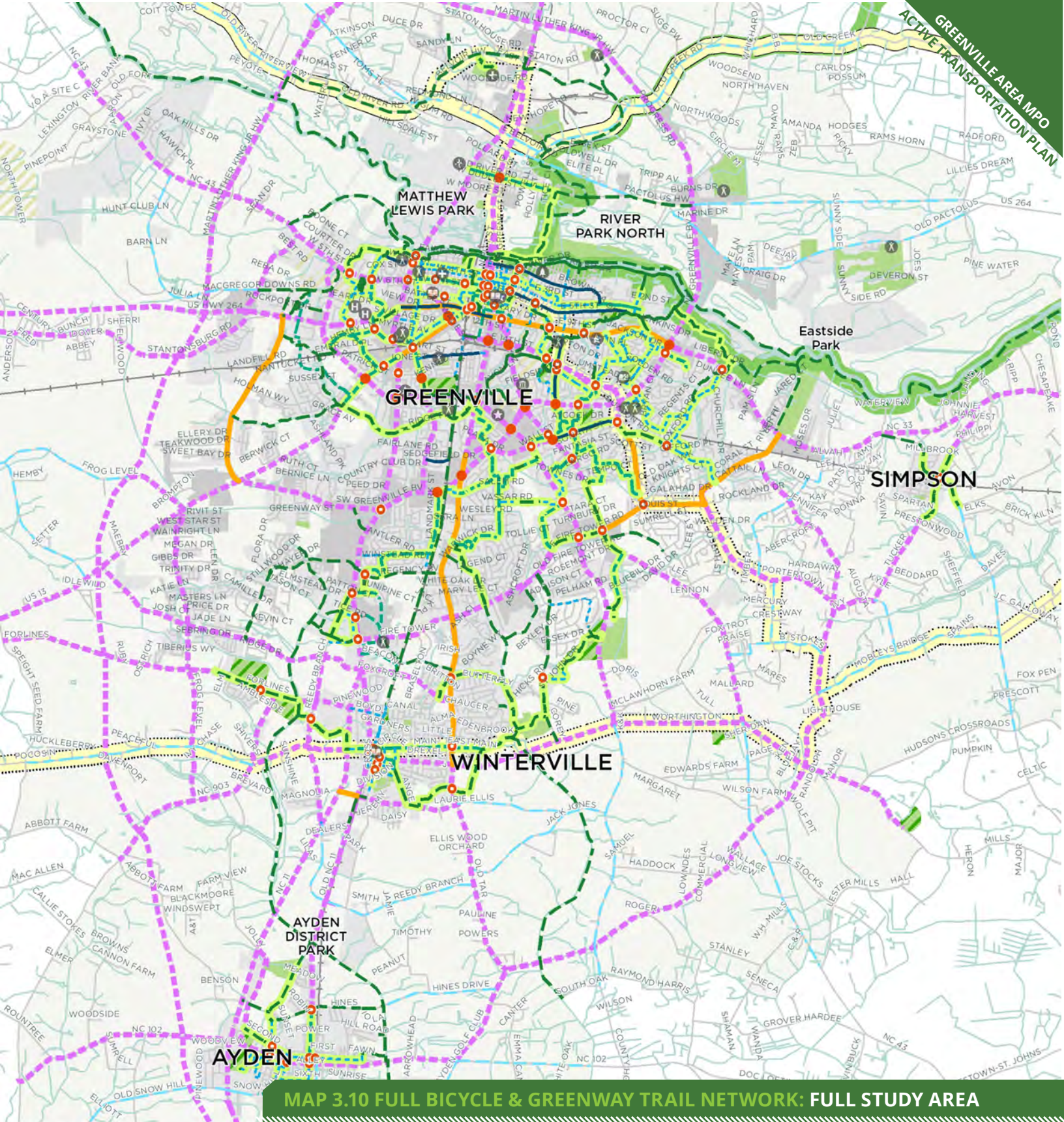
PROPOSED

- Crossing Improvement
- Shared Use Path
- Paved Shoulder
- **STRATEGIC BIKEWAY NETWORK**
- Separated Bikeway (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES

- Park
- Greenville MPO
- Municipal Boundaries





MAP 3.10 FULL BICYCLE & GREENWAY TRAIL NETWORK: FULL STUDY AREA

- | | |
|---|--|
| EXISTING | PROPOSED |
| <ul style="list-style-type: none"> Shared Use Path Bike Lane State Bike Route Updated State Bike Route (Unsigned) | <ul style="list-style-type: none"> Crossing Improvement In Development Shared Use Path Buffered Bike Lane Neighborhood Bikeway Paved Shoulder East Coast Greenway |
| <p>STRATEGIC BIKEWAY NETWORK</p> <p>MAJOR CORRIDOR IMPROVEMENTS</p> <ul style="list-style-type: none"> In Development Separated Bikeway (and Pedestrian Facilities) | |

DESTINATIONS & BOUNDARIES

- | | |
|---|--|
| <ul style="list-style-type: none"> Airport Community Center Hospital Library Playground Rec Center Stadium Bike Shops | <ul style="list-style-type: none"> Park School East Carolina University Greenville MPO Municipal Boundaries Commercial Areas |
|---|--|

4

Pedestrian Network

"I don't walk because there are not a lot of sidewalks and I don't feel safe walking near traffic."

- Public Comment, 2016



Overview

This chapter provides a summary of the key types of pedestrian facilities (including greenway trails) and features a series of maps showing where those facilities are recommended.

Key Inputs

Similar to the development of the proposed bikeway network, the proposed pedestrian network is the result of extensive public input and review of existing conditions. According to the 2016 public comment for this planning process, **about a third (31%) of all respondents do not feel safe walking in the Greater Greenville Area**; about a quarter of them (24%) do feel safe, and rest (45%) feel “somewhat safe”. This would suggest that there is plenty of room for improvement, especially when combined with other key inputs, such as the **Equity Analysis (Map 2.3)**, the **High Injury Network Analysis (Map 2.4)**, and the **Pedestrian Level of Service Analysis (Map 2.9)**. These inputs help to form the basis for recommendations in this chapter, which aims to provide a safe and comfortable experience for pedestrians of all ages and abilities.



Many respondents to the 2016-17 public comment form expressed feeling safest walking along Greenville’s greenway trails and along neighborhood streets, far away from roadways with busy traffic. Above: New bridge along the Greens Mill Run Greenway (Photo by FROGGS)

Planning the Pedestrian and Greenway Trail Network

The proposed pedestrian network is a result of a collaborative planning process that involved extensive public engagement, data collection, and technical analysis.

Findings from the equity analysis, crash analysis, and level of service analysis provided quantitative data that directly informed the network recommendations. Additionally, more qualitative input from the public and the steering committee helped to inform the project team in developing a recommended network of well-connected, low-stress facilities. The end result is a recommended pedestrian and greenway network that is designed to align with the vision of this plan, creating safe and convenient pedestrian-friendly streets and trails for people of all ages, abilities, and incomes.

BASIS OF PEDESTRIAN RECOMMENDATIONS *(and where to find more information)*

Committee & Public Input

Online Public Input Map & Committee Map Mark-ups (page 30)

Online Public Survey (page 28)

Public Outreach Events and Open Houses (page 22)

Connecting Destinations

Uptown District, East Carolina University, County Home Complex, medical centers, shopping centers, parks, schools, and downtown areas in Winterville, Ayden, and Simpson (page 31)

Mapping Analysis

Crash Analysis (page 36)

Demographic & Equity Analysis (page 34)

Pedestrian Level of Service (PLOS) Analysis (page 48)

Existing Plans & Facilities

2011 Bike/Ped Plan & Other Adopted Plans (page 52)

Existing Pedestrian Facilities (page 44)

Existing Routes

East Coast Greenway (page 39)

State Bike Route 2 (pages 39 and 41)

2013 Bike Map (page 52)

2016 Online Input Map (page 30)

PEDESTRIAN & GREENWAY TRAIL NETWORK MAPS

Map 4.1:
Strategic Pedestrian Network
(page 89)

Map 4.2:
Major Corridor Improvements
(page 91)

Maps 4.3-4.10:
Full Pedestrian and Greenway Trail Network
(pages 92-99)

Types of Facilities in the Pedestrian Network Maps

Sidewalks

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved safety, and the creation of social space.



Wide sidewalks in Greenville, NC's Uptown District.



Sidewalk with grass buffer on Hooker Road in Greenville, NC.

DESIGN GUIDELINES:

Sidewalk Zones & Widths: Page B-6

Green Infrastructure: Page B-8

Driveways: Page B-10

Access Through Construction Zones: Page B-11

Parklets: Page B-12

Shared Use Paths*

*For an overview of shared use paths, greenway trails, and sidepaths, see pages 68-69.

Pedestrian Intersection Treatments

Sidewalks and shared use paths provide mobility along linear paths. But eventually, people need to cross roads and streets at intersections. These intersections, where the paths of people and vehicles come together, can be the most challenging part of negotiating a pedestrian network. The pedestrian intersection treatments recommended in this plan can be found on the maps that follow, as well in the tables of Appendix C.



Intersection of 14 St & Fleming St, with crosswalks, curb ramps, and countdown signals.



Intersection of Cotanche St and Reade Cir, with brick crosswalks.

DESIGN GUIDELINES:

Accessible Curb Ramps: Page B-14

Curb Extensions: Page B-15

Median Refuge Island: Page B-16

Pedestrian Signal Strategies: Page B-17

Active Enhanced Trail Crossing: Page B-78

Route Users to Signalized Crossing: Page B-79

Grade-Separated Crossings: Page B-80

Recommended Crossing Improvements

Many intersections in the Greater Greenville Area lack even basic crossing features, such as crosswalks, curb ramps, and pedestrian countdown signals. **These crossing locations are identified in the recommendations maps that follow (Maps 4.1-4.10).** At each of these locations, at least one curb ramp or marked crosswalk is missing and should be improved to meet ADA accessibility standards. Priority intersection improvements are highlighted in the priority project cutsheets. For a complete list of crossing improvement needs, please see Appendix C. In order to meet the goals of this plan, it is critical that standard crossing facilities are incorporated into each crossing location for future roadway projects.

KEY COMPONENTS OF INTERSECTION DESIGN

These attributes will vary with context but should be considered in all design processes.

- **CLEAR SPACE:** *Corners should be clear of obstructions. They should also have enough room for curb ramps, for transit stops where appropriate, and for street conversations where pedestrians might congregate.*
- **VISIBILITY:** *It is critical that pedestrians on the corner have a good view of vehicle travel lanes and that motorists in the travel lanes can easily see waiting pedestrians.*
- **LEGIBILITY:** *Symbols, markings, and signs used at corners should clearly indicate what actions the pedestrian should take.*
- **ACCESSIBILITY:** *All corner features, such as curb ramps, landings, call buttons, signs, symbols, markings, and textures, should meet accessibility standards and follow universal design principles.*
- **SEPARATION FROM TRAFFIC:** *Corner design and construction should be effective in discouraging turning vehicles from driving over the pedestrian area. Crossing distances should be minimized.*
- **LIGHTING:** *Adequate lighting is an important aspect of visibility, legibility, and accessibility (pages 128-129).*

Sidewalk and Greenway Trail Network Maps

The Strategic Pedestrian Network

Design of the Strategic Pedestrian Network faces similar challenges as that of the Strategic Bicycle Network. Pedestrian friendly areas such as neighborhoods and uptown Greenville are separated by high-speed, high traffic volume “barrier” roadways. Many of these roadways have existing sidewalks, but due to lack of or limited buffer space, a lack of driveway access management, and high traffic volumes and speeds, some existing sidewalks still offer a low level of service to pedestrians. Examples include sidewalks along Greenville Blvd, Arlington Blvd, and Memorial Dr.

The Strategic Pedestrian Network builds upon the extensive existing network of sidewalks. There are over 160 miles of existing sidewalks in the study area, found in the downtown area of each community, in many neighborhoods, and along more recently (re)constructed major roadways.

Map 4.1 on the following page shows an overview of this network (highlighted in lime green), which has the following key features:

- Connects to the existing greenway network and existing extensive sidewalk network
- Connects key destinations
- Improves pedestrian conditions along barrier roadway corridors that carry high automobile traffic volumes and speeds
- Highlights strategic crossings of major roadway corridors
- Proposes short sections of shared use paths to make key links where necessary
- Complements the ongoing process of improvements to major corridors (see pages 90-91) that presently only minimally accommodate pedestrians (and that do not accommodate bicyclists).

FEATURED FACILITY TYPES IN MAP 4.1 STRATEGIC PEDESTRIAN NETWORK:

Sidewalks

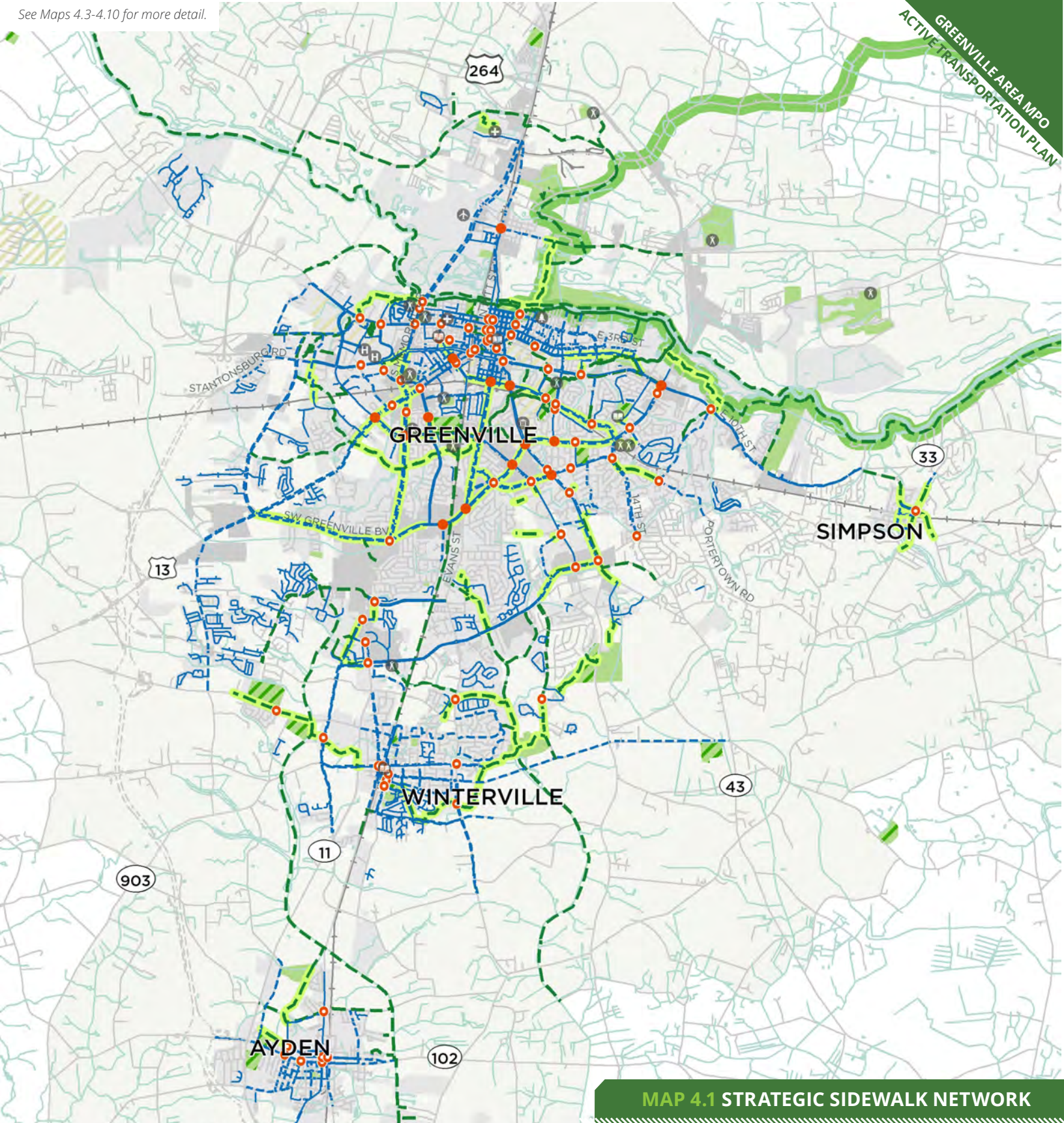


Shared Use Paths



Crossing Improvements





MAP 4.1 STRATEGIC SIDEWALK NETWORK

EXISTING
— Sidewalk
— Shared Use Path

PROPOSED
○ Crossing Improvement
● In Development
- - - Sidewalk
- - - Shared Use Path
— East Coast Greenway
— **STRATEGIC PEDESTRIAN NETWORK**

DESTINATIONS & BOUNDARIES

- | | |
|--------------------|----------------------------|
| ✈ Airport | 🌳 Park |
| 🏠 Community Center | 🎓 School |
| 🏥 Hospital | 🎓 East Carolina University |
| 📖 Library | 🌿 Greenville MPO |
| 🎡 Playground | 🏙 Municipal Boundaries |
| 🏟 Rec Center | 🏢 Commercial Areas |
| 🏟 Stadium | |

0 0.5 1 Miles

Major Corridor Improvements*

***The text on this page is repeated from the previous chapter, as this section applies to both the bicycle and pedestrian networks.** Likewise, the Major Corridor Improvements shown on Map 4.2 are identical to those on Map 3.2, the main difference being that Map 4.2 shows these corridors as they relate to the pedestrian network, rather than the bicycle network.

Much of the analysis in Chapter Two revealed that **major corridors throughout the study area are serving as barriers to safe movement and community-wide connectivity for bicyclists and pedestrians.** Many people reported being able to bike and walk comfortably on neighborhood streets and greenways, while feeling unsafe walking along or crossing major corridors. Unfortunately, many of these corridors cannot be made bicycle-friendly by the simple addition of a standard bicycle lane with no buffer. More substantial improvements are needed that will require additional roadway width, meaning significant changes to the overall corridor.

Map 4.2 identifies the major corridors that are in need of such improvements. In order to make the most cost-effective investments in the overall transportation network, this plan recommends that as these major corridors are planned for widening, resurfacing, and/or reconstruction, they should be redesigned as “complete streets”. NCDOT’s *Complete Streets Policy* defines Complete Streets as “North Carolina’s approach to interdependent, multi-modal transportation networks that safely accommodate access and travel for all users.”

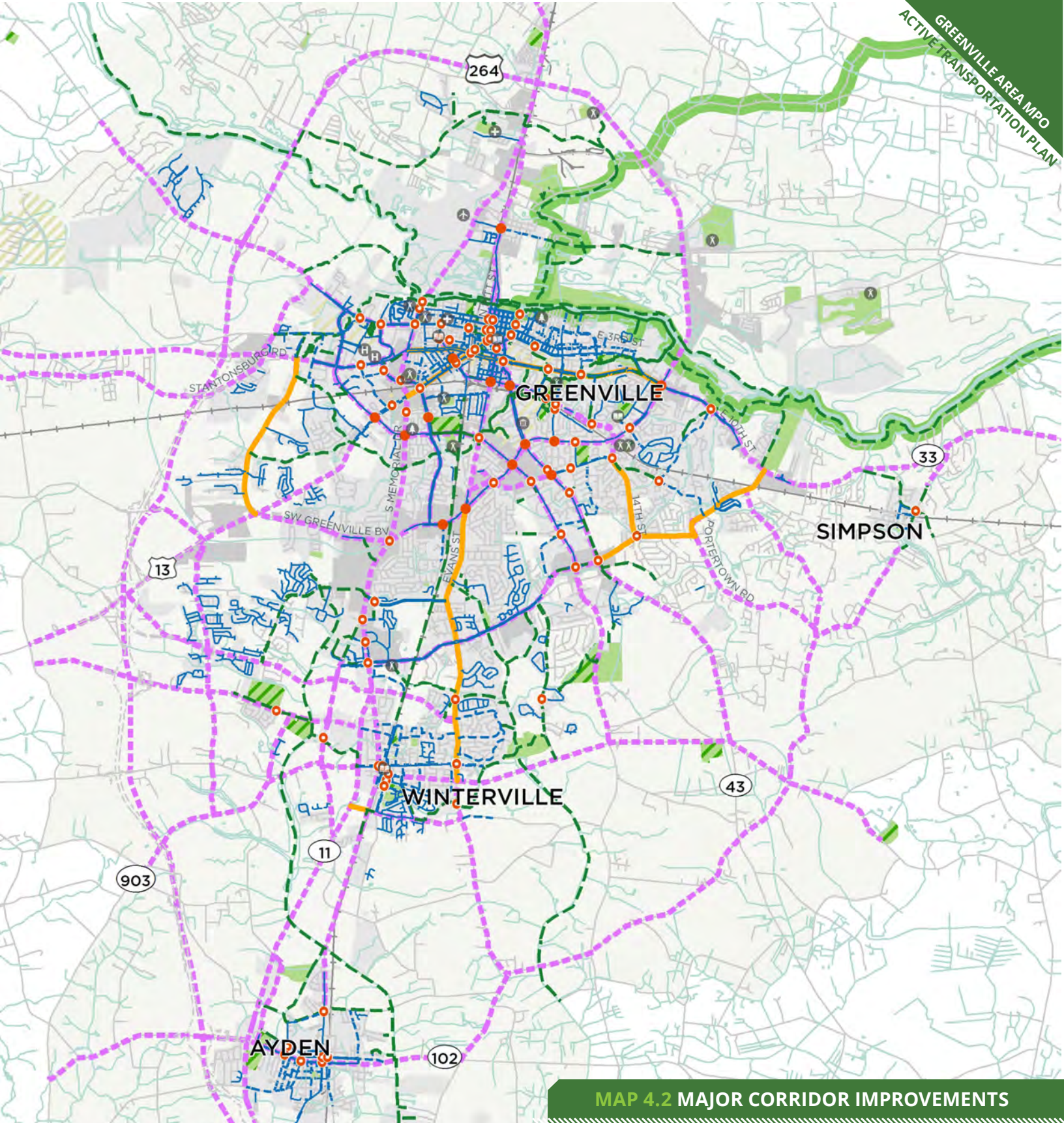
Implementing Complete Streets along roadway corridors originally designed for automobiles will require full redesign, involving driveway consolidation and reduction, landscaping, intersection improvements, possible lane reconfigurations, enhanced bus stops and transit facilities, and physical separation for bicyclists and pedestrians from automobile traffic. Full corridor studies are needed to address these issues during (or in advance of) the design phase. **This plan lays the groundwork for these future projects by identifying and recommending these corridors for future**

redesign, to include separated bikeways and pedestrian facilities with physical separation from motor vehicle traffic. The type of physical separation will depend on the context of the corridor. A comprehensive design guide and list of design resources are provided in Appendix B.

At the time of this writing, several major roadway corridors were at various stages of the reconstruction process (in orange on Map 4.2):

- Evans St/Old Tar Rd widening - Greenville Blvd in Greenville to Worthington Rd in Winterville
- 10th St Connector - 10th St extension from Evans St to Stantonsburg Rd.
- 10th St Corridor Study - 10th St from Evans St to Greenville Blvd
- Allen Rd widening - Stantonsburg Rd to Dickinson Ave
- Fire Tower Rd/Portertown Rd widening - Charles Blvd to NC 33
- 14th St improvements - Fire Tower Rd to Red Banks Rd
- Dickinson Ave improvements - Reade Cir to Memorial Dr
- Laurie Ellis Rd extension - from the existing western terminus at Mill St to NC 11

While the projects above will be completed at various points over the next 10 years, the next generation of major roadway improvement projects should be required to include separated bikeways and pedestrian facilities appropriate for people of all ages and abilities (in pink dash on Map 4.2).



MAP 4.2 MAJOR CORRIDOR IMPROVEMENTS

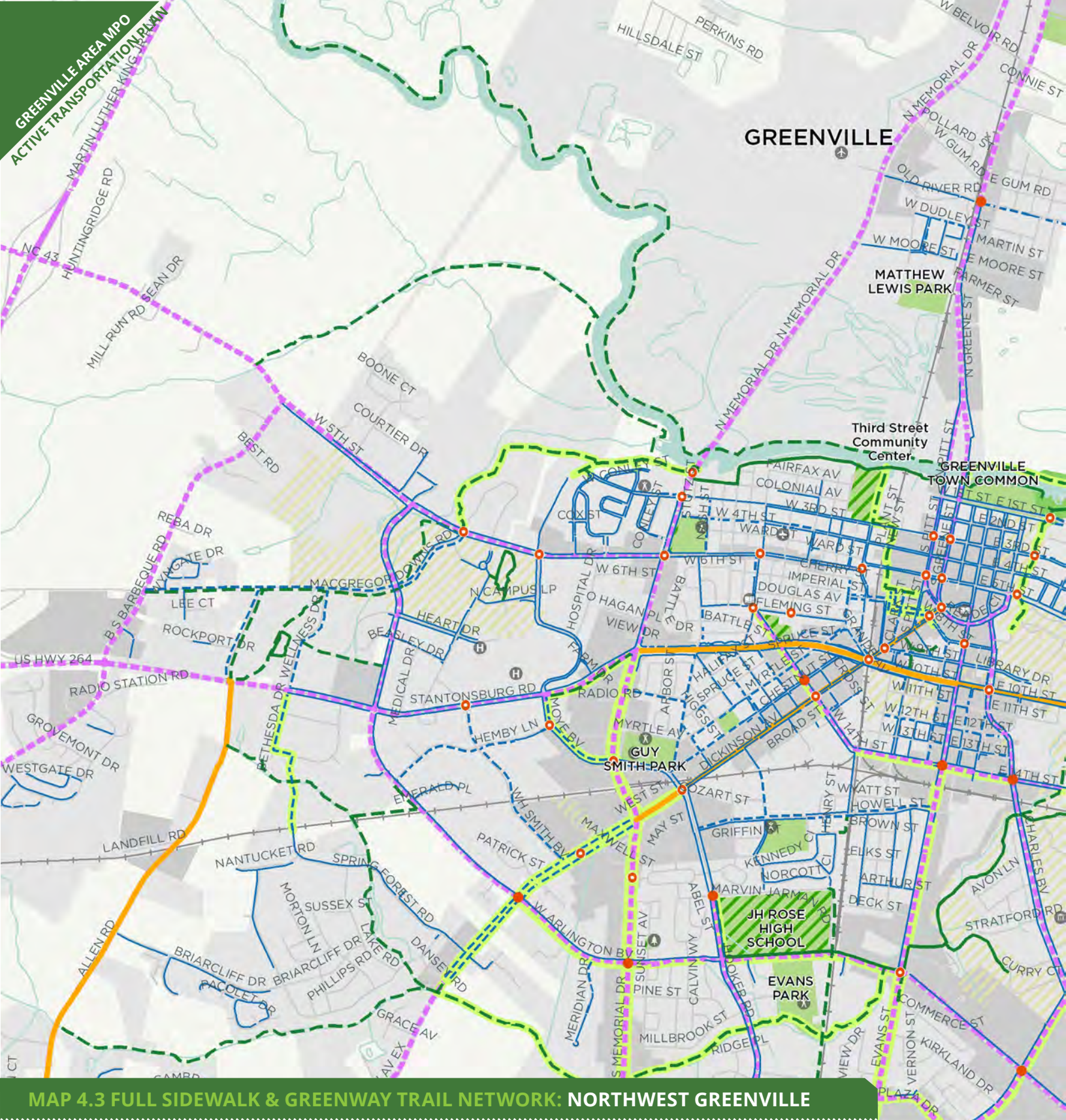
EXISTING
— Sidewalk
— Shared Use Path

PROPOSED
● Crossing Improvement
● In Development
— Sidewalk
— Shared Use Path
— East Coast Greenway
MAJOR CORRIDOR IMPROVEMENTS
— In Development
— Separated Bikeway (and Pedestrian Facilities)

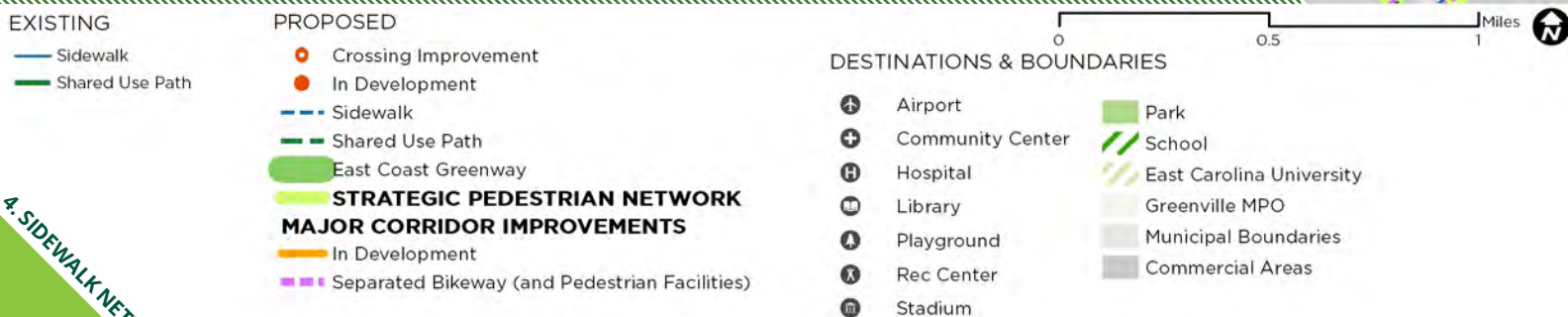
DESTINATIONS & BOUNDARIES

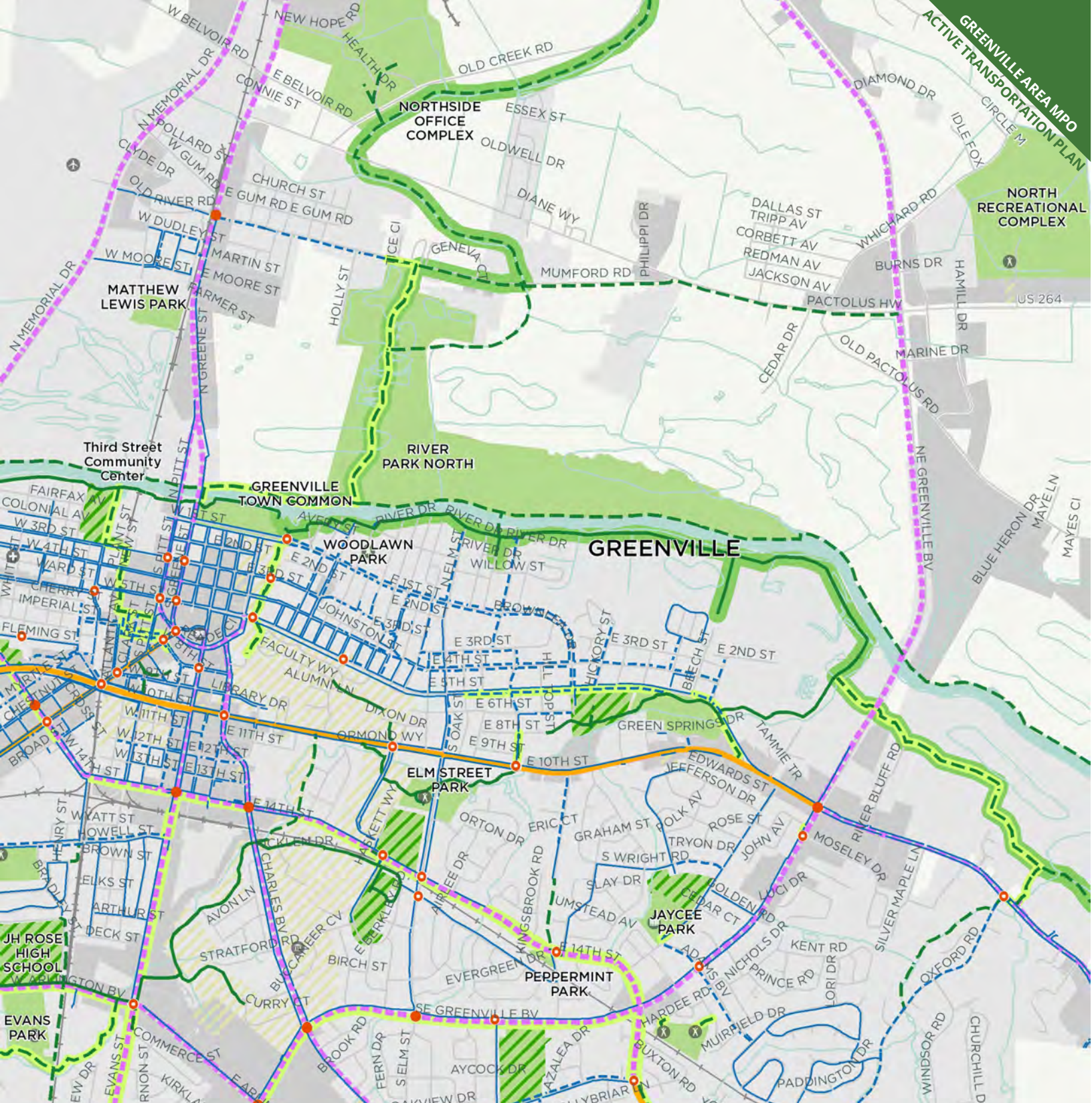
- ✈ Airport
- ⛥ Community Center
- H Hospital
- 📖 Library
- 🎡 Playground
- 🏟 Rec Center
- ⚽ Stadium
- 🌳 Park
- 🎓 School
- 🏫 East Carolina University
- 🗺 Greenville MPO
- 🏘 Municipal Boundaries
- 🏢 Commercial Areas

0 0.5 1 Miles



MAP 4.3 FULL SIDEWALK & GREENWAY TRAIL NETWORK: NORTHWEST GREENVILLE



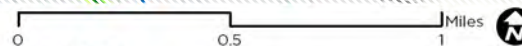


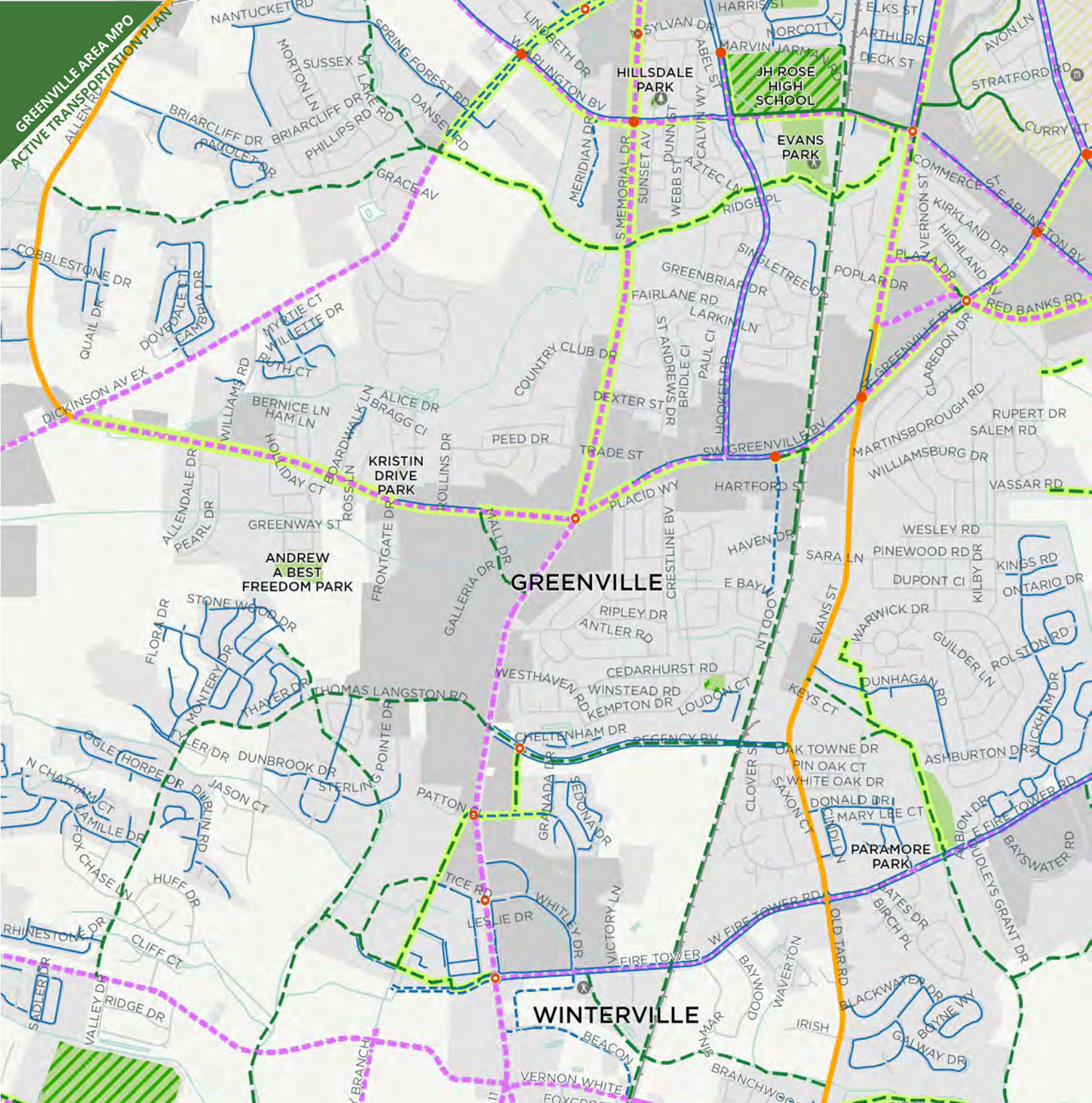
MAP 4.4 FULL SIDEWALK & GREENWAY TRAIL NETWORK: NORTHEAST GREENVILLE

- | EXISTING | PROPOSED |
|-------------------------------------|---|
| Sidewalk | Crossing Improvement |
| Shared Use Path | In Development |
| | Sidewalk |
| | Shared Use Path |
| | East Coast Greenway |
| STRATEGIC PEDESTRIAN NETWORK | |
| MAJOR CORRIDOR IMPROVEMENTS | |
| | In Development |
| | Separated Bikeway (and Pedestrian Facilities) |

DESTINATIONS & BOUNDARIES

- | | |
|------------------|--------------------------|
| Airport | Park |
| Community Center | School |
| Library | East Carolina University |
| Playground | Greenville MPO |
| Rec Center | Municipal Boundaries |
| Stadium | Commercial Areas |



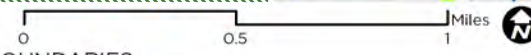


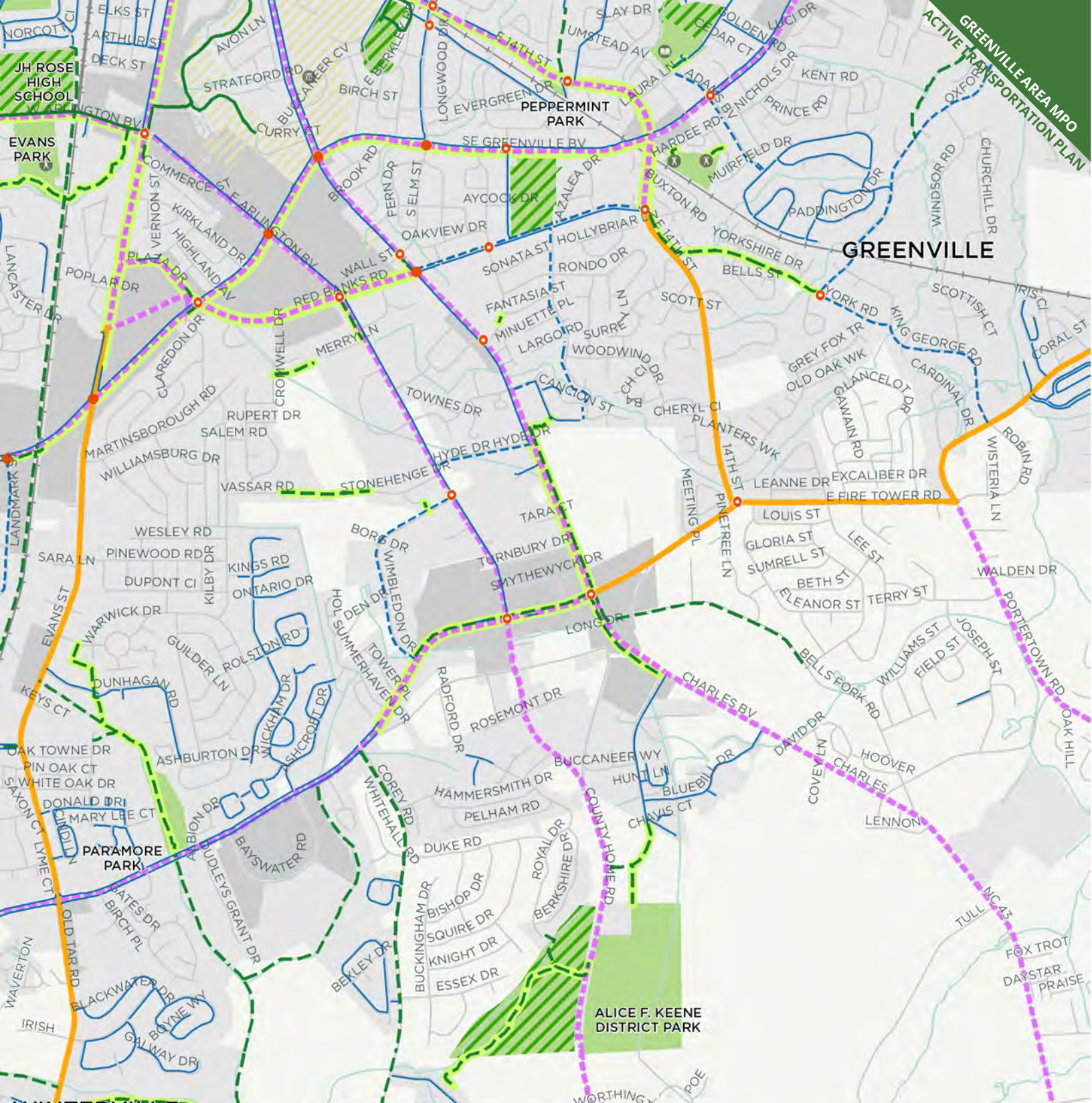
MAP 4.5 FULL SIDEWALK & GREENWAY TRAIL NETWORK: SOUTHWEST GREENVILLE

EXISTING
 Sidewalk
 Shared Use Path

PROPOSED
 Crossing Improvement
 In Development
 Sidewalk
 Shared Use Path
STRATEGIC PEDESTRIAN NETWORK
MAJOR CORRIDOR IMPROVEMENTS
 In Development
 Separated Bikeway (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES
 Playground
 Rec Center
 Stadium
 Park
 School
 East Carolina University
 Greenville MPO
 Municipal Boundaries
 Commercial Areas



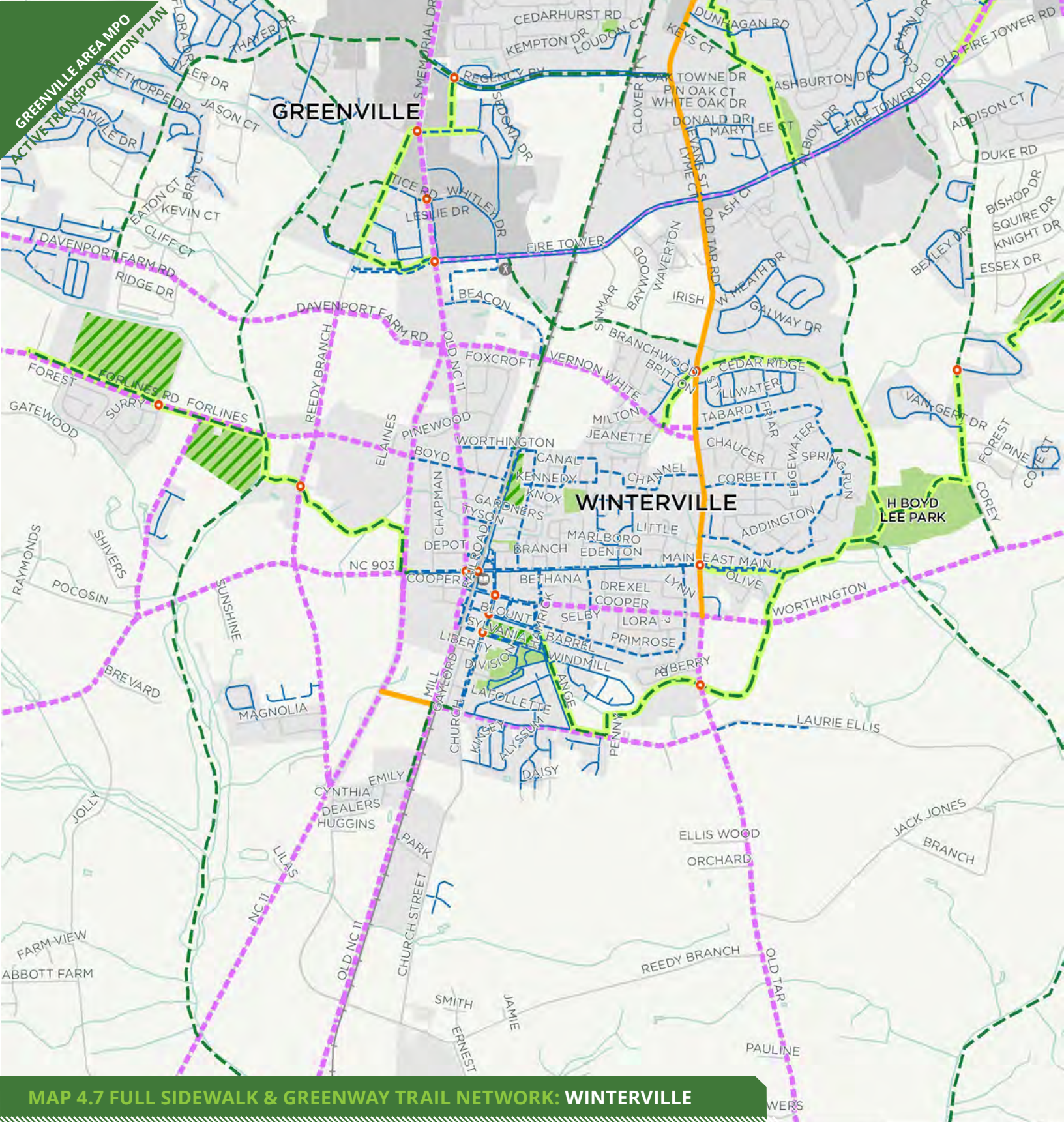


MAP 4.6 FULL SIDEWALK & GREENWAY TRAIL NETWORK: SOUTHEAST GREENVILLE

- | | |
|-----------------|---|
| EXISTING | PROPOSED |
| Sidewalk | Crossing Improvement |
| Shared Use Path | In Development |
| | Sidewalk |
| | Shared Use Path |
| | East Coast Greenway |
| | STRATEGIC PEDESTRIAN NETWORK |
| | MAJOR CORRIDOR IMPROVEMENTS |
| | In Development |
| | Separated Bikeway (and Pedestrian Facilities) |

DESTINATIONS & BOUNDARIES

- | | |
|------------|--------------------------|
| Library | Park |
| Rec Center | School |
| Stadium | East Carolina University |
| | Greenville MPO |
| | Municipal Boundaries |
| | Commercial Areas |



MAP 4.7 FULL SIDEWALK & GREENWAY TRAIL NETWORK: WINTERVILLE

EXISTING

- Sidewalk

PROPOSED

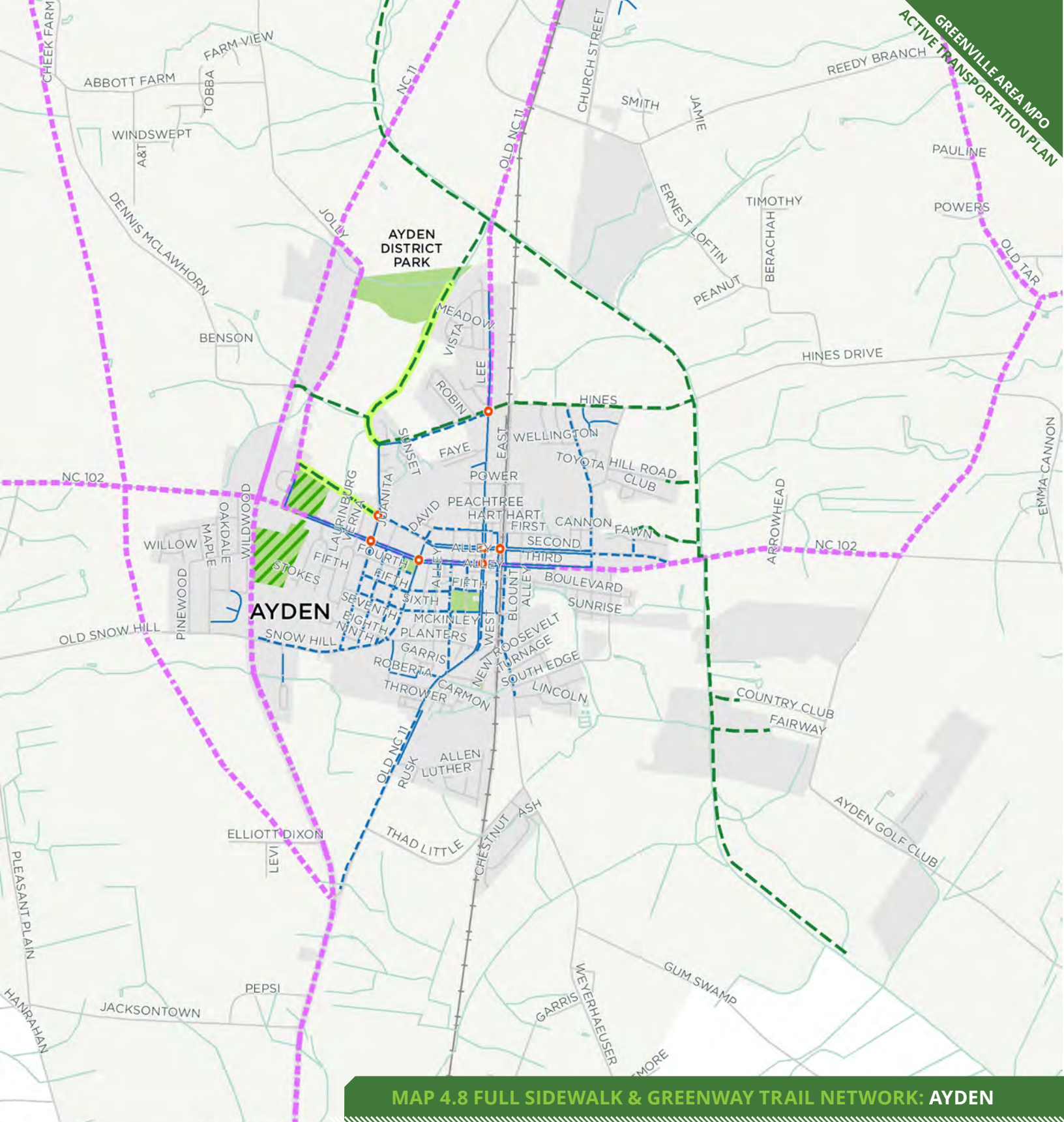
- Crossing Improvement
- Sidewalk
- Shared Use Path
- STRATEGIC PEDESTRIAN NETWORK**
- MAJOR CORRIDOR IMPROVEMENTS**
- In Development
- Separated Bikeway (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES

- Library
- Rec Center
- Park
- School
- Greenville MPO
- Municipal Boundaries
- Commercial Areas

0 0.5 1 Miles

North Arrow



MAP 4.8 FULL SIDEWALK & GREENWAY TRAIL NETWORK: AYDEN

EXISTING

— Sidewalk

PROPOSED

● Crossing Improvement

--- Sidewalk

--- Shared Use Path

STRATEGIC PEDESTRIAN NETWORK

--- Separated Bikeway (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES

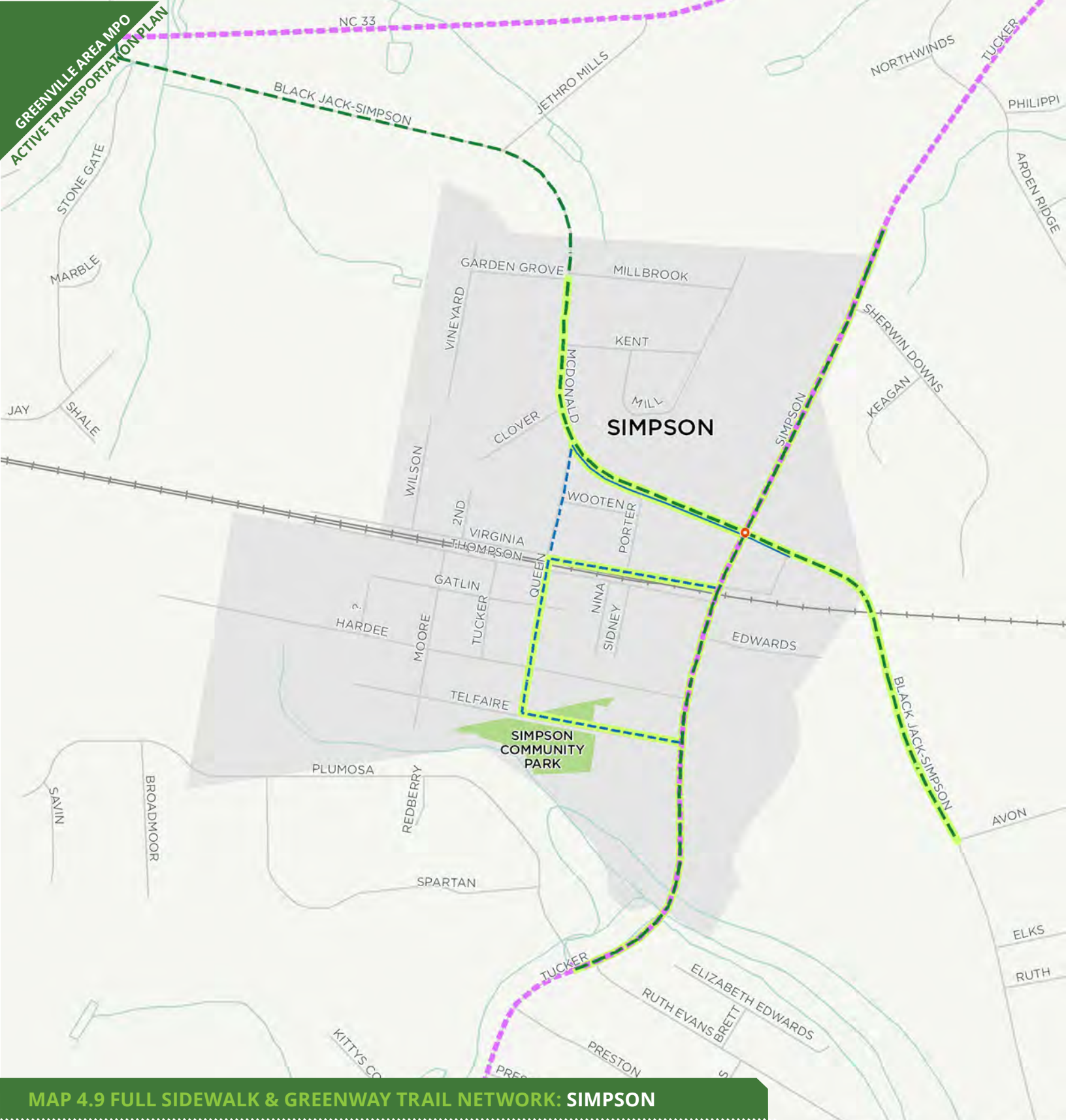
■ Park

■ School

■ Greenville MPO

■ Municipal Boundaries





MAP 4.9 FULL SIDEWALK & GREENWAY TRAIL NETWORK: SIMPSON

EXISTING

— Sidewalk

PROPOSED

● Crossing Improvement

--- Sidewalk

--- Shared Use Path

--- **STRATEGIC PEDESTRIAN NETWORK**

--- Separated Bikeway (and Pedestrian Facilities)

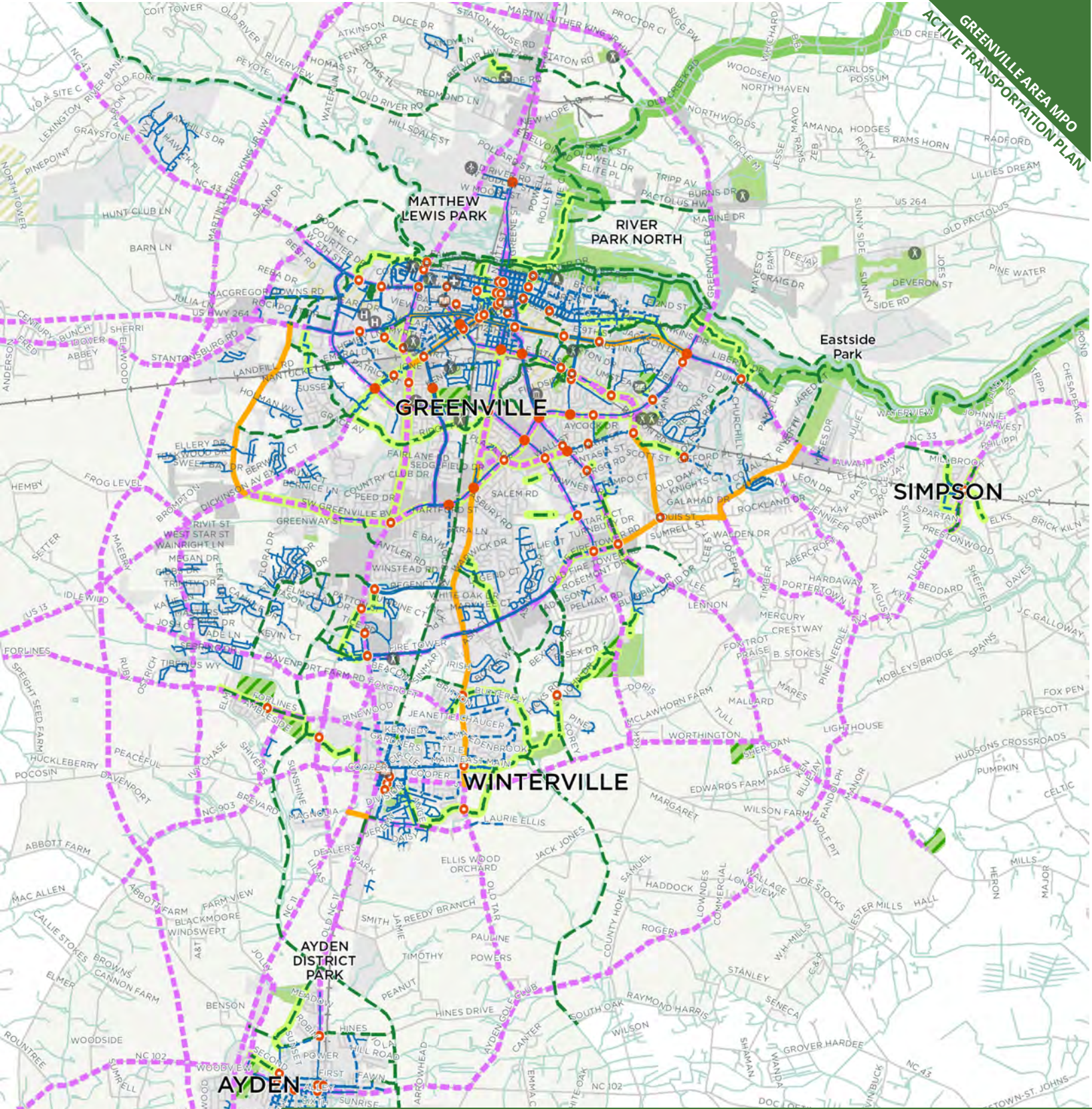
DESTINATIONS & BOUNDARIES

■ Park

■ Greenville MPO

■ Municipal Boundaries

0 500 1,000 Feet



MAP 4.10 FULL SIDEWALK & GREENWAY TRAIL NETWORK: FULL STUDY AREA

- EXISTING**
- Sidewalk
 - Shared Use Path
- PROPOSED**
- Crossing Improvement
 - In Development
 - Sidewalk
 - Shared Use Path
 - East Coast Greenway
 - STRATEGIC PEDESTRIAN NETWORK**
 - MAJOR CORRIDOR IMPROVEMENTS**
 - In Development
 - Separated Bikeway (and Pedestrian Facilities)

DESTINATIONS & BOUNDARIES

- Airport
- Community Center
- Hospital
- Library
- Playground
- Rec Center
- Stadium
- Park
- School
- East Carolina University
- Greenville MPO
- Municipal Boundaries
- Commercial Areas



5

Priority Projects

"It is most important to find a way to link and connect all our neighborhoods"

- Public Comment, 2016

Overview

This chapter features detailed information on 24 potential projects. These were selected through a combination of prioritization factors and each project's potential to create a connected network.

This plan is designed as a long-term visionary document that provides a framework for the Greater Greenville Area to continue moving forward with active transportation and greenway trail development. To that end, the plan identifies a strategic network of 24 projects as a way of prioritizing the overall system. The order of actual project development will vary depending upon available local, state, and federal funding, and on development opportunities with other NCDOT projects (see Chapter 7 for more on project development). Still, in order to make informed decisions about project development, detail is provided for each of the priority facility segments in the pages that follow.

Prioritization Process

The main factors used for prioritization were based upon the criteria developed in the original 2011 Bicycle and Pedestrian Plan, and were updated for this planning process, **based on Steering Committee input and on updated input from the 1,000+ public comments received in 2016-17**. The full set of criteria used, and the weights assigned to each are listed on the following page.

The key steps in selecting projects included:

1. Dividing the proposed facilities in Chapters 3 & 4 into segments based on logical end-points such as existing facilities, major intersections, and key destinations;
2. Scoring and ranking the segments according to criteria on the following page; and,
3. Creating a logical and connected network of priorities out of the top projects.



Steering committee members ranked the factors used for prioritization during committee meeting #3, and then provided initial feedback on draft cutsheets in committee meeting #4.

Above: Steering Committee Meeting #4 in February 2017.

RANKED & WEIGHTED PRIORITIZATION CRITERIA

CRITERIA	WEIGHT
<i>Improves Access to a Park or Recreation Center</i>	5
<i>Improves Access to an Existing or Funded Trail</i>	5
<i>Improves Access to a School</i>	5
<i>Improves Access to ECU</i>	4
<i>Serves Area with Bike/Ped Accidents</i>	4
<i>Improves Access to Uptown Greenville</i>	4
<i>Serves Area Identified in 2016 Public Input Map/Comment Form</i>	4
<i>Improves Access to Medical Center</i>	4
<i>Serves Area Identified in the Equity Analysis</i>	4
<i>Improves Access to Higher Density Residential Areas</i>	4
<i>Improves Access to Major Shopping Centers</i>	4
<i>Priority Project from 2011 Plan</i>	3

Project Cut-Sheets

The following pages offer detailed information on each of the priority projects, including individual project maps. These sheets were designed based on the types of information required by potential funding partners, and feature the following information:

- Project length
- Facility Types
- Jurisdiction
- Trip Generators
- Previous Planning
- ROW needs
- Permitting needs
- Partnerships
- Traffic Volumes (AADTs)
- Projected Future Traffic Volumes
- Estimated Construction Costs
- Estimated Land Acquisition Costs
- Annotated Map of Project Corridor

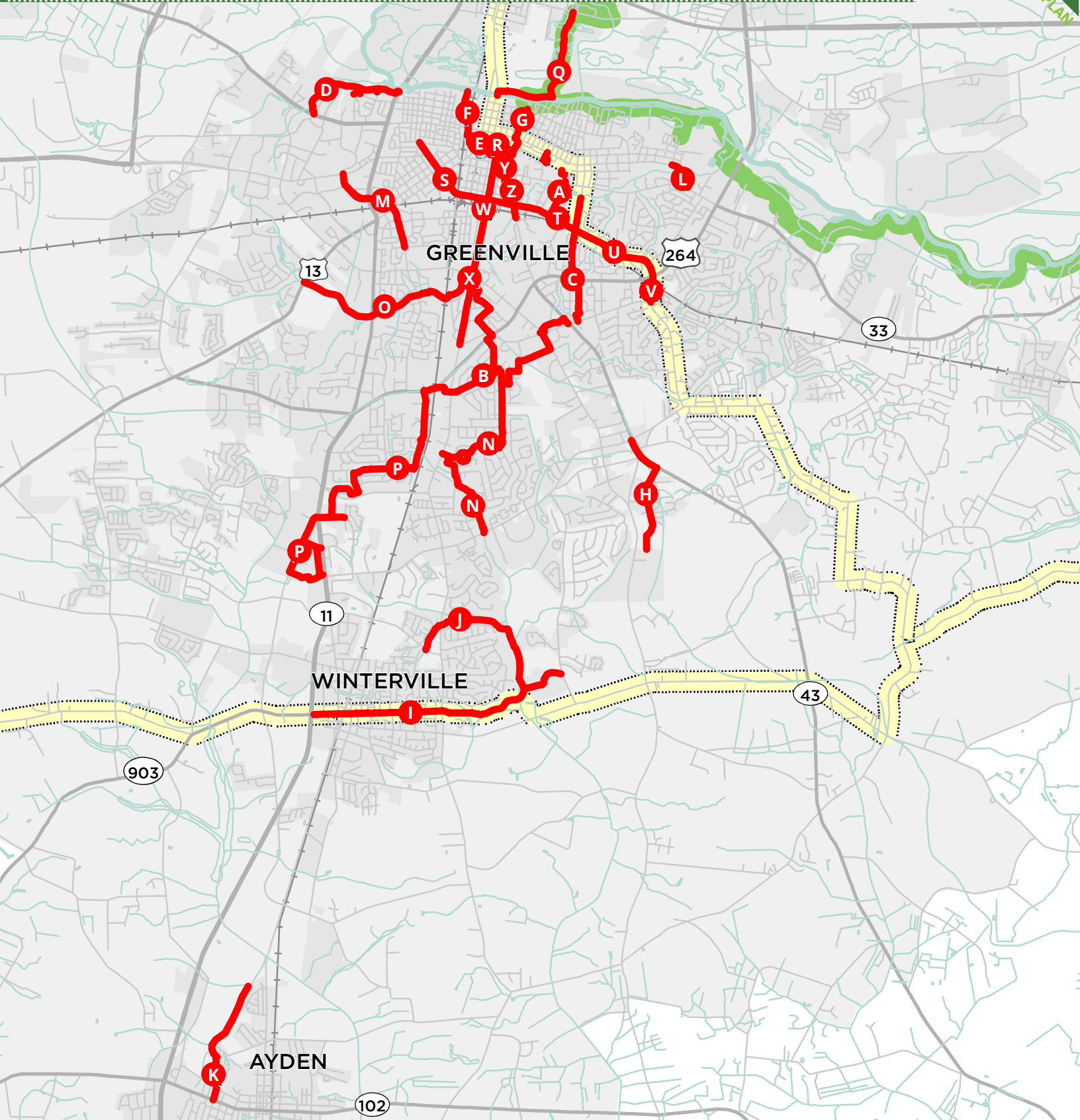
How to Use the Estimated Costs on the Following Pages:

When reviewing the the estimated costs in the following cut sheets, please take into account the following important notes and caveats:

- The cost estimates represent a planning-level of analysis and will likely change as more information becomes available in the design phase.
- Costs are listed in the base year of 2017, and should be escalated at a rate of 5% each year thereafter.
- Design costs can range between 10-15% of construction costs. Higher ranges will be encountered on projects utilizing federal funds that require a high level of regulatory compliance and on projects that impact FEMA regulated floodways that require detailed flood modeling and permitting. Small projects will also see higher percentages for design cost.
- Permitting needs and ROW costs are not included in this planning-level analysis, and will vary greatly depending on factors typically addressed in the design phase.

MAP 5.1 PRIORITY PROJECT KEY MAP

The letters on the map below correspond to the cutsheets on the following pages.



EXISTING

- State Bike
- Updated State Bike Route (Unsigned)

PROPOSED

- Priority Projects
- East Coast Greenway

BOUNDARIES

- Greenville MPO
- Municipal Boundaries

0 0.5 1 Miles



A. NORTH/SOUTH ROUTE 1

Project length: 0.8 miles

Facility Types: Neighborhood bikeway, shared use path segment (sidepath), crossing improvements

Jurisdiction: City of Greenville

Trip Generators: Elm Street Park, Greens Mill Run and Stadium Greenway, Elmhurst Elementary, ECU, Uptown, multiple residential and commercial areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan; 2013 ECU Bicycle & Pedestrian Plan

ROW needs: Shared use path segment (sidepath) along 14th St/Berkley Rd may require ROW acquisition

Partnerships: City of Greenville, ECU, Uptown Greenville, Tar River neighborhood/homeowner's association, Carolina Coastal Railway, Norfolk Southern

Estimated Construction Costs: \$390,000

Project Details

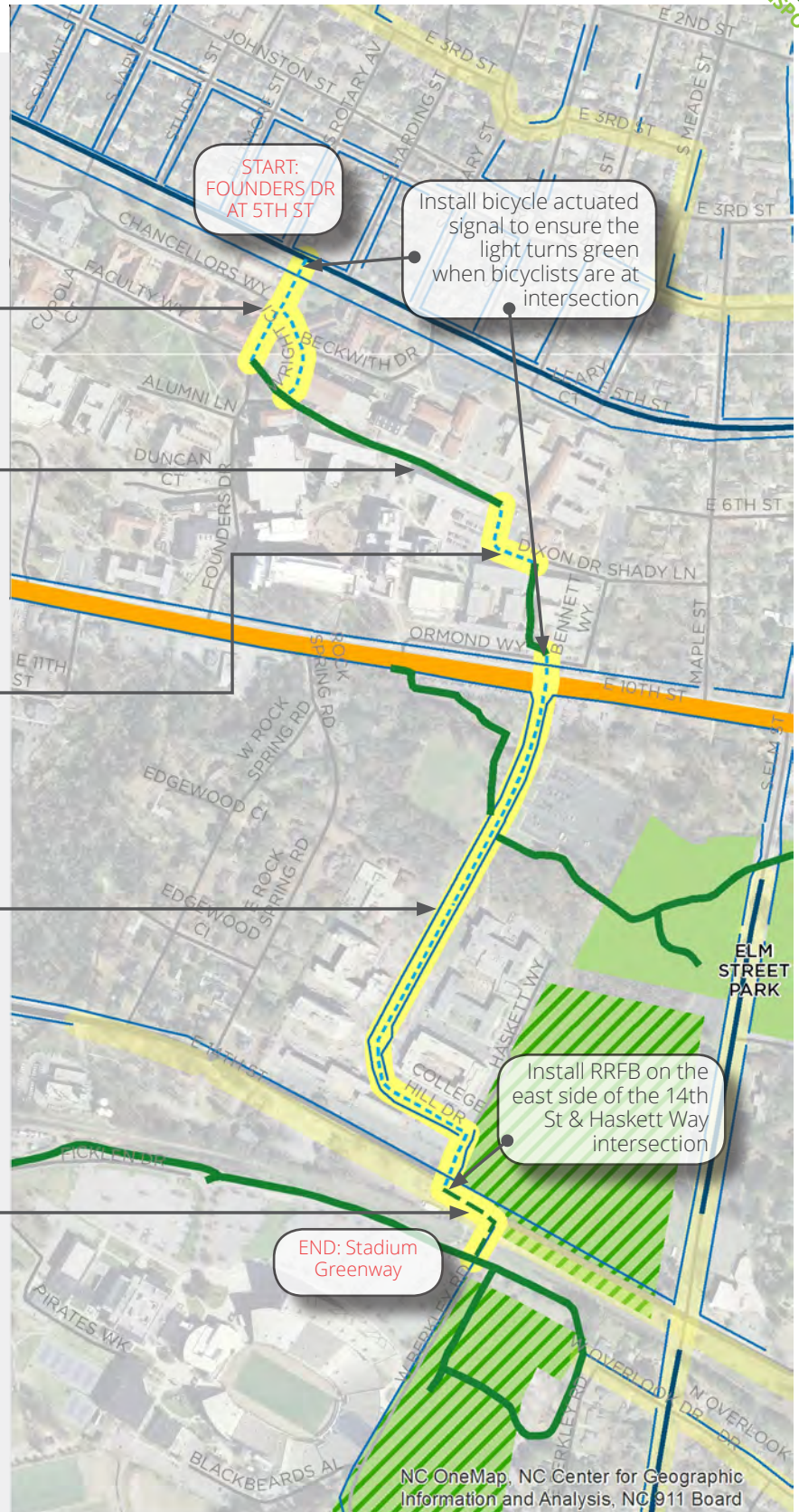
Implement neighborhood bikeway treatments along Founders Dr, and Wright Circle (for northbound bicyclists) to the Student Plaza shared use path through the heart of ECU campus.

The existing student plaza is a high volume pedestrian corridor, and bicyclists should proceed with caution through this area.

Implement neighborhood bikeway treatments along Dixon Dr from the Student Plaza shared use path to shared use path connection between the Music Library and Center for Natural Hazards Research, leading to the 10th St/College Hill Dr intersection.

Implement neighborhood bikeway treatments along College Hill Dr from 10th St to Haskett Way & the 14th St intersection; consider constructing separated bike lanes long term (see ECU Bicycle & Pedestrian Plan).

Construct short shared use path segment from the southeast corner of the Haskett Way/14th St intersection to the Stadium Greenway (widening the short section of sidewalk along the west side of Berkley Rd and crossing the railroad tracks).

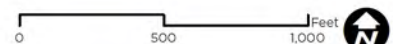


Existing

- Sidewalk
- Bike Lane
- Shared Use Path
- In Development

Proposed

- Shared Use Path
- Neighborhood Bikeway
- Strategic Bikeway/Pedestrian Network



B. NORTH/SOUTH ROUTE 1 (CONTINUED)

Project length: 1.8 miles

Facility Types: Neighborhood bikeway/buffered bike lanes, shared use path segment (sidepath), crossing improvements

Jurisdiction: City of Greenville

Trip Generators: Greens Mill Run and Stadium Greenway, ECU, Uptown, multiple residential and commercial areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Shared use path segment along Plaza Dr and Greenville Blvd/Granville Dr may require ROW acquisition

Partnerships: City of Greenville, ECU, Uptown Greenville, Plaza Dr shopping center businesses, BB&T, businesses on southeast corner of Arlington Blvd & Evans St, Lynndale neighborhood/home-owner's associations

Estimated Construction Costs: \$570,000

Project Details

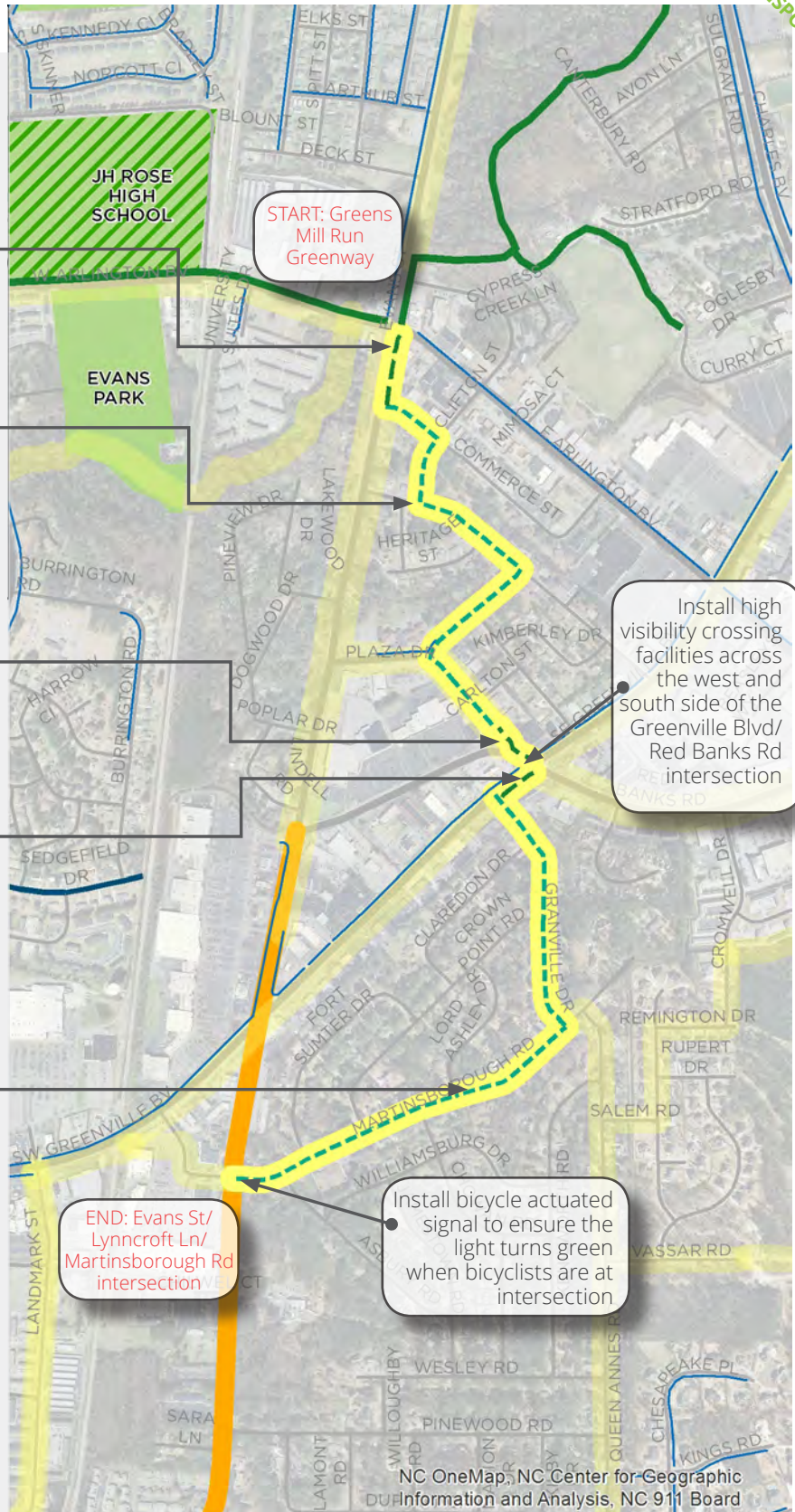
Continue short shared use path segment from the Greens Mill Run Greenway along the east side of Evans St to Commerce St.

*Implement either neighborhood bikeway treatments or stripe a separated bikeway along Commerce St, Clifton St, Kirkland Dr, Brinkley Rd, and Plaza Dr from Evans St to the Plaza Dr/Red Banks Rd intersection.

Construct shared use path segment along the north side of Plaza Dr from the east side of the shopping center driveway (Paint Center) to the northwest corner of the Greenville Blvd/Red Banks Rd intersection.

Construct shared use path segment along the southeast side of Greenville Blvd from Red Banks Rd to Granville Dr, bringing the path to the west side of the BB&T driveway along the northeast side of Granville Dr.

* Implement either neighborhood bikeway treatments or stripe a separated bikeway along Granville Dr and Martinsborough Rd to the Evans St/Lynncroft Ln/Martinsborough Rd intersection.



Existing

- Sidewalk
- Bike Lane
- Shared Use Path
- In Development

Proposed

- - Shared Use Path
- - Buffered Bike Lane

Strategic Bikeway/Pedestrian Network

0 500 1,000 Feet



C. NORTH/SOUTH ROUTE 2

Project length: 2.8 miles

Facility Types: Neighborhood bikeway/buffered bike lanes, greenway/sidepath, crossing improvements

Jurisdiction: City of Greenville

Trip Generators: Greens Mill Run and Stadium Greenway, ECU, Uptown, multiple residential and commercial areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Shared use path segment between Merry Ln and Cromwell Dr

Partnerships: City of Greenville, ECU, Arlington Village shopping center businesses, Southgate Apartments, Lynndale, Drexelbrook, Englewood, and Forest Hills neighborhood/homeowner's associations

Estimated Construction Costs: \$1,310,000

Project Details

*Consider removing parking along Elm Street to allow for increased safety for bicyclists along Elm Street by striping buffered bike lanes.

*Implement either neighborhood bikeway treatments or stripe a buffered bike lane along Elm St, Pinecrest Dr, Oakview Dr, and Churchside Dr to the existing bike lanes on Red Banks Rd.

Construct shared use path segment along the west side of Charles Blvd from the Red Banks Rd intersection to Wall St by widening the existing sidewalk.

Construct a separated bikeway along Wall St from Charles Blvd to Arlington Blvd/Yadkin Bank parking lot.

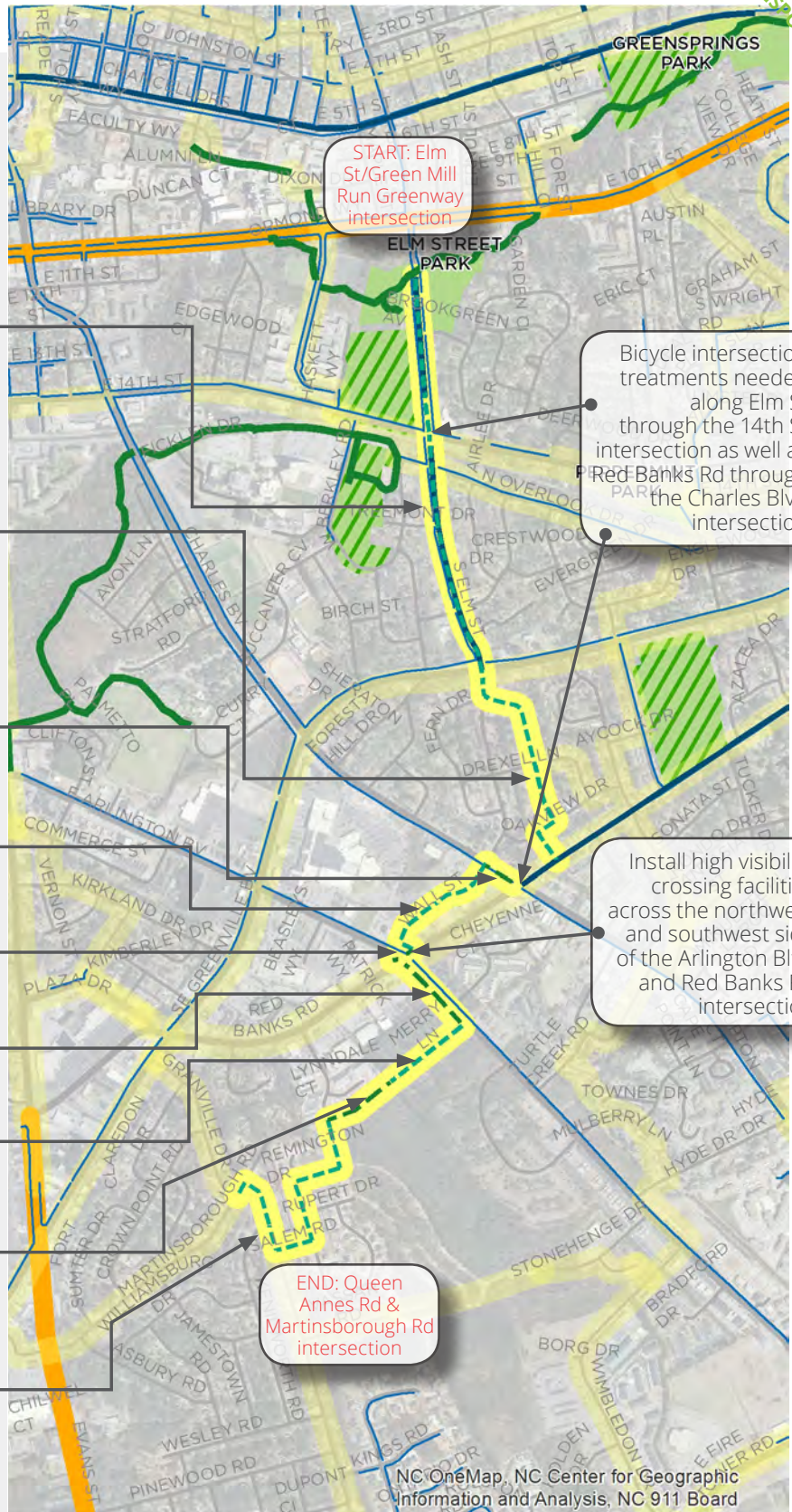
Construct shared use path segment from Wall St/Yadkin Bank parking lot to the northeast corner of the Arlington Blvd/Red Banks Rd intersection.

Continue shared use path segment along the west side of Arlington Blvd from Red Banks Rd to Merry Ln.

Construct separated bikeway along Merry Ln from Arlington Blvd to the western terminus of Merry Ln.

Continue shared use path segment from the western terminus of Merry Ln to Cromwell Dr along the existing utility easement.

* Implement either neighborhood bikeway treatments or stripe a separated bikeway along Cromwell Dr, Salem Rd, and Queen Annes Rd to Martinsborough Rd.



Existing

- Sidewalk
- Bike Lane
- Shared Use Path
- In Development

Proposed

- Shared Use Path
- Buffered Bike Lane

Strategic Bikeway/Pedestrian Network



D. TAR RIVER GREENWAY TO MEDICAL DISTRICT

Project length: 1.3 miles

Facility Types: Greenway, crossing improvements

Jurisdiction: City of Greenville

Trip Generators: Tar River Greenway, Medical District, ECU, Uptown, and multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Most of this project corridor would require ROW acquisition (Housing Authority owns section north of the Conley St)

Partnerships: City of Greenville, Uptown Greenville, ECU, Greenville VA Healthcare Center, Treybroooke Apartments, The Heritage at Arlington Apartments

Estimated Construction Costs: \$2,500,000

Project Details

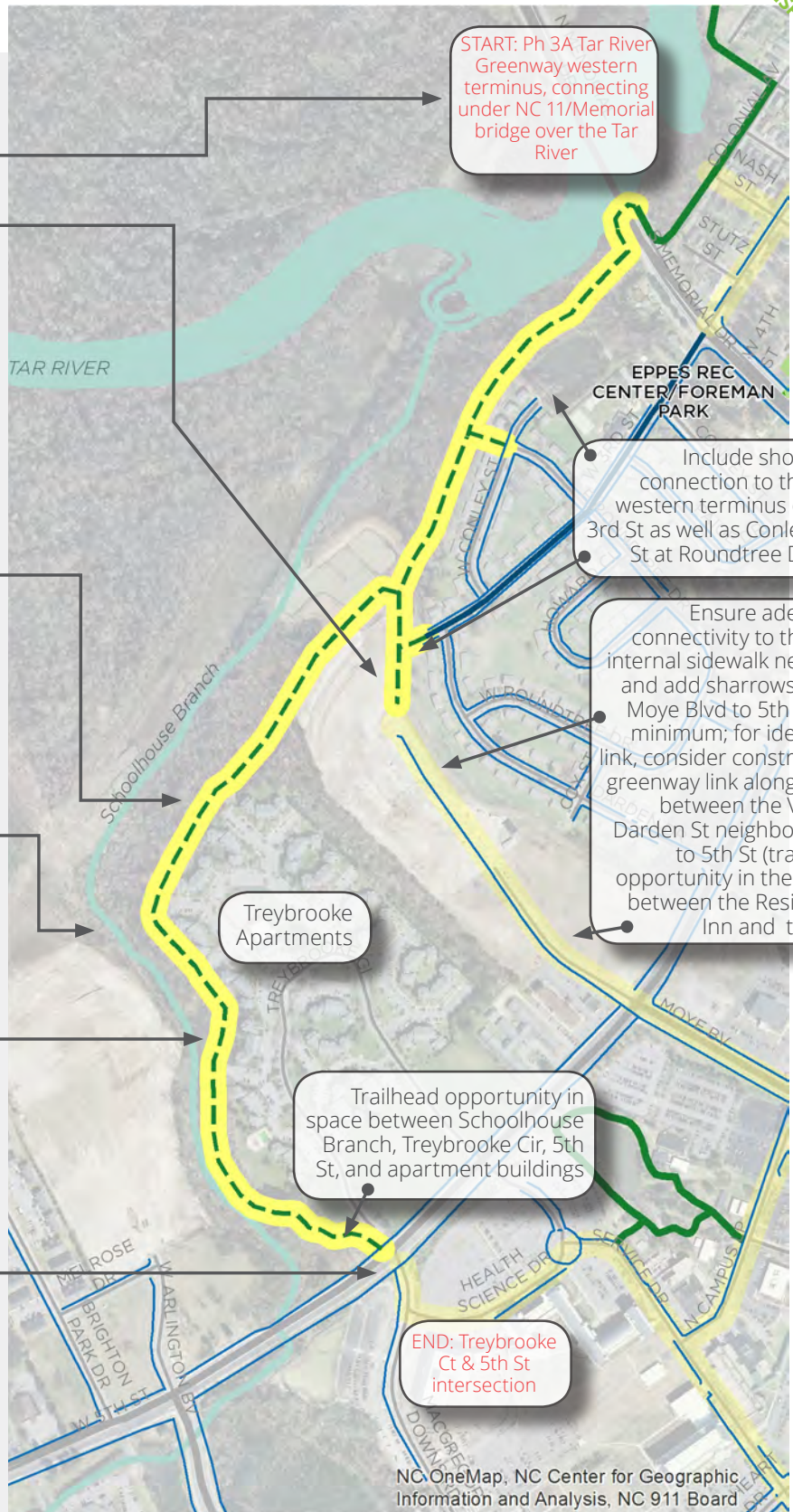
See the 2013 South Tar River Greenway Phase 3 preliminary alignment and design for this segment (from the start to the Greenville VA Healthcare Center).

The ideal greenway alignment continuing west from the VA should follow the cleared utility corridor that follows along the northern edge of the Treybrooke Apartments, staying south of Schoolhouse Branch.

Consider future greenway connectivity to the west along the cleared utility corridor that continues along the northern boundary of the apartment complexes to the west - this will require a strategically placed bridge over Schoolhouse Branch.

The ideal greenway alignment should continue along the western edge of the Treybrooke Apartments, staying on the south and east side of the Schoolhouse Branch corridor.

Construct crosswalk across 5th St at the western (and eastern) Treybrooke Cir intersection. This should include high visibility markings and a median refuge island (utilizing the existing median for space) at a minimum.



Existing

- Sidewalk
- Bike Lane
- Shared Use Path

Proposed

- Shared Use Path

- Strategic Bikeway/Pedestrian Network

0 500 1,000 Feet



E. GTAC TO ECU CONNECTOR

Project length: 0.6 miles

Facility Types: Neighborhood bikeway/buffered bike lanes, sidewalk, crossing improvements

Jurisdiction: City of Greenville

Trip Generators: ECU, Uptown, residential areas/ apartment complexes

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, Uptown Greenville, ECU, redevelopment stakeholders

Estimated Construction Costs: \$80,000

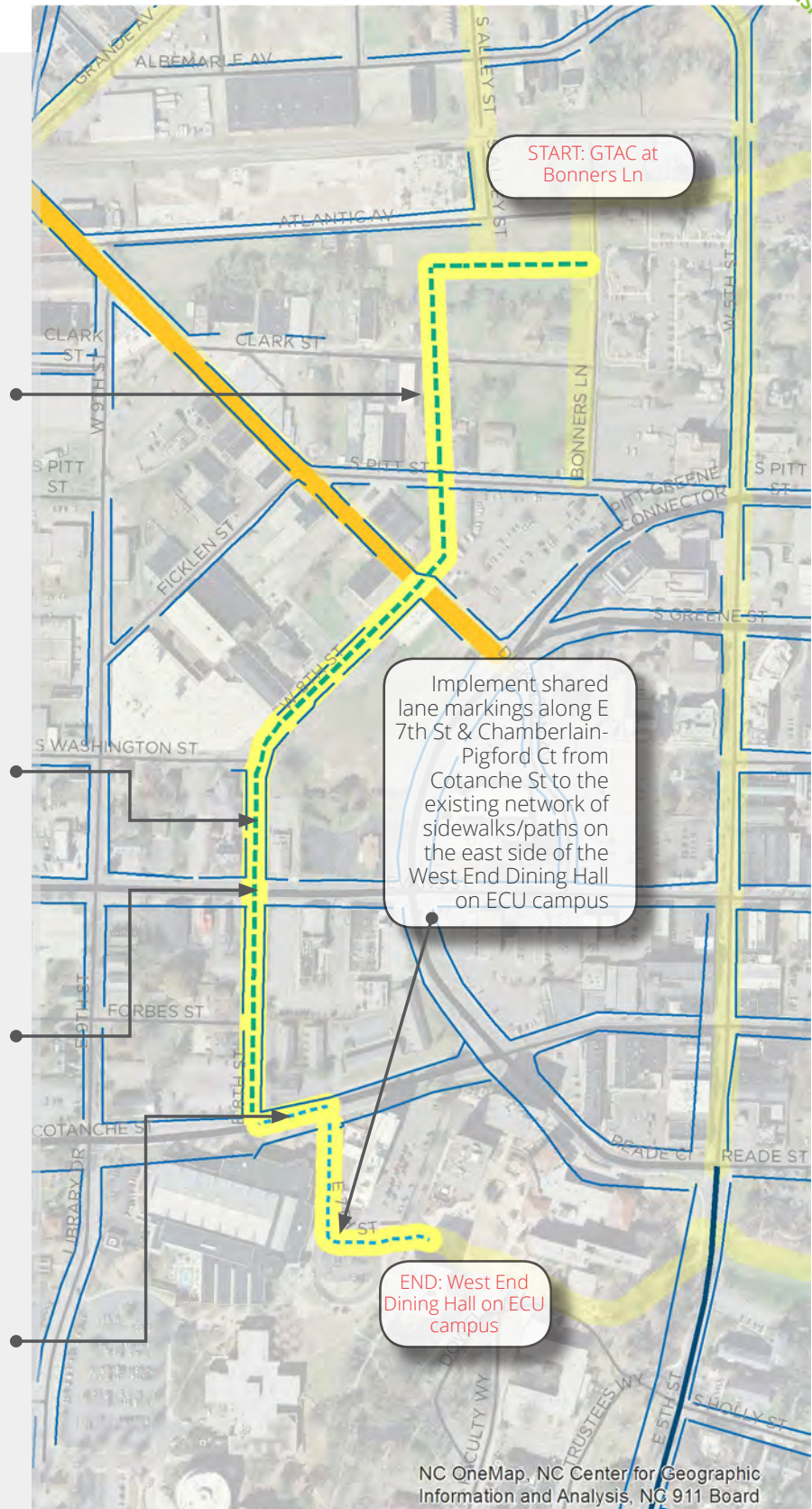
Project Details

Per the Dickinson Avenue Corridor Study, construct new street grid with future development that includes sidewalks and bicycle facilities (buffered bike lanes and/or neighborhood bikeway depending on redevelopment opportunities & constraints), linking the GTAC to ECU and the proposed Town Creek Culvert (TCC) Greenway to the east of Uptown. This connection includes a new street from Atlantic Ave to Dickinson Ave, aligning with the current western terminus of 8th St.

Construct bicycle facilities along 8th St from Dickinson Ave to Cotanche St (buffered bike lanes and/or neighborhood bikeway depending on redevelopment opportunities & constraints). The existing roadway pavement width will only allow for shared lane markings, but any redevelopment on the south side of 8th St could allow an opportunity to construct buffered bike lanes by adding pavement width.

Improve 8th St & Evans St intersection by constructing a median refuge island and high visibility crosswalks across the north side of the intersection.

The existing median refuge island at 7th St and Cotanche St provides a crossing for pedestrians as well bicyclists preferring to cross as pedestrians at this intersection; include shared lane markings through intersection as well.



Existing

- Sidewalk
- Bike Lane
- In Development

Proposed

- Buffered Bike Lane
- Neighborhood Bikeway
- Strategic Bikeway/Pedestrian Network

0 500 1,000 Feet



F. TAR RIVER GREENWAY TO GTAC CONNECTOR

Project length: 0.6 miles

Facility Types: Greenway, crossing improvements

Jurisdiction: City of Greenville

Trip Generators: GTAC, Tar River Greenway, Third Street Community Center, ECU, Uptown, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Shared use path segment between 3rd St and 5th St

Partnerships: City of Greenville, Uptown Greenville, Third Street Community Center, ECU, Redevelopment stakeholders, Nathaniel Village apartments (Redevelopment Commission of Greenville), Skinnerville and Cherry View neighborhood/homeowner's associations, CSX

Estimated Construction Costs: \$1,530,000

Project Details

Utilize greenspace between Third Street Community Center and electric substation to construct greenway segment from the existing S Tar River Greenway to 3rd St.

Construct short sidepath segment along the north side of 3rd St from the Third Street Community Center to the east side of the railroad tracks by expanding or replacing the existing sidewalk.

Construct greenway segment from 3rd Street to the Greenville Transportation Activity Center (GTAC) (construction Nov 2016). High visibility marked crosswalks will be needed across 3rd St, 4th St, and 5th St. Utilize vacant property east of the railroad tracks (and west of existing housing) for this segment.

Construct sidepath segment along the south side of Bonners Ln from Atlantic Ave, linking to the GTAC - parts of this section should be included as part of the GTAC development.



Existing

- Sidewalk
- Shared Use Path
- In Development

Proposed

- Shared Use Path

- Strategic Bikeway/Pedestrian Network

0 500 1,000 Feet



NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

G. TOWN CREEK CULVERT (TCC) GREENWAY

Project length: 0.5 miles

Facility Types: Greenway, crossing improvements

Jurisdiction: City of Greenville

Trip Generators: Tar River Greenway, Town Commons, ECU, Uptown, multiple residential areas

Previous Planning: 2013 ECU Bicycle and Pedestrian Plan

ROW needs: Length of project is ECU property

Partnerships: City of Greenville, Uptown Greenville, ECU, Tar River neighborhood/home-owner's association

Estimated Construction Costs: \$940,000

Project Details

Construct the Town Creek Culvert (TCC) greenway from ECU campus to Town Commons, following the eastern boundary of parking lots on the east side of Reade St.

The existing wide sidewalk/path includes stairs between campus and 5th St - construct stair channel to accommodate bicycles carried up/ down this set of stairs.



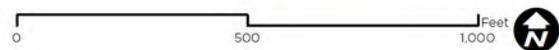
Existing

- Sidewalk
- Bike Lane
- Shared Use Path

Proposed

- Shared Use Path

- Strategic Bikeway/Pedestrian Network



H. KEENE PARK GREENWAY LINK

Project length: 1.3 miles

Facility Types: Greenway, sidepath, buffered bike lanes

Jurisdiction: City of Greenville, Pitt County

Trip Generators: Fire Tower Rd/Charles Blvd businesses, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Shared use path segment from the southern terminus of Signature Dr to Keene Park

Partnerships: City of Greenville, Pitt County, Bellamy Student Apartments, Fire Tower Rd/Charles Blvd businesses, redevelopment stakeholders (potential development between southern terminus of Signature Dr and Keene Park)

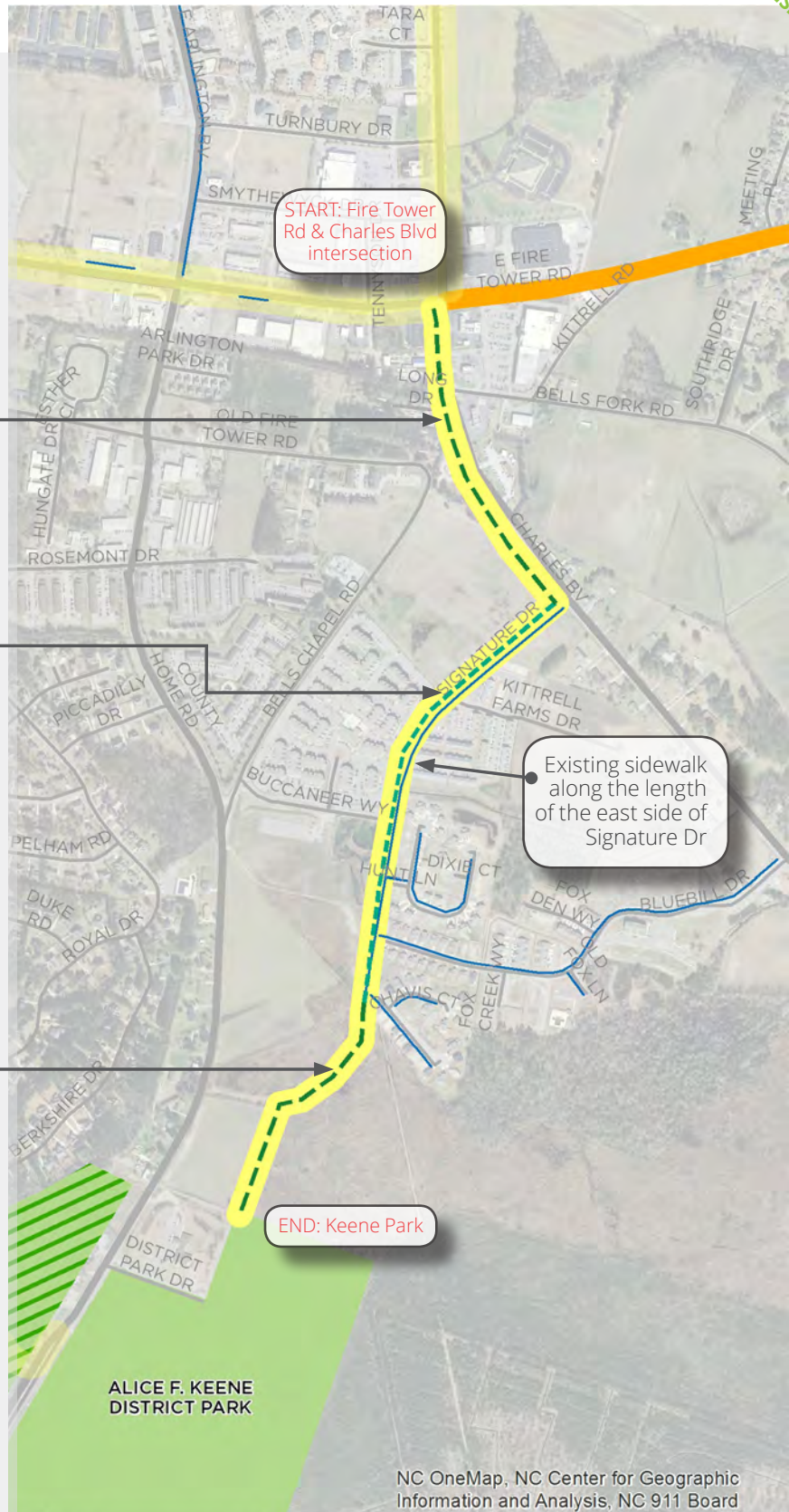
Estimated Construction Costs: \$1,230,000

Project Details

Construct sidepath on the west side of Charles Blvd from Fire Tower Rd to Signature Dr. If project is completed with roadway improvements and/or widening of Charles Blvd, construct separated bikeways and pedestrian facilities to accommodate bicyclists & pedestrians on both sides of the road.

Construct buffered bike lanes along Signature Dr from Charles Blvd to the southern terminus of Signature Dr by striping (existing pavement width is 38-40ft). Removing on-street parking along Signature Dr is recommended.

Construct greenway link from the southern terminus of Signature Dr to Alice Keene Park. It should be noted that future development through this section could include an extension of Signature Dr to County Home Rd - if this were to happen, continue separated bikeway along Signature Dr to County Home Rd with a sidewalk on the south/east side of the road at a minimum (include greenway link from roadway extension to Keene Park).



Existing

- Sidewalk
- In Development

Proposed

- Shared Use Path
- Buffered Bike Lane

- Strategic Bikeway/Pedestrian Network



I. WINTERVILLE TO BOYD LEE PARK

Project length: 2.7 miles

Facility Types: Greenway, buffered bike lanes, shared lane markings, sidewalk, crossing improvements

Jurisdiction: City of Greenville, Town of Winterville

Trip Generators: H. Boyd Lee Park, Downtown Winterville, businesses north of the Main St/Old Tar Rd intersection, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan, 2009 Winterville Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, Town of Winterville, downtown Winterville businesses, businesses north of the Main St/Old Tar Rd intersection, CSX

Estimated Construction Costs: \$2,480,000

Project Details

Construct greenway from the eastern terminus of Main St to Boyd Lee Park, utilizing town owned property between Main St and the park.

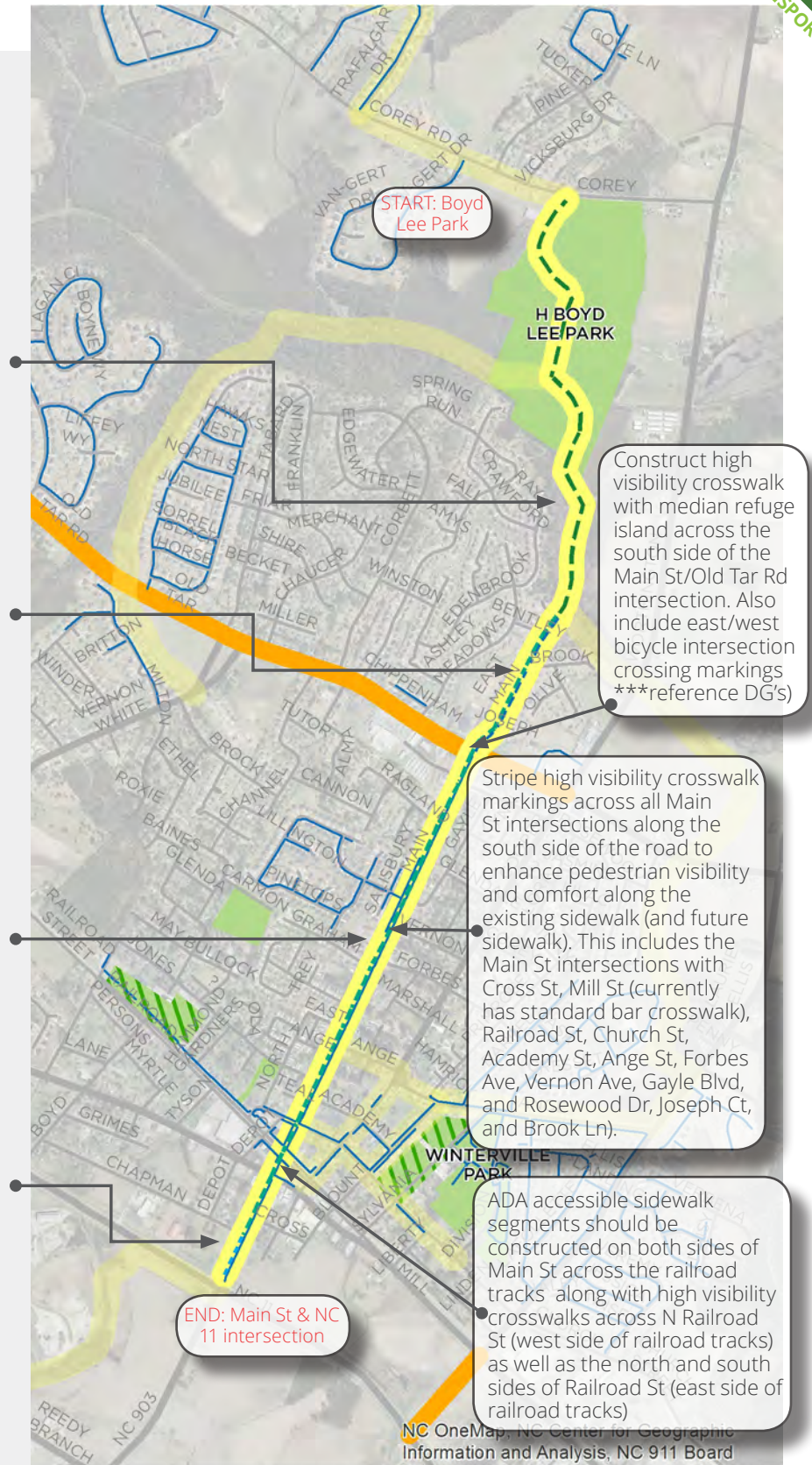
Construct sidewalk on the south side of Main St from Old Tar Rd to the eastern terminus of Main St. Stripe buffered bike lanes along this section of Main St within the existing pavement width (38'-40'). Bike lanes are currently striped along this section, but parking is also used along this space - consider removing on-street parking along this stretch.

Restripe Main St from Chapman St to Old Tar Rd to two travel lanes and buffered bike lanes within the existing pavement width (36'-40', AADT = 4,600-6,000). This requires removal of the center turn lane between Graham St and Old Tar Rd and the removal of seven parking spaces along the south side of Main St between Mill St & N Railroad St in downtown Winterville. Other options for bicycle facilities along this stretch would require significant investment in roadway widening or sidepath construction.

Implement neighborhood bikeway treatments (shared lane markings) along Main St from Chapman St to NC 11.

*Installing separated bicycle facilities will significantly enhance the pedestrian level of service along this stretch of Main St by adding to the minimal buffer space that currently exists between pedestrians and automobile traffic.

*This section along Main Street from the NC 11 intersection to Boyd Lee Park should be designated as NC bike route 2B.



0 500 1,000 Feet



J. WINTERVILLE GREENWAY

Project length: 1.7 miles

Facility Types: Greenway, crossing improvements

Jurisdiction: City of Greenville, Town of Winterville, Pitt County

Trip Generators: H. Boyd Lee Park, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan, 2009 Winterville Pedestrian Plan

ROW needs: Part of greenway segment along Fork Swamp from the Cedar Ridge Dr neighborhood to H. Boyd Lee Park; greenway segment between Old Tar Rd and Vernon White Rd

Partnerships: City of Greenville, Town of Winterville, Pitt County, Redevelopment stakeholders (potential development between southern terminus of Signature Dr and Keene Park)

Estimated Construction Costs: \$2,650,000

Project Details

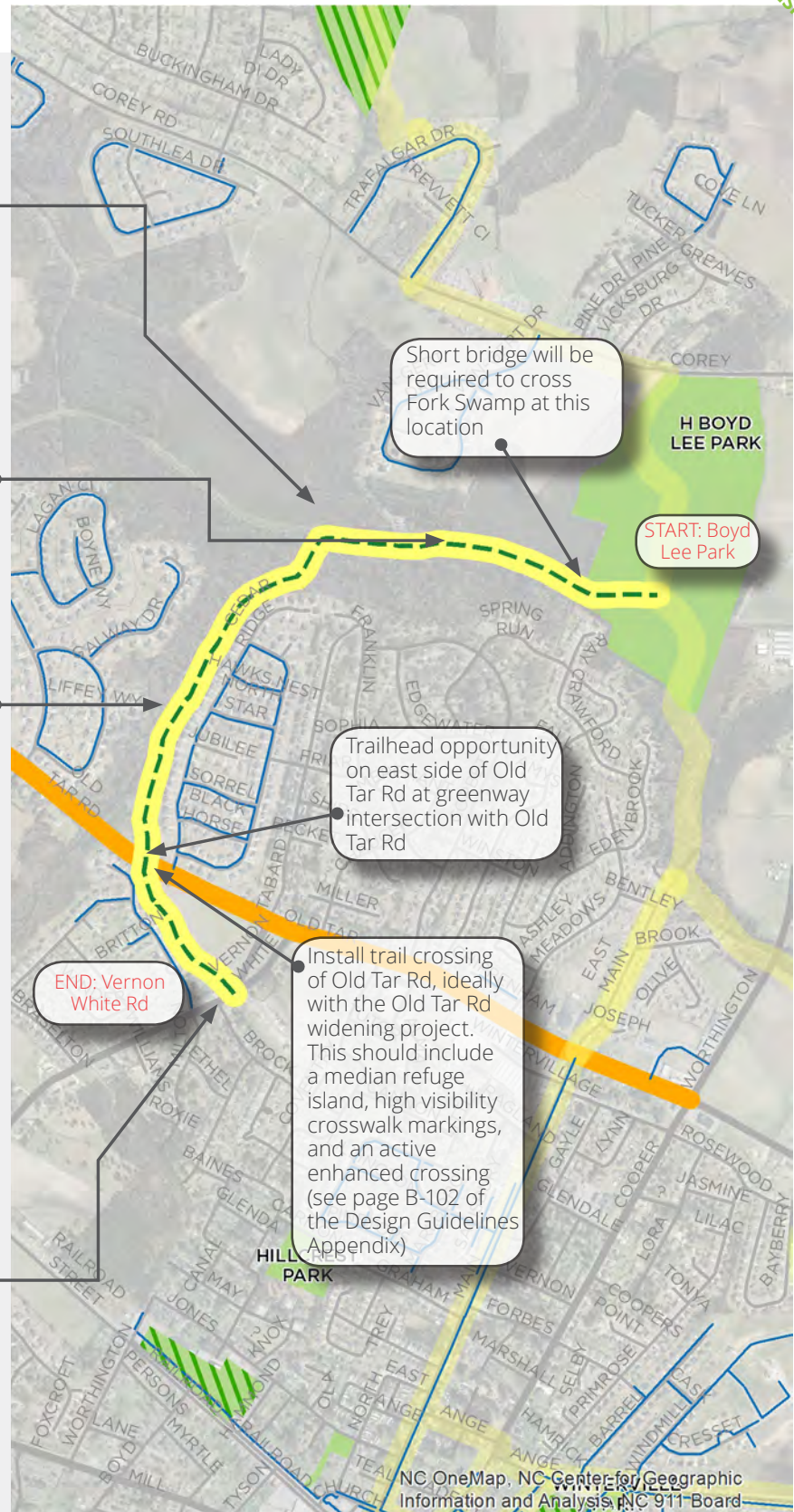
Construct greenway from Boyd Lee
Park to Vernon White Rd.

This proposed section runs north/south along the west side of the Fork Swamp - part of this section is owned by the Town of Winterville.

This proposed section runs east/west from the Fork Swamp to Old Tar Rd. The greenway should follow Town of Winterville property which is complete along this corridor in the space south of the Fork Swamp branch and the Cedar Ridge Dr properties.

This proposed section runs northeast/southwest from Old Tar Rd to Vernon White Rd. The development of this section of greenway should be coordinated with future development that is likely on this vacant land (bounded by Old Tar Rd, Vernon White Rd, and the Milton Dr residences).

A marked crosswalk should be constructed at the Vernon White Rd terminus to Bridgestone Dr. Complementary sidepaths should be extended west to Brock Ave and Milton Dr on both sides of the road as well as to Old Tar Rd to the east, at a minimum. If Vernon White Rd is widened or reconstructed as part of future development and/or roadway improvements, some type of separated bicycle facilities (and pedestrian facilities) should be included as part of the project.



NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

Existing

— Sidewalk
In Development

Proposed

- Shared Use Path

Strategic
Bikeway/Pedestrian
Network

K. DISTRICT PARK GREENWAY

Project length: 1.3 miles

Facility Types: Greenway, neighborhood bikeway, crossing improvements

Jurisdiction: Town of Ayden, Pitt County

Trip Generators: Ayden District Park, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Greenway segment from the southern end of Ayden District Park to Juanita Ave

Partnerships: Town of Ayden, Pitt County

Estimated Construction Costs: \$1,730,000

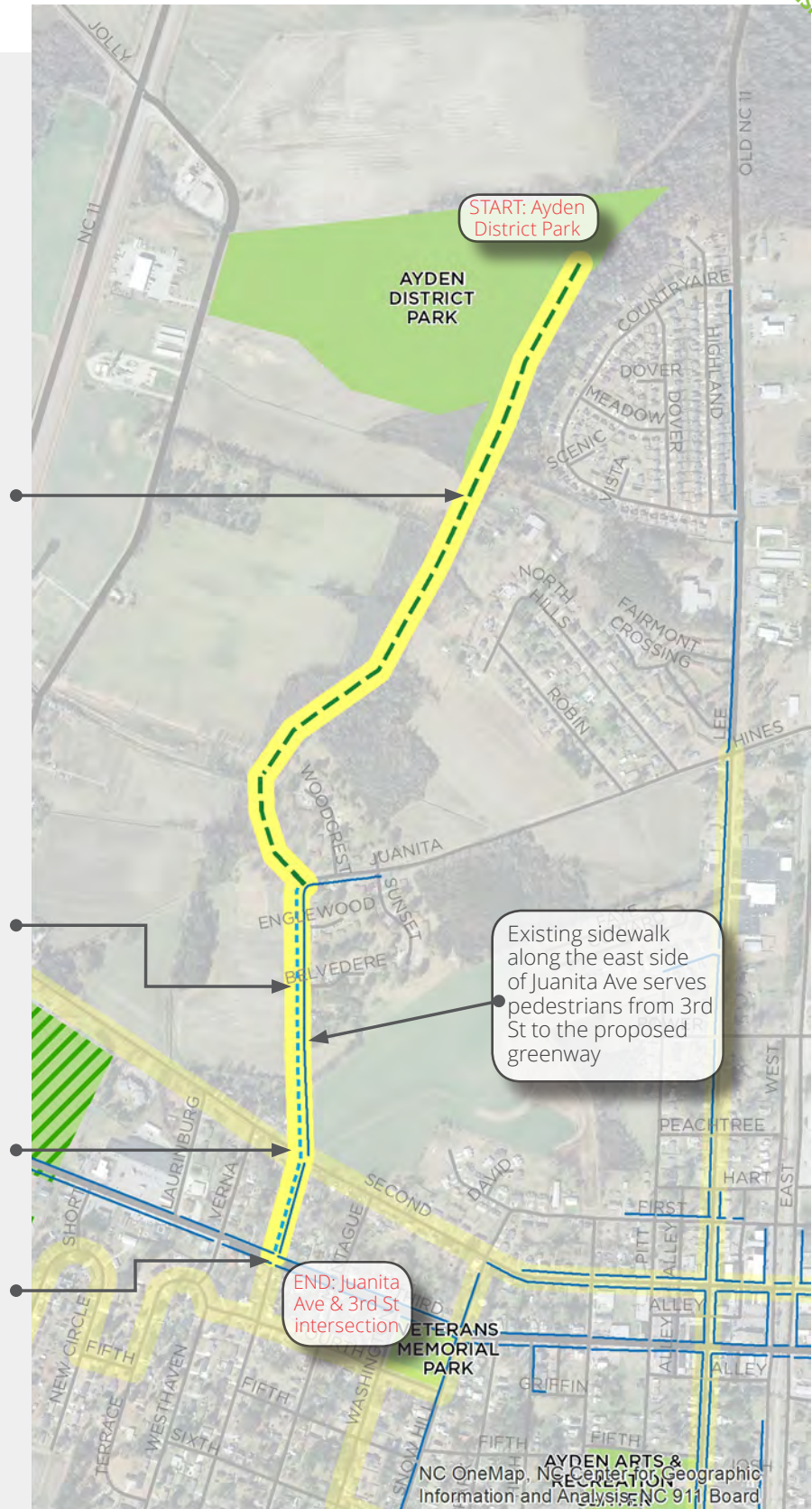
Project Details

Construct greenway from Ayden District Park to Juanita Ave, utilizing the cleared space along the west side of the drainage ditch. This will require coordination and partnerships with local adjacent landowners.

Implement neighborhood bikeway along Juanita Ave from the proposed greenway to 3rd St. Include speed tables for traffic calming along this stretch.

Install high visibility crosswalk along the east side of the Second St/Juanita Ave intersection.

Install high visibility crosswalk along the east side of the Juanita Ave/3rd St intersection, linking pedestrians to the sidewalk on the south side of 3rd St.



NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

Existing

— Sidewalk

Proposed

- Shared Use Path

--- Neighborhood Bikeway

Strategic

Bikeway/Pedestrian Network



L. TAR RIVER GREENWAY LINK

Project length: 0.3 miles

Facility Types: Sidepath, sidewalk, crossing improvements

Jurisdiction: City of Greenville

Trip Generators: Tar River Greenway, Greens Springs Park, Wahl Coates Elementary School, ECU, 10th St/5th St businesses, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, 10th St/5th St businesses, Tar River neighborhood/homeowner's association

Estimated Construction Costs: \$500,000

Project Details

Construct sidewalk along the north/ east side of 5th St from the existing sidewalk at Beech St to the existing sidewalk just south of the greenway to fill gap.

The 5th St bridge over Greens Mill Run is narrow (30' wide) with a low concrete railing (safe but functionally obsolete by NCDOT standards). Construct short pedestrian bridge addition on the east side and short sidepath addition on the west side. This bridge is functionally obsolete - consider making bicycle/pedestrian improvements with overall bridge improvements.

Construct sidepath link along the west side of 5th St from the 10th St intersection to the existing greenway.

Reference the 10th Street Corridor Study (completed 2016), for proposed improvements to the 5th St/10th St intersection.



Existing

- Sidewalk
- Shared Use Path
- In Development

Proposed

- Sidewalk
- Shared Use Path

Strategic
Bikeway/Pedestrian
Network

0 250 500 Feet



M. SOUTHWEST GREENVILLE LINK

Project length: 1.1 miles

Facility Types: Buffered bike lanes, sidewalk, and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: Medical District, Uptown, Guy Smith Park, JH Rose High School, businesses along the corridor, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

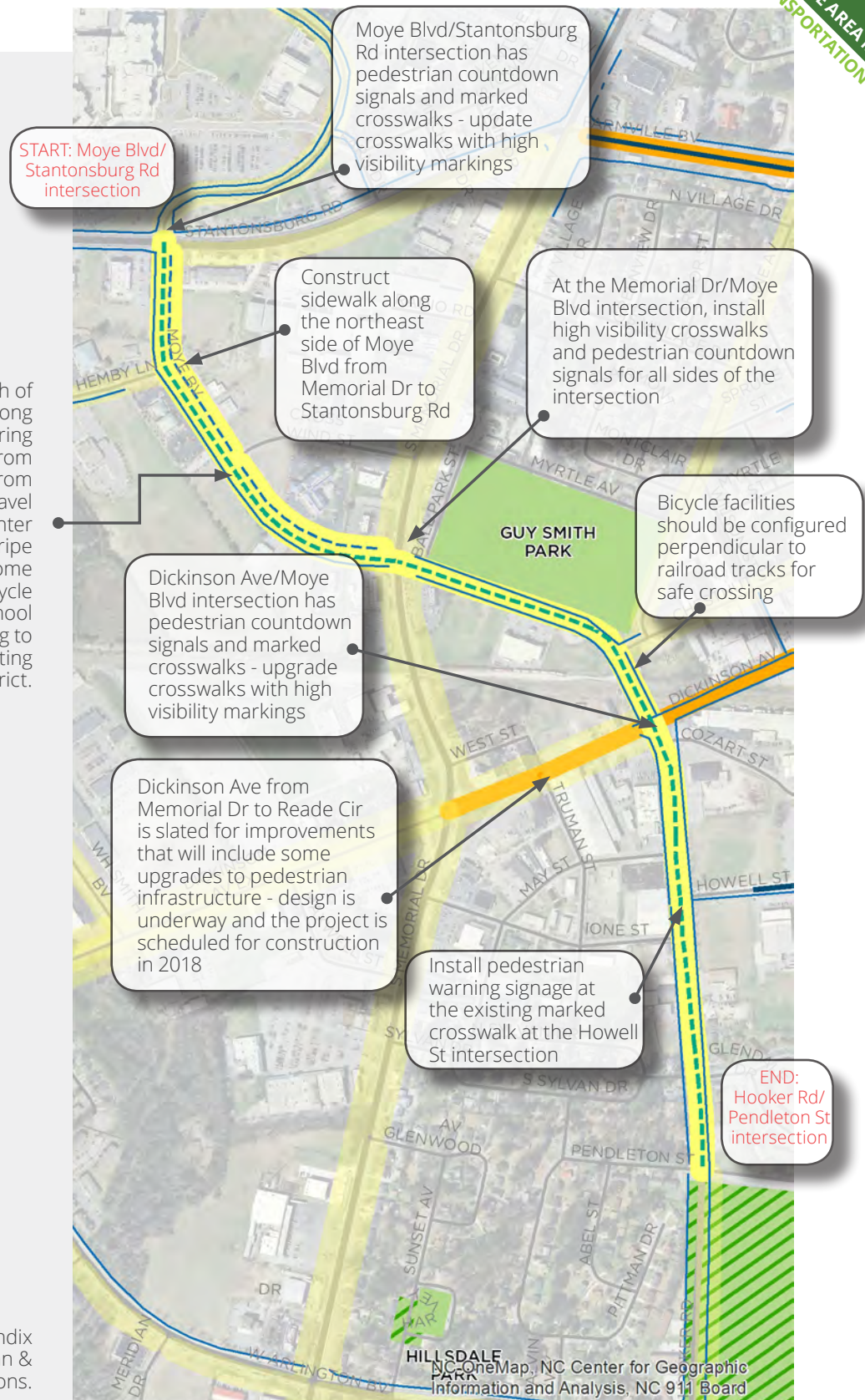
ROW needs: None

Partnerships: City of Greenville, businesses along the corridor, JH Rose High School, Village Grove and Higgs Brothers neighborhood/homeowners associations, Carolina Coastal Railway, Norfolk Southern

Estimated Construction Costs: \$240,000

Project Details

With an existing pavement width of 60'-62' and 8,500 - 12,000 AADT along this section, consider reconfiguring Moyer Blvd/Hooker Rd from Stantonburg Rd to Pendleton St from five lanes to three lanes - one travel lane in each direction with a center turn lane. This will allow space to stripe buffered bike lanes or create some form of physically separated bicycle lanes, connecting JH Rose High School to the neighborhood grid leading to Uptown as well as directly connecting to the Medical District.



*See the Design Guidelines appendix for further detail on pedestrian & bicycle facility options.

0 500 1,000 Feet



N. PARAMORE PARK LINK

Project length: 2.4 miles

Facility Types: Greenway, neighborhood bikeway/
buffered bike lanes

Jurisdiction: City of Greenville

Trip Generators: Paramore Park, multiple residen-
tial and commercial areas

Previous Planning: 2011 Greenville Bicycle &
Pedestrian Plan

ROW needs: Greenway section from Caversham Rd
to the drainage ditch

Partnerships: City of Greenville, businesses along
Fire Tower Rd, Bedford, residential develop-
ment stakeholders, Lynndale, Pinewood Forest,
and Grayleigh neighborhood/homeowner's
associations

Estimated Construction Costs: \$2,400,000

Project Details

Connectivity opportunities to projects B and C, linking north toward Greenville Blvd commercial areas and further north toward ECU and Uptown.

*Implement either neighborhood bikeway treatments or stripe a buffered bike lane along Queen Annes Rd, Bremerton Dr, Kinton Cir, and Caversham Rd to Evans St.

This proposed greenway section follows an existing cleared utility road, connecting to Paramore Park from Dunhagan Rd. Most of this greenway segment is owned by the City of Greenville.

A short bridge will be needed to cross the drainage ditch in linking this greenway segment to the neighborhood to the west

START: Queen Annes Rd/Salem Rd intersection

END: Paramore Park



Existing

- Sidewalk
- Bike Lane
- In Development

Proposed

- Shared Use Path
- Buffered Bike Lane

Strategic Bikeway/Pedestrian Network

0 500 1,000 Feet



O. GREENS MILL RUN GREENWAY EXTENSION

Project length: 2.1 miles

Facility Types: Greenway

Jurisdiction: City of Greenville, Pitt County

Trip Generators: Greens Mill Run Greenway, JH Rose High School, Evans Park, multiple residential and commercial areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: City of Greenville owns several sections of this greenway corridor but will need to acquire ROW for most of the corridor

Partnerships: City of Greenville, Pitt County, businesses at the Evans St/Arlington Blvd intersection, residential development stakeholders, CSX, Hillsdale and Lakewood Pines neighborhood/homeowner's associations

Estimated Construction Costs: \$5,370,000

Project Details

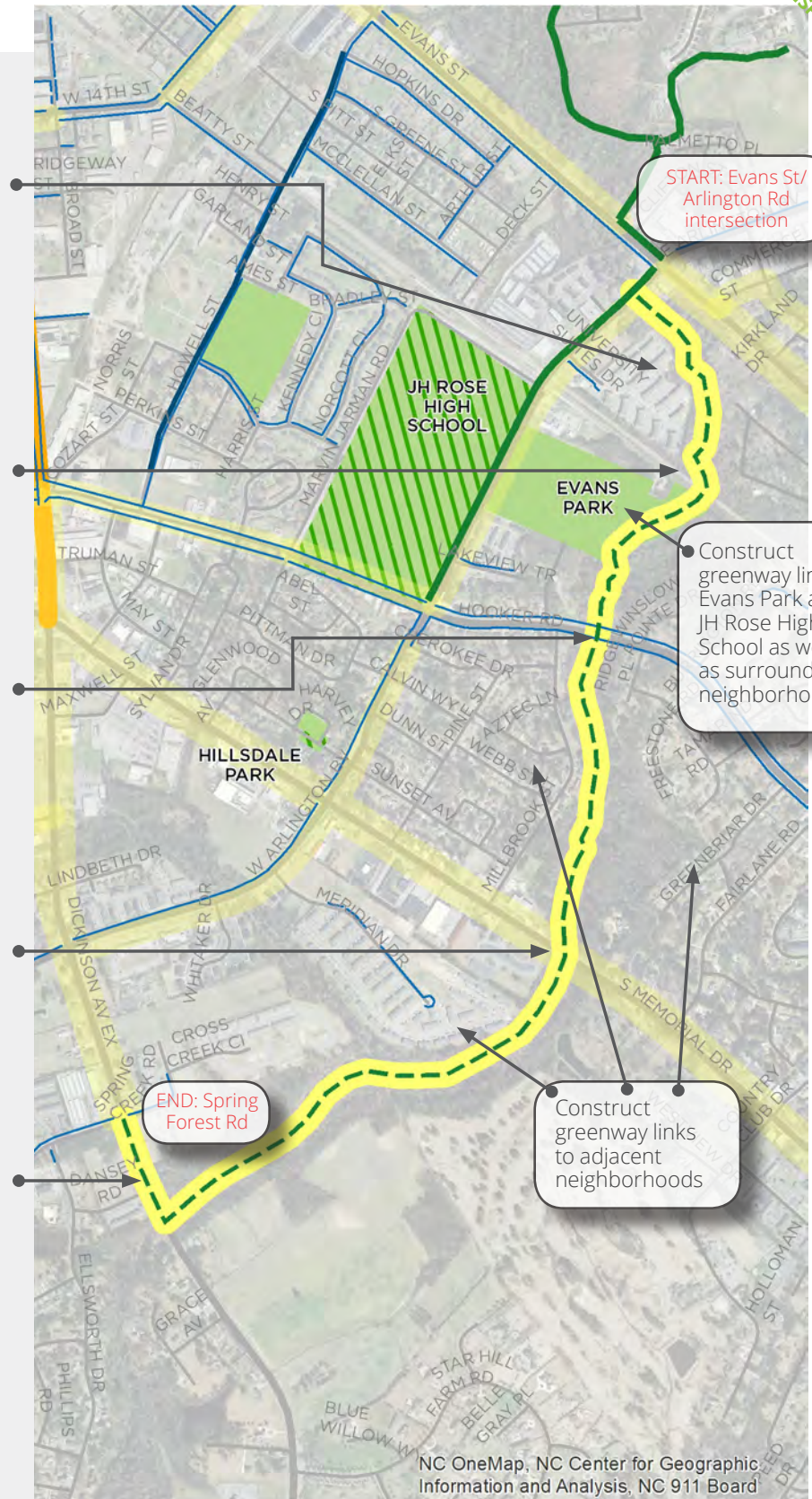
Construct a greenway along Greens Mill Run from the Evans St/Arlington Rd intersection to the Spring Forest Rd/Dickinson Ave intersection

This section of greenway will need to cross under the railroad trestle where Greens Mill Run flows underneath the railroad tracks - further study needed.

Ideally, the greenway would cross under the bridge where Greens Mill Run flows under Hooker Rd, although an at-grade crossing is another feasible option - further study needed.

Construct greenway crossing at Memorial Dr - the center turn lane should be converted into a median pedestrian island and consider installing an Active Enhanced Crossing.

Construct a shared use path along the east side of Dickonson Ave, connecting to the existing sidewalk at the Spring Forest Rd intersection.



Existing

- Sidewalk
- Bike Lane
- Shared Use Path
- In Development

Proposed

-

Strategic
Bikeway/Pedestrian
Network

0 500 1,000 Feet



P. PITT COUNTY COMMUNITY COLLEGE LINK

Project length: 4.2 miles

Facility Types: Greenway, neighborhood bikeway/buffered bike lanes, sidewalk, crossing improvements

Jurisdiction: City of Greenville, Pitt County

Trip Generators: Pitt County Community College, multiple residential and commercial areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Each shared use path segment will require ROW acquisition

Partnerships: City of Greenville, Pitt County, Pitt County Community College, businesses along Memorial Dr, businesses along Greenville Blvd, CSX, Sheraton Village Townhomes, Westhaven, Club Pines, and South Pointe neighborhood/home-owner's associations

Estimated Construction Costs: \$3,620,000

Project Details

*Implement neighborhood bikeway treatments through the Best Buy parking lot from the shared use path terminus to the Lynncroft Ln/Evans St intersection.

Construct a short shared use path link from the southeast corner of the Greenville Blvd/Landmark St intersection to the Best Buy parking lot.

Construct a sidewalk along the west side of Landmark St from Greenville Blvd to Baywood Ln.

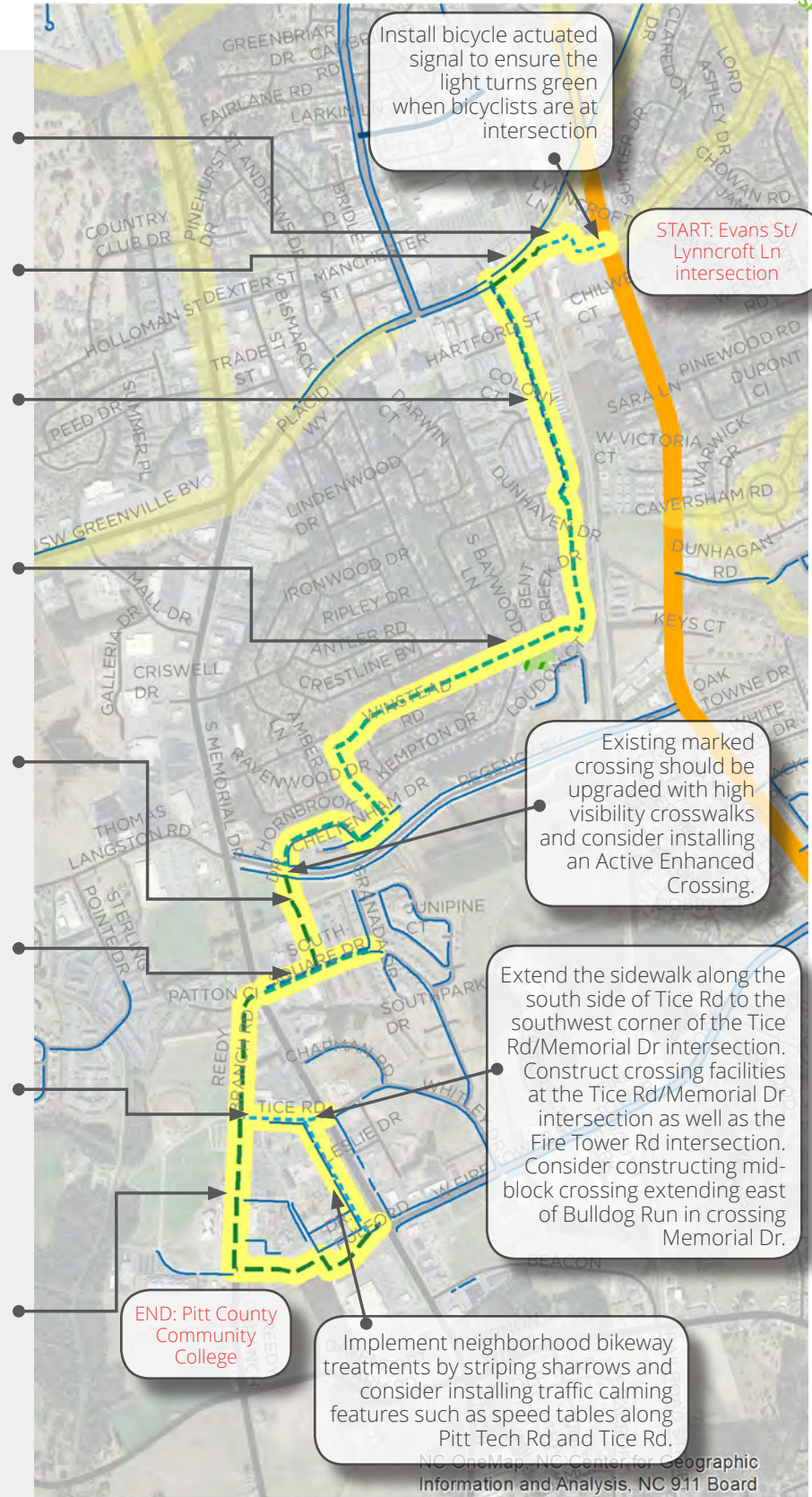
*Implement either neighborhood bikeway treatments or stripe a buffered bike lane along Landmark St, Baywood Ln, Cedarhurst Rd, Westhaven Rd, Cheltenham Dr, and Thornbrook Dr from Greenville Blvd to Regency Blvd.

Construct a short greenway segment from Square Dr to the Regency Blvd/Thornbrook Dr intersection. Utilize space that is cleared for an existing utility easement between Tractor Supply Co and the South Heaven Apartments.

Construct a sidewalk along the north side of Square Dr from Granada Dr to the Memorial Dr intersection, coupled with striping a buffered bikeway. The posted speed limit should be lowered to 25 mph for this neighborhood.

Extend the existing sidewalk along the south side of Tice Rd to the southeast corner of the Reedy Branch Rd/Tice Rd intersection, and install crossing facilities to the proposed shared use path.

Construct a shared use path along the west side of Reedy Branch Rd from the Memorial Dr intersection to Warren Dr. Continue this path to the east, following the north side of Dr Fulford Rd to the Memorial Dr intersection. Construct crossing facilities at the Fire Tower Rd/Memorial Dr intersection as well as the Reedy Branch Rd/Memorial Dr intersection.



Existing

- Sidewalk
- Bike Lane
- In Development

Proposed

- Sidewalk
- Shared Use Path
- Buffered Bike Lane
- Neighborhood Bikeway

Strategic Bikeway/Pedestrian Network



Q. RIVER PARK NORTH

Project length: 0.5 miles

Facility Types: Greenway, Bike/Ped bridge

Jurisdiction: City of Greenville

Trip Generators: Tar River Greenway, River Park North, Town Commons, ECU, Uptown, multiple residential areas north and south of the Tar River

Previous Planning: 2016 Tar River Pedestrian Bridge Study, 2014 Tar River Legacy Plan, 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Much of this space is City of Greenville property, ROW needs will depend on final route selection.

Partnerships: City of Greenville, Uptown Greenville, ECU, Uptown businesses and stakeholders

Estimated Construction Costs: See 2016 Tar Bridge Pedestrian Bridge Study for costs associated with bridge alternatives

Project Details



The Tar River Pedestrian Bridge Study was commissioned in 2016 by the City of Greenville and several options were investigated, including a Low Build, Cantilever off Existing Bridge, Adjacent Bridge Options, High Visibility Bridge Options, and Bridge Alternatives. The specific route for this project is dependent on the alternative selected. This is an essential link for bicyclists and pedestrians in linking to North Greenville. Contact the City of Greenville to access the full document for further detail on routing options.

START: River Park North entrance and Mumford Rd

Connect through River Park North, beginning with a direct link to Mumford Rd.

Depending on the exact bridge location, the connection to River North Park will likely include an east/west connection that follows along or parallels the power lines (just south of the retention pond), and also connects west to Greene Street.

Construct a bicycle and pedestrian bridge across the Tar River, east of the existing Greene St bridge, linking Town Common to River Park North. Consider the options presented in the Tar River Pedestrian Bridge Study (2016) in selecting the exact location of the bridge.



END: Town Common

Existing

- Sidewalk
- Bike Lane
- Shared Use Path

Proposed

- Shared Use Path

- Strategic Bikeway/Pedestrian Network

NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

0 500 1,000 Feet



R. EVANS ST (1)

Project length: 0.2 miles

Facility Types: Corridor study needed with a focus on separated bikeway and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: Uptown, ECU, Greenville Museum of Art, GTAC (future), businesses along and near corridor, Boundary at West End Apartments

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, Uptown Greenville, ECU, Greenville Museum of Art, Boundary at West End Apartments, redevelopment stakeholders, businesses along the corridor, Glen Arthur neighborhood/homeowner's association

Estimated Construction Costs: \$80,000

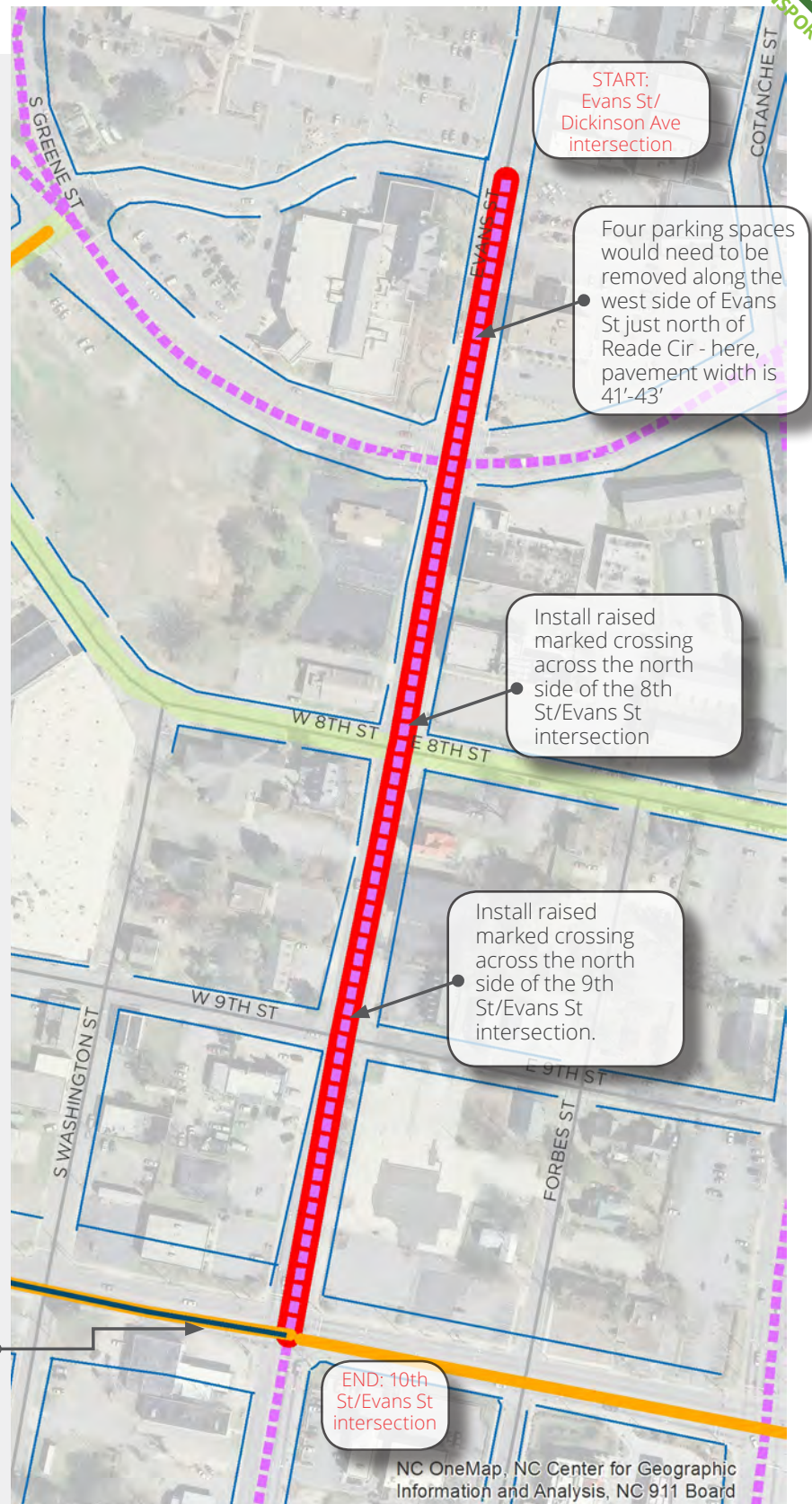
Project Details

*From Dickinson Ave to 10th St along Evans St, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options along with changing traffic conditions related to the 10th St Connector project that is currently under construction. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width of 46'-48 and 11,000 AADT along the section south of Reade Cir, consider reconfiguring Evans St from Reade Cir to 10th St to three lanes - one travel lane in each direction with a center turn lane. This will allow space to stripe buffered bike lanes or create some form of physically separated bicycle lanes, connecting Uptown to 10th St. Lower speed limit to 25 mph.

The 10th St connector is currently under construction from Stantonsburg Rd to Evans St. East of Evans St, reference the 10th St Corridor Study for proposed improvements along 10th St.

*See the Design Guidelines appendix for further detail on pedestrian & bicycle facility options



Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- Bike Lane
- In Development



S. 14TH ST (PART 1)

Project length: 1.2 miles

Facility Types: Corridor study needed with a focus on separated bikeway, sidewalk, and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: Uptown, ECU, Medical District, Sadie Saulter Elementary School, Greens Mill Run Greenway, businesses along the corridor, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, businesses along the corridor, Higgs Brothers and Glen Arthur neighborhood/homeowners associations

Estimated Construction Costs: \$460,000

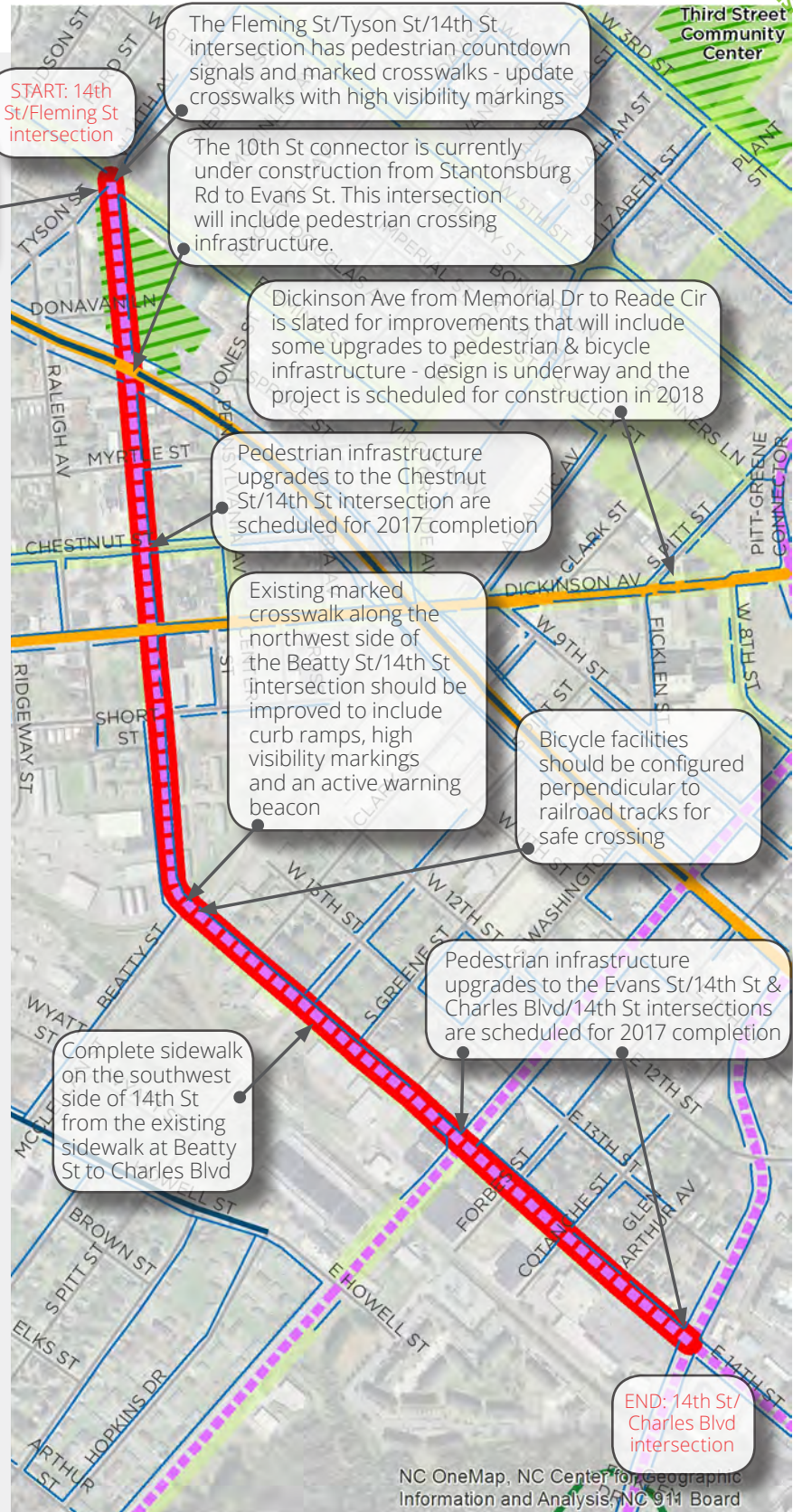
Project Details

*From Fleming St to Charles Blvd along 14th St, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options along with changing traffic conditions related to the 10th St Connector project that is currently under construction. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width that varies from 42'-50' and AADT of 12,000-14,000 along this section (not including the 10th St to Fleming St section), consider reconfiguring 14th St from 10th St to Charles Blvd from five lanes to three lanes - one travel lane in each direction with a center turn lane. This will allow space to stripe buffered bike lanes or create some form of physically separated bicycle lanes, providing an essential link through the heart of Greenville. Sidewalk exists on the north/east side of 14th St - complete the sidewalk network on the south/west side of the street.

*Installing separated bicycle facilities will significantly enhance the pedestrian level of service along this stretch of 14th St by creating buffer space between the existing sidewalk and automobile traffic. Presently, no buffer space exists.

*See the Design Guidelines appendix for further detail on pedestrian & bicycle facility options

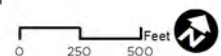


Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- Bike Lane
- Shared Use Path
- In Development



T. 14TH ST (PART 2)

Project length: 0.6 miles

Facility Types: Corridor study needed with a focus on sidepath and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: ECU, Uptown, Stadium Greenway, Eppes Middle School, Elmhurst Elementary School, businesses at the 14th St/Charles Blvd intersection, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: Segment on north side of 14th St west of ECU to the Charles Blvd intersection; ROW needs to be coordinated with ECU on all other sections east of the Rite Aid property

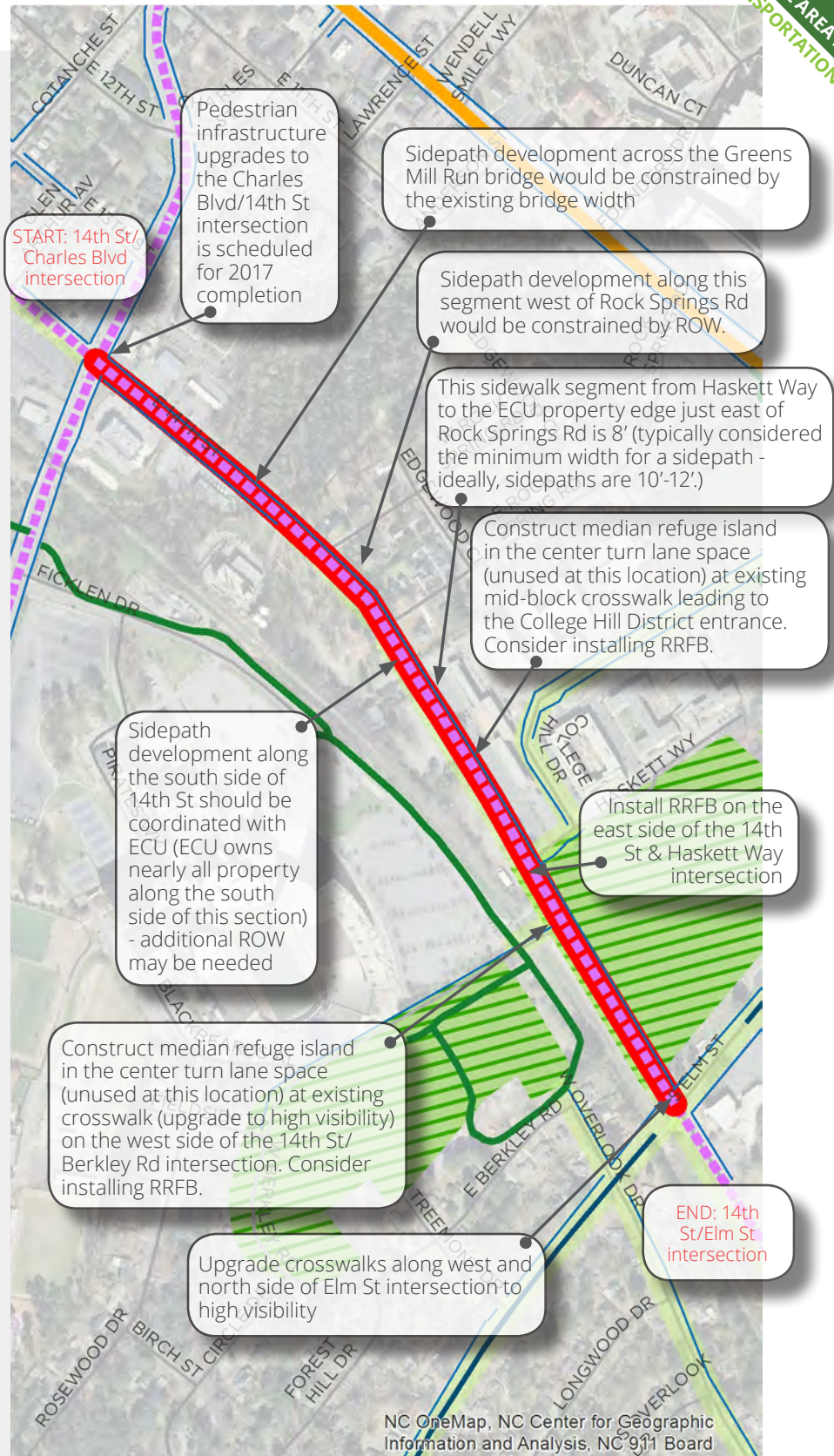
Partnerships: City of Greenville, ECU, businesses at the 14th St/Charles Blvd intersection, Rock Springs and Forest Hills neighborhood/homeowners associations

Estimated Construction Costs: \$800,000

Project Details

*From Charles Blvd to Elm St along 14th St, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width that is 32'-34', an AADT of 13,000, and three travel lanes (one travel lane in each direction with a center turn lane) along this section, no space is available for on-road bicycle infrastructure within the existing roadway pavement. Sidewalk exists along the length of the north side, along with a short segment on the south side leading to the Charles Blvd intersection. Consider constructing a sidepath along the south side of 14th St, beginning from the existing sidewalk segment near the Charles Blvd intersection. Consider transitioning the existing sidewalk on the north side (and the short existing segment on the south side) of 14th St from the Charles Blvd intersection to the 8' segment along ECU property to sidepath when sidewalk repairs are needed, with future development, and/or major roadway work (in the meantime, allow bicycle riding with caution on the existing sidewalk). The existing sidewalk segment from Haskett Way to Elm St should be replaced with a sidepath as part of this project.

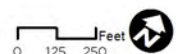


Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- Bike Lane
- Shared Use Path
- In Development



U. 14TH ST (PART 3)

Project length: 1 mile

Facility Types: Corridor study needed with a focus on separated bikeway, sidepath, and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: ECU, Stadium Greenway, Elm Street Park, Peppermint Park, Jaycee Park, Perkins Athletic Complex, Sheppard Memorial Library, Eastern Elementary School, Elmhurst Elementary School, Eppes Middle School, Aycock Middle School, 14th St/Greenville Blvd businesses, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

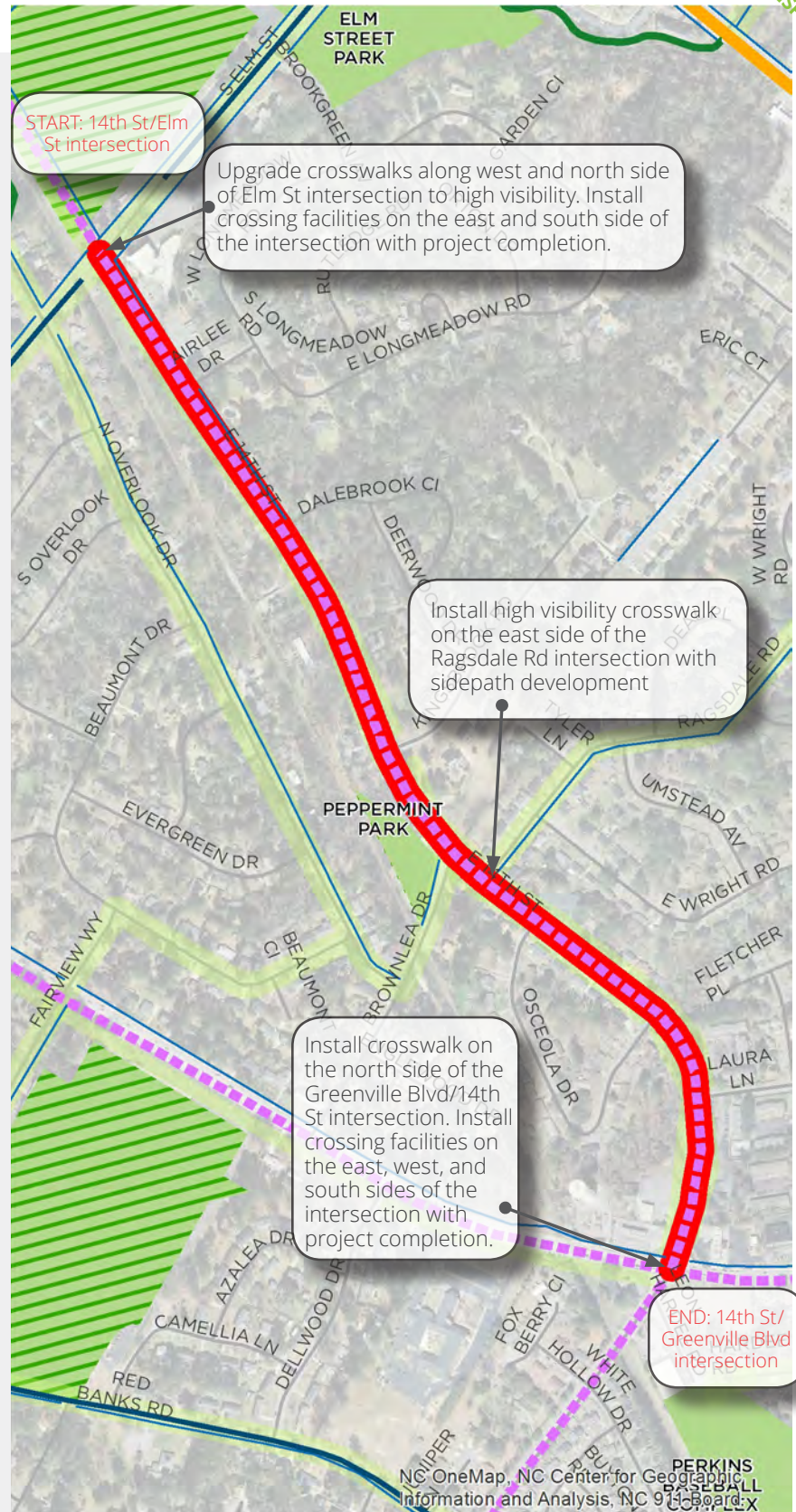
Partnerships: City of Greenville, ECU, businesses at the 14th St/Greenville Blvd intersection, Brookgreen, Englewood, and Coghill neighborhood/homeowner's associations

Estimated Construction Costs: \$1,560,000

Project Details

*From Elm St to Greenville Blvd along 14th St, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width that is 22'-24', an AADT of 9,000, and two travel lanes along this section, no space is available for on-road bicycle infrastructure within the existing pavement. A short segment of sidewalk exists along the north side of 14th St from Elm St to Dalebrook Cir, but otherwise, no sidewalks exist along this corridor. Consider constructing a sidepath on both sides of 14th St, including the replacement of the short segments of existing sidewalk with sidepath.



Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- Bike Lane
- Shared Use Path
- In Development

0 125 250 Feet



V. 14TH ST (PART 4)

Project length: 0.3 miles

Facility Types: Corridor study needed with a focus on separated bikeway, sidewalk, and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: Jaycee Park, Sheppard Memorial Library, Eastern Elementary, Perkins Athletic Complex, 14th St/Greenville Blvd businesses, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: ROW is consistently 60 ft along this section of 14th St. Additional ROW acquisition would be needed to construct sidewalk on one or both sides of the street.

Partnerships: City of Greenville, businesses at the 14th St/Greenville Blvd intersection, Carolina Coastal Railway, Norfolk Southern, Eastwood neighborhood/homeowner's association

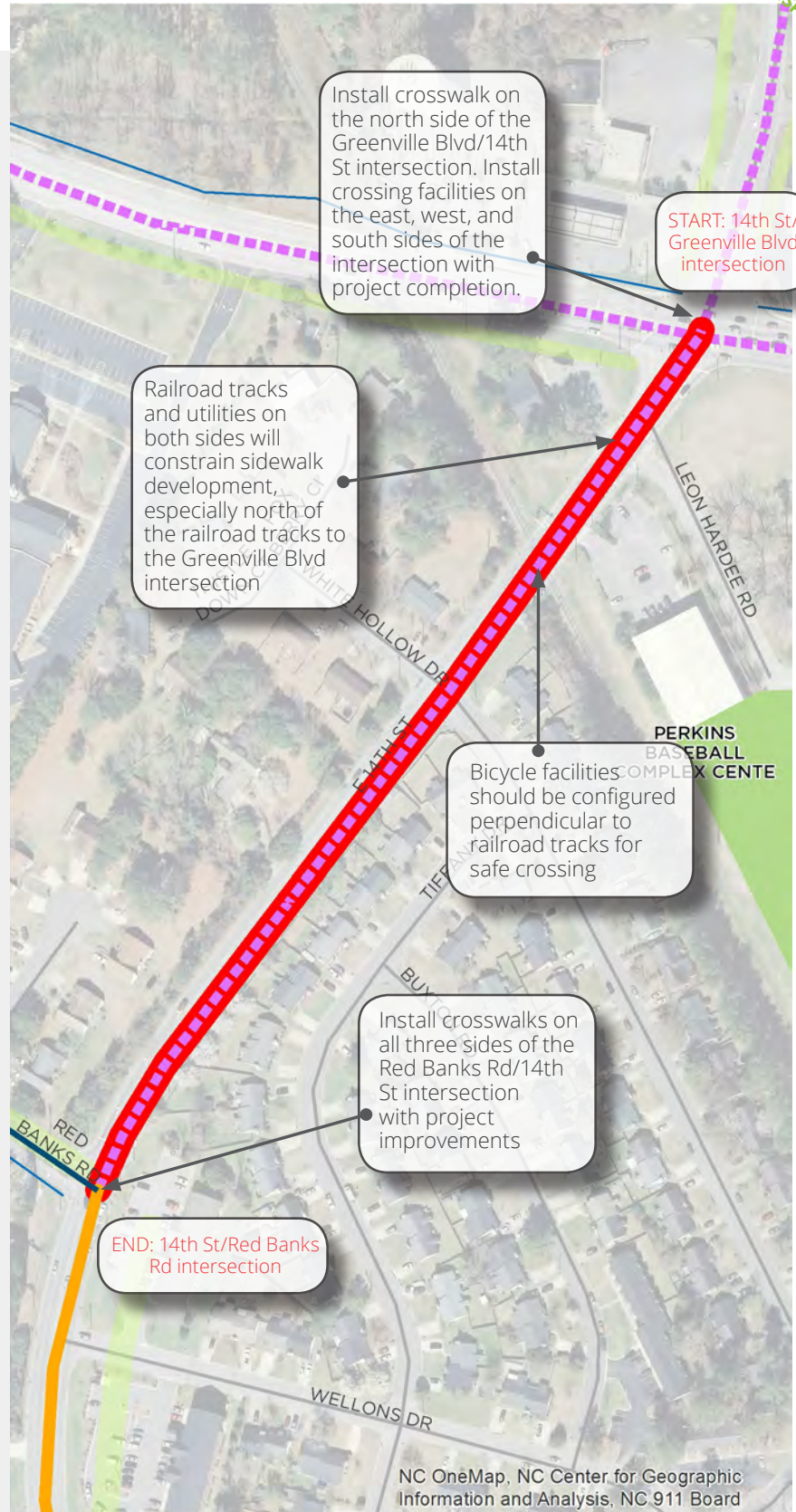
Estimated Construction Costs: \$190,000

Project Details

*From Greenville Blvd to Red Banks Rd along 14th St, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width that is 50'-52', an AADT of 17,000, and four travel lanes (two in each direction) consider reconfiguring to three lanes (one in each travel direction with a center turn lane). This will allow space to stripe buffered bike lanes or create some form of physically separated bicycle lanes. Additionally, sidewalks should be constructed on both sides of the street.

*Installing separated bicycle facilities would significantly enhance the pedestrian level of service along this stretch of 14th St by creating buffer space between any future sidewalk and automobile traffic.



NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- Bike Lane
- In Development

0 125 250 Feet



W. EVANS ST (2)

Project length: 0.5 miles

Facility Types: Corridor study needed with a focus on separated bikeway, sidewalk, and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: Uptown, ECU, businesses along and near corridor, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, Uptown Greenville, ECU, redevelopment stakeholders, businesses along the corridor, Carolina Coastal Railway, Norfolk Southern, Glen Arthur neighborhood/homeowner's association

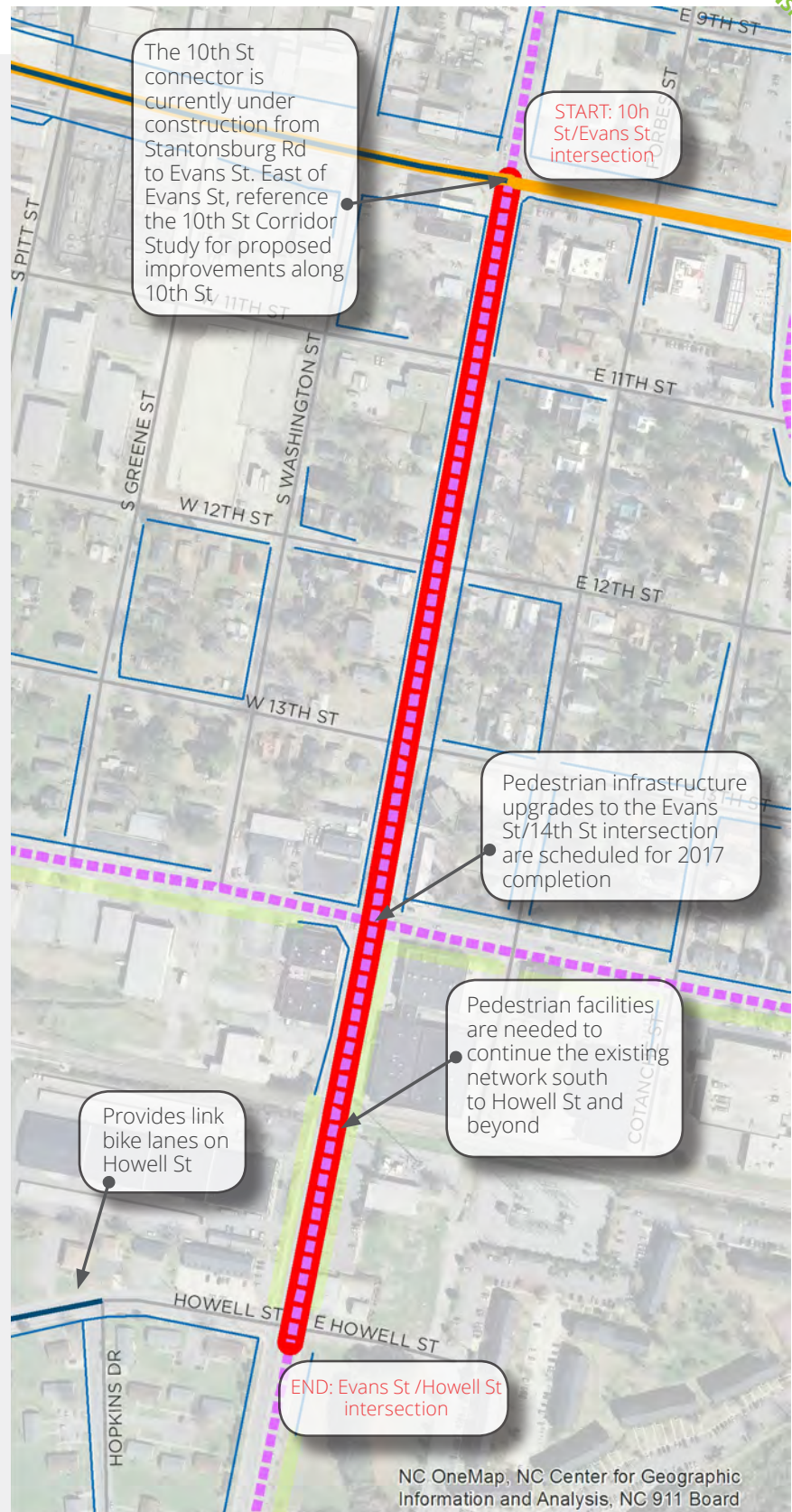
Estimated Construction Costs: \$150,000

Project Details

*From 10th St to Howell St along Evans St, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options along with changing traffic conditions related to the 10th St Connector project that is currently under construction. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width that is 57'-59', an AADT that transitions from 11,000 to 18,000, and five travel lanes (two in each direction with a center turn lane), consider the possibility of reconfiguring to three lanes (one in each travel direction with a center turn lane). This will allow space to stripe buffered bike lanes or create some form of physically separated bicycle lanes, connecting with the proposed facilities continuing north toward Uptown. Additionally, sidewalks should be constructed on both sides of the street where missing south of 14th St to Howell St. Other options for installing separated bicycle facilities will require significant investment in roadway widening and/or overall corridor redevelopment.

Due to high traffic volumes and speeds and no buffer space, the current sidewalks along this stretch of Evans St offer a low level of service (see Map*** in Chapter 2). Installing separated bicycle facilities will significantly enhance the pedestrian level of service.



Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- Bike Lane
- In Development

0 250 500 Feet



X. EVANS ST (3)

Project length: 1.2 miles

Facility Types: Corridor study needed with a focus on separated bikeway, sidewalk, and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: Uptown, ECU, Greens Mill Run Greenway, JH Rose High School, South Greenville Elementary, businesses along corridor, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, businesses along the corridor, Lakewood Pines neighborhood/homeowner's association

Estimated Construction Costs: \$760,000

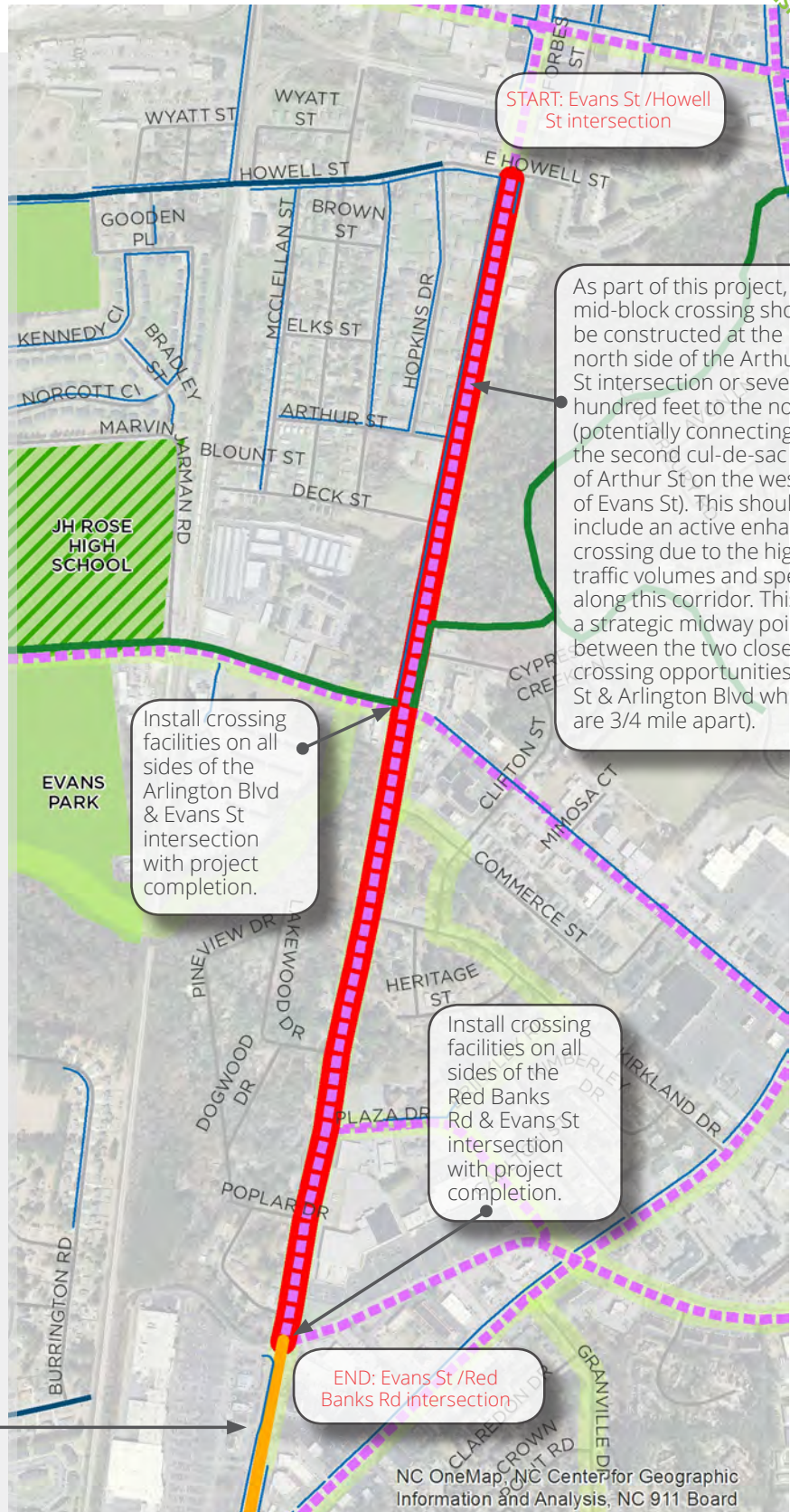
Project Details

*From Howell St to Red Banks Rd, along Evans St, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options along with changing traffic conditions related to the 10th St Connector project that is currently under construction and the Evans St/Old Tar Rd widening project that is currently in design. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width that is 62'-64', an AADT that transitions from 18,000 to 20,000, and five travel lanes (two in each direction with a center turn lane), consider the possibility of reconfiguring to three lanes (one in each travel direction with a center turn lane). This will allow space to stripe buffered bike lanes or create some form of physically separated bicycle lanes, connecting with the proposed facilities continuing north toward Uptown. Additionally, sidewalks should be constructed on both sides of the street where gaps in the sidewalk network exist. Other options for installing separated bicycle facilities will require significant investment in roadway widening and/or overall corridor redevelopment.

Due to high traffic volumes and speeds and no buffer space, the current sidewalks along this stretch of Evans St offer a low level of service. Installing separated bicycle facilities will significantly enhance the pedestrian level of service by creating additional buffer space.

The Evans St/Old Tar Rd widening project is currently in design. Separated bicycle & pedestrian facilities should be required for this project.



Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- Bike Lane
- Shared Use Path
- In Development

0 250 500 Feet



Y. COTANCHE ST

Project length: 0.3 miles

Facility Types: Corridor study needed with a focus on separated bikeway, sidewalk, and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: Uptown, ECU, 10th St/Cotanche St businesses, Boundary at West End Apartments

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, Uptown Greenville, ECU, redevelopment stakeholders, 10th St/Cotanche St businesses, Boundary at West End Apartments

Estimated Construction Costs: \$100,000

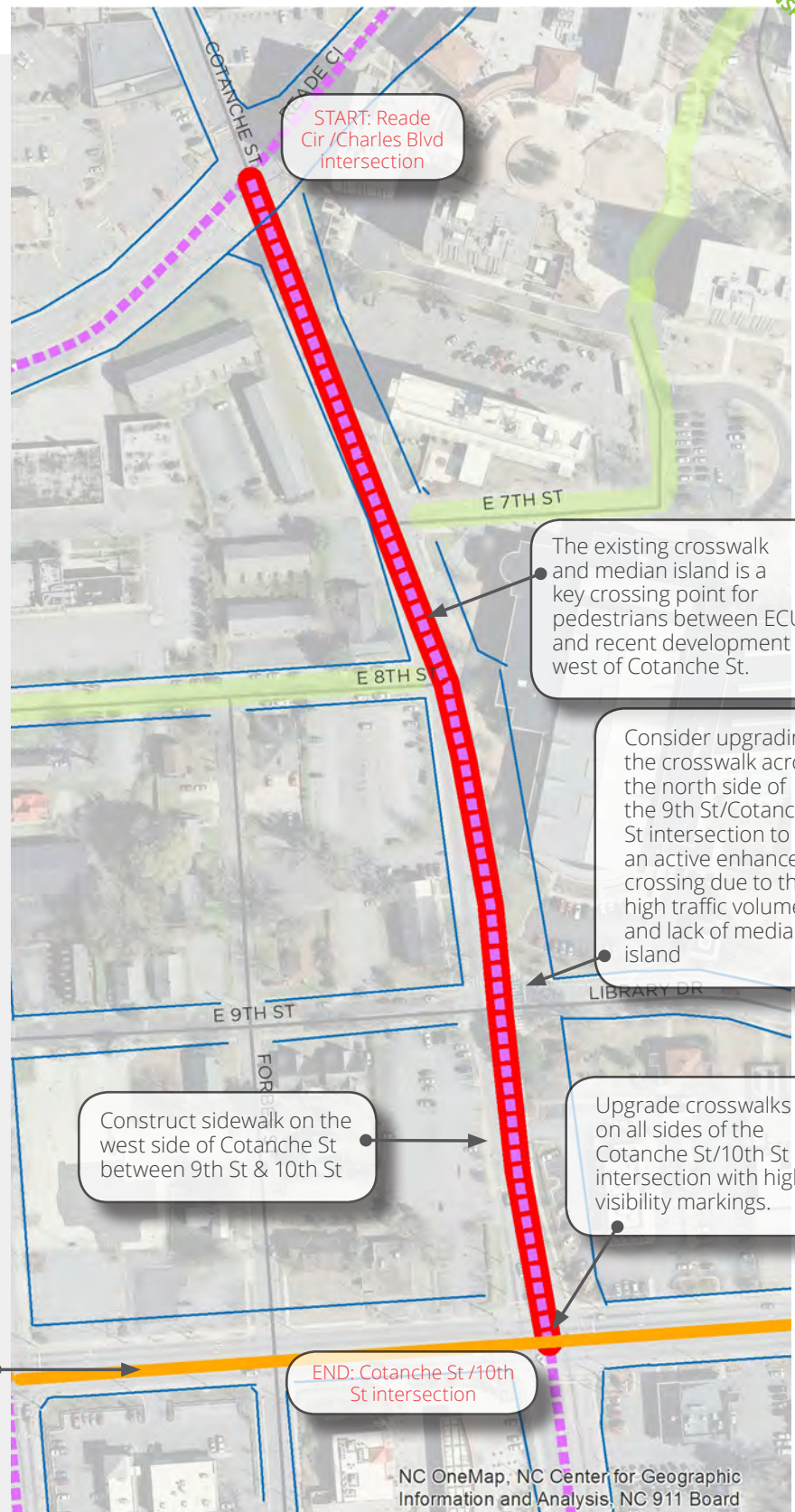
Project Details

*From Reade Cir to 10th St along Cotanche St, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options along with changing traffic conditions related to the 10th St Connector project that is currently under construction. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width that is 44'-45', an AADT of 14,000, and three travel lanes (one in each direction with a center turn lane (and median island between 7th St and 8th St), consider the possibility of reconfiguring the lane width to 10'. This will allow space to stripe buffered bike lanes or create some form of physically separated bicycle lanes. Other options for installing separated bicycle facilities will require significant investment in roadway widening and/or overall corridor redevelopment.

Due to high traffic volumes and no buffer space, installing separated bicycle facilities will significantly enhance the pedestrian level of service by creating additional buffer space between automobile traffic and the existing sidewalks.

The 10th St Corridor Study shows a conceptual design for bicycle & pedestrian improvements along 10th St from Evans St to Greenville Blvd. Implementing this study along with improvements along this section of Cotanche St will significantly enhance walking and bicycling safety between Uptown and east Greenville.



Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- In Development



Z. CHARLES BLVD

Project length: 0.5 miles

Facility Types: Corridor study needed with a focus on separated bikeway and crossing facilities

Jurisdiction: City of Greenville

Trip Generators: Uptown, ECU, businesses along the corridor, Greens Mill Run Greenway, multiple residential areas

Previous Planning: 2011 Greenville Bicycle & Pedestrian Plan

ROW needs: None

Partnerships: City of Greenville, Uptown Greenville, ECU, redevelopment stakeholders, businesses along the corridor, Glen Arthur neighborhood/homeowner's association

Estimated Construction Costs: \$130,000

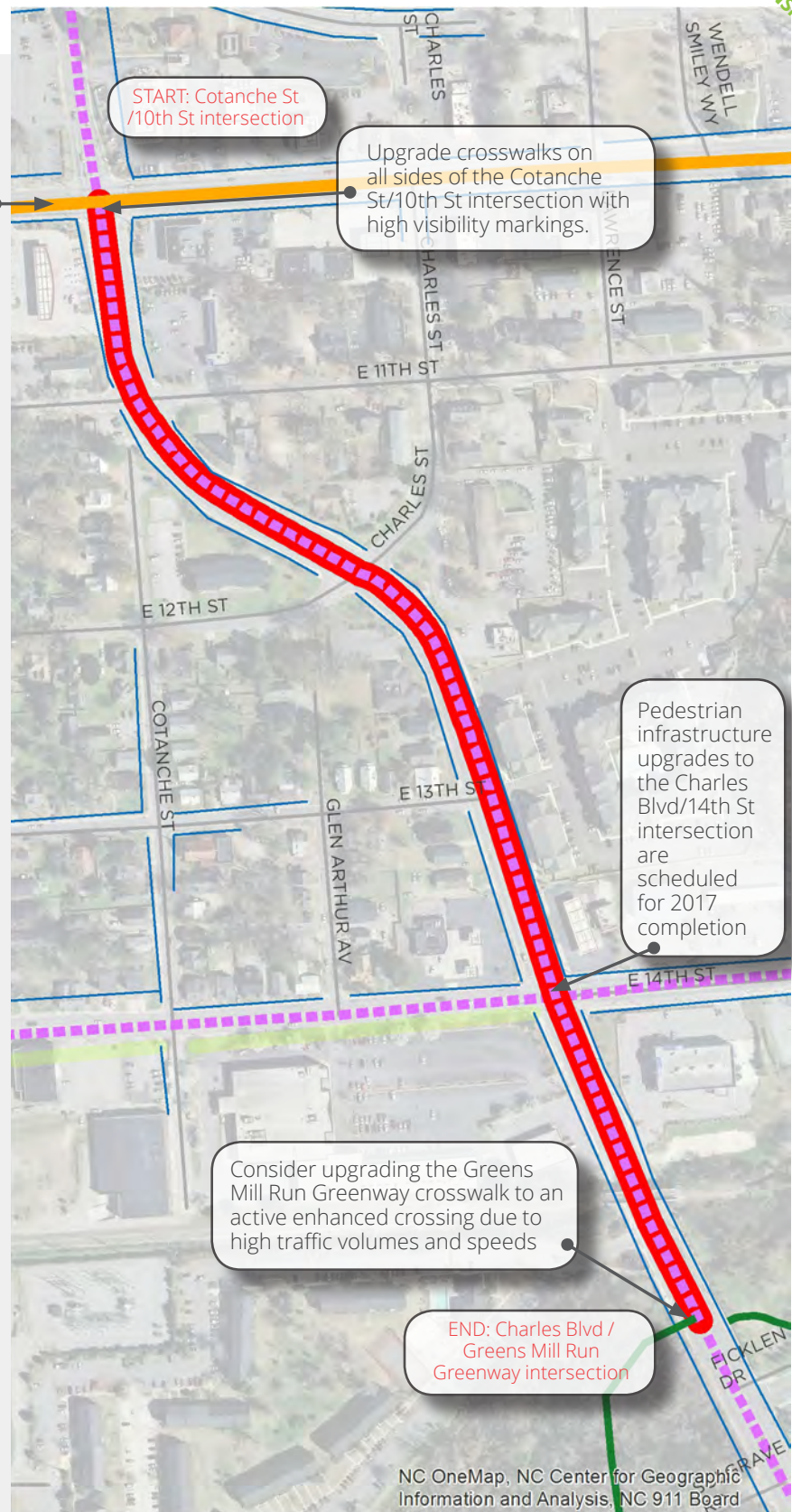
Project Details

The 10th St Corridor Study shows a conceptual design for bicycle & pedestrian improvements along 10th St from Evans St to Greenville Blvd. Implementing this study along with improvements along this section of Charles Blvd will significantly enhance walking and bicycling safety.

*From 10th St to the Greens Mill Run Greenway intersection along Charles Blvd, a detailed corridor study should be completed to evaluate bicycle & pedestrian facility options along with changing traffic conditions related to the 10th St Connector project that is currently under construction. Different types of physically separated bicycle lane separation methods should be considered (see page B-46 of the Design Guidelines appendix) as well as pedestrian facility options (see beginning on page B-5 of the Design Guidelines appendix). As part of this study, consider the following:

With an existing pavement width that is 66'-68', an AADT that transitions from 15,000 to 21,000, and five travel lanes (two in each direction with a center turn lane before the center turn lane is replaced by a median south of the Greens Mill Run Greenway), consider the possibility of reconfiguring to three lanes (one in each travel direction with a center turn lane). This will allow space to stripe buffered bike lanes or create some form of physically separated bicycle lanes, connecting with the proposed facilities continuing north toward Uptown. Other options for installing separated bicycle facilities without lane reconfiguration will require significant investment in roadway widening and/or overall corridor redevelopment.

Due to high traffic volumes and limited to no buffer space, installing separated bicycle facilities will significantly enhance the pedestrian level of service by creating additional buffer space between automobile traffic and the existing sidewalks.



Proposed

- Separated Bikeway (& Pedestrian Facilities)
- Major Corridor Improvement - Project Extent

Existing

- Sidewalk
- Shared Use Path
- In Development

0 250 500 Feet

6 Recommendations

75% of respondents are "very willing" or "willing" to support a bond referendum or additional funding for improvements to the City's streets and sidewalks, bike lanes, and street lighting.

- Greenville Citizen's Survey, 2014



Overview

A comprehensive approach to making the Greater Greenville Area more pedestrian-friendly and bicycle-friendly will need to integrate policy, programmatic, design, and implementation elements.





In order to realize the plan's goals and objectives, the Greater Greenville Area should use a multi-pronged strategy. Simply building more bike-ways and sidewalks will not enable the Greater Greenville area to reach the goals that are outlined in this plan. Multiple approaches should be taken to support bicycle and pedestrian facility development and programming. It is important to secure the funding necessary to undertake priority projects but also to develop a long-term funding strategy to allow continued development of the overall system. Dedicated local funding sources will be important for the implementation of this plan.

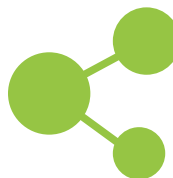
In this chapter, rationale is provided for why each recommendation is needed as well as specific guidance and key action steps. Case studies and lessons learned from cities across the U.S. are also included as part of the recommendations. Each recommendation is designed as a cut-sheet so that they can be easily referenced and implemented either as standalone projects or in conjunction with other recommendations.



Policy





Recommendations that fall under this category focus on policy-oriented strategies to send a signal to visitors, residents, and workers that the Greater Greenville area is undertaking a long-term commitment to improving walkability and bikeability. These policies touch on different aspects of the pedestrian and cyclist experience such as conflicts with motor vehicles, walking or biking through construction areas, or improving safety through traffic calming strategies.

Policy Topic	Page number
Local development ordinances 	160
Bike parking 	162
Traffic calming and speed reduction policy 	164
Bike and pedestrian access in construction zones 	166



Programmatic



Education, encouragement, enforcement, and promotional programs will help people discover, feel more confident, and learn how to safely travel along sidewalks and bikeways in the Greater Greenville area. Programs that are tailored to people of all ages and abilities will help them to realize the full potential of new and proposed walkways and bikeways. The recommended programmatic actions will increase the visibility of people who walk and bike, communicate that all road users are expected to look for each other no matter how they travel, create safer streets, and develop a common understanding of traffic safety.

Programmatic Topic	Page number
Staffing for bike and pedestrian planning & programs 	168
Safety campaign 	170
Implement Vision Zero Policy and Plan 	172
Wayfinding System 	174



Design






When designing bikeways and walkways, practitioners and leaders in the Greater Greenville area should consult national standards and guidelines for the most up-to-date innovations and best practices. The Federal Highway Administration (FHWA), National Association of Transportation Officials (NACTO), and American Association of State Highway and Transportation Officials (AASHTO) have a wealth of resources and reports to reference for current design standards of pedestrian and bike facilities. In addition, other cities across the United States could serve as models for how to design safe streets for all users. The design recommendations included in this chapter will provide guidance beyond the construction of standard bikeways and sidewalks.

Design Topic	Page number
Design resources	176
Typical Street Cross Sections 	178
Pedestrian-scale lighting 	182



Implementation

Aside from policy, programmatic, and design elements, this plan provides recommendations for how the Greater Greenville area can forge partnerships to further support walking and biking. Given the present-day economic challenges that local governments face, it is difficult to know the extent of financial resources available at different timeframes during implementation of this plan. These recommendations provide guidance on how the Greater Greenville area can leverage resources with other government agencies and external agencies to efficiently implement bicycle and pedestrian projects.

Implementation Topic	Page number
Batched bikeway projects 	184
Utility and fixed object coordination 	186
Tactical urbanism approach to pedestrian & bike infrastructure 	188
Transit first/last mile 	190
NACTO involvement 	192

Local Development Ordinances

MODE



Part I. Background

One of the most cost-effective active transportation implementation strategies for communities in the Greater Greenville Area is to establish land development regulations and street design policies that promote walkable and bikeable new development and capital projects. As part of a comprehensive approach to developing recommendations for a more walkable and bikeable Greenville MPO area, the consultant team reviewed Greenville MPO community ordinances, development standards and policies to identify general issues and opportunities impacting the bicycle and pedestrian environments across jurisdictions.

The team analyzed the regulatory standards and policies through the lens of this plan's vision statement:

"The Greater Greenville Area will offer residents and visitors many options for walking and bicycling, through

RECOMMENDATION:

- ✓ Municipal and county planners and planning board members should update their local ordinances to better support active transportation.
- ✓ Policy recommendations are found in Appendix E, and are organized into the categories of "Complete Streets and Greenways", "Pedestrian and Bicycle-oriented Urban Design Elements", and "Connectivity."

well-designed and beautifully maintained greenway trails, and through walkable, bicycle-friendly streets. People of all ages, abilities, and incomes will be able to safely and conveniently get to where they want to go." – Vision Statement from the Active Transportation Plan Steering Committee

The consultant team has identified model regulatory and policy language from around North Carolina and the U.S. for elements including land use/transportation integration, connectivity, Complete Streets, and bicycle parking, enabling the City and County jurisdictions to maximize bicycle/pedestrian and greenway improvements in conjunction with new development, redevelopment, and corridor improvement projects. In addition, the review includes recommended policy language additions to enhance greenway development.

Part II. Details

Timeframe

- ✓ **SHORT-TERM**
- **MID-TERM**
- **LONG-TERM**

Funding Needs

- ✓ **LOW**
- **MEDIUM**
- **HIGH**

Responsible Party

LEAD ROLE

Municipal and county planners

SUPPORT ROLE

Planning board members

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Read through Appendix E's policy review	Municipal and county planning directors	Spring 2017
Select policy updates and revisions that are appropriate for your community	Municipal and county planning directors	Summer 2017
Present these proposed updates to planning boards for discussion	Planning Boards	Fall 2017
Adopt and incorporate new policies and policy updates	Planning Boards & Elected Officials	Winter 2017-18

Case Study

Some members of this plan's Steering Committee attended workshops by city planner and walkability advocate, Jeff Speck. Speck's *Ten Steps of Walkability* were considered in selecting which regulatory and policy issues would be most important for the Greater Greenville Area's communities to focus on. These include:

1. ***Put Cars in Their Place***
2. ***Mix the Uses***
3. ***Get the Parking Right***
4. ***Let Transit Work***
5. ***Protect the Pedestrian***
6. ***Welcome Bikes***
7. ***Shape the Spaces***
8. ***Plant Trees***
9. ***Make Friendly and Unique Spaces***
10. ***Pick Your Winners.***



Several Steering Committee members communicated that author Jeff Speck could be an inspiration to active transportation policy in the region. Above: Cover of the Jeff Speck's book, "Walkable City: How to Save America One Step at a Time".



Bike Parking Program



MODE



Part I. Background

A bike parking program should be established where the jurisdictions within the Greater Greenville area provide, install, and maintain bike racks. Installation of bike racks could occur in areas with high bike traffic or at the request of business owners or residents. The Greater Greenville area should consider a requirement for developers to provide bike parking within their development or on the streets adjacent to the development. If developers do not want to provide bike parking, then they could instead pay a fee to the city that would fund bike racks.

The current parking code should be amended to allow for bike parking to be provided in the public right-of-way when adequate space is available and when the right-of-way provides for better visibility of bike racks. Greenville could administer a program and provide an application for business owners to apply for bike racks that are placed within the public right-of-way. This will increase the supply of bicycle parking in the city

while also increasing visibility for bicycling as a means of transportation.

Furthermore, many areas within Greenville's street right-of-way are occupied by on-street vehicular parking spaces, some of which are metered. This bike rack program should identify a process for administrative approval by Public Works without individual hearings and that is based on bike parking density for bike corral locations. Through this program, bike corrals may replace parking spaces. NACTO guidelines should be consulted for ideal bike parking density.

RECOMMENDATION:



Implement a bike rack program which allows for business owners and residents to request bike parking and for bike parking to be provided within the street right-of-way



Develop a policy for how to administratively retrofit on-street parking as bike corrals in areas with high bike volumes

Part II. Details

Timeframe



SHORT-TERM



MID-TERM



LONG-TERM

Funding Needs



LOW



MEDIUM



HIGH

Responsible Party

LEAD ROLE

Greenville MPO

SUPPORT ROLE

Greenville Parking Enforcement,
Greenville Community Development
Department, Greenville Public Works



Bike parking in Greenville (Source: FROGGS)



Case Study

Pittsburgh, PA

The City of Pittsburgh installs sidewalk bike racks on a district-wide basis and does not charge a fee. Applicants can apply to install a standard bike rack using their own contractor or apply for a sidewalk rack permit where the city installs the rack through their rack installation program. The applications are evaluated to make sure they meet the public space regulations.

Minneapolis, MN

The City of Minneapolis provides guidelines for where on-street bike corrals can be located. The applicant and the city share the costs equally, and the city owns the corrals with the intention that the locations exist for a minimum of 5 years. The applicant is responsible for the day-to-day upkeep.

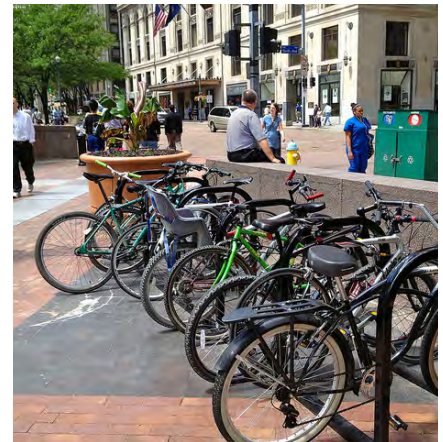
Seattle, WA

Racks are installed at the request of citizens and business or property owners. Racks remain the property of Seattle Department of Transportation (SDOT). SDOT assumes responsibility for the racks but not for bicycles parked at them. Several criteria are used in siting the racks; one criteria is that they must be installed in

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Develop bike rack program, including an application for requesting bike racks	Greenville MPO, Greenville Public Works	Early 2018
Propose policy that would allow for on-street bike corrals	Greenville MPO	End of 2018
Develop program and guidelines for bike corral program and obtain approval from municipalities within Greater Greenville area	Greenville MPO	Early 2019
Identify funding source and staff for implementation of bike rack program where bike racks are provided by the local jurisdictions	Greenville MPO	Ongoing

public space within the City of Seattle limits, usually on a sidewalk with six feet or more of clear sidewalk space remaining. Racks on private property are usually paid for by the property owner. City racks are not available for purchase, but Bicycle Program staff can help property owners choose appropriate racks and installation locations. SDOT will also consider bike corrals upon request of the adjacent business owner. Converting a vehicle space is typically warranted where bike parking demand exists and where sidewalks are constrained.



Top right: Bike parking in Pittsburgh; Bottom left: Bike corral outside a cafe in Minneapolis, MN (Source: Finance & Commerce); Bottom right: Bike corral in Seattle, WA (Source: City of Seattle)

Source: <http://pittsburghpa.gov/dcp/bicycleparking>
<http://www.minneapolismn.gov/www/groups/public/@publicworks/documents/webcontent/wcmsp-172354.pdf>
<http://www.seattle.gov/transportation/bikeparking.htm>



Traffic Calming and Speed Reduction Policy

MODE



Part I. Background

Traffic calming is used to mitigate the effects of speeding and cut-through traffic in residential neighborhoods. Traffic calming measures improve safety for pedestrians, cyclists, and motorists who travel along neighborhood streets. A common traffic calming strategy is to reduce posted speed limits. Lowering speed limits on streets can dramatically reduce the likelihood as well as severity of injuries and fatalities that result from pedestrian and cyclist collisions. According to the ITE Transportation Planning Council, the risk of fatality decreases from 45% to 5% when the speed limit is reduced from 30-35 mph to 20-25 mph.

Residential streets in Greenville and Ayden already have posted speed limits of 25 mph. Most residential streets in Winterville have either 20 or 25 mph posted speed limits.

RECOMMENDATION:

- ✓ Implement traffic calming measures on neighborhood streets
- ✓ Develop clear and concise guidelines for traffic calming measures
- ✓ Identify 5 pilot projects to implement 20 mph zones near intersections with high collision history and/or near high pedestrian and bicycling generators

The City of Greenville could consider piloting 20 mph zones in areas that have a high number of pedestrian or bicycle collisions or near areas with generators of bicycle and pedestrian activity, such as schools and parks. The city should further evaluate major thoroughfares for opportunities to reduce traffic speeds along those corridors.

In addition to lowering the speed limit, other design features can be added to the streets to reduce the speed of vehicle traffic. Examples of design features are traffic circles and speed bumps. Design guidelines for traffic calming can be found in Appendix B.

Part II. Details

Timeframe

- ☐ SHORT-TERM
- ✓ ☒ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☐ LOW
- ✓ ☒ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE

Public Works, Planning

SUPPORT ROLE

Greenville MPO, Greenville Police Department

Local Development Ordinances

MODE



Part I. Background

One of the most cost-effective active transportation implementation strategies for communities in the Greater Greenville Area is to establish land development regulations and street design policies that promote walkable and bikeable new development and capital projects. As part of a comprehensive approach to developing recommendations for a more walkable and bikeable Greenville MPO area, the consultant team reviewed Greenville MPO community ordinances, development standards and policies to identify general issues and opportunities impacting the bicycle and pedestrian environments across jurisdictions.

The team analyzed the regulatory standards and policies through the lens of this plan's vision statement:

"The Greater Greenville Area will offer residents and visitors many options for walking and bicycling, through

well-designed and beautifully maintained greenway trails, and through walkable, bicycle-friendly streets. People of all ages, abilities, and incomes will be able to safely and conveniently get to where they want to go." – Vision Statement from the Active Transportation Plan Steering Committee

The consultant team has identified model regulatory and policy language from around North Carolina and the U.S. for elements including land use/ transportation integration, connectivity, Complete Streets, and bicycle parking, enabling the City and County jurisdictions to maximize bicycle/ pedestrian and greenway improvements in conjunction with new development, redevelopment, and corridor improvement projects. In addition, the review includes recommended policy language additions to enhance greenway development.

RECOMMENDATION:



Municipal and county planners and planning board members should update their local ordinances to better support active transportation.

Part II. Details

Timeframe

- ☒ SHORT-TERM
- ☐ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☒ LOW
- ☐ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE

Municipal and county planners

SUPPORT ROLE

Planning board members



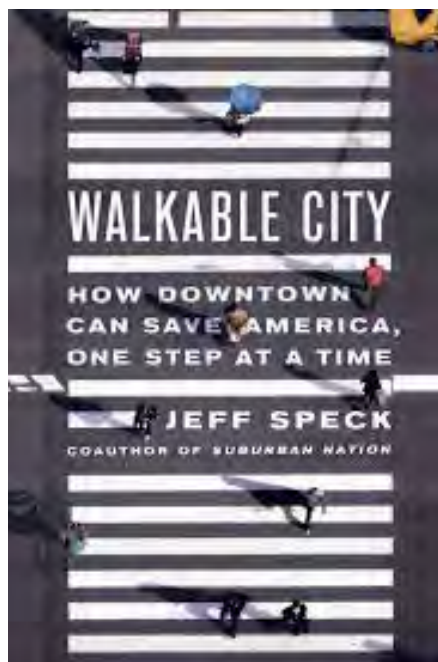
Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Read through the policy review memorandum from this planning process	Municipal and county planning directors	Spring 2017
Select policy updates and revisions that are appropriate for your community	Municipal and county planning directors	Summer 2017
Present these proposed updates to planning boards for discussion	Planning Boards	Fall 2017
Adopt and incorporate new policies and policy updates	Planning Boards & Elected Officials	Winter 2017-18

Case Study

Some members of this plan's Steering Committee attended workshops by city planner and walkability advocate, Jeff Speck. Speck's *Ten Steps of Walkability* were considered in selecting which regulatory and policy issues would be most important for the Greater Greenville Area's communities to focus on. These include:

1. **Put Cars in Their Place**
2. **Mix the Uses**
3. **Get the Parking Right**
4. **Let Transit Work**
5. **Protect the Pedestrian**
6. **Welcome Bikes**
7. **Shape the Spaces**
8. **Plant Trees**
9. **Make Friendly and Unique Spaces**
10. **Pick Your Winners.**



Several Steering Committee members communicated that author Jeff Speck could be an inspiration to active transportation policy in the region. Above: Cover of the Jeff Speck's book, *"Walkable City: How to Save America One Step at a Time"*.



Case Study

Raleigh, NC

The City of Raleigh addresses traffic calming through its Neighborhood Traffic Management program. Through the City of Raleigh website, residents can apply to have their street evaluated for traffic calming. Evaluation criteria include the amount of traffic speeding on the street, number of speed-related collisions on the street, and the amount of pedestrian activity. Residents can also petition to reduce the speed on their street if that residential street carries less than 4,000 vehicles per day. At least 75% of adult residents or property owners on the street must agree to the speed limit reduction. Once a petition is received for a street, the request will be reviewed by City Council.

Treatments are considered based on street width. Streets wider than 31 feet are eligible for the Neighborhood Streetscape Program, which uses treatments such as enhanced landscaping and landscape islands to reduce speed. Streets narrower than 31 feet are eligible for traditional traffic calming measures. There are no fees or assessments for Neighborhood Streetscape Projects; they are funded by Transportation Bond and Capital Improvement Funds. Each year the city reviews and approves projects.

Source: City of Raleigh

<http://bikeportland.org/2016/09/27/seattle-just-passed-a-citywide-20-mph-speed-limit-and-portland-could-be-next-192316>

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Develop traffic calming program	Greenville MPO	End of 2017
Identify 5 pilot projects for 20 mph slow zones. Install devices to monitor the speed of cars in these slow zones and identify opportunities for expansion and improvements in future phases	Greenville MPO	Mid-year 2018
Change signs and road markings, where applicable	Greenville Public Works	Ongoing

Seattle, WA

In September 2016, Seattle City Council unanimously approved a measure to reduce speeds on arterials to 25 mph and speeds on residential streets to 20 mph. This new policy change will affect about 2,400 miles of neighborhood streets. Advocates were instrumental in pushing the

reduced speed limit. Traffic studies confirmed that lowering the speed limit would not cause traffic delay. This builds upon the city's existing 20 mph zones program, called "Designing Safer Streets," where six neighborhoods were piloted as 20 mph zones.



Advocates in favor of lowering the speed limit of neighborhood streets to 20 mph (Source: Seattle Neighborhood Greenways)



Bike and Pedestrian Access in Construction Zones



MODE



Part I. Background

The Greater Greenville area should consider the development and adoption of a countywide ordinance that will address bicycle and pedestrian safety in construction zones. The ordinance should require adoption of temporary traffic control plans when closures exceed 20 days. It must also address the regular closure of lanes and sidewalks in high construction areas and the reduced safety of pedestrians and cyclists.

Developers would need to seek a permit for lane closures and pay a fee for each day that sidewalks or bikeways are closed to the public. Sidewalk and lane closures result in out of way routing, which causes pedestrians to often walk in the street instead of taking the alternate route.

RECOMMENDATION:



Develop and adopt an ordinance that addresses construction closures in bikeways and walkways during construction



Implement a monitoring and enforcement program with penalties for unpermitted closures and the identification of dedicated staff to manage the program



Establish a clear and easy to use guidebook that outlines the planning and approval process for sidewalk and bikeway closures

In order to deter and reduce long-term closures of bikeways and sidewalks, Greenville should increase fees for construction sites. Sidewalk closures, especially in high traffic areas, should be the last option and only be allowed on a temporary basis. Greenville should establish a maximum distance for sidewalk and bikeway detours. Additionally, Greenville should evaluate a requirement for enclosed and covered walkways in high impact areas to promote the safe passage of pedestrians. Lastly, Greenville should adopt a platform for all public right-of-way management (emergency, development and utility coordination) to minimize disruption to residents and businesses, enforce no duplicate digging, and ensure cost sharing of work.

Part II. Details

Timeframe



SHORT-TERM



MID-TERM



LONG-TERM

Funding Needs



LOW



MEDIUM



HIGH

Responsible Party

LEAD ROLE

Greenville MPO

SUPPORT ROLE

Greenville Public Works, Greenville Police Department

Case Study

Raleigh, NC

In 2014, the City of Raleigh's Public Works Department created a safety manual called "Making Great Strides – A guide to accommodating pedestrians in active work zones." In order to reduce confusion around codes and legislative documents, this document uses laymen's terms to explain best practices for pedestrian accommodations in work zones, the planning and approval process, and examples of how it's being done. Topics covered in this manual include planning and design, detour options, protective barriers, safety measures, and consideration for utilities.

Seattle, WA

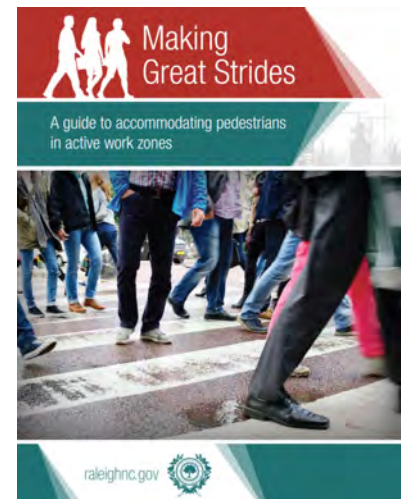
The City of Seattle instituted the Construction Hub Coordination Program in 2014 to address construction impacts to sidewalks. The program was initiated as a response to the access challenges experienced during the unprecedented growth and development of the city. The hub team of project and on-site coordinators assess permitted construction holistically, across public and private lines, in areas with multiple simultaneous construction projects in close proximity—otherwise known as construction hubs.

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Develop and adopt ordinance that addresses bike and pedestrian safety in construction zones	Greenville MPO	Early 2018
Establish fees for closures	Greenville MPO and leaders in Pitt County	Mid-year 2018
Establish monitoring and enforcement program	Greenville MPO	Mid-year 2018
Evaluate policy and how it addresses closures, maximum detour distances, and covered and protected walkways	Greenville MPO	Early 2019
Establish platforming for right-of-way (ROW) management	Greenville MPO	Mid-year 2019
Develop guidebook	Greenville MPO	Late 2019

Site coordinators bring together leads from all public and private projects in a hub to encourage:

- Pedestrian detours to the opposing sidewalk at the nearest crossing
- Advanced warning signs for closures and detour signs
- Walkthrough scaffolding, to provide overhead protection and full-time pedestrian access



Source: Currier, S. "Making Great Strides to Keep Pedestrians Safe in Active Work Zones." 12 April 2016. <http://www.dsinsider.com/blog/30-development-services/161-raleigh-is-making-great-strides-to-keep-pedestrians-safe>

Staffing for Bike and Pedestrian Planning & Programs

MODE



Part I. Background

Establishing a Bicycle and Pedestrian Manager that is dedicated solely to active transportation projects would increase efficiency, provide greater oversight of active transportation projects, and serve as a central hub for all sidewalk, bikeway, and greenway projects and programs. Furthermore, the creation of this position signifies a long-term commitment to improving walkability and bikeability in the Greater Greenville area. Currently, the Greenville MPO Director is responsible for bicycle and pedestrian planning and projects in the Greenville metropolitan area, and has many duties outside of just bicycle and pedestrian projects. Establishing a Bicycle and Pedestrian position within the Greenville MPO would allow a that manager to focus directly on leveraging local funds with state and federal dollars, while also expanding much needed local education, enforcement, and encouragement programs for active transportation and work with existing efforts such as the City of Greenville

RECOMMENDATION:



Provide dedicated staff for bicycle and pedestrian projects

Part II. Details

Timeframe

- ☒ SHORT-TERM
- ☐ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☒ LOW
- ☐ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE

Greenville MPO

SUPPORT ROLE

Greenville Public Works, Community Development, Parks & Recreation, Greenville Bicycle and Pedestrian Commission



Community members fill out public input survey during Freeboot Friday in Greenville

Bicycle & Pedestrian Advisory Commission, Friends of Greenville Greenways, ECU, and interdepartmental partners across each community in the MPO.

Case Study

The City of Austin's Active Transportation Division is housed within its Department of Transportation. The division, which was created in 2014, is responsible for the planning, design, and implementation of pedestrian and bicycle facilities as well as programs and services that promote walking and biking. Aside from overseeing the update of the sidewalk master plan and bicycle master plan, the division manages several programs, including Smart Trips (an active transportation encouragement program), Austin B-cycle, and VIVA! Streets (open streets event). The Active Transportation Division works closely with the Public Works Department for planning, constructing, and maintaining sidewalks, trails, and bikeways. As of 2016, a total of 14 staff work on bicycle and pedestrian projects.

While Austin is a larger city, it serves as a good example of the necessity for dedicated staff to manage active transportation elements efficiently. In cities cross the US as well as North Carolina, creating bicycle and pedestrian manager positions are often one of the first steps in dedicating staff focused on active transportation.

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Meet with municipal partners including Greenville Public Works, Community Development, Parks & Recreation, and the Greenville Bicycle and Pedestrian Commission to discuss the need to create a Bicycle and Pedestrian Manager as well as to develop the responsibilities of this position.	GUAMPO	Early 2018
Coordinate with all staff who currently work on active transportation projects, ensuring effective communication with the new manager position.	GUAMPO, New Bike/ Ped Coordinator Position	Ongoing
Apply for federal and state funding for active transportation projects.	New Bike/ Ped Coordinator Position	Ongoing
Apply for Bicycle Friendly Community (BFC) and Walk Friendly Community (WFC) designation.	New Bike/ Ped Coordinator Position	2018



Implementation of active transportation infrastructure and programming requires coordination among multiple departments, agencies, and stakeholders

Safety Campaign

MODE



Part I. Background

The Greater Greenville area does not have an education or outreach campaign that has a broad reach. Previous education efforts include campaigns for short periods of time that aimed to improve pedestrian safety. These initiatives include “El Walkador” and Walk this Way Pedestrian Safety Task Force. Through the planning process, residents have continually expressed that they don’t feel safe walking or biking along corridors where cars are traveling at high speeds or where motorists are not looking out for pedestrians or bicyclists.

Aside from engineering improvements, the Greater Greenville area should invest in programming that focuses on the other E’s: education, enforcement, and encouragement.

RECOMMENDATION:

- ✓ Implement a comprehensive safety campaign that includes education, encouragement, and enforcement components
- ✓ Implement safety campaign to include current Safe Routes to School programming

Advocacy groups and nonprofit organizations, such as the Eastern Carolina Injury Prevention Program, would be important partners in this comprehensive safety campaign. Any future safety campaign would need to reach residents of all ages and abilities. Programming would need to be tailored for specific age groups, such as seniors and students in K-12 schools. A safety campaign should include current Safe Routes to School efforts and potentially try to apply for more funding to expand the program.

Part II. Details

Timeframe

- ✓ **SHORT-TERM**
- ☐ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☐ LOW
- ✓ **MEDIUM**
- ☐ HIGH

Responsible Party

LEAD ROLE

Greenville MPO

SUPPORT ROLE

Eastern Carolina Injury Prevention Program, Pitt County Community Schools and Recreation, Greenville Police Department, Pitt County Sheriff Department, nonprofit organizations, advocacy groups



Case Study

Be Safe, Be Alert is a citywide traffic safety campaign in Chicago that urges motorists, pedestrians, and cyclists to follow traffic laws, pay attention, and create a safer city. The campaign encourages motorists to travel at 30 mph or less on city streets.

Since 2001, the City of Chicago's program has trained staff, called Safe Routes Ambassadors and Bicycling Ambassadors, to promote safe biking and walking. The goals of the Ambassadors are to promote safety, encouragement, and education for cyclists and pedestrians as well as to reduce crashes. The Ambassador programs are funded through the Chicago Department of Transportation (CDOT). Chicago's Safe Routes and Bicycling Ambassadors programs are the largest and longest-running programs of their type in North America. Each season, the Ambassadors visit schools, parks, libraries, and outreach events. They also act as a street team for Divvy, Chicago's bike share program, during high-usage events and at new station locations. During the school year, the Safe Routes Ambassadors reach out directly to public and private schools so that they can speak to individual classrooms in the second and fifth grades as well as in high school.

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Implement education programming for K-12 schools and for seniors ages 65+	Greenville MPO, Pitt County Community Schools and Recreation	Early 2018
Create new pedestrian/bike/motor vehicle safety campaign	Greenville MPO, Eastern Carolina Injury Prevention Program	Mid-year 2018
Partner with Police Department to strategize and implement targeted enforcement, possibly in areas with high number of crashes or near schools	Greenville MPO, Greenville Police Dept, Pitt County Sheriff Dept	Ongoing
Continue Safe Routes to School programming; Explore the possibility of expanding the program to more schools	Eastern Carolina Injury Prevention Program	Ongoing
Partner with local advocacy groups and non-profit organizations to organize encouragement events to promote safe walking and biking	Greenville MPO	Ongoing

The Chicago Pedestrian and Bicycle Safety Initiative Enforcement program includes joint safety enforcement events with the Chicago Police Department and the Bicycling Ambassadors. Bike safety events are held during peak commuting hours at the locations with the highest number of crashes. At these events,

information is distributed about distracted driving, failure to yield to pedestrians and cyclists at controlled intersections, riding against traffic, and other behaviors. Bicycling Ambassadors partner with police to distribute bike headlights to cyclists riding without headlights.



Chicago Safety Campaign Poster (Source: Chicago Department of Transportation)

Implement Vision Zero Policy and Plan

MODE



Part I. Background

The Greater Greenville area recognizes that it is essential to address the issue of pedestrian and bicyclist safety, particularly in areas with high numbers of crashes. In the first six months of 2016, five pedestrians were killed by vehicles in Pitt County and fourteen fatalities have occurred between January 2015 and August 2016. Focusing on high crash locations could result in a dramatic improvement to safety in the Greater Greenville area. A number of cost-effective pedestrian and bicycle safety countermeasures exist that can be used to improve safety for non-motorized modes.

In August 2016, Greenville City Council unanimously approved a Public Transportation and Parking Commission motion to consider adopting a Vision Zero commitment to reduce pedestrian fatalities to zero by 2026. Through this commitment,

Greenville is set to become the first community in North Carolina that adopts Vision Zero. A formalized Vision Zero policy and plan signifies that Greenville is committed to improving road safety for all users. A citywide Vision Zero effort would be a concerted effort between various city departments, advocacy groups, schools, businesses, and nonprofit organizations. Implementing Vision Zero in Greenville would require education, enforcement, and design components in order to make a broad scale impact. Strategies for implementation could include enforcement efforts to target behaviors that could endanger all types of road users, outreach efforts to community members, and safety improvements to the downtown area where there are the largest numbers of pedestrians and bicyclists.

RECOMMENDATION:

- ✓ Adopt a Vision Zero policy and plan
- ✓ Commit to a goal of zero traffic fatalities by 2026
- ✓ Implement education, enforcement, and street design strategies that align with Vision Zero

Part II. Details

Timeframe

- ☐ SHORT-TERM
- ☒ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☐ LOW
- ☒ MEDIUM
- ☐ HIGH

Responsible Party LEAD ROLE

Greenville City Council

SUPPORT ROLE

Public Works, Greenville MPO, GREAT



Case Study

While the rate of traffic fatalities in Seattle has steadily declined, the city has adopted the view that one death is too many. The Seattle Vision Zero Plan sets a goal of eliminating traffic fatalities by 2030. Support from the mayor's office and partnerships with multiple city departments, government agencies, and community groups is integral in achieving this goal. Near-term actions are categorized into three groups: (1) street design, policies, and regulation, (2) education and public engagement, and (3) enforcement. Examples of some street design, policies, and regulations include a 20 mph zone program to reduce speeds on residential streets, reduce speed limits to 25 mph throughout downtown, construction coordination, and improving transit safety such as lane allocation improvements. Examples of education and public engagement include targeted outreach such as pedestrian safety for seniors (ages 50 and up), public engagement, and a vision zero campaign to serve as an overarching outreach effort. Enforcement efforts include school zone photo enforcement, corridor safety patrols, and high visibility enforcement.

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Complete a Vision Zero Plan	Greenville MPO, Greenville Public Works	End of 2017
Adopt Vision Zero Plan	Mayor's Office, Greenville Council	Early 2018
Develop and implement targeted education programs geared towards improving pedestrian and bicyclist safety	Greenville MPO	Mid-year 2018
Target enforcement efforts towards top 50 high-crash intersections	Greenville Police	Ongoing
Collaborate with Greenville GREAT to improve safety along transit corridors	Greenville MPO,	Ongoing

In 2016, the city implemented a distracted driving campaign to encourage drivers to put away their phones while on the road. The city has also partnered with ridesharing services, Uber and Lyft, to offer discounted rides in order to prevent drunk driving. The city reports on its Vision Zero progress through an annual report. A city website for Vision Zero is also updated regularly.



Seattle Distracted Driving Campaign (Source: Seattle Department of Transportation)

Sources: Seattle Vision Zero Plan

Wayfinding System

MODE



Part I. Background

Wayfinding elements such as signage and mile markers will help to draw visitors, help users to identify the best routes, and enhance their ability to connect to major destinations. A wayfinding system will give users a unique experience while improving safety by alerting both users and motorists of the presence of pedestrian and bicycle routes.

The 2013-2017 Greenville Capital Improvement Program (CIP) includes a budget line item for a wayfinding system that will include major attractions and destinations within Greenville. This wayfinding system should be expanded to include bicycle routes and greenway trails within Greenville and across jurisdictional boundaries (if possible) since they are also major destinations for residents and visitors. A wayfinding system is increasingly important since Greenville serves as a regional hub for commerce, education, and medical services. A comprehensive wayfinding system will enable all users to easily navigate through the non-motorized network.

RECOMMENDATION:

- ✓ Implement a comprehensive wayfinding system to help users navigate pedestrian routes, bikeways, and greenway trails
- ✓ Develop signage that conveys distance and direction to major directions

Part II. Details

Timeframe

- ☐ SHORT-TERM
- ☒ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☐ LOW
- ☒ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE
Greenville MPO

SUPPORT ROLE
Public Works



A sign at the entrance of the Tar River Greenway in Greenville

Case Study

Bicycle Wayfinding: Berkeley, CA

In 2002-2003, Berkeley, CA implemented a bicycle signage system for their bikeways and bicycle boulevards. Many of the bicycle boulevards are along residential streets with few landmarks and thus the city wanted a better way to distinguish these routes to provide more guidance for bicyclists. The city decided to use a nonstandard purple color for all signs with a prominent and recognizable logo. The system includes seven types of signs to identify routes and destinations and to provide guidance and information when the route changes or for intersecting routes. Signs and legends are reflective and visible at night. Berkeley also uses pavement markings that designate a bicycle boulevard and these pavement markings take up almost the full width of a travel lane.

Pedestrian Wayfinding: New York, NY

WalkNYC is New York City's pedestrian wayfinding system that was implemented in the summer of 2013. Although the city is known as a pedestrian-friendly city, there was a need to create a universal design that would apply to all the diverse

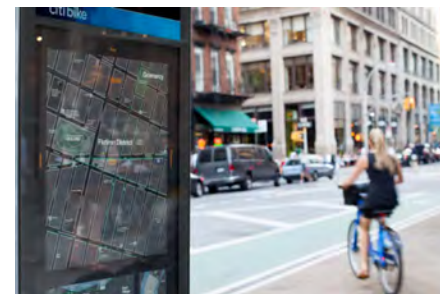
Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Conduct a wayfinding study and/or wayfinding plan; deliverables will include concepts and placement plan	Greenville City Council, Public Works, Community Development	End of 2017
Consult NACTO Urban Bikeway Design Guide and MUTCD for design standards	Public Works, Community Development	Ongoing
Apply and obtain funding for a wayfinding system	Public Works	Mid-year 2018
Install wayfinding signage and pavement markings	Public Works	End of 2018
Conduct regular maintenance for wayfinding signs and pavement markings (if applicable)	Public Works	Ongoing

boroughs and neighborhoods that make up the city. WalkNYC provides clear visuals and graphics to orient pedestrians and to provide a system of signs to help pedestrians navigate throughout the city. The maps are designed to encourage people to walk, bike, use public transit, and to help guide users to major landmarks and destinations. Each kiosk displays a large map of the streets within a 5-minute walking distance and another map showing the area in relation to a larger section of the city. The maps use a "head-up" orientation in which the compass direction corresponds with the direction in which the user is facing. WalkNYC maps are installed at all subway stations, Staten Island Railway stations, and Citi Bike station kiosks.



Bicycle boulevard/neighborhood bikeway signage in Berkeley, CA



WalkNYC kiosk in New York City (Source: Society for Experiential Graphic Design)

Sources: Pedestrian and Bicycle Information Center, City of Berkeley, CA
<http://nacto.org/case-study/bicycle-way-finding-signage-berkeley-ca/>

<http://www.nyc.gov/html/dot/html/pedestrians/walknyc.shtml>
<https://segd.org/walknyc-pedestrian-wayfinding>
<http://www.aiga.org/case-study-walknyc-pedestrian-wayfinding>

Introduction to Design Resources

RECOMMENDATION:



Local governments in the Greenville Urban Area MPO should update design guidelines to include current, innovative treatments found in these design resources. See **Appendix B** for a comprehensive active transportation design toolbox that draws upon these resources.

A number of notable federal and state resources are available for bike and pedestrian planning and design. These design guidelines and treatments represent tools for creating a more walkable and bikeable communities in the Greenville Urban Area MPO. A thorough evaluation by an engineering and/or design professional should be conducted prior to construction of any facility. Below is a brief description of each resource.

National Guidance

American Association of State Highway Transportation Officials (AASHTO)



Guide for the Development of Bicycle Facilities, 4th Edition (2012) is geared towards planners and designers and provides guidance on how to accommodate bike travel and operations in most riding environments and situations. Because these are guidelines, there is flexibility in tailoring the designs so that it is sensitive to local context.



Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004) aims to provide guidance on the planning, design, and operation of pedestrian facilities along streets and highways. In particular, the guide focuses on identifying effective measures for accommodating pedestrians on public rights-of-way.

Federal Highway Administration (FHWA)



Achieving Multimodal Networks (2016) is intended to serve as a resource for practitioners on how to build multimodal transportation networks. The focus of this publication is to provide guidance on how to reduce multimodal conflicts and to improve the connectivity of multimodal networks so that walking and biking are more attractive transportation modes.



Separated Bike Lane Planning and Design Guide (2015) outlines planning considerations for separated bike lanes, which are also known as cycle tracks or protected bike lanes and provides design options for one-way and two-way separated bike lanes. This guide captures the current state of practice and covers other topics such as options for providing separation, intersection design, and lessons learned from around the U.S.



Incorporating On-Road Bicycle networks into Resurfacing Projects (2016) provides recommendations on how roadway agencies can incorporate bicycle facilities into their resurfacing program. In addition, the guide provides recommendations on how to accommodate bicycle facilities on existing roadways, cost considerations, and case studies. While the guide doesn't provide specific design guidance, it offers best practices for providing bikeways in conjunction with resurfacing projects.

NATIONAL ASSOCIATION OF TRANSPORTATION OFFICIALS (NACTO)



Urban Bikeway Design Guide (2014) is a guide developed by reviewing best practices in cities across the world and the intended audience is cities. The guide provides state-of-the-practice solutions for creating complete streets that are safe for bicyclists.



Urban Street Design Guide (2013) serves as a toolkit for making city streets safer, more livable, and more economically vibrant. Topics covered in the guide include street design elements, interim design strategies, intersections, and design controls.

North Carolina Guidance

North Carolina Department of Transportation (NCDOT)

NCDOT Complete Streets Policy was adopted in 2009. This policy created a set of design guidelines called the Complete Streets Planning and Design Guidelines, which was released in 2012. These documents guide NCDOT's consideration for bicyclists and pedestrians as part of the roadway or bridge design process. The policy and sample projects can be found at www.completestreetsnc.org

WalkBikeNC is North Carolina's statewide Bicycle and Pedestrian Plan that was adopted in by the NCDOT Board of Transportation in December 2013. The plan includes information about the many benefits of walking and bicycling related to mobility, safety, health, economy, and environment. The WalkBikeNC website (www.ncdot.gov/bikeped/walk-bikenc), serves as a portal where users can access the many bicycle and pedestrian resources across the state.

Evaluating Temporary Accommodations for Pedestrians During Construction is a NCDOT document that provides guidelines for NCDOT engineers when evaluating the need for temporary pedestrian accommodations during construction. Contents of the document include responsible parties, scheduling, procedures, and policy, regulatory, and legal requirements. A copy of this document can be found at www.connect.ncdot.gov/projects/BikePed/Pages/Guidance.

Typical Street Cross Sections

MODE



Part I. Background The following typical street cross-sections could be used as a reference point for the City of Greenville, the Town of Winterville, the Town of Ayden, the Village of Simpson, and Pitt County. They should be used to guide comprehensive updates to local standards, and as a point of discussion and consideration when new roadway projects are in the design process with NCDOT. This relates especially to the bikeways and sidewalks recommended as part of the **“Major Corridor Improvements”** identified in Chapters 3 & 4.

RECOMMENDATION:

- ✓ Local governments in the Greenville Urban Area MPO should update typical street cross-sections, using the examples on the following pages for guidance.
- ✓ Use the typical street cross sections (on following pages) to inform the design process for roadway projects; see sections under “Arterial Streets” for the Major Corridor Improvements identified in this plan.

Part II. Details

Timeframe

- ☐ SHORT-TERM
- ☒ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☐ LOW
- ☐ MEDIUM
- ☒ HIGH

Responsible Party

LEAD ROLE
Greenville MPO

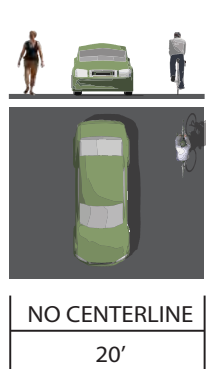
SUPPORT ROLE
NCDOT Division 2



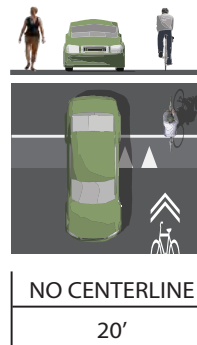
See maps in Chapters 3 & 4 for recommended “Major Corridor Improvements” (shown here in a pink/purple dash).

Example Local Street Cross Sections

Existing (typical)



Neighborhood Bikeway

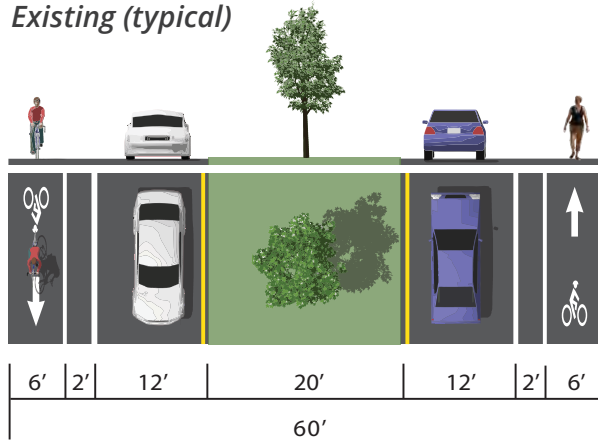


APPLICATION:
On streets with less than 3,000 cars per day and a posted speed of 25 mph or less.

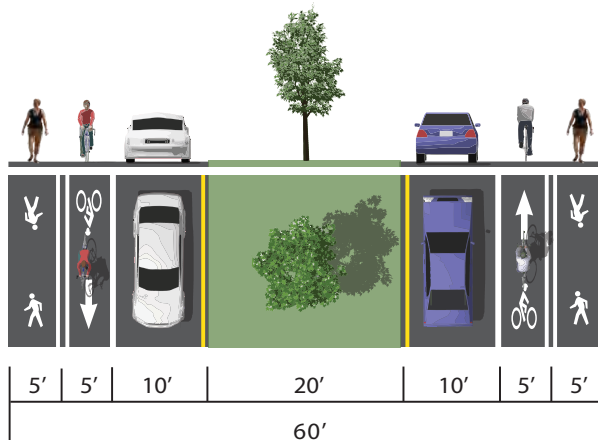
IMPLEMENTATION:
Repurpose existing roadway space

Example Collector Street Cross Sections

Existing (typical)



Low Speeds and Volumes

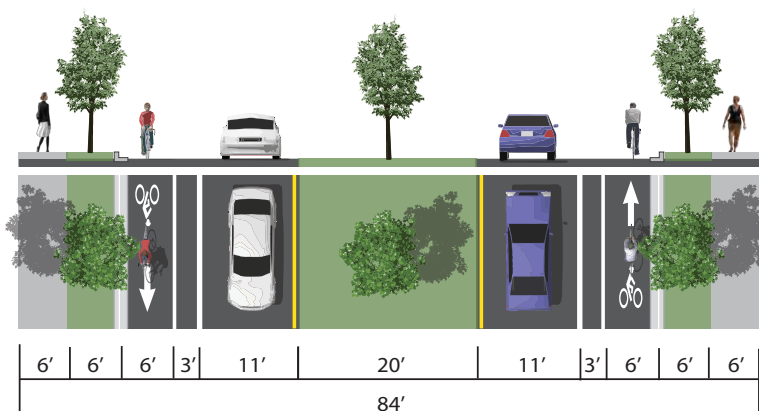


APPLICATION:
On streets with less than 6,000 cars per day and a posted speed of 30 mph or less.

IMPLEMENTATION:
Repurpose existing roadway space

Example Collector Street Cross Sections (continued)

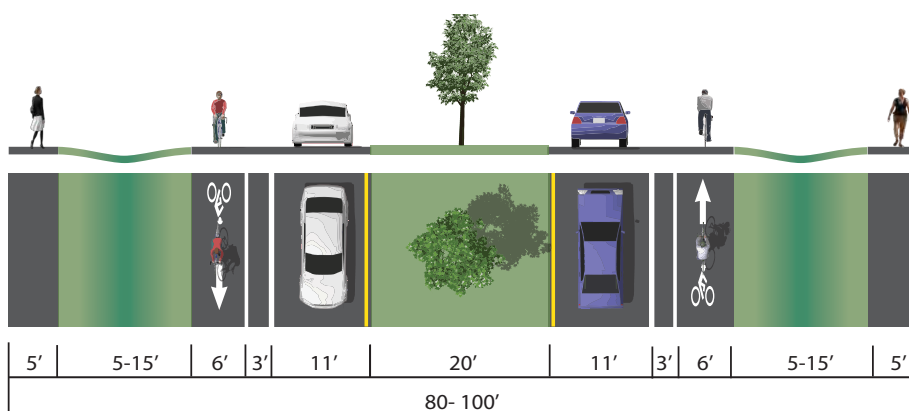
Moderate Speeds and Volumes: Conventional Approach



APPLICATION:
On streets with up to 20,000 cars per day and a posted speed of 35 mph or less.

IMPLEMENTATION:
Install curb, gutter, closed stormwater system, and concrete sidewalks.

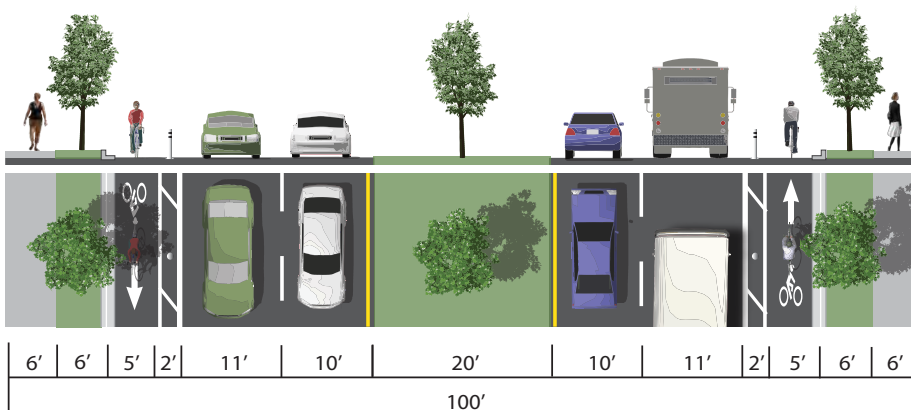
Moderate Speeds and Volumes: Lower-Cost Alternative



APPLICATION:
On streets with up to 20,000 cars per day and a posted speed of 35 mph or less.

IMPLEMENTATION:
Add flush asphalt or concrete sidewalks. Maintain existing swale for drainage.

Higher Speeds and Volumes

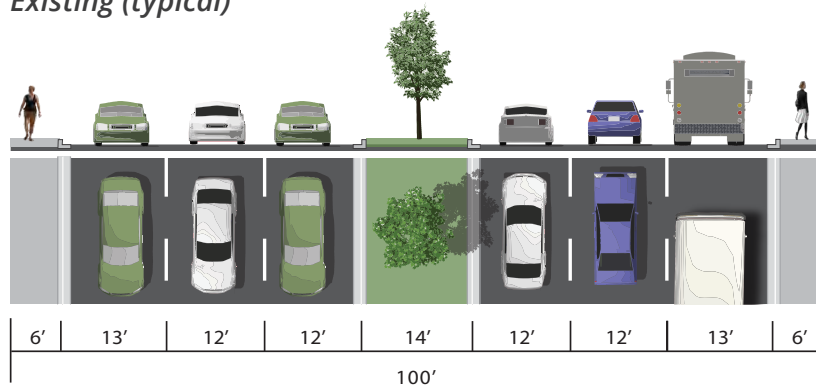


APPLICATION:
On streets with more than 20,000 cars per day and a posted speed of 35 mph or less.

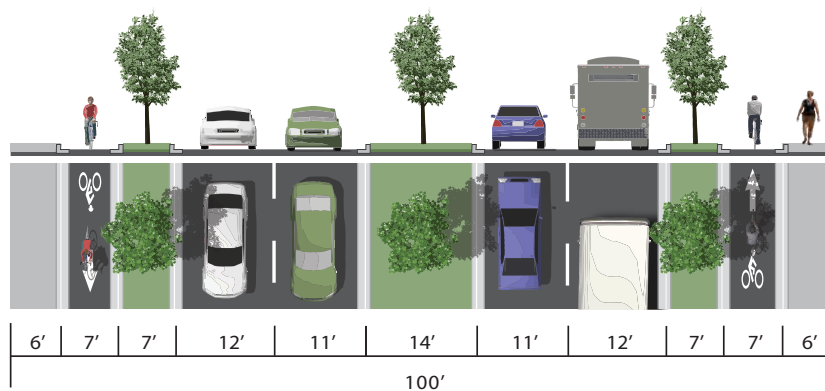
IMPLEMENTATION:
Expand roadway. Add curb, gutter, and install closed stormwater system. Construct concrete sidewalk with planting strip.

Example Arterial Street Cross Sections

Existing (typical)



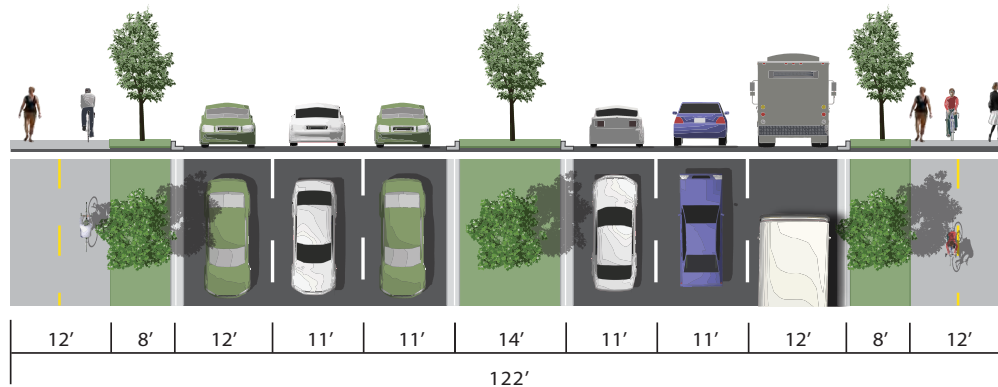
Separated Bike Lanes and Sidewalks (Road Diet)



APPLICATION:
On streets with more than 20,000 cars per day and a posted speed of 35 mph or less.

IMPLEMENTATION:
Repurpose outside travel lane with raised median and separated bike lane.

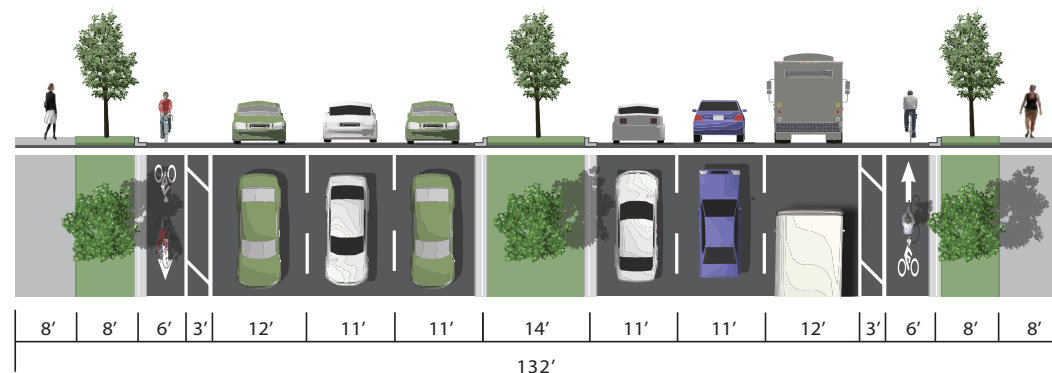
Shared Use Paths (Sidepaths)



APPLICATION:
On streets with more than 40,000 cars per day and a posted speed greater than 35 mph.

IMPLEMENTATION:
Expand roadway to accommodate planting strip and multi-use path. Requires ROW acquisition in most cases.

Buffered Bicycle Lanes and Sidewalks



APPLICATION:
On streets with more than 40,000 cars per day and a posted speed greater than 35 mph.

IMPLEMENTATION:
Expand roadway to accommodate planting strip and multi-use path. Requires ROW acquisition in most cases.

Pedestrian-Scale Lighting

MODE



RECOMMENDATION:

- ✓ Install pedestrian-scale along corridors with high pedestrian activity
- ✓ Evaluate opportunities to add lighting along trails and/or trail crossings at intersections

URBAN/COMMERCIAL AREAS

Pedestrian scale lighting improves visibility for both pedestrians and motorists - particularly at intersections and in areas of high pedestrian activity.

Pedestrian scale lighting is characterized by short light poles (around 15 feet high), close spacing, low levels of illumination (except at crossings), and the use of LED lamps to produce good color rendition, long service life and high energy efficiency.

Both street and pedestrian lighting levels should be considered for the same street corridor, especially in areas with tree canopy. "Dark Sky" lighting should be considered within residential districts.

Materials

Low-cost light emitting diodes (LED) offer a wide range of light levels and can reduce long term utility costs.

Guidance

Locate lighting at the following locations:

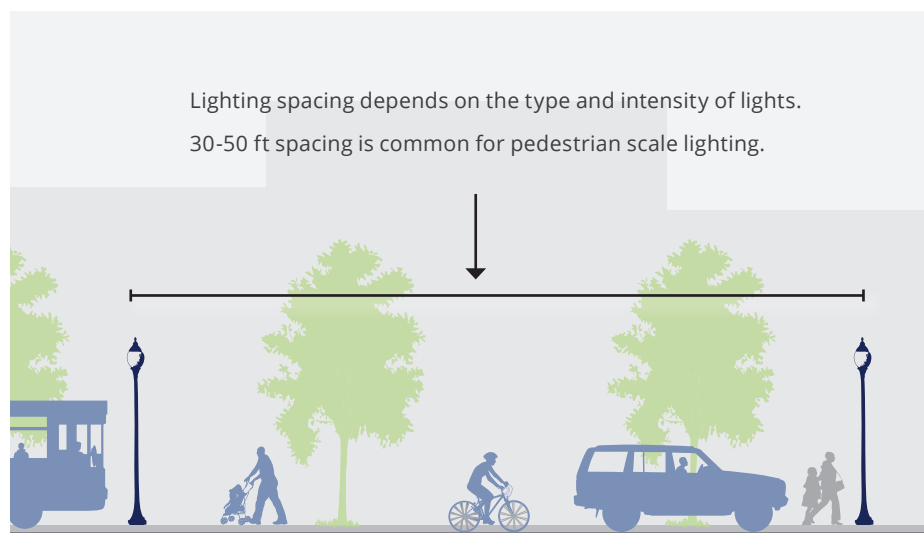
- Pedestrian oriented areas
- Street crossings (intersection and mid block)
- Entrances and exits of bridges
- Areas near churches, schools, and community centers with nighttime pedestrian activity.

Placement details and dimensions:

- Spacing should be provided for minimum illumination levels while limiting excess light pollution
- Luminaries should direct light downward
- Lighting poles should be placed in the furniture zone of the sidewalk and not interfere with pedestrian travel.



Solar powered lights are available where utility collection is difficult



TRAILS

Lighting for trails should be analyzed on a case-by-case basis with full consideration of the maintenance commitment lighting requires. In general, lighting is not appropriate for trails in remote areas, trails with low use, or where there is little to no development.

Lighting can improve visibility along the trail and intersection crossings at night for commuters. If a trail is determined to be unlit and closes at sun down, extended hours for commuters should be considered, particularly during winter months when trips to and from work are often made before sunrise and after sunset. Lighting may also be necessary for day-time use in greenway tunnels and underpasses.

Guidance

Recommended locations for lighting include the following:

- Trailheads and parking areas
- Restroom facilities
- Major trailhead intersections to use as a navigation aid
- Entrances and exits of bridges and underpasses and in tunnels
- Street crossings

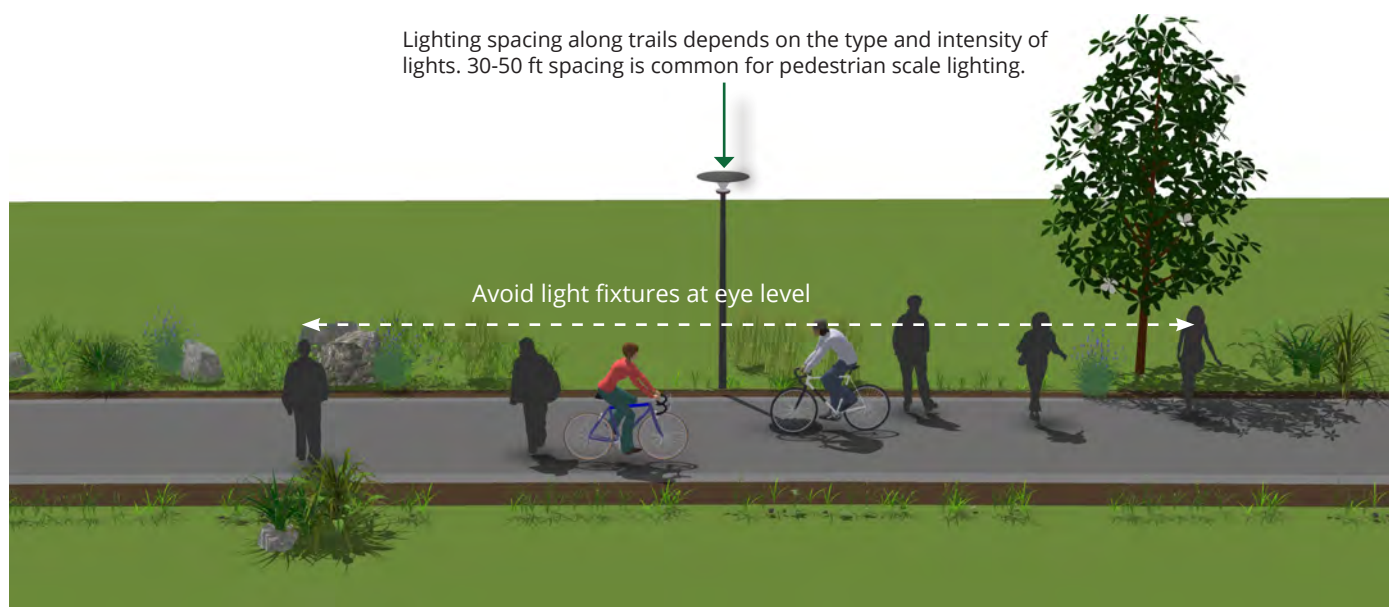
Low-cost light emitting diodes (LED) offer a wide range of light levels and can reduce long term utility costs.

Design lighting levels appropriate to each situation. Trail lighting should be at pedestrian scale. Avoid light fixtures at eye level that could impair visibility.

Solar powered lighting is available where utility collection is difficult or when alternative energy sources are desired.

Direct glare or excessive illumination on to adjacent properties, streets, or sidewalks should be avoided.

Lighting spacing along trails depends on the type and intensity of lights. 30-50 ft spacing is common for pedestrian scale lighting.



Trail lighting visualization

Batched Bikeway Projects



MODE



Part I. Background

Due to limited federal and state grant funding, cities and towns must be innovative in how they finance and expand their bicycle networks. A deliberate strategy is needed to maximize available funding. The Greater Greenville area should capitalize on existing resources and build new partnerships, especially with developers and private entities, so that it can expand and enhance its bikeway network. The Greater Greenville area should implement new bikeways during street resurfacing and major street improvements. The Greenville MPO should also seek out private partnerships, when appropriate, in order to support bike parking and development of bikeways. Many cities across the United States carry out bikeway projects as part of road resurfacing projects or through larger Complete Streets projects. Funding sources for these projects vary and may be a mix of federal, state, and local sources.

RECOMMENDATION:

- ✓ Identify diverse funding strategies for bikeway projects
- ✓ Group bikeway projects together when appropriate and feasible in order to save on costs and time

Part II. Details

Timeframe

- ☐ SHORT-TERM
- ☐ MID-TERM
- ✓ ☒ LONG-TERM

Funding Needs

- ✓ ☒ LOW
- ☐ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE

Greenville MPO

SUPPORT ROLE

Town and City leaders in Greater Greenville area, Planning, Public Works



A bicycle lane in Greenville

Case Study

Memphis, TN

Currently, Memphis doesn't have a dedicated funding source for bikeway projects in its capital improvement budget. Many of the bikeway projects are implemented through street resurfacing or other projects that are already happening. For some projects, such as greenways, groups that aren't part of the city are the ones who initiate the projects. For example, a cycle track was constructed on Jefferson Avenue that was initiated by the Memphis Medical District Collaborative (MMDC), a nonprofit community development entity. MMDC focuses its work heavily on streetscape improvements throughout the Medical District. Memphis's Hampline, a combined on and off-street bikeway, was initiated by the public and paid for in part by crowdfunding. The project's supporters launched a digital fundraising campaign (similar to Kickstarter) to pay for part of the project's cost.

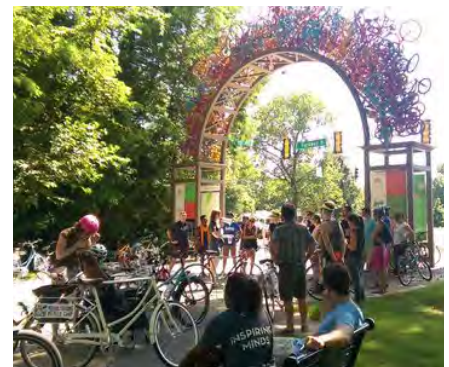
Raleigh, NC

Raleigh's Long Term Bikeway Plan and the city's Complete Streets Policy directs the city to continue to include bike facilities in street

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Identify funding strategies for bikeway projects	Greenville MPO, City and town leaders such as Mayors and City Council	Ongoing
Continue implementation of bikeway projects through street resurfacing	Public Works	Ongoing
Engage business community and other private partners	Greenville MPO	Ongoing
Engage neighborhood groups, advocacy groups, and other nonprofit organizations	Greenville MPO	Ongoing

projects and in new developments (when appropriate). The city currently installs pavement markings for bicycle facilities through the street resurfacing program. In addition, the city coordinates with the greenway and pedestrian plan implementation to install shared use paths where appropriate. Building a shared use path could serve multiple purposes while also saving capital. Similar to Memphis, the City of Raleigh also undertook a crowdfunding campaign to raise money for various public projects. The crowdfunding campaign raised \$9,000 to finance bike racks and greenway benches.



Hampline in Memphis, TN

Sources: Raleigh Bike Plan Update 2015, Andersen, Michael. "Memphis is About to Build the Country's First Crowdfunded Bike Lane." People for Bikes. <http://www.peopleforbikes.org/blog/entry/memphis-is-about-to-build-the-countrys-first-crowdfunded-bike-lane>

Utility and Fixed Object Coordination

MODE



Part I. Background

As the Greater Greenville area improves its pedestrian network, accessibility and usability are key factors that must be considered to create a viable and safe network. Sidewalks in the public realm are typically designed to be a minimum of five feet wide. However, in many areas, the width of existing sidewalks is much narrower. Many factors contribute to narrow width of existing sidewalks, such as constrained right-of-way, old sidewalks that have not been repaired, and obstructions outside of the existing sidewalk zone. In many instances, the “sidewalk zone” starts at the back of curb and extends outward within the right-of-way. This zone is often the location of fixed objects such as utility and electric poles as well as lighting, signage, benches, and transit stops. When these items are located within the sidewalk zone, the accessible width is reduced and is often reduced to less than three feet. This creates areas that are impassible for users in a wheelchair, people pushing strollers, etc.

RECOMMENDATION:

- ✓ Create a guidebook to address fixed obstacles within sidewalk zones
- ✓ Evaluate existing sidewalks for their accessibility, with special attention to utility and fixed object obstacles
- ✓ Enhance standards for sidewalk construction, including minimum width and furnishing zones

A guidebook should be created to address fixed obstacles within sidewalk zones. The sidewalk zone width, or minimum pedestrian travel area, should be determined based on the street type and area that it is located in (commercial vs. residential). Conduit placement for future underground power lines for new sidewalk projects should be evaluated and considered in the guidebook.

No new or replacement sidewalks should be built that result in an obstacle or barrier. All new sidewalks should contain a furnishing zone that would be in addition to the minimum required sidewalk width. Fixed objects such as utility poles, lighting, signs, benches and trash receptacles should be located in this zone. This zone is also appropriate for landscaping such as street trees and bio-swales.

Part II. Details

Timeframe

- ☐ SHORT-TERM
- ☒ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☐ LOW
- ☒ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE

Public Works

SUPPORT ROLE

Greenville MPO, Greenville Utilities Commission, communications companies, GREAT

Case Study

Seattle, WA

Seattle uses a similar landscape/ furniture zone located between the roadway curb face and the front edge of the walkway with a minimum width of 5-6 feet. This area is used to locate street trees, utility poles, furniture, and lighting. Transit Zones are located in the landscape/furniture zone and are designated for transit riders as well as for loading and alighting. It may also include transit signage, shelters, benches, trash receptacles, and pedestrian scale lighting. Seattle has a standard that the sidewalk shall be clear of all vertical obstructions, such as poles, fire hydrants, street furniture, and other elements for a width of at least 5 feet. These obstructions should be placed in the landscape / furniture zone or behind the sidewalk. Relocation of existing utilities may be required to meet clearance requirements. These requirements and others can be found within the Seattle Right-of-Way Improvements Manual, which can be found on the city's website.

NACTO

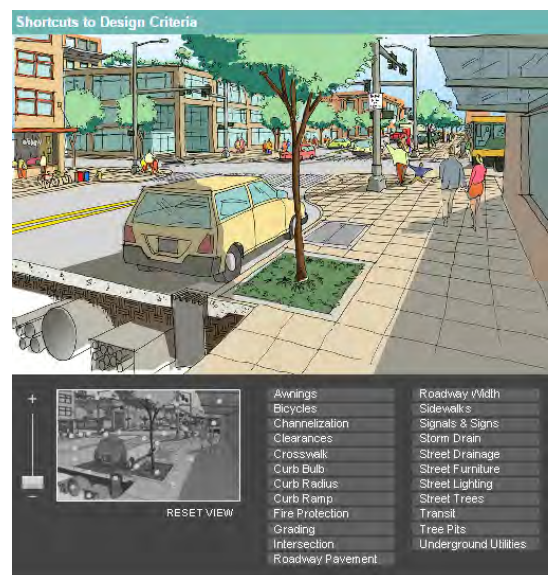
The NACTO *Urban Street Design Guide* can be consulted for further guidance on addressing utility conflicts. Similar to the practice of other cities, NACTO suggests a “street furniture/

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Inventory obstructions and constrained widths in existing sidewalks that are part of the proposed sidewalk network	Public Works, Greenville Utilities Commission	Early 2018
Create a task list that outlines the obstruction, existing degree of obstruction, party responsible for relocation, and then prioritize items on the list	Public Works	Early 2018
Work with utility and communication companies to identify a dedicated funding source to relocate utility poles from sidewalks. This should be a yearly recurring fund	City Council, Greenville MPO, Public Works, Greenville Utilities Commission	End of 2018
Work with GREAT Bus System to develop a strategy and plan to relocate bus stops and benches outside of the sidewalk zone	Public Works, GREAT	End of 2018
Create a guidebook to clearly outline the process to address obstacles in sidewalks	Public Works, Greenville MPO, Greenville Utilities Commission	Mid-year 2019

curb zone”. This refers to the section of the sidewalk between the curb and the edge of sidewalk as the appropriate location for items such as lighting, newspaper kiosks, and utility poles. It is critical that sidewalks have a desired minimum width of 6 feet

and absolute minimum of 5 feet with a minimum 2 feet buffer for street furniture and utilities.



Online version of the Seattle Right-of-Way Improvements Manual. Users can select links in the illustration to access information about design criteria

Tactical Urbanism Approach to Pedestrian & Bike Infrastructure



Part I. Background

Tactical urbanism has been embraced as a low-cost alternative to implementing temporary and permanent pedestrian and bicycle projects. This method of testing out longer-term infrastructure improvements sprung out of a series of citizen-led efforts to “take action when confronted with the slow pace of change.” It can take shape in many forms, ranging from smaller “guerilla interventions” to demonstration projects led by community groups and cities. Tactical urbanism projects may or may not be carried out with the approval of city governments. Examples of tactical urbanism methods include pavement markings, pop-up bikeways, adding furniture and/or seating to create public space, and using planters as barriers for a protected bike lane.

RECOMMENDATION:

- ✓ Implement low-cost strategies to complete the pedestrian and bicycle network
- ✓ Utilize tactical urbanism approaches to install both temporary and permanent pedestrian and bicycle infrastructure

The Greater Greenville area should embrace tactical urbanism as a strategy for implementing improvements. Tactical urbanism projects have low costs and have the potential to garner excitement for active transportation. Tactical urbanism projects also allow residents to envision an environment with improved pedestrian or bicycle facilities and to test out these facilities before they are made permanent.

Part II. Details

Timeframe

- ✓ **SHORT-TERM**
- ☐ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ✓ **LOW**
- ☐ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE

Greenville MPO

SUPPORT ROLE

Public Works, Greenville Bicycle and Pedestrian Commission, local non-profit organizations such as FROGGS

Case Study

Seattle Low-Cost Sidewalk Program

In 2015, Mayor Ed Murray furthered his commitment to creating a walkable city and proposed that the city use innovative techniques to complete more sidewalk projects. The Mayor plans to deliver at least 250 blocks of new sidewalks over the next nine years at the same cost as constructing 150 blocks using the traditional concrete sidewalk model. In order to achieve that goal, sidewalks could be constructed with stamped asphalt, at-grade sidewalks separated by curb stops or planter boxes, and other quick-to-implement, low-cost pedestrian infrastructure solutions. These sidewalk improvements will be implemented on streets where no sidewalks exist and will be constructed on one side of the street rather than both sides.

The 2016 low-cost sidewalk improvements will cost \$1.5 million and will be primarily funded through Move Seattle, a property tax levy. Mayor Murray is also hoping to identify private sources of funding to expand the sidewalk network by establishing new partnerships with homeowners and businesses. The City plans to improve enforcement and outreach when private entities are responsible for repairing sidewalks,

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Develop countywide tactical urbanism policy to implement demonstration projects and low cost pedestrian projects	Greenville MPO	Early 2018
Partner with community organizations to implement temporary demonstration projects to test pedestrian and bike infrastructure treatments	Greenville MPO, advocacy groups and nonprofit organizations	Ongoing

leverage existing development to incentivize building better pedestrian environments, and update Seattle Department of Transportation's tools for tracking sidewalk conditions.

Quick-build projects in Memphis and New York City

Departments of Transportation (DOTs) in cities across the United States have implemented "quick-build" projects that focus on improving pedestrian and bike infrastructure. These projects typically have short timeframes and are installed within a year of planning. Materials that are easily transferable and mobile, such as traffic barriers, planters, and posts, are used so that the space can be altered. MEMFix, a community initiative in Memphis, has implemented short-term alterations to city blocks with bike lanes, community gardens, and green space. New York City has a Plaza Program, which is a city initiative that collaborates with community organizations

to convert underutilized roadways into public spaces. These projects use paint, plants, and moveable seating. Some projects, such as the pedestrian plaza at Times Square, have become permanent through capital construction plans.



Top: Stamped asphalt sidewalk in Seattle (Source: Seattle Bike Blog); Bottom: Times Square Pedestrian Plaza (Source: Irving Commons)

Sources: Fesler, Stephen. "Seattle Mayor Ed Murray Reveals Low-Cost Sidewalk Program." *The Urbanist*. 22 Oct 2015. <https://www.theurbanist.org/2015/10/22/seattle-mayor-ed-murray-reveals-low-cost-sidewalk-program/>
Kaufman, Rachel. "Seattle Just Voted to Build 250 Blocks of 'Alternative' Sidewalks." *Next City*. <https://nextcity.org/daily/entry/seattle-vote-250-blocks-new-sidewalks-alternative-concrete>

Transit First/ Last Mile

MODE



Part I. Background

One strategy to improve transit service for riders is for Greenville Area Transit (GREAT) and Eastern Carolina University (ECU) Transit to improve pedestrian access and provide better bike connections. Strategies that GREAT and ECU Transit can undertake to make pedestrian improvements along transit routes include providing amenities at bus shelters such as lighting and providing bike racks on all buses.

Greenville MPO should work with GREAT and ECU Transit to plan walksheds (half-mile radius) and bikesheds (3-mile radius) around each priority transit stop. These walksheds and bikesheds should be the focus of where pedestrian and bike connections to transit are made. Focusing on these walksheds and bikesheds would improve safety for cyclists and pedestrians and increase the likelihood of shifting vehicle trips to active transportation and transit trips.

RECOMMENDATION:

- ✓ Partner with Greenville GREAT to provide amenities at priority transit stops
- ✓ Improve pedestrian and bike connections to transit stops, regional transit centers, and park-and-ride lots
- ✓ Plan walksheds and bikesheds around each priority transit stop

Part II. Details

Timeframe

- ☐ SHORT-TERM
- ☒ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ☐ LOW
- ☒ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE

GREAT, ECU Transit

SUPPORT ROLE

Public Works,
Greenville MPO



GREAT bus in Greenville

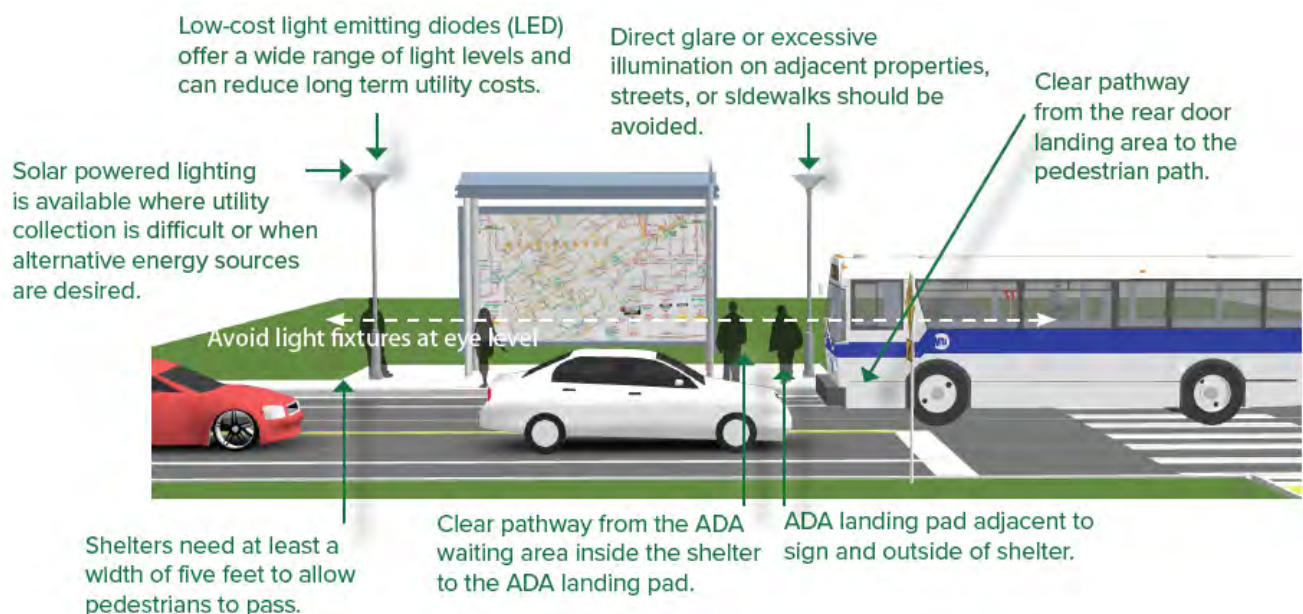
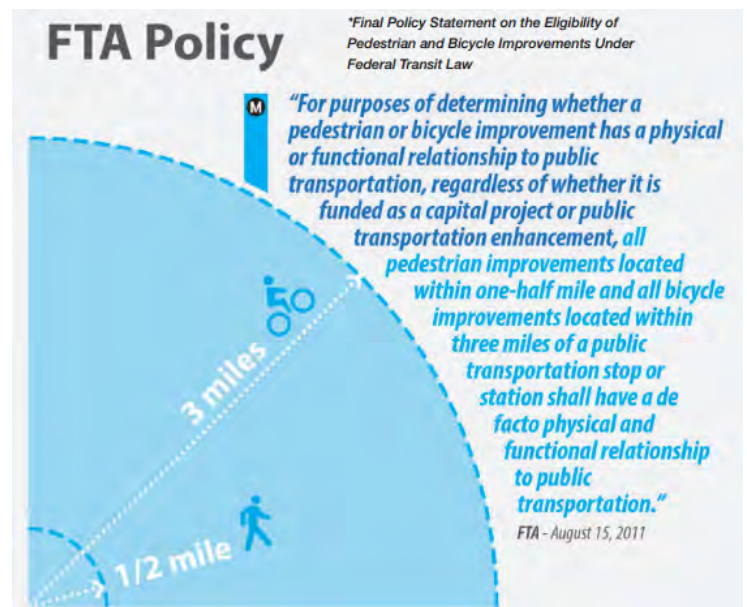
Key transit amenities to promote walking and biking at transit stops are (refer to illustration below):

- ADA compliant curb ramps and ADA landing pad
- Bench
- Lighting
- Bus route information
- Bus shelter
- Bike parking
- Public art
- Trash receptacles

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Plan walksheds and bikesheds around priority transit stops	GREAT, ECU Transit	End of 2017
Improve biking amenities, such as providing space for bikes on all transit vehicles, bike parking at bus stops	GREAT, ECU Transit	End of 2018
Make pedestrian improvements along transit routes, including crossings and sidewalks	GREAT, ECU Transit, Greenville MPO	Mid-year 2019

Right: FTA Policy on bike and pedestrian improvements near public transportation;
Bottom: Illustration of key amenities at transit stops



NACTO Involvement

MODE



Part I. Background

NACTO's core mission is to build a strong network of peer communities as well as foster open communication and collaboration between cities. They help to fulfill this mission by providing its members valuable tools to improve their transportation infrastructure in order to provide a safe environment for all road users. The City of Greenville is not a member of NACTO and does not have access to the myriad of tools, technical assistance, training resources, and learning opportunities such as information sharing, peer city review, policy committee participation, workshops, and forums.

Each year, Greenville should dedicate funding to send a representative to the NACTO annual conference. The annual conference is a convening of transportation practitioners across the country and is a valuable opportunity to learn about emerging trends in urban street design and transportation policy. The Greenville MPO should also plan yearly study visits to aspirational cities to meet with government officials and leaders to learn about innovative practices, policies, and services as well as lessons learned.

Smaller US cities can join NACTO as Affiliate Members. Annual costs for Affiliate Membership are \$4,000 for communities with less than 300,000 residents.

RECOMMENDATION:

- ✓ Join NACTO
- ✓ Formally adopt NACTO guidelines as defacto design standards
- ✓ Maintain NACTO membership as an annual cost

Part II. Details

Timeframe

- ✓ **SHORT-TERM**
- ☐ MID-TERM
- ☐ LONG-TERM

Funding Needs

- ✓ **LOW**
- ☐ MEDIUM
- ☐ HIGH

Responsible Party

LEAD ROLE

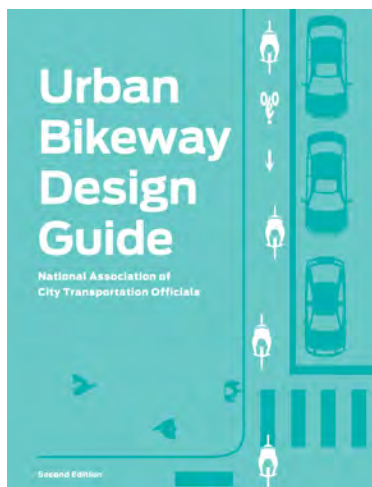
Greenville MPO

SUPPORT ROLE

Mayor, City Council

Part III. Action Steps

Action Steps	Person(s)/ Organization(s) Responsible	Target Completion Date
Become a member of NACTO	Mayor's Office, Planning, Greenville MPO	On-going
Adopt NACTO guidelines	Greenville MPO	Mid-year 2018
Attend NACTO annual conference	Greenville MPO representative	Annually
Conduct a study visit to an aspirational city in the U.S.	Greenville MPO representative	2020



Top left: NACTO 2016 Membership Guide; Top right: Urban Street Design Guide; Bottom left: Urban Bikeway Design Guide; Bottom right: Transit Street Design Guide

7 Implementation

*About 75% of the 1,000+ respondents say it is
VERY important to improve walking, bicycling
and greenway trail conditions in
their community.*

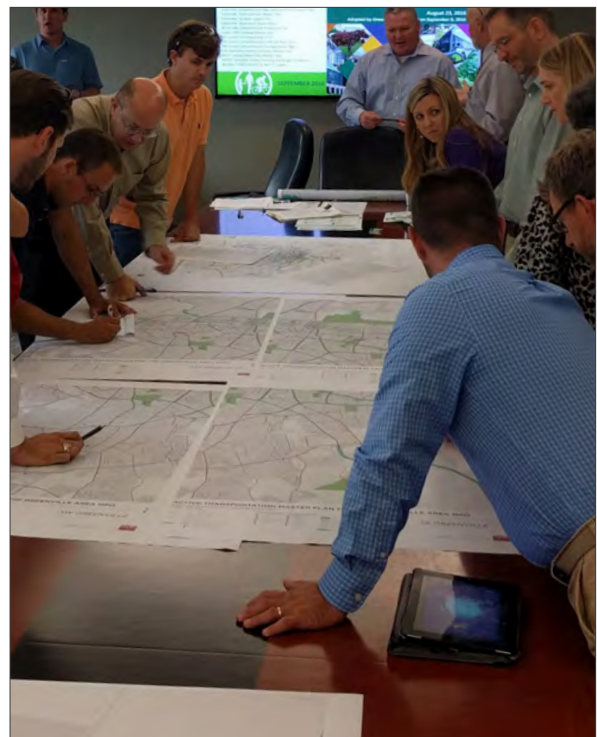
- Active Transportation
Plan Comment Form
Results, 2017



Overview

Successful implementation will require support from elected officials, strong local advocates, close coordination with NCDOT, and the dedication of a well-organized bicycle and pedestrian coordinator.

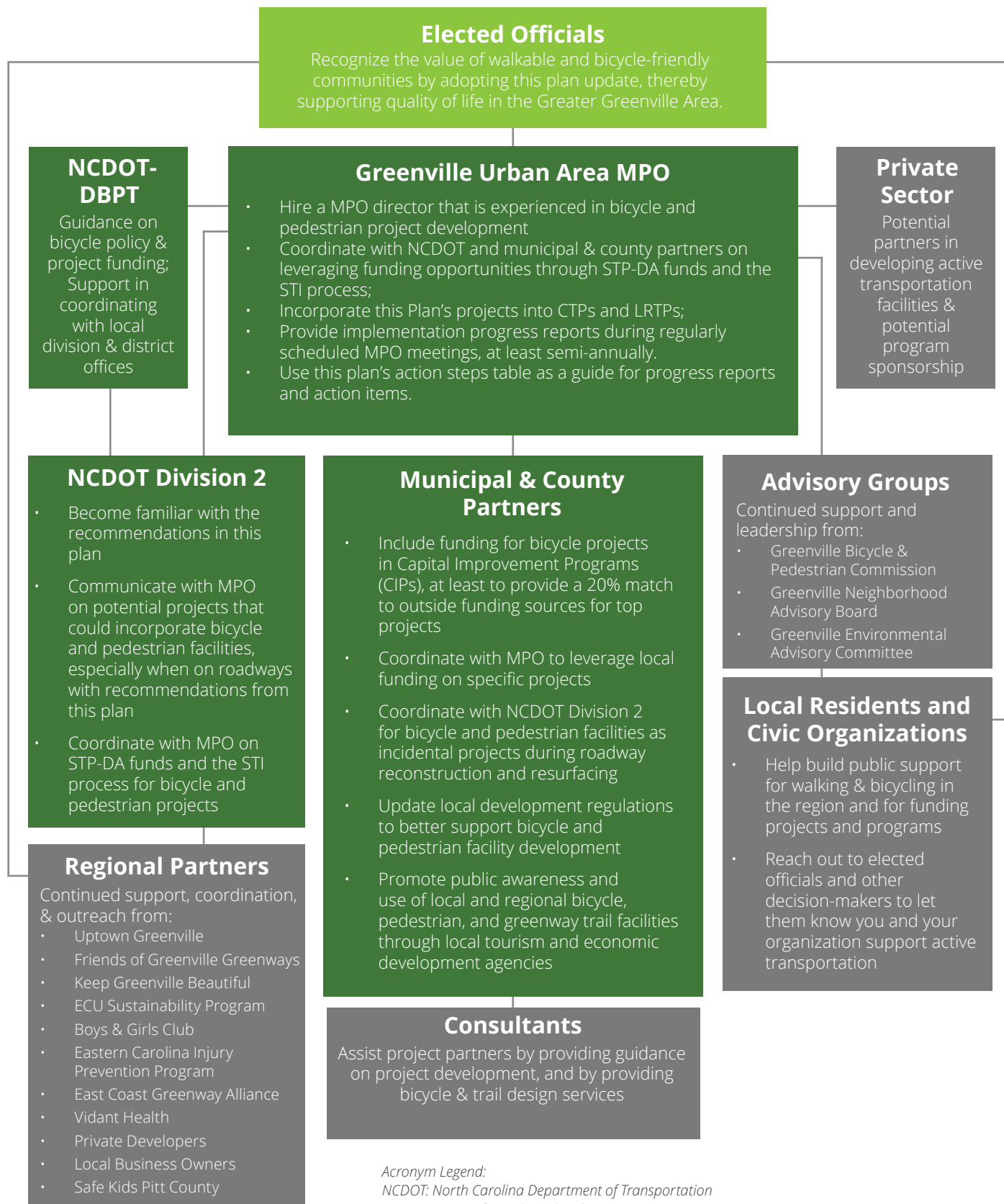
This chapter lays the groundwork for implementation efforts through a recommended organizational framework and set of action steps for establishing funding and carrying out implementation. The organizational chart on the follow page outlines the suggested key roles for project partners and stakeholders involved in implementation. The actual roles and responsibilities of each group will be more diverse and may vary depending on how this plan is implemented over time.



Many of the key groups for implementation were represented on this plan's Steering Committee.

Above: Steering Committee Meeting in 2016

Framework for Implementation



Acronym Legend:

NCDOT: North Carolina Department of Transportation

DBPT: Division of Bicycle and Pedestrian Transportation

MPO: Metropolitan Planning Organization / RPO: Rural Planning Organization

STP-DA: Surface Transportation Program – Direct Attributable

STI: Strategic Transportation Investments

CTP: Comprehensive Transportation Plan / LRTP: Long Range Transportation Plan

Facility Development Methods

This section describes types of transportation facility construction and maintenance projects that can be used to create new bicycle and pedestrian facilities.

Note that roadway re-construction projects offer excellent opportunities to incorporate facility improvements for bicyclists and pedestrians. It is much more cost-effective to provide a bicycle facility when these road projects are implemented than to initiate the improvement as a “retrofit.”

In order to take advantage of upcoming opportunities to incorporate bicycle and pedestrian facilities into routine transportation projects, Pitt County and its municipalities should continue to track repaving schedules, and other lists of projects. Additionally, the NCDOT’s district office should be encouraged to use this Plan as a ready reference when maintenance projects are being programmed. As recommended in this chapter, a semiannual meeting with project partners will ensure this critical communication. As the long-range transportation plan is updated in future years, bicycle and pedestrian improvements should be included in appropriately programmed projects.

Bicycle Project Implementation

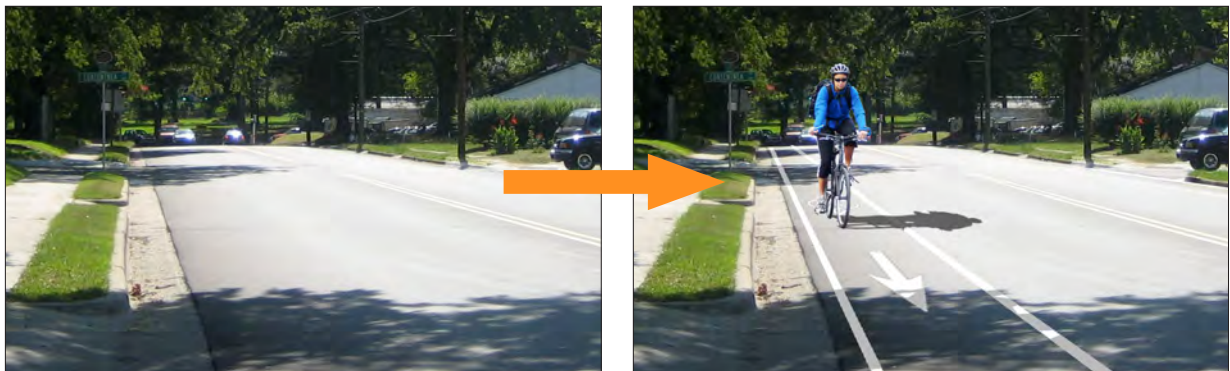
Restriping

The simplest type of restriping project is the addition of bicycle lanes, edgelines, or shoulder stripes to streets without making any other changes to the roadway (example at right).

Bicycle lanes, edgelines, and shoulder stripes can also be added by narrowing the existing travel lanes or removing one or more travel lanes. In some locations where the existing lanes are 12- or 13-foot wide, it may be possible to narrow them to 11 feet, especially where medians are present. This requires changing the configuration of the roadway during a resurfacing project. This type of downsizing represents an opportunity for adding bicycle and pedestrian facilities while working within the construct of an existing right-of-way width.

Removing Parking

Some neighborhood collector roadways are wide enough to stripe with bike lanes, but they are used by residents for on-street parking, especially in the evening. In locations like this, removing parking is likely to create considerable controversy and is not recommended unless there is no other solution



Above: A photo rendering of bicycle lanes on W. 5th Street. This is an example of a project that would only require striping the new lanes.

(unless the parking is never used). In the rare case that removing parking is being considered, the parking should not be removed unless there is a great deal of public support for the bike lanes on that particular roadway, and a full public involvement process with adjacent residents and businesses is undertaken prior to removing parking.

If it is not practical to add a bike lane, edgelines and shared lane markings may be considered. On roads where the outside lane and parking area combined are more than 17-feet-wide, 10-foot-wide travel lanes can be striped with an edgeline, leaving the rest of the space on either side for parking. The stripe would help slow motor vehicles and provide extra comfort for bicyclists, especially during the daytime when fewer cars would be parked along the curb. On roads with outside lane and parking areas that are narrower than 17-feet-wide, shared lane markings can be provided every 100 to 200 meters on the right side of the motor vehicle travel lane to increase the visibility of the bike route.

Repaving

Repaving projects provide a clean slate for revising pavement markings. When a road is repaved, the roadway should be restriped to create narrower lanes and provide space for bike lanes and shoulders, where feasible. In addition, if the spaces on the sides of non-curb and gutter streets have relatively level grades and few obstructions, the total pavement width can be widened to include paved shoulders.

Installing Shared Lane Markings

The Greenville Urban Area should continue the use of shared lane markings, or “sharrows” as one of its bicycle facility types. Shared lane markings have been newly incorporated into the MUTCD. They take the place of traditional bicycle lanes where lanes are too narrow for striping, where speeds do

not exceed 35 mph, and/or where there is on-street parking. The intent of the shared lane marking is threefold: 1) they draw attention to the fact that the roadway is accommodating bicycle use and traffic; 2) they clearly define direction of travel for both bicyclists and motorists; and 3) with proper placement, they remind bicyclists to bike further from parked cars to prevent “dooring” collisions. While shared-lane markings are not typically recommended or needed on local, residential streets, they are sometimes used along such streets when part of a signed route or neighborhood bikeway.

Roadway Construction and Reconstruction

Bicyclists should be accommodated any time a new road is constructed or an existing road is reconstructed. In the long-term, all roadways should have on-road bicycle facilities. However, sidepaths can be an acceptable solution when a road has few driveways and high-speed, high-volume traffic.

Bridge Replacement

All new or replacement bridges should accommodate bicycles with on-road facilities on both sides of the bridge. If the bridge is in a developed area or an area that may experience development in the future, it should also have wide sidewalks on both sides to accommodate all types of bicyclists and pedestrians.

Federal law, as established in the Transportation Equity Act for the 21st Century (TEA-21), makes the following statement with respect to bridges:

“In any case where a highway bridge deck is being replaced or rehabilitated with Federal financial participation, and bicyclists are permitted on facilities at or near each end of such bridge, and the safe accommodation of bicyclists can be provided at reasonable cost as part of such replacement or

RESEARCH ON BICYCLE LANE DEVELOPMENT THROUGH TRAVEL LANE NARROWING (RESTRIPING)

Narrowing roadways for traffic calming purposes and bicycle facilities are common occurrences now since planners and engineers are trying to not only accommodate vehicles but bicyclists and pedestrians as well. Narrowing roadways to allow for bicycle lanes or other bicycle facilities is needed in some instances where current roadway widths and traffic volume do not allow for a simple “stripe” to paint in a bicycle lane.

One means of developing bicycle lanes is through restriping or travel lane narrowing. In laying out the bicycle network facility recommendations and methods, it was determined that 11’ travel lanes were acceptable in order to fit bicycle lanes into the existing roadway environment. This methodology used in developing recommendations is supported by research in both automobile traffic safety and bicycle level of service improvements.

Current AASHTO literature, research, and precedent examples (including some found in Greenville) support the notion of reducing 12’ travel lanes to as narrow as 10’ lanes. The 2004 AASHTO Green Book states that travel lanes between 10 and 12 feet are adequate for urban collectors and urban arterials. (1) “On interrupted- flow operating conditions at low speeds (45 mph or less), narrow lane widths are normally adequate and have some advantages.” At the 2007 TRB Annual Meeting, a research paper using advanced statistical analysis, supported the AASHTO Green Book in providing flexibility for use of lane widths narrower than 12 feet on urban and suburban arterials. The paper indicates there is no difference in safety on streets with lanes ranging from 10 to 12 feet. “The research found no general indication that the use of lanes narrower than 12 feet on urban and suburban arterials increases crash frequencies. This finding suggests that geometric design policies should provide substantial flexibility for use of lane widths narrower than 12 feet.” The research paper goes on to say “There are situations in which use of narrower lanes may provide benefits in traffic operations, pedestrian safety, and/or reduced interference with surrounding development, and may provide space for geometric features that enhance safety such as medians or turn lanes. The analysis results indicate narrow lanes can generally be used to obtain these benefits without compromising safety.” and “Use of narrower lanes in appropriate locations can provide other benefits to users and the surrounding community including shorter pedestrian crossing distances and space for additional through lanes, auxiliary and turning lanes, bicycle lanes, buffer areas between travel lanes and sidewalks, and placement of road-side hardware.” (2)

Precedent examples also show the large number of communities around the United States that have narrowed travel lanes to enable the development of bicycle lanes. Cities such as Arlington, VA, Cincinnati, OH, Charlotte, NC, Houston, TX, and Portland, OR have regularly narrowed travel lanes to 10’ or even commonly use them in new roadway development. Lane narrowing and the addition of bicycle lanes in the Greater Greenville Area will require consultation with NCDOT and further analysis beyond this planning effort. Changing the roadway design may also require a reduction in speed limit and consideration of traffic calming designs such as median islands. For roadways with higher speed limits and traffic volumes, wider vehicular and bicycle lanes may be warranted. Further analysis of bicycle lane restriping projects is warranted to determine appropriateness of lane narrowing, bicycle lane widths, and speed limits that impact both motorists and bicyclists.

Sources for Bicycle Lane Development & Travel Lane Narrowing:

1) American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, Washington, DC 2004.

2) *Relationship of Lane Width to Safety for Urban and Suburban Arterials*, Ingrid B. Potts, Harwood, D., Richard, K, TRB 2007 Annual Meeting

rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations.” (23 U.S.C. Section 217)

Bridge replacement projects on controlled access freeways where pedestrians and bicyclists are prohibited by law should not include facilities to accommodate bicyclists and pedestrians. In cases, however, where a bridge replacement project on a controlled access freeway impacts a non-controlled access roadway (i.e., a new overpass over an arterial roadway), the project should include the necessary access for pedestrians and bicyclists on the non-limited access roadway (i.e., paved shoulders, sidewalks, and pedestrian/bicycle crossing improvements). Existing and planned greenway crossings, both at-grade and below new bridges, should be similarly accommodated during bridge replacement projects.

Retrofit Roadways with New Bicycle Facilities

There may be critical locations in the Bicycle Network that have bicycle safety issues or are essential links to destinations. In these locations, it may be justifiable to add new bicycle facilities before a roadway is scheduled to be repaved or reconstructed.

In some places, it may be relatively easy to add extra pavement for shoulders, but others may require removing trees, moving landscaping or fences, or regrading ditches or hills. Retrofitting roadways with sidepaths creates similar challenges. Improvements in these locations are typically recommended in the long-term.

Some roads may require a “road diet” solution in order to accommodate bicycle facilities. Road diets involve removing vehicle travel lanes and replacing these lanes with on-road bicycle facilities and sidewalks or sidepaths. These are generally

recommended only in situations where the vehicular traffic count can be safely and efficiently accommodated with a reduced number of travel lanes. Further study may be necessary for recommended road diets to ensure that capacity and level-of-service needs are balanced against bicycle level of service needs.

Pedestrian Project Implementation

Residential and Commercial Development

As detailed in Chapter 6, the construction of sidewalks and safe crosswalks should be required during development. Construction of pedestrian facilities that corresponds with site construction is more cost-effective than retrofitting. In commercial development, emphasis should also be focused on safe pedestrian access into, within, and through large parking lots. This ensures the future growth of the pedestrian network and the development of safe communities. Developers can also provide a fee-in-lieu of sidewalk construction that is equivalent to the specific need for their development.

Retrofit Roadways with New Pedestrian Facilities

For top priority pedestrian projects, it may be necessary to add new facilities before a roadway is scheduled to be reconstructed. In some places, it may be relatively easy to add sidewalk segments to fill gaps, but other segments may require removing trees, relocating landscaping or fences, re-grading ditches or cut and fill sections, and/or relocating/reconfiguring the drainage system.

Repaving

Repaving and resurfacing projects provide a clean slate for revising pedestrian crosswalk facilities, especially high visibility marked crosswalks, advanced stop lines, and enhanced curb ramps. Depending on the project, sidewalk and refuge islands may be developed as well.

Action Steps Table

Action Step	Lead	Support	Details	Timeframe
Presentations and Adoptions				
Present Plan to City of Greenville Council	GUAMPO	Project Consultant	Presentation to City Council for overview of plan and planning process.	Short Term (2017)
Approve and adopt this Plan - City, County, Towns	City of Greenville, Pitt County, Town of Winterville, Town of Ayden, Village of Simpson	GUAMPO/ Project Consultant	Adoption shows that each jurisdiction has been part of a successful, supported planning process and are partners in implementation. It does not commit the communities to funding the plan, but it is key to securing outside funding from NCDOT, other state and federal agencies as well as private and nonprofit sources.	Short Term (2017)
Infrastructure Improvements				
Identify and secure specific funding sources for priority projects	GUAMPO	NCDOT, City of Greenville, Pitt County, Town of Winterville, Town of Ayden, Village of Simpson	Multiple funding sources should be sought. Appendix D contains funding opportunities. Also, GUAMPO should work with NCDOT to ensure that upcoming roadway reconstruction projects, including TIP projects, incorporate bicycle and pedestrian improvements recommended in this Plan. Immediate attention to the priority projects will have a large impact on bicycling and walking conditions in Greenville. Consider a bond referendum for greenways and roadway improvements for bicycle transportation. First phase work that can be done at a low cost includes crossing improvements and neighborhood bikeway projects. The intersection recommendations are very critical because of safety concerns and because these projects are also lower cost. Finally, the priority projects (Chapter 5) should be regularly evaluated as new opportunities arise, such as roadway resurfacing and new developments.	Short Term (2017-2018)
Consider speed limit reductions throughout the Greenville Urban Area MPO	GUAMPO, NCDOT	City of Greenville, Pitt County, Town of Winterville, Town of Ayden, Village of Simpson	Speed was a common concern of the public during this planning process. Speed limit reduction should be considered, especially in areas of heavy bicycle and pedestrian use. As bicycle and pedestrian facilities are installed on major arterials and collectors, speed limit reduction should be strongly considered.	Continuous/ Ongoing
Develop a long term funding strategy	GUAMPO, City of Greenville	NCDOT, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County, BPAC, Uptown Greenville, FROGGS	To allow continued development of the overall system, capital funds for selected priority bicycle and pedestrian facility construction should be set aside every year (a 20% local match is typical for leveraging outside funding sources). Funding for an ongoing maintenance program should also be included in the county and town operating budgets. Diverse funding sources should be sought from federal, state, private, and nonprofit sources. Finally, consider grouping bikeways projects together when appropriate and feasible in order to save on costs and time (see Batched Bikeway Projects in Chapter 6).	Mid Term (2019-2021)

Action Step	Lead	Support	Details	Timeframe
Maintain on-road and off-road bicycle and pedestrian facilities	NCDOT, City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County	GUAMPO, BPAC + General Public (for reporting maintenance needs)	NCDOT, Pitt County, and all municipalities should make immediate repairs to any on-road and off-road bicycle and pedestrian facilities that are damaged or have hazardous conditions. This includes floodplain trails that are covered in sand and debris after heavy rains (especially the Green Mill Run greenway). The local governments should make commitment to regular sweeping of bicycle lanes, repair of cracking, uneven sidewalks, and repainting of faded marked crosswalks.	Continuous/ Ongoing
Update design guidelines and typical street cross sections	City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson	GUAMPO, BPAC, NCDOT	Local governments in the Greenville Urban Area MPO should update design guidelines to include current, innovative treatments found in the design resources referenced in Chapter 6 and the Design Guidelines appendix. Update typical street cross sections as part of this effort using the examples detailed in Chapter 6.	Short Term (2017-2018)
Implement Tactical Urbanism to Bike/Ped Infrastructure	City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson	GUAMPO, BPAC, NCDOT	Tactical urbanism has been embraced as a low-cost alternative to implementing temporary and permanent pedestrian and bicycle projects. See Chapter 6 for further detail.	Short Term (2017-2018)
Local and Regional Coordination				
Expand efforts of City of Greenville Bicycle and Pedestrian Advisory Commission (BPAC) and incorporate MPO-wide input	BPAC	City of Greenville, GUAMPO, Town of Winterville, Town of Ayden, Village of Simpson	BPAC will continue to be instrumental in promoting active transportation and championing implementation of this plan. The group plays a strong role in determining priorities and establishing programs and activities. BPAC members should be responsible for reading the Active Transportation Plan and becoming familiar with the content. Finally, the Greenville BPAC should be transformed to be an MPO BPAC (GUABPAC) with representation from each of the local jurisdictions of the MPO.	Short Term (2017-2018)
Begin semiannual project development meeting with project partners	GUAMPO, BPAC, City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson	NCDOT; municipality planning/public works officials	These meetings will help establish a process of incorporating bicycle and pedestrian improvements into upcoming roadway projects. Many bicycle and pedestrian projects recommended in this Plan could be developed as part of a roadway reconstruction, widening, or resurfacing project. Coordination between all appropriate government agencies, especially NCDOT, especially regarding TIP projects, will ensure that recommendations in this Plan are implemented. It will also provide a level of accountability. Current and upcoming roadway projects such as the Evans St/Old Tar Rd, Allen Rd, Fire Tower Rd/Portertown Rd, 10th St, Dickinson Ave, Laurie Ellis Rd extension, etc are examples of critical opportunities to efficiently integrate bicycle and pedestrian facilities into roadway the transportation system.	Short Term (2017-2018)

Action Step	Lead	Support	Details	Timeframe
Continue to make regional bicycle and pedestrian connections	City of Greenville, GUAMPO, Town of Winterville, Town of Ayden, Village of Simpson	Surrounding counties and towns, NCDOT	Work with surrounding counties and towns to ensure bicycle and pedestrian connectivity. Focus on regional trail systems such as the East Coast Greenway and state bike route system.	Continuous/ Ongoing
Ensure planning efforts are integrated regionally	GUAMPO, Pitt County, NCDOT, City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson	BPAC	Combining resources and efforts with surrounding municipalities, regional entities, and stakeholders is mutually beneficial. Coordinate on regional greenway corridor projects; partner for joint-funding opportunities. After adoption, this document should also be recognized in the LRTP.	Continuous/ Ongoing
Programs				
Continue and expand Safe Routes to School programs	GUAMPO, Eastern Carolina Injury Prevention Program	Local schools, BPAC, SRTS Program	Apply for Safe Routes to School funding for planning and implementation. Establish 'bike-to-school' groups, walking school buses, and regular bicycling activities for children through the Safe Routes to School programming.	Continuous/ Ongoing
Apply for "Bicycle Friendly Community" designation by League of American Bicyclists	GUAMPO, City of Greenville	BPAC, Project Consultant	Complete the application for the Bicycle Friendly Community designation.	Mid Term (2019-2021)
Apply for "Walk Friendly Community" designation administered by the UNC Highway Safety Research Center Center	GUAMPO, City of Greenville	BPAC	Complete the application for the new Walk Friendly Community designation.	Mid Term (2019-2021)

Action Step	Lead	Support	Details	Timeframe
Reapply for "Bicycle Friendly University" designation by League of American Bicyclists	ECU	GUAMPO, ECU, BPAC	ECU completed the Bicycle Friendly University application in 2014 and was awarded Silver. This designation is valid for four years. ECU should reapply in 2018 to maintain or improve its Silver Bicycle Friendly University designation.	Mid Term (2019-2021)
Begin Safety Campaign	Pitt County, City of Greenville, and other municipality Police Departments	General Public (for reporting enforcement issues/violation incidents)	As described in Chapter 6, implement a comprehensive safety campaign that includes education, encouragement, and enforcement components.	Short Term (2017-2018)
Adopt Vision Zero policy and plan	BPAC, GUAMPO	City of Greenville, Pitt County, Town of Winterville, Town of Ayden, Village of Simpson	In August 2016, Greenville City Council unanimously approved a Public Transportation and Parking Commission motion to consider adopting a Vision Zero commitment to reduce pedestrian fatalities to zero by 2026. This can serve as a model for all GUAMPO jurisdictions.	Continuous/ Ongoing
Expand Wayfinding System	GUAMPO, BPAC	City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County	The 2013-2017 Greenville Capital Improvement Program (CIP) includes a budget line item for a wayfinding system that will include major attractions and destinations within Greenville. This wayfinding system should be expanded to include bicycle routes and greenway trails within Greenville and across jurisdictional boundaries (if possible) since they are also major destinations for residents and visitors.	Continuous/ Ongoing
Educate internal staff on bicycle and pedestrian-related issues.	GUAMPO, City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County	BPAC	Relevant local government staff who play roles in implementation, design, construction, enforcement, and maintenance should have an understanding of the Active Transportation Plan.	Short Term (2017-2018)
Update the Greenville & Pitt County Bike Map	GUAMPO	City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson	The current hardcopy and online map was developed in 2013. These maps should be updated every 3-5 years.	Short Term (2017-2018)

Action Step	Lead	Support	Details	Timeframe
Celebrate and promote awareness days and events such as Bike to Work Day and Walk to Work Day.	BPAC, GUAMPO	City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, Eastern Carolina Injury Prevention Program, other groups	Awareness days provide an opportunity to encourage new bicyclists and walkers in a group setting with entertainment, prizes, and media attention. Continue to promote and expand Bike to Work Month and Bike to Work Day as well as existing group rides such as the First Friday Social Bike Ride.	Continuous/ Ongoing
Policies				
Incorporate this Active Transportation Plan into regional planning documents such as the LRTP and local comprehensive plans.	GUAMPO	NCDOT, municipalities	The Greenville MPO Active Transportation Plan should become a component of the LRTP and local comprehensive plans. This step will make clear the importance of these documents working together in future development and transportation decisions.	Short Term (2017-2018)
Revise local ordinances	City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County	GUAMPO	Revisions and additions to local ordinances: The changes suggested in the policy review memorandum during this planning process should be used for updating local ordinances, reflecting the findings and recommendations of this Active Transportation Plan. It clarifies some basic policy positions regarding future development and the provision of bicycle and pedestrian facilities. Some edits are also suggested for consistency in terminology.	Short Term (2017-2018)
Adopt Complete Streets Policy	Town of Winterville, Town of Ayden	City of Greenville, GUAMPO	Ayden and Winterville should adopt a Complete Streets policy to ensure commitment to developing roadways that accommodate all users. The City of Greenville adopted a resolution in support of NCDOT's Complete Streets Policy in 2015.	Mid Term (2019-2021)
Develop and adopt an ordinance that addresses construction closures in bikeways and walkways during construction	GUAMPO, BPAC	City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County	Develop and adopt an ordinance that addresses construction closures in bikeways and walkways during construction. Implement a monitoring and enforcement program with penalties for unpermitted closures and the identification of dedicated staff to manage the program. Establish a clear and easy to use guidebook that outlines the planning and approval process for sidewalk and bikeway closures.	Mid Term (2019-2021)

Action Step	Lead	Support	Details	Timeframe
Further Studies				
Conduct a bicycle parking study and provide bicycle parking in key locations throughout City of Greenville and municipalities throughout the MPO.	GUAMPO	City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County, local businesses and developers	Make specific recommendations for the location of new bicycle parking facilities. A phase priority listing should be developed for implementation. Then, provide bicycle services such as bicycle racks, covered parking, bicycle stations, showers at employment centers, and bicycle rentals. Work with downtown groups such as Uptown Greenville and BPAC to determine other key locations for future parking facilities. Ask local businesses to partner and sponsor racks that can also serve to advertise their services. ECU has adopted a uniform bike racks style for use across campus and could serve as a partner in design and implementation.	Short Term (2017-2018)
Perform bus stop access improvement study.	GUAMPO, City of Greenville	NCDOT	Assess the need for and recommend bicycle and pedestrian connections and safe crossings in the vicinity of bus stops. Additionally, comfortable facilities (e.g., shelters, benches, etc.) for people waiting for the bus should also be implemented.	Short Term (2017-2018)
Conduct a study of all roadway railroad crossings and examine for bicycle/ pedestrian safety and ADA accessibility.	GUAMPO, City of Greenville, BPAC	Town of Winterville, Town of Ayden, Village of Simpson, Pitt County	Many pedestrian crossings of railroad tracks throughout the study area are not safe or accessible. An examination of these crossings and priority improvements should be developed as part of this study.	Short Term (2017-2018)
Conduct a study on traffic calming needs and opportunities on local roads.	GUAMPO	City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson	Traffic calming is critical to create safe walking and biking environments. In many cases, where bicycle and pedestrian facilities aren't feasible, treatments such as speed humps can still improve safety by slowing traffic. Roadways should be identified and prioritized for improvements.	Mid Term (2019-2021)

Action Step	Lead	Support	Details	Timeframe
Conduct a study on existing driveway access issues such as high frequency and large sizes.	GUAMPO	City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson	Some roadways feature an excess of driveway entrances (such as the Greenville Blvd/Evans St commercial area). An examination of driveways should be conducted with the end-goal of retrofitting improvements to create safer separated spaces for bicyclists and pedestrians.	Mid Term (2019-2021)
Perform bicycle detection and traffic signal timing analyses.	GUAMPO, NCDOT	City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County	Work with NCDOT and local municipalities to investigate bicycle detection at intersections and traffic signal timing. Upon completion of evaluation, specific improvement recommendations should be made.	Mid Term (2019-2021)
Staffing				
Hire full time Bicycle and Pedestrian Coordinator	GUAMPO	Pitt County, City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson	Currently, the Transportation Planner handles all MPO responsibilities, including bicycle and pedestrian issues. A full time position (housed in the MPO) is needed to handle all active transportation concerns. The “keeping” of this Plan would be the Coordinator’s primary responsibility, including working closely with NCDOT, Pitt County, and municipalities to ensure its implementation, review, and regular update. Grant writing and project funding coordination will be key responsibilities of the Coordinator as well. The Coordinator would serve as “staff” to the BPAC and report BPAC progress as appropriate to the Technical and Policy Committees of the MPO.	Mid Term (2019-2021)
Designate staff member to be local bicycle and pedestrian coordinator; include multi-jurisdictional education opportunities/ training for bicycle and pedestrian inclusion	City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, and Pitt County	GUAMPO	Each local government within the MPO should designate a staff member to “wear the hat” of local bicycle and pedestrian coordinator. These would not be full time positions; rather, each municipality would assign an existing staff member to dedicate specified level of time (10-15%) to bicycle and pedestrian issues. These coordinators would coordinate with the full time MPO Bicycle and Pedestrian Coordinator.	Short Term (2019-2021)

Action Step	Lead	Support	Details	Timeframe
Evaluation and Databases				
Update bicycle and pedestrian database and establish central holding place for data	GUAMPO, City of Greenville	Town of Winterville, Town of Ayden, Village of Simpson	Continuous updating of bicycle and pedestrian GIS database as new facilities come online and new crash data is published. GUAMPO should lead this effort, but the City of Greenville and other municipalities must coordinate as improvements are made.	Continuous/ Ongoing
Publish Annual Performance Report	GUAMPO	City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson	Publish an annual report to provide an update on progress made during that year to advance bicycle and pedestrian modes. GUAMPO should lead this effort, but the City of Greenville and other municipalities must coordinate. This report will provide an objective measurement of progress.	Annually
Continue and expand bicycle and pedestrian count program	GUAMPO, City of Greenville	BPAC, Town of Winterville, Town of Ayden, Village of Simpson	A key method to evaluate bicycle and pedestrian use and needs is to conduct professional counts. Continue bike/ped counts, especially as new facilities (such as the Greens Mill Run Greenway) open.	Annually
Online form for bicycle/ pedestrian facility request	GUAMPO	City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson	Provide a web-based service that allows residents to request bicycle and pedestrian facilities.	Mid Term (2019-2021)
Continually support and evaluate implementation of this plan	GUAMPO	City of Greenville, BPAC, Town of Winterville, Town of Ayden, Village of Simpson	The different county and city departments and boards and BPAC representatives should meet quarterly to assess implementation and evaluate progress.	Continuous/ Ongoing

Public Input

"Growing up, I spent a TON of time outside, riding my bike, playing with friends.. it's fun to be able to take my small children now down to the Greenway and let them experience that for themselves." -

Public Comment, 2016



PUBLIC COMMENT FORM RESULTS

The public comment form was active between July 2016 and May 2017. It was available online through the project website and in hardcopy form at outreach events and meetings.

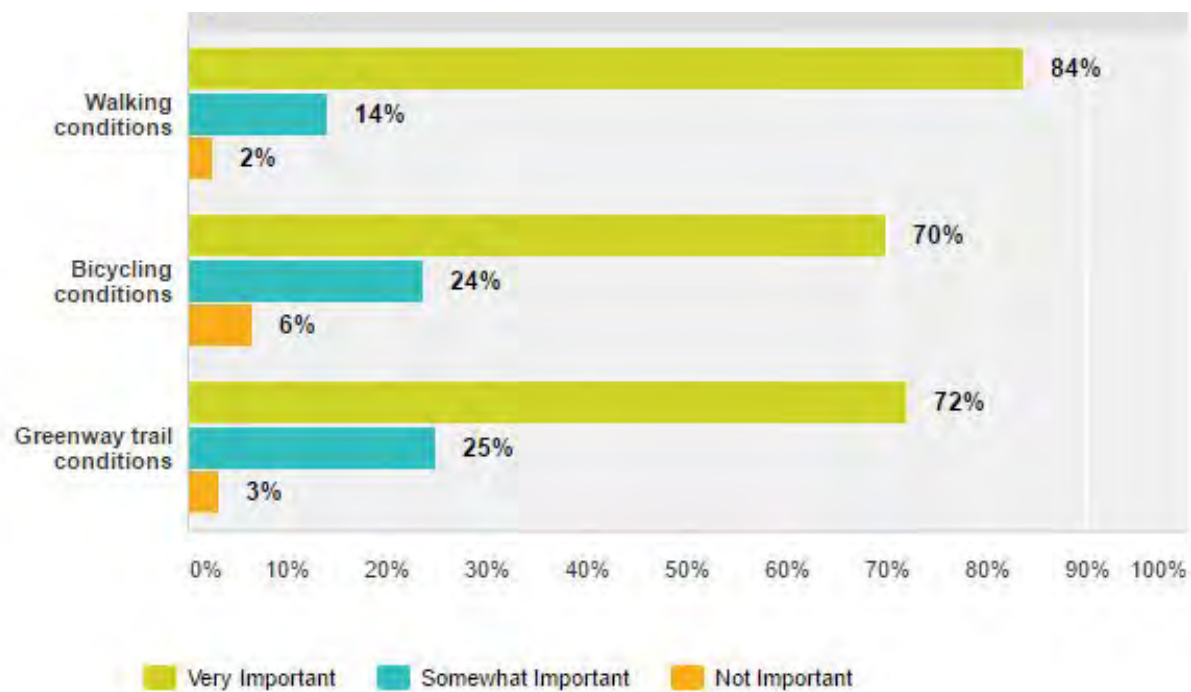
People throughout the Greenville area were encouraged to fill-out these forms through the mass-email lists of project committee members and stakeholders, through social media (Facebook), and through municipal website announcements.

There were more than **1200 respondents** to the public comment form. Although not statistically valid, the results that follow still reflect the voices of 100s of Greenville area residents who have an interest in the community's active transportation network. Summary responses are displayed on the following pages, followed by all responses to open ended questions.

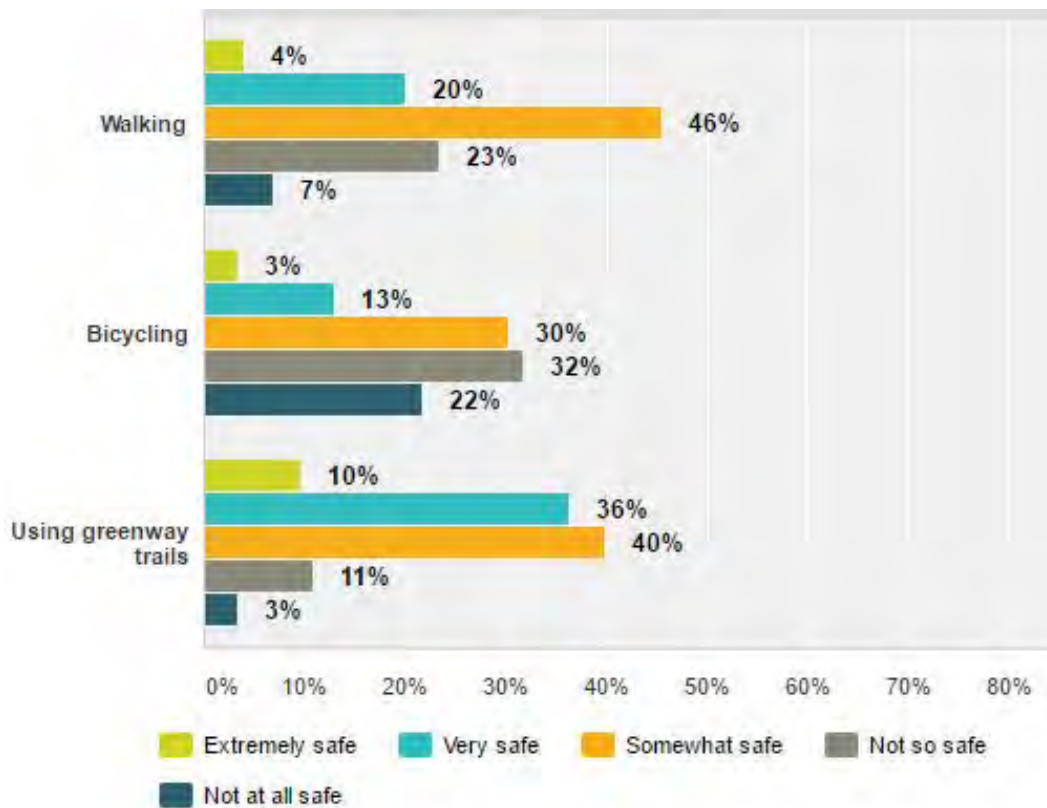


Members of the public examining the cutsheets displayed at the open house held at Sheppard Memorial Library, March 2017.

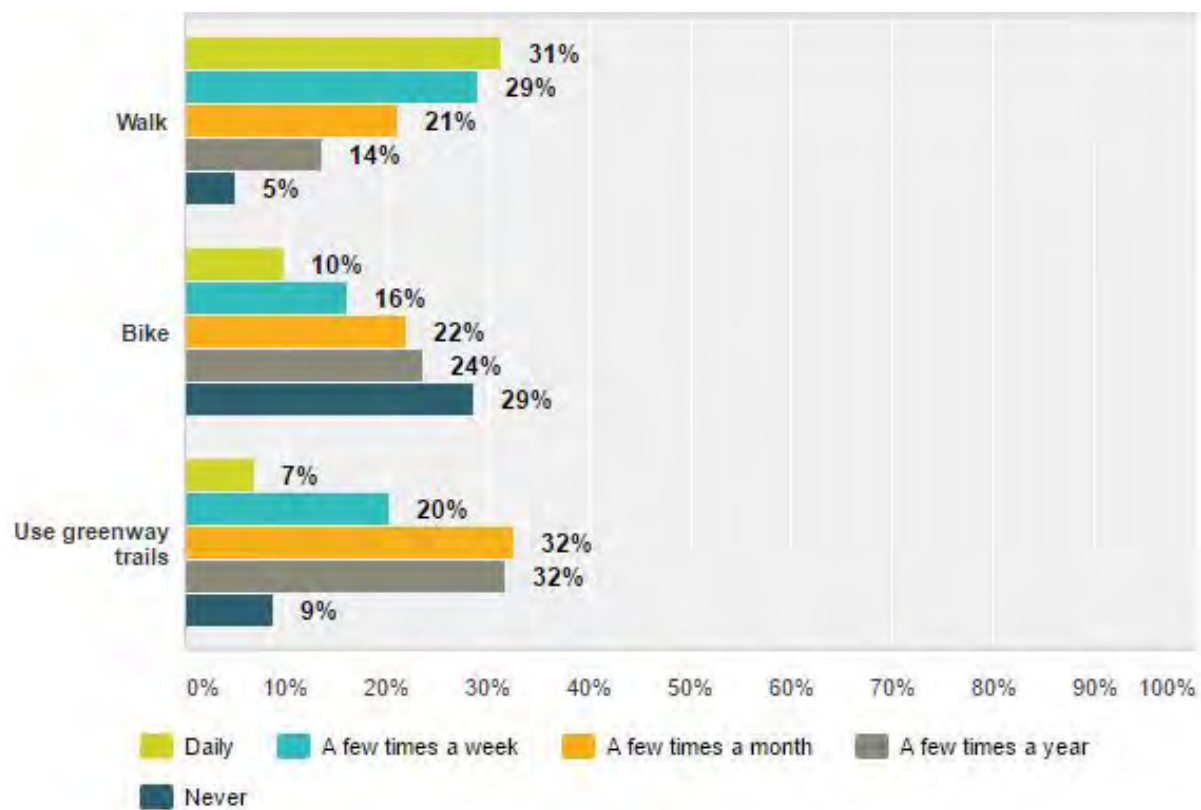
How important is it to you to improve the following in your community?



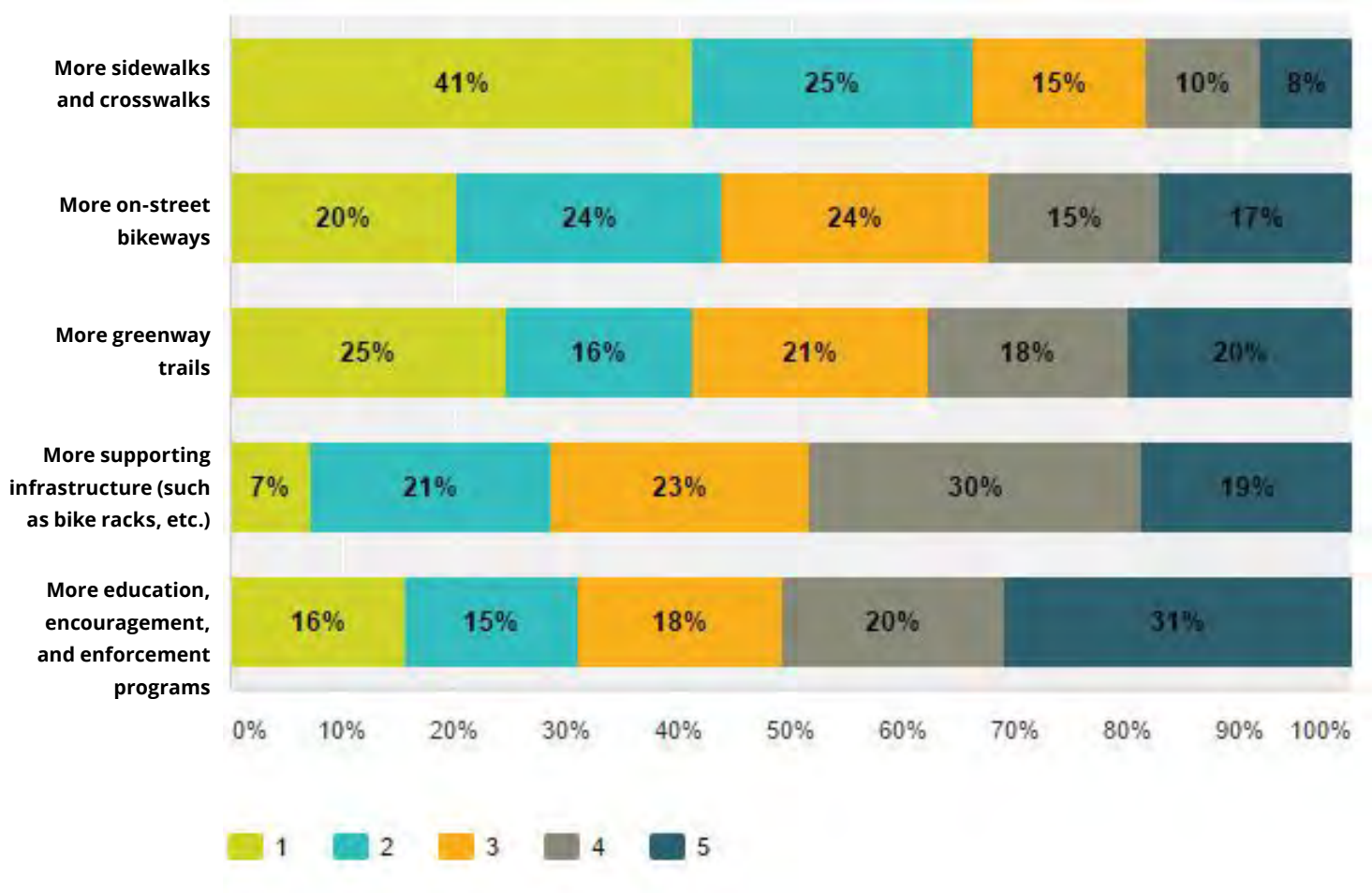
Overall, how safe do you feel in your community when walking, bicycling, and using greenway trails?



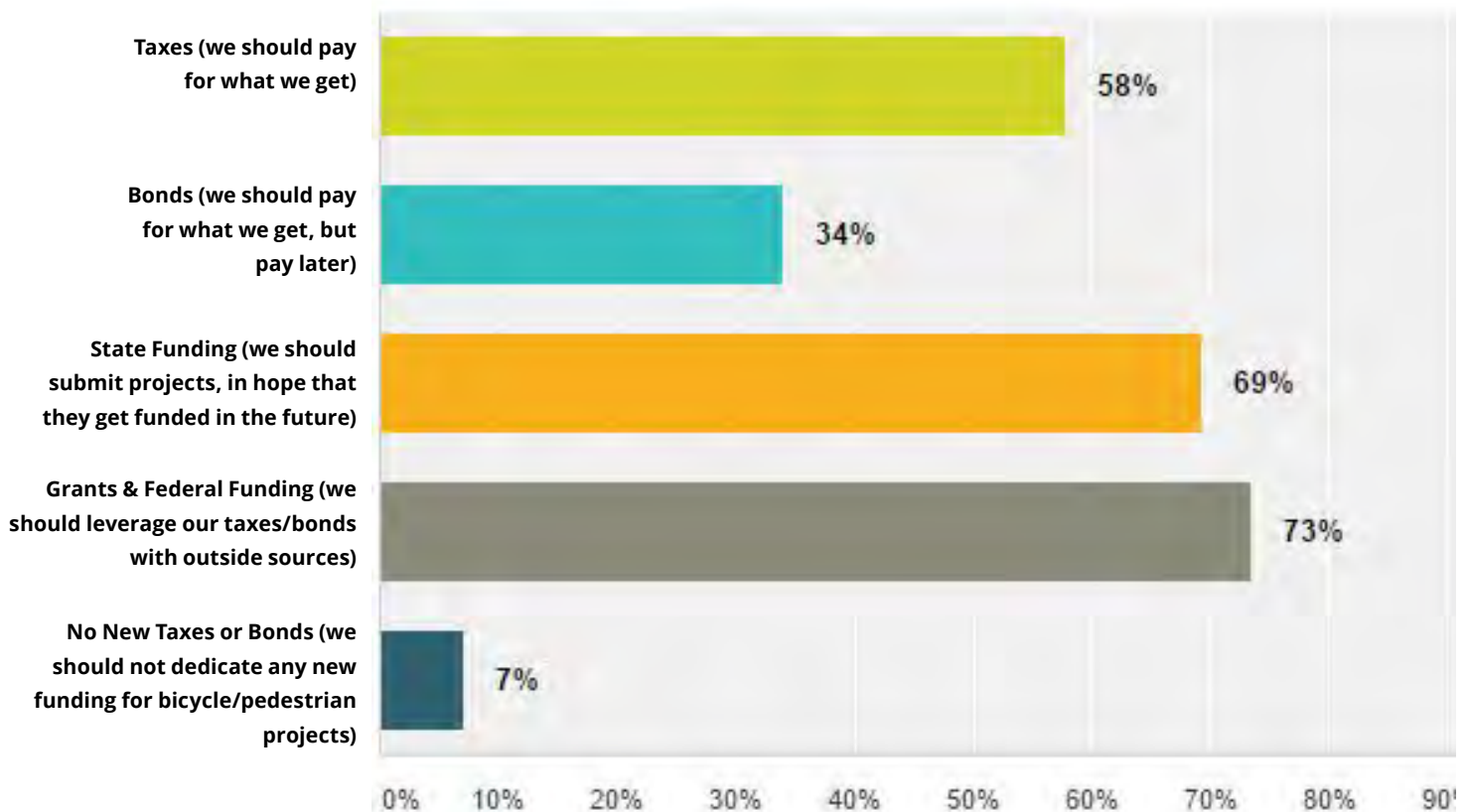
How often do you walk, bike, and use greenway trails?



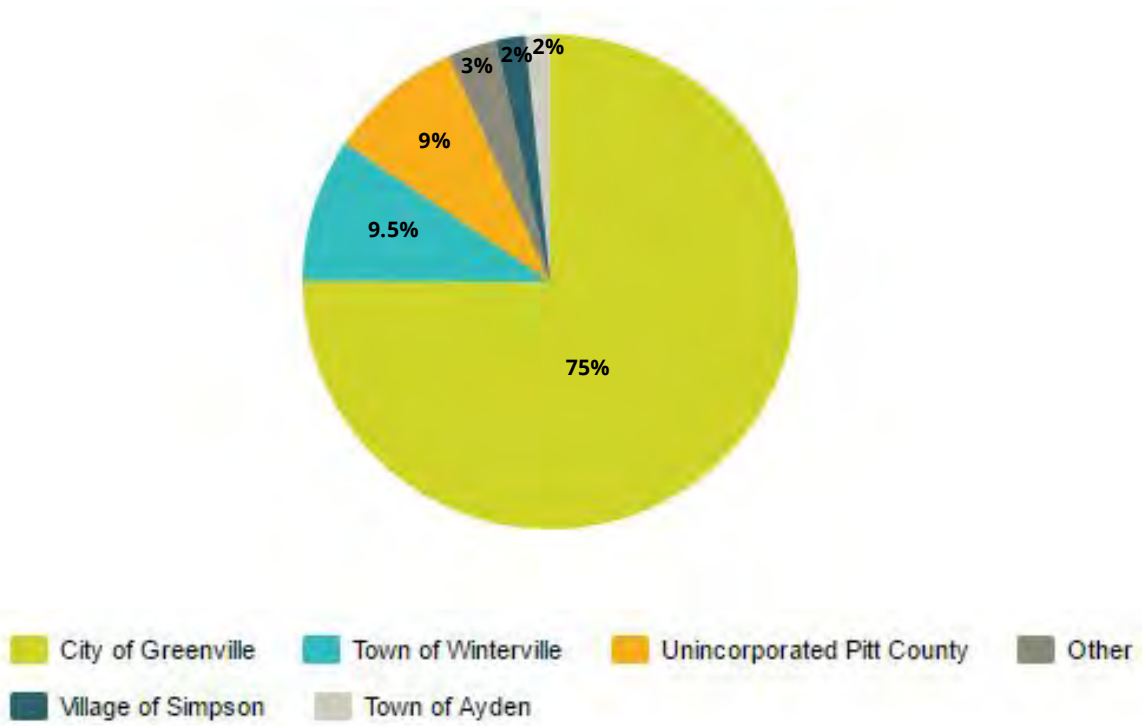
*Please rank the improvements that are most important to you.
(1 = most important, 5 = least important)*



Funding is always a challenge when making improvements to public spaces, including our streets. How should we pay for making improvements for walking and bicycling?



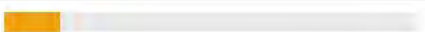












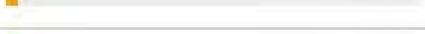

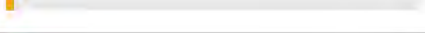
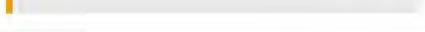






In what town/city/community do you live?



What do you like most about walking and bicycling in your community?

(Most commonly used words followed by all responses)

Exercise		24.44%	231
Walking		14.39%	136
Green Way		13.44%	127
Community		8.57%	81
Seeing		7.51%	71
Nature		6.56%	62
Safe		6.46%	61
Fresh Air		5.93%	56
Outdoors		5.50%	52
Sidewalks		5.40%	51
Outside		5.29%	50
Scenery		5.19%	49
Able		4.44%	42
Health		3.28%	31
Driving		3.07%	29
Healthy		2.86%	27
Streets		2.75%	26
Bike Lanes		2.01%	19
Quiet		1.80%	17
Weather		1.38%	13
Clean		1.16%	11
Ease		1.06%	10
Space		1.06%	10
Flat		0.95%	9
Trees		0.95%	9

What do you like most about walking and bicycling in your community?

#	Responses
1	I enjoy walking through the neighborhoods to see people's landscaping, admire houses, meet neighbors. I would enjoy biking through the Greenville/Winterville areas but do not feel safe doing so.
2	Bicycling out in the county and in Greene County as the City is too dangerous. I like the new bike lanes on Arlington between Stantonsburg and Memorial. Use them a couple of time per week.
3	Healthy way to get around and be in touch with our world
4	Ease of getting from place to place
5	Excerise
6	Enjoy spending the time w/ my daughter
7	Greenways are great!
8	[walking] Enjoy getting exercise & the ability to get to restaurants & activities without having to drive
9	I love walking around University & on greenway-too scary to ride bikes on streets.
10	It's healthy for me and feels good-more energetic. Plus, slows me down. I notice beauty of nature.
11	The beautiful & well kept greenways
12	improves health
13	Healthy forms of exercise and places available area wide
14	Not using Car & health benefits
15	its safe & clean
16	Scenery, peaceful, sound
17	The greenery
18	I'm disabled and it hurts to walk too much and never bike. It would be nice to have an disable (adult!) area with explanations on the exercises. We moved here from Sanford NC and we had a park (Kiwanis) tha thad these things
19	Exercise, social
20	The Greenway offers an accessible area for bicyclers and walkers.
21	Wide streets
22	Fresh air, meeting people.
23	Exercise
24	Exercise/see people
25	Exercise Fresh air
26	The routes are usually scenic
27	Scenery & Safety
28	Not need for cars, driving, excercise, fun.
29	Saving on gas
30	Exercise and scenery
31	The air & the exercise, and saving gas
32	health benefits of walking and the beautiful surroundings
33	Nothing

What do you like most about walking and bicycling in your community? (Cont)

34	It keeps me from being depress so I can get out and walk.
35	exercise + see my comment
36	[bicycling] only in subdivisions - unsafe nearby
37	Get away from traffic
38	Scenery
39	health benefit like the outdoors
40	I like excercise and looking around the community.
41	Getting out to see the community
42	Safe exercise
43	excercise and the sounds of the environment
44	It's great extersize
45	Can't in Simpson
46	See more & save on gas
47	Courteous drives in Quail Pointe subdivision
48	Opportunity to get away from the hustle and bustle
49	Enjoying the scenery
50	Biking should be done in designated areas
51	Safety
52	Enjoy nature
53	Fairly open area - use roads in subdivision
54	Getting outside and getting exercise
55	Quietness
56	The fresh air & scenery Being able to enjoy my homeland
57	Some available sidewalks
58	Getting to see my surrounding
59	Ease of getting to places in neighborhood and to the greenways
60	I enjoy the exercise.
61	Being able to get around town on my bike
62	Staying active and fit!
63	I like being able to get some physical activity and to reduce my impact on the environment when running everyday errands.
64	Because I'm a Greenvillite, I like the fact that I can walk, run or bike to and from work (Vidant) easily. Even though it's 2.6miles each way, its great exercise.
65	I like to be able to take my family outside, to experience being outdoors and not cooped up inside watching tv, playing on an iPad or a video game. Growing up, I spent a TON of time outside, riding my bike, playing with friends.. it's fun to be able to take my small children now down to the Greenway and let them experience that for themselves.
66	Crosswalks and crossing lights at major intersections
67	I would like to be able to ride from the hospital area to the university area. Please complete the trail to Moye Blvd.
68	I can get there without a car
69	Exercise, fresh air, good health and a sense of community.
70	being outdoors and looking at nature

What do you like most about walking and bicycling in your community? (Cont)

71	Love the greenway and its peacefulness
72	The ability to get out and be social with people
73	I like being outside and getting exercise and also seeing fellow outdoor enthusiasts
74	Being outside and gettin healthy!
75	Get to see the community, not use my car, get some exercise
76	Alternative to vehicular travel
77	Being able to be healthy & get out into nature
78	They are both good forms of exercise, and the community is a pleasant one.
79	I love the fresh air and being out in the open
80	only on the greenway or downtown - Greenville is one of the LEAST safe places to walk or bike ride!
81	meeting people and seeing them enjoying life
82	amount of sidewalks
83	meet people good exercise
84	walking is a stress relief and good exercise
85	The walking brings me closer and get to know the community alot better.
86	sidewalks
87	N/A
88	N/A
89	It's clean and traffic is aware of me
90	The people are very kind and speak and have southern hospitality.
91	that there are multiple ways to the same place
92	sight seeing
93	I don't like walking because they're aren't many sidewalks in greenville.
94	free
95	saving money exercise
96	the peace in greenville
97	It is safe
98	good exercise
99	its ok
100	It is the best means to get anyware in town
101	exercise keeps me from going completely nuts
102	N/A
103	short distance
104	Yes
105	would like it more if sidewalks were everywhere
106	the view
107	It's fairly safe.
108	opportunity for exercise
109	Exercise!
110	stress relief
111	exercise and way to class

What do you like most about walking and bicycling in your community? (Cont)

112	that there are even trails at all to use
113	greenway trail others using hand signs
114	the nature
115	bikes have their own lanes
116	the relaxation
117	nothing
118	Improved sidewalks and more bikeways
119	It helps me stay active and gets me familiar with the area.
120	I don't do either.
121	It's nice to get outside & exercise instead of driving.
122	the scenery
123	exercise and the outdoors
124	fresh air, scenery, meeting new people
125	being outside in the fresh air
126	It is a great way to exercise
127	I like the exercise I get from riding my bike.
128	Alternative means of transportation; exercise and outdoor fun
129	outdoor environment, greenery, ease
130	Walking to and from campus is simple. We have plenty of opprotunities on the greenway also that are not taken advantage of.
131	The safety and ease of accessibility.
132	convience
133	It is dangerous. not safe at all
134	makes it convenient
135	everything is bike & walking accessible
136	exercise
137	There's easy access no matter where you live
138	Free exercise Fresh air Meet neighbors
139	the people
140	that the community is clean
141	meeting others from our community
142	I don't ride a bike and I like that I am provided with a sidewalk when walking.
143	being close to businesses and multi-use areas
144	you're not stuck in the gym and you can enjoy the scenery
145	getting exercise outdoors
146	walking along the greenway is a great way to relieve stress and turn problems into challenges to be solved in creative ways - that work.
147	the availability of trails
148	Great trees & green areas
149	Using the greenway trails; Greenville isn't a pedestrian or bicycle friendly city.
150	Like walking and biking in my neighborhood

What do you like most about walking and bicycling in your community? (Cont)

151	Use the green ways and not the roads
152	Greenways
153	Nice paths that are not near busy roads
154	South Hall is a quiet neighborhood, but turn onto Evans St. to go anywhere and you take your life into your own hands. A smart widening plan will include a bike lane for this main North / South Route to Uptown and Winterville. I look forward to commuting on the bike on a safer route soon!
155	I have enjoyed the walkway in Winterville because you don't have to worry about traffic.
156	N/A
157	N/A
158	Biking can be done on the greenway , does not need to be on the side of roads which is dangerous and unpleasant
159	It's quick, safe, as long as my neighbors have their dogs on a leash or in a fence.
160	Fresh air and talking with the neighbors
161	I enjoy bicycling on the greenway because it does not have traffic however I do not like riding my bicycle on the roads as they are not safe due to no bike ways and traffic patterns not being conducive.
162	I'm a runner so we run sometimes 20 miles on a Saturday morning. I love touring Greenville on foot and seeing the different personalities of each section.
163	The groups I belong to are fully and encouraging. We have a greenway which is nice but tend to run in neighborhoods as it is not safe to run in greenville.
164	meeting people and getting exercise
165	Beautiful community, good weather for cycling/walking
166	getting out side
167	Chance for exercise and fitness. Also cycling can be just as fast as driving in certain parts of town.
168	open spaces and fresh air - and the dog likes it also
169	Great exercise. Great family activity.
170	The views and scenery of nature & the Tar River
171	Cost savings and environmental savings of walking to work and nearby restaurants.
172	There are many residential neighborhoods that have very little traffic and literally miles of nice quiet streets upon which to walk and bike. We walk our dogs regularly, but do not like to walk next to busy streets with lots of traffic and cars whizzing by.
173	Only walk in neighborhood
174	Walking in neighborhoods with slow /light traffic
175	enjoyment exercise
176	I use to bike everyday in Chapel Hill before moving here a little over a year ago and have quit due to conditions here in Greenville.
177	Close proximity to shopping and restaurants near my home allowed for errands to be completed while getting in some exercise as well.
178	We live close to University and town so walking is practical. Nice thing about walking is you don't have to get in, start, drive, stop, park, then walk to where you are going. It is just about as fast to walk as to drive when in university area, and definitely faster and less hassle to bicycle.
179	Happy to survive the experience.
180	Exercise, community bonding, enjoyment of being outdoors.
181	I walk regularly but only in my neighborhood where I know the people and am protected against traffic
182	Everything is close
183	exercise, learning about the area
184	accessibility and density of mixed use from 14th to 1st street

What do you like most about walking and bicycling in your community? (Cont)

185	They both have seem to be completely secondary to driving. Very few people understand yielding to cross walks, let alone understand giving a cyclist 4 feet of space when passing.
186	Fresh air and exercise
187	This is a poorly stated question. It is double barreled. I most like walking because of where I live, close to the university, UpTown, and greenway. There is nothing that I most like about bicycling. The streets are dangerous and poorly surfaced. Existing bike lanes are few and poorly designed and engineered. The Greenway is nice but too short.
188	Not much.
189	It helps me to remain active and keeps my dog active also.
190	Clears my head.
191	I like the fact that everything I personally need is in the same area. My little legs do a pretty good job of getting me where I need to go. Which is great.
192	I like being able to exercise outside in a safe place
193	exercising
194	That is healthy, cheap and fun
195	The scenery
196	The atmosphere and the being to walk along side the river
197	Sidewalks designated especially for these purposes
198	You see people aroun and have company
199	What I like the most walking in my community is the peace that it provides.
200	There's still enough room to have a greenway and woods while still having an urban environment.
201	Getting to see the town and the Tar river.
202	The nice weather
203	There are sidewalks available even on main roads.
204	I enjoy that there is a trail available for use, there are plenty of crosswalks, and there are bike lanes through some of the roads.
205	Getting exercise and staying healthy
206	It beats sitting in traffic all day
207	Hardly anything.
208	Getting exercise and enjoying the outdoors
209	everything is close
210	it isn't uncommon here
211	abundance of lighting on main streets
212	The scenery.
213	the accessibility it gives to the city
214	The benefits are too many to list.
215	how many options there are
216	It's somewhat easy but some places dont have sidewalks.
217	Being outside, seeing the community from a different perspective, being able to get places, recreation and exercise
218	The greenway allows me to go downtown without dealing with traffic.
219	Saves gas
220	The fresh air and the convenience
221	its safe

What do you like most about walking and bicycling in your community? (Cont)

222	The views
223	N/A
224	Some parts of town are known to be safer from criminals than others.
225	Convenience of not driving mostly bc of lack of parking.
226	Open space
227	Fresh air and saving gas
228	weather
229	The scenery
230	Enjoying the scenery and the fresh air!
231	There are usually always sidewalks, there usually isn't a lot of overgrowth in the way of the sidewalk.
232	being outdoors
233	I enjoy the greenway trails the most, they are safe, well kept, and a great place to bike or walk.
234	I love my bike, but cycling in this city is a death wish, honestly .
235	It keeps people active and outdoors.
236	The scenery.
237	The sidewalks are not bad to walk on.
238	It is a great way to get exercise outdoors and not have to worry about some beaten dirt path. The greenway offers a great route
239	The peace when it is quiet
240	It's an easy way to get exercise.
241	It makes me feel free.
242	It's nice to be outside
243	I don't
244	fresh air and exercise
245	Good exercise, sight seeing
246	It's a good way to exercise.
247	Exercise
248	I like walking with my dog
249	There are places to walk/bike.
250	Getting exercise outside of the gym.
251	The nice scenery of the Greenville area.
252	Not much to like unless you are on the greenway which is way to limited!
253	I like walking on the greenway trails, down by the tar. They are very comfortable feeling.
254	I like doing it on the greenway like a considerate person. The problem is idiots biking on major roads. It should be illegal.
255	When there are bike lanes and sidewalks
256	Not much.
257	The freedom
258	The community is clean in many areas
259	Sidewalks are easily accessible, could use more cross walks. Greenways are well kept.
260	I enjoy walking in the nature and I feel like it's a nice social thing where there are other people on the Greenway.

What do you like most about walking and bicycling in your community? (Cont)

261	Ease to get from one place to the other.
262	Exercise, seeing the community
263	You can see all the community from a different point of view than a car.
264	Easy to get around
265	Just being able to get outside into nature and breathe in the fresh air.
266	People watching
267	It's easy to get places, don't have to worry about parking
268	Scenery
269	The Greenway is wonderful, and I'm excited about the expansions happening with it.
270	the scenery
271	The scenery.
272	space marked off for this on sides of road
273	Here in Winterville there really aren't many options. A few very short trails at Hoyd Boyd, that's all and it's a bit away. I take my family to Ayden to use their parks, which is a shame. They have very nice parks. We should too.
274	Side streets that reduce my chance of getting killed. Also, the foliage is great. What few parks we have near campus are great. The Greenways are great.
275	Fresh air and exercise
276	Relaxing, seeing neighbors, getting away from technology temporarily, connecting with my family
277	I like the Greenways in Greenville are shady. I particularly like the Green Springs Park area.
278	The environment and being outdoors enjoying the air
279	Exercising and being in the outdoors . Cuts down on car traffic if more people did this. Some areas are beautiful.
280	Getting outdoors with the family.
281	none
282	I would do more walking if I felt it was safer to be out walking. I live over near Arlington and Firetower and my biggest concern is the cars speeding around and having to walk on the road since there aren't any side walks in my area without driving to a different subdivision.
283	I don't have to use my car.
284	I don't because it's not safe
285	Sidewalks and cross walks
286	Being physically fit & having alternatives to paying for an expensive gym membership!
287	All the green trees in Greenville
288	I love exercising outdoors and I think the greenway is currently best suited for it other than during heavy rain
289	Getting to be outside instead of the office and being able to enjoy my surroundings more, whereas in a car you don't have much time to look around.
290	I like the Walkways at ECU. I wish they had better sidewalks around the municipality area.
291	Bicycling on the greenway, thru natural areas, and on quiet streets. I would enjoy walking and would do it often, but have a knee problem.
292	The exercise I get.
293	The Greenway provides an excellent place to connect with nature. It is a beautiful space.
294	It does not take long to get where I need to go; Greenville is not such a large place. Riding my bicycle feels good and makes me feel healthy. And I like the feeling of connection it gives me to my neighborhood and my city
295	The new part of Brook Valley has sidewalks.
296	Gaining important physical activity and being out in nature!

What do you like most about walking and bicycling in your community? (Cont)

297	Looking around. Feeling physically good. Low carbon footprint.
298	Love the exercise and uplifting feeling from being outdoors. Like seeing/greeting others. Like not using gas.
299	I am able to get my doggy adequate exercise
300	the scenery
301	River Hills is safe
302	The exercise in the gym
303	My wife and I clean the GW about ones a week when we are in Greenville. We like a clean and safe GW.
304	Exercising and meeting people
305	Quiet surroundings. Easy walk outdoors.
306	Enjoy watching the scenery while engaging in physical activity
307	To get outside and see nature, unlike in a gym setting.
308	being able to connect with neighbors
309	Avoiding public transportation
310	Good form of exercise/fitness
311	The walking trail is usually very clean and neat. The markers are great.
312	wide streets
313	My neighborhood is a relatively new one and was built with sidewalks from the beginning. Good for walking. Greenville at large - not so much.
314	I like the sidewalks.
315	I love being outside and engaging in physical activities.
316	Exercise, greenway - nature
317	Where there are not sidewalks it is nice to have the extra wide roads or at least marked pedestrian/bike lanes.
318	Not having to drive to Raleigh for trails.
319	Exercise
320	I like there are biking groups to meet up with.
321	I feel safe
322	I enjoy walking for exercise. I currently have a toddler so being able to have sidewalks and safe areas to stroll are very important to me.
323	Freedom, good health and wonderful feeling about being outside
324	relaxing and beautiful on the greenway
325	Greenway
326	The trails available for walking and biking. As well as being able to walk / bike through all of the parks, and the university and downtown.
327	Exercise, seeing my neighbors
328	The weather is nice most of the year. The terrain is flat.
329	peaceful atmosphere, beautiful nature (greenway)
330	Everything!
331	enjoying nature and community
332	Great exercise.
333	I am able to do shopping and errands since I live in the downtown.
334	I love being outside and being able to get some exercise, fresh air in nature and see trees/birds/flowers, etc.
335	It's a great way to get outside and exercise at the same time in the handful of places where it's safe to walk/ride.

What do you like most about walking and bicycling in your community? (Cont)

336	I walk in my quiet subdivision so I have safe walking. Outside of that I think the city is hustling to get more sidewalks
337	Beautiful country roads to explore. The flat roads and open view makes for great road biking.
338	Nice people
339	The opportunity to be outside and breathe fresh air! And on the greenway, there are actually some trees! Greenville doesn't have many trees or pretty spaces.
340	exercising
341	I like the scenery and fresh air. It also feels good to be active & not polluting the earth with carbon.
342	Greenspace, meeting up with friends
343	It is healthy, relaxing, and good for the environment.
344	It is healthy, relaxing, and good for the environment.
345	Slowing down and being able to view the city from a different aspect
346	listening to the happiness of the birds.....and knowing it is good for me to age gracefully
347	Exercise is a nice environment
348	It's flat
349	All bicycling is awful. Street behavior by cars and bikes is really bad. Casual bikers should stay off main roads. Transportation bikers should follow the law AND BE TICKETED! I love walking in Greenville. Lots of communication!
350	Improves general health of residents.
351	Greenville is a beautiful city and would have so much more to offer if only it could be seen and traveled safely on foot and by bicycle. Sadly, it is dominated by motor vehicles and is not at all walking and biking friendly. I am an avid cyclist, so I go out riding all over town anyway. I regularly (typically 2-3 times a week) ride a 27 mile loop from home in Westhaven to Lynndale, Brook Valley, uptown, town common, on the greenway to ECU campus, back on the greenway to town common, to Hooker Road and back home. Sadly the city is so unfriendly to cyclists that I see few other riders, except on the greenway. I have spent time in other cities which are pedestrian and cyclist friendly, and they are so much more vibrant and healthy.
352	Fresh air
353	Other than cycling on the greenway, there is nothing to like. Compared to other cities like Raleigh and DC there are very few bike lanes and the ones that are on on bumpy, high traffic roads.
354	Walking through the woods where it is quiet is important it helps relieve stress.
355	Availability of wooded walking trails nearby (but not within easy walking access....have to drive my car to get there)
356	The lack of traffic on the greenway trail is wonderful. Walking on sidewalks with traffic is unpleasant.
357	I think a good effort has been made to improve the access to green-ways and other things that can enhance the life of the community.
358	Exercise and socializing
359	Good exercise
360	Exercise, being outdoors, seeing nature
361	scenery
362	The Greenway area is SUCH a nice addition to our community - it is peaceful and allows both myself and my children a convenient place to get closer to nature - it is a wonderful stress reliever to just walk through that area.
363	The Greenway -- except where it ends at 5th Street without sidewalks or safe crossing of 10th Street.
364	BEING OUTDOORS
365	The health benefits
366	In my community there are lots of walkers and for the most part it is easy and safe to walk.
367	The Greenway trail; it is accessible, useful, and puts me in public space with my neighbors and community.
368	just being outside in the fresh air without having to leave time.

What do you like most about walking and bicycling in your community? (Cont)

369	I only like walking and bicycling within my neighborhoods. Without sidewalks or bikelanes, it's not safe to go onto the major roads.
370	I have easy access to the greenway through Green Springs park.
371	Exposure to outdoors; gives dog more opportunity to meet and greet.
372	Getting out in the air, seeing other neighbors out and about.
373	I live near the greenway and feel very safe there.
374	exercise and meeting neighbors
375	The convenience since I don't have to travel in my car to get there.
376	The are not consistent/complete sidewalks to get me from Point A to Point B for walking. Too dangerous to ride a bike on the roads. Not enough room.
377	Where there are pedestrian walks or trails (like sidewalks) I like the mobility safety in them.
378	Exercise & community
379	Exercise
380	The accessibility of things
381	Excellent climate! Greenway is improving.
382	Energy savings, community engagement
383	due to back and other health problems I have never seen the greenways and other trails. At this time the City has made no provisions for golf carts to let us ride on the trails for the view and beauty. Would be nice if something could be scheduled.
384	Fresh air, improved feeling and outlook, mindset
385	I enjoy walking not only as exercise but as a way to slow down and see what is around me. The Greenways are quite lovely.
386	Exercise, not having to use the car, not having to find parking.
387	trails
388	The fresh air and being outdoors, especially along the river where it is very scenic.
389	I don't like much at all about it. It is not too safe to walk or to bike in Greenville. Traffic is crazy and was not well-planned years ago when it should have been.
390	Dedicated walk ways and bike trails.
391	Exercise, creating sense of neighborhood.
392	Good exercise, good for the environment, spending time outside
393	good exercise. preserves resources.
394	being a part of nature, and being more physically healthy
395	Green, shade, calm.
396	Being outside.
397	Trees, birds and squirrels
398	Exercise and access to downtown
399	Being outside amongst trees and people; low impact physical activity that is truly pleasant.
400	It cuts down on traffic; it makes life more pleasant in our community; it leads to better health; it attracts
401	It's low impact exercise and is relaxing
402	Healthy
403	I can walk to work. I don't bike because too dangerous
404	Exercise
405	safe and relaxing

What do you like most about walking and bicycling in your community? (Cont)

406	Exercise. Walking the dog. Looking at nature.
407	That we have the greenways at all.
408	The terrain is mostly flat, and the area is beautifully shaded
409	Enjoying movement and ability to get from place to place
410	There is little to like
411	The Greenway is on the water and I love water. It's like being in the woods, but you're in the city. There are no cars, so I can bike safely. It's my favorite thing about living in Greenville.
412	safety downtown
413	Safe, wide roads
414	Running down a tree-lined street--Fifth Street to downtown along the bulkhead at Town Common and back home.
415	Safety and a growing greenway profram
416	Streets are wide and posted speed is 25 with speed humps in some places.
417	Saving gas, helping to protect the environment, exercise.
418	Fresh air, exercise, contact with neighbors.
419	greenway
420	It is healthy!
421	able to have access to nearby businesses without driving
422	The greenway.
423	The ability to cycle/walk off road on the greenway. The social interaction that occurs on the greenway.
424	Good exercise and health advantages; admiring people's gardens and various wildlife as I stroll by. Also, ECU campus improvements to increase sidewalks and bike lanes and decrease car traffic and parking have been a great idea.
425	Fresh air and exercise
426	We have plenty of places to walk to....but it is very unsafe to do so!
427	Exercise
428	The health of exercise and the enjoyment of it.
429	People are friendly. Good exercise.
430	Nature
431	The Greenway way is full of nature and peacefulness!
432	Improving my overall physical, mental, emotional health and feeling better after having gotten out and gotten some fresh air.
433	Being in the fresh air.
434	Healthy, restful, sense of community
435	Not having to drive everywhere.
436	The peacefulness of the greenways.
437	Fresh air, meeting people, going to near-by stores.
438	I love the Greenway
439	Not having to drive!
440	Enjoying the beauty of nature
441	Great exercise year round, eco friendly
442	I like the wide trails through nature. Other walkers and bikers are nice. Everyone seems to appreciate the trails.
443	Exercise
444	The greenway shows the beautiful natural beauty of Greenville. It lets us know the town better!

What do you like most about walking and bicycling in your community? (Cont)

445	Seeing neighbors, walking the dog, getting out in nature, exercising.
446	Getting out in open air, seeing others do the same makes the area seem more of a community.
447	I like that its encouraged with the greenway but the rest of the city isn't bike/pedestrian friendly at all, especially for a college town!
448	It would allow our family to walk more places, including TO the greenway
449	Great exercise and it is fun to enjoy nature.
450	Walking and biking is an easy affordable mode of transportation. It can be enjoyable when the weather is nice, and when motorists are considerate. It is also better for the environment.
451	It is eco-friendly, I get to exercise while getting where I need to go, and it is fun.
452	I love see the beauty of the river the woods and i love the exercise
453	It is quick enough to bike most places I need to go within my weekly routine.
454	It's a healthy way to get around. Taking a car is not always necessary, but is often the only option for safety reasons.
455	Only safe place is greenway
456	It promotes healthy lifestyle and reduces use of vehicles
457	...
458	...
459	I dont walk because there are not a lot of sidewalks and I dont feel safe walking near traffic. I will only walk or bike on the greenway during the day because it is more safe than anywhere else, but not at night. I love to look at the scenery while getting some exercise.
460	I don't have to drive. I LOVE the Greenway.
461	Walking paths that are easy on the feet and legs.
462	The walking and biking paths have pretty scenery, which makes for a relaxing exercise!
463	Love getting outdoors. Greenville has some great areas to highlight and share.
464	Enjoy being outdoors.
465	I love the Greenways. It is my favorite part of the city.
466	It's good exercise. There is decent scenery.
467	Feeling safe on the Greenway and designated bicycle lanes
468	our community is small enough I can navigate the whole thi.g on my bicycle.
469	Cheaper than driving
470	Creates a healthy alternative of transportation and its improves daily mood to get fresh air
471	So many beautiful and unique places that you get to see
472	The expansion of the greenway. Other safe areas in neighborhoods or around campus. The addition of some bike lanes.
473	Well, what I would like most is to have an easy, healthy, green way to get to and from places that aren't very far apart.
474	Interacting with people and neighbors
475	Outside exercise with family and friends
476	It is nice being able to see the river and trees with my toddler and being outdoors to teach her about nature.
477	Fresh air
478	Greenway, safe, quiet
479	Fresh air!
480	The exercise and breaking the dependency on an automobile.
481	Exercise and getting my young children out of the house

What do you like most about walking and bicycling in your community? (Cont)

482	Get out of the house and moving in different environments
483	The university, uptown and greenway environments.
484	Having an environment that supports clean transportation and exercise is vital for transportation efficiency and health!
485	Getting outside.
486	The Greenway is always maintained. I am very pleased with the conditions of the Greenway when I run there. I am also a graduate student on the health science campus and I walk to school everyday from Treybrooke Apartments. I will frequently walk by myself at night from my apartment to the school and vice versa. I have never felt concerned about my safety during these times.
487	The exercise and friendships
488	Seeing the neighborhood. We only walk within our development. There are no sidewalks but little traffic.
489	College people
490	The greenway trail. I do not feel safe biking in Greenville except on the trail. The road conditions are not safe. We need bike lanes and to educate drivers on bike safety. I am impressed that there are more sidewalks being built. I feel we should have sidewalks everywhere in the city to walk.
491	Exercise is the only real reason I do these activities. It is too difficult to get around town to attend activities on foot or bike.
492	Getting physical activity. Enjoying the outdoors and community.
493	I enjoy walking around uptown, going on a ride through the greenway and campus.
494	On Greenway trails it only takes a short distance before one leaves the city and joins nature.
495	Connection with sidewalks, crosswalks and signals to use.
496	Exercise
497	The current greenway is pretty safe, I am afraid when they finish the new section in Fall 2016 it will cause much of the greenway that new section of greenway to be unsafe and that will overflow onto the current older and safe greenway. I like the fact that the city is trying to grow from the city center out as former Greenville City Manger Ron Kimble suggested Charlotte is doing a couple of years ago when he spoke to city council. Revitalizing the downtown is very important to the life of the city, the enjoyment of the city by its citizens and the visitors to the city. Making the downtown as walkable and bikeable as possible will help the downtown maintain its greatness and keep it growing. Making it more walkable and bikeable will create less vehicular traffic for downtown making it safer on walkers and bikers.
498	Saves money, exercise
499	scenery
500	I have enough brains to wear light clothes, use crosswalks and stay sober.
501	exercise benefit
502	Exercise opportunity
503	Not much
504	Exercise.
505	Being out in nature and not being rushed
506	scenery
507	scenery
508	Being outside in general
509	being out of the house
510	look at nature
511	People
512	I like getting exercise and getting the energy out of the dog.
513	I like to tire my dog out

What do you like most about walking and bicycling in your community? (Cont)

514	are quiet
515	off street trails
516	greenway
517	safety nature
518	the scenery
519	relaxation & exercise
520	both
521	Water Front
522	Scenery
523	not much
524	the greenway with all the shade
525	Beautiful Nature! Fresh Air!
526	Being outdoors in Greenville!
527	Exercise
528	The maps that guide us through the trail.
529	nature
530	Being able to walk not only helps with exercise sometimes it helps save on gas.
531	I like seeing the plants around me.
532	greenways.
533	Walking and biking are my favorite types of exercise. It not only improves my health but I also get to enjoy God's creation.
534	exercise
535	I like to use the Greenway
536	Exercise and less pollution. You get to see more as you go too
537	Out in nature, fresh air beauty exercise
538	Nature peaceful
539	Lighted and Natural areas
540	I like getting exercise out doors and I enjoy the ambiance of the greenway.
541	It's exercise!
542	We have some pretty gorgeous scenery.
543	There are many options for places to walk. As a student, I walk to campus regularly and am thankful I am close enough to campus to do so.
544	Scenery.
545	saves money on gas and parking tickets
546	Its a great way to experience Greenville while avoiding the traffic
547	I like the crosswalks across the streets to get to the ECU campus
548	the health benefits it produces
549	This is a fairly small town. If the infrastructure was in place walking and biking around would be great. The proper infrastructure would allow walking or biking to take the same amount of time as traveling by car.
550	Increased improvements
551	Sidewalks

What do you like most about walking and bicycling in your community? (Cont)

552	I enjoy the walkability of the Uptown area and areas around campus. This applies to biking as well, especially on the greenway network. I would like to see a mixed use overlay zoning district expanded to more suburban areas of the City to encourage higher density, mixed-use, compact development that will encourage walkability throughout the City.
553	NA I do not live on the side of town (SE & SW) where most walking, bike lanes, and greenways are being focused on.
554	Being able to get exercise, spend time with my family, and enjoy the outdoors.
555	Promotes better health and alternative transportation.
556	The exercise
557	Seeing beautiful green areas
558	I am new to the community but so far it is the greenway. I do wish there were better street crossings.
559	I am concerned about safety of bike lanes and sidewalks on busy streets. I am very much against these.
560	I love the efficiency and that the weather is usually nice enough for it. I also love that everything is within riding and walking distance.
561	The peace and quiet of nature.
562	There's not many places you can bike in Greenville and it's fantastic to have a place dedicated just to pedestrians that's not ruined by passing cars.
563	Gives me some exercise and I avoid the stress of parking
564	Safe from vehicles and green!
565	The feeling I get from exercise
566	Nice paths and pretty scenery by the river.
567	There are a lot of other people walking around so I am not the only one.
568	walking for exercise or going out for errands; i don't bike
569	Greenville has the terrain to be more walkable and bikeable with more sidewalks, greenways, and bike lanes.
570	Enjoying being out in the community.
571	That I'm not polluting the environment with unnecessary car usage. That I'm getting exercise.
572	Exercise. Being outdoors
573	I like the opportunity to be outside, get exercise, and see the city in a different way.
574	the ability to take advantage of the climate and community
575	Proximity to workplace, generally safe neighborhoods
576	Good scenery and exercise
577	The fresh air and nature.
578	The residential areas tend to have nice wide roads to ride bikes through. However, there are no continuous bike routes that tie the community together. A cyclist has to use major thoroughfares to get from one bike route to another. For example, the bike route that is located on Red Banks cannot be accessed without cycling on Arlington or Charles. Charles and Arlington are very dangerous for cyclist due to traffic volume and lack of bike lanes.
579	seeing other people, getting exercise, scenery
580	Saving the environment.
581	I wish I could do it more, but I do not feel the existing trails allow for safe passage, especially bikes. Walk downtown regularly.
582	I like being able to exercise outside and see various areas/scenery of the community.
583	The greenways are nice and well-kept
584	There are some very pretty natural features like the river and the university area that make walking and biking interesting. Cycling is my primary mode of exercise.
585	Using the sidewalks we are able to spend safe family time and get outside. We mainly just walk or bike to the local park.

What do you like most about walking and bicycling in your community? (Cont)

586	Being outside and actively getting to nearby locations.
587	It is the natural way to move - you don't have to use a car
588	The greenway is an excellent resource and should continue to be developed to create a more complete network.
589	I like working in the community to site see, I enjoy the green way but after a heavy rain no access to some areas.
590	Always me to see my community.
591	It is a good way to get exercise.
592	Healthy way of life
593	It allows me to be physically active without having to get a gym membership.
594	Getting exercise and not using fossil fuels
595	Great exercise
596	Being able to get exercise and commute to work at the same time.
597	The ability to be outside, especially in a space designated for such activities.
598	It is clean, clear of traffic and I feel safe.
599	-Exercise -Sustainability -Interaction with community -Increase vibrancy of city
600	A community with active citizens walking, biking, and running gives the city a fun, clean, vibrant vibe.
601	Greenville is a walkable/bikable city. If done properly, bike lanes and greenway trails connecting through the city would alleviate vehicle traffic for those who prefer walking and biking to traveling less than 5-10 miles in a vehicle.
602	clean grounds, access to restrooms
603	Only walk in neighborhoods where it is safe. I don't feel greenways are a safe place to walk.
604	You don't have to pay to park.
605	I enjoy being able to be outdoors.
606	having the access to exercise outdoors and enjoy nature while doing so
607	reduces pollutants, good for your health
608	Exercise. Feeling of freedom and connectedness to nature. Less congestion and fossil fuel burning.
609	Ability to have an area free of traffic and other distractions that allows you to enjoy the outdoors with the addition of feeling safe as you do those activities.
610	Exercise
611	It is a healthy out door activity to do with the family, the kids enjoy it.
612	Good exercise. Fresh air. Reduce need for car.
613	What I like most about walking is connection I feel to the community. While driving I feel cut off, but walking I feel a part of the community.
614	Being able to enjoy the scenery and not be involved in the traffic. Hilton Head is a wonderful example of a community that has a well laid out biking and walking path. When I vacation there, they are used all the time. People bike to the store, restaurants, etc.
615	nature, fresh air
616	The peace and quiet, the natural greenery, the safety.
617	Walking is my preferred form of exercise. Love the fresh air.
618	The neighborhoods have safe riding areas.
619	The ease and health benefits
620	Fresh air
621	I love to walk around my neighborhood to get my dog some exercise. Sometimes I bike too, because the roads are flat it isn't too strenuous.
622	Connecting to your surroundings, exercise and seeing the community

What do you like most about walking and bicycling in your community? (Cont)

623	Near ECU, it's great. Farther away, not so much.
624	Of all the places, I've lived--Greenville is the least bike/walking friendly place I've lived. So I can't say there is something I like most. I do appreciate the Greenway though. I would walk/bike significantly more if it were safer to do so and there was greater connectivity making it feasible to get around town via foot or bike.
625	Best way to get places, I don't want to drive a car to go everywhere
626	being outside
627	I like to be outside and observe the changing seasons more intimately than in a car. I like to be active and stay fit for my health and to help contribute to community health.
628	Getting exercise, feeling healthy, seeing what's going on in the community, connecting with others
629	Ability to transport without a car
630	Not driving because roads and people in cars in this community are FAR WORSE! Truthfully though it's being outdoors and being able to take time to enjoy the environment!
631	Spending recreational time outdoors with family
632	Nothing
633	The river-front pedestrian path
634	outdoors!
635	There is a strong cycling community in the area.
636	Reducing carbon foot print
637	I WOULD like to walk and bicycle much more, as I have in other places where I have lived. But other than the Greenway and the few sidewalked areas in Greenville, there simply isn't an option.
638	sense of community, seeing neighbors out, enjoying weather
639	It provides a means of transportation as well as areas to exercise
640	Enjoy the community. Healthy
641	it is healthy
642	Safe way for exercise
643	Getting outdoors and enjoying our community
644	Easier to get around because of traffic and parking
645	Connecting with community members and spaces. Opportunity to engage in healthy activity at low cost.
646	Enjoyment
647	That it gets me from point A to point B without having to use my car. I also like the exercise and leisure opportunity.
648	It's cheaper than driving
649	The greenway trails are nice and shaded, downtown is within a short walk of where I live.
650	Temperate climate.
651	Lots of "green" in Greenville Greenway, active FROGGS and other members of the community, some nice bike lanes/paths, limited "light pollution", many areas are not overly "manicured" and still have some elements of a natural area; dogs on leash; walk/bike ways are generally safe....except for cars
652	Opportunity for physical activity that impacts health. Saving gas and thus money. Seeing more of the community.
653	I don't actually walk, I jog/run. I like it for the exercise. I like biking for the exercise, and it's good for the environment.
654	The exercise
655	Exercise and relaxation.
656	Scenery
657	Fairly quiet, great exercise
658	The streets (too few) streets that have bike lanes. Ditto for sidewalks.

What do you like most about walking and bicycling in your community? (Cont)

659	The streets (too few) streets that have bike lanes. Ditto for sidewalks.
660	Nothing
661	exercising outside
662	exercise, environmentally friendly
663	It is flat but scenic.
664	clearly marked bicycling lanes that police enforce
665	Being outside and exercising.
666	Extremely important Bicycling!
667	The weather
668	Greenway trail
669	Getting the exercise
670	The possibility to walk/bike safely in several neighborhood... which unfortunately are not interconnected.
671	the ability to get exercise without first having to get in the car
672	I love the freedom these modes of transportation and recreation provide. I would like to see more trails going further and covering a greater surface area in town.
673	Greenville is a nice town and has a few points of interest I like to explore without a car. As for biking in Greenville, I no longer do that activity. When I moved to South Evans Street, I no longer felt safe to ride my bike without loading it in my car and driving to a safer road.
674	I enjoy the greenway very much. It is an excellent and beautiful place for exercise and outdoor activities
675	It allows me to be active with my busy schedule
676	The greenway!
677	Fresh air
678	Nothing really. I live here because it is close to work.
679	You can't walk or bike in Greenville because there are no sidewalks or bike lanes.
680	Exercise, keep in touch with neighbors.
681	absolutely nothing. I like to walk but the community is so broken up that its hard to walk from one area to another without having to deal with the dangerous drivers
682	I enjoy the greenway for jogging as well as the nice wooded neighborhood (Tucker) in which I jog some mornings as well.
683	Cheap, fast way of getting around. Exercise is an added bonus
684	The exercise and health benefits.
685	Greenway!
686	Not parking, my health
687	The exercise
688	It's flat.
689	Improving my health!
690	Fresh air, noticing new things in our community
691	observing the "green" surroundings and others enjoying the scenery.
692	I love the "newish" extension of the trail near the park off of 5th Street. It's so nice to see so many people using that pathway.
693	Being in an open space.
694	Seeing neighbors, getting fresh air, enjoying our city, exercising outdoors
695	I love being able to be more active

What do you like most about walking and bicycling in your community? (Cont)

696	Saving gas and exercise!
697	It's very easy to get around the campus side of Greenville, it's enjoyable and healthier and cheaper
698	Getting outdoors and exercise.
699	The few roads that have bicycle lanes.
700	Being outdoors.
701	I can't answer for biking, because I don't feel safe enough to bike in Greenville. I really wish there were more sidewalks in Greenville and Winterville. I would walk more if we had them. I love the idea of the Greenway, but I live in Winterville so I don't use it as much as I should.
702	Limits how much I feel I need to drive to get places in town
703	The Greenway is great.
704	The comradory among friends.
705	I love the green way that's there, but there needs to be more than just the one ny ecu and Boyd Lee park
706	Streets are wide and well lit in neighborhoods, good parks nearby,
707	I like to accomplish traveling to and from work and exercising at the same time.
708	Landscaping and using sidewalks
709	enjoyment of being outside
710	Exercise and freedom
711	I love cycling in my community because it saves money and helps me lose weight
712	Health benefits
713	It's not for pleasure, it's for necessity.
714	I am a cyclist. I ride every day. Greenville has great roads but we need more bike lanes, trails and greenways.i
715	The community of active people present at any given time
716	Getting to see my neighbors and know the people in my community.
717	Nothing
718	It's a lot better being outside instead of in a gym
719	It is important that the City of Greenville, NC invest in greenways and bikes lanes within the community. It promotes a helthy life style and at the same time being safe while doing it.
720	Getting exercise in the greenway away from traffic with nature everywhere
721	Being able to reduce my impact on the environment. It's a healthier alternative.
722	Get to walk my dog and relieves the stress.
723	I have to say... I can't think of anything positive except for the Greenway
724	The scenery
725	It's my home. A major part of why I live where I do.
726	It's my home. A major part of why I live where I do.
727	Exercise
728	Less of a carbon footprint. Healthier lifestyle. I enjoy seeing people of the community I know and meeting new people on my outings.
729	Getting out to see green
730	We have great weather for walking and bicycling
731	Ease
732	I like to bike to work, and a fee people from job also likes to bkie to work, but Greenville Bldv and Firetower are not biking friendly.

What do you like most about walking and bicycling in your community? (Cont)

733	It is easy, free exercise--we live in a flat area that is conducive to easy walks and jogs.
734	The nature. Feel the fresh air in my face is priceless.
735	The nature scenery
736	The green space. Being able to use the greenway to get places (town common, downtown etc)
737	the greenway trails are easy to walk with even asphalt surface but surrounded by beautiful natural areas
738	For the most part, Greenville is very accessible by sidewalks for walking.
739	Exercising for both me and my dog
740	Exercise, the outdoors I only walk in my neighborhood because the streets are not conducive for walking nor are there enough continuous sidewalks.
741	The Greenway is a lovely addition.
742	I live in a quiet neighborhood where I feel safe while out at night.
743	Meet friends in community Exercise
744	Being able to enjoy the nature and outdoors, within my own community.
745	being active
746	Ability to exercise and see neighborhoods at a slower pace than in a car.
747	Getting outside and being active.
748	Getting exercise while walking my dogs. Experiencing nature and meeting people while walking.
749	Health benefits
750	Exercise, experience the outdoors, enjoyable means of transportation
751	I like the connectivity. I feel ingrained with the community when I am able to travel by foot, like I'm a part of the town.
752	That is feels good to walk during the day to and from meetings. I only bike in the early morning hours, when I feel safe on my neighborhood streets.
753	I can't- there is nowhere safety do it
754	We do it as a family and that's how we teach our children about ways to stay healthy. So we like that it's something we can all do together.
755	Getting to see the country, being outdoors, seeing neighbors, using my car less
756	Seeing where I live in a new way.
757	The scenery
758	We live in a neighborhood where is somewhat safe to walk and bike.
759	Walking is easier than finding a parking space. Bicycling causes road congestion.
760	I like to be outside doing physical activity and having a designated are to do it helps.
761	I like seeing everyone out and active
762	Everything is pretty close together
763	I like the sidewalks and bike lanes that are provided in school zone areas.
764	Enjoying the out doors
765	Opportunity to explore my community & people. Able to get to know others.
766	Social aspect of new and familiar faces.
767	The Greenway is a lovely place to walk and bike.
768	There are a lot of groups that you can join to run and bike with in the community
769	Nothing. It is to dangerous.
770	Great exercise, love getting outside with the kids, exploring town and the river.
771	Spaces with limited traffic to get exercise that are pet friendly

What do you like most about walking and bicycling in your community? (Cont)

772	Freedomz
773	I can't comment on this because I do not walk or bike around town because I do not feel safe to do so unless on the greenway.
774	Exercise, ease of access to locations.
775	Walking to neighbors houses or local businesses.
776	Health benefits, bring neighborhoods together. Lived in Minnesota where it's all about parks and outdoors despite the cold.
777	Seeing people, experiencing nature
778	I love how everything in Greenville is only a couple miles away.
779	Access to bicycle lanes and sidewalks along Red Banks Rd.
780	I love the sense of connecting to the community I feel when I see other people out with their families or dogs enjoying our public spaces.
781	Exercise, better for the environment.
782	Friendliness of individual people. Good condition of Greenway trails, including River North Park.
783	I love walking and jogging. It's a great, free way to get exercise and fresh air.
784	scenery
785	Being outside and connecting with other individuals from the community.
786	Convenience
787	The green way is nice to walk on however, it is not close to my house and I have to drive and park some place to then walk the greenway.
788	I live in Farmville. I feel safe walking and biking in my community because it is not busy and I do not worry about my personal safety.
789	The health benefits.
790	I just wish we can walk or bike more, so we do not have to drive at all times...
791	exercise fresh air
792	When the bicycle lanes are spacious.
793	I love the Greenway--being in nature, being able to take my dogs.
794	It gives exercise, I don't have to find parking space or pay for it, I can avoid traffic jams, I don't contribute to the pollution, I can "bike" longer distances when I cannot walk them.
795	It is a family activity that I enjoy. It is something that my husband, kids, dogs and I can all participate in.
796	I like the Greenville Greenway.
797	Being able to get somewhere without expending gas and wasteful energy. I enjoy the exercise and it makes me feel more connected to my community because I greet people along the way.
798	the exercise
799	Actually, there's not much to like, save the exercise I get ... particularly when it comes to dodging inattentive drivers.
800	I love walking in my neighborhood because there are not a lot of cars that speed through. Another thing I like is having sidewalks. It gives me security.
801	Where there are usable sidewalks, it's convenient.
802	fun, good exercise
803	Lessening dependence on cars.
804	Getting some exercise in the fresh air. I also like when I'm able to use it as a commuting alternative.
805	Exercise and being outside in nature.
806	I like it when there is a sidewalk on major roads so I don't have to drive. Firetower has sidewalks close to Corey Road that I use but other ares don't have sidewalks, and I don't get the chance to go that way.

What do you like most about walking and bicycling in your community? (Cont)

807	Being outside in our community
808	Enjoying fresh air.
809	Gets people active in the community.
810	It is a community for drivers, not for walkers
811	I love how easy it is to exercise. I believe having great access to walking/bicycling paths is a sign of a strong/growing city.
812	Great way to exercise close to home without a lot of effort and expense.
813	The convenience and beauty of my community.
814	The greenway is beautiful
815	Exercise+Transportation+Green
816	It is a fun way to get around.
817	I love walking and biking but not so much in our community. We need to make our trails and sidewalks up to safety standards to encourage others to participate.
818	I just love being able to walk for exercise, see the scenery outdoors and be with nature. We do not really bike, but mostly because we are not sure where to go, we are not huge into bicycling, but it would be nice to try sometime.
819	It is close to a park
820	I like the esthetics of the walking trails and places like Alice Keen park.
821	being outside
822	You see so much more of the world when you walk!
823	I enjoy getting the physical exercise and it helps me with my stress and other conditions that I am trying to improve upon, physically.
824	being active
825	Fresh air and the calming influence it has on me. It is a great way to get exercise and also get where I need to go or recreate with friends.
826	SURROUNDING
827	I love being able to do activities that keep my body healthy, are good for the environment, and allow me to enjoy the community I live in.
828	It's mostly flat :). Like getting exercise and saving gas.
829	The scenic view of the drainage laterals and woods.
830	great exercise, being outdoors, seeing the neighborhoods
831	It's convenient, it doesn't use fossil fuels, I get exercise while running errands, I have a greater chance of talking to neighbors and meeting people than if I travel from place to place in my car. I enjoy being outdoors and getting fresh air and sunshine.
832	walking: not too much traffic at non-rush hours. biking: I only ride in my suburban neighborhood, not on streets or highways.
833	Notice building and flora I don't see when driving.
834	It's a great way to get exercise, get fresh air, and to save money on gas
835	There is good sidewalk coverage in most areas of the community making it more safe to walk.
836	Good form of exercise
837	I bike a little in my neighborhood and enjoy the exercise. I walk the greenway and enjoy the scenery, general peacefulness and my fellow walkers.
838	exercise
839	The parts of the greenway along the river are the most peaceful and beautiful
840	Get exercise, enjoy the weather

What do you like most about walking and bicycling in your community? (Cont)

841	There are no steep hills.
842	I enjoy being able to be outside exercising.
843	Exercise! Seeing neighbors
844	exercise
845	Fresh air, seeing and interacting with neighbors
846	In my community walking is ok but I don't really feel safe unless with a group walking on the greenway.
847	Getting exercise outdoors.
848	being outside
849	I can drive to near by walking trails such as Alice Keene Park.
850	My immediate subdivision (Southridge) is fairly safe and provides a good distance (approx. 1.25 miles per lap).
851	Uptown is the main place that I walk. I can enjoy an activity with my family, then walk to dinner. It would be nice to have maybe a grocery store or drug store down there. Then I could accomplish some things that I need to do in addition to the things I want to do.
852	Love to walk in my neighborhood (Drexelbrook) near Red Banks rd.! Exercise, fresh air, happiness!
853	I like having the Greenway, but would like to see it extended.
854	Convenient to just get out and exercise.
855	trees & vegetation along greenway
856	quiet scenery along river
857	Fresh air, exercise, being outdoors.
858	The freedom it gives me to move without my car. And see things I would miss in a car.
859	Walk our dogs daily; we use Boyd Lee park but wish there were sidewalks connecting neighborhoods along Corey Rd.
860	the scenic view
861	being outside enjoying the scenery
862	the fresh outdoors. clean community
863	It's quiet.
864	Getting outside; easy - don't have to plan my own trail
865	great area to choose from
866	I enjoy it all too hard to pick just one. :)
867	exercise
868	Greenway
869	exercises
870	taking my kids
871	nice weather
872	meeting new people
873	The exercise and being connected to where we live.
874	The exercise is important to me
875	Biking through quiet neighborhoods for recreation.
876	Rural areas
877	Rural areas
878	Exercise, nature, not relying on cars
879	Love the greenway. I feel safe I have places to stop and read. Love that nature envelopes it.

What do you like most about walking and bicycling in your community? (Cont)



























880	Ease of walking & biking in my neighborhood.
881	Ease of walking & biking in my neighborhood.
882	I like it for exercise. I enjoy my neighborhood roads (no sidewalk) and park trails that have open bathrooms available.
883	Fun way to get around and keep in shape
884	I like walking in my personal neighborhood and on the greenway I feel safe walking and biking with regard to traffic and roadway conditions.
885	I like walking in our neighborhood due to low traffic and personal safety. I am hesitant to bicycle in our neighborhood, feel at risk due to traffic. (Brook Valley.) For convenience sake I walk or bike only from home. If a greenway came near Brook Valley I would definitely use it; the sidewalks on Hwy 33 are convenient and feel relatively safe.
886	Experiencing nature and the community at a slower pace.
887	good air
888	Greenville is relatively compact and could be a great place for walking and biking. Due to awful urban planning and a regional culture that supports driving everywhere, no matter how close, it is not.
889	The feeling of fresh air, exercise
890	Health. It's a way to decompress from the crazy traffic and hustle of urban life for a few.
891	It is a very pretty area
892	There are actually many people that walk & bike along County Home to cross Firetower to Arlington it is a way to access shops & restaurants, even walk the half mile to the bus.
893	Being outside.
894	Easy way to get out and exercise and enjoy the scenery, walk the dog
895	some great neighborhoods for walking and biking finally getting some sidewalks in Greenville
896	the exercise, fresh air, chance to see people I know and meet new people
897	I love the Greenway--the best civic investment in recent memory.
898	The greenway is lovely for recreation.
899	I would love to be able to bike to close by places for exercise and health reasons but there are no safe ways to share the road here.
900	I live where I can walk to work and to several services that I use.
901	The semi-circular area bounded by the Tar River, Greenville Blvd, and Memorial Dr. is pretty bikable, if you have vehicular bicycling skills. Traffic is quite light, relative to many other cities, and in many places the grid system allows me to choose smaller, less-trafficked streets. This area still needs MUCH more separated infrastructure, if the goal is to get people who aren't trained in vehicular cycling to use the roads.
902	The shade. Always cooler where trees provide shade
903	A chance to get free exercise.
904	Good exercise and very enjoyable
905	I live within walking distance of of my work and several services I use.
906	I live within walking distance of of my work and several services I use.
907	Exercise; natural beauty; seeing active people in safe environment.
908	Ability to exercise and be outdoors.
909	I live in a big neighborhood so I feel safe bicycling. I would never bike on major roads in the city of Greenville. It is VERY unsafe!
910	I like seeing the beautiful town and wildlife.
911	Great for fitness and to save on gas plus reduce emissions.
912	Getting exercise
913	Finding new areas and being in the community, running with scenery.

What do you like most about walking and bicycling in your community? (Cont)

914	The environment - the views
915	I like the Greenway and ECU area to walk or bike but other areas are not biking or walking friendly. If I wanted to bike from the ECU area to another part of town I feel like I'm going to get hit by a car unfortunately.
916	Traffic restricts us to the neighborhood, but that's OK if we time it right.
917	The peace and quiet
918	Seeing what's going on around the neighborhood and meeting my neighbors.
919	I love the Greenville Greenway and cannot wait for the trail to extend further into the West side of town.
920	exercise
921	It allows me to get outdoors instead of being stuck in a gym. Plus you get the views of nature and can take in your surroundings.
922	Seeing people out and about is a great way to build a feeling of community
923	It's convenient, cheap, reduces congestion and provides exercise.
924	The friendships that develop.
925	I can stay here to do this!
926	I like the ability to be able to use trails to be able to ride in some safety
927	Finding mushrooms.
928	The weather is great in Greenville and I enjoy being outside. I like the health and environmental protection benefits a lot, as well--I save gas and keep the air cleaner when I walk and bike.
929	Being out in fresh air. Slowing down my life.
930	I quit bicycling - it became too dangerous
931	We like the greenway and the bike lines. We want 50 miles of protected area!
932	Good exercise; pleasant surroundings; low traffic (in places); social contact
933	The groups that I run and bike with.
934	Getting exercise, being outdoors in general, being able to go places without driving everywhere is important
935	Seeing the town as a pedestrian and not having to worry about being hit by a car.
936	I love being outdoors and am glad our community has the weather that can allow you to do this just about year round.
937	Nature, exercise
938	Feeling physically good tops several other reasons
939	Being out with others in the community
940	The people.
941	Get to see the community and it is healthy
942	I love the greenway because I don't have to worry about car traffic.
943	I like it as an alternative to driving a car. I feel better about myself and the environment whenever I can avoid driving. I also enjoy the exercise.
944	The greenway trails are very nice, we just need more. Riding out on the country roads throughout the county is also fun.
945	Fun, Exercise, and Very personal experience. Something that is continually growing the community.

What do you like least about walking and bicycling in your community?

(Most commonly used words followed by all responses)

Side Walks		40.36%	406
Bike		27.93%	281
Roads		16.30%	164
Traffic		12.62%	127
Drivers		10.64%	107
Not Safe		10.54%	106
Safety		6.36%	64
Unsafe		5.96%	60
Trails		4.08%	41
Lights		3.98%	40
Crossing Streets		3.18%	32
Bicycle Lanes		2.39%	24
Hit		2.29%	23
Dogs		1.89%	19
Trash		1.39%	14
Space		1.29%	13
Options		0.99%	10
Evans		0.99%	10
Think		0.99%	10
ECU		0.99%	10
Infrastructure		0.89%	9
Attention		0.80%	8
Not Respect		0.70%	7
Drive Too Fast		0.50%	5
Areas Aren't		0.50%	5
Speed Limits		0.40%	4

What do you like least about walking and bicycling in your community?

#	Responses
1	I do not feel safe along the rural roads (Around Langston Farms area) because there are no bike lanes and there is basically no shoulder to ride on if needed. People drive very aggressively/fast and it is scary to ride on these roads.
2	No bike lanes and too few sidewalks. Crossing Red Banks at Greenville Blvd. to walk from Panera to BB&T is scary. There is no awareness or enforcement of pedestrian in crosswalks.
3	The motor vehicle drivers texting, reading, video calling etc behind the wheel of moving cars
4	Bicycling-sharing road space with automobiles
5	Traffic
6	- Not enough space between me and cars - Not enough crosswalks to cross road safely - Too many drivers ignore pedestrians & bikers.
7	The heavy traffic, fear of getting hit.
8	Walking/biking infrastructure is not very safe or reliable.
9	[bicycling] Too much traffic & congestion. Drivers show little respect for people on bikes
10	Many intersections are very scary-"Right on RED" makes it difficult to cross streets in some areas.
11	Dangerous
12	Safety
13	no infrastructure to keep you safe
14	Areas are not easy to locate/limited
15	Inability to travel safely to businesses in Town
16	Need more sidewalks
17	Not enough bike trails
18	Exposure and clearing distances are not open enough and "back to nature" walking trail means secluded areas and dim lighting
19	Sidewalks needed throughout Greenville
20	Lack of access to community
21	Lack of Bike Lanes In particular Charles & Arlington
22	Fear of getting run over.
23	Danger
24	Cars No sidewalks/trails/paths
25	Driving to get there
26	The paths aren't always well-maintained
27	Unsafe intersections
28	Not safe everywhere. With kids not safe at all on roads
29	Being hit by car. I've been hit twice on bike but fortunately not injured. My bike...not so much.
30	People almost get hit or ran over on Evans St.
31	No sidewalks Flooded bike paths
32	Few or no bike lanes. Too many cars on road. High road speeds.

What do you like least about walking and bicycling in your community? (Cont)

33	Not enough sidewalks or bike lanes - Bike lanes end abruptly & are not connected
34	Share roads w vehicles
35	When it is after a rain!
36	It is too dangerous. We need sidewalks so people can walk to work if they don't have a car.
37	No sidewalks
38	The cars do not slow down for nothing or no one in most places.
39	No sidewalks
40	Lack of sidewalks!
41	trash - uneven surface
42	Sharing the road with cars
43	[bicycling] not safe due to roads/traffic
44	Unsafe/not enough access
45	The crazy drivers
46	Safety
47	cars treating me like I don't belong there
48	You have to be very care for the cars coming and going
49	No sidewalks
50	Lack of variety, need more bike lanes & greenways
51	traffic
52	Loitering. Unsafe
53	Would love to have a sidewalk that connected. It's just one way now.
54	Lack of sidewalks and no bike lanes--people drive very unresponsibility
55	Limited bike lanes. No sidewalks throughout Greenville.
56	Secluded, not many options
57	Worry about being attacked
58	Please keep bicycles off busy roads
59	Unsafe drivers/roads
60	Not enough light
61	Too much traffic
62	Bicycling is too dangerous. Walking is good if not on main streets. Speed limit not enforced.
63	The view
64	Being afraid of a vehicle running up on the curb and hitting myself and my children
65	Traffic
66	All the kids with nothing to do but play in the streets
67	Lack of sidewalks
68	The roads are dangerous and unsafe for cycling sets.
69	The traffic and lack of a bike lane or sidewalk/bike trail....dangerous
70	The lack of respect for cyclist from cars, and the lack of safe spaces to ride. I am regularly passed close, buzzed, or forced off the road by cars. I would like to bike to work, but cannot justify taking my life into my hands every day.
71	Walking/Running can be difficult because in many areas sidewalks just end with no alternative but to enter the road. Bicycling is almost impossible due to lack of bike lanes or paths and poor driver education/respect for cyclists.

What do you like least about walking and bicycling in your community? (Cont)

72	Bicycling as it grows would force drivers to come to the realization that any mode of legal transportation should be considered your peer on a roadway - SHARE THE ROAD.
73	It feels like there are only a few trails/greenway options. Going in the same circle along the river is fun, but it gets old.
74	Trying to cross major intersections, Drivers texting and driving; not stopping on right turn on red driving like it's a yield sign or worse - bloeing through them, disregarding pedestrians! Need to remind the public and enforce "rolling stops at red lights.
75	traffic
76	Too many obstacles to walking or biking. I need a safe and legal path to destinations.
77	Sadly the City is poorly designed, has no connectivity and is unsafe for walking and cycling, making it necessary to use a motor vehicle to get from one place to another.
78	impediments on the road/trail
79	Traffic and safety
80	There are not many trails/routes to use that I feel safe riding on during the day.
81	I don't feel safe because there's hardly any sidewalks and very few bike lanes
82	Crosswalks. Drivers in eastern NC do not understand them. They do not yeild. We should have all four lights red and then signal the crosswalk. We do not have enough bike lanes or sidewalks.
83	I swear people aim for you! There are no shoulders on the road. People do not move over for walkers or bikers
84	Gaps in the network
85	not enough places
86	dealing with heavy traffic
87	not enough sidewalks to walk safely
88	There is no where to bike and/or walk in this community. There are some areas bu tit's pointless and useless.
89	Its not safe AT ALL to bicyle anywhere in GV - except the greenway - but NOT when crossing streets - please fix this with sidewalks & bicycle over passes
90	when there isn't enough room
91	because of <illegible>
92	nothing
93	more and safer walking areas
94	traffic
95	Bad
96	need more sidewalks
97	not enough street light
98	Not enough sidewalks and there needs to be paths for walkers and bikers everywhere.
99	that there are some areas without sidewalks
100	walking in the cold
101	no sidewalks
102	N/A
103	traffic
104	nothing
105	not many sidewalks
106	NA
107	placing of the lights and where they posted
108	not enough sidewalks and space for bicycling in all

What do you like least about walking and bicycling in your community? (Cont)

109	no a nuff side walks & cross walks are not safe
110	quiet
111	N/A
112	meeting the community
113	No
114	there are not sidewalks everywhere
115	the view
116	not safe
117	reckless drivers
118	can feel unsafe and tense
119	cold
120	not feeling safe if alone
121	the trails are trashy and sometimes ugly to look at
122	lighting at night
123	safety
124	not all streets are lit
125	not a bike fan
126	darkness
127	not enough bike racks around Greenville
128	N/A
129	The people who ride bikes ride on the street with other cars.
130	Sometimes I feel unsafe biking and walking by myself at night.
131	the amount of traffic and not enough paths
132	not well lit. sidewalk size is small.
133	there aren't enough sidewalks throughout greenville, only on main roads
134	There aren't enough bicycle lanes, so bikers ride in the street.
135	Can be scary with all of the traffic of greenville. I only ride my bike at the greenways because of this, but I'd like to bike around town as well.
136	I DO NOT FEEL SAFE! I've been run off the road- hit my head!
137	safety, lack of paths
138	At night walking home from the library or campus to the provience does not feel as safe as it could.
139	Disaster rediness
140	traffic
141	Nothing really. unsafe with all the recklace drivers
142	unsafe
143	the trails are limited to just the greenway
144	bike lane runs out often
145	Some areas aren't very clean/safe
146	serious safety concerns in crossing streets, distracted drivers, no code enforcement on speeding
147	traffic; vehicles not stopping
148	walk up hills

What do you like least about walking and bicycling in your community? (Cont)

149	I least like the low amount of bicycle/walking paths
150	watching for cars in those same multi-use areas
151	fear that I can't walk alone and limited sidewalks
152	- inconsiderate drivers with too many distractions (cell phone, Ipad, music) - bad drivers - insufficient sidewalks around the town
153	I have no complaints. I only appreciate its having been built.
154	broken pavements
155	limited availability of sidewalks
156	Lack of bicycle lanes and aggressive drivers who do not like to share the road.
157	Nothing
158	I like to walk and bike in neighborhoods and greenway.
159	Lack of bike lanes and sidewalks
160	Busy roads are very scary to walk or bike near. I don't observe many folks using these sidewalks or bike lanes close to traffic. Raleigh areas(like Garner/Apex) utilize greenway trails further from the actual roads. This is safer
161	With no sidewalk nor bike lane along south Evan, it is extremely dangerous for walking, biking, and handicap scooters!!!!
162	Dogs...people don't always have the dogs on leashes and the ones that are on leashes are huge and drag the owners
163	While many roads are well paved, traffic is not conducive to biking in many places. Especially with an infant carrier or trailer. More bike lanes or sidewalks would help.
164	The only problem is during the summer time need to spray more for bugs
165	Nosidewalks
166	Nosidewalks
167	Neighbors that allow their dogs to roam the neighborhood without them and those that walk their dogs using a leash, but don't have control of their dogs/won't move off the sidewalk/don't clean up after their dog poops in a neighbors' yard or in the grass next to the sidewalk.
168	Strangers in the areas
169	I do not like riding my bicycle on the roads as they are not safe due to no bikeways and traffics patterns not being conducive.
170	I can't get to Winterville safely. There are no sidewalks that take you into town safely. Since this is where I live, it would be nice to be able to bike to work or just take the kids to a restaurant on Fire Tower by bike.
171	It is not safe as we do not have enough sidewalks and bike lanes.
172	Some Greenville drivers are aggressive and rude
173	Not enough bike lanes, not enough side walks, the general public is not well informed about bikers, and sometimes unfriendly towards them
174	access and no bike lanes
175	The traffic, impatient drivers, distracted drivers, lack of bike lanes/sidewalks. I bike around 100 miles per week. Have been doing this for about 15 years now. I used to feel that getting hit by a car was a small chance/very unlikely. But now I currently kiss my wife and kids goodbye everytime I leave the house for fear that I will get killed everytime I am on the road. I really feel that the invention of the smartphone has been to the detriment of cyclist.
176	People who let their dog poo where ever it wants and do not clean up after
177	The sidewalks in the neighborhoods.
178	Poor road conditions and terrible drivers in ENC.
179	Sidewalks that are next to roads with heavy traffic and a high speed limit, such as Regency and Firetower Road we consider dangerous and not enjoyable for walking. We do not bike, but not for lack of an area in which to do so. We just don't do it.
180	Bicycles tie up traffic

What do you like least about walking and bicycling in your community? (Cont)

181	Walking near fast-moving traffic
182	traffic
183	This is not a pedestrian friendly community. Trying to cross the road on Fire tower feels really dangerous
184	I do not own a bicycle at this point in time because I feel the roads are dangerous enough when driving in a car. I would like to see improved biking options and more rule/law enforcement. I've been waiting to purchase a bicycle until I feel safe on the roads.
185	If it is very warm you work up a small sweat, not nice if going to a meeting. More difficult to handle packages compared to driving
186	The whiny bicycle faction.
187	I feel very unsafe walking and biking in Greenville. By FAR the least pedestrian / bike friendly place I have ever lived.
188	I do not like sidewalks or bike paths on busy streets because it is to dangerous for both the pedestrians, bicyclists, and motorists
189	There aren't enough sidewalks
190	population density on the roads
191	everything south of greenville blvd
192	The painted lines to indicate where the biker goes and the auto goes.Is such a strain on the city budget to get a contractor to paint lines in the streets? Even the lines indicating the lanes for autos is completely gone.
193	That drivers have no respect for walkers and cyclist. It's as if they think we don't pay taxes and have no right to the road.
194	safety
195	Same problem with question construction.
196	The community is not very walker/biker friendly. Not a lot of clearly marked crosswalks or biking lanes.
197	There are no sidewalks on 14th street or Firetower Road. There are no designated crosswalks on Greenville Blvd at 14th or Firetower at 14th.
198	I don't really feel safe especially when it gets dark and there is not a lot of lighting and security measures in my area.
199	You can't cross the street. Not even in a car (or rocket).
200	That I do not have a car, so I have to literally walk everywhere. Boohoo. Although, at least I'm not contributing to the pollution. Save the earth. Peace and love.
201	I would love to bicycle off road as the roads aren't safe for bicycling.
202	Need more sidewalks
203	traffic danger
204	that we don't have sidewalks and the cars drive super fast
205	The grass in some of the yards.
206	It is not the most visual pleasing
207	Sometimes it's sketchy
208	The least I like about walking in my community is the constant thought of am I safe.
209	I feel like not many people promote it.
210	It does not seem safe and the walking ways are damaged.
211	Feels unsafe walking down the greenway, especially at night.
212	I feel as though we could have more bike-friendly lanes and roads.
213	The flooding is very frequent on the greenway, and the roads are very small for so much parking on both sides and cars passing by walkers with no sidewalk to use.
214	The chances of getting hit by traffic
215	I feel like I'm going to get hit by a car

What do you like least about walking and bicycling in your community? (Cont)

216	The bugs and unsafe conditions
217	Trying to "share the road" with drivers who don't want to share
218	traffic and pedestrian interactions
219	the greenway has debris and cracks in it
220	lack of walkways and bikeways for the influx of students
221	The present danger of traffic conditions and criminal activity.
222	cars aren't considered with pedestrians
223	Biking and walking currently feels unsafe and feels encouraged in the community. That should change.
224	Very few sidewalks
225	not much lighting it seems
226	No sidewalks in certain areas
227	traffic concerns,safety, trails that are short and not interconnected
228	Not enough bike lanes
229	Traffic
230	The traffic and the terrible driving conditions from the communitie's drivers, and the width of the bike lanes
231	no side walks
232	The rabbid animals
233	No sidewalks
234	When walking or bicycling, I'm extremely afraid that I will get robbed.
235	Not safe. Not enough bicycle lanes. I feel like one day I will get hit but I have no choice but to ride bike or walk to campus where I work.
236	Not enough walkways
237	I don't feel safe
238	safety
239	Safety
240	The only greenways are in the same area.
241	It's usually not lit very well at night, making me uneasy about walking.
242	the possibility of not having a side walk
243	It is unsafe in all the areas besides the greenway. You can't cross the street without feeling like you might die.
244	It's just so dangerous .
245	It's dangerous, not only because so much Greenville traffic but because you have to worry about getting robbed or attacked/raped when leaving your house at night.
246	The lack of safety measures, such as side walks and crosswalks.
247	there are no cross walks
248	I'm not sure
249	People driving reckless
250	Need more sidewalks between 5th and 1st Streets
251	I'm afraid to walk alone at any time.
252	The effort.
253	You feel like you will get run over by a bike when you're walking
254	I don't

What do you like least about walking and bicycling in your community? (Cont)

255	I have to walk with at least one other person, especially at night.
256	Some places more then others do not feel as safe to walk or bike around
257	There is not that many places to go.
258	Feel unsafe
259	Greenville is very sketchy and the drivers scare me. I feel like they are gonna hit me
260	The place is not the safest at night
261	Scenery
262	Often can feel unsafe at night time.
263	There is no crosswalk at 10 and Greenville Blvd. as well as at other busy intersections. There are almost no bike lanes around town. Drivers are not aware of bikers or pedestrians generally. Its really dangerous to ride a bike and generally unpleasant to walk around town becuase the city is not designed for pedestrians!
264	That people do it on major roads. Jaywalkers need to start being ticketed when there is a sidewalk available.
265	There are not enough bike lanes and sidewalks.
266	There is barely anywhere to walk or bike. Greenville is the rudest, least bicycle/walking friendly place Ive ever been even around campus. An older couple almost ran over two students in a crosswalk yesterday in front of Willis Building, then yelled at the students.
267	Lack of sidewalks/bike lanes and shoulders.
268	It is not convenient outside the general ECU vicinity; unsafe
269	It feels dangerous to walk around when it starts to get dark.
270	Need more sidewalks and less parking on the side of the roads.
271	Difficult, often unsafe for crossing streets and potential crime
272	When it gets darker, it gets scary to walk by yourself.
273	Cars
274	Parts of the Greenway that are disjointed, meaning that sometimes I have to go across/into traffic on the road.
275	Sketchy people
276	At night I don't feel safe
277	Sidewalks aren't well paved, designated biking lane on campus is not followed.
278	We need more sidewalks. Even the areas where sidewalks exist, they are often cracked, plants are overgrown impeding the sidewalk, or there is no handicap ramp. This is particularly true in the areas surrounding the university, which is moving more and more towards being a pedestrian campus but it is dangerous for pedestrians to get to the campus.
279	the animals
280	Thought of a violent stranger approaching me.
281	sidewalks make front yard very small and if There are kids they leave things like bikes, etc in front of your house and mark sidewalks up with crayons
282	I don't bike anymore because there aren't sufficient bike lanes and riding on the road with cars is too unsafe in Greenville due to the amount of traffic and distracted drivers.
283	The lack of side walks along Greenville Blvd, especially west of Memorial is abhorrent. I drive that road four times a day and it breaks my heart to see women having to push their baby carriages either over the bumpy grass or, through poor judgement, on the sides of the roads. Same for disabled people in scooters and wheelchairs. Greenville can't call itself a true city while looking the other way in the needs of the poor when it comes to sidewalks. Even my children agree.
284	The larger streets are horrible, congested, FAST, and extremely dangerous, including major student-frequented ones like 10th St.
285	Cars that don't respect pedestrians and cyclists
286	Motorists not driving safely

What do you like least about walking and bicycling in your community? (Cont)

287	I live in Ayden. The is no place nice and safe to ride a bike, especially for children.
288	There are no paths and people drive too fast
289	The lack of safe bicycle space and the traffic is crazy . The green ways are beautiful but I don't feel safe riding or walking without 2-3 more folks which is not always feasible .
290	The busy roads with no sidewalks. Or the fact that the greenways cross busy roads with no traffic light for pedestrians.
291	There's no bike paths, so when I'm driving I get never with bikers
292	The lack of side walks and crosswalks.
293	Lack of sidewalks or safe areas to walk in many places that should be easily walkable
294	I don't because it's not safe
295	Traffic
296	TRAFFIC!! Some drivers do not share the roads, or drive for the safety of people around them.
297	Not enough sidewalks in town
298	Trash on the side of the road and litter on the greenway
299	The scare of traffic - I've seen my life flash before my eyes more than once with a car coming way too close while I was running on the sidewalk. Crossing busy intersections without pedestrian crosswalks and cars failing to yield because of in adequate signage or because of their lack of concern for pedestrians/traffic laws or because of their lack of concern for pedestrians/traffic laws
300	Traffic dangers
301	Sidewalks frequently end and I do not feel safe using greenway trails by myself
302	The lack of sidewalks in some areas
303	Traffic -- fast and heavy -- makes it unsafe to bicycle on many streets, or even enjoy walking on the sidewalk next to them. Disconnectedness of bike ways so you have to cross a street to continue.
304	1) Pedestrian cross signals only serve to let you know when you can cross, rather than allowing the pedestrian to cross. In other countries it essentially acts as a killswitch, and people here jaywalk because they don't feel like waiting for 5 minutes just to cross. 2) I have to cross over busy roads like Arlington and I perpetually feel like I am going to die. 3) I don't use bike lanes (I bike daily) because I do not trust drivers to pay attention.
305	There are too few choices in places to walk and bike. A circular route would help. It would also be nice to be able to walk/bike to shopping and entertainment options without riding on roads. (The drivers here seem to be blind to pedestrians and cyclists.)
306	I feel like I'm going to get killed riding my bicycle. Bike lanes are often disrespected, and streets with the bike lanes are simply too dangerous
307	Areas with no sidewalks.
308	In some areas it is not safe to walk and bike. There is also a lack of connectivity with important points of destination.
309	no sidewalks vehicles that don't use turn signals excessive trash
310	conflicts with motor vehicles
311	Rainy weather.
312	1. Walking or biking: main street intersections whose conditions do not allow a safe way to cross or turn left if on bike (i.e. lights with left turn arrows, normal green go ahead light plus right on red). 2. On greenway bikers fail to use bell to note approach from behind. 3. Lack of good interconnecting city wide bike path plan and implementation of this plan. Large European cities seem to manage top rankings like Amsterdam and Copenhagen. "One Danish study reveals that for every kilometre cycled, society enjoys a 23 cent (16p) profit, while driving the same distance produces a net loss of 16 cents (10p). Of course, cycling also increases fitness, tackles stress levels and one less car on the road will help to lower pollution levels." & " Davis, California comes out on top with a 23.2% of total commutes made by bike, making it the most cycle-friendly city in the US. As a small college town of 66,700 people, they have it much easier than the country's bustling metropolises. At almost 10 times larger than Davis, Portland, Oregon has achieved a bike modal share of 7.2% thanks to over 319 miles (and rising) of bike lanes. Over the years, this infrastructure has cost the city around \$60m (£39.7m) – the same cost of constructing 1 single mile of urban freeway." https://www.theguardian.com/cities/2016/jan/05/where-world-most-cycle-friendly-city-amsterdam-copenhagen . Lots of info here.

What do you like least about walking and bicycling in your community? (Cont)

313	Waiting at crosswalks because cars do not stop to let you cross the street
314	not enough trails available
315	Wish we had sidewalks
316	Traffic problems
317	Pedestrian crosswalk signals wood be helpful at the 5th and 10th St. crossings.
318	Trying to survive on our two lane and four lane highway and out run the dogs.
319	There isn't enough green way so most places are not environment friendly.
320	Greenville is not considered to be very safe. Some places I won't go to.
321	cars are moving too fast
322	Traffic
323	discontinuous sidewalks
324	No sidewalks in my area of town
325	So far no complaints at all.
326	lack of connectivity with other neighborhoods
327	Too little space between the sidewalks and speeding vehicular traffic on Fire Tower road that borders my community. Only walked there once. Don't think I'll walk there again.
328	I do not like areas that do not have crosswalks.
329	It isn't safe to cross large streets to reach a destination because there are not pedestrian signals to activate.
330	There is no place to walk and bike safely.
331	People who don't respect others. Trash.
332	Most drivers do not realize that they should stop for pedestrians at a crosswalk that is not at a traffic light (i.e., Cotanche, Charles, 10th Streets)
333	Inconsiderate drivers around cyclists.
334	very few bike paths on roadways
335	Cars do not respect pedestrian traffic.
336	Cars and traffic.
337	Not enough sidewalks Motorists don't know that bicyclist have the right to the road
338	Cars do not yield to pedestrians
339	There aren't enough sidewalks that are either wide enough or not broken or stop abruptly.
340	No trails or sidewalks or crosswalks or parks/cafes nearby and rudeness/inconsiderate drivers all over town
341	Cars! Sometimes the greenway can be uncomfortable in isolated areas
342	Traffic disregard to pedestrians and bicyclists.
343	Nothing really, we need more trails for walking and biking.
344	Trash on streets. Speeding traffic
345	Traffic makes biking dangerous. Even walking is difficult when crossing some streets.
346	other than the greenway I worry about car/truck traffic. It is not bicycle or pedestrian friendly and some drivers drive very dangerously.
347	Do not feel safe while riding on the streets.
348	Vehicular traffic
349	Not enough sidewalks and lanes
350	The increase in traffic recently makes me hesitate to bike and makes me very nervous when I walk which I do most every day.

What do you like least about walking and bicycling in your community? (Cont)

351	Traffic safety is a big concern, especially for cycling.
352	There aren't bike lanes on the majority of the roads nor are there sidewalks/crosswalks, which makes it hazardous.
353	Bicycling is hard fo people to do safely. Sharing the road should not mean riding 3 abreast taki g up a whole lane on a 2 lane road. A car shoul give single file or even a 2nd bike a bit to the left of the 1st bike plenty of room when passing. Let's not back up 20 cars for 3 bikes. If bikes take up the whole lane they are not sharing the road they are hogging it.
354	Safety. Some roads are real tight and drivers can be impatient and aggressive toward cyclists. I would ride to work and conserve gas but I don't feel safe enough to go on those roads. Currently, I get up early and ride only in Eastern Pines to avoid any traffic.
355	Not enough sidewalks. We live on Rondo near Tucker, off Red Banks
356	Limited opportunities
357	facing the unknown, especially animals not on a leash
358	No sidewalks in my area, and slanted grassy shoulders on the road.
359	Poor maintenance of trails, poor lighting and visibility, motorists not respecting pedestrians or cyclists
360	That there is hardly a safe space to do so - no walkways and no place to bike safely. I would bike to work every day, if there was a bike lane. The distance is not the problem, but the cramped, fast roads without space for bikes (or cars used to watching out for them) make it impossible.
361	That there is hardly a safe space to do so - no walkways and no place to bike safely. I would bike to work every day, if there was a bike lane. The distance is not the problem, but the cramped, fast roads without space for bikes (or cars used to watching out for them) make it impossible.
362	Small bike lanes, lack of crosswalks in areas of town, need more sidewalks
363	mosquitoes
364	It's too far from my home
365	Bike lanes on busy roads(e.g. 5th Street) sometimes disappear as you approach an intersections
366	See above
367	Lack of sidewalks in neighborhoods and lack of connectivity.
368	Greenville is a beautiful city and would have so much more to offer if only it could be seen and traveled safely on foot and by bicycle. Sadly, it is dominated by motor vehicles and is not at all walking and biking friendly. I am an avid cyclist, so I go out riding all over town anyway. I regularly (typically 2-3 times a week) ride a 27 mile loop from home in Westhaven to Lynndale, Brook Valley, uptown, town common, on the greenway to ECU campus, back on the greenway to town common, to Hooker Road and back home. Sadly the city is so unfriendly to cyclists that I see few other riders, except on the greenway. I have spent time in other cities which are pedestrian and cyclist friendly, and they are so much more vibrant and healthy.
369	Lack of sidewalks and bicycle paths. Crowded street parking. Trashy appearance of the neighborhood. Speeding cars and poor manners of drivers.
370	Stupid question.
371	Sometimes it can get crowded.
372	no easy access to walking to shopping or restaurant areas; also, if I want to walk in a wooded area, I have to drive my car to get to the area!
373	Crossing roads in Greenville is dangerous, even when the traffic light is green. Signs that express State Law that traffic needs to stop for pedestrians at zebra crossings need to be placed in many locations, not just in front of the police station!!
374	Not enough sidewalks, concern about the safety when doing those activities. It is because of the safety concerns that I do not use them as much as I like. Safety in Greenville is a concern in many ways.
375	Need more and safe opportunities
376	People always stopping you creepy feeling
377	Lack of sidewalks on 10th street and 14th streets. Walking within my neighborhood, it is fairly safe to walk on the streets Biking had the same problems

What do you like least about walking and bicycling in your community? (Cont)

378	how groups of people take up both lanes of the greenway until I honk my horn; lack of bike lanes on busy throughfares in town
379	Cycling is, in my opinion, dangerous on any roadway that also has car traffic. Yes, cyclists have a right to be there, but to me it is more about risks than rights. A car will always win any altercation with a bike, and I have noticed an uptick in the number of cyclists who ride right down the middle of a road, slowing traffic and causing frustration, which leads to unsafe passing. I wish there was a place for cyclists to ride that did not involve busy, traffic filled roads.
380	No bike lanes and very few sidewalks
381	Absence of sidewalks. Sporadic bike lanes that end at dangerous places. Few crossings on five-lane roads which also don't have sidewalks! Horrific!!
382	SPEEDERS
383	The lack of enforcement of the laws made to protect us as we ride or walk
384	There aren't sidewalks and on some of the roads the traffic goes too fast (the neighborhood is used as a "cut-through" to avoid Greenville Blvd/Memorial traffic).
385	Not enough places to do so safely.
386	Some areas are a little sketchy. People could conceal themselves and surprise you as you go by.
387	I only like walking and bicycling within my neighborhoods. Without sidewalks or bikelanes, it's not safe to go onto the major roads. I wish I could walk or bike to a destination, not just around the neighborhood.
388	I think of robberies or assaults, since it is isolated some of the times.
389	Bikers who think it's all about them.
390	I have some concerns about the safety of the University neighborhood area. While I do not bike, it is sometimes concerning that those one bikes must share lanes with those of us who are driving.
391	I use a wheelchair and so I avoid steep hills.
392	nothing
393	Smells of the sewer system along the river trail coming off 5th street.
394	Not enough crosswalks to safely get places. Roads too narrow and drivers too fast to ride a bike.
395	Not enough car driver concern for bikers.
396	14th street, one of the nicest thruways in Greenville (shaded and attractive) - is in no way safe for pedestrians to walk or ride bikes.
397	Few sidewalks, no way to easily and safely cross Greenville Blvd and other major roads, even at stoplights
398	The drivers don't respect bicycle riders enough. Greenville is a very unsafe place to ride. Also there are some areas where people seem to think the road is a playground and either ride or walk in the middle of the road (Hooker Rd. and Landmark Rd. especially)
399	The lack of side walks and safe crossings in some areas of town
400	Speed limits are too high and, while things are improving, our town is generally very unfriendly to pedestrians, cyclists.
401	Lack of bicycle lanes and insane drivers make for a terrifying experience. Likewise, I have been nearly run over several times while running and/or walking the neighborhood, which is why the greenways are a much safer option.
402	love to see the neighbors walking with their families on the sidewalk in front of my home, even though it is broken and uneven in many places and needs repairs.
403	Lack of sidewalks and unsafe road crossings
404	I walk a great deal on the ECU campus. I am very bothered that the students do not remember the "pass on the right" accepted pattern. They will also walk you off of the sidewalk rather than adapting their grouping to allow someone to pass them.
405	very few sidewalks for walking; driving conditions and culture here not friendly to bikers
406	not any "not busy" roads that parallel the busy roads
407	Always afraid that my wife and I will get hit when bicycling... not sure if it's worth the risk or stress.
408	See 4.

What do you like least about walking and bicycling in your community? (Cont)

409	I am happy with the commitment
410	Difficulty of crossing major streets.
411	Lack of proper bike lanes/trails, no sidewalks in the grid
412	no designated bike lanes. even with sidewalks have to cross busy intersections which do not stop cars for pedestrians. This limits where I can go.
413	crazy drivers on the road
414	No sidewalks....in the TRUNA area.
415	Noise, lack of clean condition.
416	Lack of sidewalks
417	Crazy drivers and I don't feel safe in the evening/night
418	Concerns about safety and potential for collisions.
419	Biking can be quite dangerous because there are gaps in the bike lanes.
420	Watching out for cars on roads and potential thugs on desolate greenways
421	Unsafe
422	Missing sidewalks. Biking is almost impossible, too dangerous
423	There are many businesses within a half mile of my house. However I do no walk to them because there are no sidewalks on this side of a busy road and no crosswalks. It is very poorly designed (Greenville, Memorial, and Regency area.)
424	traffic People refuse to slow down and keep a lookout for walkers and people on bicycles
425	Safety from cars
426	Biking is too dangerous. We don't bike here at all.
427	No sidewalks
428	Lack of sidewalks, lack of options for walking trails
429	It is dangerous to bike because most of Greenville does not want bikes on the road. Sometimes they try to run over bikers
430	When I ride my bike on the roads, now and then people in cars shout bad things at me and throw things at me. I try to get as far to the right as I can, but there's stuff on the edges, so I can't always do that. I've stopped biking on the roads. I just go on the Greenway now.
431	money spent on bike lanes
432	Some roads are poorly maintained
433	Uneven sidewalks.
434	I is not yet complete
435	There are no sidewalks in Bedford and parts of Lynndale.
436	Lack of traffic control (speeding, not stopping for pedestrians).
437	There should be no bike lanes or sidewalks in congested traffic areas. Any place the speed limit is 45 or more without barriers to protect walkers or bikers. Generic statements like this without where and what is planned gives misleading data.
438	Cannot access the walking trails 1/3 mile up County Home Rd. from my neighborhood. Cannot walk or bike to the grocery store or to work. Cars are uneducated or even violent in actions toward cyclists and pedestrians.
439	biking on roads is dangerous
440	It is unsafe
441	major roads are not pedestrian/bike friendly...ironic...they are major roads...they should be the most accessible to all. Lack of crosswalks at busy intersections makes walking very dangerous.
442	Buses and other drivers while biking. I used to be a bike commuter, but cannot anymore.

What do you like least about walking and bicycling in your community? (Cont)

443	The current sidewalks & bikeways are great for exercise, but don't get you anywhere. From the university area, I should be able to get to a grocery store or post office without a car
444	Do you see many bike lanes? What a joke. And yet this small-ish, flat, university town famous for BMXers could be a biking mecca. Why does our city govt and populace not see this? Also, pedestrian areas like those on 10th St near the university are flat out dangerous at intersections and on crowded sidewalks when school is in session. Greenville is much uglier and more dangerous for bikers and pedestirans than it need be.
445	Trash, criminals, bugs, loud music, lack of options in Pitt County
446	Condition of roads. Cars do not stop at crosswalks.
447	We need more crosswalks! We need desperately need a cross walk at the intersection of Arlington and East Fire Tower Rd.
448	Biking is dangerous in most parts of Greenville because of auto traffic
449	Most roads do not have bicycle lanes and places like the intersection of 10th and Greenville Blvd. do not have good walking lights and paths.
450	Lack of sidewalks where I live. Bike ride is risky.
451	No sidewalks
452	Tbsre ars very few opportunities to cross streets.safely.
453	I don't bike in Greenville, even on the Greenway, because of the hazards associated with biking in Greenville and Pitt County for that matter. What I like least: having to carve out time to walk.
454	Walking there are often no sidewalks. Bicycling the bicycle lanes vanish from time to time.
455	Don't feel entirely safe when alone. Cameras might be a good idea
456	There are lots of areas that need sidewalks
457	Lack of available sidewalks and bike lanes.
458	There are not safe bicycle lanes for community to ride to work or to ride recreationally.
459	Not having on road bike paths through most of city, safety risks.
460	lack of sidewalks.
461	I feel the skateboarders are a bit dangerous and prevent me from using the Greenway on many days. They are going to hurt someone one day! We also have an issue with people not cleaning up after their pets
462	Not enough trails! I live in river hills and would love to bike to ECU campus or uptown area, but there are no safe paths. Only the dangerous 10th street corridor of death!
463	Trying to cross busy streets
464	Cars- Greenville drivers do not respect pedestrians and cyclists
465	Crossing over or using roads for cycling.
466	Safety. Traffic
467	It is often easy for me, since I am a female, to feel uneasy walking alone, especially at night. There is very little lighting on the greenway and in neighborhoods.
468	The city sprays weedkiller on the Greenway and it looks awful. They are just plants in a park. People say the plants are invasive but they are not hurting anyone. Who cares what kind of plant it is? It's green isn't it? Why do they have to spray? Our Greenways are supposed to help keep the waterways clean from pollution by having soil absorption so why would they spray chemicals along the waterways? People say it's safe but it is not.
469	Mostly hearing of pedestrian deaths in just 2016 alone. Cannot trust roadway with our kids on bikes or ourselves for that matter.
470	See #4
471	Inconsiderate motorists and bicyclists that use the sidewalk
472	People do not follow leash law. In own neighborhood of Langston Farms I can no longer walk my small dogs in fear of attack. Even police or animal control were of no help.
473	Too scary to bike as far as I would like to go. It does not feel safe to bike. I do not like to walk where there are no sidewalks.

What do you like least about walking and bicycling in your community? (Cont)

474	There are hardly any bike paths in this community, and because Greenville is more of an urban sprawl it is very difficult to ride my bike safely and efficiently to places that are a little further away. I am often honked or yelled at simply for riding in the road, which as a vehicle I am required to do by law. If there were more bike paths there would be a designated, safe area of the road for people to bike on. Additionally, there are hardly any bike racks around town, and I often find myself locking up on a tree or stop sign. As a pedestrian I often have a hard time crossing the street especially at the intersection of 5th and Jarvis where there is a crosswalk and no stop sign. If there was a stop sign there, it would be much easier to cross the road into my neighborhood. Unfortunately, I have to wait, sometimes up to five minutes, for vehicles to either stop, or for there to be a break in traffic. Walking my dog can also be problematic because there are hardly any sidewalks in my neighborhood. I often fear for the safety of my dog because motorists drive extremely close to pedestrians who are forced to walk in the street.
475	Greenville drivers are not nice to bikers. It is not safe. There are not enough bike lanes and the town is NOT at all friendly towards bikers. There needs to be more options for locking bikes up. There are some options, yes, but there needs to be more.
476	traffic
477	I consider drivers to be very aggressive to bicyclists in town. I have been harassed by numerous drivers while biking, mostly due to the fact that they do not want to share the road. More clearly marked bike lanes are a must in Greenville. Frequently, I see other cyclists riding on the sidewalk due to the fact that sometimes it is not safe at all to ride on the street because of negligent drivers.
478	car-centric design of traffic flow through town
479	There are not enough sidewalks. They pick up and drop off inconsistently and using the shoulder of the road is highly unsafe, especially since most roads are either 45 mph and above or people speed. Without a consistent sidewalk, it's not worth it to walk anywhere. This also makes running for exercise outside near impossible.
480	Horrible to bike. More bike lanes needed
481	That we aren't a connected community, meaning you can only get certain places
482	Car drivers clearly take precedence here. Surprisingly, they're are still no crosswalks near the stadium. I thought this city liked it's football?? The few bike lanes are littered with trash and branches, 5th street. So the biker has to dodge into traffic to avoid it.
483	Car drivers clearly take precedence here. Surprisingly, they're are still no crosswalks near the stadium. I thought this city liked it's football?? The few bike lanes are littered with trash and branches, 5th street. So the biker has to dodge into traffic to avoid it.
484	Its not safe and motorist don't seem to care about not running you over.
485	Walkers not staying to the right.
486	Lack of infrastructure and others seemingly no knowledge of traffic rules.
487	Uneven sidewalks and having to walk on roads.
488	The locations of some of the trails, paths, etc.
489	I'm surprised at the lack of sidewalks in many parts of the community. It does not feel safe for pedestrians.
490	The crazy people who this city will give a driver's license to.
491	I have been side swiped and spit at when commuting with my bicycle. People seem to hate cyclists. I can't ride on the sidewalk because it is illegal and when I ride on the road people almost hit you everyday.
492	Trash, litter and dog poo. Greenville is really dirty in some places.
493	Puddles on the Greenway. Some of the trails are just too low.
494	There are not enough sidewalks. It is dangerous to walk because of it. There are not many bicycle lanes. Bicycling is not safe.
495	Not enough lighting and not enough bike lanes
496	main roads need bike lanes
497	Crossing streets near the health science community
498	Not enough cross walks and enforcement of stopping for pedestrians in cross walks and vise versa too much j walking
499	Bicycling can be quite dangerous with the lack of respect from car drivers

What do you like least about walking and bicycling in your community? (Cont)

500	Roads that have no sidewalk, bike lanes or cross walks. Lack of community awareness, or caring, about pedestrian and bike laws.
501	I often opt for driving somewhere, even nearby because there is a major road that I'd have to cross and there are no crosswalks and certainly no crosswalk lights. Tenth Street needs walking bridges--there's too much traffic, both pedestrian and motorized for just crosswalks to be an effective and efficient solution.
502	Worrying about traffic
503	Greenway being flooded
504	While walking I am very concerned about being struck by speeders and people with no regard for pedestrians.
505	It's great in our neighborhood (Langston farms) but there are so many jaywalkers it would be nice to have sidewalks and cross walks in main city areas so we could explore a bit more
506	Trash in creeks surrounding greenway.
507	Don't feel safe Not enough places to walk that are nice, like parks
508	Drivers.
509	There are very few sidewalks and almost no bike lanes making it a roll of the dice whether the walk or ride will be survived.
510	Need more places where it's easier to walk with a double stroller.
511	Lack of sidewalks and bike lanes
512	14th street between the dorms and the steam plant needs a guard rail to protect the students on the sidewalk.
513	Getting hit.. Traffic.
514	Safety concerns. Far from my place.
515	During the day when traffic volumes are highest, the intersection at Treybrooke is very dangerous for pedestr. I think that there have been at least half a dozen accidents or more at this intersection.
516	Drivers who do not respect walkers or bikers
517	Can't venture outside our development. No sidewalks for walking, no bike lanes and no way to even ride or walk next to road due to drainage ditches.
518	College people
519	Can start to feel nervous/unsafe when it starts to get dark; very hot in summer
520	Lack of bike lanes
521	Unsafe conditons, car drivers, no paths, no easily used crosswalks.
522	How there isn't always space for walkers or bikers and that cars seem to not pay attention.
523	Areas are not interconnected that would allow walking and biking to and from places.
524	Bike lanes on several roads are nice but there are not enough of them and not all are connected. On roads without bike lanes, things can be pretty scary. When on two wheels, you become invisible to drivers.
525	Width of sidewalks/multi-use paths and bike lanes.
526	Avoiding traffic
527	The limited opportunities that walkers and bikers and hikers have. Bikers and walkers have to share areas like the greenway system to make and keep it safe, usable and viable. But, there are many open spaces on the north side of the river that bikers and walkers could use. The land would have to be purchased by the city probably through a major grant or bond. Like the area that is beside Greenville Blvd. coming into town from Martin Luther King Memorial Parkway/Hwy 264, there are big ponds out there and on the other side of the road there are 3 big shelters over there. This area has just sat there for 5 or so years now and not been developed. What a perfect place to expand the city walking and bicycling areas for city residents. If it is safe and provides multiple things for people to do like cycling, bicycling and other activities like hiking the city should support it if it would be safe for the citizens. They may even have to pass a bond to purchase these lands but in the long term I think it would benefit the city immensely to have a place where bikers and walkers could go to get away from the stress of everyday life. It would be very accessible to all citizens and improve the quality of life for citizens and enhance the visitors experience when visiting the city.
528	No sidewalks or bike lanes on many roads

What do you like least about walking and bicycling in your community? (Cont)

529	No sidewalks in brook valley. Too much thru traffic on Oxford road and speeders needs sidewalks due to joggers and walkers.
530	Unless you are on the greenway I don't feel comfortable riding a bike in Greenville. The majority of drivers are dangerous and don't pay as much attention as they should. The only issue I have is you have to go downtown to get on the greenway. It would be nice to incorporate more of the city to allow more access points
531	It's safe if you use your brains.
532	availability of areas to use
533	It's definitely unsafe
534	Being hit by inattentive drivers who do not yield and run red lights.
535	Your literally take your life in your hands trying to walk in most areas due to lack of sidewalks. The public needs to be informed about bicycle rights.
536	Traffic along major thoroughfares
537	to small of pathways to dark at night
538	snakes & late night creepers
539	dark in some places
540	safety
541	needs to be made convenient & safe
542	traffic makes it feel unsafe
543	dogs/but they are on leashes
544	Dogs
545	No sidewalks.
546	not safe in some areas
547	feels unsafe
548	no sidewalks
549	need greater police presence
550	safety ease of transportation
551	too congested & sometimes close to bad neighborhoods
552	hard to cross at intersections
553	peple be rude
554	Traffic
555	Safety
556	no bike lanes
557	hot enough
558	Being outdoors in Greenville!
559	Safety
560	Sometimes the trails can become confusing.
561	traffic ,getting held up
562	I sometimes feel unsafe when walking in some neighborhoods
563	The sidewalks are in terrible condition (cracked, missing, trashy) and the handicapped access spots seem to be placed pretty randomly. The "zebra crossings" need to be lit so you can see people at night who want to use them.
564	Terrible sidewalks. Few crosswalks. Terrible drivers.

What do you like least about walking and bicycling in your community? (Cont)

565	I'm very fearful that I'm going to get hit by a car one day. I have been yelled at multiple times by drivers that I need to bike on the sidewalk. I was riding in the bike lane and I don't know if they know that riding a bike on the sidewalk is illegal.
566	Same as 4
567	Lack of sidewalks / no bike paths. Crazy drivers.
568	It is hard to get the information online for new trails and where to go. The the map is hard to read
569	Running near frat houses to get back to greenway
570	Road crossings
571	there are no sidewalks in my neighborhood and the main road leading to town has only a few sidewalks. there are no pedestrian crosswalks and major intersections so I have to dodge traffic when I cross. There are no bike lanes on the main road into town so I refuse to bike.
572	The unnecessary speed and cell phone use of drivers.
573	Lack of sidewalks, lack of sidewalk continuity. & basically no bike lanes on arterial roads.
574	The sidewalks are not in the best conditions.
575	Potential for Criminal Activity
576	bad weather
577	High traffic areas and large intersections are difficult/dangerous to cross
578	The roads are very bicycle unfriendly. There are not many bike lanes along 10th street and other streets around campus. It is also difficult to walk across roads at crosswalks because people do not stop for pedestrians.
579	the inability to commute by bicycle
580	The lack of infrastructure and and safety. One can not safely walk between the two biggest employers in town. The university and the hospital. Even in the surrounding area around the hospital walking is not too friendly. One should be able to walk across the major streets that surround the hospital but currently this is a very unsafe task. There needs to be more pedestrian cross walks across stantonsburg, 5th, arlington and memorial. There is a large amount of commercial buildings and apartments that can only be accessed by driving a car across these streets.
581	No designated lanes
582	Lack of sidewalks, lack of bike lanes, limited destinations on greenway. Unsafe crossings everywhere outside of Uptown.
583	Invest in more sidewalks, especially along all Great Bus routes. There should be sidewalks from Cracker Barrel back to Dickinson Ave and Memorial Drive all the way down from one end (Tar River) to the other (Pitt Community College).
584	Safety and limited areas to walk/bike. I would love to go for a long bike ride away from busy streets with my young children. Unfortunately, there are limited places we can go in Greenville. I don't want my children to ride their bikes by busy streets.
585	My community of Brook Holley is small but safe and well lit. I wish this environment could extend out to Dickinson as a lot of residents work at ECU/SOM and Vidant. This would be so convenient.
586	I feel like a driver could cream me at literally any second
587	reckless/bad drivers
588	I do not feel at all safe at all trying to ride my bike on the roads
589	Safety
590	Cars make it dangerous to ride on the road, and pedestrians make it difficult to get around on a bike.
591	There aren't enough trails! There should be more bike lanes on the roads or sidewalks that connect most of the town.
592	Lack of safe places to cross street.
593	Worrying about safety of walking alone.
594	We need more bike racks. People need to look for bicycles. Need Mobil bike mechanics
595	Security- Need to install emergency phones or cameras
596	There are not enough sidewalks or safe crosswalks around. Especially at 10th St. and Charles Blvd. intersection.

What do you like least about walking and bicycling in your community? (Cont)

597	some areas aren't well-lit, or there aren't sidewalks, or there seems to be higher crime rates, or just sketchy to walk alone
598	Not enough sidewalks for safe walking. I only feel safe biking on the greenway because of rude unsafe drivers.
599	Unsafe drivers are everywhere in Greenville. What gives?
600	That a car will probably hit me (and some actually aim for people).
601	I don't feel our community is set up for walking and bicycling or that it encourages these activities.
602	It's nearly impossible to walk or bike from my neighborhood to stores, restaurants, etc. They aren't far away, but it's too dangerous. We need crosswalks, sidewalks, and bike lanes.
603	traffic and lack of bicycle lanes
604	Absence of sidewalks, inadequate # paths/streets for comfortable walking/bicycle Lack of bicycle trails/adequate shoulders on roads
605	Greenway not long enough.
606	Some car drivers have no regard for safety.
607	There are no continuous bike routes that tie the community together. A cyclist has to use major thoroughfares to get from one bike route to another. For example, the bike route that is located on Red Banks cannot be accessed without cycling on Arlington or Charles. Charles and Arlington are very dangerous for cyclist due to traffic volume and lack of bike lanes.
608	From Ayden, not a lot of good riding places. would be nice for it to connect safely to winterville on into greenville
609	Drivers are very careless about walkers and riders, sometimes purposefully destructive/threatening.
610	Biking, you take your life in your hands if you venture outside your neighborhood.
611	There are few sidewalks or "pedestrian paths" making it challenging to walk out and about in the community. There are not enough connectors allowing pedestrians to cross busy streets (such as those around PCC). Vehicles are not always careful/aware of pedestrians. Cars also drive too fast in pedestrian areas making it challenging to go for "family walks" or bike rides.
612	Safety is very bad; I feel scared to ride my bike to work, whereas in the community I came from, I safely commuted to work daily on a bike and shared one car with my partner. I am disappointed that multiple times I have almost been hit in crosswalks, including when I was 8 months pregnant! I would love to see this improved upon. I also do not like the shoulders on the road here. It is unsafe to ride on the shoulder because of how small they are. I would like to see more to do outside in the community. It seems like there are limited greenways and other things to do.
613	Not enough developed trails, specific to biking and walking. Wide shoulders aren't a great safety option, though bike lanes are much appreciated. We just need a lot more of them.
614	Walking and biking can be hazardous at road crossing. I am seeing more electronic crossing buttons at intersections but we need more. Over traffic crosswalks would be ideal to the local parks. (specifically Paramore park on Firetower)
615	I am fearful when riding my bike because there are not sidewalks or bike lanes throughout the city.
616	no sidewalks, no pedestrian crossings and traffic lights, bicycles on sidewalks people walking on streets even when sidewalks are available
617	Being forced to cross very busy streets with virtually no protection or incentives for drivers to stop and allow walkers to cross safely. Drivers have virtually no respect for bikers.
618	The standing water and the heavy insects flying around.
619	With the increase in crime of runners/cyclists, using a path that is covered by a lot of trees where people can hide scares me.
620	It is not safe.
621	Traffic and irresponsible drivers
622	I do not feel safe bc of traffic.
623	Drivers not yielding to pedestrians in crosswalks, not using turn signals, running red lights, not being aware of bikers or pedestrians. Almost being hit on multiple occasions decreases my willingness to want to walk or bike.
624	Drivers aren't considerate. they look for oncoming traffic, but rarely turn their heads to look for pedestrians or bikers
625	Traffic is too fast and too close.

What do you like least about walking and bicycling in your community? (Cont)

626	Almost getting hit by a care on my bike literally every time I ride. Drivers here are horribly rude and dangerous.
627	Unsure how to call for help or sometimes where we are on the trail. Unsure if we called 911 how would we describe the location.
628	The trails are not well-lit for nighttime and related safety concerns.
629	Outside of my community, I do not feel safe riding my bike. Too many distracted drivers - not enough safe space for riders.
630	-dangerous road conditions, lack of space, car-centric culture
631	n/a
632	It's not safe. The few bike lanes Greenville has end like sidewalks to nowhere. And the sidewalks that are on just one side of the street provide a half assed attempt when considering there are two sides to a street. It's a great example of the powers that be deciding to be cheap and not prioritizing public safety. These are also considered quality of life amenities that reputable companies are looking for when considering locations for business. Greenville is severely lacking in all of the above.
633	lack of lighting at night
634	I like the greenway areas to walk in woods and by water, etc but don't feel it is a safe place to walk.
635	The few curbs that are not accessible and the cars that don't yield. Need more visual dual turning lane signs at 10th & Evans, put them on the detour signs in front.
636	I don't bike often. My concern is as a driver. There are several bikers in Greenville and not enough/large enough bike lanes for them to travel. I have seen many near accidents between bicyclists and cars that could have been avoided if the bicyclist had a place to safely travel, instead of trying to bike on the streets.
637	not having enough safe areas to go to convenient to my busy schedule
638	Not safe enough
639	Need more bike lanes
640	Non applicable
641	bicycling: no one knows how to act around bicycles around here.
642	Mosquitos, lack of understanding on where the trails are until you just venture onto them.
643	Drivers do NOT understand that they should NOT try to run over pedestrians. I walk to work at Brody (which is not a long walk) and someone nearly runs me over in a marked crosswalk ever couple of weeks. Nearly all of the drivers see me when I am walking, visibility isn't the issue, poor driving and an unhealthy disregard for the safety of others is the problem.
644	Cars and inconsiderate drivers. Not enough traffic lights and/or speed bumps.
645	What I least like about walking in Greenville is the lack of and inconsistent existence of sidewalks. For both walking and biking, I dislike the traffic and lack of crossing to safely cross many of the roads in the city. Also, there seems to be a culture around this area where walking and bicycling are not seen as legitimate forms of transportation. They may be seen as forms of recreation, but these forms of moving do not seem to be welcome as valid forms of transport.
646	The interface with busy roads and disconnected sections
647	Afraid of getting hit by a car and sometimes a little afraid of being mugged etc.
648	There is no way to get to any of the safe riding areas without traveling on unsafe and high traffic areas. For example, there is no safe way to get from the bike route on Rad Banks if you are coming from Firetower.
649	The complete lack of sidewalks and bike zones
650	Safety
651	There aren't side walks all throughout my neighborhood, and none that connect into neighboring developments. There are no side walks along some of the major roads that I live off of, Allen road. So I cannot leave my development and it is only 2 miles of road. I would love to bike to work but Allen road doesn't have a bike lane and the cars drive too fast so I feel unsafe.
652	not enough paths that connect city areas.
653	Near ECU, it's great. Farther away, not so much.

What do you like least about walking and bicycling in your community? (Cont)

654	Streets are not safe to ride, poor connectivity. Aside from walking for exercise, it is not really possible to walk/bike for alternative purposes. First community I've lived that has a river in town that does not have greenways on both sides of the river.
655	It's unsafe, terrible traffic, scary with kids. Uncomfortable neighborhoods to get through, no side walks everywhere , crazy intersections with lots of traffic
656	There are no bike lanes and I don't feel safe.
657	crazy ass drivers
658	Lack of educated walkers, bikers, and drivers. All of us could use some education on safe practices and attitudes.
659	Watching out for crazy drivers!
660	Poor built environment for active transport, i.e., no bike lanes, sidewalks that end randomly, no sidewalks, no crosswalks or pedestrian crossing signals
661	Lack of courtesy from motorists.
662	Inconsiderate drivers who do not share the road
663	There is only a very small greenway for biking and I had a very bad experience on public roads where I was attacked by a dog and ended up in the emergency department with a dog bite.
664	The trails are not long enough and not safe.
665	It is very difficult (and dangerous) to bike, even close to ECU campus
666	traffic and very high risk biking - many faculty at med school hurt or killed biking therefor I no longer bike at all.
667	Drivers are very aggressive when passing a cyclist
668	As a cyclist, I would like more opportunities to ride on goof bike paths that are not roads that I have to share with vehicles.
669	Lack of bike and walking trails. Parks and recreation.
670	It's dangerous and there aren't many walkways/paths
671	I don't walk in places where there are no sidewalks. However, I CONSTANTLY see other people trying to walk or jog along roadways that have no sidewalks and it's awful!
672	cars driving quickly through neighborhood with no sidewalks
673	There are too few of them and they lack aesthetic appeal
674	Not enough and dangerous! Roads should be incorporated with bike/roadways. Any new road (other than in developments) should have bike/walkways.
675	safety issues
676	Not a lot of safe areas to ride my bike with traffic.
677	Having options all throughout the area available
678	Not very good side walk selection outside of ECU's campus. Makes it dangerous with cars and crime
679	Lack of designated walking spaces outside of greenways and sidewalks.
680	Community is not set up to be walking/bike friendly. Need multipurpose paths and crossing signs at intersections. Not safe or possible for adults and especially kids to get around.
681	The greenway is sketchy once the evening
682	I dont like how dangerous it is to ride a bike down 10th street, Greenville Blvd, Memorial, and out to North Campus Crossing.
683	Drivers dont respect bicyclists on the road. I've been honked at and almost hit several times in my 4 weeks of commuting to ECU
684	The sidewalks are cracked and inconsistent once you get outside of the university. The greenway runs through a neighborhood which can be confusing and it's only marked every ½ mile or mile.
685	Walking and cycling in Greenville is terrifying. Bike lanes abruptly end, sidewalks are rarely on both sides of the street. Crosswalks are rare and not honored by drivers. Nearly nothing is ADA compliant.

What do you like least about walking and bicycling in your community? (Cont)

686	Very few bike lanes and those are near the university where most of the student/distracted driving occurs. Is it not possible to cycle from University to a grocery store or significant shopping center on bike lanes (e.g., consider the current Student Transit Authority bus routes)
687	Unsafe conditions in most areas for biking and walking especially at night.
688	Bike lanes, sidewalks, cross-walks have gotten better over the years, but there is still room for improvement. Some lights are not triggered by a bike
689	The lack of safety
690	Pedestrian/biker friendly sidewalks/roads.
691	getting yelled at by drivers, getting targeted by drivers, the extremely dirty streets that make biking dangerous, the lack of street lights for biking after dark
692	Trash
693	Cars driving by, safety, no sidewalks
694	Lack of bike lanes and sidewalks.
695	Lack of bike lanes and sidewalks.
696	The drivers.
697	There are not enough sidewalks or bikeways. It is extremely unsafe.
698	automobile traffic
699	The lack of bike/walking paths anywhere near where I live in town. Having a greenway near the river is great, but there is no safe pedestrian/bike path to get there. Hampered by lack of bike lanes and sidewalks along most streets that connect the outer areas of town from the town center.
700	too few bicycling lanes, red banks for example.
701	I find the lack of greenways and good biking and walking opportunities one of the biggest detractors to living in the Greenville area. Opportunities to exercise outside safely are quite limited, especially during the frequent flooding of the Tar River Greenway.
702	Too many distracted drivers. Need sidewalks in neighborhoods & out in town.
703	No sidewalks Disconnected discontinuous greenway trail with many street crossings Too high vehicle speed limits on streets with lots of bikes and pedestrians Bicycle lanes that are cluttered with trash cans, walkers (no sidewalks), debris and potholes
704	The sidewalks on 5th st. are very dangerous. They are uneven and a serious trip hazard. These sidewalks are probably used more than any others in town, yet they are the most dangerous for causing accidents.
705	The absence of sidewalks or bike lanes in many parts of the city. Many roads are too narrow, and have even narrower shoulders to make it safe to walk/run/bike. I wish many streets (10th, 14th, arlington, evans, greenville blvd...) would have designated bike/ walk lanes as many motorist do not thing about pedestrian/cyclist, when they are not downright hostile/dangerous around them.
706	we cannot go beyond our street to do either activity; it is not at all safe
707	The greenway is scary. I prefer to walk in the park near my home or on campus. The lighting is better. It's clearly marked where trails are.
708	When I walk, I usually have to cross several busy highways. As for biking in Greenville, I no longer do that activity. When I moved to South Evans Street, I no longer felt safe to ride my bike without loading it in my car and driving to a safer road.
709	I live in the Medical District and do not feel safe walking from my place to uptown Greenville due to the neighborhoods in between.
710	It's not safe. There aren't very many good ways to walk especially around the hospital. I've seen a ton of people try to cross stantonsburg kind of like frogger, hoping to not be hit
711	Lack of separated bicycle infrastructure, especially on major arteries like Greenville Blvd, Evans, Arlington
712	Car try to run you over. I bought a bike but it is dangerous to ride in Greenville.
713	That it is not safe at night to walk or bike without a group. Only one side of the street has sidewalks and they are intermittent.

What do you like least about walking and bicycling in your community? (Cont)

714	Danger and fear of death. Greenville drivers never give pedestrians the right of way.
715	No side walks. I do not like walking at the edge of the road especially when walking a dog.
716	Crossing the streets!
717	I would love to see the greenway extended. Sometimes it floods but that is out of anyone's hands.
718	Lack of bicycle lanes/bicycle lanes not leading anywhere
719	Not enough bike lanes, dedicated bike roads
720	Lack of security and not feeling safe.
721	It is completely unsafe. The lack of bike lanes and sidewalks is deplorable. I love the addition of the Greenway but the ability to navigate the rest of Greenville on bike or foot is impossible.
722	Lack of sidewalks and bike lanes
723	Biking on the roads is extremely dangerous. Lack of bike lane or bike only trails for transportation.
724	Bike lanes are too small and there aren't enough of them.
725	The roads are super busy unless you go down side streets. It would be scary to ride a bike to work unless I took a very long way around.
726	Need more sidewalks and bike paths
727	The crosswalks are awful, no one stops. People drive way to fast in Greenville and in 6 years haven't seen a speed trap! The speed limits need to 1) be enforced and 2) lowered!
728	Walking: Sidewalks are very sporadic. It's hard to walk anywhere with a sidewalk the entire way. Bicycling: I would not consider biking on any major road. There are no bike lanes and drivers here are not friendly towards bikers.
729	unsightly areas and unsafe areas
730	I've noticed in a few places that even when there are bike lanes that some of them just end abruptly which could be dangerous for the biker and motorist alike.
731	Trash and rude people.
732	Cars are too close when riding on the street to the greenway, not enough bicycle connectors, dogs being unleashed on the greenway
733	Not a lot of areas with sidewalks and cross walks. Does not always feel safe when having to deal with heavy traffic.
734	lack of consistent sidewalk/bike lanes on major roads
735	It can be dangerous after dark, no bike lanes and the threat of getting mugged
736	Traffic and automobile exhaust.
737	Drivers are not cautious of cyclist.
738	Safety issues. Lack of options for traveling without a car.
739	Safety--- it is not safe to ride your bike in Greenville. I loved riding my bike, but I haven't used it since I moved to Greenville. I would LOVE to see the greenways expand around town. There need to be more sidewalks in town for safety and health reasons. It is not easy to walk in certain areas because you have to use the road or the grass. I think the community would be healthier if we added more sidewalks.
740	Not enough bike friendly roads in town to consider commuting around town via bike
741	Need sidewalks (and on both sides of road), need medians, need a pedestrian bridge on 10th!!! , need crosswalks and bike paths through the town. For a college town, it is VERY much not convenient nor safe to walk/bike instead of drive.
742	Rough, pothole riddled roads that make road bicycling more dangerous for me and my friends.
743	Do not feel safe without good sidewalks while walking with my children in a stroller
744	The stores are close enough to bike to but since there are no bike lanes or sidewalks it is too risky.
745	Not enough trails in the community
746	no easy safe link to parks, school & stores from neighborhood without using a car.
747	The motorist in this city are the most hateful, reckless, ignorant and aggressive drivers I've ever encountered.

What do you like least about walking and bicycling in your community? (Cont)

748	Lack of attention for pedestrians and bikers from motorists.
749	lack of bike lanes to make it safer to get around town.
750	No lights. Wish the greenway had lights for night riding
751	I don't like the fact that we don't have any bike lanes anywhere around here except for downtown where they don't help me.
752	Lack of connected bikeways/greenways! Would like to see sidewalks and bike lanes connecting Firetower, 14th, & Greenville Blvd.
753	Bike lanes are sporadic at best and sidewalks start and stop at random. None of it makes getting around easy because without bike lanes and more sidewalks, people without cars (it's not just people with dui's, but also students, low income, disabled, and others) are literally put in danger just trying to go to work, school, or the grocery store. This isn't acceptable and everyone knows it.
754	It can be dangerous. Traffic often passes too close and there are lots of potholes in the roads.
755	monotony (however, the new section between Charles and Evans is great)
756	Can't go outside of my neighborhood b/c it is too dangerous to cross 10th St and GVL Blvd.
757	Traffic is not bicycle friendly
758	More sidewalks are needed. Especially along Evans & 14th streets. A signed, traffic controlled street crossing is needed at 10th & Greenville Blvd. We also need more bicycle lanes, although sidewalks are more important in my opinion.
759	Cycling in traffic
760	Very few bikes lanes and side walks. I would commute to work via bike, but I don't feel safe. The roads are hazard within themself, example being Dickerson downtown area.
761	Biking is just too dangerous on the roads unless you are on the greenway and we live too far from the greenway to bike there safely.
762	The roads don't feel safe, no one knows how to wait for pedestrians.
763	Not enough steep trails for extra exercise for me and dog. And trails being neglected (not maintained enough, ie empty trashes, clean trails after bad storms, fix crumpled/potholes on trails/paths, etc.) And fact that there's nearly no water foundations that are dogs friendly near trails (below knee level basically) and this is eastern Carolina which is humid and hot more than it is cold. Lastly, not enough bicycle paths for it to be safe alternative to using cars.
764	No sidewalks. Drivers do not look for pedestrians when you are crossing an intersection. No bike lanes. Drivers are aggressive against bicycles. Sidewalks often do to conform to ADA standards.
765	No sidewalks. Unsafe conditions.
766	The Unleashed dogs, very rude, entitled students. Was told I had to back up and go around the block because they were playing street football. Of course not.
767	The Unleashed dogs, very rude, entitled students. Was told I had to back up and go around the block because they were playing street football. Of course not.
768	Traffic and lack of continuous sidewalks.
769	The risk of being killed for lack of pedestrian law enforcement, and practical safety measures (signage, bike lanes, etc.)
770	Seeing too much traffic and asphalt
771	There are not enough sidewalks and bike paths. People don't understand the rules of the road - cars don't use caution around cyclists, many cyclists don't know how to operate as a vehicle on the road. Cars don't stop for people in crosswalks, or seem to realize that it's illegal not to.
772	N/a
773	Drivers don't respect people on bicycles and walkers.
774	Safety, would like to see more sidewalks and bike lanes throughout. Greenville is not huge, and biking to work could be a thing if we had a safe way to get there
775	No sidewalks
776	It's very unsafe. Cars passing faster, the possibility to find a snake in my path...

What do you like least about walking and bicycling in your community? (Cont)

777	The lack of green space and length of greenway. We love the greenway but would use it even more if it were longer and spanned more of the city!
778	Bicycling paths end abruptly or don't exist at all and Greenville drivers are too aggressive
779	I do wish we had more bike lanes. Many commute along Greenville Blvd. and it would benefit big time with bike lanes (although i understand the challenge.) It would be nice to have bike lanes on Charles too!
780	Safety concerns both as a pedestrian and overall general safety
781	Safety; no designated walking/biking areas that are convenient to restaurants, farmers market, parks, etc.
782	I do not feel safe enough to bike on the roadways.
783	More lighting is needed for night hours, but this is specifically for my neighborhood.
784	Limits areas to do these activities.
785	No shoulder on many roads. Drivers at times seem hostile toward runners and bikers
786	Worried about safety from cars
787	Having to drive to a trail, and safety on the trails.
788	safety - Greenville drivers are TERRIBLE and unless you are right by ECU, your safety is questionable at best.
789	Many areas are hazardous to bike because of heavy traffic and some are inaccessible for walking due to no sidewalks.
790	The roads are not up to standards for biking. Road work is highly advised.
791	Not enough places where you can conveniently and safely walk or bike. It's entirely too dangerous to ride a bike in this community.
792	No sidewalks
793	Safety concerns - motorists on the roads, nighttime conditions. Our community is spread out, so walking/biking can be difficult in some areas due to how far/long it would take to get somewhere.
794	The lack of trails, and limited greenway connecting various parts of the community. I would travel to work using the greenway if it were possible. What has been built is fantastic.
795	Ill defined crosswalks, poor sidewalk and biking infrastructure. Biking and walking feel like a low priority for our city. The built environment's current condition speaks to this
796	It's not safe
797	It doesn't seem safe, there aren't any designated areas for the kids to ride their bike and not enough sidewalks for walking.
798	For biking - pot holes, crumbling sides of the road, narrow lanes, cars that do not want to give you space For walking - no sidewalks!!!
799	Don't feel safe, I might try biking if people learned how to drive. Also we need more lights on the trails.
800	Potential for crime to happen
801	Wish were more safe trails to walk and bike. I like Greenest but do not feel safe to walk there alone with my baby.
802	Our community has no idea how cross walks or bike lanes work. Mandatory education should be enforced if you choose bikes lanes. My pull is for more sidewalks. I have lived in Greenville for 10 years I've witnessed so many locals not even understand which car lanes are which due to our roads being so off. Adding a bike lane could make locals believe this is a new car lane and then we have more fatalities then we do now. Having bike lanes on our public roads is a dangerous move in my opinion only because of our 'country' mentality and not many people understanding the bike lane system. Lastly with NC just passing the law that you no longer have to take a sign test to renew your license just makes it worse! How can you expect citizens to even know what a bike lane sign looks like when we don't have tests/education reinforcing sign knowledge.
803	Our infrastructure isn't designed for anything except for cars. I would bike to work if I felt safer doing so.
804	It's hard to feel safe in doing ether one do to the fact that drivers are uneducated and I would feel very uncomfortable bicycling.
805	The uncomfortable feeling of having to look over my shoulder
806	lack of space on the raods
807	Not enough bike lanes. Greenville isn't a bike friendly city at all, very few roads have designated bike areas.

What do you like least about walking and bicycling in your community? (Cont)

808	The walk light for pedestrians turns green at the same time as traffic lights for people turning. Drivers turning into traffic often will not stop even if a pedestrian is in the crosswalk, leaving pedestrians stranded in the street until the cars pass, even though the pedestrian has the right of way.
809	There are not enough sidewalks and crosswalks, and not enough safe bike lanes. Current bike lanes have potholes and parked cars.
810	Being nervous of someone attacking me .
811	Unsafe areas. Isolated Greenway areas, not enough sidewalk or road way for bikes & cars to share the road.
812	During the day it is traffic. Poor routing of traffic makes it tough. At light lighting is not sufficient.
813	Trying to get to the grocery store on a bike is dangerous. So is the bike path on 5th Street. Auto drivers take the whole lane because the bike lane paint is gone and where the bike lane disappears because of a turn lane is like suicide.
814	There are not as many sidewalks as needed and bike lanes
815	There is not a safe place.
816	SAFETY (stop looking at the phone, slow down, don't run red lights) and lack of ease getting from neighborhood (brook Valley) to safe places to ride/walk. wish there were more chances to walk/ride to shops, restaurants and parks.
817	There are not bike paths on many streets to travel from various areas in town. It's too dangerous to bike in certain areas with traffic
818	Drivers who don't care or pay attention regardless of rules, laws, or bike lanes.
819	Having to drive in the road with motorist that couldn't care less if the kill you.
820	Lack of respect from drivers. Lack of sidewalks and bike lanes.
821	The lack of bike/ped connections and accommodations on existing roads.
822	Narrow roads (especially Brook Valley).
823	Feeling unsafe on roadways with no sidewalks
824	There aren't many crosswalks. Often people that need to walk to work have to play frogger across dangerous intersections such as Greenville Blvd and 10th street. College students are unable to bike and walk to work
825	Even though everything around my neighborhood is within walking or biking distance, I can not safely walk or bike anywhere from my house because there are only segments of sidewalks and no bike lanes.
826	The lack of bicycle lanes. The lack of signage alerting motorists that bicycles share the road. The limited amount of sidewalks allowing pedestrian traffic on Arlington and Charles, and it's connecting roads and streets.
827	In many places, there is no sidewalk and I feel unsafe walking in the street with car traffic. If you want to bike, there are not many bike lanes and I do not feel safe. Because of this, I choose to only bike for fun on quiet streets in my neighborhood. It would be nice if I could use by bike instead of driving to get around.
828	No bike lanes. Dangerous drivers.
829	pedestrian fatalities
830	The absence of hills and different terrain (not much you can do about that).
831	There are hardly any sidewalks in Greenville, which limits the routes and creates safety issues.
832	animals
833	That there is not enough sidewalks or bike lanes.
834	uneven sidewalks, tree roots growing in walk ways.
835	There are so few streets with sidewalks it is nearly impossible to walk anywhere in town without fearing being run over. We need sidewalks especially on every major street such as Memorial, Greenville Blvd, Fire Tower. I live off of Thomas Langston and would love to be able to walk to Plant Fitness, or any of the shopping and restaurants on Memorial but will not do it because there are no sidewalks for pedestrian travel.
836	There are not many sidewalks in Farmville.
837	The safety factor...especially with biking. There are good areas for biking, but they are not well connected to each other.
838	Feels not safe to do so in various locations in town.

What do you like least about walking and bicycling in your community? (Cont)

839	traffic
840	Narrow designated lanes
841	Autos can be very rude, blowing horns and not giving bikers the right of way. Autos do not stop at crosswalks to allow walkers to cross.
842	Unsafe roads and pedestrian areas, sometimes very long distances to certain places. Sometimes there are not appropriate spaces for parking the bikes.
843	Lack of sidewalks to walk on or trails near my home.
844	There are not enough sidewalks nor bicycle lanes to do either safely. I biked this morning down Memorial from the airport to Pitt Community college and had trucks buzzing my elbows as there was no bicycle lane or sidewalk. For a city considering a bike share program, this is a major concern before taking that step. Also, sidewalks are needed heading to Pitt Community College as there are surrounding apartments and community college students are more likely to NEED to walk to campus.
845	I would bike to work, but I am deathly afraid of Memorial Drive and there is no way to avoid it in my travels. The city is not made for walking and biking to work, which is unfortunate since so many living communities are near places of employment. I live a 3 minute drive from work but fear for my life if I ride my bike. It is unfortunate that our community has invested in everything but the ability to bike to work.
846	lack of sidewalks/bike paths
847	There's little to no infrastructure for walking and bicycling. People driving their cars typically think they rule the road, and they give little leeway for walkers and bicyclists.
848	I dislike that there is no place for people to walk/ride on secondary roads. I usually see people walking on the grass or something. Then not only that but Pitt Community College has no "safe way" for students to cross the highway to get food. There is a Cafe' on campus but what if students want to walk across the highway to eat? There are no "safe to walk" buttons or anything. Having something go from one side of the campus to the other will save students gas and also increase income for the business across the street.
849	Many places (like 14th street south of Greenville Blvd.) don't have sidewalks or even shoulders adequate for pedestrians.
850	Very few bike lanes.
851	Crossing busy streets, being close to cars, sharing lanes with careless drivers
852	Drivers do not respect bikers.
853	The traffic that surrounds me makes it unpleasant. And sometimes drivers are inconsiderate of walkers/runners/bikers. I have felt targeted before.
854	There are very few safe places to do either. Bicycling with children--it is almost impossible to go outside the confines of your neighborhood.
855	Riding a bike on major roads without a sidewalk is scary. I had to ride from near Lowes on Memorial to ECU when my car was broken a few years ago, and I feared for my life every day that I had to get to class while my car was in the shop. I would use sidewalks on Firetower more now, but since I have my son in a car-seat on the bike... I avoid going to places we would normally ride to.
856	Its not safe. Our community is not bike friendly like some major cities. Those that do not walk or ride see bikes and pedestrians as an annoyance. Other cities have that "culture" and are accustom to bicycling (example Austin Texas).
857	Feeling of safety in certain places.
858	Lack of sidewalks is deplorable.
859	It is not safe. The areas with a high population of people walking across streets do not have cross walks or sidewalks. Additionally, they must cross upwards of 3 lanes at time. Walkers are causing car accidents and cars are causing pedestrian injuries.
860	It is not biker-friendly
861	I wish there was more consistency. I feel like I'm jumping on and off walking/bicycling paths most of the time.
862	There is little, if any, respect for pedestrians. As a cyclist, it's even worse. Few bike lanes exist in areas people need to travel, law enforcement seems disinterested in enforcing move over/passing laws; therefore, drivers show little respect to cyclist. Overall, the city and South are not conducive to travel by anything other than car/truck. I've traveled and experience supports my opinion.

What do you like least about walking and bicycling in your community? (Cont)

863	Safety for walking and bicycling is my number one concern.
864	dangerous on the roads. People do not respect bikers.
865	Walking is ok but biking is dangerous because of the lack of bike lanes, awareness signs, and tough bike laws..
866	It very unsafe to use bicycling in Greenville especially as a main mode of transportation.
867	Dangerous to cross roads, since most intersections have no crosswalks or pedestrian crossings or lights
868	The lack of safety. I can't even recommend it to my children because I don't feel like it is safe for them.
869	Traffic
870	Feeling like you have to go during the day or when it is still fairly light out. Not really exactly sure where to go or where to find the information on where to go.
871	Loose dogs
872	The trails need more lighting, clean up (people do not pick up their animals poop), etc.
873	don't feel safe in all places
874	No bike lanes, no sidewalks near my home despite being a main thoroughfare (Evans St. near Target).
875	My neighborhood is a great place to walk, however, I like walking into my township but it is too unsafe for anyone to walk. I would spend more money in the town if I could get to the stores by foot, but when I get in my car, I don't think about going into my town, I travel into the city for shopping and leisure.
876	nothing
877	Primarily access and safety. There are many roads that are far from safe for riding or walking. Shoulders are small, unmaintained, or otherwise dangerous and roads can be very high speed with motorists that are not willing to provide sufficient accomodation to other users.
878	You can't go walking in your neighborhood.
879	SNAKES OR DOGS THAT ARE DANGEROUS
880	There are not enough safe spaces to go for walks. Sidewalks are not present in some high traffic areas and also need to be widened.
881	I feel unsafe because there are not many sidewalks and bike lanes. I feel like the cars go too fast and they are not looking for pedestrians or bicyclists. I don't like to let my son go far on his bike because it's unsafe.
882	The paths I walk are not technically part of the Greenway yet and I wish they were. They're currently part of the "planned" Greenway.
883	no sidewalks for walking, very dangerous to bike in any traffic, parked cars block bike lanes, bike lanes vanish at many intersections
884	The traffic! The vehicles on the road make it unsafe as well as the lack of sidewalks and bike lanes, lack of crosswalks at intersections, etc. Also, trails are not connected so to get any sort of exercise while riding a bicycle I have to ride around in circles or back and forth repeatedly which is not much fun.
885	It is getting routine and would prefer to walk a greenway from the planned East park by the synagogue on 10th all the way to the hospital and also bike especially.
886	Hardly any sidewalks in my neighborhood and I live close to 10th St. and there are not enough places to cross safely.
887	It's dangerous to bike on some of the roads in Greenville because there's no bike lane and drivers aren't paying attention a lot of times.
888	Walking: lack of sidewalks the end of my distination.
889	Pitt County needs more walk ways and more bicycling lanes!
890	There is a limited number of crosswalks, making it unsafe to cross the highway. I am a student at ECU's health science campus and walk to class every day but there is not a convenient crosswalk for getting across Fifth Street from my apartment building, Treybrooke.
891	Stray cats!!!!!!

What do you like least about walking and bicycling in your community? (Cont)

892	I would LOVE to ride my bike in Greenville and the surrounding area but it is not safe due to the poor and dangerous drivers and lack of clear biking areas. I recently rode bikes in Western Massachusetts and it was great. There are trails only for bikes as well as courteous and friendly car drivers. Biking is supported by the communities with many biking activities making it easy to go from one town to the next. The general community here does not want to see bikers or walkers any where cars might have to share with them. Lord knows this area could use bike/walk areas since the general population is riddled with diabetes, obesity and heart disease. Other than indoor gyms there is very little offered to enhance a healthful quality of life especially for the aging population. I am retired now and have the time to do all these activities but no where to do them. If it were not for my grandchildren in the area I would leave here for somewhere more hospitable to a healthy lifestyle in a safe environment.
893	safety
894	the heat:)
895	Bikes are not respected by drivers
896	Not enough safe bike routes and not enough paved sidewalks.
897	Very few routes are bike friendly and I do not trust that motor vehicles will yield or respect me on the road.
898	Traffic is too fast, no room to get over on the shoulder due to high grass and standing water often.
899	having to drive to one
900	No sidewalks or bike lanes limits where I feel safe walking. Grocery store is less than 1 mile away but I drive to avoid walking or biking along a busy road.
901	People drive too fast and almost hit you while they are texting on the phone or not paying attention.
902	Lighting in the afternoon on trails is insufficient.
903	the public safety - crime
904	No safe trails or designated bike lanes. Connections from neighborhoods to sidewalks.
905	There are no sidewalks in Southridge and the neighborhood is used by "through traffic" too often. Also, there are no sidewalks or bike lanes connecting Southridge (which is in Winterville City Limits) with the rest of the town. We desperately need that connectivity for the residents of Southridge.
906	I can walk to get things accomplished in very few areas. Most areas are not set up for walking. For example, if I need to purchase shoes, then get dinner, I am going to have to drive. Even within shopping centers. If I am at PetCo, then decide to go to Chili's, I am going to drive. Even though there is a sidewalk. However, I have been in cities that are set up differently, where I will walk from one place to the next.
907	Difficult intersections and no paved shoulders. Car traffic can be heavy and fast. Distracted drivers are a huge risk.
908	Lack of sidewalks & bike lanes, lack of public knowledge on crosswalks
909	People that drive too fast through neighborhoods!
910	The walkability and bikability from the northern part of town to uptown is not very friendly.
911	I have to drive to the greenway.
912	lack of shade
913	absence of shade
914	Traffic, lack of bike lanes and pedestrian friendly intersections.
915	Lack of bicycle lanes and driver attitudes make me feel very unsafe. I'm fairly educated in regards to rules of the road, but not all cyclists are, so that could be improved as well. Lack of sidewalks and sidewalk maintenance is also an issue.
916	Lack of sidewalks
917	some areas aren't safe
918	traffic
919	over hanging tree limbs in the walkway
920	not enough lighting or places to walk & bicycling
921	need more light for night walking
922	n/a

What do you like least about walking and bicycling in your community? (Cont)

923	not enough sidewalks
924	no sidewalks!!!
925	danger
926	need emergency blue lights
927	n/a
928	hot weather
929	The route isn't long enough to make bicycling really challenging.
930	Traffic
931	Traffic
932	Having to cross busy roads like Greenville Blvd to get to a Greenway, park, or other neighborhood, especially with little kids.
933	urban areas ignorant drivers
934	urban areas ignorant drivers
935	Poor treatment of cyclists by motorists, lack of sidewalks on roads like Firetower (Corey Rd to Charles)
936	That I feel unsafe getting to the greenway. I live close to the elm street park but the trip down 14th st is unsafe. So close to a middle school and the college it should be made safer for walkers and bikes.
937	How tight it is on the streets & roadways to walk & bike in certain places (not enough sidewalks, bike paths).
938	How tight it is on the streets & roadways to walk & bike in certain places (not enough sidewalks, bike paths).
939	I live in Winterville, so my neighborhood roads are fine for walking and biking, but the main roads are dangerous! There is not even a shoulder on the roads!
940	Poor attitude of most motorists toward cyclists and pedestrians, lack of sidewalks and cycling-friendly roads. Lack of safe ways to travel any distance by bike, i.e. absence of any non-arterial east-west routes in most of the city.
941	I feel very unsafe biking to work due to a lack of bike lanes and road conditions. Most areas have a safe area to walk, but there are too many intersections where the sidewalk is not accessible to wheelchairs.
942	Some cyclists use sidewalks on the periphery of ECU's campus; this is a safety problem for pedestrians.
943	Drivers who are not courteous to pedestrians or bicyclists.
944	Safety
945	Urban planning and traffic patterns are absolutely terrible. It's impossible to walk anywhere because of the layout of Greenville. Too many multilane roads with few pedestrian crossings like Greenville Boulevard, Evans St, Memorial, Charles, etc.
946	Not enough bike lanes
947	Only short distances are available. They are segmented. We understand eventually they will all be connected "one day" but why can't the loop consistently get larger as the project expands. Let us use it as it comes along. Meaning when we get to Charles Blvd where do we go besides back tracking the way we came? The sidewalks and crossings going back towards downtown aren't the best. In and out on the same path wears on the enjoyment. As asked in #6 once signs, enforcement, etc are up and going we might venture back to on street biking.
948	Neighborhoods aren't connected by sidewalks so long distance is risky because you have traverse areas without them and use the shoulder of the road
949	Cannot bike more than a few miles before having to cross major street. I wish there was a dedicated greenway of about five miles
950	Where County Home bottle necks at Old Firetower is dangerous if you are in a car let alone out of one, especially with no sidewalks. People complain about brushes with cars at times while walking & probably while biking.
951	I like to walk down by the river, unfortunately there is usually some homeless people who camp out on the trails that are right next to the river. So they litter and just make the place look bad.
952	Streets are not so safe for biking. Greenway is fine
953	I feel extremely unsafe riding my bicycle on Greenville streets so I don't. I value my life. Need more sidewalks for walking.

What do you like least about walking and bicycling in your community? (Cont)

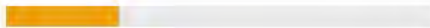


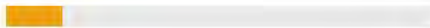
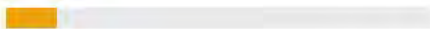

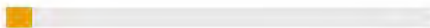
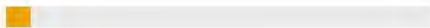
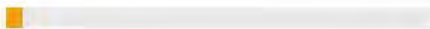
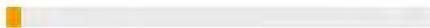
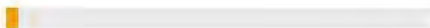
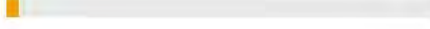
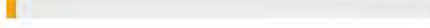
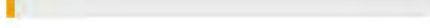

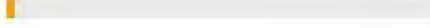

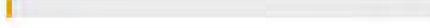
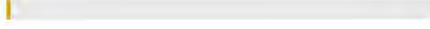
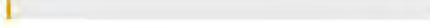
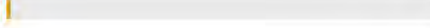
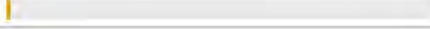



954	not enough greenways, sidewalks, parks and walking trails. Hardly any places to bike safely except in our small neighborhood and on the greenway. I cannot get to the greenway safely on the bike, so I rarely bike there. I go to Raleigh, Durham, the Triad region or Virginia if I want to bike. The minimal availability of greenways, walking trails and almost non-existent cycling opportunities is probably the main reason I am thinking of moving from Greenville after living here 30 years and now being retired.
955	Seeing trash cans on curbsides.
956	I love the Greenway. I don't like walking and bicycling anywhere else. Drivers do not stop at crosswalks. Many roads are treacherous to bike on.
957	Its terrifying to try and ride a bike for transportation. Even the few bike paths are dangerous - for example, when the bike path disappears on 5th for turn lanes, where are bikes supposed to go?
958	There are no safe ways to share the road here. If you want to go anywhere you have to drive.
959	Lack of sidewalks and crosswalks; lack of safe options for bikes
960	High-speed arterials with no nearby alternative routes: Memorial, Evans, Charles, Greenville Blvd, 10th St., Arlington, Firetower. These routes all need fully separated bikeways and walkways. For models of how U.S. suburban-style arterials can be modified for safe and efficient biking and walking, please have a look at Arapahoe Ave., 30th St., and Pearl St. East in Boulder, CO. Oh, also, the fact that people die, a lot. I don't like that much at all.
961	The flooding that sometimes closes the greenway for long time.
962	Very dangerous to walk and bike in some areas.
963	No good/obvious crosswalks
964	Lack of sidewalks is number 1. #2 is difficulty crossing at corner of Charles and 14th.
965	Lack of sidewalks is number 1. #2 is difficulty crossing at corner of Charles and 14th.
966	Need more safe bike designations on streets. Need more sidewalks for walking.
967	Not enough sidewalks from our neighborhood that connect to more major roads/greenway.
968	Few sidewalks and no bicycling lanes
969	We need more sidewalks, bike lanes, and Greenways because many roads are not safe at all. Especially 14th Street.
970	Uneven or overgrown sidewalks and not enough sidewalks in the Arlington/Firetower/Evans areas
971	Not enough "safe" places to walk
972	Safety, usually only run routes with groups. Gorun and F3 workouts.
973	Traffic
974	It's hard to get to one area of town to another since there are busy roads with no walk signals, bike lanes and often no sidewalk.
975	Lack of crosswalks/signals, sidewalks, and bike lanes.
976	Traffic.
977	In the summer not enough benches between the dog park and greensprings
978	No sidewalks, dangers and unsafe.
979	Aside from 5th street, biking is not very safe and there needs to be a lot more connections between roads with bike lanes as well as areas that have sidewalks.
980	safety
981	The bike lanes, or lack thereof are HORRENDOUS!!! I believe they are only on 1st Street, 5th Street, and part of Elm Street in the entire city.
982	It is impossible to walk in Greenville. There are not nearly enough sidewalks. I live off Allen Rd. and work at the hospital. In terms of distance, this is not far but there is no way for me to walk to work. Sidewalks just don't connect in this city.
983	It's dangerous, with many roads lacking sidewalks and many destinations having no clear bike path.
984	Not enough user friendly areas to bike and run.
985	nothing

What do you like least about walking and bicycling in your community? (Cont)

986	A lot of motorists do not care or watch people who are walking or biking. I have almost been hit several times because people do not pay attention to hand signals.
987	The bad drivers and disregard for bikers.
988	There are not enough bike lanes and greenways and not enough safe crosswalks. It's difficult to get from one side of the city to the other because the city is not connected with a network of bike lanes/greenways.
989	No shade when walking. Need a place to take breaks. Biking need places to lock up bike
990	I can no longer walk as I did before
991	Entirely too short.
992	Not enough safe and pleasant walking and bicycling routes
993	Lack of restrooms
994	Traffic
995	Crime. Having to cross busy roads and/or share the roadway with cars (they don't care about cyclist)
996	Limited pathways. I live just outside of town and have to run down 33 to get to the sidewalk in front of lowes. I wish there was a better connected greenway throughout town. It's improving but would be great if you could access anywhere in town through the greenway system. I'd actually use it to commute to work.
997	The disrespect shown by drivers to walkers and bikers in the community. They need to learn to share the road and give someone cycling room and not try to run them off the road.
998	Safety, lack of opportunity/variety
999	Lack of company to walk or cycle with me.
1000	Traffic and others lack of awareness of walk/runners and cyclists
1001	We need more safe areas to run and more bike lanes
1002	Unsafe to bike to work from my house b/c of road conditions and drivers not sharing the road. Some areas have sidewalks for walking/running and then the sidewalks stop- other areas do not even have edges to the road that you could walk safely on
1003	The community needs education on greenway etiquette. I wish they would read the signage. Pick up dog waste(enforcement)
1004	I don't feel that current trails, bike lanes, or sidewalks connect to actual places I'd like to go. The ones that are there are good for exercise but not for a means of transportation.
1005	I've lived in many different cities/states and, by far, the people in this county are the worst drivers I've ever encountered. There is a systematic disregard for multiple traffic laws. The most egregious violation being failure to stop at yellow and red lights. You really aren't safe in a vehicle let alone on a bike. To make things worse, the police don't seem to ever hold driver accountable.
1006	Traffic speed, Traffic Ignorance, still very limited system to enjoy.

What other bicycle, pedestrian, and trail improvements are important to you?

(Most commonly used words followed by all responses)

Side Walks		26.44%	174
Bike		21.12%	139
Greenway		14.44%	95
Trails		13.07%	86
Lighting		11.70%	77
Connect		7.60%	50
Safety		6.08%	40
Bicycle		5.62%	37
Town		3.80%	25
Community		3.50%	23
Important		2.74%	18
Street Crossings		2.74%	18
Education		2.28%	15
Pedestrian Bridges		1.82%	12
Enforcement		1.67%	11
Wider		1.67%	11
Police		1.37%	9
Green		1.06%	7
Speed		0.91%	6
Benches		0.91%	6
Clean		0.91%	6
Uptown		0.91%	6
Distance		0.76%	5
Miles		0.76%	5
Call Stations		0.46%	3

What other bicycle, pedestrian, and trail improvements are important to you?

#	Responses
1	Finishing the Greenway loop around Greenville would be great. Also, having off-trail single track public space would also be great, such as around River Park North area.
2	policies that support the physical world
3	- Too many use center turn lane as a driving lane. - Too many pedestrians & bikes at night walking/crossing multiple lanes. More sidewalks & pedestrian crossing to help & fines for violators. Too many wearing only black. Drivers hardly stand a chance.
4	Lighting, security, parks along the way
5	Lighting, connection signs, and water fountains
6	Intersections need to be safer-5th & Evans is good for pedestrians-We need more intersections with audible ped crossings.
7	More off-street bikeway
8	You have it carried in comprehensive plan. Impressive
9	N/A
10	Longer stretches of greenway. Would like 20 miles or more connected.
11	Safety
12	Open "line of sight", better lighting, more points for emergency phones that have a failsafe that if disabled they would not stay light. This would be an alert to hikers that something is not kosher
13	Mountain bike trails. City supported bike rides
14	Sidewalks to actually get places
15	N/A
16	Lights to cross!
17	Riding in traffic. Need more bike lanes
18	For Evans St. people almost get ran over due to no sidewalks
19	More bike lanes near ECU central campus especially needed
20	Connectivity Traffic lights in crossings
21	[walk a few times a month] because I am afraid to cross streets. We need a light for pedestrians on Red Bank and Arlington - please!
22	Where are greenway trails? Not by Littlefield Rd, Ayden
23	A sign slow bicycle or walk. A separate lane for this activity
24	Have bike paths on both sides of road in city limits
25	Wider is nicer
26	N/A
27	Overwalks over the street.
28	Safety improvements
29	Sidewalk thru-out Greenville
30	Can we get the regular roads fixed first?
31	Lights flashing in these airports

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

32	Greenways. Bike trails (off road)
33	N/A
34	None
35	None
36	Parks; town commons
37	Bike racks and better lighting. Maybe emergency phones on Greenway
38	Encouraging all cyclists in the community to follow the rules of the road, so diversion can't use the bad cyclists to justify trying to run over bikes.
39	I just want to feel safe when riding my bicycle. Bike lanes or paths and driver education are most important.
40	Pedestrian education is super important as well! I feel one very dangerous trend is for drivers to stop in their traffic lanes to allow people to cross. BAD HABIT and it can encourage very serious accidents. Drivers DO NOT YIELD for illegally crossing pedestrians (nor should they).
41	Those listed above seem pretty good enough. Parking at different access points along the Greenway would be nice, making it easier to pick up different parts of the trails.
42	APedestrian Bridge at Greenville Blvd and Charles near Macallisters would be expensive but great - a lot of College students use that for the Mall as well - extremely dangerous!
43	Share the Road signs are nice.
44	I need to use a mobility scooter or golf cart to get anywhere. Right now there are no connecting paths for slow speed vehicles or power mobility.
45	The City needs to be more connected for walking and cycling, so that walking and cycling can be purposeful and a viable alternative to the motor vehicle.
46	recycling containers
47	Sidewalks should connect to one another - no more sidewalks that just all of the sudden stop. Cross walks at major intersections
48	Shade. Lighting improvements. Signage. Connecting to City parks.
49	safety
50	Please Please we need sidewalks all the way up evans - right into Winterville - all along every sing street in Greenville area. Please
51	the nearby parks
52	"make more"
53	yes
54	more lighting on trails
55	lights put on bicycle pathways and sidewalks
56	more sidewalks and bike trails as well as more bike lanes
57	to be honest I can't answer
58	Loud
59	more bike lanes
60	the cleanlgness
61	more sidewalks
62	none
63	none
64	level side walks
65	keep it clean
66	regular

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

67	No
68	A bike park would be nice more sidewalks and bikeways
69	inner city black community
70	park trails
71	all of them
72	more sidewalks and safe bike places
73	lights for safety
74	safety
75	clean up
76	safety
77	lights, bike lanes specifically
78	pedestrian trails
79	light ways
80	N/A
81	None
82	More lights! It's dark on residential roads I bike home on and it's scary.
83	really just more bike and walk pathways
84	plenty of lighting, more maps to show where I am, as well as emergency call stations
85	more safety precautions on public roads and greenways
86	long distance street bikeways throughout greenville for exercise & transportation purposes. to feel safe doing so
87	- keep trails clear of debris - more greenways - safety on the greenway - for women
88	n/a
89	better lighting
90	n/a
91	- crime (safety) - cleanliness
92	lighting for night time use
93	bike lanes
94	better lighting at night and evenings
95	n/a
96	increase of
97	lighting for trails and frequent monitoring
98	none
99	more sidewalks - as the city budget allows - would open up the walking option to elderly people who would walk more and be healthier for it, if we had more sidewalks.
100	none
101	Pedestrian bridges over busy intersections
102	None
103	None
104	Bike share would be great
105	Bike paths and walking areas should consider as a primary user a child. No one would let their child on a bike lane on a busy street. Most would be scared to let their child walk on a sidewalk in close proximity to a road.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

106	Crosswalks are a must!!!
107	Parks/trails that are not pet friendly for people like myself that are severely allergic and afraid of dogs because have been attacked by a pitbull in the past while walking in former neighborhood
108	I work in the LEED Certified VA Clinic. We encourage our staff to ride-share, bike, and take public transportation. Help us help the city by approving an extension of the bike trail up the river to the VA clinic and ECU Health Sciences Complex!!
109	None at this time
110	Connecting the existing sidewalks and bike paths so that they take you from one place to another place and don't just stop in the middle of nowhere
111	Making the city more bike friendly, with bike lanes on roads like 14th Street, Evans, Greenville Blvd, and Charles. The Grid, also, is dangerous for both bikers and pedestrians due to lack of continuous sidewalks and bike lanes.
112	safety
113	bikelanes or just simply wider shoulders.
114	Getting Greenville Police Department to enforce the laws.
115	Educational signage, circuit training equipment
116	Cleanliness and condition of existing bikeways
117	Sidewalks within neighborhoods are useful. Sidewalks on busy streets encourage people to walk where it is inherently unsafe. There should be clearly marked crosswalks on all streets and roads, the laws related to those should be enforced (for both pedestrians and motorists) and bike lanes should not be installed on busy multi lane roads.
118	Keeping them free of litter
119	Ensuring safety on Greenways
120	Bicycle lane are not a necessity, a wider shoulder that is maintained is sufficient
121	Signage and maps along the current green way trails that show everything accessible (and proposed).
122	Developing resources that make it safer to bike. We have had too many injuries and death by bike/motor vehicle collisions.
123	Safe from crime.
124	KEEP BICYCLISTS AND PEDESTIANS OFF BUSY STREETS AND OUT OF DANGER. If necessary, more greenways so they can ride and walk safely and out of the way of dangerous traffic.
125	clean water concerns
126	Painted lines.
127	More shoulder space and/or bike specific lanes throughout the entire community. Just two extra feet of shoulder space on a one lane one can go a long way.
128	none
129	Connections to, from and between neighborhoods, to schools, parks, recreation facilities, grocery store, theaters, restaurants.
130	I think it's best that pedestrians and those on bicycles have their own sidewalk or bikeway to travel on to avoid accidents. Especially at night it gets really dangerous when you don't really see a person until you are a few feet away from them. Maybe some type of way to notify drivers that pedestrians are crossing the street near campus (flashing lights or sounds).
131	We desperately need a pedestrian bridge from the Town Common to River Park North. In addition to top-shelf greenways, all ACC/big research schools in this state have a natural area such as River Park North that is highly accessible to its students (e.g. Pullen Park, Reynolda Gardens, NC Botanical Garden/Arboretum, Duke Forest) and our students deserve this. River Park North connected to the Town Common is all of above and more.
132	We just need way more sidewalks around here. I don't want to get hit by a vehicle. Because you know, vehicle beats human. Vehicle will win. :(
133	better lighting
134	just sidewalks

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

135	All of them are important.
136	Those above answers it
137	Just overall safety and awareness
138	Crosswalk enforcement!!!!
139	Just safety and more lighting.
140	More sidewalks in the grid.
141	Increased safety measure to allow non-vehicle users to cross roads easier.
142	More lighting on the greenway
143	Safety patrol
144	Having shops to walk to in walking/biking distance.
145	I want to be able to go about my life without always needing a car. I'm more interested in safe access by bike or sidewalk to the county facilities on County Home Road or the businesses at Bells Fork than I am about a greenway that goes nowhere.
146	more lit trails for bicycles
147	enforcement of making bikers safe
148	Main roads should have bicycle/walking paths. The city is already congested. This would cut down considerably. Like I said, the benefits are too many to ignore.
149	Making sure the pedX actually work with the lights
150	Cross walks in areas
151	Would like to see existing trails connected and expanded
152	Bike lanes on 10th street and Evans street
153	none
154	Just the acknowledgement of safety to these non driving drivers in greenville
155	sidewalks
156	NA
157	Im not familiar with anymore.
158	Need a bicycle lane on 10th street near campus and extending away from campus. Sidewalks myseriously end. When there is no bike lane I feel safer on sidewalk riding bike but hard to ride on sidewalk when there are pedestrians and when there is no ramp to get on or off sidewalk or the ramp is so messed up its hard to use.
159	Mostly just more sidewalks space
160	N/A
161	Crosswalks and sidewalks for main roads like Evans
162	N/A
163	Having crosswalks, sidewalks, bike paths, would be great.
164	The greenways are fantastic. Just more on street bike ways and crosswalks with walk indicator signs. It would be great to be able to safely bike everywhere not the city.
165	I feel as though it shouldn't be unsafe to walk or bike places. People complain about cars polluting the air but it's too dangerous in Greenville alone to walk or bike anywhere.
166	I cannot think of any.
167	i do not know
168	Pedestrian 101
169	LIGHTS
170	More crosswalks.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

171	More specific bike paths.
172	N/A
173	i dont
174	more lighting
175	More lighting around the trails to see better later at night
176	More designated bike paths at school
177	Being safe and more trails.
178	More sidewalk access to get everywhere.
179	Safety of riders and walkers.
180	Extend the greenway and bike trails so that one can function in this town without having to drive a car everywhere...
181	Protecting drivers from jaywalkers and idiots on bicycles.
182	A lot more of all hooking more of city together.
183	More sidewalks and crossings. Every road and intersection should have one. That shouldn't even be a discussion.
184	Although, I'd like to have safer conditions on the greenway, especially at night, I want the nature to stay as untouched as possible.
185	The parking problems with people parking on the side of the road where there is not a parking space allotted so the roads are not wide enough to get through with multiple cars.
186	Nothing additional, just designated pedestrian paths that interconnect areas of community
187	More street lights
188	Safety issues
189	None
190	A way to ensure that bikes are not stolen
191	Bike lane on campus
192	security
193	None.
194	Bells Fork Area????
195	To be specific, most children's bikes cannot handle gravel. Having a paved bikeway through river park north. Not all the sidetrails, but the main trail that leads from the nature center to the river.
196	"other"??? Bad question. We do need to make Greenville more bike able for the sake of safety, the environment and our health. Period. Also for the sake of keeping \$\$\$ in the pockets of our many financially challenged students who must rely on cars to get around. Bike lanes need to be established between the student-oriented private apts and the campus.
197	Greenways with impressive views
198	More cross walks. It is impossible to walk in most of Greenville.
199	Lighting and activities along the way
200	Really being able to bike anywhere in the city safer . Adequate space so the bike isn't in the middle of heavy traffic. Some county roads improved that are frequently used for biking such as Portertown road
201	Lighting, signage, and blue emergency call posts.
202	Pedestrian bridges.
203	Seating like benches along the river
204	Cross walk signs with flashing hazard lights and painted cross walks (at non intersections) pedestrian right of way signs, sidewalks with street lights
205	Clear designation of each area, education, and enforcement.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

206	Lower, and enforce, the speed limits all over Greenville!! I notice that we have at least 5-10 mph higher speed limits in this town than in towns in other states including GA, FL. This would make it safer for all, including motorists and their passengers.
207	Just more walking/cycling options.
208	It's all about greenways and bike lanes; without them bicycling is not really reasonable
209	Pedestrian overpasses near ECU
210	Connectivity of trails, sidewalks and bikeways.
211	Safe bicycle routes or trails between neighborhoods with children and schools. Magnetic traffic light trippers.sensitive to a bicycle. Smooth street surface of bumps. Check drain grills to be sure crossways bars are solid.
212	none
213	Stoplights that are enforced by authority
214	More signs and other ways to encourage visitors to dispose of their pet's waste and cigarette butts (and other trash) responsibly.
215	Bicycle lanes other that greenway for bikers - to many people/children to watch out for when biking.
216	Maintenance of existing sidewalks
217	More supporting infrastructure would be great. For some reason the survey form would not allow my response to the last 2 questions to be recorded.
218	I am uncertain that education, encouragement, and enforcement will be of much use to the type of traffic that walkers and bikers face.
219	Better bike lanes. Even streets with bike lanes are not safe, because there is no clear separation and cars drive on the bike lanes.
220	Well lit areas
221	Having a wide enough sidewalks for a jogging stroller
222	Bike trails, cyclocross
223	Connect to my neighborhood one of oldest in town with no parks, sidewalks or greenway connections
224	bridges in low lying areas on the greenway; lighting
225	Interconnecting systems
226	Making sure the pavements are smooth and not all cracked up.
227	bicycle lanes separate from car traffic
228	Greater variety, longer trails without crossing highways, pedestrian crosswalks enforced!!
229	I would love to see the Town Common linked to River Park North. That would give me more access to safe trails.
230	We need more small areas of wild trees, forest. In Raleigh, every hotel, road, and mall is ringed by small areas of forest. The whole city is beautiful with big trees. Greenville looks like a desert in comparison.
231	Somehow fix/make safe crosswalks
232	Really just widening roads to allow for bike lanes and enforcement.
233	More public transport, especially for late hours and for disabled.
234	increase their safety and interaction with automobiles
235	Sharing the road
236	Interconnect neighborhoods
237	That the bikeways and sidewalks that do exist are connected. It does not help me that some of my commute would be doable if I cannot safely get to those sections.
238	That the bikeways and sidewalks that do exist are connected. It does not help me that some of my commute would be doable if I cannot safely get to those sections.
239	Water fountains and benches about town

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

240	maintain well what is currently in place, is very imp to me
241	Much of the original greenway is prone to flooding from Green Mill Run. Some creek bank stabilization would help
242	I personally think it is most important to find a way to link and connect all our neighborhoods in Greenville together by greenways, trails and safe and wide on-street cycling lanes and crosswalks, so that all our citizens could safely travel throughout the city by bike or on foot, and without fear of being run over by motor vehicles. Our neighborhoods are so isolated from one another by busy roads that most of our citizens would not dare move about from place to place (even for short trips) without getting into a car, which only compounds the problems.
243	Pathways along streets physically separated from car traffic and overhead structures for street crossings (bridges).
244	Crosswalks
245	TOILETS along the greenway trails would be important.
246	Expansion of all of above
247	None
248	Right turn yields to pedestrians on busy streets. Some communities have all traffic at a stop with no turns allowed so,pedestrians can safely cross. I worry about the safety for PCC students. ,they must cross Memeorial to get to,many shops, and home.
249	more signs on the greenways telling pedestrians to keep to the right
250	More sidewalks and bike lanes.
251	There are places that have sidewalks but end i.e. Fire tower road
252	sidewalks, sidewalks, crossings, sidewalks, sidewalks, crossings, sidewalks!!!
253	Establish and fund a dedicated staff person to constantly work on these issues as their sole job function-like most urban cities have already done
254	Safe crosswalks. More sidewalks. Extended trails.
255	none
256	I'd like better policing in these areas.
257	Seeing how the greenway really improved this neighborhood I think West G'ville should have opportunity asap.
258	sidewalks for all
259	You covered them.
260	bike lanes.. oh I already noted that.
261	It is problematic to do the ranking above. We need to make progress on all those fronts. We may need to compromise in other areas.
262	Frankly, improving street conditions is also an important component. The disrepair of the roads is a real disincentive to bicycle anywhere.
263	street & sidewalks improvements in the older neighborhoods and brighter street lights and additional street lights in dark areas.
264	Partnerships with these organizations: Rails to Trails Mountains to the Coast Trail
265	Destination signs providing direction to various locations (Town Commons, parks, restaurants, etc.)
266	None
267	expand to north of the river. link or connect us to uptown Greenville town common area with the old bridge.
268	n/a
269	Riders need to be educatted to shout something like "on the left" when approaching walkers from behind.
270	Anything that will make our ECU students safer as they travel around our community. They enrich our community greatly, and need to be protected!!
271	connect all student populations to ECU by bike routes
272	Having a network so you could go most places in the city
273	Preserved Open Space

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

274	Make it legal to ride a bike on a sidewalk next to a street that does not have a bike lane in the City of Greenville.
275	SAFETY!!!!!!
276	More trails, more ability to move safely from one part of the city to another without a car
277	Fill in the pot holes.
278	not being shot at by police being treated fairly by police (this has not happened in the past)
279	Clean and safe
280	Install red light cameras at ALL major intersections.
281	Traffic calming.
282	Without specifics as to where the crosswalks, bike lanes and sidewalks will be placed this survey is just useless information unless it will be used to "stir" purported support for someones agenda.
283	Children should be able and encouraged to walk to schools. Greenways need bathrooms and small refreshment kiosks (public/private partnership).
284	none
285	We need it to be safer. We cannot walk, bike, etc. if we know driving conditions are unsafe!
286	crosswalks, crosswalks, crosswalks
287	A meaningful sidewalk/trail system that can be used for commuting around town.
288	Build a viable food/drug market downtown, that pedestrians can have access to. Make the groceries stores near downtown have bike lanes that can reach them. In other words, make the ECU/downtown area liveable for pedestrians and bikers.
289	Increased number of greenways/trails/access to nature
290	More highly enforced school zones. My kids bike to school and though it's a short distance my sister is volunteering to crossing guard each day because of the speeding and ignoring the crosswalk
291	We need sidewalks and crosswalks around East Firetower Rd with the Arlington intersections and the S Charles BLVD. people dodge traffic everyday to cross at these intersections
292	Make bike riding on sidewalks legal. If necessary, make sidewalks wider. Works fine on greenway
293	More benches,bathrooms and fountains
294	It would be healthy to bike throughout Greenville on bike paths.
295	Some way that people who cannot walk the Greenway could still be able to enjoy views of the river and being surrounded by nature.
296	Cameras on greenway
297	Connected greenways for useful movement.
298	Emergency call stations.
299	sheltered bus stops.
300	Connecting the great starts we have, connect to North Campus Rex Center, Bradford Creek and Washington
301	The southwest side of Greenville is extremely ignored in these discussions and planning activities
302	I'd like to see more awareness I'm drivers about bikes and sidewalks. At very few sidewalks to motorists actually stop.
303	Please ask the city to create a policy banning round up and other weed killers from being used at our parks and green spaces. Green spaces not brown spaces.
304	I very much want Greenville to be a more active community with more sidewalks so neighborhoods can connect more and older teens can walk and run in a safer environment. Our kids have been so bored since moving here from NHC just two hours away yet seems like almost a different way of life. More excitement please!
305	I really wish ECU had a pedestrian bridge over 10th. The stop/go is horrendous. People cross everywhere, it's dangerous! Especially with the new traffic
306	14th street needs a sidewalk & bike lane from Greenville Blvd to VMC
307	All of the 5 things above are very important. I did not like ranking them.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

308	I believe we need more bike lanes, more stop signs, and more sidewalks. It is not safe to walk or ride in a large portion of this city. Many motorists are inconsiderate, and don't observe common courtesies such as giving bicyclists at least three feet of space on the road, or stopping for pedestrians at crosswalks. If we had more sidewalks, stop signs, and bike paths it would make these common courtesies much more apparent.
309	Educating drivers because they do not pay attention.
310	bike lanes all over the city
311	More greenways would be awesome to provide a safe space to exercise outside and enjoy nature.
312	Education for public
313	Some cities have bicycle fixing stations near their college campuses. UGA has some. They like football there. Google it.
314	Some cities have bicycle fixing stations near their college campuses. UGA has some. They like football there. Google it.
315	Traffic lights or something to stop traffic so when an individual is trying to continue on the greenway they can cross the busy streets without almost getting hit by drivers that don't like to slow down. This is specially dangerous for children and families utilizing the trail.
316	Connecting East to West campus.
317	Adding more trails on the surrounding parts of Greenville, that are not in the busy parts of the city.
318	Good list in question 6.
319	Benches
320	More beautification.
321	Longer trails to get around the entire city.
322	Better lighting on Greenway
323	The improvement of bike lanes and side walks and crossing large traffic areas
324	The above was a challenge to rank as I believe all are equally important.
325	Walking bridges in certain areas. (Three on 10th St.--2 by ECU, one near Cookout. One bridging the mall and Arlington Village.)
326	Speed bumps and signage for car traffic to slow down.
327	.
328	Traffic enforcement and maybe bicycle patrol on the Greenway.
329	Safety is key.
330	Unfortunately, I can't easily bicycle anywhere with efficiency and without the fear of getting hit. Bike lane additions to major parts of the city are a good way to support a community of cyclists , who do exist!
331	Lighting. Visibility for safety. Lakes in Raleigh feel safer to walk around bc of the foot traffic and visibility. Not hidden in the woods.
332	The intersection at Treybrooke honestly needs a stop light. There have been many accidents at this intersection and I feel like it is only a matter of time before someone is killed in an accident.
333	Expanding the Greenway and or providing connectors from populated sections of the city. Would use it more but have to drive to get there safely. That is a big deterrent.
334	lanes in high traffic area and signs
335	A stoplight/crosswalk at Treybrooke/Health Science Campus intersection!!!
336	Trail heads identification and mapping/signs.
337	Sinage

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

338	Bicycle, making streets wider for bicyclist since they need space to ride on the streets also. Education on respecting cyclist riding lane/space needs to be addressed. Sometimes people speed right up to them and do not give them enough room to ride. The cyclist have to take some responsibility also by not riding 2 a breast and taking up so much of the road. Cyclist need to be educated on respecting traffic and each giving the other space and so does the vehicular traffic that shares the road with them. The secondary roads over that past 10 or so years have gotten wider, but they moved the white line further to the right instead of leaving the white line where the old width of the road was. If you left it where it was before they widen the road cyclist would be able to ride on the white line or just on the ditch side of the line. Thereby creating more of a cycling lane for bikers. As for pedestrians we need to try to promote pedestrian right of ways. Many people in the Triangle area and most other communities in the US give pedestrians the right of way. In Greenville it is very dangerous since most people do not yield for pedestrians. So educating the public through local TV, G-TV 9, radio, newspaper and public forums may help this problem. Trail improvements can be made but just remember the cost in maintaining that trail that needs to be factored in before you build the trail. Also, is the trail in a safe area? If you build one in an area that has some crime people will not use it for fear of being robbed or mugged. Take the Tobacco trail in Durham for example a major problem with that trail is safety. It was a great idea to use the old railroad beds as a trail but if it is unsafe then people will not use the trail. Then you have a unused trail that the taxpayers have to spend money to maintain with the work of city employees.
339	clear paths for ease of use
340	None that I can think of
341	Stricter penalties for motorists who strike pedestrians
342	Connecting various parts of the city - Eastern Pines to Uptown to the hospital complex
343	cameras lighting
344	n/a
345	lighting
346	separate biking trails from the road
347	cleanliness
348	None
349	none
350	all <illegible>
351	wider paths
352	crosswalks
353	Bicycle Ed
354	an increase of shaded trails/places to run/bike
355	N/A
356	Safety
357	na
358	better lighting and security
359	Bike paths need to be user friendly. For example, it just disappears on south side of Elm St at the 14th St intersection. Trashcans would be helpful along the Greenway. It would be nice if there were labels on the Greenway to let us know what plants we are seeing and what geological history is represented.
360	Bike lanes. I wish I could ride my bike all over the city, but the idea of riding on 10th Street, Arlington Blvd., Greenville Blvd. is terrifying.
361	making it safe
362	Like the bicycle Police patrolling. Feel safer on low trail activity days.
363	Safety when trails cross streets and roads
364	More than 6 miles!
365	Improve the fluidity of sidewalks. (Put them everywhere, or at the very least continuously on all the main roads on both sides) & improve bike lanes so they actually serve a physical purpose, not an asthetic one.
366	More lighting on the greenway

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

367	Safety is the key, however, education to the public that sidewalks are for pedestrian not bicycles. It is very frustrating as a pedestrian when bicycle rides take up the sidewalk and make pedestrians walk in the road rather than them using the street for travel.
368	A more wide-spread greenway system would make it easier and safer to ride a bicycle to work
369	Better and safer ways to commute from my house to the ECU campus via bicycle or walking. If there is a bicycle lane on the streets then more people would feel safer cycling to campus classes or jobs.
370	Please provide cross walks around the hospital where people actually walk. Currently there is no cross walk from Treybrooke apartments onto ECU and the hospital campus. So people have to jay walk into traffic just to get to work and school.
371	Safety improvements
372	I would like to see complete streets/boulevard models implemented along all major thoroughfares in the City.
373	Install more sidewalks on major streets: Memorial, Dickinson Ave, Greenville Blvd pass the university side of town.
374	Pedestrian crosswalks. There are always people crossing the street (Hwy. 33 for example by Copper Beach). Many have been hit. Can we find a better way for them to cross the street to protect their safety and the motorists?
375	Please expands the roads on Dickinson, MacGregor Downs and Allen Road to include room for bicyclist. People almost intentionally have tried to run me over in the past and there have been bicyclist hit.
376	MORE SIDEWALKS. Seriously, more sidewalks.
377	Since I am new to Greenville, I don't have any thoughts on this yet
378	More off road bike and hiking trails. Keep pedestrians and bikes off main streets where they can safely hike and bike. Putting them on main streets is going to get someone killed by a motorist who is not paying attention.
379	more bike friendly areas
380	Almost every street I bike on has some sort of pot hole that can harm my bike. These need to be fixed.
381	Need cameras, emergency phones, and more park rangers to patrol regularly
382	Having them well-lighted so it is safe in the evening. Also bike lanes to ride around town on main roads.
383	none, other than those posted in question 6
384	Make riding a bicycle in Greenville a safe activity.
385	Pedestrian bridges all over Greenville would be helpful.
386	Make Greenville more pedestrian friendly. Difficult to move around near major roads unless you are in a car.
387	Extend the greenway and connect it to shopping, restaurants, and neighborhoods.
388	Trails/paths that connect residential areas to workplaces & which would permit commuting without need for an automobile. Existing roadways & motorists are frankly hazardous to pedestrians/bicyclists.
389	Longer greenway
390	Consistent side walks. Often times you can't walk around an entire block because the sidewalk ends on one side of the road and begins on the other.
391	It would be nice to have a route dedicated to tie the community together from the hospital area to downtown and from Firetower to downtown via either Arlington or Charles. Currently, there are no suitable alternatives for cyclists.
392	good lighting, removing "hiding" places, watching for washout areas that cause mud to flow onto the paths.
393	We need more bike lanes and they need to be wider for multiple riders. Ideally, the center lanes on the larger roads would be converted to bike lanes.
394	I believe people should be able to cross Greenville from East to West and North to South safely on bikes.
395	I would like to see the bus system improved--when you bike to work, inevitably you may have to take a bus if it begins to rain. I feel like the bus system here is spotty as far as bus stop locations--I rarely see buses running. I am also interested in more things like River Park North and the county park. I feel like there should be additional land trusts (see Door County, WI) and parks with trails. They don't have to be expensive or difficult to keep up--the ones in Door County don't have services other than trails. There's just not enough to do outside in Pitt County.
396	The development of new trails, exclusively for biking and walking. That is the #1 priority. Hands down.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

397	More monitoring of the Greenways by GPD and or cameras. Although I feel safe on the Greenways, it pains me to see the Very Frequent vandalism along the trail.
398	clearly sign and illuminate pedestrian crossings, driver education, bicycle rider education, ...
399	Safe crosswalks that include a pedestrian triggered light (stoplights that are only in operation when a pedestrian has pushed a button to cross) - specifically at the greenway crossing at 10th.
400	Bathrooms on greenway, regular police presence on greenway, sidewalks in Greenville city limits.
401	Crosswalks with signals for pedestrians
402	Some physical structure on the greenway to be able to use the bathroom and get water if needed. Sidewalks in high traffic areas
403	Intersection cameras to prosecute those who fail to yield to pedestrians, run red lights, and cause an unsafe environment for walkers, bikers, and the community in general.
404	Bike lanes. Replacing "share the road" signs with something more accurate. Share the road insinuates that the road belongs to the drivers and cyclists are only allowed to be there if they share. People in Greenville do not share. ECU mascot is a pirate, which is the epitome of someone who does not share so at least it's accurate. Signage indicating the lawful buffer space for cyclists would be FAR more helpful and in fact necessary.
405	Seats to rest with kids. Safety measures like signs to notify someone where you are on the trail. Internet maps that are more detailed.
406	Providing outdoor workout equipment along trails for an interactive workout option.
407	-lighting -crime watch
408	Making sure the greenways blend with the natural surroundings and that sidewalk/bike paths are done tastefully. These feature should act as visual improvements to the areas in which they are added.
409	The supporting infrastructure that comes with maintaining these quality of life amenities. Bike racks, water fountains, lighting, etc.
410	street lights around walking paths for example around the entire circle at Boyd Lee Park
411	Security measures in greenways to make it a safer place to walk. Need more bike ways on streets so cars can drive safer around them.
412	n/a
413	Designate some open outdoor trails that have lighting for those wishing to walk/bike during the evenings for when daylight savings time changes during the timeframe of November to March.
414	The greenway often floods. Also, sometimes it is hard to find somewhere to park. It is also not great having to walk through communities to get to the next section of trails. My children have had some very close calls with people speeding out of their parking lot/driveway and not paying attention.
415	Connecting communities and towns with greenways.
416	This may not be feasible, but if we wish to encourage the use of bicycling and walking as forms of transportation, not merely recreation, then we need to consider facilities that these commuters can use to freshen up, shower, change once they have completed their commute.
417	Trail maps and mile markers
418	Connect one end of Greenville to the other. Currently there is no safe way of traversing the city without risking your life.
419	Maintenance of the few existing sidewalks we have - most are in horrible condition. Same with the pitiful bike lane we have - its almost unusable and not maintained.
420	Having bike lanes and bike routes. I used to live in Portland Oregon and felt very safe riding my bike through city traffic because of good bike lanes, clearly marked signs, stop lights for bikes, and safe stop boxes for bikers to get in front of the cars at stop lights so as not to be run over.
421	Certain parts of Greenville, e.g. 10th Street southeast of Greenville Boulevard, should have crosswalks to retail relative to housing. No one should have to stand or sit in the middle of the street for bread.
422	Minimize barriers to travel, create greater street connectivity, overpasses to enable safe crossing of busy streets, street design that considers all modes of transportation-not just cars.
423	Trails to get places that don't cross busy intersections.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

424	Bike lanes and greenways that connect important parts of the community so that getting around on bikes is more accessible and feasible for more people
425	Na
426	Lighting, awareness of crossings on busy streets, many drivers do not know or understand how crosswalks, crossing signs, hand signals, etc works.
427	as a university community, it is essential to have safe and plenty of trails for walking and biking!
428	More green space with trees
429	connectivity of various greenways and walkable, bikeable runable streets. I would consider commuting by bike on a greenway. We really need sidewalks AND crosswalks.
430	Clear signage and lighting.
431	It would be really, really, really great if trails connected nearby neighborhoods to Boyd Lee Park, though I realize this would involve the town of Winterville. I would like to see the city use public rights of way for walking trails more.
432	access out of neighborhoods to greenway or main thoroughfares for biking to uptown
433	We need more and we need green areas located away from roads, shops and businesses. They need to be easily accessible to the entire community.
434	More connected routed
435	more lighting on sidewalks and trails
436	Interconnect areas of town and also surrounding communities. This is a plus in other communities that folks/families can travel/exercise between communities safely.
437	None
438	Bike lanes, please
439	ADA compliance needs to be a priority so that community ambulation is open to all, not just the brave and able-bodied.
440	More adventure trails
441	Wheels only paths vs. feet only paths. Example: U. Colorado at Boulder.
442	Pedestrian over and under passes should be strategically considered as alternatives to crosswalks for busier streets.
443	Traffic lights that are adapted to cyclists
444	Lighting
445	N/a
446	Lighting
447	The five items listed above cover most things related to bikes and walking, but having transit system available later hours (well into the evening) during the week and on Sunday would mean I (and others) could go car-less completely. that should be the ultimate goal: for people to be free to choose whether to have a car.
448	The five items listed above cover most things related to bikes and walking, but having transit system available later hours (well into the evening) during the week and on Sunday would mean I (and others) could go car-less completely. that should be the ultimate goal: for people to be free to choose whether to have a car.
449	Dedicated bike lanes that are well marked
450	Sidewalks and safe street crossings.
451	Bicycle trails that extend say to Washington or nearby cities. See the old Cape Cod Railway in Massachusetts and what was done with that.
452	Greenville needs to establish dedicated pedestrian and bike paths that not only exist in flood plains but also go where people want to go. This would include paths linking downtown, to the medical campus, to the main ECU campus, major residential areas, and major commercial locations (e.g., shopping areas). Incorporating these routes also should be considered a basic part of zoning and development planning.
453	Bike lanes, crosswalks, and STOP teaching pedestrians that they have the right of way, esp near ECU.
454	Contiguous routes for cycling multiple cycling options (paved, unpaved, bike lanes) Bicycle sensors at every stop light so I don't have to wait 5 minutes

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

455	the dangerous sidewalks on 5th st. Last week I saw a student walking down 5th St. She tripped on uneven pavement, fell on her face and skinned her knees and face.
456	Interconnectivity, so that I don't have to drive to go run/ bike/ walk somewhere....
457	more bike lanes!!!
458	I think maintenance is important to me too in that some areas need a little extra attention based on use.
459	Adding more emergency poles/alert stations placed in areas where people tend to exercise, walk, bike, etc.
460	I would really like for the Greenway to extend into the Medical District.
461	Educate drivers. Make people of Greenville to be nicer people. Get more people to bike/walk.
462	More of Greenville needs to be walking and bike friendly, so that people can get to their jobs.
463	More sidewalks
464	Bike ways so students can safely bike to ECU. Traffic and Parking problems continue to grow so we need to get more people on bikes.
465	Maintenance and upkeep of greenway. Safety while jogging in neighborhoods.
466	Place to get outside to jog.
467	All of the above are important
468	Need sidewalks especially from Savannah place to Langston farms
469	Please lower the speed limits and start enforcing them! No one stops at the cross walks, it's awful and dangerous!
470	making more of them available that are safe
471	pedestrian bridge over the Tar River
472	Patrol units showing presence on green ways, enforcing leash laws
473	Making sure areas are clean and well lit.
474	dog waste receptors and trash cans, solar lighting.
475	Lighting at night! During the summer months lighting is adequate for those that work for time jobs during the day. However lighting is extremely poor during the spring, fall and winter months when it gets dark early.
476	Being able to connect other parts of Greenville via a greenway
477	Complete Greenway to Moye Blvd.
478	Signs and information kiosk about what's in and around Greenville.
479	I think lighting will be key.
480	Extending the Greenway into a larger network of trails, including non paved, dirt or cinder trails along Greenway, extending the network of trails but further utilizing space that is already considered greenspace. Police bike patrols on Greenway, not regular but at least enough to know the public knows they're active there. Better signage away from Greenway so non residents or new citizens know where to access.
481	Medians, pedestrian bridges!!!, jaywalk laws? Police call stations on trail like on campus,
482	Educating the public about bicycling laws and how to share the road safely with cyclists. As well as the possibility of pedestrian bridges in locations along 10th Street, which would allow people and students to cross without hindering the flow of traffic and potentially causing wrecks on this busy road.
483	Lighting and safety measures so I feel Comfortable taking my children walking by myself
484	Safe walking / bike Link Windsor neighborhood to wintergreen & Alice keen park.
485	More bike lanes or wider lanes with shoulders. The rounds outside of the centralized city have been ruined with "chip seal" roads where the road is torn up and covered with tar and gravel left for the weight of motorists vehicles to paved and flatten the road e.g. Forlines Road. The road is much more dangerous than before this was done, twice in the last 7 years I've lived off that road. The road is much more narrow and the edge of the road is still looks rocks and very dangerous, especially for cyclists.
486	More trails around Pitt county...not just downtown
487	bike lanes & bike racks.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

488	Lights, water stations, emergency alert system on the greenway
489	Lanes for bikes and more awareness for cyclist.
490	While I love the greenway leading to the town commons through Elm Street Park, there are no safe ways to access it unless you live downtown already. I'd like to see other neighborhoods connected via walkways and bike lanes. It would be great for families to be able to walk and bike to dinner, etc., from their neighborhoods. The bike lanes along Red Banks are great, but they cease just as one approaches the busiest crossing at Charles or 14th when you need them the most.
491	Education. Drivers irrationally seem to hate bike riders and people who walk and see them as an annoyance.
492	It would be great to have a public hiking and mountain bike nature trail.
493	sidewalks that do not abruptly end, wider shoulders on narrow lanes
494	Safe places to cross major streets.
495	Bike lanes in the city. Would also be nice to have a mountain biking trail.
496	I think it would be very beneficial to have greenway that goes from uptown Greenville to Winterville. We need to keep in mind that other major cities like Raleigh and others have very good and many miles of greenways.
497	Extension for of greenway towards the medical campus!
498	Pedestrian bridges in troubled areas would increase the number of pedestrians and keep them safe. Having police ticket those who disobey pedestrian laws.
499	More water foundations that are dogs friendly (below knee level) and perhaps plants/flowers along trails to keep mosquitoes at bay (green alternative to chemicals or whatever)
500	Please make it possible and safe to get around town on bicycles and on foot
501	Safe crosswalks
502	More garbage bins along the Greenway. I see a lot of pollution because of lack of access to garbage recepticals. With the Greenway being right at the waters edge all those pollutants easily transfer into our waterways.
503	More walkable/bikeable destinations.
504	Bicycle lanes, pedestrian crosswalks.
505	Lighting, signs, education and enforcement of laws
506	Definitely the sidewalks
507	More trails that incorporate hills
508	Any way to incorporate the blue light phones ECU has on the trails?
509	Connect the entire city/community area with greenways/walking/biking paths and trails
510	Continue to add sidewalks.
511	I believe that the new Greenway project and recent city-wide sidewalk projects have been a huge upgrade, but there aren't enough bike lanes around town.
512	Greenville needs more Greenway-like areas in town for biking and hiking/walking.
513	Leash law enforcement
514	I would just enjoy some more nature trails!
515	GVPD safety call boxes in various locations like ECU has on campus would be nice.
516	Fixing pot holes and maintenance on side walks.
517	Pet waste disposal systems conveniently located throughout walking pathways.
518	Having one specified area that is really good at biking/walking would highlight how impactful good infrastructure is. We lack that, as our strong bike/walk investments seems to be splattered through the city. We should pick one area and define its bikability and walkability to the 9's.
519	Sidewalks
520	Safety Safety
521	Sidewalks Bike lanes Water fountains Bike route signs not only in city but out on country roads

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

522	More places to walk in west greenville and near the hospital.
523	Scenery
524	Trails for walks marked away from trails for bikes even if is on the same trail.
525	More trails give bikers places to go. Adding water pumps or fountains on trails would be nice for both humans and dogs
526	More lights on the greenways and streets
527	East 14th Street from Greenville Blvd to Charles need sidewalk so that people can walk to the public library branches (East and Sheppard Main), the park, and the Uptown area.
528	Safe sidewalks and crosswalks, more dedicated bike lanes across the city.
529	Security, ensuring that the trails are safe for women
530	Mile markers
531	More unpaved trails for nature walks, hiking or running would be great. Sometimes a greenway does not have to be paved to be amazing.
532	A bike lane that goes north to south would be good.
533	Signs that say bike may use full lane
534	More cross walks. They are only good if drivers obey the law and yield at the cross walks though. Side walks would be a huge plus.
535	The proposed expansion of the Greenway toward the River Hill neighborhood would be a great addition.
536	Instead of more baseball fields, a bicycle complex would be nice. Velodrome, memorial skatepark for dave mirra, and open dirt for hand dug jumps.
537	Connection to the East Coast Greenway
538	More trails. Safer ways for trails to cross major roads.
539	Sidewalks and crosswalks on existing busy intersections close to residential neighborhoods.
540	Video surveillance. The greenway is beautiful but often times unsafe feeling.
541	Sidewalks and crosswalks around our neighborhoods along Evans, Firetower, Red Banks, Greenville Blvd!!!!!! Think of the families that live here!!!!!!
542	A river walk connecting River Park North to the Greenway.
543	Add more bike lanes to all roads in Greenville and the surrounding areas.
544	I was really disappointed when the river trails were paved. I would like to see more nature trails.
545	Hiking trails in different parts of the County and region, e.g. the VOA site in Beaufort County (and Pitt County) and areas closer to the rivers/streams
546	Mainly it's sidewalks and lighting. I wish there was a sidewalk on 14th (from Fire Tower to Elm).
547	all
548	that bicyclist are made to obey the road laws. They run stop lights, don't give hand signals, slow traffic to a point of accidents.
549	More sidewalks
550	N/A
551	General maintenance is necessary. Making new paths is great, but maintaining the ones that already exist is equally important.
552	Having more pedestrian path and and bicycle trails in general...
553	Maintain the area once developed and improve those areas when necessary, not when deteriorated.
554	Continue to have bike officers patrol greenway, especially at dusk.
555	Education at grade schools about safe walking and biking and about safe gear (riding bikes on right side, bikes need front and rear lights at night, pedestrians need to be visible at night, turning correctly on a bike and other traffic rules). Examinations about these skills should be used, just like there are driver examinations on paper and on the road.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

556	More of them. More sidewalks and bicycle lanes or paths
557	Enforcing traffic laws -- even for pedestrians & cyclists; ticketing cars that block sidewalks
558	More sidewalks, signs, and lighting. On back roads there aren't enough lighting. When it rains at night the lines on the road can barely be seen. So maybe reflectors on the lines in the middle or street lights. Signs as well would be great. Signs around PCC Campus like ECU has or signs that are more visible. If someone needs glasses or contacts there's no way they would be able to see the signs. I think a bridge from one side of PCC to the stores would be great for people in wheelchairs or for those that are legally blind.
559	Having clear connectors to different parts of the city. I feel like distances of a few miles should be easy to travel by bike, but there's no safe roads or trails to do so.
560	Protected pedestrian crossings. Grassy medians instead of "suicide lanes" (center turn lanes for cars). Sidewalks, sidewalks, sidewalks!
561	Just an option of a sidewalk on major connecting roads... Evans, Firetower, Arlington...
562	I would LOVE to see a sidewalk extent from regency down Thomas Langston. To have a "neighborhood" school and surrounding neighborhoods (Davencroft, Davencroft Village, Savannah Place) not be able to walk safely does not make sense.
563	Crossing from PCC across the street is VERY DANGEROUS!
564	The attitude: if one is walking, people feel pity for him/her. They don't care about the health benefit
565	Major routes should be available to make your way around the City and community. There are no real options to allow cycling to work unless I want to risk life and limb every step of the way.
566	Walking and biking overpasses or tunnels for major intersections like Greenville Blvd.
567	Better lighting, pedestrian bridges over roads.
568	Making trails that cross the city, not just in the greenway areas.
569	Places to gather and come together with other like-minded people for networking, community and maybe have programs that promote the greenway trails and walkways with maps. More education on where they are and things to do with family, maybe fun things for scouts or family activities like safe geocaching. A safe hangout for families and friends.
570	The cleanliness of the trails.
571	Usable bike lanes on primary routes.
572	Sideways connecting The SouthRidge Subdivision into the Town of Winterville. We feel annexed (away from the Town)!
573	n/a
574	Connectivity is a very important issue. People have to be able to get where they want to go and that involves connecting neighborhoods with shopping, restaurants and schools in a safe and convenient way. This can involve some of the existing roadways but not in their current state. If you make the routes to these desired locations reasonable to navigate by foot or bike people will use them.
575	CAN'T THINK OF ANY
576	What is most important is allowing more safe spaces to exist for people who would like to go for walks/runs. Making sure that areas are clean and clearly marked.
577	Greenways & on-street bikeways to link with adjacent towns.
578	Sidewalks and bike lanes along 14th street to aid people commuting to ECU and children walking to Aycok Middle School and Elmhurst.
579	I would like the "planned" greenways to become official greenways so I don't feel like I'm trespassing.
580	having trails that are crushed stone or natural paths instead of all paved; trash cans and bag stations for pet owners to pick up after their pets. It would be great to see the greenway connected to communities outside of Greenville (Ayden, Bethel, Winterville, Grifton, etc). We could possibly ride our bikes to the Watermelon festival or collard festival!
581	bike lanes on all roads and caution signs in the city. pedestrian crossing to the max.
582	Stop lights and crosswalks.
583	resting spots with seated area.

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

584	Water fountains, porta potty or bathrooms, longer paved routes for running on the greenway, more benches, more signage on route. Long term goal for community - Maybe a eatery with bathrooms, bike racks, parking . A place that serves healthy snacks,meals, water, drinks with a nice view of the tar .
585	It would be nice to have more greenway trail since it is the only car-free trail to run on in Greenville.
586	Reducing the stray animal population
587	I think that education,encouragement and enforcement must come if any improvements are to be beneficial and utilized
588	bike and pedestrian are most important
589	more trail along the river, water fountains, vehicle driver knowledge of pedestrian crossings and their legal obligations for pedestrians, police all boxes on greenway, walking bridge from town commons to river park north
590	Bike/walk bridge across the river to the park
591	dog friendly
592	More spurs of the greenway to connect it to various parts of the city.
593	Maybe have certain hours that people can access certain trails If we no that a trail has lot of roots on it and its not in a well lite area it might been access after dark to prevent injury.
594	Having more dog pick bags around greenway trails is important to me. Also, nice trails in general would be nice. I use to live in Raleigh and loved the greenway trails there. Overall they were much nicer and more community involved. I think River Park North has a lot more potential, but I don't feel as safe there. I think have a paved track in addition to the dirt trails would be nice. Maybe a bridge going over the water would be nice and provide additional fishing opportunities.
595	My concerns or points were covered in questions.
596	Better street lighting is very important to me.
597	I appreciate the police at the Cotanche & 9th st. crossing who make it safe for employees & students to cross safely. Cars are more likely to stop. Tickets for speeding & reckless drivers.
598	Lighting or phones would promote a feeling of safety in the later/earlier hours of the day.
599	That pretty much covers it. I would consider riding to work (4 miles) occasionally if there were a safe way to make it up East Tenth Street to ECU.
600	Need sidewalks and crosswalks for people to safely walk in Greenville & Winterville.
601	downtown Gville near the college
602	Greenway
603	safety
604	When new neighborhoods are created, the developer should have to create greenways per a city ordinance.
605	Making sure bikers are out
606	More off-road / dirt trails for biking and hiking, maybe along the creeks such as Greens Mill Run.
607	Much more education & media support
608	Much more education & media support
609	I would like children to be able to get to school safely by foot or bicycle. Areas by schools would be my first priority. I would then encourage group walking and riding bikes by children to and from school.
610	sidewalks or wider streets in every neighborhood!
611	sidewalks or wider streets in every neighborhood!
612	Expanding to Winterville area, because that's where I live. Sidewalks on Davenport Farm, Reedy Branch, Fortlines, and Frog Level would allow students to walk or bike to school.
613	Building short bike/pedestrian connectors between existing neighborhood streets that currently only connect on arterial roads would be an easy way to provide low traffic bike/ped routes

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)


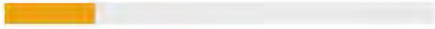
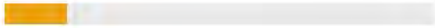


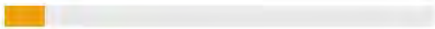
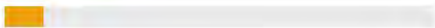




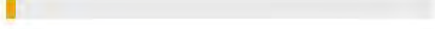
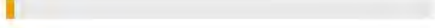
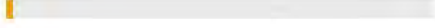
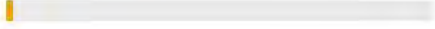
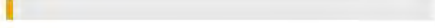
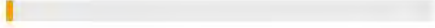
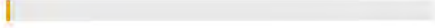

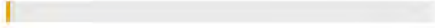


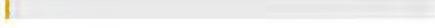
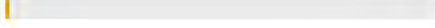
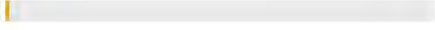
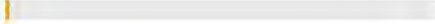
614	I want to reiterate that I place value in developing all three of these areas. Greenville SC has made huge improvements in their city with all of the above. Consider improving bike paths and the greenway as one on the appropriate side of town and adding dedicated bike lanes in the center median similar to those found in Washington DC when updating, rerouting, or creating new road ways.
615	During morning rush hour many middle-schoolers (sometimes with parents) walk 14th St. to Eppes Middle School on the north side of the road between Ragsdale Rd. and Dalebrook Circle. That section has no sidewalk and the berm is narrow. I've talked to the city and there are problems with sidwalking that strip, but my perception is these children are at risk in that section. I would like a solution to be found for this safety issue.
616	Changing the regional culture so that residents of Greenville don't feel compelled to drive everywhere. Walking/biking should always be the first option for places less than a mile away, but it seems that everyone here wants to drive all the time. It baffles me.
617	Variety. Urban with nature. Take the bike paths off the main roads for safety. Get sidewalks in areas where people need them verses walking in the roadway such as Evans Street and Memorial Drive. Expand River Park North to a pedestrian crossing at 264 to get over to E. 10th St.
618	Distance markers would be great. every 1/4 mile so people can quickly judge distance.
619	More sidewalks and safer crosswalks would be good
620	Place bright yellow signs in the street at crosswalks telling motorists to "stop...it's the law"
621	Besides those already mentioned above, crosswalks are needed
622	The Greenway could use connections among its different sections. A pie in the sky request would be for bridges over 10th and Elm and Charles to give more continuity to the trail.
623	Connect 'the grid' with the grocery stores by a safe bicycle route. Going from First to either Harris Teeter or Food Lion is a death defying act.
624	Have the Greenway more accessible by extending to more neighborhoods.
625	Safer options for crossing busy streets. Maybe an all-red-light at busy intersections like Charles & 14th?
626	It's pretty frustrating that the choices in part 6 of this survey do not include "changes to road design that lower the speed of vehicular traffic" (e.g., narrower lanes, , shorter sight lines). This is the most important thing we can do, within the realm of transportation planning strictly defined. Dense development is even more important, though it falls under the comprehensive plan. But we need to make sure that people have places they actually want to go that are in walking/biking distance to their homes and jobs. That development should also be regulated to improve walking and biking, with smaller building setbacks, parking lots behind rather than in front of buildings, etc. Less crucially: it's hot here. The streets need more shade trees. Trees will also encourage slower motor vehicle speeds. Finally, we currently do not have a good biking connection across the Tar River; Greene St. is way too fast for most people to use. We need an MUP that connects the Town Common to the airport and to major employers (as well as residential neighborhoods) on the north side of the river.
627	More benches. Perhaps some educating signs that explain the nature we see.
628	More bicycle routes connecting neighborhoods
629	Network that becomes a viable alternative transportation route for the workplace. May even see connections to surrounding towns.
630	We just need more sidewalks especially on more busy roads.
631	Walking groups / programs - walking tours, running club
632	Video surveillance
633	To have more safe areas for walking and bike riding.
634	I'd like there to be a safe way to bike around different areas Greenville that connect. The Greenway is one of the only places I feel safe.
635	Crosswalks in uptown could be designed better. More bike racks, even for sigle bikes.
636	Longer times to clear the crosswalks.
637	I think we should install water bottle refill stations along the greenway, especially as it expands through future developments. Public art and lighting installations would also be nice and they will encourage people to explore our city more on foot and by riding bikes.
638	More enforcement of crosswalk violators. (pedestrians and vehicles)

What other bicycle, pedestrian, and trail improvements are important to you? (Cont)

639	Dog poop bags stands!!! It would be great if we could get them along the greenway!
640	connectors from various places in town to the major greenways
641	N/A
642	Connect the Greenway to Riverpark North via pedestrian bridge over the Tar.
643	Nothing
644	I would like to see many more bike racks and water fountains around town to make it more convenient to ride around and run errands, etc., as well as bike and walk for recreation. There are a lot of charity walks in Greenville each year, and water fountains are needed in more places. It would be great to reduce plastic water bottle use as a side benefit.
645	Safety is a priority. Crosswalks where all four lights are red! Protected crosswalks for all pedestrians from the crazy Greenville drivers.
646	Safe continuity of bicycle and pedestrian routes (not interrupted by difficult or inconvenient street crossings, end of sidewalks, etc.)
647	Longer sections not crossing roads.
648	Need a connection to the East Coast Greenway
649	I would like a park which has an unpaved trail system for mountain biking, running and walking. All we have is riverpark and Boyd lee. Both are extremely short and neither allows biking. The bicycle post trail and goose creek state park are the best things in the area. One is private and the other is a 40 minute drive.
650	Lighting, smooth surfaces, less potholes and trash on the road and trails.
651	More of them
652	Though marked "5" above, on-street bikeways to and from all schools are a top priority. Some through-woods greenway connections are appropriate for children commuting to some schools..
653	Flooding on the Greenway.
654	Public water fountains around town. Areas to access near the river
655	Enforcement
656	I would like for connections to be made so that the trails/bike lanes are continuous.
657	We are a long way from this, but a bike share program may be most effective in raising awareness by putting higher volumes of riders on the roads.
658	On the Trails, I would like to see them reach shopping centers or store fronts and connect all sides of the city.

Do you have any other comments, questions, or concerns?

(Most commonly used words followed by all responses)

Bike		24.27%	83
Greenville		20.76%	71
Greenway		14.33%	49
Sidewalks		14.04%	48
Walk		11.99%	41
Roads		9.36%	32
Community		9.06%	31
Safety		2.92%	10
Public		2.92%	10
Survey		2.63%	9
Bus		2.34%	8
Speed		2.05%	7
Attractive		1.75%	6
Walkways		1.46%	5
Great Work		1.46%	5
Opportunity		1.46%	5
Safer		1.46%	5
Buses Running		0.88%	3
Green Ways		0.88%	3
Raleigh		0.88%	3
Initiative		0.88%	3
Distracted Driving		0.88%	3
Pitt County		0.88%	3
Service Needs		0.88%	3
Beautiful		0.88%	3
Glad		0.88%	3

Do you have any other comments, questions, or concerns?

#	Responses
1	Would love to see designated bike routes connecting Greenville/Winterville. It is difficult and often scary riding a bike in either places.
2	Need more crosswalks on 5th near the university and signs to admonish motorists that pedestrians have the right of way.
3	The RR crossings here in town are very dangerous to cycle across. There is no signage or rail coverage to make them safer or to educate people how to bike across them and many cyclists fall and get hurt on the tracks
4	The community is very accomodating to ECU & med. community. As I age I feel less & less safe. I want to feel safe on the streets & sidewalks.
5	No
6	Would love to ride if safer places to ride. Complete Streets everywhere!
7	I like "sidewalks" WIDE enough to also be bike paths which is a common solution in Scandanavian countries.
8	Very informative comprehensive plan. Thanks for the opportunity for public open houses & citizen input
9	N/A
10	Love the greenway! Need more miles!
11	no
12	Would like to do more biking!
13	Safety is always a paramount concern "Line of Sight" would be handy on the greenway. Stiff fines for hitting a hiker or bicyclers & at intersections. Fines collected for Infringement of Pedestrian or Biker rights could be channeled to improvements and maintenance.
14	Save lives
15	I'm the president of the ECVELO cycling club. 252-258-3762
16	Public transportation! Trams, something
17	Need sidewalks on Evans St and bicycle lanes
18	Thanks for doing this!
19	Would use [greenways] more if it were safe to access from my home
20	When driving car are going so fast bicycles need a space of their own
21	Need speed bumps in residential areas
22	N/A
23	Greenway trails not in the low income areas. Sorry I will not walk any where near Evans!!!
24	I would love to see areas like those available in Raleigh.
25	Please stop riding bikes on busy roads. Someone could be killed or hurt. People riding bikes should think before riding during rush hour.
26	No
27	Do not raise taxes to provide greenways
28	No
29	Do not want if taxes to be raised. Quit giving taxpayer money to developers who already have so much

Do you have any other comments, questions, or concerns? (Cont)

30	I just believe that it is important for my children and others to walk, ride, run around, enjoy the scenery & not have to worry about being hit or anything else while trying to enjoy what time we have left on the earth
31	I'm very glad that they have provided this forum for feedback. Although I cannot attend (my bicycle is in the shop!) I do appreciate the input opportunity.
32	More Police enforcement, maybe unmarked cars to detect and prosecute texting drivers or possibly a Citizens patrol for eyes and detection. All of the Distracted driving commercials aren't working! Lack of common sense, I suppose!
33	The world is right close but we have set it up for auto access. Why not start to create paths for walk, bike, slow-speed travel?
34	Yes, Greenville should stand up, stand out, be exceptional. A walkable and bikable community is a strong drawing card for successful people and successful businesses. It is cliché but true, if you build it they will come. Make it happen.
35	Please make exercising outside easier for all citizens of Pitt County.
36	Bike/Ped connections around the perimeter of ECU campus are critical
37	I visited Charlotte NC recently, & even in that big city there were parks, walkways, bicycle rentals (one way), & bathrooms. I was amazed how even in the middle of the city there were tons of walkways.
38	I have to drive my car to the greenway because there are no sidewalks or bike paths that are safe or even available on Evans St. This is a main street in Greenville! Please make sidewalks. If we want to reduce fossil fuel consumption & free up parking for the downtown area (ECU parents visiting, etc) then we MUST have a more bike friendly, walking friendly town. :) Thank you
39	better and safer communities
40	Transportation on Sundays is a must!!
41	busses should run on Sundays please
42	great
43	longer bus hours/run on Sunday
44	to get buses running on Sunday should be a new goal.
45	Buses running on Sundays and more buses running for each route
46	Buses should run on Sunday. Like every city with a population over or close to 90,000
47	G.R.E.A.T. Busses need to be on time & every day even Sunday & driver need to be courteous to riders
48	Yes
49	people have jobs, we need a bus to run on Sundays as well as during the week.
50	streets are terrible. bus service needs improvements. bus run on Sunday
51	yes, the Bus Transiti Greenville should start running on Sundays.
52	I worry about getting hit by a car all the time please make more bike lanes.
53	lighting at night!
54	lighting on the greenway
55	making trails & greenways more family friendly. not just for mom & dad but have small set ups for kids as well
56	educate drivers AND cyclists on safety while riding bikes/beware of pedestrians
57	yes we need to upgrade our parks/rec area's. The children are playing on outdated equipment that can be very dangerous.
58	Greenville has done an outstanding job of balancing its adoption of the once homeless ECTC (which has brought people from all over the globe) with maintaining its rural history. This has prevented urban sprall, and people from other places living here appreciate that, or they would not continue to stay. I would like to make sure that home-grown efforts, like small business owners who brought Dickinson Avenue back to life, are encouraged wherever possible. There's nothing like one of Johnathan's Hobby horse animals to let you know you're in a good place.
59	No bike lanes on streets
60	No more bike lanes outside of downtown Greenville

Do you have any other comments, questions, or concerns? (Cont)

61	I have lived in many states, in small and large communities. They all have sidewalks and crosswalks!
62	Looking forward to continued growth and living in a more bike friendly community!
63	No
64	More bike lanes and sidewalks, PLEASE!!!!!!
65	If you don't have the funds to improve roads the best other option to improve pedestrian/cyclist safety is to limit distracted driving. Prohibit any use of a cell phone while sitting behind the wheel of a car AND ENFORCE IT. Use the funds collected from the enforcement fines to fund bikeways, greenway, sidewalks, etc.
66	It appears to me that the Greenville Police Department do not do their job of enforcing traffic laws. If I can see the law being broken every day, why can't they?
67	More info on a) crash/accident analysis, b) equity analysis, c) transportation access to food deserts, d) health outcomes linked, e) more outreach needed to low income and minority areas - call me!
68	Interested in short term, mid-term & long term improvements.
69	Existing property owners should not have the value and enjoyment of their property adversely impacted to allow others to have bike lanes and sidewalks, or to encourage roads to be any wider than absolutely necessary to carry the traffic they need to carry. The public policy of encouraging walking and biking should not override other's property rights. Basically, don't spend large sums of taxpayer money to build model roads with all the bells and whistles which will result in money spent for purchasing rights of way and potentially compensating hundreds of home and business owners just because the current cool thing to do is have bike lanes and sidewalks. Encouraging people to walk or ride their bikes on roads filled with traffic going at least 45 miles an hour is irresponsible and a waste of money and resources. Improve and expand the Greenways and existing part system and put crosswalks where needed and enforce laws which make motorists honor the integrity of the crosswalks and which punish pedestrians for not using them. Incorporate sidewalks and bike lanes in new residential or urban development and do not impose some social experiment to satisfy the desires of a relatively small number of people on home owners and business owners who will have their property values destroyed by making a road much wider than necessary to accommodate bike lanes and sidewalks. These people pay taxes and they vote. Take their rights and their interests into account when deciding which roads to widen and how much.
70	I think bicycle riders should help pay in some way for the bike lanes. They are taking up property to make road wider.
71	Active transportation is a great concept; however, currently we have sidewalks that lead to nowhere. Also, these "fluff" facilities should not be installed at the expense of private property values and existing barriers between residential neighborhoods and traffic.
72	The convolution of your questions/survey with information that should be segregated. Bicycle lanes? Sidewalks? Greenways? not grouped together in any question
73	I worked / retired in the Greenville city.
74	I've lived in many cities in several states. Greenville is by far the least pedestrian- and bike-friendly place I have ever lived. I believe a more pleasant living environment would be a huge selling point new businesses looking to start / move here. Employee recruitment would be much easier.
75	I am very much opposed especially to bike lanes on streets more than 2 lanes. The only place I see it could be possible is in the uptown and ECU area where students ride to and from class.
76	Thank you for work toward making Greenville a walkable/bikeable college town with a thriving urban core.
77	Paint lines.
78	Can we change the car culture? Can we change the can't do attitudes and thinking of DOT engineers and planners?
79	Greenville has all the pedestrian problems of a small and big city combined, yet none of the benefits..
80	Taking this survey was the most exciting thing I have done all day. Now I will have to walk from one place to another, with the legs that I have, using the sidewalks that this state has provided me. Let's hope I make it in one piece. Amen. Hoping no vehicles decide to take me out. Amen. Peace and blessings. Thank you.
81	no
82	Lets get this project done. The state should be very considerate.
83	If the town brings more business, than that could bring more funding and more people wanting to walk around "uptown" and the greenway.
84	no

Do you have any other comments, questions, or concerns? (Cont)

85	Need more traffic signals that respond to bike traffic.
86	I can't stress how important it is to include shared bicycling and walking paths in the future planning of this city. Everyone knows the many benefits of walking and biking, so I will not list them here. The only reason I listed not biking or walking often in this survey is because this city has not encouraged doing so. If this town had better paths, I, any so many more people, would use them more often. All I can ask for is that future city planning include shared walkways and bike paths. For example. construction is being done on Arlington blvd. Having a bike path the length of the already congested Arlington blvd would be huge. Not including bike paths in future plans would be a failure on so many levels.
87	no
88	No.
89	Need more bike lanes!!!
90	No
91	None.
92	no
93	No
94	No
95	no
96	No other comments
97	No
98	Bicycles are not vehicles. Bike lanes are a waste of money. Look at east 5th street. No bikes in the bike lanes. Kids are riding them on the sidewalks. The best thing to do with bikes is to regard them as the toys that they are.
99	Lack of greenways/trails is one big reason we plan on leaving Greenville in near future.
100	I would like to see a dedicated area in one of the many parks in the Greenville area for a pump track. Kids and parents of all ages could enjoy this and feel safe. This could keep them off of the streets where it is dangerous for them and the drivers.
101	NO
102	As a young professional who enjoys the outdoors and lived in Greenville for 2+ years, there is nothing in Greenville to do. I must get in my truck to get to safe walking/biking areas (either the current greenway, river park North, or go all the way to a state park with the nearest being 40 min away). This is one reason, I do not enjoy living here and seek to leave the community. Although I consider myself a conservative and do not prefer wasteful spending of tax dollars, transportation (both auto, but especially pedestrian) is a serious issue in Greenville...there is a lot of potential in a greenway system in Greenville with sewer/gas right-of-ways to expand the Greenway system and I can't imagine it would be an unworthy investment...I think you can find proof in other towns thriving with recreation and getting people out of homes and hopefully off the streets. It doesn't have to be fancy, just safe and practical. Thanks to someone for stepping up to tackle this.
103	N/A
104	No
105	no
106	No
107	walkways needed along heavy traffic areas, pedestrian crosswalks here and near college
108	Thank you for doing this. Greenville could and should be a much better biking community than it is, given the terrain, size and # of students. Shame on us.
109	I am a Cub Scout leader, and I would like a place in the Ayden area take my Scouts to walk or ride bikes. They would also be able to clean up projects along a greenway if we had one.
110	Greenways, bikes and walking should be of equal priority in ALL parts of Greenville
111	Improve the Dogpark too, it's very related to the greenway and walking issues
112	Thanks for conducting this survey. We need to improve Greenville Blvd. by slowing speed limits and using recommendations in the Comprehensive Plan of 2016

Do you have any other comments, questions, or concerns? (Cont)

113	Bike lanes are useless at this point in time because people, like me, are afraid of riding on the same road as those in cars since people do not pay attention while driving. Wider sidewalks would allow for people to both bike and walk without a problem.
114	It would be nice to connect communities with viable bike routes.
115	Greenville is growing so fast we should use bonds and state and federal money if available now to pay for projects we know we want now and will be wanted and enjoyed by our children and grandchildren and other future residents.
116	I commend the MPO for coordinating this project! Any forward movement begins with a quality plan that has been adopted by the appropriate governmental bodies!
117	Trained cyclists can already ride safely on streets. Law should allow cycling on certain sidewalks but (a) only when pedestrians are ceded clear right-of-way; (b) recognize that sidewalk cycling demands extreme alertness to traffic at streets and driveways-- otherwise it's very dangerous. Greenville Blvd. and Firetower Rd. sidewalks are little walked-on and could, ridden on by trained and alert cyclist, help both cyclist and motorist.
118	Lack of enforcing speed limits
119	Thanks for taking the time to put this survey together and do hope it helps you...
120	Would like to see sidewalks added and improved in Winterville.
121	I do not walk or cycle regularly anymore because I no longer feel safe doing so. Traffic makes both too dangerous, and there are insufficient sidewalks in neighborhoods.
122	Why does our mayor and certain council members dislike sidewalks, bikelanes and greenways?
123	Pedestrians crossing large roads should have ways to cross safely. Particularly along the greenway where children walk, run, bike, p.any... Etc. example 10st greenway crossing should have a red light and a button to push to activate it to stop traffic.
124	Thank you for this survey, it's a great idea! Hopefully we will continue to see more trails.
125	Amenities are essential to quality growth
126	It does not take any money or effort to leave any small area alone and let it go to forest naturally. All you have to do is NOT mow. Please leave some wild areas all across the city to grow beautiful wild trees.
127	We hold religious services Friday nights. One member is disabled and can't find public transport then. Please let me know how to help her. Other members provide rides, but a bus or free ride share (uber or lyft for disabled?) would respect her dignity better, plus allow shopping, etc for her and all disabled.
128	A lot of bus routes (GREAT bus route 3 & 6) do not have sidewalks. We are forced to walk on steep grassy shoulders.
129	Please make this a priority in city planning. It adds a tremendous quality of life, makes a city more vibrant and attractive to young professionals and families alike.
130	Please make this a priority in city planning. It adds a tremendous quality of life, makes a city more vibrant and attractive to young professionals and families alike.
131	publish the results of this survey and/or put in the newspaper
132	I love being able to bike to work at ECU
133	As a specific comment, the bike lane on East Fifth Street is a joke. Either widen and maintain it (remove the debris) or get rid of it. It is not safe. Also, have conversations with ECU administration and encourage them to promote cycling as an alternative to cars for their students. In general, look around and see what leaders of other and larger cities are already doing. Many have recognized that the motor vehicle is crippling their city, that they need viable transportation and recreational alternatives that remove cars from the roads, and that people and businesses are attracted to places that offer a different and better living and working environment less dependent upon the motor vehicle. They are responding with more and better bike lanes, greenways, trails, pedestrian only zones, bike-share programs, etc. Greenville has reached a size that it needs to respond now and in the same manner if it hopes to thrive in the future.
134	Too much talk, not enough action!
135	traffic in Greenville is horrible and I don't feel safe driving in and around Greenville
136	1) A camera (similar to those in parking garage) would be helpful at the picnic shelter behind the Drew Steele Gym on the greenway trail. 2) Trash, mainly beer cans, are left in my garden by folks parking in my neighborhood for the ECU games. Can there be an educational announcement in the paper and at the game to make the spectators aware that this behavior is unacceptable?
137	Commendation for what we have now

Do you have any other comments, questions, or concerns? (Cont)

138	No
139	I know some people roll their eyes at projects like the greenway, and don't see the value of it, but I think it makes our community so much better. If we want growth, we have to provide areas that entice families and active people to want to live and work here. It about more than parking decks and football games.
140	I rent in Greenville. I use the Greenway, but find it dangerous to walk or bike because I can't safely cross 10th, 14th, Greenville Blvd, and Charles. I'm trapped in my neighborhood, for example, the dangerous crossing where 10th and 5th intersect and the short distance on 5th getting to the Greenway. At age 65, I fell on my bike Saturday, where there is neither sidewalk nor bike lane! I've lived in cities from Ohio, New York, Massachusetts, Iowa, Florida and Texas, and never seen such dangerous walking and biking as here in Greenville! It's worse than shameful. It seems criminal negligence to me..
141	So much of what was developed and suggested in the previous bike/ped plan has yet to even be touched (e.g. the poor RR crossings for bikes), changing of P&Z rules, mandate bike racks at a rate to cars like Washington DC does, crosswalks near the stadium, enforcement of existing laws, signage about sidewalk riding prohibited etc
142	The focus on adding stoplights on certain roads (i.e. 10th Street) is not the answer to pedestrian problems. The problem is that pedestrians do unsafe walking/crossing practices. There needs to be increased education and enforcement. It is not uncommon to see people walking, biking and even in motorized chairs in the center lane of Greenville Blvd or Memorial. Often this is at night and the persons have dark clothing and no lights.
143	Thank you for addressing these important topics.
144	The red light running issue impacts bike/ped as well as other traffic.
145	Greenville has made a lot of progress, but it is always good to see the effort made. We do need to continue to address the crime problem, particularly if the city wants to be a good place for both students and retirees.
146	I feel the greenway is the best thing that's happened in this neighborhood.
147	This is a beautiful town and would be greatly improved if it was more bike safe.
148	Improvement in these areas is critical to people's health and to our ability to recruit knowledge-industry workers who are essential to our economy right now.
149	There should be a term limit for city councilmen of not more than 6 to 8 years. Also a limit as to the number of real estate involvements involved. Needs to be more professions represented.
150	Safety safety safety!
151	Create a public service announcement that is fun, fresh and vibrant. Something that would educate the public on both what we have and our vision for future walkability and bicycling.
152	Appreciate your interest in this.
153	No
154	A walkable and rideable city is one that people are attracted to and don't want to leave. Also increases property values.
155	This is a MAJOR concern. Being a nice place to live can only be good for Greenville.
156	Make it legal to ride a bike on a sidewalk if a bike lane is not present on the road.
157	Big new road project - I hope they include sidewalks and crosswalks in that plan so I can walk and see less of my neighbors in wheelchairs and with strollers on the roadways because they have no other options.
158	THe development of parks and greenways is the single best thing we can do for our city
159	Sidewalks and bike lane are fine under appropriate conditions. I am noit in favor of generic information to obtain momentum for any project.ay
160	It is shameful that one cannot cross streets at intersections, particularly major intersections. In reference to the widening of Firetower Rd. and all other new road projects, bike lanes and sidewalks (especially sidewalks) should be required, not optional. We cannot continue to ignore alternative transportation needs if we want to become a livable, healthy city. I am also concerned about the new projects downtown having no setback requirements. This allows no options for future widening (for bike lanes or wider sidewalks) and imposes a closed feeling downtown. Wider sidewalks are also desirable. One of Greenville's strengths is the landscaping requirements in other parts of town and this should not be ignored downtown. Greenspaces are important to incorporate as well.
161	The region lacks in parks...not the kind with a swing set, but the kind where you can ride off-road, hike, picnic, get ticks, enjoy nature.

Do you have any other comments, questions, or concerns? (Cont)

162	Keep restoring/renovating Uptown Greenville, and not only for cars. Work with ECU to extend their bike/ped initiatives. Thank you for doing this.
163	Lack of access to natural spaces is a huge concern for this community. Existing residents lack healthy recreation options available in other communities. Recruiting and retaining new talent is nearly impossible when they see how few recreation options we have. This is both a health and an economic issue!
164	Thank you for taking the time
165	I appreciate this being put out to the public.
166	Check out the beautiful Washington waterfront, the Greenville waterfront could be just as beautiful and useful.
167	Please post/report results and finding.
168	Our Greenway is a wonderful resource.
169	I've heard sidewalks have been in the plans for 2016 for west Greenville Blvd. (from intersection of Memorial Dr. to Dickinson Ave. They did a small section two years from Mall Dr. to Kristin Dr. m but haven't come back to complete it.
170	Bike and pedestrian paths will be a great attraction and augment our quality of life! Please support them so we Can continue to build a vibrant and healthy community that attracts diverse and high quality business, arts, and entertainment as well as thriving citizens.
171	Trails are very important to the health of the citizens of our area. The diversity or exercise choices make this a more attractive place to live. This helps attract new business and drives the economy. Investing in green ways and trails earns dividends and improves the quality of living.
172	Please provide some improvements to the southwestern side of town. Frog level road area
173	I think we are off to a good start, but we need to raise awareness about the environment while making people feel it is safe to walk and bike. We live in Greenville, this town should be an urban forest. Hot asphalt and sidewalks with no tree shade, is not pedestrian friendly.
174	Greenville is great for higher education. ECU is exciting however most of the students are not so excited about the city itself. Just wish their were something more for all the youth to get involved in. Not everyone participates on athletic teams etc.
175	Yes. A functional greenway that connects the three ECU campus (state funding) would improve transportation & parking issues. Getting state & VMC funding would help.
176	Safety is major issue.
177	Nice survey. Thanks. Keep up the good work y'all!!
178	Nice survey. Thanks. Keep up the good work y'all!!
179	Very exciting to hear that there may be more walking paths, and would also love to see more running trails in wooded areas that would provide shade, and more diverse landscape.
180	Cars that parallel park are dangerous to cyclists who have to ride on the far right. I have almost ran into a few doors as they have opened. I do not know who to cure this problem, but it is extremely dangerous when riding at a higher speed (20 mph or higher).
181	Treatment for mosquitoes occasionally. They are pretty bad by the end of the summer and beginning of fall.
182	Partner with ECU to launch a social media campaign to educate students on pedestrian and bicycle rights, responsibilities, and safety.
183	How do you request consideration for a sidewalk in your neighborhood?
184	My concern is mainly with people who HAVE to walk - who need to walk to bus stations and walk to and fro to work. There are so many jaywalkers and it would be nice to have sidewalks for people who need as well as want them
185	We love Greenville.

Do you have any other comments, questions, or concerns? (Cont)

186	It seems that the focus of the city is to make improvements to the city. Funding is an issue and will always be that is why grants, local business, funds, state and federal grants are so important. We can do some of these things with partnerships each paying their fair share. To keep raising taxes is not the solution. You need to streamline government and create less waste. You need to have enough city employees to cover the new areas sidewalks, greenways and biking lanes, if you do not have enough employees to take care of the maintenance then you should not be taking on new projects. It seems like the city has streamlined some but you cannot keep cutting staff and stretch them so thin that cannot enjoy their job. They need to be happy and enjoy work, or the quality of their work will suffer, it shows right now in the city that they are stretched to thin. The more automated we can make the city and still provide a good public service I am all for, that should save taxpayers in the long run, but it may not in the short term.
187	Start jaywalking tickets for the idiots
188	n/a
189	n/a
190	lighting & <illegible> safety of people
191	no
192	No
193	no
194	more activities for adults 50+
195	bikes need more areas to go
196	keep supporting greenways!
197	more speed bump in neighborhood
198	This is a great initiative
199	na
200	Not at this time
201	Greenways are a prime feature of a city that draws people to live in a certain area. The more we improve the greenway, the more economical impact it will have on the City. And we'll be encouraging people to get active, which is so very important.
202	Kids safety is important too!!
203	Educate, Enforce, and Hold Accountable
204	Let's invest now to prepare for our future!
205	Focus on needs as a whole; not just the university population needs. Greenville residents pay for services and pay taxes so these projects should benefit all citizens in other neighborhoods as well (SE and SW) and not just those in the university and Fire Tower Road areas. It seems we have to get transportation out there to enjoy the benefits that should be more widespread.
206	Please make Greenville more bike friendly in all areas as we are a college town. It just makes sense!
207	I am passionate about not having bike or sidewalks on busy streets because a family member was killed by a distracted driving while she walking down a sidewalk on a busy street.
208	Bike education programs and a recycling bike program would be awesome
209	All road improvements in the city should come with sidewalks and bike lanes to encourage alternate transportation.
210	Thank you for supporting these efforts to imrove Greenville.
211	Transportation infrastructure in Greenville is a mess. Roads, medians, walkways, bike lanes, buses, regulation of what is called driving here: it's a mess and needs a major overhaul. This won't require only money; it needs major political and community support on numerous fronts...and it needs actual urban *planning* for the future (not just the present mess).
212	No
213	Greenville really needs to look hard at expanding bicycle routes. The more we can tie this city together through appropriate and safe bikes routes, the less vehicles will be on the road.
214	I am really appreciative of your looking into this. I bike much less than I used to due to the danger and have put on a fair bit of weight from being inactive. This is a public health issue.

Do you have any other comments, questions, or concerns? (Cont)

215	There are other great local examples of bike/walking paths driving economic prosperity. Look at Wilmington NC
216	We need red light cameras to protect pedestrians, bikers, and other drivers from the red-light running epidemic that is occurring in Greenville.
217	14th Street near Eppes is VERY dangerous for pedestrians. No one seems to pay attention to this at all. Many employees and students have to cross 14th street all day and the traffic is heavy and fast. It is particularly dangerous in the winter months when it is dark at 5 pm. This is an accident waiting to happen!!!!!!!!!!!!
218	-Greenville is an easy city to move to given its size, and is an easy city to leave due to lack of community, culture, and relevance. Improving greenways, bikability, etc would go towards helping others feel more connected.
219	Having lived here all my life, I can say that Greenville is a city that has constantly been in a state of growth. The growth is slow, and at age 36, date I say it- painful in terms of progress. It's time to provide this city with the quality of life the citizens deserve. If the infrastructure does not meet the demands of its residents, then all these buildings that keep being built won't have people to put in them. They will have fled for better cities where better jobs have been located.
220	Need speed bumps in River Hills Subdivision on top of hill and near entrance. Need more bikeways, more stoplights on 10th St extension so homeowners can get out safely onto the road. Not fair that some neighborhoods have signal lights and some don't.
221	Most people encounter MPO through the role of a motorist. Please try to include a better opportunity for them to provide feedback.
222	Thank you for having the Greenways and bicycle paths that you do and looking to improve and expand them.
223	I believe if we are to take seriously the challenges ahead then increasing usage of bikes, walking, and other alternative forms of transportation is imperative. In order to facilitate this we will need improved education and infrastructure to accomplish this. I also believe it will improve overall mental and physical health of the person. It will also grow and strengthen the sense of community because people will be better able to interact and even encouraged to interact more once we're not so dependent on isolating ourselves in order move through the city.
224	Sidewalks are needed on Eastern Pines and Portertown Roads
225	There needs to be a way of developing a system of routes that safely connect throughout the city. Pittsburgh, PA anecdotal Raleigh/Durham have done a lot of neat things to make their cities bike friendly. There plans could be used as models for Greenville.
226	No
227	The citizens want change!!! If you look around the country, the most vibrant and flourishing communities that attract businesses are pedestrian and bike friendly. Greenville is a great place to live but its potential is underdeveloped.
228	greenways best thing in greenville
229	Thank you for getting this done!
230	PLEASE consider sidewalks along the length of Evans Road all the way up to Firetower. What you have now is a good start, but I constantly see people trudging through tall grass along this roadway trying to jog or get places.
231	Evidence suggests that a community with infrastructure such as safe walkways and trails etc tend to participate more in exercise which significantly impacts health in the community. The costs of building and maintaining this infrastructure are substantially less than the costs of providing treatments for the various ailments which would otherwise be prevented in a healthy community. A community that not only educates its citizens on such matters, but provides an opportunity for participation.
232	My husband and I have been looking to move out of Greenville area, a lot of this has to do with lack of open spaces, multipurpose lanes, and what seems to be a lack of caring by city/county government to correct this. Other communities thrive when these are implemented. Multipurpose lanes are much smarter to implement than sidewalks or a bike lane. Multipurpose lanes can be used by both but are separated from the roadway by a few feet of grass and makes it much safer.
233	Will there be additional green ways added? When?
234	Thank you for doing this. It is much needed.
235	We subsidize roads with our gas taxes and vehicles result in a net loss for our community. Investing in a Complete Streets city will pay dividends for all & reduce the healthcare burden in our region. http://bit.ly/2bDPRoJ
236	Thank you for this. I also see ECU playing a major role in this initiative.
237	New taxes just to build up poor areas of Greenville is unacceptable. Do not use this as an excuse to funnel money to the west side. Regardless of how nice it looks, most won't use it.

Do you have any other comments, questions, or concerns? (Cont)

238	Community parks (not just athletic complexes) are also important
239	Consider parking restrictions for parking (alternate sides or different days) so the roads can be cleaned regularly and then clean them regularly.
240	No.
241	New developments should be forced to have sidewalks along streets. This cuts down on the immediate costs to the city and should raise property values by making neighborhoods more pedestrian friendly.
242	This is one of the most under-appreciated aspects of making people want to move to and remain in a place like Greenville.
243	Thank you!
244	Even though I didn't list it as my highest priority, education of automobile drivers about proper safety and rights of cyclists is in extremely evident need. I have lived here for just a few months and had more near vehicle encounters on my bike than the past 20 years in cycling friendly cities such as DC, Chicago, Bloomington
245	Thank you for polling us on this!
246	Thank you for giving me the ability to state my ideas. It's greatly appreciated.
247	Would like to see overpasses for people to walk safely over streets like 10th street. If built correctly, and with ease of use in mind, people will use them.
248	Thank you for the improvements that have been made but I really hope Greenville considers the importance of these items moving forward.
249	More sidewalks please
250	Fix the traffic issues before trying to making Greenville more walkable
251	keep up the great work.
252	Thank you for improving our city!
253	Question number 2 depends largely on what side of town your on, and what time of day or night it is. Greenway down by the river feels safe day or night, between Evans street and Vidant can be sketchy at night.
254	Complete the greenway to the Hospital district!
255	I'm so excited to see some of these improvements in Greenville. Thank you!
256	Would like more improvements on the greenway
257	I'd love to see a focus on infrastructure targeted to helping children become more physically active. In Greenville where there are limited green spaces and no YMCA type facility for youth, there is little to encourage children to become fit. Mayor Thomas and Dave Mirra had begun talking about goals for biking activities for children here, & it would be great to see some of those ideas come to fruition.
258	Please communicate with EC Velo and Bicycle Post about improving our cycling infrastructure. A public mountain bike trails is relatively inexpensive and provides a great benefit to the community. Cycling in general is great for your health and it brings business to cities. Please help support cycling in our area!
259	No new traffic lights. The roundabout on Fire Tower and Portertown is fantastic! Thank you! Traffic light timing on Red Banks seems like I sit at lights for a long time. Consider red light cameras for those who run red lights in GVL. Seems to be a serious problem here.
260	I would like to say thank you for all the work you all have done to begin the process. It's amazing the work that has been done already, I am thankful for that and see that.
261	Good luck with it. Being healthy shouldn't be expensive for Americans so we need more stuff like this.
262	This is a really good thing, we can push towards a healthier and more environmentally conscious city!
263	We have to adopt healthy ways to live, I think walk or use a bicycle instead of the car all the time could be a positive change to many other issues we face.
264	It would be nice to have a park that cater more to kids and family, like the City of Raleigh has with Pullen Park.
265	None
266	Walkable cities are important to our health and to the community growth. When new businesses and families look at places to relocate to....this makes a difference.

Do you have any other comments, questions, or concerns? (Cont)

267	Greenville needs to be progressive with funding infrastructure that provides for activities that increase the quality of life in our community. It is hard to recruit people to move to Greenville when there are not enough activities and programs to show this city is a vibrant one.
268	Thank you for looking into this! Having these opportunities for walking/running or biking is not only good for the health of the community but also is good for tourism!
269	Aside for trails, bikes, and walking conditions. The new uptown parking is not up to par. I hope the new signage that was talked about at the last Uptown meeting for businesses in Greenville is implemented. Also as a business Uptown, Greenville needs to truly think about more E parking. There is not enough. If the owners and employees can't park then our businesses cannot run properly.
270	Toss in some roundabout education as well!
271	I often see Greenville PD and Pitt County Sheriff Office vehicles pull into crosswalk lanes, blocking them from pedestrian use. It would be difficult for officers to education the community and enforce laws they themselves are not following.
272	Greenville is drastically behind the power curve developing sidewalks and crosswalks for pedestriansand safe commutable bike lanes compared to other North Carolina cities.
273	The driving culture in Greenville poses a huge risk to pedestrians and cyclists. You can have more bike lanes and side walks but I'd folks can't navigate intersections safely we still will have accidents. On a daily basis I see folks driving while testing, running lights, passing cyclists and pedestrians too close and too fast. I am terrified for my kids as they get to be more independent that they wil get hurt by irresponsible motorists.
274	Greenville wants to be bike friendly, lets do a bike complex to give people a huge reason to get out and bike.
275	Any new road projects (i.e., widening Firetower & 14th Streets) should include sidewalks from the beginning, not retroactively.
276	I have many friends that would like to walk and bike more often but are unable to due to lack of crosswalks and sidewalks
277	The lack of sidewalks and crosswalks around our neighborhoods is something that drastically effects quality of life as a Greenville Resident!!!! It needs to be taken care of NOW and not in the future!!
278	Greenville has been improving it's sidewalks and bike lanes since I moved here in 2008. I look forward to it's continued growth in providing for safe alternative modes of transportation that biking and bike lanes could provide.
279	It is scary to walk and bike in greenville because drivers do not pay attention or respect pedestrians. even at lights and crosswalks. and thank you!
280	Work collaboratively with other municipalities in Pitt County and region to extend walking/bike paths.
281	I don't know much about ways to raise funds for public works, but I think this is a very important issue for our community and we should be willing to pay for it-- even if that means we pay more in taxes.
282	no
283	A lot of Community College students could benefit from being able to ride to classes on the bike. The roads are not safe enough though and it is not easy to keep a bicycle from being stolen, though it would be easier to secure them better on campus. Students usually cannot afford a car and the costs associated with it. It becomes a vicious circle.
284	Glad to see you are looking into this issue.
285	If you make it so we can bike to work safely, we can reduce traffic congestion on our three major roads.
286	There needs to be a walk bridge from Pitt Community College to the stores across the street.
287	Nothing comes to mind.
288	I appreciate the attention this is receiving. I believe being able to better use alternative transportation will improve quality of life for Greenville and make it more attractive for new comers.
289	The area around Pitt Community College needs to be improved so that students, faculty and staff do not have to get in their cars to frequent the businesses on Hwy 11 and Firetower Road that are within easy walking distance. I prefer to walk whenever possible and I would not dare try to cross Highway 11 in that area.
290	Don't try to put more financial burden in Greenville citizens. The Pitt Community College bond is enough.
291	Great work!
292	The mindset of the community will not change without effort, initiative, enforcement and encouragement. Incentives, or at least viable options, must exist if we want people to bike, walk or take the bus.

Do you have any other comments, questions, or concerns? (Cont)

293	There is a direct correlation between cities that are rated "healthiest" and cities that are growing and prospering. There is a reason they put the heart hospital in our town. We should be leading the way in eastern NC in healthy living. Integrity is the unity between words and actions.
294	No
295	Greenville traffic is terrible! Stop lights should be synchronized. Stop and start, stop and start all the time. It should not take me 30 minutes to travel 10 miles to work daily!
296	Please consider placing a sidewalk connecting SouthRidge Subdivision to the Town of Winterville, not only would the residents enjoy the opportunity to walk to the Post office and other businesses in the Town, but the Military reservist would also appreciate the side walks when ever they conduct their running drills.
297	no
298	n/a
299	Links to the East Coast Greenway toward both Washington, NC, and New Bern. Improvements to State Bike Route in Greenville area
300	Given how many student live in the area surrounding the ECU Campus it is shocking that there are so few sidewalks and crosswalks.
301	I'm SO glad to see that this partnership has been established. We used to live in Durham and were able walk out our front door, walk through a neighborhood and get on the greenway. We also walked to our local grocery store. We miss being able to do this since moving to Greenville.
302	keep working at it
303	I'd love to be able to bike to work and live close enough to do so, but the route I'd need to take, which requires crossing the bridge over the Tar River on Greenville Blvd., is too dangerous because of traffic.
304	It seems that what you read (bless your heart for one) that people do not want greenways or bike paths. Those are probably people who move from the couch to the car and back and have no need for healthful activities.
305	when will construction finish for new greenway off charles/evans? when will expansion start/end for new phase toward hospital complex/VA? Is a foot bridge is the works for connection town commons to RPN.... excited to get more waterfront trails.
306	Make the bike routes continuous so they don't end suddenly with no safe options. Have them connect well used areas to provide an option to driving. There are no sidewalks or bike routes on County Home Road. Very unsafe for pedestrians or cyclists.
307	no
308	no other comments I can think of
309	NO
310	Given that the residents of the Southridge subdivision are Town of Winterville taxpayers, we urge the Town to consider providing sidewalk/bike lane access between the subdivision and the Town!
311	Please try to enforce traffic laws so walkers, bikers & drivers will be safer. Too many crazy drivers!
312	This is important! Thanks for asking, I would bike and walk so much more if I felt safe from motorists.
313	I enjoy coming to the Gville community events surrounding the college
314	mother service needs open minded people
315	My main concern is that Greenville/Pitt County isn't planning well when we grow. I'd like to see greenways connect the neighborhoods.
316	Look at Davis CA. College town with biking for decades. Love the work already done here, green ways are great and can't wait for the new section.
317	If motorists in Greenville could act with more consideration and courtesy, there would be an immediate improvement. Maybe start by teaching people not to run down pedestrians and see where that leads us.
318	Look at the St. Paul and MN layout of how interconnected their city and State is year round or even Pinehurst, NC to maintain the small town charm. Not everything has to be paved and expensive. Only need a cleared designated path and people who like the Greenways will use it regardless of the condition.
319	I would like to ride my bike about ten to twelve miles without encountering traffic lights

Do you have any other comments, questions, or concerns? (Cont)

320	Get law enforcement involved with potentially bike patrols on the greenways and every couple weeks walking the dirt paths by the river. It is a same that I don't take my kids fishing down there anymore because of the danger that is posed by these people drinking/potentially doing drugs on the river.
321	Restricting center turn lanes... landscapes or curbs to limit people driving in turn lanes before intersections. Education to help drivers be more accepting of bikes on the roads
322	As a realtor and a resident of Greenville I know this would make Greenville a better place to live with happier and healthier citizens. It is the one big thing that Greenville is lacking besides a better mall.
323	Thank you for working on this. It is very important to quality of life.
324	Let's make schools a top priority. Children and teenagers should have safe ways to walk and bike to their schools. This is good for kids, and also good for their parents (who are getting tired of dropping them off and picking them up by car!). We should prioritize greenway designs that link schools to the residential districts they serve, as well as traffic-calming road designs in areas around schools (not just speed limits and flashing lights -- change the roads to make people slow down) and discourage any new school sites in inaccessible locations. Here, for inspiration, is a photo of the bike racks at Boulder High School (located on the Boulder Creek Greenway) on an average day: https://www.flickr.com/photos/8335804@N06/8564317816 . Finally: the link from this survey page to the wikimap is ridiculously small -- make it big and prominent!
325	Anything that could attract more visitors to this area would be nice. Make it an attractive town, a "go to" town. Perhaps they should take ideas from other successful towns in NC.
326	Good greenway system is great PR for advertising quality of life emphasis of the city, and a good match for the "green" in Greenville. An excellent investment in our economic and physical health. I would like to see development of greenway between Memorial Drive and Lake Elsworth.
327	I think there is a high need for the side walk on 14th (between Elm and Greenville Blvd.) To be extended to Greenville Blvd. This is an increasingly busy road, but it's convenient to use to get to the stadium and Elm Street Park via walking or biking. On my way to and from work I pass several middle school age students walking on 14th Street. I think it's great that they are walking, but I worry for their safety because there is no sidewalk!
328	I think that adding sidewalks and bike ways is priceless because it will save lives. There are many roads that I feel unsafe as a pedestrian.
329	No
330	The "find yourself in good company" flags with the bike on them confuse me because most places in Greenville are not bike friendly
331	If you haven't read Streetfight: Handbook for an Urban Revolution by Janette Sadik-Khan and Seth Solomonow, you really need to do so. At least skim through it and look at the diagrams.
332	Would love to actually see progress made on these plans.
333	N/A
334	Thank you for your efforts on behalf of bike lanes, sidewalks and greenways. Your work is greatly appreciated by many citizens, visitors, and students.
335	Include questions on cyclists' rights on the NC drivers' exam. Motorists are not aware of their rights to the road and legal ways to pass.
336	Mo
337	None
338	Make more greenways
339	Long-range planners should bear in mind that an Alternate Route of the Maine-to-Florida East Coast Greenway passes through Greenville (alternate between Richmond VA and Wilmington NC), though the main route goes Henderson-Durham-Dunn using the Tobacco Trail etc. It's not all safe yet, but can become so if various city and county planners become or stay aware.
340	Thank you for addressing this. Creating the accessibility for biking and walking/running will help create a healthier community
341	Education

Do you have any other comments, questions, or concerns? (Cont)

342	Greenville Roads are soooo far behind in upkeep it makes one wonder where the taxes actually go since they are so high on vehicles. I grew up in a very small 12k town and they up-kept the roads regularly with their own road crew and they still had money to secure a greenway right through the middle of town following the river. With the main source of income shut down (logging).
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B Design Guidelines

75% of survey respondents say it is very important to improve walking, bicycling and greenway trail conditions in their community.

- Public Comment Form
Results, 2016

Contents of Design Guidelines

Guidance Basis.....	B-1
Pedestrian Facilities Context	
Pedestrian Crossing Location and Facility Selection	B-2
Design Needs of Pedestrians	B-4
Pedestrian Infrastructure	
Sidewalk Zones & Widths.....	B-6
Green Infrastructure.....	B-8
Driveways.....	B-10
Access Through Construction Zones.....	B-11
Parklets.....	B-12
Pedestrian Intersection Treatments	
Accessible Curb Ramps	B-14
Curb Extensions.....	B-15
Median Refuge Island.....	B-16
Pedestrian Signal Strategies	B-17
Bicycle Facilities Context	
Facility Selection	B-18
Bicyclist User Type	B-19
User Design Dimensions.....	B-20

On-Street Bicycle Lanes

Bicycle Lanes	B-22
Colored Bicycle Lanes	B-24
Buffered Bicycle Lanes	B-26

Physically Separated Bicycle Lanes

One-Way Separated Bicycle Lanes	B-28
Two-Way Separated Bicycle Lanes	B-30
Separation Methods.....	B-32

Neighborhood Bikeways (Bicycle Boulevards)

Neighborhood Bikeways	B-34
Traffic Calming	B-36
Volume Management.....	B-38
Minor Intersection Treatments.....	B-39
Major Intersection Treatments.....	B-40
Offset Intersection Treatments	B-41

Bikeway Intersection Treatments

Intersection Crossing Markings	B-42
Bike Box.....	B-44
Bike Lanes at Added Right Turn Lanes	B-46
Combined Bike Lane/Turn Lane	B-48
Bend In.....	B-50
Bend Out.....	B-52
Mixing Zone.....	B-54
Protected Bicycle Signal Phase.....	B-56
Two-Stage Turn Boxes	B-58

Bikeway Amenities

Wayfinding Sign Types	B-60
Wayfinding Sign Placement.....	B-62
Bike Parking.....	B-64
Bikeway Maintenance	B-66

Trails

Shared Use Path	B-68
Local Neighborhood Accessways.....	B-70
Natural Surface Trails.....	B-71
Single Track Mountain Bike Trails	B-72
Accessible Trails	B-73
Boardwalks.....	B-74
Vegetative screenings.....	B-75

Trail Intersection Treatments

Marked Crossing.....	B-76
Median Crossing.....	B-77
Active Enhanced Crossing	B-28
Route Users to Signalized Crossing	B-79
Grade-Separated Crossings.....	B-80

Guidance Basis

The sections that follow serve as an inventory of pedestrian, bicycle, and trail design treatments and provide guidelines for their development. These treatments and design guidelines are important because they represent the tools for creating a safe and accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a landscape architect or engineer upon implementation of facility improvements.

National Guidance

The following standards and guidelines are referred to in this guide:

- The Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic. The MUTCD is the primary source for guidance on lane striping requirements, signal warrants, and recommended signage and pavement markings.
- American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (2012) provides guidance on dimensions, use, and layout of specific bicycle facilities.
- The National Association of City Transportation Officials' (NACTO) Urban Bikeway Design Guide (2012) is the newest publication of nationally recognized bikeway design standards, and offers guidance on the current state of the practice designs.
- The AASHTO A Policy on Geometric Design of Highways and Streets (2011) commonly referred to as the "Green Book," contains the current design research and practices for highway and street geometric design.

Impact on Safety and Crashes

Bicycle facilities can have a significant influence on user safety. The Federal Highway Administration Crash Modification Factor Clearinghouse (<http://www.cmfclearinghouse.org/>) is a web-based database of Crash Modification Factors (CMF) to help transportation engineers identify the most appropriate countermeasure for their safety needs. Where available and appropriate, CMFs or similar study results are included for each treatment.

PEDESTRIAN FACILITIES CONTEXT

PEDESTRIAN CROSSING LOCATION AND FACILITY SELECTION

The specific type of treatment at a crossing may range from a simple marked crosswalk to full traffic signals or grade separated crossings. Crosswalk lines should not be used indiscriminately, and appropriate selection of crossing treatments should be evaluated in an engineering study done before a marked crosswalk is installed. The engineering study should consider the number of lanes, the presence or lack of a median, the distance from adjacent signalized intersections, the pedestrian volumes and delays, the average daily traffic (ADT), the posted or statutory speed limit or 85th-percentile speed, the geometry of the location, the possible consolidation of multiple crossing points, the availability of street lighting, and other appropriate factors.

Midblock Crossings

Midblock crossings are an important street design element for pedestrians. They can provide a legal crossing at locations where pedestrians want to travel, and can be safer than crossings at intersections because traffic is only moving in two directions. Locations where midblock crossings should be considered include:

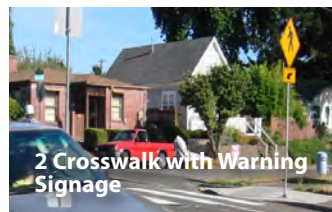
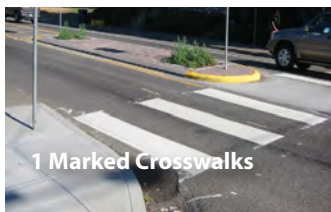
- Blocks longer than 600 feet (ft) with destinations on both sides of the street.
- Locations with heavy pedestrian traffic, such as schools, shopping centers.
- Midblock transit stops, where transit riders must cross the street on one leg of their journey.

Crossing Treatment Selection

PEDESTRIAN CROSSING CONTEXTUAL GUIDANCE At unsignalized locations		Local Streets 15-25 mph			Collector Streets 25-30 mph			Arterial Streets 30-45 mph						
FACILITY TYPE		2 lane	3 lane	2 lane	2 lane with median refuge	3 lane	2 lane	2 lane with median refuge	3 lane	4 lane	4 lane with median refuge	5 lane	6 lane	6 lane with median refuge
1	Crosswalk Only (high visibility)	✓	✓	EJ	EJ	X	EJ	EJ	X	X	X	X	X	X
2	Crosswalk with warning signage and yield lines	EJ	✓	✓	✓	✓	EJ	EJ	EJ	X	X	X	X	X
3	Stop Sign Controlled	✓	✓	EJ	EJ	EJ	EJ	EJ	EJ	X	X	X	X	X
4	Active Warning Beacon (RRFB)	X	EJ	✓	✓	✓	✓	✓	✓	X	✓	X	X	X
5	Hybrid Beacon	X	X	EJ	EJ	EJ	EJ	✓	✓	✓	✓	✓	✓	✓
6	Full Traffic Signal	X	X	EJ	EJ	EJ	EJ	EJ	EJ	✓	✓	✓	✓	✓
7	Grade separation	X	X	EJ	EJ	EJ	X	EJ	EJ	✓	✓	✓	✓	✓

LEGEND

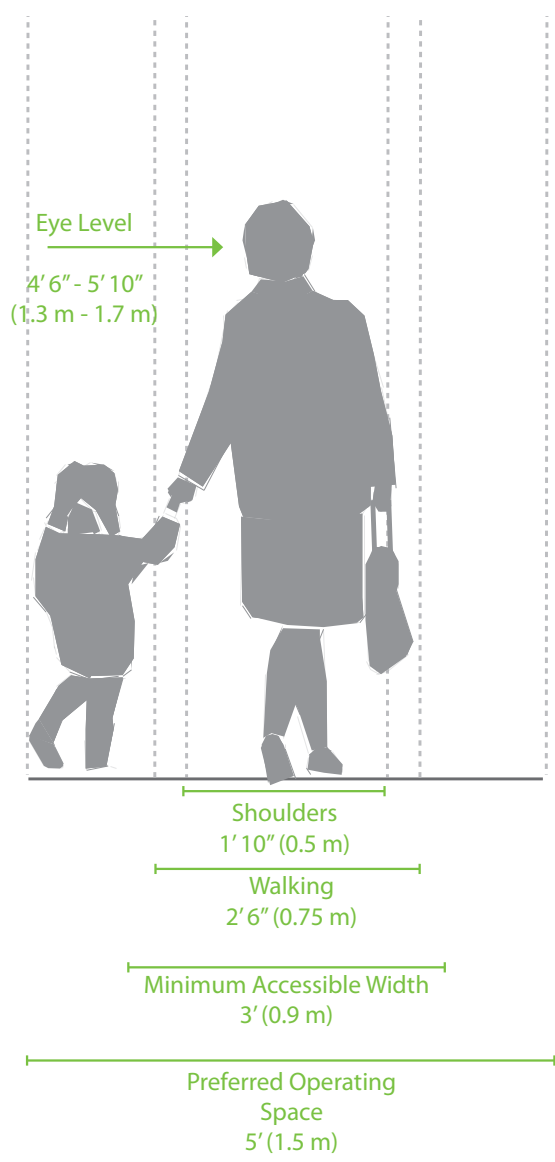
Most Desirable	✓
Engineering Judgement	EJ
Not Recommended	X



PEDESTRIAN FACILITIES CONTEXT

DESIGN NEEDS OF PEDESTRIANS

The MUTCD recommends a normal walking speed of 3.5 ft per second when calculating the pedestrian clearance interval at traffic signals. The walking speed can drop to 3 ft per second for areas with older populations and persons with mobility impairments. While the type and degree of mobility impairment varies greatly across the population, the transportation system should accommodate these users to the greatest reasonable extent.



Pedestrian Characteristics by Age

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

Source: AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities*, Exhibit 2-1. 2004.

Types of Pedestrians

Pedestrians have a variety of characteristics and the transportation network should accommodate 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. They also perceive the environment differently at various stages of their cognitive development. Older adults walk more slowly and may require assistive devices for walking stability, sight, and hearing. The table on page B-8 summarizes common pedestrian characteristics for various age groups.

Disabled Pedestrian Design Considerations

The table below summarizes common physical and cognitive impairments, how they affect personal mobility, and recommendations for improved pedestrian-friendly design.

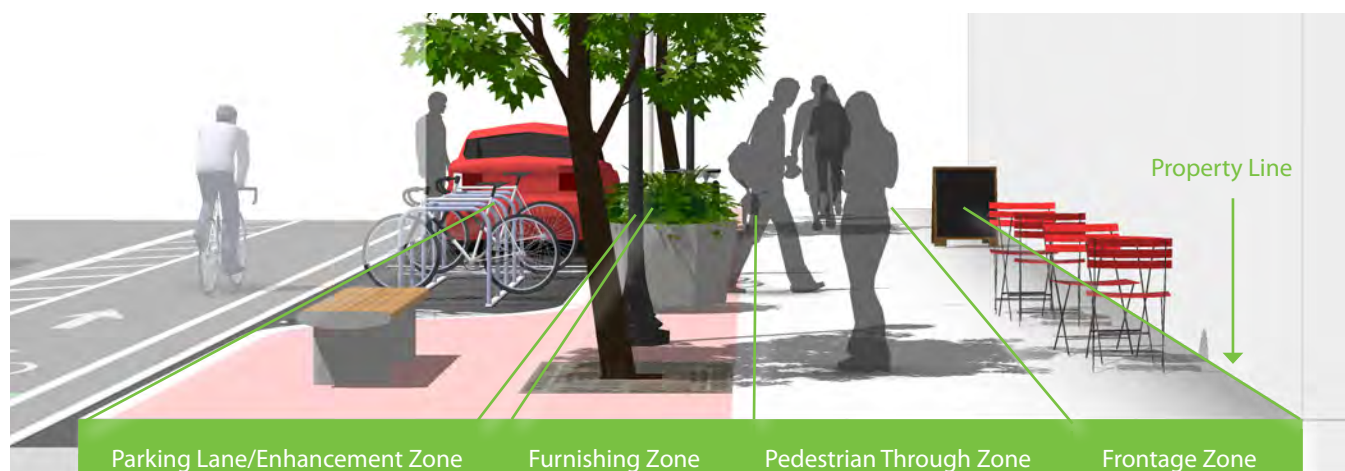
Disabled Pedestrian Design Considerations (AASHTO Pedestrian Guide 2004)

Impairment	Effect on Mobility	Design Solution
Physical Impairment Necessitating Wheelchair and Scooter Use	Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
	Cross-slopes cause wheelchairs to veer downhill or tip sideways.	Cross-slopes of less than two percent.
	Require wider path of travel.	Sufficient width and maneuvering space.
Physical Impairment Necessitating Walking Aid Use	Difficulty negotiating steep grades and cross slopes; decreased stability and tripping hazard.	Cross-slopes of less than two percent. Smooth, non-slippery travel surface.
	Slower walking speed and reduced endurance; reduced ability to react.	Longer pedestrian signal cycles, shorter crossing distances, median refuges, and street furniture.
Hearing Impairment	Less able to detect oncoming hazards at locations with limited sight lines (e.g. driveways, angled intersections, channelized right turn lanes) and complex intersections.	Longer pedestrian signal cycles, clear sight distances, highly visible pedestrian signals and markings.
Vision Impairment	Limited perception of path ahead and obstacles; reliance on memory; reliance on non-visual indicators (e.g. sound and texture).	Accessible text (larger print and raised text), accessible pedestrian signals (APS), guide strips and detectable warning surfaces, safety barriers, and lighting.
Cognitive Impairment	Varies greatly. Can affect ability to perceive, recognize, understand, interpret, and respond to information.	Signs with pictures, universal symbols, and colors, rather than text.

PEDESTRIAN INFRASTRUCTURE

SIDEWALK ZONES & WIDTHS

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved safety, and the creation of social space.



Parking Lane/Enhancement Zone

The parking lane can act as a flexible space to further buffer the sidewalk from moving traffic. Curb extensions and bike corrals may occupy this space where appropriate.

In the **edge zone** there should be a 6 inch wide curb.

Edge Zone

Furnishing Zone

The furnishing zone buffers pedestrians from the adjacent roadway, and is also the area where elements such as street trees, signal poles, signs, and other street furniture are properly located.

Pedestrian Through Zone

The through zone is the area intended for pedestrian travel. This zone should be entirely free of permanent and temporary objects.

Wide through zones are needed in downtown areas or where pedestrian flows are high.

Frontage Zone

The frontage zone allows pedestrians a comfortable "shy" distance from the building fronts. It provides opportunities for window shopping, to place signs, planters, or chairs.

Not applicable if adjacent to a landscaped space.

Typical Application

- Sidewalks should be provided on both sides of urban commercial streets, and should be required in areas of moderate residential density. (1-4 dwelling units per acre).
- When retrofitting gaps in the sidewalk network, locations near transit stops, schools, parks, public buildings, and other areas with high concentrations of pedestrians should be the highest priority.

Design Features

- It is important to provide adequate width along a sidewalk corridor. A pedestrian through zone width of six ft enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass each other comfortably.
- In areas of high demand, sidewalks should contain adequate width to accommodate the high volumes and different walking speeds of pedestrians.
- Appropriate placement of street trees in the furnishing zone (minimum width 4 ft) helps buffer pedestrians from the travel lane and increases facility comfort.

Street Classification	Parking Lane/ Enhancement Zone	Furnishing Zone	Pedestrian Through Zone	Frontage Zone
Local Streets	Varies	2 - 5 ft	6 ft	N/A
Downtown and Pedestrian Priority Areas	Varies	4 - 6 ft	12 ft	2.5 - 10 ft
Arterials and Collectors	Varies	2 - 6 ft	6 - 8 ft	2.5 - 5 ft

Further Considerations

- The Americans with Disabilities Act requires a 3 ft clear width in the pedestrian zone plus 5 ft passing areas every 200 ft.
- The clear width may be reduced to a minimum of 32 inches for short, constrained segments of up to 24 inches long, provided that constrained segments are separated by regular clear width segments that are a minimum of 48 inches long and 36 inches wide.
- Providing a 6 ft clear width across the full corridor for all new sidewalks (and 12 ft or greater in downtown and pedestrian-priority areas) meets requirements for passing and maneuverability.
- Existing deficient-width sidewalks are to be retrofitted to meet citywide standards.

Crash Reduction

Sidewalks reduce walking along the roadway and reduce other pedestrian crashes. Roadways without sidewalks are more than twice as likely to have pedestrian crashes as roadways with sidewalks on both sides of the street.¹

¹ FHWA Investigation of Exposure-Based Pedestrian Accident Areas: Crosswalks, Sidewalks, Local Streets, and Major Arterials. Publication No. FHWA/RD87-038, FHWA, Washington, D.C., 1987.

Construction Costs

The cost of building sidewalks vary based on the location, type of material, the scale, and whether it is part of a broader street construction project. A five-ft concrete sidewalk is approximately \$32 per linear ft on average, with the additional cost of new curbs and drainage likely to be substantially higher.

The edge of the swale should be flush with the grade to accommodate sheetflow runoff, with a minimum 2-inch drop between the street grade and the finished grade of the facility. Where there are curbs, cut-outs at least 18 inches wide should be provided intermittently (3-15 ft apart) to allow runoff to enter and be treated. Low curbs, barriers, and/or hardy vegetative ground covers can be used to discourage pedestrian trampling.

Green Infrastructure



Green infrastructure such as bioswales and rain gardens helps manage stormwater while improving the aesthetic appearance of pedestrian and bicycle facilities.

Design Features

Bioswales

Bioswales are shallow depressions with vegetation designed to capture, treat, and infiltrate stormwater runoff by reducing velocity and purifying the water while recharging the underlying groundwater table.

In order to meet the minimum criteria for infiltration rates, bioswales are designed to pass 5-10 inches of rain water per hour. The overflow/bypass drain system should be approximately 6 inches above the soil surface to manage heavier rainfall.

Bioswales have a typical side slope of 4:1 (maximum 3:1) to allow water to move along the surface and settles out sediments and pollutants.

Pervious Pavement

In areas where landscaping such as swales are less desired or feasible, pervious pavement can also effectively capture and treat stormwater runoff.

The desired storage volume and intended drain time is determined by the depth of the pervious layer, void space, and the infiltration rate of underlying soils. An underdrain system must be used to treat overflow, or drain excess runoff to the municipal sewer system, and allow the facility to drain within 48 hours.

Crash Reduction

To the extent that any associated traffic calming reduces the likelihood of crashes, green infrastructure can have a positive impact on roadway safety.

Construction Costs

Bioswales range from \$5.50-\$24/square ft depending on the type of facility, with \$15/square ft representing a typical rate.¹

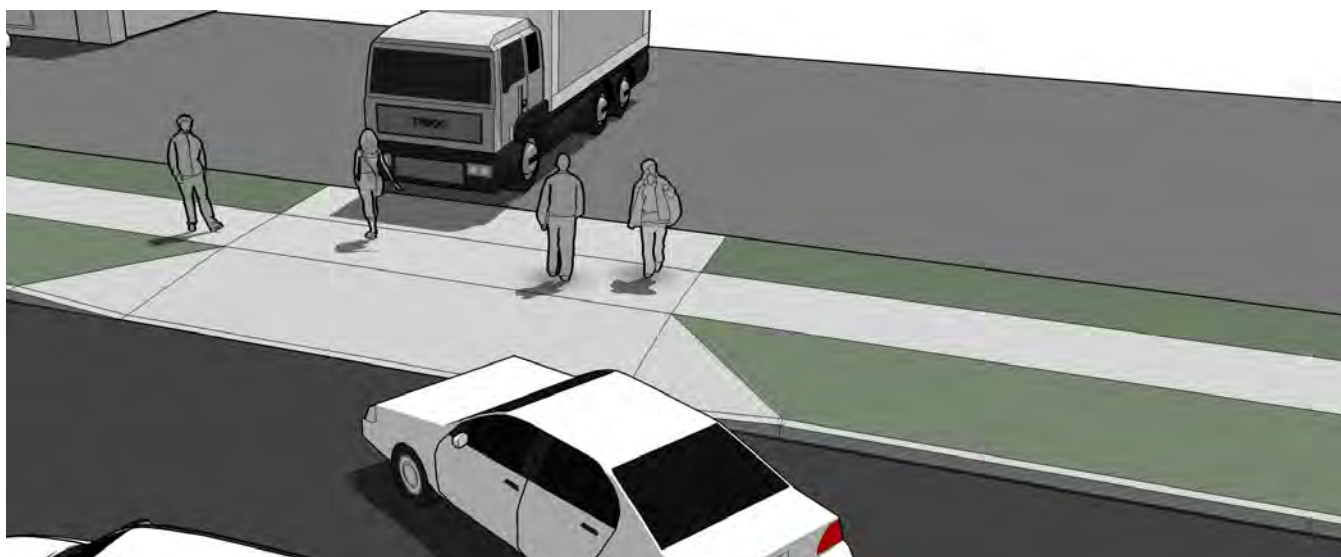
Permeable pavers can range from \$5.30/square ft for pavers on the low end to \$11.60/square ft for concrete on the high end. The average cost tends to be around \$6-7/square ft.

¹ Center for Neighborhood Technology. Green Values Stormwater Toolbox.
http://greenvalues.cnt.org/national/cost_detail.php

PEDESTRIAN INFRASTRUCTURE

DRIVEWAYS

Driveways provide automobile access to private property but can also cause conflicts with pedestrians using the sidewalk at that location. There are generally two types of driveway designs: intersection-type and commercial-type. Commercial-type driveways maintain the sidewalk across the intersection which compels motorists to slow down before crossing. Intersection-type can compromise pedestrian safety and comfort due to the ability for motorists to negotiate turns at higher speeds and the lack of defined right-of-way.



Typical Application

- Appropriate for all private accessways that cross sidewalks.
- Ideal for commercial business districts with high pedestrian activity and slower travel lanes.
- Right-in/right-out restrictions reduce points of conflict between modes.
- Traffic signals may be considered where turning movements are very high.

Design Features

- Sidewalk maintains grade and material across the driveway to reinforce pedestrian right-of-way. Cross slope (driveway grade) should be no greater than 2 percent.
- Increase curb radius to reduce vehicle speeds and pedestrian crossing distance (10-25' recommended based on site activity and street context).
- Minimize driveway widths to reduce crossing distance and accommodate entering and exiting vehicles.
- Where turning volumes are high, right-turn channelization removes slower turning vehicles from main flow of traffic, improving motorist yield compliance.

PEDESTRIAN INFRASTRUCTURE

ACCESS THROUGH CONSTRUCTION ZONES

Measures should be taken to provide for the continuity of a pedestrian's trip through a construction closure. Only in rare cases should pedestrians be detoured to another street when travel lanes remain open.

Typical Application

- Wherever construction activity blocks the sidewalk or pedestrian route.

Design Features

- Pedestrians should be provided with a safe, accessible, convenient path that replicates (as nearly as practical) the most desirable characteristics of the existing sidewalks. The alternate circulation path should be parallel to the disrupted pedestrian access route, be located on the same side of the street, and accommodate the disabled.
- The alternate route should have a width of 5 ft minimum, and an additional ft of width for each vertical element along the route.
- In rare cases where access is not available on the same side of the street, the alternate pedestrian route may be located on the opposite side of the street as long as the distance of the disrupted pedestrian route does not exceed 300 ft.
- Signage related to construction activities shall be placed in a location that does not obstruct the path of bicycles or pedestrians, including bicycle lanes, wide curb lanes, or sidewalks.



PEDESTRIAN INFRASTRUCTURE

PARKLETS

A parklet is a seasonal or temporary outdoor space typically the size of an on-street parking space. These mini-parks are often designed for passive recreation and may include planters, benches, café tables, and chairs. Additionally, parklets can be designed to include bike corrals, fitness equipment, chess boards and other activities.



Typical Application

- Can enhance commercial district or neighborhood vitality, especially in areas lacking public space or in locations where sidewalk space is constrained.
- The nature of a parklet will vary based on factors such as size, location, surrounding land uses, and the duration of the installation. Parking availability should be considered when determining the overall benefit of parklet installation against parking loss.
- Generally located within an on-street parking lane, and does not impede motor vehicle or bicycle through travel.

Design Features

- A Parklets are often constructed on a custom or pre-fabricated platform that rests on the street pavement. This allows them to meet the grade of adjacent sidewalks, extending the pedestrian zone.
- Parklet design should comply with ADA standards and be easily accessible from the sidewalk. Avoid placement near intersections and do not block fire hydrants or bus stops.
- Parklets must be designed and located in areas so as not to restrict stormwater runoff or cause other drainage issues.

Example Parklets



Parklets can be implemented on a trial basis using temporary materials to quickly transform a space (sometimes called a “tactical urbanism” project). Simple tables and plants create a pleasant resting environment in this parklet.



Streetscape furnishing manufacturer Dero produces a modular parklet platform for easy deployment.

Photo Source: dero.com

Further Considerations

- Because parklets may require the removal of an on-street parking space, outreach to adjacent property owners and businesses is critical.
- Most municipalities require a permitting process for both temporary and permanent parklet installations.

Crash Reduction

Parklets function similarly to curb extensions, by visually narrowing the roadway and reducing motor vehicle speeds.

Construction Costs

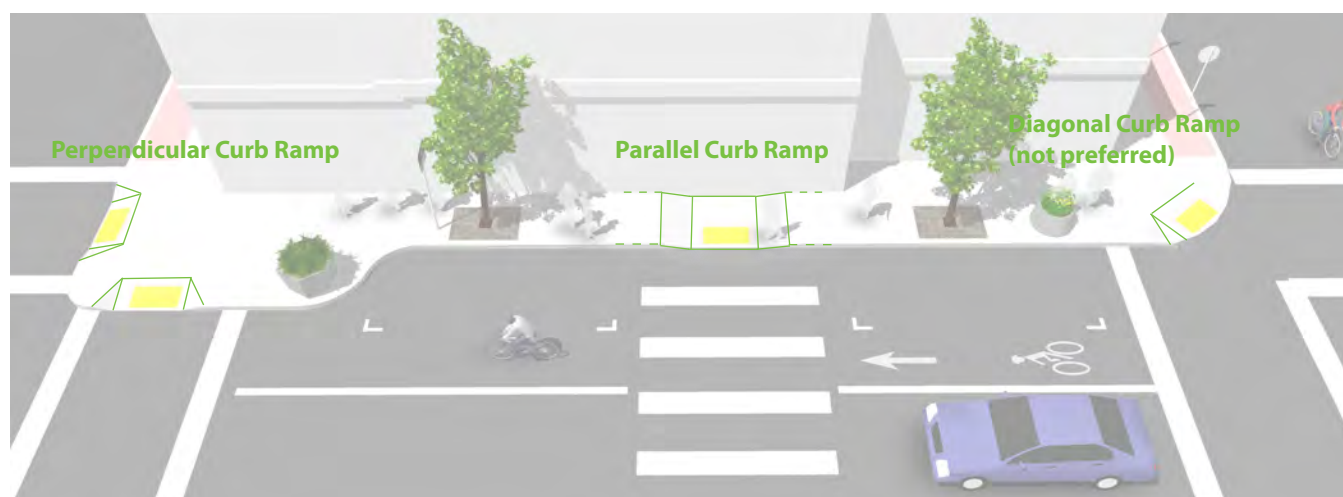
The cost for design and construction of parklets vary but typically range between \$5,000 - \$15,000 depending on design and materials.

Permitting fees vary and may include the cost of lost parking meter revenue for the jurisdiction.

PEDESTRIAN INTERSECTION TREATMENTS

ACCESSIBLE CURB RAMPS

Curb ramps are the design elements that allow all users to make the transition from the street to the sidewalk. There are a number of factors to be considered in the design and placement of curb ramps at corners. Properly designed curb ramps ensure that the sidewalk is accessible from the roadway. A sidewalk without a curb ramp can be useless to someone in a wheelchair, forcing them back to a driveway and out into the street for access.



Crosswalk spacing not to scale. For illustration purposes only.

Typical Application

- Curb ramps are used to assist people with mobility devices to cross the street at intersections. They also accommodate individuals with strollers, bicycles, carts and strollers.
- ADA requires all new and rebuilt curb ramps to provide accessibility for people with disabilities, including blind pedestrians.

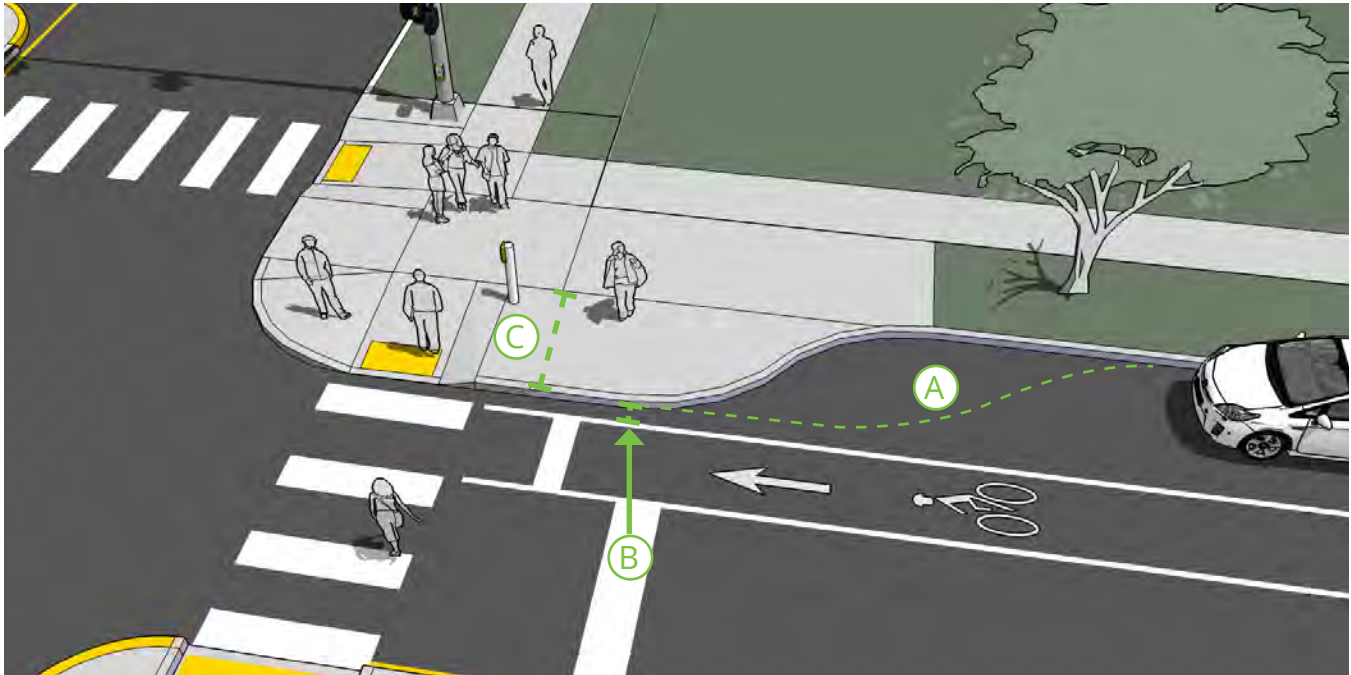
Design Features

- The landing at the top of a ramp shall be at least 4 ft long and at least the same width as the ramp itself.
- The ramp shall slope no more than 1:12, with a maximum cross slope of 2.0 percent.
- If the ramp runs directly into a crosswalk, the landing at the bottom will be in the roadway.
- If the ramp lands on a dropped landing within the sidewalk or corner area where someone in a wheelchair may have to change direction, the landing must be a minimum of 5 ft long and at least as wide as the ramp, although a width of 5 ft is preferred.

PEDESTRIAN INFRASTRUCTURE

CURB EXTENSIONS

Curb extensions minimize pedestrian exposure during crossing by shortening crossing distance and giving pedestrians a better chance to see and be seen before committing to crossing.



Typical Application

- Within parking lanes appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb.
- May be possible within non-travel areas on roadways with excess space.
- Particularly helpful at midblock crossing locations.
- Curb extensions should not impede bicycle travel in the absence of a bike lane.

Design Features

- (A) For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition is 10 ft and the two radii should be balanced to be nearly equal.
- (B) When a bike lane is present, the curb extensions should terminate one ft short of the parking lane to maximize bicyclist safety.
- (C) Reduces pedestrian crossing distance by 6-8 ft.
 - Planted curb extensions may be designed as a bioswale for stormwater management.

Crash Reduction

There are no Crash Modification Factors (CMFs) available for this treatment.

Construction Costs

The cost of a curb extension can range from \$2,000 to \$20,000 depending on the design and site condition, with the typical cost approximately \$12,000. Green/vegetated curb extensions cost between \$10,000 to \$40,000.

PEDESTRIAN INFRASTRUCTURE

MEDIAN REFUGE ISLAND

Median refuge islands are located at the mid-point of a marked crossing and help improve pedestrian safety by allowing pedestrians to cross one direction of traffic at a time. Refuge islands minimize pedestrian exposure by shortening crossing distance and increasing the number of available gaps for crossing.



Typical Application

- Can be applied on any roadway with a center turn lane or median that is at least 6 ft wide.
- May be appropriate on multi-lane roadways depending on speeds and volumes. Consider configuration with active warning beacons for improved yielding compliance.
- Appropriate at signalized or unsignalized crosswalks.

Design Features

- Ⓐ The island must be accessible, preferably with at-grade passage through the island rather than ramps and landings. Detectable warning surfaces must be full-width and 2 ft deep to warn blind pedestrian.
- Requires 6 ft width between travel lanes (8-10 ft preferred to accommodate bikes with trailers and wheelchair users) and 20 ft length (40 ft preferred). Clear width of 4 ft required, but preferably same width as crosswalk.
- On streets with speeds higher than 25 mph, there should also be double centerline marking, reflectors, and “KEEP RIGHT” signage.

Crash Reduction

Based on a comparison of crash rates on arterials with 3 to 8 lanes and minimum 15,000 ADT, median refuge islands were found to reduce vehicle/pedestrian collisions by 46 percent at marked crosswalks (CMF ID: 75). This test controlled for pedestrian and vehicular traffic volumes.

Construction Costs

The cost to install median refuge islands range from \$535 to \$1,065 per ft for a typical total cost range from \$3,500 to \$40,000, depending on the design, site conditions, landscaping and whether the median can be added as part of a larger street rebuild or utility upgrade.

PEDESTRIAN INFRASTRUCTURE

PEDESTRIAN SIGNAL STRATEGIES

Enhancements may be made to signalized intersections to reduce pedestrian-vehicle conflicts and increase user comfort and usability.



Considerations

Pedestrian-vehicle conflicts can occur when drivers performing turning movements across the crosswalk do not see or yield to pedestrians who have the right-of-way. Pedestrians may also arrive at an intersection late, or may not have any indication of how much time they have to safely cross the intersection. Signal enhancements should be considered at locations with a history of crash risk, long crossing distances, or large volumes of turning traffic.

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.

Design Features

- Countdown signals should be used at all new and rehabbed signalized intersections.
- Leading Pedestrian Intervals (LPI) give pedestrians a head start into the intersection, which can reduce right turn and permissive left turn vehicle and pedestrian conflicts.
- An exclusive pedestrian phase (known as Pedestrian Scramble or Barnes Dance), stops all traffic and gives pedestrians the right-of-way in all directions (including diagonally). This is most appropriate in locations with very high pedestrian volumes.
- Audible pedestrian signals make signals accessible by individuals with visual disabilities by providing audible tones or verbal messages to convey when it is appropriate to walk, when they must wait, and feedback when the signal has been actuated via pushbutton.

BICYCLE FACILITIES CONTEXT

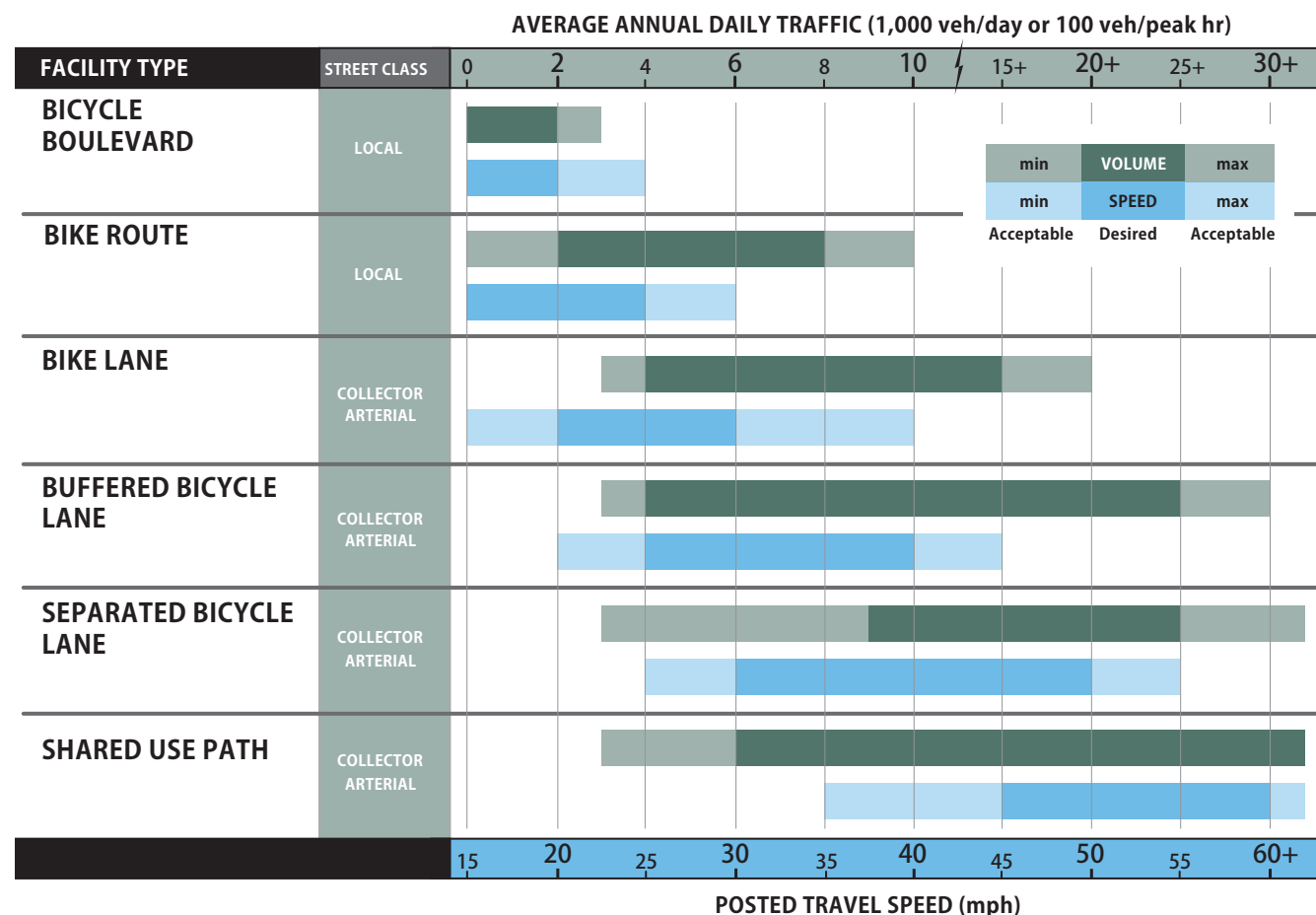
FACILITY SELECTION

Selecting the best bikeway facility type for a given roadway can be challenging, due to the range of factors that influence bicycle users' comfort and safety. There is a significant impact on cycling comfort when the speed differential between bicyclists and motor vehicle traffic is high and motor vehicle traffic volumes are high.

Facility Selection Table

As a starting point to identify a preferred facility, the chart below can be used to determine the recommended type of bikeway to be provided in particular roadway speed and volume situations. To use this chart, identify the appropriate daily traffic volume and travel speed on or the existing or proposed roadway, and locate the facility types indicated by those key variables.

Other factors beyond speed and volume which affect facility selection include traffic mix of automobiles and heavy vehicles, the presence of on-street parking, intersection density, surrounding land use, and roadway sight distance. These factors are not included in the facility selection chart below, but should always be considered in the facility selection and design process.



BICYCLE FACILITIES CONTEXT

BICYCLIST USER TYPE

The current AASHTO Guide to the Development of Bicycle Facilities encourages designers to identify their rider type based on the trip purpose (Recreational vs Transportation) and on the level of comfort and skill of the rider (Causal vs Experienced). A user-type framework for understanding a potential rider's willingness to bike is illustrated in the figure below. Developed by planners in Portland, OR* and supported by research**, this classification identifies four distinct types of bicyclists.

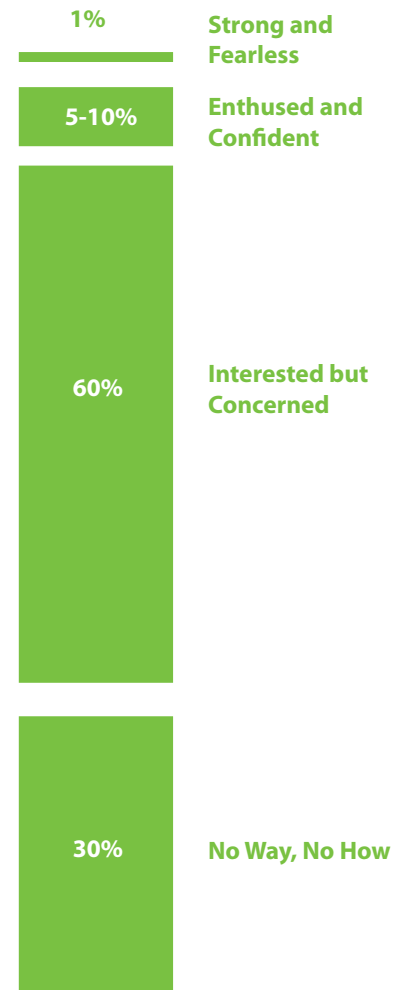
Four Types of Transportation Bicyclists

Strong and Fearless (approximately 1 percent of population) – Characterized by bicyclists that will typically ride anywhere regardless of roadway conditions or weather. These bicyclists can ride faster than other user types, prefer direct routes and will typically choose roadway connections -- even if shared with vehicles -- over separate bicycle facilities such as shared-use paths.

Enthusied and Confident (5-10 percent of population) - This user group encompasses bicyclists who are fairly comfortable riding on all types of bikeways but usually choose low traffic streets or shared-use paths when available. These bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists such as commuters, recreationalists, racers and utilitarian bicyclists.

Interested but Concerned (approximately 60 percent of population) – This user type comprises the bulk of the cycling population and represents bicyclists who typically only ride a bicycle on low traffic streets or shared-use paths under favorable weather conditions. These bicyclists perceive significant barriers to their increased use of cycling, specifically traffic and other safety issues. These people may become “Enthusied & Confident” with encouragement, education and experience.

No Way, No How (approximately 30 percent of population) – Persons in this category are not bicyclists, and perceive severe safety issues with riding in traffic. Some people in this group may eventually become more regular cyclists with time and education. A significant portion of these people will not ride a bicycle under any circumstances.



Typical Distribution of Bicyclist Types

* Roger Geller, City of Portland Bureau of Transportation. Four Types of Cyclists. <http://www.portlandonline.com/transportation/index.cfm?&a=237507>. 2009.

** Dill, J., McNeil, N. Four Types of Cyclists? Testing a Typology to Better Understand Bicycling Behavior and Potential. 2012.

BICYCLE FACILITIES CONTEXT

USER DESIGN DIMENSIONS

The purpose of this section is to provide the facility designer with an understanding of how bicyclists operate and how their bicycle influences that operation. Bicyclists, by nature, are much more affected by poor facility design, construction, and maintenance practices than motor vehicle drivers.

Bicyclists lack the protection from the elements and roadway hazards provided by an automobile's structure and safety features. By understanding the unique characteristics and needs of bicyclists, a facility designer can provide quality facilities and minimize user risk.

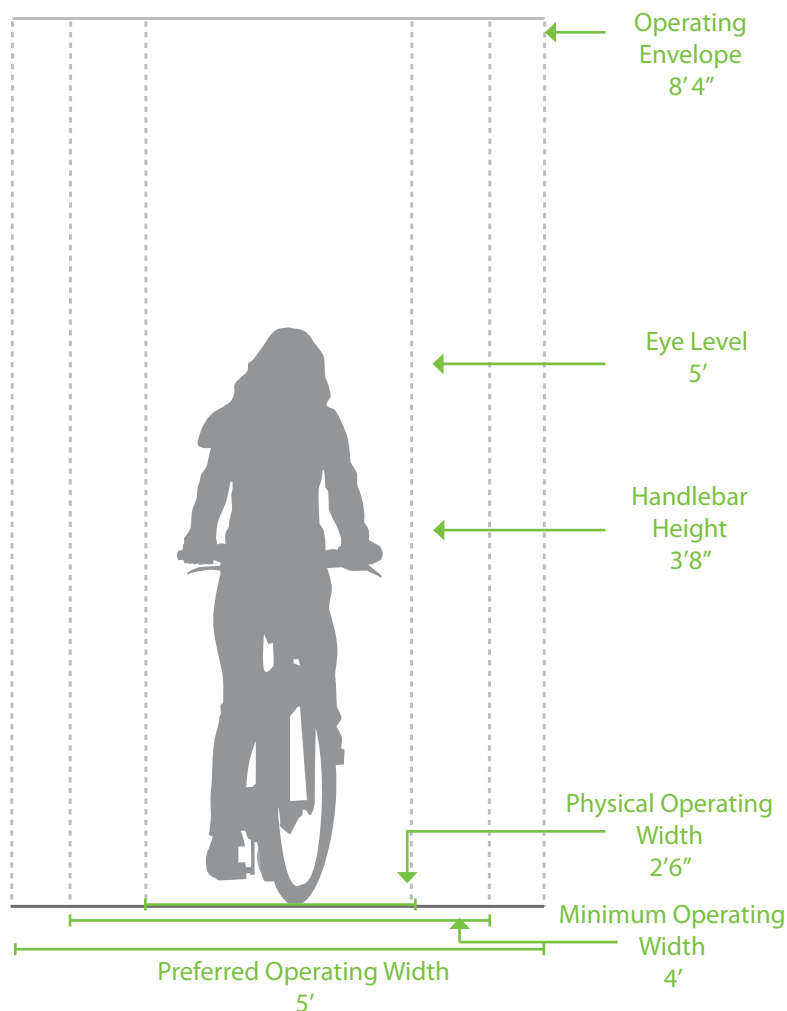
Bicycle as a Design Vehicle

Similar to motor vehicles, bicyclists and their bicycles exist in a variety of sizes and configurations. These variations occur in the types of vehicle (such as a conventional bicycle, a recumbent bicycle or a tricycle), and behavioral characteristics (such as the comfort level of the bicyclist). The design of a bikeway should consider reasonably expected bicycle types on the facility and utilize the appropriate dimensions.

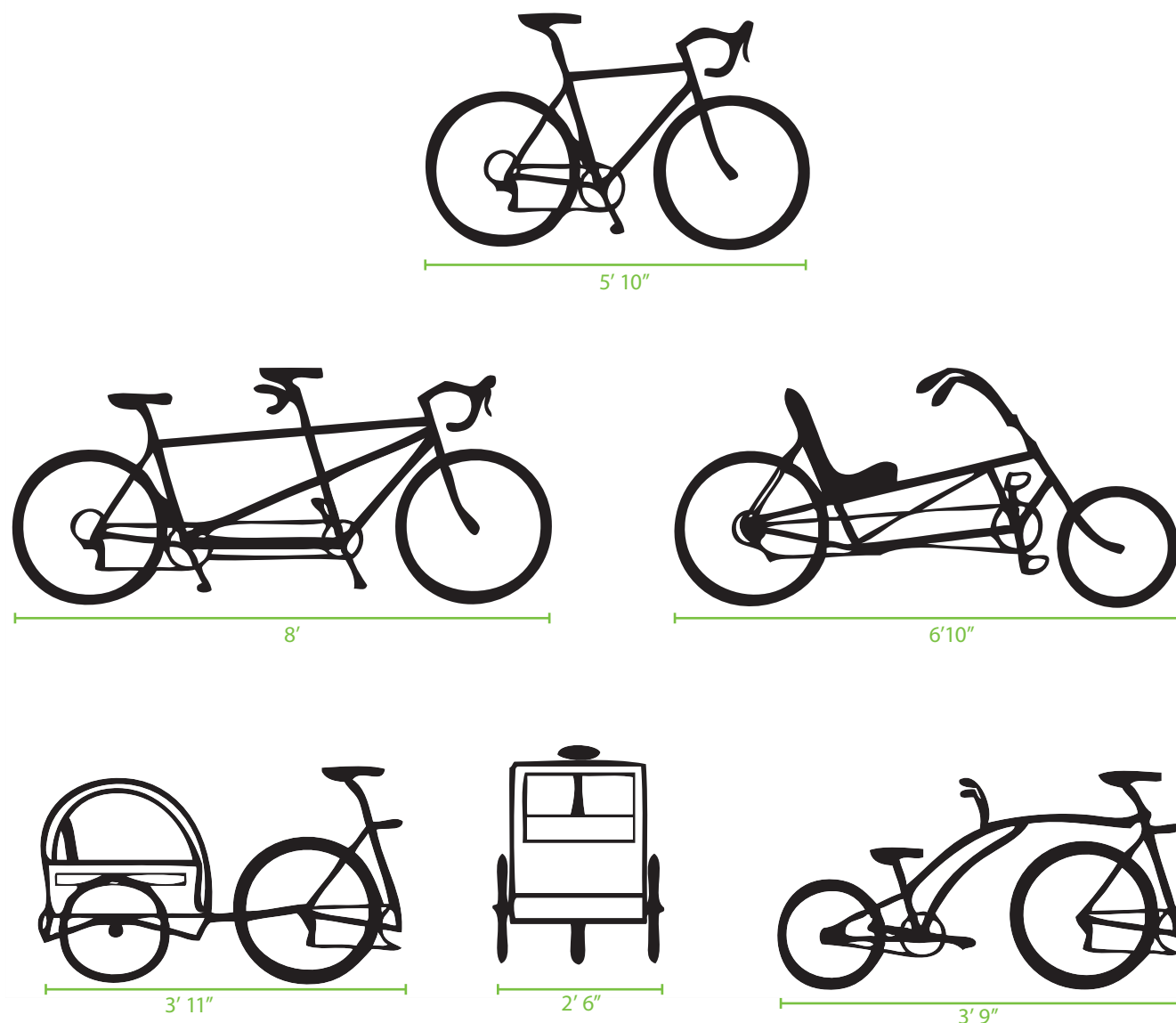
The figure to the right illustrates the operating space and physical dimensions of a typical adult bicyclist, which are the basis for typical facility design. Bicyclists require clear space to operate within a facility. This is why the minimum operating width is greater than the physical dimensions of the bicyclist. Bicyclists prefer five ft or more operating width, although four ft may be minimally acceptable.

In addition to the design dimensions of a typical bicycle, there are many other commonly used pedal-driven cycles and accessories to consider when planning and designing bicycle facilities. The most common types include tandem bicycles, recumbent bicycles, and trailer accessories. The figure to the left summarizes the typical dimensions for bicycle types.

Bicycle Rider - Typical Dimensions



Bicycle Design Vehicle - Typical Dimensions



Source: AASHTO Guide for the Development of Bicycle Facilities, 4th Edition

Design Speed Expectations

The expected speed that different types of bicyclists can maintain under various conditions also influences the design of facilities such as shared use paths. The table to the right provides typical bicyclist speeds for a variety of conditions.

Bicycle as Design Vehicle - Design Speed Expectations

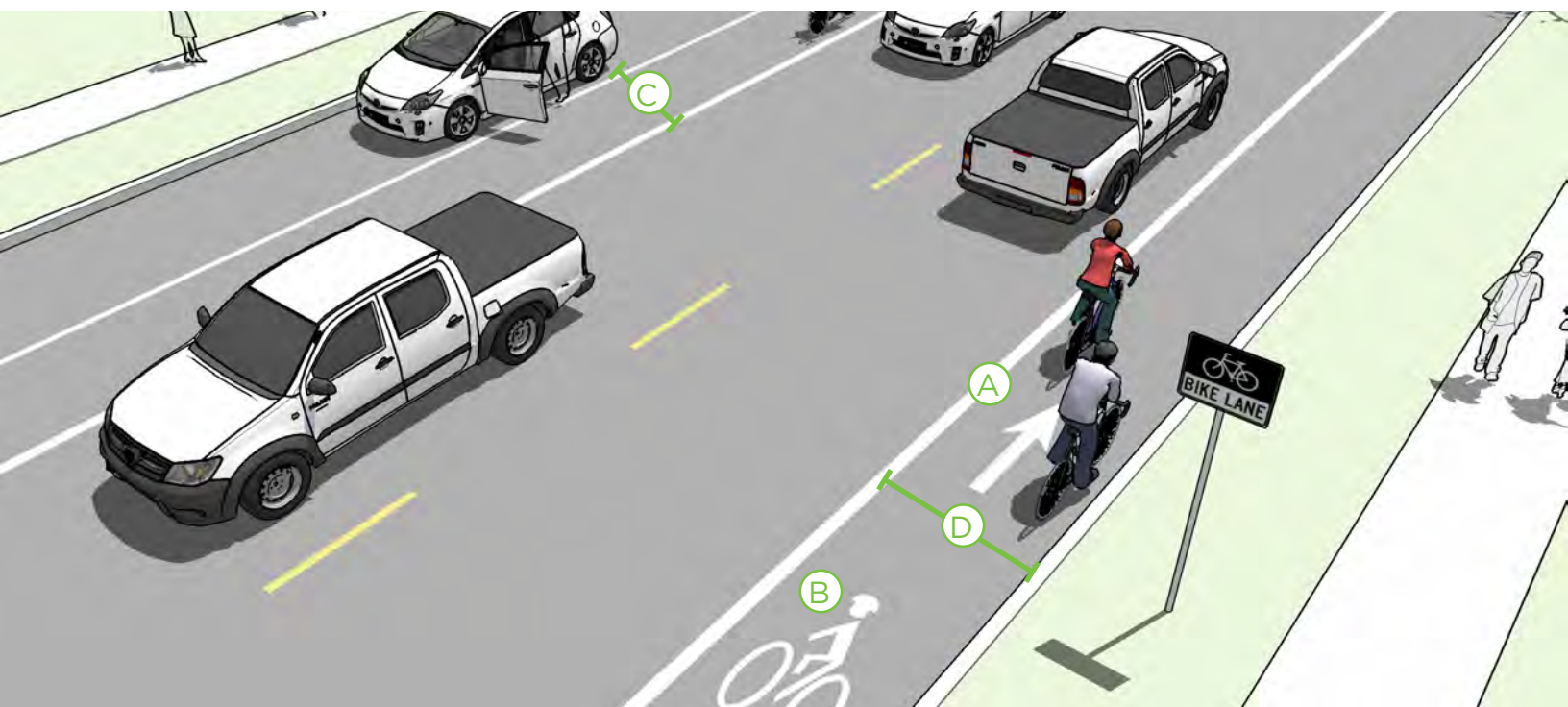
Bicycle Type	Feature	Typical Speed
Upright Adult Bicyclist	Paved level surfacing	8-12 mph*
	Crossing Intersections	10 mph
	Downhill	30 mph
	Uphill	5-12 mph
Recumbent Bicyclist	Paved level surfacing	18 mph

* Typical speed for causal riders per AASHTO 2013.

ON-STREET BICYCLE LANES

BICYCLE LANES

On-street bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signs. The bike lane is located directly adjacent to motor vehicle travel lanes and is used 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.



Typical Application

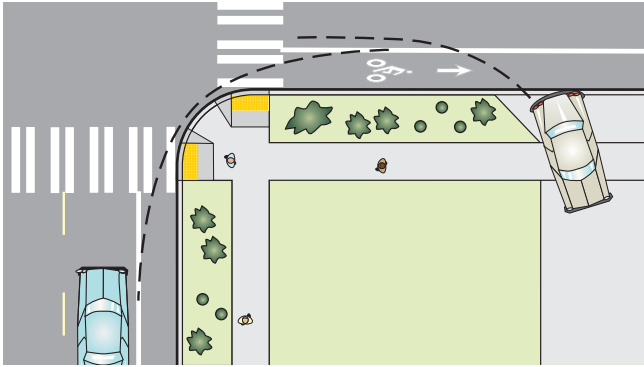
- Bike lanes may be used on any street with adequate space, but are most effective on streets with moderate traffic volumes $\geq 6,000$ ADT ($\geq 3,000$ preferred).
- Bike lanes are most appropriate on streets with moderate speeds ≥ 25 mph.
- Appropriate for skilled adult riders on most streets.
- May be appropriate for children when configured as 6+ ft wide lanes on lower-speed, lower-volume streets with one lane in each direction.

Design Features

- (A) Mark inside line with 6" stripe. Mark 4" parking lane line or "Ts".¹
- (B) Include a bicycle lane marking (MUTCD FIGURE 9C-3) at the beginning of blocks and at regular intervals along the route (MUTCD 9C.04).
- (C) 6 ft width preferred adjacent to on-street parking (5 ft min.).
- (D) 5-6 ft preferred adjacent to curb and gutter (4 ft min.) or 4 ft more than the gutter pan width.

¹ Studies have shown that marking the parking lane encourages people to park closer to the curb. FHWA. Bicycle Countermeasure Selection System. 2006.

Place Bike Lane Symbols to Reduce Wear



Bike lane word, symbol, and/or arrow markings (MUTCD Figure 9C-3) shall be placed outside of the motor vehicle tread path in order to minimize wear from the motor vehicle path (NACTO 2012).

Bicycle Lane



Bicycle lanes provide an exclusive space, but may be subject to unwanted encroachment by motor vehicles.

Further Considerations

- On high speed streets (≥ 40 mph) the minimum bike lane should be 6 ft.
- On streets where bicyclists passing each other is to be expected, where high volumes of bicyclists are present, or where added comfort is desired, consider providing extra wide bike lanes up to 7 ft wide, or configure as a buffered bicycle lane.
- It may be desirable to reduce the width of general purpose travel lanes in order to add or widen bicycle lanes.
- 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 separated bicycle lanes.

Manhole Covers and Grates:

- Manhole surfaces should be manufactured with a shallow surface texture in the form of a tight, nonlinear pattern
- If manholes or other utility access boxes are to be located in bike lanes within 50 ft of intersections or within 20 ft of driveways or other bicycle access points, special manufactured permanent nonstick surfaces will be required to ensure a controlled travel surface for cyclists breaking or turning.
- Manholes, drainage grates, or other obstacles should be set flush with the paved roadway. Roadway surface inconsistencies pose a threat to safe riding conditions for bicyclists. Construction of manholes, access panels or other drainage elements will be constructed with no variation in the surface. The maximum allowable tolerance in vertical roadway surface will be 1/4 of an inch.

Crash Reduction

Before and after studies of bicycle lane installations show a wide range of crash reduction factors. Some studies show a crash reduction of 35 percent (CMF ID: 1719) for vehicle/bicycle collisions after bike lane installation.

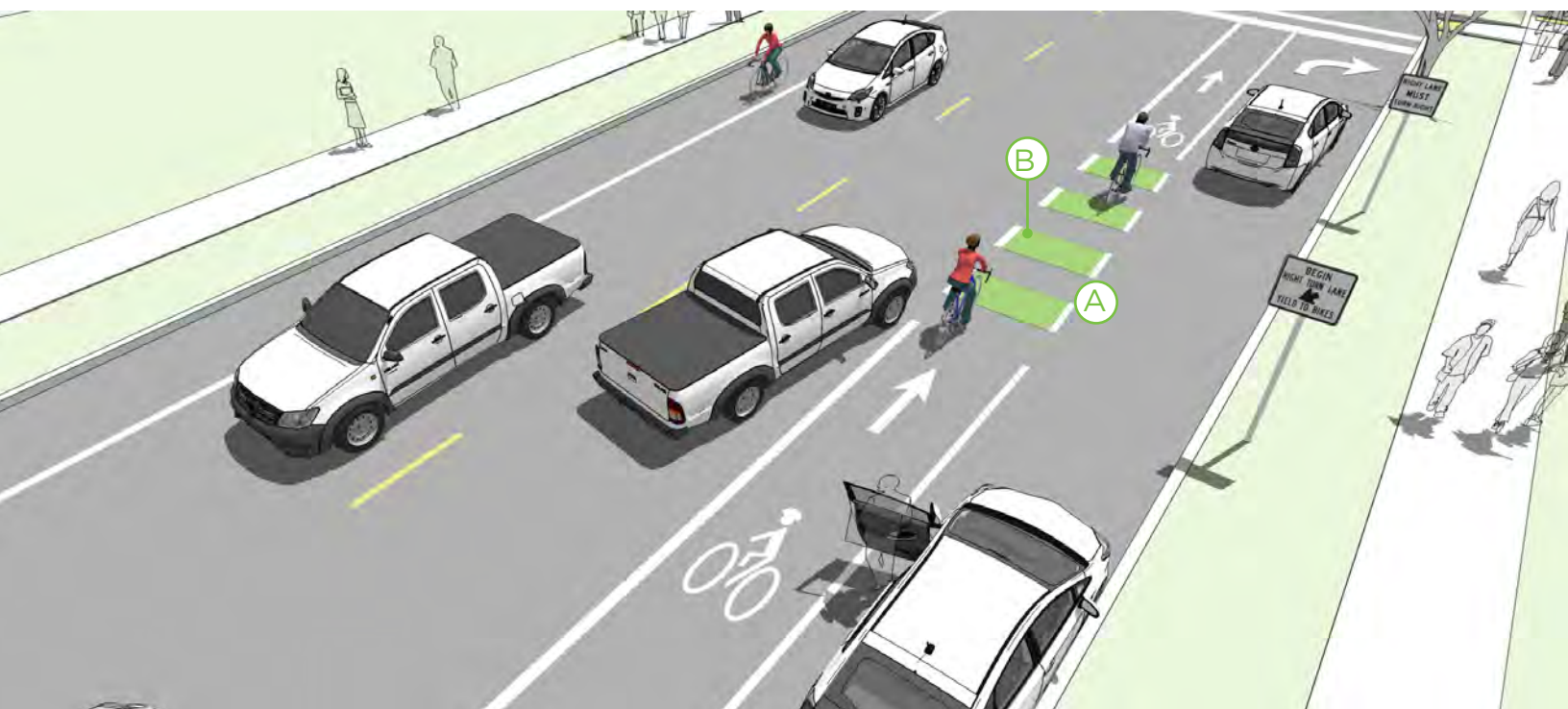
Construction Costs

The cost for installing bicycle lanes will depend on the implementation approach. Typical costs are \$16,000 per mile for restriping.

ON-STREET BICYCLE LANES

COLORED BICYCLE LANES

Colored pavement within a bicycle lane may be used to increase the visibility of the bicycle facility, raise awareness of the potential to encounter bicyclists and reinforce priority of bicyclists in conflict areas.



Typical Application

- Within a weaving or conflict area to identify the potential for bicyclist and motorist interactions and assert bicyclist priority.
- Across intersections, driveways and Stop or Yield-controlled cross-streets.

Design Features

- (A) Typical white bike lanes (solid or dotted 6" stripe) are used to outline the green colored pavement.
- (B) In weaving or turning conflict areas, preferred striping is dashed, to match the bicycle lane line extensions.
 - The colored surface should be skid resistant and retro-reflective (MUTCD 9C.02.02).
 - In exclusive use areas, such as bike boxes, color application should be solid green.

Colored Bicycle Lane



A colored bicycle lane on Laurel Street in Santa Cruz, CA alerts users to potential merging in advance of an intersection. Photo by Richard Masoner via Flickr (CC BY-SA 2.0).

Further Considerations

- Green colored pavement shall be used in compliance with FHWA Interim Approval (FHWA IA-14.10).¹
- While other colors have been used (red, blue, yellow), green is the recommended color in the US.
- The application of green colored pavement within bicycle lanes is an emerging practice. The guidance recommended here is based on best practices in cities around the county.

¹ FHWA. Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14). 2011.

Crash Reduction

Before and after studies of colored bicycle lane installations have found a reduction in bicycle/vehicle collisions by 38 percent and a reduction in serious injuries and fatalities of bicyclists by 71 percent.² A study in Portland, OR found a 38 percent decrease in the rate of conflict between bicyclists and motorists after colored lanes were installed.³

² Jensen, S.U., et. al., "The Marking of Bicycle Crossings at Signalized Intersections," Nordic Road and Transport Research No. 1, 1997, pg. 27.

³ Hunter, W. W., et. al., Evaluation of the Blue Bike-Lane Treatment Used in Bicycle/Motor Vehicle Conflict Areas in Portland, Oregon, McLean, VA: FHWA, 2000, pg. 25.

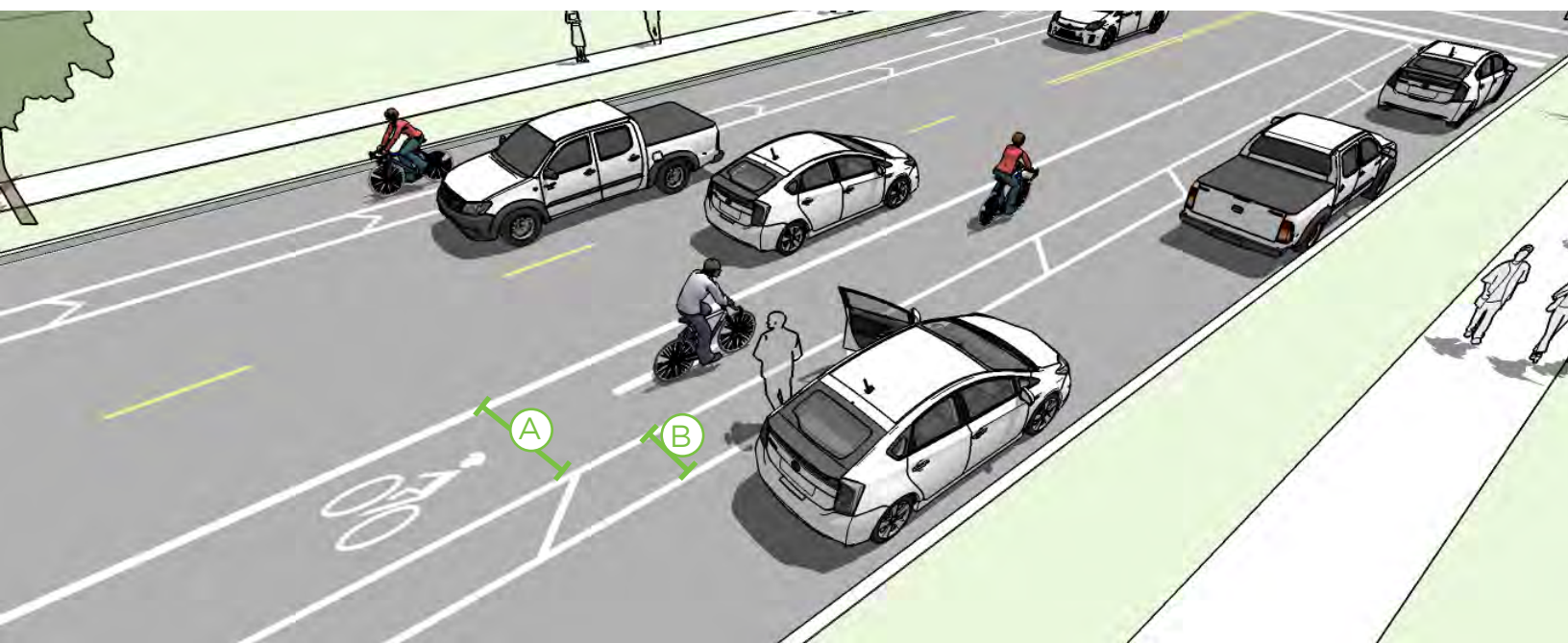
Construction Costs

The cost for installing colored bicycle lanes will depend on the materials selected and implementation approach. Typical costs range from \$1.20/sq. ft installed for paint to \$14/sq. ft installed for Thermoplastic. Colored pavement is more expensive than standard asphalt installation, costing 30-50 percent more than non-colored asphalt.

ON-STREET BICYCLE LANES

BUFFERED BICYCLE LANES

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.



Typical Application

- Anywhere a conventional bike lane is being considered.
- On streets with high speeds and high volumes or high truck volumes.
- On streets with extra lanes or lane width.
- Appropriate for skilled adult riders on most streets.

Design Features

- (A) The minimum bicycle travel area (not including buffer) is 5 ft wide.
- (B) Buffers should be at least 2 ft wide. If buffer area is 4 ft or wider, white chevron or diagonal markings should be used.
- For clarity at driveways or minor street crossings, consider a dotted line.
- There is no standard for whether the buffer is configured on the parking side, the travel side, or a combination of both.

Buffered Bicycle Lane



The use of pavement markings delineates space for cyclists to ride in a comfortable facility.

Buffered Bicycle Lane



The use of pavement markings delineates space for cyclists to ride in a comfortable facility.

Further Considerations

- Color may be used within the lane to discourage motorists from entering the buffered lane.
- A study of buffered bicycle lanes found that, in order to make the facilities successful, there needs to also be driver education, improved signage and proper pavement markings.¹
- On multi-lane streets with high vehicles speeds, the most appropriate bicycle facility to provide for user comfort may be physically separated bike lanes.
- NCHRP Report #766 recommends, when space is limited, installing a buffer space between the parking lane and bicycle lane where on-street parking is permitted rather than between the bicycle lane and vehicle travel lane.²

¹ Monsere, C.; McNeil, N.; and Dill, J., "Evaluation of Innovative Bicycle Facilities: SW Broadway Cycle Track and SW Stark/Oak Street Buffered Bike Lanes. Final Report" (2011). Urban Studies and Planning Faculty Publications and Presentations.

² National Cooperative Highway Research Program. Report #766: Recommended Bicycle Lane Widths for Various Roadway Characteristics.

Crash Reduction

A before and after study of buffered bicycle lane installation in Portland, OR found an overwhelmingly positive response from bicyclists, with 89 percent of bicyclists feeling safer riding after installation and 91 percent expressing that the facility made bicycling easier.³

Construction Costs

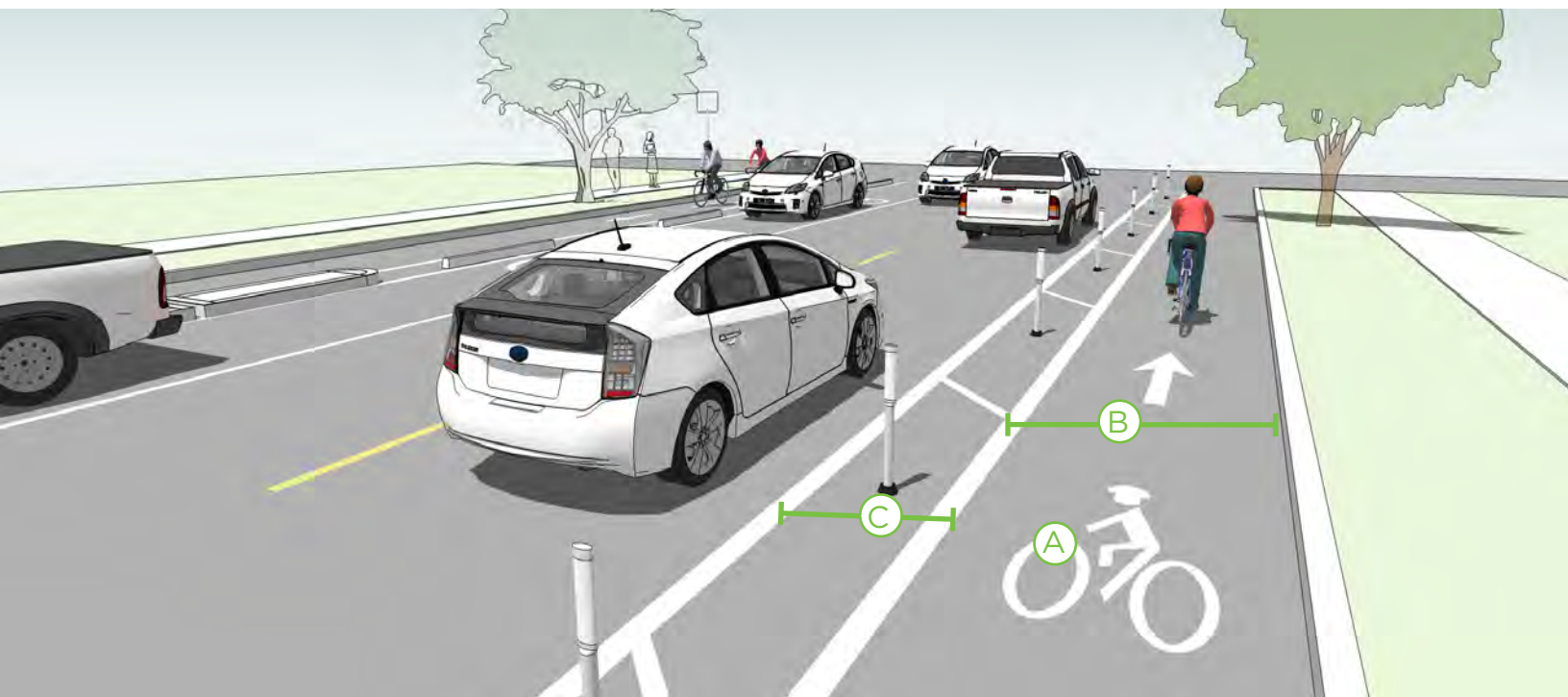
The cost for installing buffered bicycle lanes will depend on the implementation approach. Typical costs are \$16,000 per mile for restriping. However, the cost of large-scale bicycle treatments will vary greatly due to differences in project specifications and the scale and length of the treatment.

³ National Cooperative Highway Research Program. Report #766: Recommended Bicycle Lane Widths for Various Roadway Characteristics.

PHYSICALLY SEPARATED BICYCLE LANES

ONE-WAY SEPARATED BICYCLE LANES

When retrofitting separated bike lanes onto existing streets, a one-way street-level design may be most appropriate. This design provides protection through physical barriers and can include flexible delineators, curbs, on-street parking or other barriers. A street level separated bike lane shares the same elevation as adjacent travel lanes.



Typical Application

- Street retrofit projects with limited funds for relating curbs and drainage.
- Streets with high motor vehicle volumes and/or speeds and high bicycle volumes.
- Streets for which conflicts at intersections can be effectively mitigated using parking lane setbacks, bicycle markings through the intersection, and other signaled intersection treatments.
- Appropriate for most riders on most streets, although caution should be used when approaching intersections or other conflict areas.

Design Features

- (A) Pavement markings, symbols and/or arrow markings must be placed at the beginning of the separated bike lane and at intervals along the facility (MUTCD 9C.04).
- (B) 7 ft width preferred (5 ft minimum).
- (C) 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.

Street Level Separated Bicycle Lanes



Street Level Separated Bicycle Lanes can be separated from the street with parking, planters, bollards, or other design elements.

Further Considerations

- Separated bike lane buffers and barriers are covered in the MUTCD as preferential lane markings (section 3D.01) and channelizing devices (section 3H.01). Curbs may be used as a channeling device, see the section on islands (section 3I.01).
- A retrofit separated bike lane has a relatively low implementation cost compared to road reconstruction by making use of existing pavement and drainage and by using parking lane as a barrier.
- Gutters, drainage outlets and utility covers should be designed and configured as not to impact bicycle travel.
- Special consideration should be given at transit stops to manage bicycle & pedestrian interactions.

Crash Reduction

A before and after study in Montreal of physically separated bicycle lanes shows that this type of facility can result in a crash reduction of 74 percent for collisions between bicyclists and vehicles. (CMF ID: 4097) In this study, there was a parking buffer between the bike facility and vehicle travel lanes. Other studies have found a range in crash reductions due to SBL, from 8 percent (CMF ID: 4094) to 94 percent (CMF ID: 4101).

Construction Costs

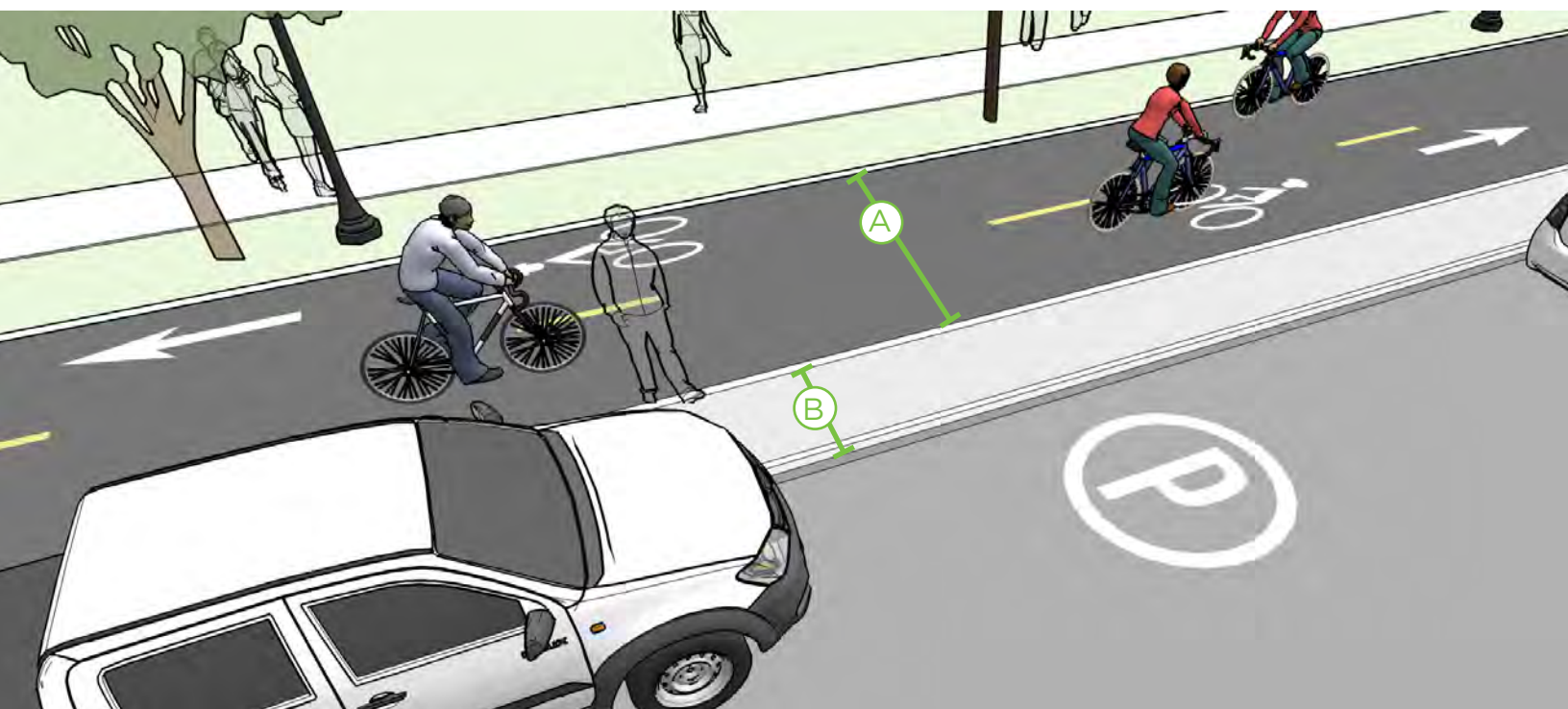
The implementation cost is low if the project uses existing pavement and drainage, but the cost significantly increases if curb lines need to be moved. A parking lane is the low-cost option for providing a barrier. Other barriers might include concrete medians, bollards, tubular markers, or planters.

PHYSICALLY SEPARATED BICYCLE LANES

TWO-WAY SEPARATED BICYCLE LANES

Two-Way Separated Bicycle Lanes are bicycle facilities that allow bicycle movement in both directions on one side of the road.

Two-way separated bicycle lanes share some of the same design characteristics as one-way separated bicycle lanes, but may require additional considerations at driveway and side-street crossings.



Typical Application

- Works best on the left side of one-way streets.
- Streets with high motor vehicle volumes and/or speeds.
- Streets with high bicycle volumes.
- Streets with a high incidence of wrong-way bicycle riding.
- Streets with few conflicts such as driveways or cross-streets on one side of the street.
- Streets that connect to shared use paths.

Design Features

- (A) 12 ft operating width preferred (10 ft minimum) width for two-way facility.
- (B) In constrained an 8 ft minimum operating width may be considered.
- Adjacent to on-street parking a 3 ft minimum width channelized buffer or island shall be provided to accommodate opening doors (NACTO, 2012) (MUTCD 3H.01, 3I.01).
- A separation narrower than 5 ft may be permitted if a physical barrier is present (AASHTO, 2013).
- Additional signalization and signs may be necessary to manage conflicts.

Two-Way Separated Bicycle Lanes



A two-way facility can accommodate cyclists in two directions of travel.

Further Considerations

- On-street bike lane buffers and barriers are covered in the MUTCD as preferential lane markings (section 3D.01) and channelizing devices, including flexible delineators (section 3H.01). Curbs may be used as a channeling device, see the section on islands (section 3I.01).
- A two-way separated bike lane on one way street should be located on the left side.
- A two-way separated bike lane may be configured at street level or as a raised separated bicycle lane with vertical separation from the adjacent travel lane.
- Two-way separated bike lanes should ideally be placed along streets with long blocks and few driveways or mid-block access points for motor vehicles.

Crash Reduction

A study of bicyclists in two-way separated facilities found that accident probability decreased by 45 percent at intersections where the separated facility approach was detected between 2-5 meters from the side of the main road and when bicyclists had crossing priority at intersections. (CMF ID: 3034) Installation of a two-way separated bike lane 0-2 meters from the side of the main road resulted in an increase in collisions at intersections by 3 percent (CMF ID: 4033).

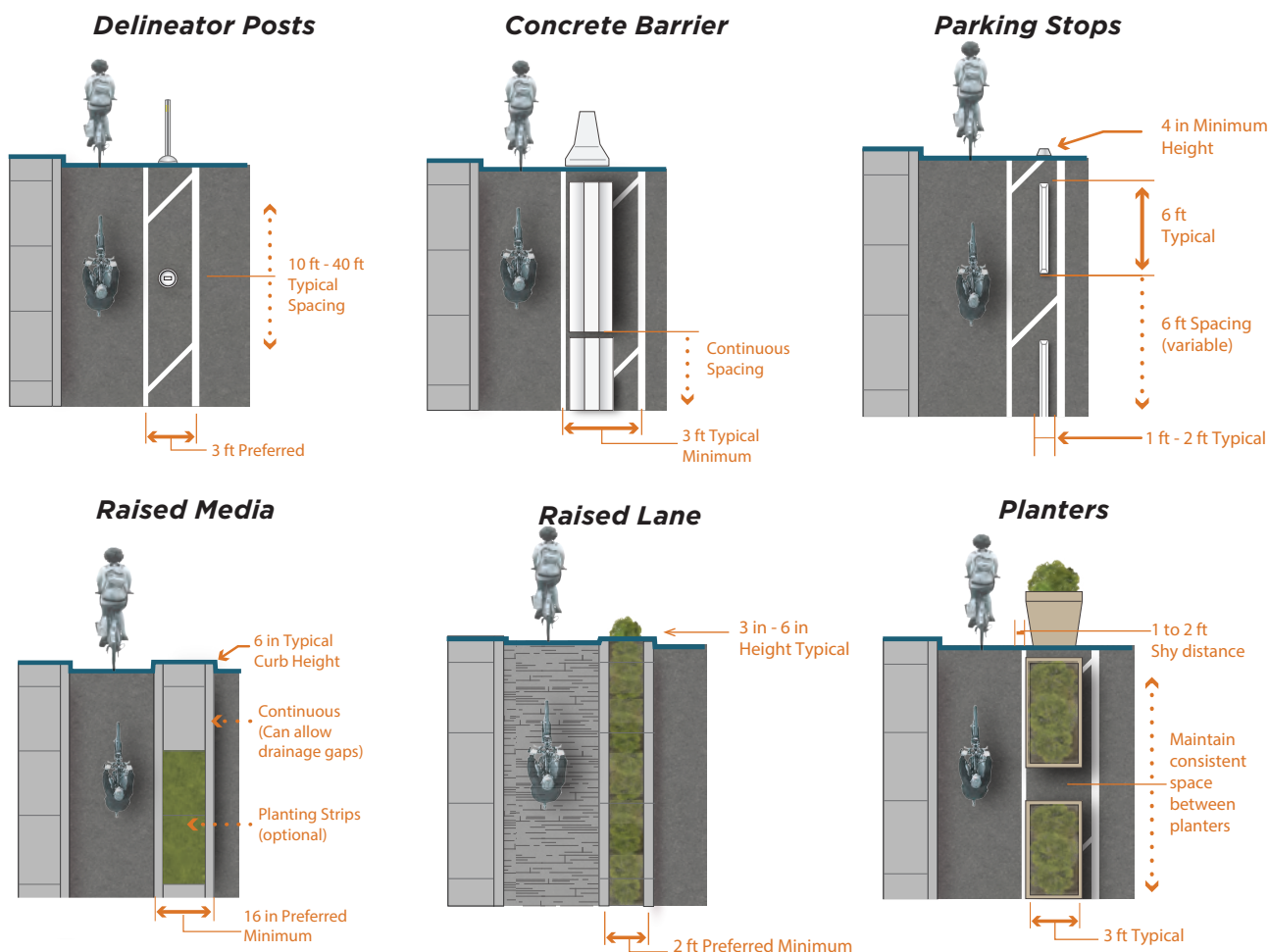
Construction Costs

The implementation cost is low if the project uses existing pavement and drainage, but the cost significantly increases if curb lines need to be moved. A parking lane is the low-cost option for providing a barrier. Other barriers might include concrete medians, bollards, tubular markers, or planters.

PHYSICALLY SEPARATED BICYCLE LANES

SEPARATION METHODS

Separated bikeways may use a variety of vertical elements to physically separate the bikeway from adjacent travel lanes. Barriers may be robust constructed elements such as curbs, or may be more interim in nature, such as flexible delineator posts.



Typical Application

Appropriate barriers for retrofit projects:

- Parked Cars
- Flexible delineators
- Bollards
- Planters
- Parking stops

Appropriate barriers for reconstruction projects:

- Curb separation
- Medians
- Landscaped Medians
- Raised separated bike lane with vertical or mountable curb
- Pedestrian Safety Islands

BIKEWAY SEPARATION METHODS



Raised separated bikeways are bicycle facilities that are vertically separated from motor vehicle traffic.

Design Features

- Maximize effective operating space by placing curbs or delineator posts as far from the through bikeway space as practicable.
- Allow for adequate shy distance of 1 to 2 ft from vertical elements to maximize useful space.
- When next to parking allow for 3 ft of space in the buffer space to allow for opening doors and passenger unloading.
- The presences of landscaping in medians, planters and safety islands increases comfort for users and enhances the streetscape environment.

Further Considerations

- Separated bikeway buffers and barriers are covered in the MUTCD as preferential lane markings (section 3D.01) and channelizing devices (section 3H.01). Curbs may be used as a channeling device, see the section on islands (section 3I.01).
- With new roadway construction a raised separated bikeway can be less expensive to construct than a wide or buffered bicycle lane because of shallower trenching and sub base requirements.
- Parking should be prohibited within 30 ft of the intersection to improve visibility.

Crash Reduction

A before and after study in Montreal of separated bikeways shows that this type of facility can result in a crash reduction of 74 percent for collisions between bicyclists and vehicles. (CMF ID: 4097) In this study, there was a parking buffer between the bike facility and vehicle travel lanes. Other studies have found a range in crash reductions due to SBL, from 8 percent (CMF ID: 4094) to 94 percent (CMF ID: 4101).

Construction Costs

Separated bikeway costs can vary greatly, depending on the type of material, the scale, and whether it is part of a broader construction project.

NEIGHBORHOOD BIKEWAYS (BICYCLE BOULEVARDS)

NEIGHBORHOOD BIKEWAYS

Neighborhood bikeways (also known as “bicycle boulevards”) are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.



Typical Application

- Parallel with and in close proximity to major thoroughfares (1/4 mile or less).
- 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. The bikeway should have less than 10 percent out of direction travel compared to shortest path of primary corridor.
- Streets with travel speeds at 25 mph or less and with traffic volumes of fewer than 3,000 vehicles per day. These conditions should either exist or be established with traffic calming measures.

Design Features

- (A) Signs and pavement markings are the minimum treatments necessary to designate a street as a neighborhood bikeway.
- Neighborhood bikeways should have a maximum posted speed of 25 mph. Use traffic calming to maintain an 85th percentile speed below 22 mph.
- (B) Implement volume control treatments based on the context of the neighborhood bikeway, using engineering judgment. Target motor vehicle volumes range from 1,000 to 3,000 vehicles per day.
- (C) Intersection crossings should be designed to enhance safety and minimize delay for bicyclists.

Neighborhood Bikeways



Neighborhood bikeways are established on streets that improve connectivity to key destinations and provide a direct, low-stress route for bicyclists, with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority over other modes.

Traffic Calming



Streets along classified neighborhood bikeways may require additional traffic calming measures to discourage through trips by motor vehicles.

Further Considerations

Neighborhood bikeway retrofits to local streets are typically located on streets without existing signalized accommodation at crossings of collector and arterial roadways. Without treatments for bicyclists, these intersections can become major barriers along the neighborhood bikeway and compromise safety.

Traffic calming can deter motorists from driving on a street. Anticipate and monitor vehicle volumes on adjacent streets to determine whether traffic calming results in inappropriate volumes. Traffic calming can be implemented on a trial basis.

Crash Reduction

In a comparison of vehicle/cyclist collision rates on traffic-calmed side streets signed and improved for cyclist use, compared to parallel and adjacent arterials with higher speeds and volumes, the neighborhood bikeway was found to have a crash reduction factor of 63 percent, with rates two to eight times lower when controlling for volume (CMF ID: 3092).

Construction Costs

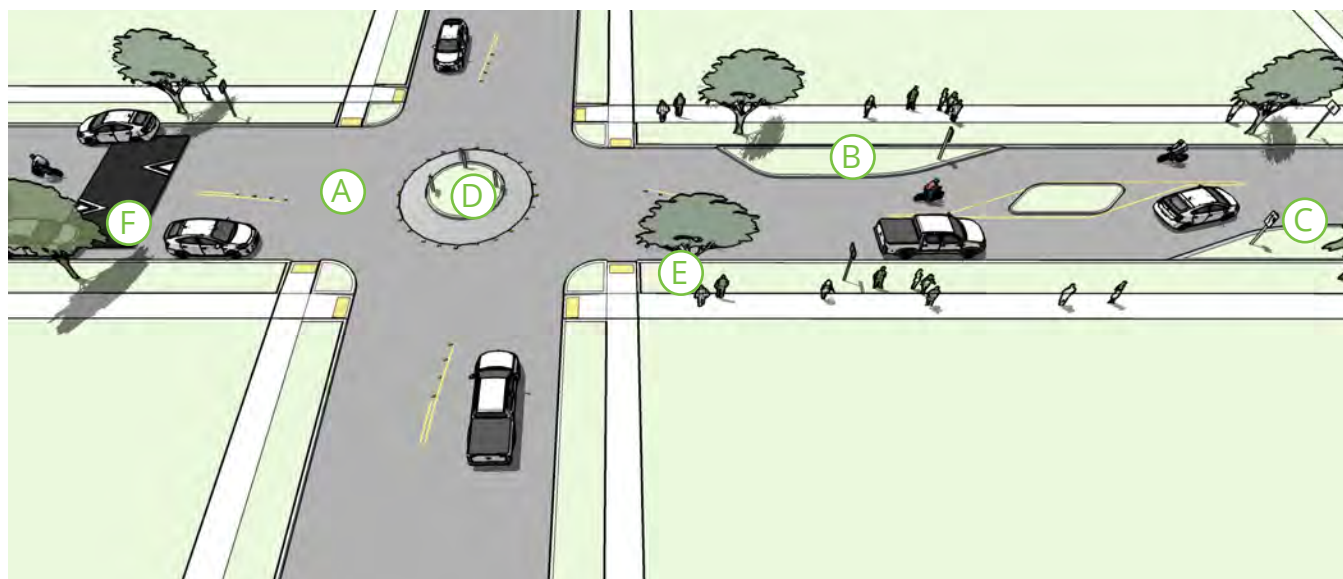
Costs vary depending on the type of treatments proposed for the corridor. Simple treatments such as wayfinding signage and markings are most cost-effective, but more intensive treatments will have greater impact at lowering speeds and volumes, at a higher cost.

SHARED ROADWAYS

TRAFFIC CALMING

Traffic calming may include elements intended to reduce the speeds of motor vehicle traffic to be closer to bicyclist travel speeds, or may include design elements that restrict certain movements for motorized travel to discourage the use of neighborhood bikeway corridors for through travel by automobiles.

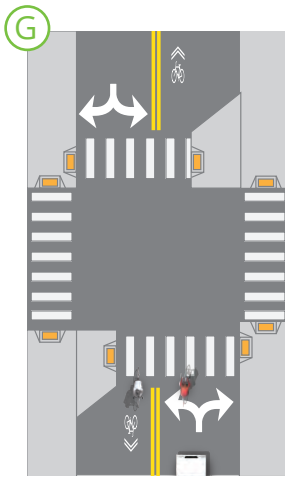
Traffic Calming Treatments to Reduce Motor Vehicle Speeds



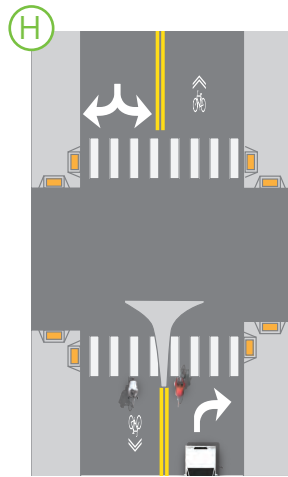
Typical Application

- Traffic calming treatments can cause drivers to slow down by constricting the roadway space or by requiring careful maneuvering. Such measures may reduce the design speed of a street, and can be used in conjunction with reduced speed limits to reinforce the expectation of lowered speeds. They can also lower vehicle volumes by physically or operationally reconfiguring corridors and intersections along the route.
- Neighborhood bikeways should have a maximum posted speed of 25 mph. Use traffic calming to maintain an 85th percentile speed below 20 mph (25 mph maximum). Bikeways with average speeds above this limit should be considered for traffic calming measures.
- Maintain a minimum clear width of 14 ft with a constricted length of at least 20 ft in the direction of travel.
- Bring traffic volumes down to 1,500 cars per day (4,000 cars per day maximum). Bikeways with higher volumes above this limit should be considered for traffic calming measures.

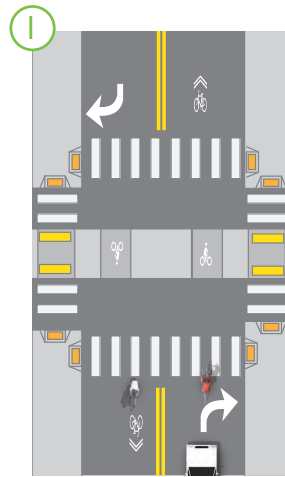
Traffic Calming Treatments to Reduce Motor Vehicle Volumes



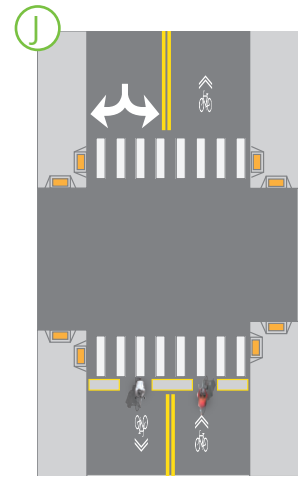
PARTIAL CLOSURE
DIVERTER



RIGHT-IN/
RIGHT-OUT
DIVERTER



MEDIAN REFUGE
ISLAND DIVERTER



FULL DIVERTER

Design Features (Speed Reduction)

- (A) Median islands create pinchpoints for traffic in the center of the roadway and offers shorter crossing distances for pedestrians when used in tandem with a marked crossing.
- (B) Chicanes slow drivers by requiring vehicles to shift laterally through narrowed lanes and which avoids uninterrupted sightlines.
- (C) Pinchpoints, chokers, or curb extensions restrict motorists from operating at high speeds on local streets by visually narrowing the roadway.
- (D) Neighborhood traffic circles reduce speed of traffic at intersections by requiring motorists to move cautiously through conflict points.
- (E) Street trees narrow a driver's visual field and creates a consistent rhythm and canopy along the street, which provides a unified character and facilitates place recognition.
- (F) Speed humps slow drivers through vertical deflection. To minimize impacts to bicycles, use a wave profile and leave a gap along curb so that bicyclists may bypass the hump when appropriate. Speed cushions operate in a similar fashion to speed humps, but allow for unimpeded travel by emergency vehicles.

Design Features (Volume Reduction)

- (G) Partial closure diverters allows bicyclists to proceed straight across the intersection but forces motorists to turn left or right. All turns from the major street onto the bikeway are prohibited. Can incorporate curb extensions with stormwater management features and/or a mountable island.
- (H) Right-in/right-out diverters force motorists to turn right while bicyclists can continue straight through the intersection. The island can provide a through bike lane or bicycle access to reduce conflicts with right-turning vehicles. Left turns from the major street onto the bikeway are prohibited, while right turns are still allowed.
- (I) Median refuge island diverters restrict through and left-turn vehicle movements along the bikeway while providing refuge for bicyclists to cross one direction of traffic at a time. This treatment prohibits left turns from the major street onto the bikeway, while right turns are still allowed.
- (J) Full diverters block all motor vehicles from continuing on a neighborhood bikeway, while bicyclists can continue unrestricted. Full closures can be constructed to be permeable to emergency vehicles.

NEIGHBORHOOD BIKEWAYS

VOLUME MANAGEMENT

Motor vehicle traffic volumes affect the operation of a neighborhood bikeway. Higher vehicle volumes reduce bicyclists' comfort and can result in more conflicts.



Partial Closure



Median Divorter



Diagonal Diverters



Full Closure

Typical Application

- Implement volume control treatments based on the context of the neighborhood bikeway, using engineering judgment. Target motor vehicle volumes range from 1,000 to 3,000 vehicles per day, above which the route should be striped as a bike lane or considered a signed shared roadway.
- Neighborhood bikeways on streets with volumes higher than 3,000 vehicles per day are not recommended, although a segment of a neighborhood bikeway may accommodate more traffic for a short distance if necessary to complete the corridor.

Design Features

- Traffic diversion treatments reduce motor vehicle volumes by completely or partially restricting through traffic on a neighborhood bikeway.
- Partial closures allow full bicycle passage while restricting vehicle access to one way traffic at that point.
- Diagonal diverters require all motor vehicle traffic to turn.
- Median diverters restrict through motor vehicle movements while providing a refuge for bicyclists to cross in two stages.
- Street closures create a "T" that blocks motor vehicles from continuing on a neighborhood bikeway, while bicycle travel can continue unimpeded. Full closures can accommodate emergency vehicles with the use of mountable curbs (maximum of six inches high).

NEIGHBORHOOD BIKEWAYS

MINOR INTERSECTION TREATMENTS

Treatments at minor roadway intersections are designed to improve the visibility of a neighborhood bikeway, raise awareness of motorists on the cross-street that they are likely to encounter bicyclists, and enhance safety for all road users. Traffic diversion treatments reduce motor vehicle volumes by completely or partially restricting through traffic on a neighborhood bikeway.



Stop Signs on Cross-Street



Bicycle Forward Stop Bar



Traffic Circles



Curb Extension

Typical Application

- On the neighborhood bikeway, the majority of intersections with minor roadways should stop-control cross traffic to minimize bicyclist delay. This will maximize bicycling efficiency. Stop signs increase bicycling time and energy expenditure, frequently leading to non-compliance by bicyclists and motorists, and/or use of other less desirable routes. Neighborhood bikeways should have fewer stops or delays than other local streets.

Design Features

- Traffic circles are a type of horizontal traffic calming that can be used at minor street intersections. Traffic circles reduce conflict potential and severity while providing traffic calming to the corridor.
- If a stop sign is present on the neighborhood bikeway, a second stop bar for bicyclists can be placed closer to the centerline of the cross street than the motorists' stop bar to increase the visibility of bicyclists waiting to cross the street.
- Curb extensions can be used to move bicyclists closer to the centerline to improve visibility and encourage motorists to let them cross.

NEIGHBORHOOD BIKEWAYS

MAJOR INTERSECTION TREATMENTS

The quality of treatments at major street crossings can significantly affect a bicyclist's choice to use a neighborhood bikeway, as opposed to another road that provides a crossing treatment.



Bike Box



Hybrid Beacon (HAWK)



Median Island



Rectangular Rapid Flash Beacon (RRFB)

Typical Application

- Select treatments based on engineering judgment; see National Cooperative Highway Research Program (NCHRP) Report # 562 Improving Pedestrian Safety at Unsignalized Crossings (2006) for guidance on appropriate use of crossing treatments. Treatments are designed to improve visibility and encourage motorists to stop for pedestrians; with engineering judgment many of the same treatments are appropriate for use along neighborhood bikeways.

Design Features

- Bike boxes increase bicyclist visibility to motorists and reduce the danger of right "hooks" by providing a space for bicyclists to wait at signalized intersections.
- Median islands provided at uncontrolled intersections of neighborhood bikeways and major streets allow bicyclists to cross one direction of traffic at a time as gaps in traffic occur.
- Hybrid beacons, active warning beacons and bicycle signals can facilitate bicyclists crossing a busy street on which cross-traffic does not stop.

NEIGHBORHOOD BIKEWAYS

OFFSET INTERSECTION TREATMENTS

Offset intersections can be challenging for bicyclists who are required to briefly travel along the busier cross street in order to continue along the neighborhood bikeway.



Contraflow Bike Lane



Short Bike Lanes on the Cross Street



Left Turn Bike Lanes



Separated bike lane Connection

Typical Application

- Appropriate treatments depend on volume of traffic including turning volumes, traffic speeds and the type of bicyclist using the crossing.
- Because neighborhood bikeways are located on local streets, the route is often discontinuous. Wayfinding and pavement markings assist bicyclists with remaining on the route.

Design Features

- Contraflow bike lanes allow bicyclists to travel against the flow of traffic on a one-way street and can improve neighborhood bikeway connectivity.
- Bicycle left-turn lanes can be painted where a neighborhood bikeway is offset to the right on a street that has sufficient traffic gaps.
- Short bike lanes on the cross street assist with accessing a neighborhood bikeway that jogs to the left. Crossing treatments should be provided on both sides to minimize wrong-way riding.
- A separated bike lane can be provided on one side of a busy street. Bicyclists enter the separated bike lane from the neighborhood bikeway to reach the connecting segment of the neighborhood bikeway. This maneuver may be signaled on one side.

BIKEWAY INTERSECTION TREATMENTS - ON-STREET BIKE LANES

INTERSECTION CROSSING MARKINGS

Bicycle pavement markings through intersections guide bicyclists on a safe and direct path through the intersection and provide a clear boundary between the paths of through bicyclists and vehicles in the adjacent lane.



Typical Application

- Streets with conventional, buffered, or separated bike lanes.
- At direct paths through intersections.
- Streets with high volumes of adjacent traffic.
- Where potential conflicts exist between through bicyclist and adjacent traffic.

Design Features

- Intersection markings should be the same width and in line with leading bike lane.
- (A) Dotted lines should be a minimum of 6 inches wide and 4 ft long, spaced every 12 ft.
- All markings should be white, skid resistant and retro reflective (MUTCD 9C.02.02).
- (B) Green pavement markings may also be used.

Intersection Crossing Markings



Intersection crossing markings can be used at signalized intersections or high volume minor street and driveway crossings, as illustrated above.

Further Considerations

The National Committee on Uniform Traffic Control Devices has submitted a request to include additional options bicycle lanes extensions through intersections as a part of future MUTCD updates¹. Their proposal includes the following options for striping elements within the crossing:

- Bicycle lane markings
- Double chevron markings, indicating the direction of travel.
- Green colored pavement.

¹ Letter to FHWA from the Bicycle Technical Committee for the MUTCD. Bicycle Lane Extensions through Intersections. June 2014.

Crash Reduction

A study on the safety effects of intersection crossing markings found a reduction in accidents by 10 percent and injuries by 19 percent.²

A study in Portland, OR found that significantly more motorists yielded to bicyclists after the colored pavement had been installed (92 percent in the after period versus 72 percent in the before period).³

² Jensen, S.U. (2008). Safety effects of blue cycle crossings: A before-after study. *Accident Analysis & Prevention*, 40(2), 742-750.

³ Hunter, W.W. et al. (2000). Evaluation of Blue Bike-Lane Treatment in Portland, Oregon. *Transportation Research Record*, 1705, 107-115.

Construction Costs

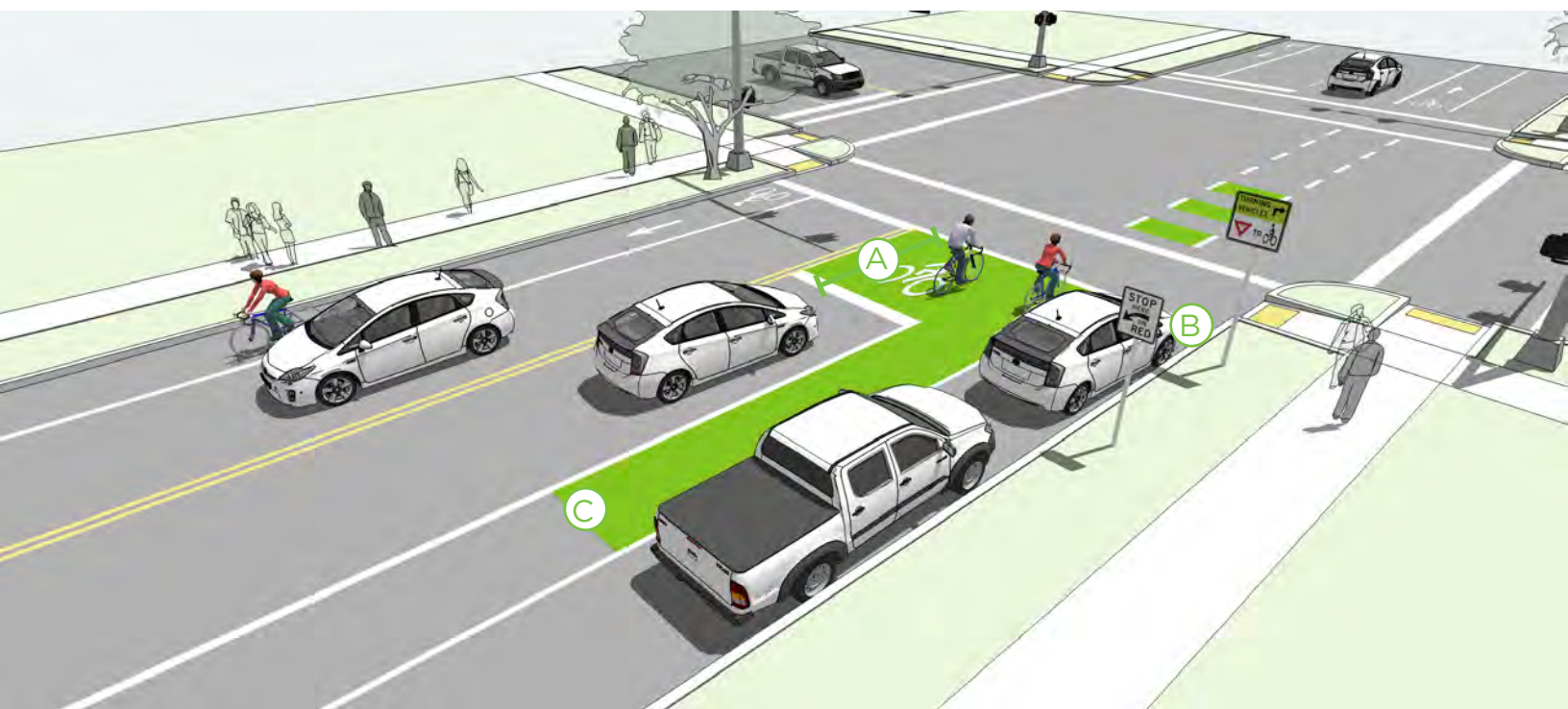
The cost for installing intersection crossing markings will depend on the implementation approach. On roadways with adequate width for reconfiguration or restriping, costs may be negligible when provided as part of routine overlay or repaving projects.

Typical shared lane markings cost \$180 each.

INTERSECTION TREATMENTS - ON-STREET BIKE LANES

BIKE BOX

A bike box is a designated area located at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible space to get in front of queuing traffic during the red signal phase. Motor vehicles must queue behind the white stop line at the rear of the bike box. On a green signal, all bicyclists can quickly clear the intersection.



Typical Application

- At potential areas of conflict between bicyclists and turning vehicles, such as a right or left turn locations.
- At signalized intersections with high bicycle volumes.
- At signalized intersections with high vehicle volumes.

Design Features

- (A) 14 ft minimum depth from back of crosswalk to motor vehicle stop bar (NACTO, 2012).
- (B) A “No Turn on Red” (MUTCD R10-11) sign shall be installed overhead to prevent vehicles from entering the Bike Box. A “Stop Here on Red” (MUTCD R10-6) sign should be post mounted at the stop line to reinforce observance of the stop line.
- (C) A 50 ft ingress lane should be used to provide access to the box.
 - Use of green colored pavement is optional.

Bike Box



A bike box allows for cyclists to wait in front of queuing traffic, providing high visibility, and a head start over motor vehicle traffic.

Further Considerations

- This treatment positions bicycles together and on a green signal, all bicyclists can quickly clear the intersection, minimizing conflict and delay to transit or other traffic.
- Pedestrians also benefit from bike boxes, as they experience reduced vehicle encroachment into the crosswalk.

Crash Reduction

A study of motorist/bicyclist conflicts at bike boxes indicate a 35 percent decrease in conflicts (CMF ID: 1718). A study done in Portland in 2010 found that 77 percent of bicyclists felt bicycling through intersections was safer with the bike boxes.¹

¹ Monsere, C. & Dill, J. (2010). Evaluation of Bike Boxes at Signalized Intersections. Final Draft. Oregon Transportation Research and Education Consortium.

Construction Costs

Costs will vary due to the type of paint used and the size of the bike box, as well as whether the treatment is added at the same time as other road treatments.

The typical cost for painting a bike box is \$11.50 per square ft.

Through Bicycle Lane to the Left of a Right Turn Only Lane



Drivers wishing to enter the right turn lane must transition across the bicycle lane in advance of the turn.

Further Considerations

- The bicycle lane maintains a straight path, and drivers must weave across, providing clear right-of-way priority to bicyclists.
- Maintaining a straight bicycle path reinforces the priority of bicyclists over turning cars. Drivers must yield to bicyclists before crossing the bike lane to enter the turn only lane.
- Through lanes that become turn only lanes are difficult for bicyclists to navigate and should be avoided.
- The use of dual right-turn-only lanes should be avoided on streets with bike lanes (AASHTO, 2013). Where there are dual right-turn-only lanes, the bike lane should be placed to the left of both right-turn lanes, in the same manner as where there is just one right-turn-only lane.

Crash Reduction

Studies have shown a 3 percent decrease in crashes at signalized intersections with exclusive right turn lanes when compared to sharing the roadway with motor vehicles (CMF ID: 3257).

Construction Costs

The cost for installing bicycle lanes will depend on the implementation approach. On roadways with adequate width for reconfiguration or restriping, costs may be negligible when provided as part of routine overlay or repaving projects.

Typical costs are \$16,000 per mile for restriping.

INTERSECTION TREATMENTS - ON-STREET BIKE LANES

COMBINED BIKE LANE/TURN LANE

Where there isn't room for a conventional bicycle lane and turn lane a combined bike lane/turn lane creates a shared lane where bicyclists can ride and turning motor vehicles yield to through traveling bicyclists. The combined bicycle lane/turn lane places shared lane markings within a right turn only lane.



Typical Application

- Most appropriate in areas with lower posted speeds (30 MPH or less) and with lower traffic volumes (10,000 ADT or less).
- May not be appropriate for high speed arterials or intersections with long right turn lanes.
- May not be appropriate for intersections with large percentages of right-turning heavy vehicles.

Design Features

- (A) Maximum shared turn lane width is 13 ft; narrower is preferable (NACTO, 2012).
- (B) Shared Lane Markings should indicate preferred positioning of bicyclists within the combine lane.
- (C) A "Right Lane Must Turn Right" (MUTCD R3-7R) sign with an "EXCEPT BIKES" plaque may be needed to permit through bicyclists to use a right turn lane.
- (D) Use "Begin Right Turn Lane Yield To Bikes" signage (MUTCD R4-4) to indicate that motorists should yield to bicyclists through the conflict area.

Combined Bike Lane/Turn Lane (Billings, MT)



Shared lane markings and signs indicate that bicyclists should right in the left side of this right turn only lane.

Further Considerations

- This treatment is recommended at intersections lacking sufficient space to accommodate both a standard through bike lane and right turn lane.
- Not recommended at intersections with high peak motor vehicle right turn movements.
- Combined bike lane/turn lane creates safety and comfort benefits by negotiating conflicts upstream of the intersection area.

Crash Reduction

A survey in Eugene, OR found that more than 17 percent of the surveyed bicyclists using the combined turn lane felt that it was safer than the comparison location with a standard-width right-turn lane, and another 55 percent felt that the combined-lane site was no different safety-wise than the standard-width location.¹

¹ Hunter, W.W. (2000). Evaluation of a Combined Bicycle Lane/Right-Turn Lane in Eugene, Oregon. Publication No. FHWA-RD-00-151, Federal Highway Administration, Washington, DC.

Construction Costs

The cost for installing a combined turn lane will depend on the implementation approach. On roadways with adequate width for reconfiguration or restriping, costs may be negligible when provided as part of routine overlay or repaving projects.

Typical costs are \$16,000 per mile for restriping. Typical yield lines cost \$10 per square ft or \$320 each. Typical shared lane markings cost \$180 each.

INTERSECTION TREATMENTS - SEPARATED BIKE LANES

BEND IN

To increase the visibility of bicyclists for turning motorists, a bend-in intersection approach laterally shifts the separated bikeway immediately adjacent to the turning lane.



Typical Application

- Bikeways separated by a visually intensive buffer or on-street parking.
- Where it is desirable to create a curb extension at intersections to reduce pedestrian crossing distance.
- Where space is not available to bend-out the bikeway prior to the intersection.

Design Features

- (A) At least 20 ft prior to an intersection, provide between 20 - 40 ft of length to shift the bikeway closer to motor vehicle traffic.
- (B) Where the separated bikeway uses parked cars within the buffer zone, parking must be prohibited at the start of the transition.
- Place a "Turning Vehicles Yield to Bikes" sign (modified MUTCD R10-15) prior to the intersection.
- Optional - Provide a narrow buffer with vertical delineators between the travel and lane and bikeway to increase comfort for bicycle riders and slow driver turning speed.

Bend In Intersection Examples



A bend in intersection in Missoula, Montana



A bend in intersection in Vancouver, British Columbia

Further Considerations

- The design creates an opportunity for a curb extension, to reduce pedestrian crossing distance. This curb extension can also create public space which can be used bike parking corrals, bikeshare stations, parklets, public art exhibits, and/or stormwater features such as bioswales.
- Can be paired with intersection crossing markings such as green colored pavement to raise awareness of conflict points.

Crash Reduction

Separated bikeways with “bend-in” approaches create geometry similar to that of conventional on-street bike lanes and should offer a similar safety performance to those designs.

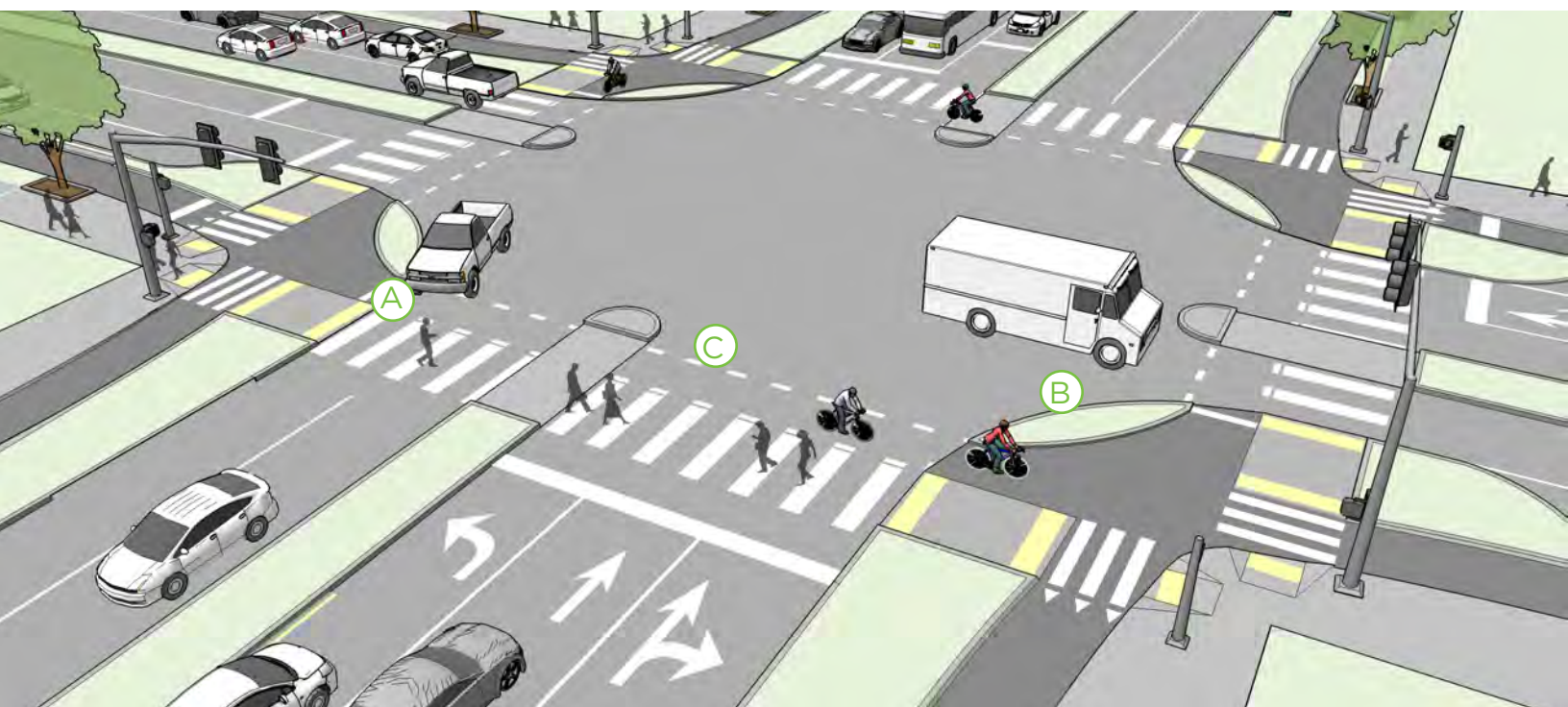
Construction Costs

The costs of protected intersections vary depending on materials used and degree of implementation desired. Inexpensive materials can be used, such as paint, concrete planters, and bollards.

INTERSECTION TREATMENTS - SEPARATED BIKE LANES

BEND OUT

A protected intersection, or bend-out, maintains physical separation within the intersection to define the turning paths of motor vehicles, slow vehicle turning speed, and offers a comfortable place for people bicycling to wait at a red signal.



Typical Application

- Streets with separated bikeway protected by wide buffer or on-street parking.
- Where two separated bikeways intersect and two-stage left-turn movements must be provided for bicycle riders.
- Helps reduce conflicts between right-turning motorists and bicycle riders by reducing turning speeds and providing space for vehicles to queue out of the way of through traffic and before the separated bikeway.
- Where it is desirable to create a safety island at intersections to reduce pedestrian crossing distance.

Design Features

- (A) Setback bicycle crossing of 16.5 ft allows for one passenger car to queue while yielding. Smaller setback distance is possible in slow-speed, space constrained conditions. A reduced separation width as low as 6.5 ft may be used in low-speed environments.
- (B) Corner safety island with a 15-20 ft corner radius slows motor vehicle speeds. Larger radius designs may be possible when paired with a deeper setback or a protected signal phase, or small mountable aprons. Two-stage turning boxes are provided for queuing bicyclists adjacent to corner islands.
- (C) Intersection crossing markings should be used.

Bend-Out Intersection



A bend-out intersection was built in Salt Lake City, Utah in 2015. The treatment includes corner safety islands, intersection crossing markings, and green colored pavement.

Further Considerations

- Pedestrian crosswalks may need to be set back from intersections in order to make room for two-stage turning queue boxes.
- Colored pavement may be used within the corner refuge area to clarify use by people bicycling and discourage use by people walking or driving.
- Intersection approaches with high volumes of right turning vehicles should provide a dedicated right turn only lane paired with a protected signal phase. Protected signal phasing may allow different design dimensions than are described here.

Crash Reduction

Studies of “bend out” intersection approaches find that separation distance of 6.5 – 16.5 ft offer the greatest safety benefit, with a better safety record than conventional bike lane designs. (Schepers 2011).¹

Construction Costs

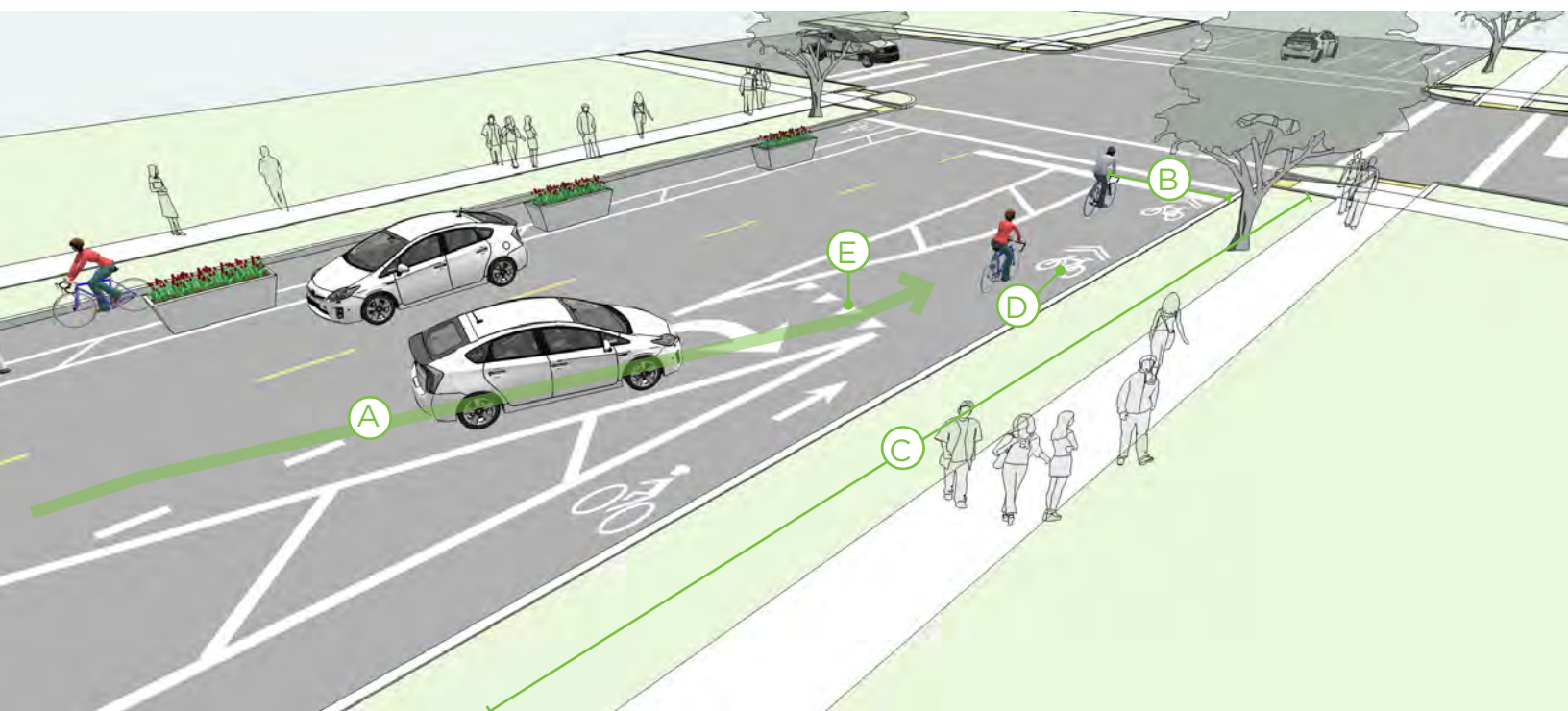
The costs of protected intersections vary depending on materials used and degree of implementation desired. Inexpensive materials can be used, such as paint, concrete planters, and bollards. More expensive treatments include poured concrete safety islands and intensive roadway striping.

¹ Schepers et al. Road factors and Bicycle-Motor vehicle crashes at unsignalized priority intersections. 2011

INTERSECTION TREATMENTS - SEPARATED BIKE LANES

MIXING ZONE

A mixing zone creates a shared travel lane where turning motor vehicles yield to through traveling bicyclists. Geometric design is intended to slow motor vehicles to bicycle speed, provide regulatory guidance to people driving, and require all users to negotiate conflicts upstream of the intersection.



Typical Application

- Most appropriate in areas with low to moderate right-turn volumes
- Streets with a right turn lane but not enough width to have a standard width bicycle lane at the intersection.

Design Features

- (A) Use short transition taper dimensions and short storage length to promote slow motor vehicle travel speeds.
- (B) The width of the mixing zone should be 9 ft minimum and 13 ft maximum.
- (C) The transition to the mixing zone should begin 70 ft in advance of the intersection.
- (D) Shared lane markings (MUTCD 9C-9) should be used to illustrate the bicyclist's position within the lane.
- (E) A yield line should be used in advance of the intersection.

Mixing Zone (New York City, NY)



Mixing Zone (Photo via NACTO)

Further Considerations

- Not recommended at intersections with high peak motor vehicle right turn movements.
- The zone creates safety and comfort benefits by having the mixing zone upstream of the intersection conflict area.

Crash Reduction

A survey of separated bike lane users in the United States found the 60-80 percent of respondents agreed with the statement “I generally feel safe when bicycling through the intersections” when asked about intersections with mixing zone approaches.¹

¹ NITC. Lessons from the Green Lanes. 2014.

Construction Costs

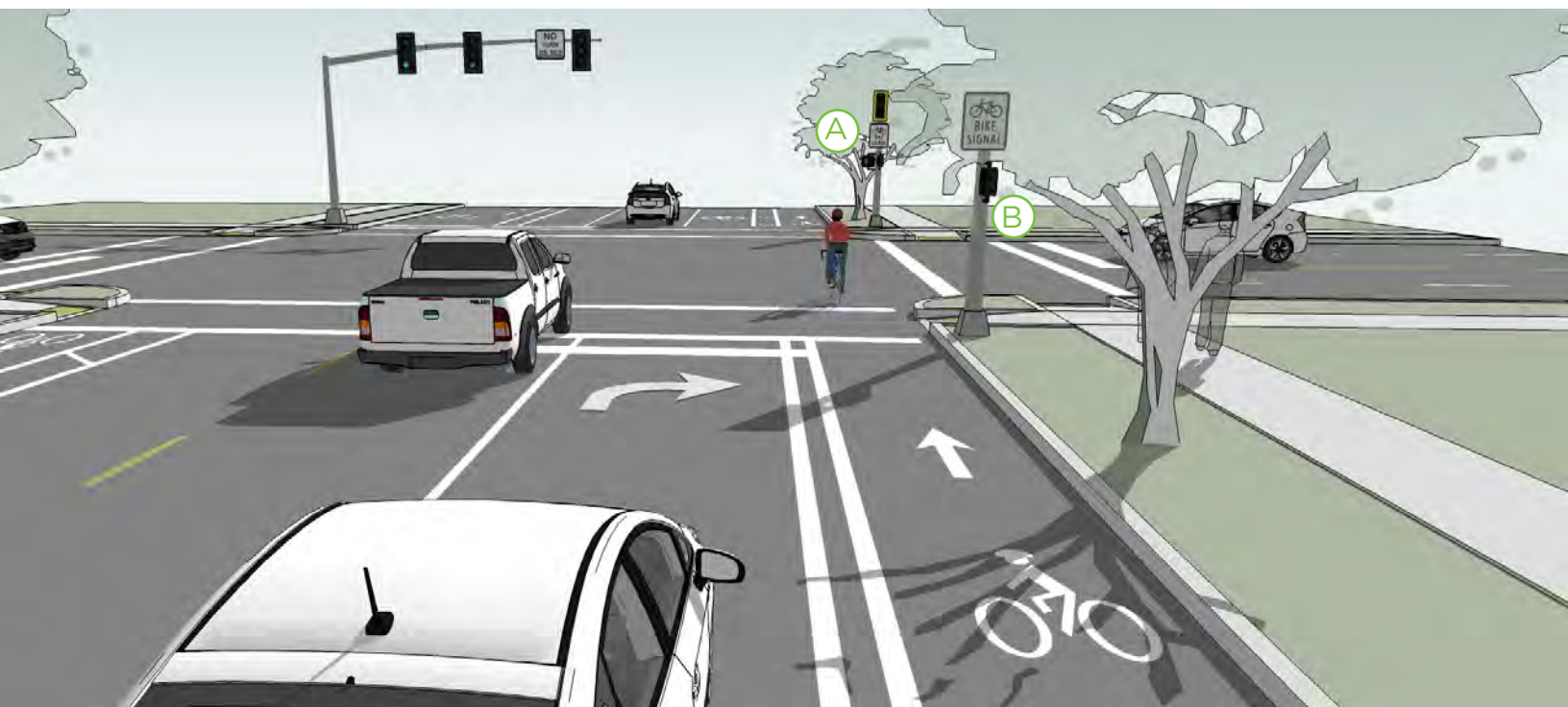
The cost for installing mixing zone will depend on the implementation approach. On roadways with adequate width for reconfiguration or restriping, costs may be negligible when provided as part of routine overlay or repaving projects.

Typical costs are \$16,000 per mile for restriping. Typical yield lines cost \$10 per square ft or \$320 each. Typical shared lane markings cost \$180 each.

INTERSECTION TREATMENTS - SEPARATED BIKE LANES

PROTECTED BICYCLE SIGNAL PHASE

Protected bicycle lane crossings through signalized intersections can be accomplished through the use of a bicycle signal phase which reduces conflicts with motor vehicles by separating bicycle movements from any conflicting motor vehicle movements. Bicycle signals are traditional three lens signal heads with green, yellow and red bicycle stenciled lenses.



Typical Application

- Two-way separated bike lanes where contraflow bicycle movement or increased conflict points warrant protected operation.
- Bicyclists moving on a green or yellow signal indication in a bicycle signal shall not be in conflict with any simultaneous motor vehicle movement at the signalized location
- Right (or left) turns on red should be prohibited in locations where such operation would conflict with a green bicycle signal indication.

Design Features

- (A) An additional “Bicycle Signal” sign should be installed below the bicycle signal head.
- (B) Designs for bicycles at signalized crossings should allow bicyclists to trigger signals and safely maneuver the crossing.
- On bikeways, signal timing and actuation shall be reviewed and adjusted to consider the needs of bicyclists (MUTCD 9D.02).

Protected Bicycle Signal Phase



A bicycle signal head at a signalized crossing creates a protected phase for cyclists to safely navigate an intersection.



A bicycle detection system triggers a change in the traffic signal when a bicycle is detected.

Further Considerations

- A bicycle signal should be considered for use only when the volume/collision or volume/geometric warrants have been met (MUTCD 4C.10).
- FHWA has approved bicycle signals for use, if they comply with requirements from F.C. Interaction Approval 16 (Interim Approval 16).
- Bicyclists typically need more time to travel through an intersection than motor vehicles. Green light times should be determined using the bicycle crossing time for standing bicycles.
- Bicycle detection and actuation systems include user-activated buttons mounted on a pole, loop detectors that trigger a change in the traffic signal when a bicycle is detected and video detection cameras, that use digital image processing to detect a change in the image at a location.

Crash Reduction

A survey of separated bike lane users in the United States found the 92 percent of respondents agreed with the statement “I generally feel safe when bicycling through the intersections” when asked about an intersection with a protected bicycle signal phase.¹

¹ NITC. Lessons from the Green Lanes. 2014.

Construction Costs

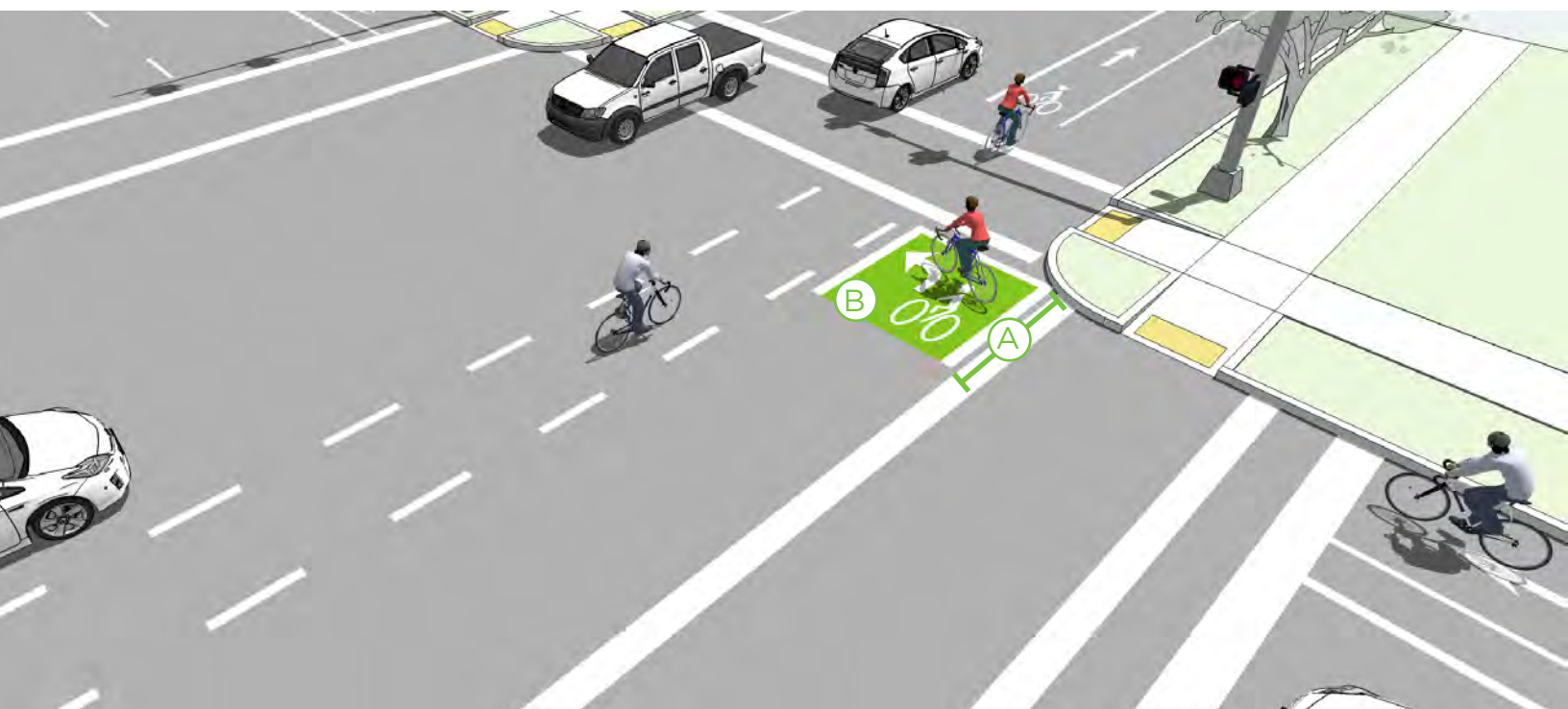
Bicycle signal heads have an average cost of \$12,800.

Video detection camera system costs range from \$20,000 to \$25,000 per intersection.

INTERSECTION TREATMENTS - SEPARATED BIKE LANES

TWO-STAGE TURN BOXES

Two-stage turn boxes offer bicyclists a safe way to make turns at multi-lane signalized intersections from a physically separated or conventional bike lane. On physically separated bike lanes, bicyclists are often unable to merge into traffic to turn due to physical separation, making the provision of two-stage turn boxes critical.



Typical Application

- Streets with high vehicle speeds and/or traffic volumes.
- At intersections locations of multi-lane roads with signalized intersections.
- At signalized intersections with a high number of bicyclists making a left turn from a right side facility.

Design Features

- The two-stage turn box shall be placed in a protected area. Typically this is within the shadow of an on-street parking lane or separated bike lane buffer area and should be placed in front of the crosswalk to avoid conflict with pedestrians.
- (A) 8 ft x 6 ft preferred depth of bicycle storage area (6 ft x 3 ft minimum).
- (B) Bicycle stencil and turn arrow pavement markings shall be used to indicate proper bicycle direction and positioning (NACTO, 2012).

Jughandle Turn Box



This MUTCD compliant design carves a jughandle out of the sidewalk to provide space for waiting bicyclists.

Separated Bike Lane Turn Box



On separated bike lanes, the two-stage turn box can be located in the protected buffer/parking area.

Further Considerations

- Consider providing a “No Turn on Red” (MUTCD R10-11) on the cross street to prevent motor vehicles from entering the turn box.
- This design formalizes a maneuver called a “box turn” or “pedestrian style turn.”
- Some two-stage turn box designs are considered experimental by FHWA.
- Design guidance for two-stage turns apply to both bike lanes and separated bike lanes.
- Two-stage turn boxes reduce conflicts in multiple ways; from keeping bicyclists from queuing in a bike lane or crosswalk and by separating turning bicyclists from through bicyclists.
- Bicyclist capacity of a two-stage turn box is influenced by physical dimension (how many bicyclists it can contain) and signal phasing (how frequently the box clears).

Crash Reduction

There are no Crash Modification Factors (CMFs) available for this treatment.

Construction Costs

Costs will vary due to the type of paint used and the size of the two-stage turn box, as well as whether the treatment is added at the same time as other road treatments.

The typical cost for painting a two-stage turn box is \$11.50 per square ft.

BIKEWAY AMENITIES

WAYFINDING SIGN TYPES

The ability to navigate through a city is informed by landmarks, natural features, and other visual cues. Signs throughout the city should indicate to bicyclists the direction of travel, the locations of destinations and the travel time/distance to those destinations. A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes.



Typical Application

- Wayfinding signs will increase users' comfort and accessibility to the bicycle network.
- Signage can serve both wayfinding and safety purposes including:
 - Helping to familiarize users with the bicycle network
 - Helping users identify the best routes to destinations
 - Helping to address misperceptions about time and distance
 - Helping overcome a "barrier to entry" for people who are not frequent bicyclists (e.g., "interested but concerned" bicyclists)

Design Features

- (A) Confirmation signs indicate to bicyclists that they are on a designated bikeway. Make motorists aware of the bicycle route. Can include destinations and distance/time but do not include arrows.
- (B) Turn signs indicate where a bikeway turns from one street onto another street. These can be used with pavement markings and include destinations and arrows.
- (C) Decisions signs indicate the junction of two or more bikeways and inform bicyclists of the designated bike route to access key destinations. These include destinations, arrows and distances. Travel times are optional but recommended.

Community Logos on Signs



Wayfinding signs can include a local community identification logo, as this example from Oakland, CA.

Custom Street Signs (Berkeley, CA)



Custom street signs can also act as a type of confirmation sign, to let all users know the street is prioritized for bicyclists.

Further Considerations

- Bicycle wayfinding signs also visually cue motorists that they are driving along a bicycle route and should use caution. Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes.
- Too many road signs tend to clutter the right-of-way, and it is recommended that these signs be posted at a level most visible to bicyclists rather than per vehicle signage standards.
- A community-wide bicycle wayfinding signage plan would identify:
 - Sign locations
 - Sign type – what information should be included and design features
 - Destinations to be highlighted on each sign – key destinations for bicyclists
 - Approximate distance and travel time to each destination
- Green is the color used for directional guidance and is the most common color of bicycle wayfinding signage in the US, including those in the MUTCD.
- Check wayfinding signage along bikeways for signs of vandalism, graffiti, or normal wear and replace signage along the bikeway network as-needed.

Crash Reduction

There is no evidence that wayfinding signs have any impact on crash reduction or user safety.

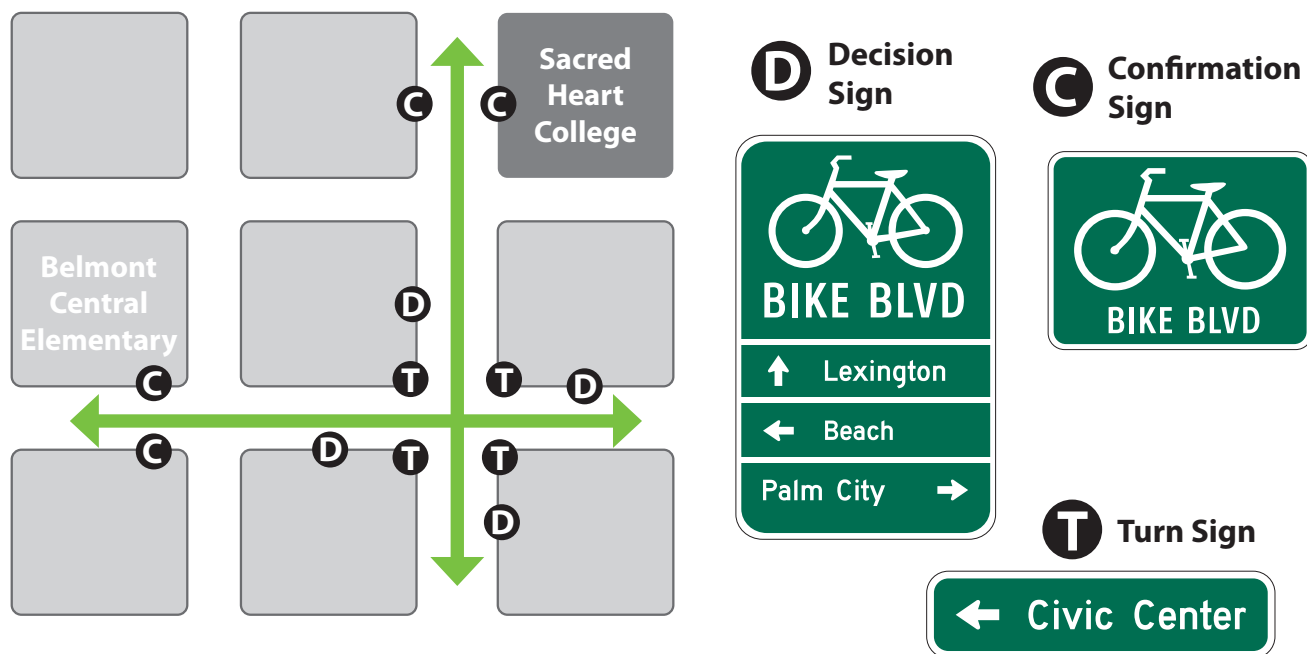
Construction Costs

Wayfinding signs range from \$150 to \$500.

BIKEWAY AMENITIES

WAYFINDING SIGN PLACEMENT

Signs are placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.



Typical Application

Confirmation Signs

- Placed every $\frac{1}{4}$ to $\frac{1}{2}$ mile on off-street facilities and every 2 to 3 blocks along on-street bicycle facilities, unless another type of sign is used (e.g., within 150 ft of a turn or decision sign).
- Should be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route.

Turn Signs

- Near-side of intersections where bike routes turn (e.g., where the street ceases to be a bicycle route or does not go through).
- Pavement markings can also indicate the need to turn to the bicyclist.

Decision Signs

- Near-side of intersections in advance of a junction with another bicycle route.
- Along a route to indicate a nearby destination.

Design Features

- MUTCD guidelines should be followed for wayfinding sign placement, which includes mounting height and lateral placement from edge of path or roadway.
- Pavement markings can be used to reinforce routes and directional signage.

Wayfinding Pavement Markings



Some cities use pavement markings to indicate required turns or jogs along the bicycle route.

Further Considerations

It can be useful to classify a list of destinations for inclusion on the signs based on their relative importance to users throughout the area. A particular destination's ranking in the hierarchy can be used to determine the physical distance from which the locations are signed. For example, primary destinations (such as the downtown area) may be included on signage up to 5 miles away. Secondary destinations (such as a transit station) may be included on signage up to two miles away. Tertiary destinations (such as a park) may be included on signage up to one mile away.

Crash Reduction

There is no evidence that wayfinding signs have any impact on crash reduction or user safety.

Construction Costs

The cost of a wayfinding sign placement plan depends on the scale and scope of the approach. Trail wayfinding signage range from \$500-\$2000.

BIKEWAY AMENITIES

BIKE PARKING

Bicyclists expect a safe, convenient place to secure their bicycle when they reach their destination. This may be short-term parking of two hours or less, or long-term parking for employees, students, residents, and commuters.



Typical Application

- Bicycle parking facilities shall be located in highly visible well-lighted areas. In order to maximize security, whenever possible short-term bicycle parking facilities shall be located in areas highly visible from the street and from the interior of the building they serve (i.e., placed adjacent to windows).
- Bike racks provide short-term bicycle parking and is meant to accommodate visitors, customers, and others expected to depart within two hours. It should be an approved standard rack, appropriate location and placement, and weather protection.
- On-street bike corrals (also known as on-street bicycle parking) consist of bicycle racks grouped together in a common area within the street traditionally used for automobile parking. Bicycle corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking. Each motor vehicle parking space can be replaced with approximately 6-10 bicycle parking spaces.

Design Features

- All bicycle facilities shall provide a minimum 4 ft aisle to allow for unobstructed access to the designated bicycle parking area.
- Bicycle parking facilities within auto parking facilities shall be protected from damage by cars by a physical barrier such as curbs, wheel stops, poles, bollards, or other similar features capable of preventing automobiles from entering the designated bicycle parking area.
- Bicycle parking facilities should be securely anchored so they cannot be easily removed and shall be of sufficient strength and design to resist vandalism and theft.

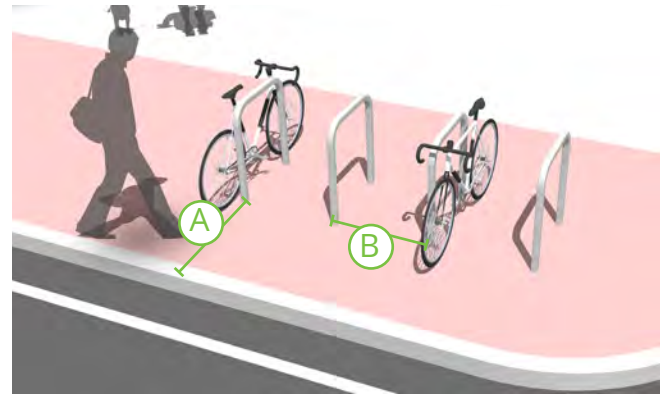
Bike Racks

- (A) 2 ft minimum from the curb face to avoid 'dooring.'
- (B) 4 ft between racks to provide maneuvering room.
- Locate close to destinations; 50 ft maximum distance from main building entrance.
- Minimum clear distance of 6 ft should be provided between the bicycle rack and the property line.

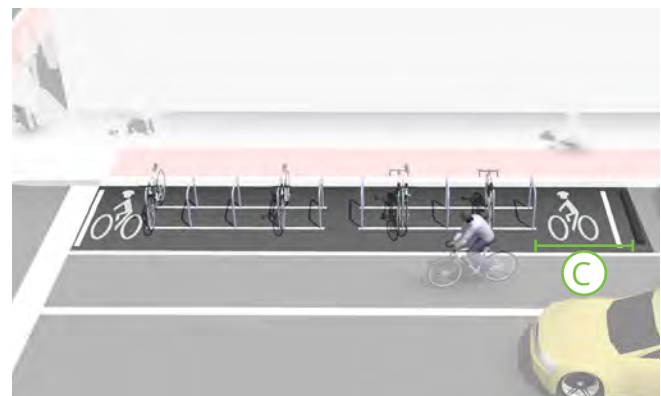
Bike Corrals

- (C) Bicyclists should have an entrance width from the roadway of 5-6 ft for on-street corrals.
- Can be used with parallel or angled parking.
- Parking stalls adjacent to curb extensions are good candidates for on-street bicycle corrals since the concrete extension serves as delimitation on one side.
- Off-street bike corrals are appropriate where there is a wide sidewalk furnishing zone (7 ft or greater), or as part of a curb extension.

Perpendicular Bike Racks



Bike Corral



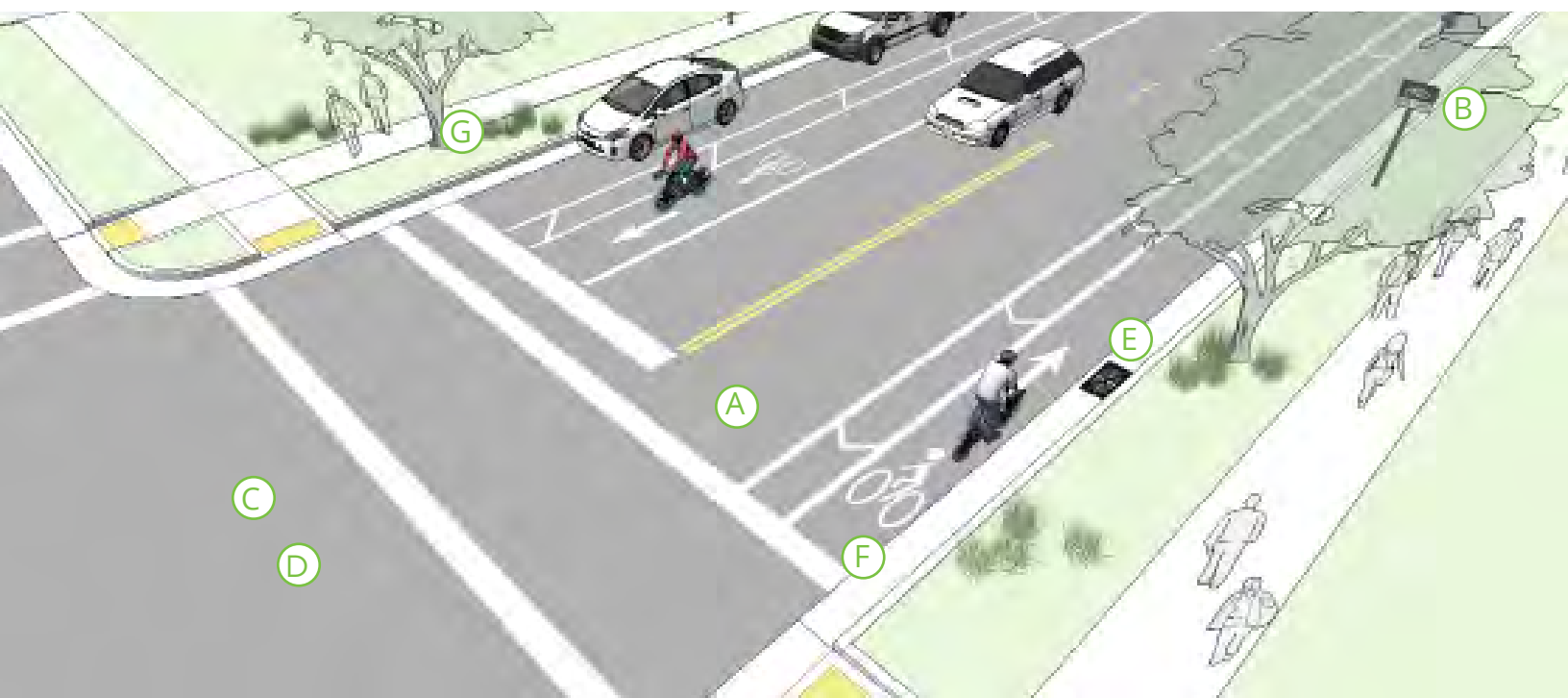
Construction Costs

Costs can vary based on the design and materials used. Bicycle rack costs can range from approximately \$60 to \$3,600, depending on design and materials used. On average the cost is approximately \$660. Bicycle lockers costs range from \$1,280 to \$2,680.

BIKEWAY AMENITIES

BIKEWAY MAINTENANCE

Regular bicycle facility maintenance includes sweeping, maintaining a smooth roadway, ensuring that the gutter-to-pavement transition remains relatively flush, and installing bicycle-friendly drainage grates. Pavement overlays are a good opportunity to improve bicycle facilities. The following recommendations provide a menu of options to consider to enhance a maintenance regimen.



MAINTENANCE

A Sweeping

- Establish a seasonal sweeping schedule that prioritizes roadways with major bicycle routes.
- Sweep walkways and bikeways whenever there is an accumulation of debris on the facility.
- In curbed sections, sweepers should pick up debris; on open shoulders, debris can be swept onto gravel shoulders.

B Signage

- Check regulatory and wayfinding signage along bikeways for signs of vandalism, graffiti, or normal wear.
- Replace signage along the bikeway network as-needed.
- Perform a regularly-scheduled check on the status of signage with follow-up as necessary.
- Create a Maintenance Management Plan.

C Roadway Surface

- Maintain a smooth pothole-free surface.
- Ensure that on new roadway construction, the finished surface on bikeways does not vary more than ¼”.
- Maintain pavement so ridge buildup does not occur at the gutter-to-pavement transition or adjacent to railway crossings.
- Inspect the pavement 2 to 4 months after trenching construction activities are completed to ensure that excessive settlement has not occurred.

D Pavement Overlays

- Extend the overlay over the entire roadway surface to avoid leaving an abrupt edge.
- If the shoulder or bike lane pavement is of good quality, it may be appropriate to end the overlay at the shoulder or bike lane stripe provided no abrupt ridge remains.
- Ensure that inlet grates, manhole and valve covers are within ¼ inch of the finished pavement surface and are made or treated with slip resistant materials.

E Drainage Grates

- Require all new drainage grates be bicycle-friendly, including grates that have horizontal slats on them so that bicycle tires and assistive devices do not fall through the vertical slats.
- Create a program to inventory all existing drainage grates, and replace hazardous grates as necessary – temporary modifications such as installing rebar horizontally across the grate should not be an acceptable alternative to replacement.

F Gutter to Pavement Transition

- Ensure that gutter-to-pavement transitions have no more than a ¼” vertical transition.
- Examine pavement transitions during every roadway project for new construction, maintenance activities, and construction project activities that occur in streets.

G Landscaping

- Ensure that shoulder plants do not hang into or impede passage along bikeways
- After major damage incidents, remove fallen trees or other debris from bikeways as quickly as possible

Maintenance Management Plan

- Provide fire and police departments with map of system, along with access points to gates/bollards
- Enforce speed limits and other rules of the road
- Enforce all trespassing laws for people attempting to enter adjacent private properties

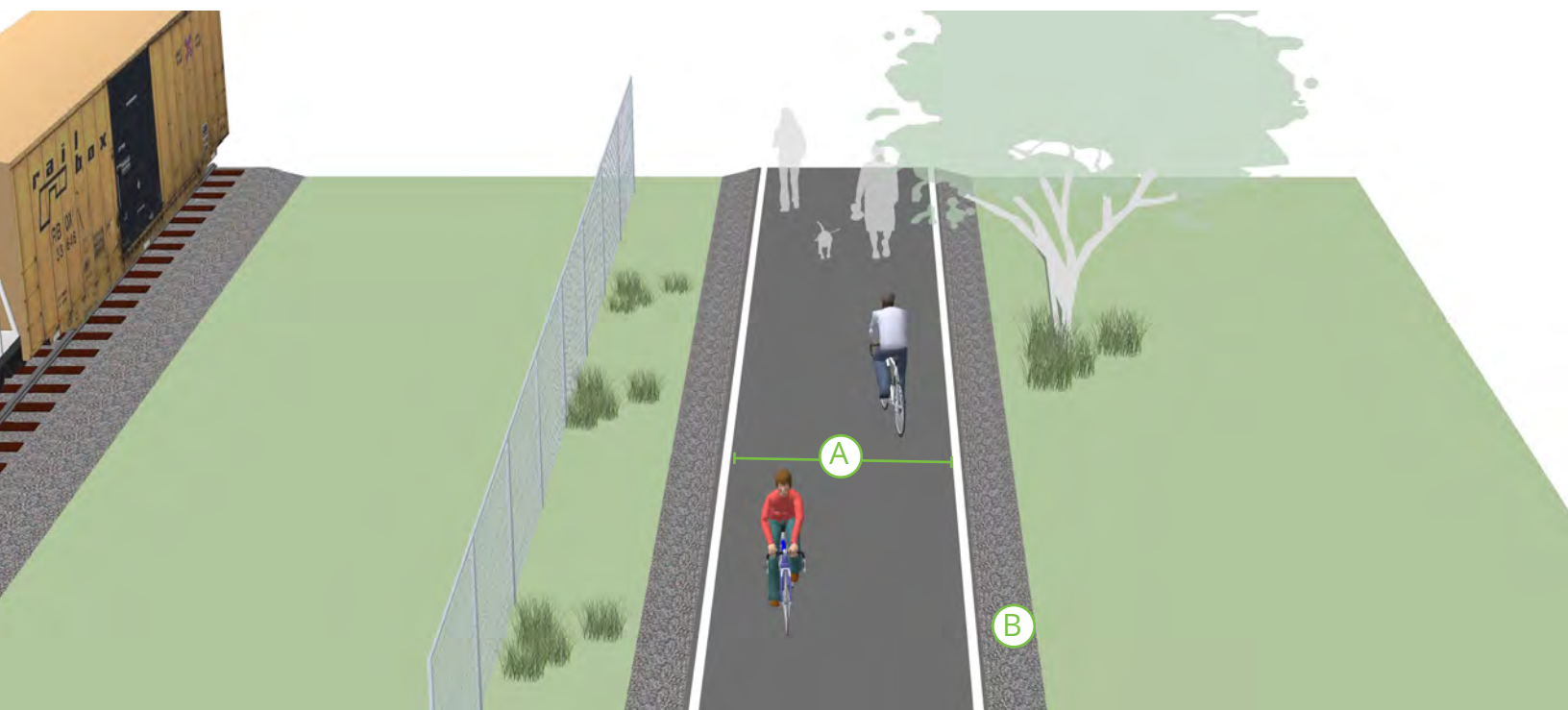
Recommended Walkway and Bikeway Maintenance Activities

Maintenance Activity	Frequency
Inspections	Seasonal – at beginning and end of Summer
Pavement sweeping/blowing	As needed, with higher frequency in the early Spring and Fall
Pavement sealing	5 - 15 years
Pothole repair	1 week – 1 month after report
Culvert and drainage grate inspection	Before Winter and after major storms
Pavement markings replacement	As needed
Signage replacement	As needed
Shoulder plant trimming (weeds, trees, brambles)	Twice a year; middle of growing season and early Fall
Tree and shrub plantings, trimming	1 – 3 years
Major damage response (washouts, fallen trees, flooding)	As soon as possible

TRAILS

SHARED USE PATH

Shared use paths can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic. Bicycle paths should generally provide directional travel opportunities not provided by existing roadways.



Typical Application

- In abandoned rail corridors (commonly referred to as Rails-to-Trails or Rail-Trails.
- In active rail corridors, trails can be built adjacent to active railroads (referred to as Rails-with-Trails.
- In utility corridors, such as powerline and sewer corridors.
- In waterway corridors, such as along canals, drainage ditches, rives and beaches.
- Along roadways.

Design Features

Width

- (A)** 8 ft is the minimum allowed for a two-way bicycle path and is only recommended for low traffic situations.
 - 10 ft is recommended in most situations and will be adequate for moderate to heavy use.
 - 12 ft is recommended for heavy use situations with high concentrations of multiple users. A separate track (5' minimum) can be provided for pedestrian use.

Lateral Clearance

- (B)** A 2 ft or greater shoulder on both sides of the path should be provided. An additional ft of lateral clearance (total of 3') is required by the MUTCD for the installation of signage or other furnishings.
 - If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

Overhead Clearance

- Clearance to overhead obstructions should be 8 ft minimum, with 10 ft recommended.

Striping

- When striping is required, use a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.

Further Considerations

The provision of a shared use path adjacent to a road is not a substitute for the provision of on-road accommodation such as paved shoulders or bike lanes, but may be considered in some locations in addition to on-road bicycle facilities.

To reduce potential conflicts in some situations, it may be better to place one-way sidepaths on both sides of the street.

Crash Reduction

Shared use paths reduce injury rates for cyclists, pedestrians, and other nonmotorized modes by 60 percent compared with on street facilities.¹

Construction Costs

The cost of a shared use path can vary, but typical costs are between \$65,000 per mile to \$4 million per mile.

¹Teschke, Kay, Route Infrastructure and the Risk of Injuries to Bicyclists. American Public Health Association. December 2012.

TRAILS

LOCAL NEIGHBORHOOD ACCESSWAYS

Neighborhood accessways provide residential areas with direct bicycle and pedestrian access to parks, trails, greenspaces, and other recreational areas. They most often serve as small trail connections to and from the larger trail network, typically having their own rights-of-way and easements.



Typical Application

- Neighborhood accessways should be designed into new subdivisions at every opportunity and should be required by City/County subdivision regulations.
- For existing subdivisions, neighborhood and homeowner association groups are encouraged to identify locations where such connects would be desirable. Nearby residents and adjacent property owners should be invited to provide landscape design input.

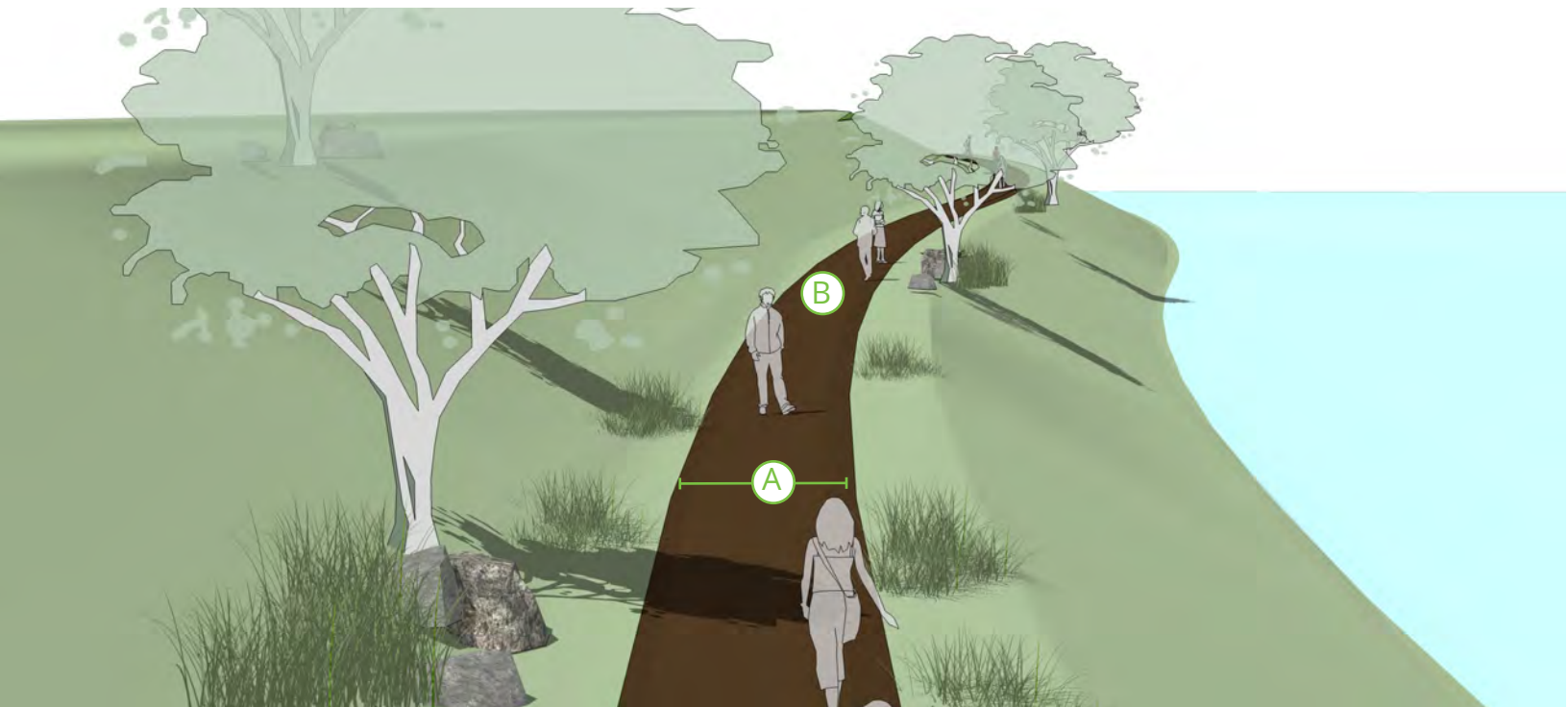
Design Features

- Neighborhood accessways should remain open to the public.
- A Trail pavement shall be at least 8 ft wide to accommodate emergency and maintenance vehicles, meet ADA requirements and be considered suitable for multi-use.
- Trail widths should be designed to be less than 8 ft wide only when necessary to protect large mature native trees over 18" in caliper, wetlands or other ecologically sensitive areas.
- Access trails should slightly meander whenever possible.

TRAILS

NATURAL SURFACE TRAILS

Sometimes referred to as footpaths or hiking trails, natural surface trails are used along corridors that are environmentally-sensitive but can support bare earth, wood chip, or boardwalk trails.



Typical Application

- Natural surface trails are a low-impact solution and found in areas with limited development or where a more primitive experience is desired.
- Consider implications for accessibility when weighing options for surface treatments.

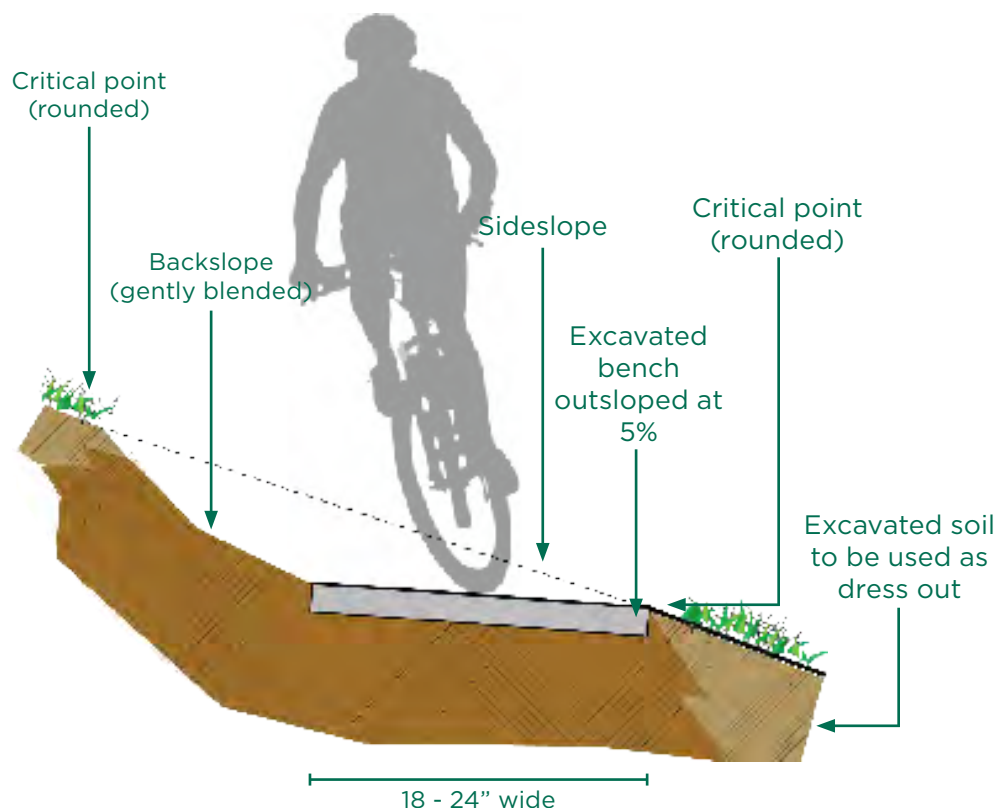
Design Features

- (A) Trails can vary in width from 18 inches to 6 ft or greater; vertical clearance should be maintained at 9 ft above grade.
 - Base preparation varies from machine-worked surfaces to those worn only by usage.
- (B) Trail surface can be made of dirt, rock, soil, forest litter, or other native materials. Some trails use crushed stone (a.k.a. “crush and run”) that contains about 4 percent fines by weight, and compacts with use.
 - Provide positive drainage for trail tread without extensive removal of existing vegetation; maximum slope is five percent (typical).

TRAILS

SINGLE TRACK MOUNTAIN BIKE TRAILS

Due to their narrow width and ability to contour with the natural topography, single-track mountain bike trails (or off-road bicycling trails) require the least amount of disturbance and support features of all types of trails.



Typical Application

- The minimal footprint of single track mountain bike trails provides opportunities for localized stormwater management solutions. Localizing the stormwater features at small scales along the network keeps the trails available for use year-round and requires very little long term maintenance.

Design Features

- If trails remain unused during storm events, and are constructed correctly, they can remain virtually maintenance free.
- Mountain bike trails are typically 18-24 inches wide and have compacted bare earth or leaf litter surfacing.
- Mountain bike trails are constructed using hand tools or low impact machinery such as a mini excavator.
- Refer to the International Mountain Bicycling Association standards for more information.

TRAILS

ACCESSIBLE TRAILS

General guidelines have been created in response to the American with Disabilities Act (ADA) for accessible trails. Constructing outdoor trails may have limitations that make meeting ADA guidelines difficult and sometimes prohibitive. Prohibitive impacts include harm to cultural or natural resources; a significant change in the intended purpose of the trail; requirements of construction methods that are against federal, state, or local regulations; or terrain characteristics that prevent compliance.

**Design Features**

- Accessible trails should be constructed of a hard surface, such as asphalt, concrete, wood or compacted gravel and be a minimum of 5 ft wide.
- Trail gradient should be less than 5 percent maximum without landings and the trail cross slope should be no more than a 2 percent maximum.
- Detectable pavement changes at curb ramp approaches should be placed at the top of ramps before entering roadways.
- Trailhead signage should provide accessibility information, such as trail gradient/profile, distances, tread conditions, location of drinking fountains, and rest stops.
- At trailheads there should be at least one accessible parking area per every 25 vehicle spaces.
- On trails designated as accessible, provide rest areas or widened areas on the trail, optimally at every 300 ft.

TRAILS

BOARDWALKS

Boardwalks are typically required when crossing wetlands or other sensitive natural areas. A number of low-impact support systems are also available that reduce the disturbance within wetland areas to the greatest extent possible.



Typical Application

- Boardwalks are usually constructed of wooden planks or recycled material planks that form the top layer of the boardwalk. The recycled material has gained popularity in recent years since it lasts much longer than wood, especially in wet conditions.
- In general, building in wetlands is subject to regulations and should be avoided.

Design Features

- Ⓐ A boardwalk width should be a minimum of 10 ft when no rail is used. A 12 ft width is preferred in areas with average anticipated use and whenever rails are used.
- Ⓑ When the height of a boardwalk exceeds 30", railings are required.
- If access by vehicles is desired, boardwalks should be designed to structurally support the weight of a small truck or a light-weight vehicle.

TRAILS

VEGETATIVE SCREENINGS

Landscape features, including trees and shrubs along paths, can enhance the visual environment and improve the path user experience. Trees and shrubs can also shade users from sun and shelter users from rain. When possible, landscaping is the first choice for creating separation between the trail and adjacent properties.



Typical Application

- Vegetative buffers create a natural privacy screen, provide habitat for wildlife, and stabilize erodible soils.
- Select landscaping material (e.g. vegetation with thorns) can deter unwanted access or exit points, entrapment areas, and undesired off-path routes.
- Use native plant species and plants appropriate to the region that are already adapted to the local soil and climate. Keep the vegetation buffer maintained so that it does not impede views or interfere with trail circulations.

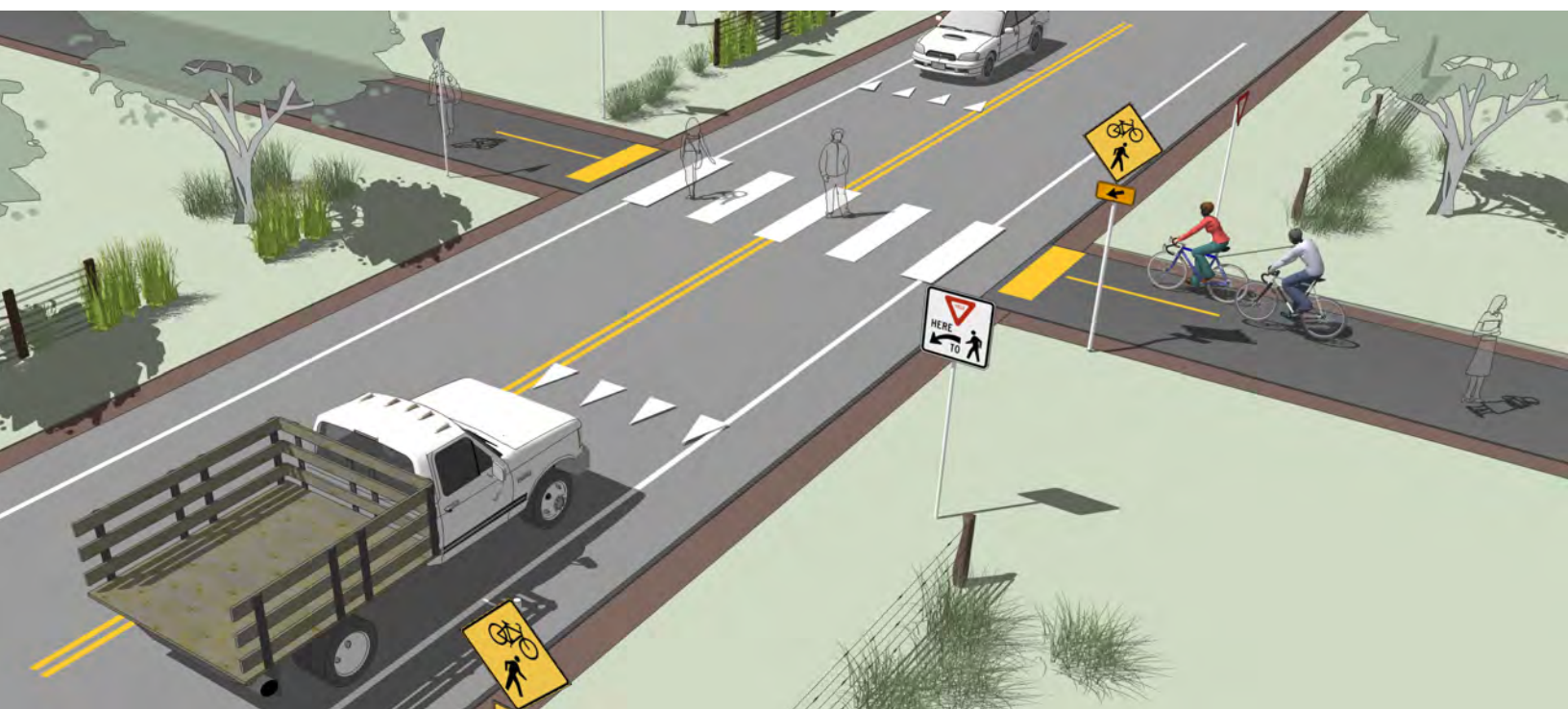
Design Features

- All groundcover and shrubs to be trimmed to a maximum of 24" above ground level height.
- Where vegetative screens are recommended to provide privacy for private properties, they are not to exceed 4 ft in height.
- Trees should be trimmed to provide a minimum of 8 ft of vertical clearance.
- Tree canopies should not obstruct pathway illumination
- Select and place trail vegetation to provide seasonal comfort: shade in the warmer months and sunlight in colder months.

TRAIL INTERSECTION TREATMENTS

MARKED CROSSING

A marked/unsignalized crossing typically consists of a marked crossing area, signage, and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, pathway traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.



Typical Application

- Maximum Traffic Volumes
 - ≤9,000-12,000 Average Daily Traffic (ADT) volume
- Maximum travel speed of 35 MPH
- Minimum Sight Lines
 - 25 MPH zone: 155 ft
 - 35 MPH zone: 250 ft
 - 45 MPH zone: 360 ft

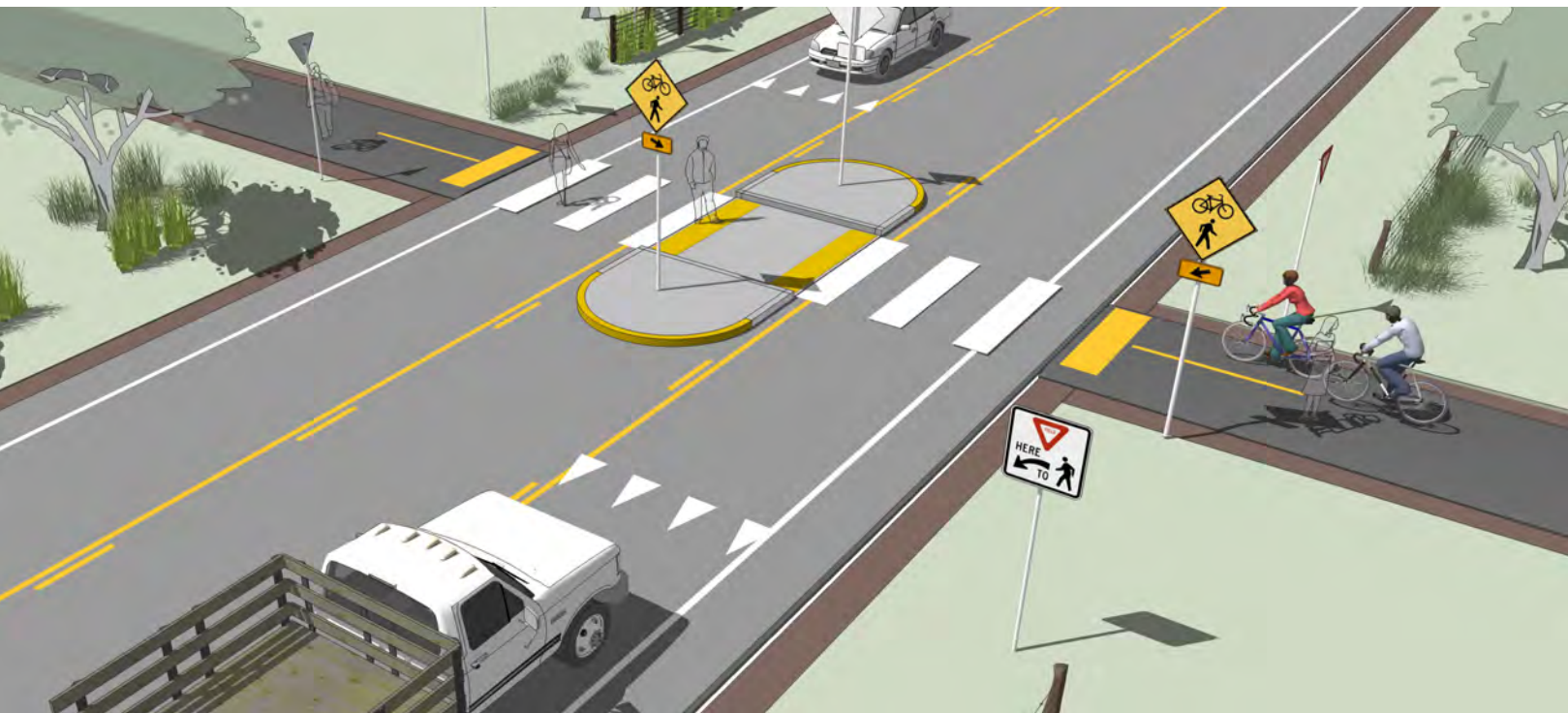
Design Features

- On roadways with low to moderate traffic volumes (<12,000 ADT) and a need to control traffic speeds, a raised crosswalk may be the most appropriate crossing design to improve pedestrian visibility and safety.

TRAIL INTERSECTION TREATMENTS

MEDIAN CROSSING

On roadways with higher volumes, higher speeds and multi-lanes of vehicular traffic, a median crossing is preferred. A median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time.



Typical Application

- Maximum Traffic Volumes
 - Up to 15,000 ADT on two-lane roads, preferably with a median
 - Up to 12,000 ADT on four-lane roads with median

Design Features

- Unsignalized crossings of multi-lane arterials over 15,000 ADT may be possible with features such as sufficient crossing gaps (more than 60 per hour), median refuges, and/or active warning devices like rectangular rapid flash beacons or in-pavement flashers, and excellent sight distance. For more information see the discussion of active warning beacons.

TRAIL INTERSECTION TREATMENTS

ACTIVE ENHANCED CROSSING

Active enhanced crossings are unsignalized crossings with additional treatments designed to increase motor vehicle yielding compliance on multi-lane or high volume roadways. These enhancements include pathway user or sensor actuated warning beacons, Rectangular Rapid Flash Beacons (RRFB) shown below, or Pedestrian Hybrid Beacons.



Typical Application

- Guidance for marked/unsignalized crossings applies.
- Warning beacons shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.
- Warning beacons shall initiate operation based on user actuation and shall cease operation at a predetermined time after the user actuation or, with passive detection, after the user clears the crosswalk.

Design Features

- A RRFBs are user actuated lights that supplement warning signs at unsignalized intersections or mid-block crossings.
- Pedestrian hybrid beacons provide a high level of comfort for crossing users through the use of a red-signal indication to stop conflicting motor vehicle traffic. Hybrid beacon installation faces only cross motor vehicle traffic, stays dark when inactive, and uses a unique 'wig-wag' signal phase to indicate activation. Vehicles have the option to proceed after stopping during the final flashing red phase, which can reduce motor vehicle delay when compared to a full signal installation.

TRAIL INTERSECTION TREATMENTS

ROUTE USERS TO SIGNALIZED CROSSING

Path crossings within approximately 400 ft of an existing signalized intersection with pedestrian crosswalks are typically diverted to the signalized intersection to avoid traffic operation problems when located so close to an existing signal.



Typical Application

- For this restriction to be effective, barriers and signing may be needed to direct path users to the signalized crossing. If no pedestrian crossing exists at the signal, modifications should be made.
- Path crossings should not be provided within approximately 400 ft of an existing signalized intersection. If possible, route path directly to the signal.

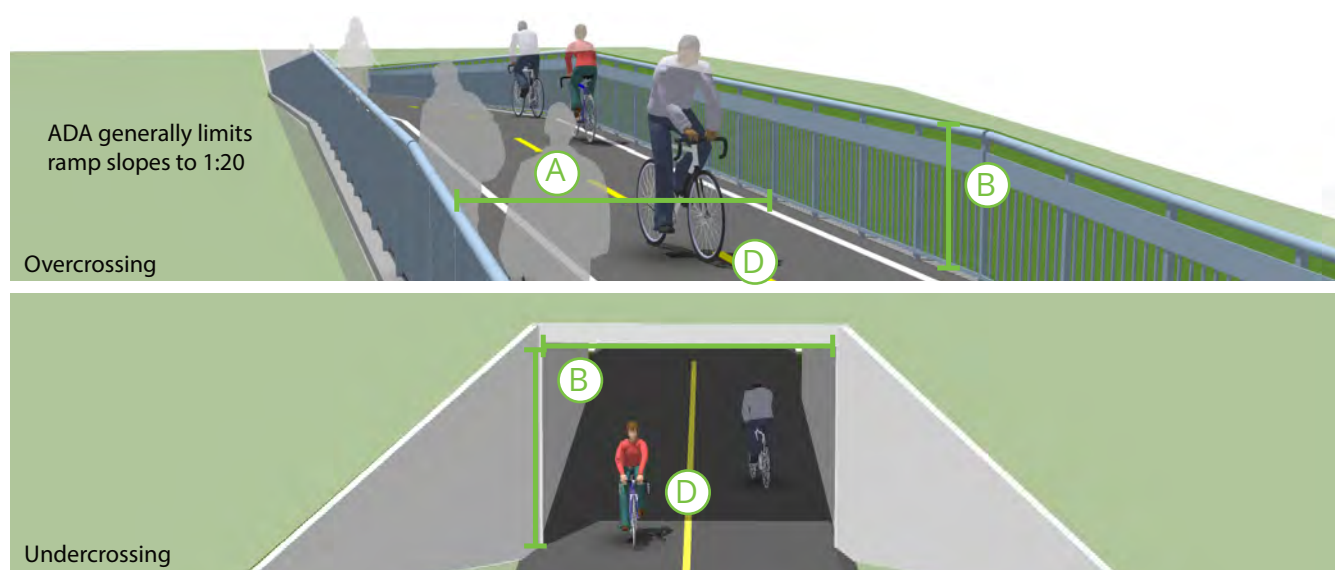
Design Features

- In the US, the minimum distance a marked crossing can be from an existing signalized intersection varies from approximately 250 to 660 ft.
- Engineering judgment and the context of the location should be taken into account when choosing the appropriate allowable setback. Pedestrians are particularly sensitive to out of direction travel and undesired mid-block crossing may become prevalent if the distance is too great.

TRAIL INTERSECTION TREATMENTS

GRADE-SEPARATED CROSSINGS

Grade-separated crossings provide critical non-motorized system links by joining areas separated by barriers such as railroads, waterways, and highway corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist. There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group, grade separation may be considered in many types of projects.



Typical Application

- Where shared-use paths cross high-speed and high-volume roadways where an at-grade signalized crossing is not feasible or desired, or where crossing railways or waterways.

Design Features

- (A) Overcrossings should be at least 8 ft wide with 14 ft preferred and additional width provided at scenic viewpoints.
- (B) Railing height must be a minimum of 42 inches for overcrossings.
- (C) Undercrossings should be designed at minimum 10 ft height and 14 ft width, with greater widths preferred for lengths over 60 ft.
- (D) Centerline stripe is recommended for grade-separated facility.

Overcrossings



Undercrossings



Grade-separated crossings help people walking or biking cross barriers such as freeways, railroads, and rivers.

Further Considerations

- Overcrossings require a minimum of 17 ft of vertical clearance to the roadway below versus a minimum elevation differential of around 12 ft for an undercrossing. This can result in greater elevation differences and much longer ramps for bicycles and pedestrians to negotiate.
- Overcrossings for bicycles and pedestrians typically fall under the Americans with Disabilities Act (ADA), which strictly limits ramp slopes to 5 percent (1:20) with landings at 400 ft intervals, or 8.33 percent (1:12) with landings every 30 ft.
- Overcrossings pose potential concerns about visual impact and functional appeal, as well as space requirements necessary to meet ADA guidelines for slope.
- To mitigate safety concerns, an undercrossing should be designed to be spacious, well-lit, equipped with emergency cell phones at each end and completely visible for its entire length from end to end.

Crash Reduction

Grade separated crossings, when used, eliminate conflicts between users that would be present at at-grade crossing locations.

Construction Costs

Costs will vary greatly based on site conditions, materials, etc. Overpasses have a range from \$150 to \$250 per square ft or \$1,073,000 to \$5,366,000 per complete installation, depending on site conditions. Underpasses range from slightly less than \$1,609,000 to \$10,733,000 in total or around \$120 per square ft (PBIC).



C Intersection Inventory

"We need more crosswalks!" -

Active Transportation
Plan Comment Form
Results, 2017

Road 1	Road 2	Reason Major Intersection, school, connectivity, etc	Signage (Y/N)	Controlled/Uncontrolled	Stop Lanes/Sign	Curb Ramp (Complete/Incomplete)	Curb Radius (Very Wide, Wide, Not Wide)	Marked Crosswalk (Y/N)	Number and Location of Crosswalks (Y/N)	Crosswalk Highly Visible (Y/N)	Crosswalk (Good Fair/ Poor)	Advanced Stop Line (Y/N)	Pedestrian Xing Signal (Y/N)	Type of Signal (Regular, Countdown)	Curb Extension (Y/N)	Sidewalk (Y/N)	Sidewalk Complete Incomplete	Median Island Condition and Width	Estimated Traffic Volume (High/Low)	Speed Limit	Other Notes
Mumford	Greene	Convenient store; existing sidewalk	N	C	SL	INC	NW	N	-	-	-	Y	N	-	N	Y	INC	N	MEDIUM	3545	Railroad on west side parallel to Greene; Sidewalk need improvement across tracks
1st	Reade	Downtown, Town Commons Park	N	C	SS (FOR READE)	INC	NW	Y	Y	Y (BRICK PAVEMENT ACROSS READE)	F	Y (READE)	N	-	Y (READE)	Y	C	-	LOW-MEDIUM	25	Some good existing facilities in place, but faded brick paver and missing curb ramps and crosswalk on west side of intersection; bicycle intersection crossing markings needed
1st	Cotanche	Downtown, Town Commons Park	N	C	SS (FOR COTANCHE)	INC	NW	Y	Y	Y (BRICK PAVEMENT ACROSS COTANCHE)	F	N	N	-	Y (COTANCHE)	Y	C	-	LOW-MEDIUM	25	Missing curb ramps and crosswalk on east side of intersection; faded crosswalk/paver; bicycle intersection crossing markings needed
1st	Evans	Downtown, Town Commons Park	N	C	SS (FOR EVANS)	INC	NW	Y	Y	N	F	Y (EVANS)	N	-	Y (EVANS)	Y	C	-	LOW-MEDIUM	25	Missing curb ramps and crosswalk on west side of intersection; bicycle intersection crossing markings needed
1st	Washington	Downtown, Town Commons Park	N	C	SS (FOR WASHINGTON)	INC	NW	Y	Y	N	F	Y (WASHINGTON)	N	-	N	Y	C	-	LOW-MEDIUM	25	Missing curb ramps and crosswalk on west side of intersection; faded crosswalk/paver; bicycle intersection crossing markings needed
1st	Greene	Downtown, Town Commons Park	N	C	SL	C	NW	Y	Y	N	F	Y	Y	PUSH-BUTTON COUNTDOWN N	N	Y	C	-	LOW-MEDIUM	25	Crosswalks should be high-visibility; bicycle intersection crossing markings needed
1st	Pitt	First Street Apts.; Downtown, Town Commons Park	N	C	SL	C	NW	Y	Y	N	F	Y	Y	PUSH-BUTTON COUNTDOWN N	N	Y	C	-	LOW-MEDIUM	25	Crosswalks should be high-visibility; bicycle intersection crossing markings needed
2nd	Greene	Downtown	N	C	SS (FOR 2ND)	INC	NW	N	N	-	-	-	N	-	N	Y	C	-	LOW-MEDIUM	25	No facilities here - needs high-visibility marked crosswalks
5th	Hickory	Adjacent to Elementary school; multi-family housing near sidewalk	N	C	SS (FOR HICKORY)	C	NW	Y	Y	Y (FOR CROSSING 5TH)	F	Y (HICKORY)	N	-	N	Y	INC	Y (5TH) PAINTED	MEDIUM	2535	Shaded walking area along all the way to road at this crosswalk. Bike lanes and OSP present along 5th; bicycle intersection crossing markings needed
5th	Brownlee	Elementary school; multi-family housing near	N	C	SS (FOR BROWNLEE)	INC	NW	N	N	-	-	-	N	-	N	Y	INC	-	MEDIUM	2535	Turn lanes both ways and no stop lights makes this difficult for pedestrians. Consider signage for pedestrians and high-visibility marked crosswalk needed
5th	10th	Commercial; Schools; Residential	N	C	SL	INC	W	N	-	-	-	-	N	-	N	Y	INC	3FT CONCRETE	HIGH	3545	Many pedestrians in area; not much accommodation for them here, implement intersection improvements from 10th St Corridor Study, include high-visibility marked crosswalk
10th	Hwy 33	Major commercial arterial; traffic	N	C	SL	INC	W VERY WIDE ON SE CORNER (PORK CHOP)	Y	Y	N	P	Y	N	-	N	Y	INC	CONCRETE	HIGH	45	Heavy traffic and dangerous for pedestrians include high-visibility crosswalks, pedestrian signals and complete with curb ramps and sidewalks; intersection improvements slated for 2017
5th	Reade	ECU; Downtown	N	C	SL	INC	NW	Y	Y	N	F	Y	Y (INCOMPLETE)	Y	Y	Y	C	CONCRETE	MEDIUM-HIGH	25	Heavy traffic; high-visibility crosswalks needed - bring 5th St bicycle facilities through intersection with bicycle intersection crossing markings and sharrows west of the intersection
Evans	Reade	Downtown near ECU	N	C	SL	INC	NW	Y	Y	N	G	Y	Y	PUSH-BUTTON COUNTDOWN N	N	Y	C	3FT GRASSY ON READE	MEDIUM	2535	Curb ramps needed on northeast side, high-visibility markings needed, curb ramp empties into intersection on sw corner
Evans	10th	Downtown; Commercial	N	C	SL	INC	NW	Y	Y	N	G	Y	Y	PUSH-BUTTON COUNTDOWN N	N	Y	C	-	MEDIUM-HIGH	35	Intersection slated for improvements with completion of 10th St connector
Evans	14th	Commercial; Residential near ECU near	N	C	SL	INC	NW	Y	Y	N	P	Y	N	-	N	Y	INC	-	MEDIUM	35	Intersection slated for improvements 2017

Road 1	Road 2	Reason (Major intersection, school, connectivity, etc)	Sight Distance (Good, Fair, Poor)	Signage (Y/N)	Controlled (Uncontrolled)	Stop Light/Stop Sign	Carb Ramp (Y/N)	Carb Ramp (Complete/Incomplete)	Carb Radius (Very Wide, Wide, Not Wide)	Market Crosswalk (Y/N)	Number and Location of Crosswalks (Y/N)	Highly Visible (Y/N)	Crosswalk Condition (Good, Fair, Poor)	Advanced Stop Lane (Y/N)	Pedestrian Xing Signal (Y/N)	Type of Signal (Regular, Countdown)	Carb Extension (Y/N)	Sidewalk (Y/N)	Sidewalk Complete (Y/N)	Median Island (Y/N)	Median Island Condition and Width	Estimated Traffic Volume (High, Medium, Low)	Speed Limit	Other Notes
Evans	Arlington	Commercial; Major roads	F	N	C	SL	Y	I	NW	Y (WITH EXISTING SIDEWALK ACROSS EVANS)	N	N	P	Y	Y (NORTH SIDE)	PUSH BUTTON COUNTDOWN	N	Y	I	Y	2FT CONCRETE ON ARLINGTON (E SIDE)	HIGH	35-45	Destinations (conv. stores but no sidewalk present on south side of intersection; recent improvements include north side crossing with new greenway)
Evans	Red Banks	Grocery; commercial; major roads	F	N	C	SL	Y	I	W (WITH 2 RIGHT HAND SLIP TURN LANES)	N	-	-	-	-	N	-	N	Y	I	2 RIGHT HAND SLIP TURNS	1- RAISED CONCRETE, 2- PAINTED (E SIDE)	MEDIUM-HIGH	35-45	Need sidewalk here first then major crossing upgrades; improvements slated as part of Evans St widening project
Evans	Greenville	Commercial; Major roads	F (ANGLE)	N	C	SL	Y (WITH TRUNCATED DOMES ON PROK CHOP ISLAND)	I	VW	N	-	-	-	-	N	-	N	Y	I	Y WITH PORK CHOP ALSO ON NE CORNER	2FT CONCRETE	HIGH	45	Angled intersection makes ensuring dangerous slated for improvements as part of Evans St widening project
Greenville	Hooker	Commercial; Major roads; Conv. Center	G	N	C	SL	Y (WITH TRUNCATED DOMES)	C	NW	Y	Y	Y (YELLOW PAVER)	G	Y	Y	PUSH BUTTON COUNTDOWN	N	Y (WIDE)	C	N	-	HIGH	45/40	Nice new crossing treatments here: One of few locations with all curb ramps including truncated domes; Wide sidewalks; Globe painted in middle of intersection
Greenville	Memorial	Commercial; major roads	F (ANGLE)	N	C	SL	N	-	VW	N	-	-	-	-	N	-	N	N	-	Y (ON MEMORIAL)	2FT CONCRETE	HIGH	45	Very dangerous intersection with no sidewalk present
Memorial	Fire Tower	Commercial; Major roads; Pitt Community College	G	N	C	SL	Y (WITH TRUNCATED DOMES)	C	W	N	-	-	-	-	N	-	N	Y	I	Y	GRASSY AND CONCRETE	MEDIUM-HIGH	45	Challenging crossing that should be high priority, mid-block crossing to the north (HAWK) should not be ruled out either
Fire Tower	Old TusEvans	Commercial; major roads	G	N	C	SL	Y (WITH TRUNCATED DOMES)	C	NW	Y	Y	N	G	Y	Y	PUSH BUTTON COUNTDOWN	N	Y (ON FIRE TOWER)	I	Y	2FT CONCRETE	MEDIUM	45	Satisfactory pedestrian treatments here
Fire Tower	Arlington	Commercial; major roads	G	N	C	SL	Y	I	NW	N	-	-	-	-	N	-	N	Y	I	N	-	MEDIUM-HIGH	45	Many commercial destinations here; crossing facilities needed
Fire Tower	Charles	Commercial; major roads	G	N	C	SL	Y	I	NW	N	-	-	-	-	N	-	N	N	-	Y	2FT CONCRETE ON FIRE TOWER	MEDIUM-HIGH	45	Many commercial destinations here; crossing facilities should be constructed with roadway widening project
Charles	Red Banks	Commercial; residential	G	N	C	SL	Y	I	NW	Y	N	N	F	Y	Y	PUSH BUTTON COUNTDOWN	N	Y	I	N	-	MEDIUM	45/35	Slated for improvements in 2017
Charles	Greenville	Commercial; residential; ECU	F	N	C	SL	Y	I	W (WITH RIGHT HAND SLIP TURN LANE ON NW CORNER)	Y	N	N	F	-	N	-	N	Y	I	N	-	HIGH	45	Slated for further improvements 2017
Greenville	Red Banks	Commercial; Major roads	F (CURVES)	N	C	SL	Y	I	W	Y	N	N	F	Y	N	-	N	Y (ALONG GREENVILLE)	I	N	-	HIGH	35-45	Need sidewalk and crossings all ways; Heavy traffic here
Charles	14th	Commercial; ECU	G	N	C	SL	Y (SOME WITH TRUNCATED DOMES)	I	W	Y	N	N	F	Y (WITH EXISTING CROSSWALKS)	N	-	N	Y	I	N	-	MEDIUM-HIGH	35	Slated for improvements in 2017
Elm	14th	Schools; church; residential; ECU; trail nearby	G	Y	C	SL	Y	I	NW	Y	Y	N	F	Y	Y	PUSH BUTTON COUNTDOWN	N	Y	I	Y (ON ELM)	6FT GRASSY	MEDIUM	35	Curb ramp improvements needed, bicycle intersection crossing markings needed
Elm	Overlook	Schools; residential	F (TREES)	Y	C	SS (FOR OVERLOOK)	Y	C	NW	Y	Y	Y	F	N	N	-	N	Y	C	Y (ON ELM)	6FT GRASSY	MEDIUM	35	Existing median island is an opportunity; Sidewalk present here is all that is needed; bicycle intersection crossing markings needed
10th	Forest Hill & Greenway	Greenway; residential	G	Y	C	SS (FOR FOREST HILL AND GREENWAY)	Y	C	NW	Y	Y	Y	F	N	N	-	N	Y	C	Y	GRASSY, WIDE ON 10TH ST	MEDIUM	45/25	Sidewalk along east side of Forest Hill to intersection recommended in 10th St Corridor Study

Road 1	Road 2	Recent Major Intersections, arterial roads, connectivity, etc.	Sight Distance (Good/Fair/Poor)	Signage (Y/N)	Controlled/Uncontrolled	Stop Light/Stop Sign	Curb Ramp (Y/N)	Curb Ramp Condition (Complete/Incomplete)	Curb Radius (Very Wide/Wide/Not Wide)	Marked Crosswalk (Y/N)	Number and Location of Marked Crosswalks (Adequate Y/N)	Highly Visible (Y/N)	Crosswalk Condition (Good/Fair/Poor)	Advanced Stop Line (Y/N)	Pedestrian Signal (Y/N)	Type of Signal (Push Button/Countdown)	Curb Extension (Y/N)	Sidewalk (Y/N)	Sidewalk Complete/Incomplete	Median Island Condition and Width	Estimated Traffic Volume (High/Medium/Low)	Speed Limit	Other Notes
Memorial	3rd	Residential; convenience store; lower income community	F (VEG)	Y (ON MEMORIAL)	C	SL	Y	I	W	Y	Y	N	G	Y	Y	PUSH BUTTON COUNTDOWN	N	Y	I	GRASSY WIDE ON MEMORIAL	MEDIUM	25/45	Upgrade to high visibility markings; Median refuge possible with existing island, bicycle intersection crossing markings and a bicycle actuated signal should be implemented with shared lane markings along 3rd
Memorial	Greene, Greenfield	Residential; industrial	F (CURVE ON GREENE)	N	C	SL	N (NO CURB)	-	VW (PORK CHOP FOR GREENE ON MEMORIAL)	N	-	-	-	N	N	-	N	Y	I	GRASSY WIDE ON MEMORIAL	MEDIUM	25/50	No pedestrian facilities here at all. Pork chop islands and grassy median an opportunity for pedestrian refuges in future
Memorial	Moye	Park; commercial	F (VEG)	N	C	SL	Y	I	NW	Y	N	N	G	Y	N	-	N	Y	I	-	MEDIUM-HIGH	35/45	Need sidewalk here
Dickinson	Hooker, Moye	Residential; grocery; industrial	P (HILLS, CURVE)	N	C	SL	Y	C	NW	Y	Y	N	P	Y	Y	PUSH BUTTON COUNTDOWN	N	Y	C	2FT CONCRETE ON MOYE SIDE	MEDIUM-HIGH	35/40/35	Curb ramps need truncated domes, upgrade to high visibility crosswalks; Dickinson Ave improvements upcoming
Arlington	Dickinson	Major roads; residential; commercial	G	N	C	SL	Y	I	VW	N	-	-	-	N	N	-	N	Y	I	-	HIGH	45	Stated for improvements in 2017
Arlington	Memorial	Major roads; residential; commercial	G	N	C	SL	Y	C (WITH TRUNCATED DOMES)	W	Y	N	N	G	Y	Y	PUSH BUTTON COUNTDOWN	N	Y	I	2FT CONCRETE ON MEMORIAL	HIGH	45/35	Stated for improvements in 2017
Arlington	Hooker	Major roads; school; residential	G	Y	C	SL	Y	C	W	Y	Y	N	F	Y	Y	PUSH BUTTON COUNTDOWN	N	Y	I	2FT CONCRETE ON HOOKER	HIGH	35/40	Decent ped facilities here, just need updating and upgrade to high visibility; Median refuge opportunity here
Arlington	Rose High - Evans Park Midblock	School; park	G	Y	UC	-	N (NO CURB)	-	-	Y	Y	N	F	-	-	-	N	Y	I	WIDE GRASSY WITH TREES	MEDIUM-HIGH	35	No curb ramp on median island or roadside curb; Crosswalk should be high-visibility; Signage needed
Arlington	School; park	School; park	G	Y	C	SS	Y	I	NW	Y	Y	N	F	-	-	-	N	Y	I	SMALL	MEDIUM-HIGH	35	Upgrade with curb ramps, high visibility crosswalk and complete signage
Howell	Ames	School; residential	P (ON STREET PARKING)	Y	UC	-	N (NO CURB)	-	-	Y	Y	N	G	-	N	-	N	Y	-	-	LOW-MEDIUM	35	On-street parking present; No curb ramps; Crosswalk needs to be high-visibility; Opportunity for curb bumpout with on street parking
Howell	Hooker	School; residential	G	N	C	SS	Y	C	NW	Y	Y	Y	F	Y (ON HOWELL)	N	-	N	Y	C	-	MEDIUM	35/40	Highly visible marked crosswalk across Hooker should be moved to other side so that turn lane can become a refuge island, pedestrian warning signage needed
Arlington	Greenville	Major roads; commercial	G	N	C	SL	Y	I	NW	Y	N (ONLY WHERE THERE IS SIDEWALK)	N	F	Y	N	-	N	Y	I	-	HIGH	35/45	Stated for improvements in 2017
Greenville	Elm	Residential; schools near	P (VEG)	N	C	SL	Y	I	W	Y	N	N	F	Y	N	-	N	Y	I	WIDE PLANTED (ON ELM)	MEDIUM-HIGH	35/45	Stated for improvements in 2017
Red Banks	Tucker	School; residential	G	Y	C	SS (FOR TUCKER)	Y	C	NW	Y	Y	Y	G	N	N	-	N	Y	I	-	MEDIUM	35/25	Advanced pedestrian warning signage should be included here
Greenville	14th	Residential; commercial	F	N	C	SL	Y	I	W	N	-	-	-	N	N	-	N	Y	I	-	MEDIUM-HIGH	35/45	Install crosswalk on the north side of the Greenville Blvd/14th St intersection. Install crossing facilities on the east, west, and south sides of the intersection with project completion.

	Road 1	Road 2	Reason (Major intersection, school, connectivity, etc)	Sight Distance (Good, Fair, Poor)	Signage (Y/N)	Controlled/Uncontrolled	Stop Light/Stop Sign	Curb Ramp (Y/N)	Curb Ramp (Complete/Incomplete)	Curb Radius (Very Wide, Wide, Not Wide)	Marked Crosswalk (Y/N)	Number and Location of Crosswalks Adequate (Y/N)	Highly Visible (Y/N)	Crosswalk Condition (Good, Fair, Poor)	Advanced Stop Lane (Y/N)	Pedestrian Xing Signal (Y/N)	Type of Signal (Regular, Countdown)	Curb Extension (Y/N)	Sidewalk (Y/N)	Sidewalk Complete/Incomplete	Median Island (Y/N)	Median Island Condition and Width	Estimated Traffic Volume (High/Medium/Low)	Speed Limit	Other Notes
	10th	Counche	ECU; Residential; commercial	F (VEG, CURVE)	N	C	SL	Y	I	W	Y	Y	N	F	Y	Y	PUSH BUTTON COUNTDOWN N	N	Y	I	N	-	HIGH	35/35	Decent pedestrian facilities here. Need a few upgrades including higher-visibility crosswalks and consistent curb ramps
	10th	College Hill	ECU; Many pedestrians	G	Y	C	SL	Y	I	NW	Y	Y	Y	P	Y	Y	PUSH BUTTON COUNTDOWN N	N	Y	C	Y	CONCRETE ON ONE SIDE; PAINTED OTHER SIDE	HIGH	35/15	Many pedestrians here; opportunity for median refuge; install bicycle actuated signal to ensure in eight turns green when bicyclists are at intersection
	10th	Elm	ECU; gateway; residential; Many pedestrians	G	N	C	SL	Y	I	NW	Y	Y	N	P	Y	Y	PUSH BUTTON COUNTDOWN N	N	Y	I	N	-	HIGH	35	Many pedestrians here; upgrade crosswalks to high visibility; curb ramps missing or inadequate
	5th	Moye	Hospital; Future residential	G	N	C	SL	Y	C (1 EACH CORNER WITH TRUNCATED DOMES)	W	Y	Y	N	G	Y	Y	PUSH BUTTON COUNTDOWN N	N	Y	C	Y	4' CONCRETE ON 5TH	MEDIUM	45/35	Consider upgrading crosswalks to high visibility
	14th	Dickinson	Commercial; residential	F (VEG)	N	C	SL	Y	I	NW	Y	Y	N	P (FADED)	Y	N	-	N	Y	I	N	-	MEDIUM-HIGH	35/25	Many pedestrians and cyclists in area; upgrade with high visibility crosswalks, pedestrian signals and improve curb ramps
	Arlington	Stantonburg	Hospital; major roads; commercial	G	N	C	SL	Y	C (2 EACH CORNER WITH TRUNCATED DOMES)	W	Y	Y	N	F	Y	Y	PUSH BUTTON COUNTDOWN N	N	Y	I	N	-	HIGH	45/35	Heavy traffic; consider upgrading with high visibility crosswalks
	Memorial	Stantonburg	Commercial; Hospital; Major roads	F	N	C	SL	Y	I	W	N	-	-	-	-	N	-	N	Y	I	Y	3FT CONCRETE ON ONE SIDE; MEMORIAL 2FT CONCRETE ON ONE SIDE; CONCRETE ON 5TH (W SIDE)	HIGH	45/35	Intersection improvements slated as part of 10th St connector project
	Memorial	5th	Commercial; residential; park	F	N	C	SL	Y	I	W	Y	Y	N (BRICK PAVEMENT XWALK EAST SIDE)	G	Y	Y	PUSH BUTTON COUNTDOWN N	N	Y	I	Y	CONCRETE ON ONE SIDE; MEMORIAL; CONCRETE ON 5TH (W SIDE)	HIGH	35/45	Upgrade curb ramps; upgrade crosswalks to high visibility; median pedestrian island opportunities
	14th	Fleming-Tyson	School; residential; lower-income community	F	N	C (3WAY)	SL	Y	I	W	Y	Y	N	G	Y	Y	PUSH BUTTON COUNTDOWN N	N	Y	I	N	-	LOW-MEDIUM	25	Many pedestrians and cyclist in area; Curb extensions would help here; Curb ramps should be upgraded all corners; Consider upgrading crosswalks to high visibility
	Fleming	Roosevelt	School; lower-income area	F (VEG)	Y	C	SS (FOR ROOSEVELT)	N	-	NW	Y	Y	N	P	-	N	-	N	Y	I	N	-	LOW-MEDIUM	25	Many pedestrians in area; No curb ramps and crosswalk is almost completely faded; Onstreet parking presents need for bulbouts
	14th	5th	Low-income area; Many pedestrians	G	N	C	SL	Y	I	NW	Y	Y	N	G	Y	N	-	N	Y	C	N	-	MEDIUM	25/35	Many pedestrians in area; intersection not aligned making it dangerous for pedestrians; curb ramps not complete; consider high visibility markings
	Arlington	Red Banks	Commercial area	G	N	C	SL	Y	I	W	N	-	-	-	N	N	-	N	Y	I	N	-	MEDIUM-HIGH	45/35	Improvements needed on all sides - see project exhibit C for detail on this intersection serving as a key location for improving north/south connectivity

Road 1	Road 2	Reason (Major intersection, connectivity, etc.)	Sight Distance (Good/Fair/Poor)	Signage (Y/N)	Controlled/Uncontrolled	Stop Light/Stop Sign	Curb Ramp (Y/N)	Curb Ramp (Complete/Incomplete)	Curb Radius (Curb Wide/Not Wide)	Marked Crosswalk (Y/N)	Number and Location of Adequate (Y/N)	Highly Visible (Y/N)	Crosswalk Condition (Good/Fair/Poor)	Advanced Stop Line (Y/N)	Pedestrian Crossing Signal (Y/N)	Type of Signal (Roundabout/Reduction Countdown)	Curb Extension (Y/N)	Sidewalk (Y/N)	Sidewalk Complete/Incomplete	Median Island Condition (Y/N)	Median Island Width	Estimated Traffic Volume (High/Medium/Low)	Speed Limit	Other Notes
3rd	Snow Hill	Residential; parks	G	Y	C	SL	Y	I	NW	Y	Y	N	G	Y	N	-	N	Y	C	N	-	LOW-MEDIUM	35/25	Good post treatments here; Needs curb ramps and high-visibility crosswalks
3rd	Lee	Downtown	G	N	C	SL	Y	C	NW	Y	Y	Y (BRICK PAVEMENT)	G	Y	N	-	N	Y	C	N	-	LOW-MEDIUM	20/15	With on-street parking, could do curb extensions
2nd	Lee	Downtown	G	N	C	SL	Y	C	NW	Y	Y	Y (BRICK PAVEMENT)	G	Y	N	-	N	Y	C	N	-	LOW-MEDIUM	25/20	NE side needs driveway access management; curb extensions possible with on-street parking
3rd	Hwy 11	Major road; Barrier; Commercial	G	N	C	SL	N (NO CURB)	-	W	N	-	-	-	N	N	-	N	N	-	-	WIDE GRASSY ON HWY 11; CONCRETE ON W SIDE OF SRD	MEDIUM-HIGH	35/55-60	No pedestrian facilities at all here. Grassy median is an opportunity for refuge across Hwy 11. Need protected bicycle and pedestrian facilities
N. Lee St.	Hines Dr.	Part of walking Loop	G	N	C	SS (FOR HINES)	Y	I	W	N	-	-	-	-	N	-	N	Y	I	N	-	LOW-MEDIUM	25/35	Marked crosswalk, advanced stop bar needed - curb ramp alignment should be improved
3rd	School Entrance	Schools across street from each other	G	Y	C	SS (FOR SCHOOL ENTRANCE)	N	-	NW	Y	Y	Y	F	N	N	-	N	Y	I	N	-	MEDIUM-HIGH	35	Curb ramps and crossing guard highly desirable at this location. Consideration should be given to an RFB or HAWK signal as well.
Mill	Main	Downtown	G	N	C	SL	Y	I	NW	Y	N	N	G	Y	N	-	N	Y	I	N	-	MEDIUM-HIGH	35/20	Sidewalk network needs complete; driveway access management in issue; identified as crossing improvement project in Winterville Pedestrian Plan
Main	Railroad	Downtown	F (ON STREET PARKING)	N	C	SS	N	-	NW	Y	N	Y	F	N	N	-	N	Y	I	N	-	MEDIUM-HIGH	20/15	Railroad crossing an issue and needs improvement; identified as crossing improvement project in Winterville Pedestrian Plan
Church	Sylvania	School; Residential; Park near	G	N	C	SS	N	-	NW	Y	Y	N	F	N	N	-	N	Y	I	N	-	LOW-MEDIUM	25/20	Needs high-visibility crosswalk; signage and curb ramps needed too; identified as crossing improvement project in Winterville Pedestrian Plan
Church	Cooper	Downtown area; residential; school nearby	G	N	C	SS	Y	N	NW	Y	N	N	F	N	N	-	N	Y	I	N	-	LOW-MEDIUM	25/35	Curb ramps and high-visibility crosswalks needed along with pedestrian warning signage
Main	Old Tar	Downtown near; residential/commercial	G	Y	C	SS	Y	I	W	N	-	-	-	-	N	-	N	Y	I	Y	VERY WIDE; CONCRETE	MEDIUM-HIGH	35	Currently, very little to accommodate safe pedestrian crossing. Town has requested a stoplight in past; likely improved with Old Tar widening project. Consult project I for further detail regarding east/west connectivity
Simpson	McDonald	Major crossroads of town	G	N	C	SS FOR SIMPSON	Y	I	W	N	-	-	-	N	-	-	N	Y	I	N	-	MEDIUM	35	Marked crosswalk needed along with improved curb ramp alignment - pedestrian facilities lacking on north side

D

Funding

"75 percent are very willing or willing to support a bond for more funding for streets, sidewalks, bike lanes, and street lights." -

Greenville Citizen's
Survey, 2013



Overview

Multiple approaches should be taken to support bicycle facility development and programming. It is important to secure the funding necessary to undertake priority projects but also to develop a long-term funding strategy to allow continued development of the overall system. Dedicated local funding sources will be important for the implementation of this plan.

Local government funds for bicycle facilities should be set aside every year, even if only for a small amount. Small amounts of local funding can be matched to outside funding sources. A variety of local, state, and federal options and sources exist and should be pursued.

The following section identifies federal, state, local and private/non-profit foundation sources of funding for planning, design, implementation and maintenance of bicycle infrastructure. The descriptions are intended to provide an overview of available options and do not represent a comprehensive list. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice.

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 bicycle facilities.

Fixing America's Surface Transportation (FAST Act)

In December 2015, President Obama signed the FAST Act into law, which replaces the previous Moving Ahead for Progress in the Twenty-First Century (MAP-21). The Act provides a long-term funding source of \$305 billion for surface transportation and planning for FY 2016-2020. Overall, the FAST Act retains eligibility for larger programs - Transportation Investments Generating Economic Recovery (TIGER), Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ), and Highway Safety Improvement Program (HSIP). The FAST Act maintains the federal government's focus on safety, preserves the established structure of various highway-related programs, streamlines project delivery, and provides a dedicated funding source for freight projects.

In North Carolina, federal monies are administered through the North Carolina Department of Transportation (NCDOT) and Metropolitan Planning Organizations (MPOs). Most, but not all, of these programs are focused on transportation rather than recreation, with an emphasis on reducing auto trips and providing intermodal

connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system. Most FAST ACT funds are available through the STI process.

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

Transportation Alternatives (TA)

Transportation Alternatives (TA) is a funding source under the FAST Act that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements (TE), Safe Routes to School (SRTS), and the Recreational Trails Program (RTP). Funds are available through a competitive process. These funds may be used for a variety of pedestrian, bicycle, and streetscape projects. These include:

- SRTS programs - infrastructure and noninfrastructure programs
- Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation, including sidewalks, bikeways, pedestrian and bicycle signals, traffic calming techniques, and lighting and other safety-related infrastructure
- Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, seniors, and individuals with disabilities
- Construction of rail-trails
- Recreational trails program

Eligible entities for TA funding include local governments, regional transportation authorities, transit

agencies, natural resource or public land agencies, school districts or schools, tribal governments, and any other local or regional government entity with responsibility for oversight of transportation or recreational trails that the State determines to be eligible.

The FAST Act provides \$84 million for the Recreational Trails Program. Funding is prorated among the 50 states and Washington D.C. in proportion to the relative amount of off-highway recreational fuel tax that its residents paid. To administer the funding, states hold a statewide competitive process. The legislation stipulates that funds must conform to the distribution formula of 30% for motorized projects, 30% for non-motorized projects, and 40% for mixed used projects. Each state governor is given the opportunity to “opt out” of the RTP.

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

Surface Transportation Block Grant (STBG) Program

The FAST Act converts 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. Funding for the STBG Program will increase from \$819 million per year to \$835 million in 2016 and 2017 and to \$850 million in 2018 through 2020.

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 \$2.2 - \$2.4 billion nationally (FY 2016-2020) for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, including non-state-owned public roads and roads on tribal lands. The HSIP requirements prior to the enactment of the FAST Act are still applicable, including the need for a comprehensive, data-driven State Highway Safety Plan (SHSP) that defines the State’s safety goals and describes strategies to improve safety.

HSIP funds must be used for safety projects that are consistent with the State’s SHSP and that correct or improve a hazardous road location or features to address a highway safety problem.

Most eligible activities are infrastructure-related. Bicycle and pedestrian safety improvements, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds. Examples include pedestrian hybrid beacons, medians, and pedestrian crossing islands. Workforce development, training, and education activities are other eligible uses of HSIP funds.

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

Safe Routes to School (SRTS) Program

SRTS enables and encourages children in grades K-8 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. Funding is administered by State Departments of Transportation (DOTs). Eligible recipients are state, local, and regional agencies as well as nonprofit organizations. Project sponsors may be school or community based groups. Around 10-30% of each state's funding is to be spent on noninfrastructure activities, such as encouragement programs, additional law enforcement activities, and educational curricula.

Infrastructure-related projects improve the ability of students to walk or bike to and from school. Types of projects include sidewalk improvements, traffic calming and speed reduction improvements, pedestrian and bike crossing improvements, bicycle facilities, pedestrian facilities, and secure bike parking.

For more information: http://www.fhwa.dot.gov/environment/safe_routes_to_school/guidance/#toc123542170

Other Federal Funding Sources

TIGER Discretionary Grants

The U.S. Department of Transportation's (DOT) Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants are intended to support multimodal projects, surface transportation projects, rail, transit, and port projects. Applicants must describe how their proposed project would achieve TIGER's five long-term outcomes - safety, economic competitiveness, state of good repair, quality of life, and environmental sustainability.

Eligible applicants for TIGER Discretionary Grants are State, local and tribal governments. This includes U.S. territories, transit agencies, port authorities, and metropolitan planning organizations (MPOs). Eligible projects are capital projects that include highway or bridge projects (including bicycle and pedestrian related projects), certain public transportation projects, passenger and freight rail transportation projects, and intermodal projects.

For more information: <https://www.transportation.gov/policy-initiatives/tiger/2016-tiger-applications-faqs>

Federal Transit Administration Enhanced Mobility of Seniors and Individuals with Disabilities

This program aims to improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and expanding transportation mobility options. This program can be used for capital expenses that support transportation and non-emergency medical 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. States and designated recipients are direct recipients. Eligible subrecipients include nonprofit organizations, states or local governments, or operators of public transportation. Types of eligible projects include transit-related information technology systems, building an accessible path to a bus stop (curb cuts, sidewalks, accessible pedestrian signals), and improving signage.

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

Economic Development Administration

Under Economic Development Administration's (EDA) Public Works and Economic Adjustment Assistance programs, grant applications are accepted for projects that promote economic development. State and local entities may apply for funding for projects that address a wide range of economic challenges. Under this program, Implementation Grants support infrastructure improvements, including site acquisition, site preparation, construction, and rehabilitation of

facilities. Selection criteria emphasize projects that are able to start quickly, create jobs faster, and that will enable the community or region to become more economically prosperous. Application deadlines are typically in March and June.

For more information: <https://www.eda.gov/funding-opportunities/index.htm>

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 for available for program administration, transportation planning, research, engineering, rehabilitation, construction, and restoration of Federal Lands Transportation Facilities. Transportation projects that are on the public network that provide access to, adjacent to, or through Federal lands are also eligible for funding. Under the FAST Act, \$335 - \$375 million has been allocated to the program per fiscal year from 2016 - 2020.

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

Partnership for Sustainable Communities

Founded in 2009, the Partnership for Sustainable Communities (PSC) is a joint project of the Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (USDOT). The partnership aims to “improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide.”

PSC is based on six livability principles, one of which explicitly addresses the need for alternative transportation options. (“Provide more transportation choices: Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation’s dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health”). PSC is not a formal agency with a regular annual grant program. Nevertheless, it is an important effort that has already led to some new grant opportunities (including both TIGER I and TIGER II grants). North Carolina jurisdictions should track PSC communications and be prepared to respond proactively to announcements of new grant programs. Initiatives that speak to multiple livability goals are more likely to score well than initiatives that are narrow in scope. PSC livability principles include: provide more transportation choices, promote equitable, affordable housing, enhance economic competitiveness, support existing communities, coordinate and leverage federal policies and investment, and value communities and neighborhoods.

For more information:

<http://www.sustainablecommunities.gov/>

<https://www.epa.gov/smartgrowth/hud-dot-epa-partnership-sustainable-communities>

Resource for Rural Communities: **http://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/federal_resources_rural.pdf**

Federal Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. The program is administered by the Department of Environment and Natural Resources as a grant program for states and local governments. Maximum annual grant awards for county governments, incorporated municipalities, public authorities, and federally recognized Indian tribes are \$250,000. The local match may be provided with in-kind services or cash.

For more information: **<https://www.nps.gov/subjects/lwcf/stateside.htm>**

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. Annual application deadline is August 1st.

For more information: <https://www.nps.gov/orgs/rtca/index.htm> or contact the Southeast Region RTCA Program Manager Deirdre Hewitt at (404) 507- 5691 or deirdre_hewitt@nps.gov

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

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 Funding Sources

There are multiple sources for state funding of bicycle and pedestrian transportation projects. However, beginning July 1, 2015, 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)

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

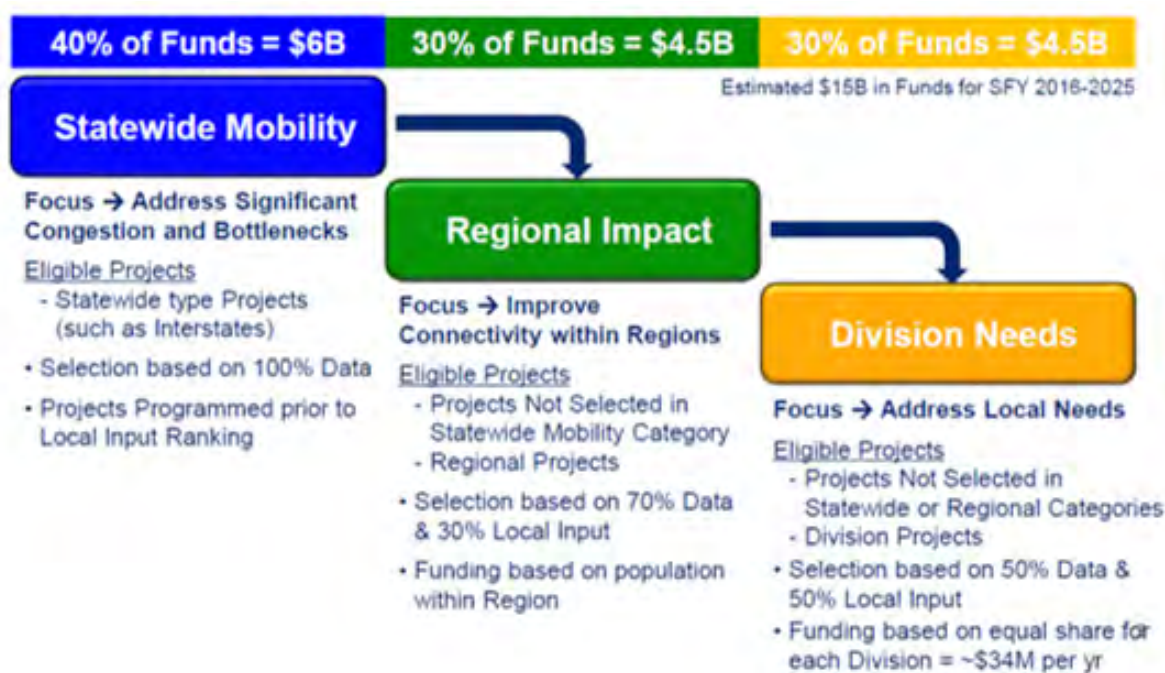
The new Strategic Transportation Investments Initiative is scheduled to be fully implemented by July 1, 2015. Projects slated for construction after that time will be ranked and programmed according

to the new formula. The new Strategic mobility formula assigns projects for all modes into one of three categories: 1) Statewide Mobility, 2) Regional Impact, and 3) Division Needs.

All independent bicycle and pedestrian projects are placed in the "Division Needs" category, and are currently ranked based on 50% data (safety, access, demand, connectivity, and cost effectiveness) and 50% local input, with a breakdown as follows:

Safety 15%

- Definition: Projects or improvements where bicycle or pedestrian accommodations are non-existent or inadequate for safety of users
- How it's measured: Crash history, posted speed limits, and estimated safety benefit
- Calculation:
 - Bicycle/pedestrian crashes along the corridor within last five years: 40% weight
 - Posted speed limits, with higher points for higher limits: 40% weight



- Project safety benefit, measured by each specific improvement: 20% weight

Access 10%

- Definition: Destinations that draw or generate high volumes of bikes/pedestrians
- How it's measured: Type of and distance to destination

Demand 10%

- Definition: Projects serving large resident or employee user groups
- How its measured: # of households and employees per square mile within 1 ½ mile bicycle or ½ mile pedestrian facility + factor for unoccupied housing units (second homes)

Connectivity 10%

- Definition: Measure impact of project on reliability and quality of network
- How it's measured: Creates score per each SIT based on degree of bike/ped separation from roadway and connectivity to similar or better project type

Cost Effectiveness 5%

- Definition: Ratio of calculated user benefit divided by NCDOT project cost
- How it's measured: Safety + Demand + Access + Connectivity)/Estimated Project Cost to NCDOT

Local Input 50%

- Definition: Input from MPO/RPOs and NCDOT Divisions, which comes in the form points assigned to projects.
- How it is measured: Base points + points for population size. A given project is more likely to get funded if it is assigned base points from

both the MPO/RPO and the Division, making the need for communicating the importance of projects to these groups critical. Further, projects that have a local match will score higher.

Additional bicycle and pedestrian project requirements:

- Federal funding typically requires a 20% non-federal match
- State law prohibits state match for bicycle and pedestrian projects (except for Powell Bill)
- Limited number of project submittals per MPO/RPO/Division
- Minimum project cost requirement is \$100,000
- Bike/Ped projects typically include: bicycle lanes, multi-use path/greenway, paved shoulders, sidewalks, pedestrian signals, SRTS infrastructure projects, and other streetscape/multi-site improvements (such as median refuge, signage, etc.)

These rankings largely determine which projects will be included in NCDOT's State Transportation Improvement Program (STIP). The STIP is a federally mandated transportation planning document that details transportation planning improvements prioritized by the stakeholders for inclusion in NCDOT's Work Program over the next 10 years. "More than 900 non-highway construction projects were prioritized for years 2015-2020, totaling an estimated \$9 billion. NCDOT will only have an estimated \$1.5 billion to spend during this time period." The STIP is updated every 2 years. The STIP contains funding information for various transportation divisions of NCDOT, including, highways, rail, bicycle and pedestrian, public transportation and aviation. A project does not have to be fully funded to be in the STIP.

For more information on STIP: www.ncdot.gov/strategictransportationinvestments/

To access the STIP: <https://connect.ncdot.gov/projects/planning/Pages/State-Transportation-Improvement-Program.aspx>

For more about the STI process: http://www.ncdot.gov/download/performance/performance_TheProcess.pdf

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. This is increasingly common with the adoption of NCDOT’s “Complete Streets” Policy.

In addition, bicycle safe drainage grates and hand-capped accessible sidewalk ramps are now a standard feature of all NCDOT highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds, and usually with a local match. On-road bicycle accommodations, if warranted, typically do not require a local match.

“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 project. It also helps local government identify what their

priorities are and how they might be able to pay for these projects. Under “Complete Streets” local governments may be responsible for a portion of the costs for bicycle and pedestrian projects. The cost share breakdown is based on population size as follows:

- >100,000 = 50% local match
- 50,000 - 100,000 = 40% local match
- 10,000 - 50,000 = 30% local match
- <10,000 = 20% local match

For more information: <https://connect.ncdot.gov/projects/planning/RNAProjDocs/2014-06FinalReport.pdf>

SPOT Safety Program

The Spot Safety Program is a state-funded public safety investment and improvement program that provides highly effective low-cost safety improvements for intersections and sections of North Carolina’s 79,000 miles of state main-tained roads in all 100 counties of North Carolina. The Spot Safety Program is used to develop smaller improvement projects to address safety, potential safety, and operational issues. The program is funded with state funds and currently receives approximately \$9 million per state fiscal year. Other monetary sources (such as Small Construction or Contingency funds) can assist in funding Spot Safety projects, however, the maximum allowable contribution of Spot Safety funds per project is \$250,000.

The Spot Safety Program targets hazardous locations for expedited low cost safety improvements such as traffic signals, turn lanes, improved shoulders, intersection upgrades, positive guidance enhancements (rumble strips, improved

channelization, raised pavement markers, long life highly visible pavement markings), improved warning and regulatory signing, roadside safety improvements, school safety improvements, and safety appurtenances (like guardrail and crash attenuators).

A Safety Oversight Committee (SOC) reviews and recommends Spot Safety projects to the Board of Transportation (BOT) for approval and funding. Criteria used by the SOC to select projects for recommendation to the BOT include, but are not limited to, the frequency of correctable crashes, severity of crashes, delay, congestion, number of signal warrants met, effect on pedestrians and schools, division and region priorities, and public interest.

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).

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

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: <http://www.ncdot.org/programs/ghsp/>

Safe Routes to School (SRTS)

SRTS is managed by NCDOT, but is federally funded; See Federal Funding Sources above for more information.

Community Development Block Grant Funds

Community Development Block Grant (CDBG) funds are available to local municipal or county governments that qualify for community development projects that provide decent housing and suitable living environments and by expanding economic opportunities, principally for persons of low and moderate income. State CDBG funds are provided by the U.S. Department of Housing and Urban Development (HUD) to the state of North Carolina. Some urban counties and cities in North Carolina receive CDBG funding directly from HUD. Each year, CDBG provides funding to local governments for hundreds of critically-needed community improvement projects throughout the state. These community improvement projects are administered by the Division of Community Assistance and the Commerce Finance Center under eight grant categories. CDBG funds may be used for activities which include, but are not limited to: acquisition of real property, construction of public facilities and improvements, such as streets, neighborhood centers, and conversion of school buildings for eligible purposes, and activities related to energy conservation.

For more information: <https://www.hudexchange.info/programs/cdbg-entitlement/cdbg-entitlement-program-eligibility-requirements/>

The North Carolina Division of Parks and Recreation – Recreational Trails and Adopt-a-Trail Grants

The Adopt-a-Trail Grant Program (AAT) awards \$108,000 annually to government agencies, nonprofit organizations and private trail groups for trail projects. 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 \$100,000 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

Grant applications are typically due in May.

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: <http://www.ncparks.gov/more-about-us/parks-recreation-trust-fund/eligibility>

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 2017, CWMTF expects to award over \$25 million to projects that protect natural and cultural resources.

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

Duke Energy Water Resources Fund

Duke Energy is investing \$10 million in a fund for projects that benefit waterways in the Carolinas. The fund supports science-based, research-supported projects and programs that provide direct benefit to at least one of the following focus areas:

- Improve water quality, quantity and conservation;
- Enhance fish and wildlife habitats;
- Expand public use and access to waterways; and
- Increase citizens' awareness about their roles in protecting these resources.

Applications are open to nonprofit organizations and local government agencies. Funding decisions are made twice a year. Local and regional government agencies could consider this resource for proposed greenways across the region such as the Browns Creek section of proposed greenway as part of Priority Project D in Elizabethtown.

For more information: <http://www.nccommunityfoundation.org/page/other-grant-opportunities/duke-energy-water-resource-fund-grants/applying-to-the-duke-energy-water-resources-fund>

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. Grant requests should range between \$1,000 and \$15,000 and must be matched equally with non-federal funds. Grant funds may be awarded to any unit of local or state government, public educational institutions, approved non-profit 501(c)(3) organizations, and other tax-exempt organizations. First time municipal applicant and municipalities seeking Tree City USA status are given priority for funding. Grant applications are due by March 31st of each year and recipients are notified by mid-July.

For more about Tree City USA status, including application instructions, visit: http://ncforestservice.gov/Urban/urban_grant_overview.htm

Local Government Funding Sources

Municipalities often plan for the funding of pedestrian and bicycle facilities or improvements through development of Capital Improvement Projects (CIP) or occasionally, through their annual Operating Budgets. In Raleigh, for example, the greenway system has been developed over many years through an annual dedicated source of funding that has ranged from \$100,000 to \$500,000 and administered through the Recreation and Parks Department. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. Typical capital funding mechanisms include the capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds. Each category is described below. A variety of possible funding options available to North Carolina jurisdictions for implementing pedestrian and bicycle projects are also described below. However, many will require specific local action as a means of establishing a program if it's not already in place.

Powell Bill Funds

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as outlined by G.S. 136-41.1 through 136-41.4. Powell Bill funds shall be expended only for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities. It may also be used for planning, construction, and maintenance of bikeways or sidewalks within municipal limits or within the

area of a metropolitan planning organization or rural planning organization. Beginning July 1, 2015, under the Strategic Transportation Investments initiative, Powell Bill funds may no longer be used to provide a match for federal transportation funds such as Transportation Alternatives. Certified Statement, street listing, add/delete sheet and certified map from all municipalities are due between July 1st and July 21st of each year. Additional documentation is due shortly afterwards.

For more information: <https://connect.ncdot.gov/municipalities/State-Street-Aid/Pages/default.aspx>

Capital Reserve Fund

Municipalities have statutory authority to create capital reserve funds for any capital purpose, including pedestrian facilities. The reserve fund must be created through ordinance or resolution that states the purpose of the fund, the duration of the fund, the approximate amount of the fund, and the source of revenue for the fund. Sources of revenue can include general fund allocations, fund balance allocations, grants, and donations for the specified use.

Capital Project Ordinances

Municipalities can pass Capital Project Ordinances that are project specific. The ordinance identifies and makes appropriations for the project.

Local Improvement District (LID)

Local Improvement Districts (LIDs) are most often used by cities to construct localized projects such as streets, sidewalks, or bikeways. Through the LID process, the costs of local improvements are generally spread out among a group of property

owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation.

Municipal Service District

Municipalities have statutory authority to establish municipal service districts, to levy a property tax in the district additional to the town-wide property tax, and to use the proceeds to provide services in the district. Downtown revitalization projects are one of the eligible uses of service districts, and can include projects such as street, sidewalk, or bikeway improvements within the downtown taxing district.

Tax Increment Financing

Project Development Financing bonds, also known as Tax Increment Financing (TIF) is a relatively new tool in North Carolina, allowing localities to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., sidewalk improvements) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project. Streets, streetscapes, and sidewalk improvements are specifically authorized for TIF funding in North Carolina. Tax Increment Financing typically occurs within designated development financing districts that meet certain economic criteria that are approved by a local governing body. TIF funds are generally spent inside the boundaries of the TIF district, but they can also be spent outside the district if necessary to encourage development within it. Although larger cities use this type of financing more often, Woodfin, NC is an example of a small town that has used this type of financing.

Municipal Vehicle Tax

NCGS 20-97 allows municipalities to establish a vehicle fee/tax and a percentage of funding can be used for maintaining, repairing, constructing, reconstructing, widening, or improving public streets in the city or town that do not form a part of the State highway system.

Other Local Funding Options

- Bonds/Loans
- Taxes
- Impact fees
- Exactions
- Installment purchase financing
- In-lieu-of fees
- Partnerships

Private and Nonprofit Funding Sources

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

FUNDING FOR TRAIL DEVELOPMENT

Rails-to-Trails Conservancy

RTC launched a new grant program in 2015 to support organizations and local governments that are implementing projects to build and improve rail-trails. Under the Doppelt Family Trail Development Fund, RTC will award a total of \$85,000 per year through a competitive process, which is then distributed among several qualifying projects. 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.

The fund was established with a \$80,000 grant from Jeff Doppelt of Great Neck, New York, a long-time supporter of RTC and development of rail-trails in the United States, and an additional \$20,000 donation from an anonymous donor. Applications are due January 31st of each year but applicants should check the website for grant application announcements.

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

National Trails Fund

American Hiking Society created the National Trails Fund in 1998, which is the only privately supported national grants program that provides funding to grassroots organizations working toward establishing, protecting, and maintaining foot trails in America. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. To date, American Hiking has granted more than \$588,000 to 192 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from \$500 to \$3,000 per project. Only 501(c)3 non-profit organizations are eligible to apply. Applicants must be current members of American Hiking Society's Alliance of Hiking Organizations. Except for land acquisition projects, funded projects must be completed in a year. Multi-year projects may be considered if they are exceptional cases. Projects the American Hiking Society will consider include:

- Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.

- Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects - including volunteer recruitment and support.

For more information: <https://americanhiking.org/national-trails-fund/>

American Greenways Eastman Kodak Awards

The Conservation Fund's American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants (\$500 to \$2,500) to stimulate the planning, design, and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, planning bike paths, and building trails. Grants are primarily awarded to local, regional, or statewide nonprofit organizations. Public agencies may apply but preference is given to community organizations. Grants are awarded based on the importance of the project to local greenway development efforts, demonstrated community support, extent to which the grant will result in matching funds, likelihood of tangible results, and the capacity of the organization to complete the project. Applications can be submitted from March 1st through June 1st of each calendar year.

For more information: <http://www.rlch.org/funding/kodak-american-greenways-grants>

FUNDING FOR CONSERVATION EFFORTS

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 nonprofit 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. The campaign was successful in 2013 in asking the North Carolina General Assembly to continue to support conservation efforts in the state. The state budget bill includes about \$50 million in funds for key conservation efforts in North Carolina. 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. Since its inception in 1989, The Conservation Alliance has contributed \$4,775,059

to environmental groups across the nation, saving over 34 million acres of wild lands.

The Conservation Alliance Funding Criteria:

- The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation.
- The Alliance does not look for mainstream education or scientific research projects, but rather for active campaigns.
- All projects should be quantifiable, with specific goals, objectives, and action plans and should include a measure for evaluating success.
- The project should have a good chance for closure or significant measurable results over a fairly short term (within four years).

For more information: <http://www.conservationalliance.com/grants/?yearly=2016>

FUNDING FOR ENVIRONMENTAL INITIATIVES

Blue Cross Blue Shield of North Carolina Foundation (BCBS)

Blue Cross Blue Shield (BCBS) focuses on programs that use an outcome-based approach to improve the health and well-being of residents. The Healthy Places grant concentrates on increased physical activity and active play through support of improved built environments such as sidewalks and safe places to bike. Nonprofit organizations and government entities are eligible to apply. Eligible grant applicants must be located in North Carolina, be able to provide recent tax forms, and depending on the size of the non-profit, provide an audit. 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/faqs>

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, one of which is environment, and this is the most applicable to bicycle and pedestrian projects. Duke Energy supports initiatives that help protect and restore wildlife and natural resources, with a special focus on water and air. The application period is typically from July 1st to August 31st.

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

FUNDING FOR COMMUNITY DEVELOPMENT INITIATIVES

North Carolina Community Foundation

The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for non-profit organizations and institutions throughout the state. Based in Raleigh, the foundation also manages a number of community affiliates throughout North Carolina, that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. The foundation also manages various scholarship programs statewide. Nonprofit organizations and local government units, such as public schools, are eligible to apply. The foundation will only give consideration to applicants that serve counties within its affiliate network.

For more information: <http://www.nccommunityfoundation.org/grants-scholarships>

Z. Smith Reynolds Foundation

This Winston-Salem-based foundation has been assisting environmental projects in North Carolina for many years. Grant recipients include nonprofit organizations, colleges and universities, religious entities, and government agencies that have projects or programs that serve North Carolinians. The Foundation focuses its grant making on five focus areas: Community Economic Development; Environment; Public Education; Social Justice and Equity; and Strengthening Democracy. The “environment” focus area is the most applicable for bicycle and pedestrian projects. This focus area

seeks to protect and restore ecosystems in the state’s mountains and coastal areas. The Z. Smith Reynolds Foundation is committed to accommodating the increasing growth demands in the state in environmentally sustainable ways, including through enhanced transportation options. Deadline to apply is typically in August.

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

Bank of America Charitable Foundation

The Bank of America Charitable Foundation is one of the largest in the nation. Its grantmaking activities are focused on 3 focus areas: workforce development and education, community development, and basic needs. The area of focus most relevant to increased recreational opportunities and trails is community development, which provides funding for projects that foster green communities and for transit oriented development projects. Only nonprofit organizations are eligible to apply for funding.

For more information: www.bankofamerica.com/foundation

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. Municipalities typically create funds to facilitate and simplify a transaction from a corporation's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

PRIVATE INDIVIDUAL DONATIONS

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

FUNDRAISING/CAMPAIGN DRIVES

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

VOLUNTEER WORK

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

INNOVATIVE FUNDING OPTIONS

Crowdsourcing "is the process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community, rather than from traditional employees or suppliers."

For some success stories and ideas for innovative fundraising techniques: <http://www.american-trails.org/resources/funding/TipsFund.html>