

Adopted December 15, 2020



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CITY of HICKORY, NC

PEDESTRIAN + BICYCLE PLAN





ACKNOWLEDGEMENTS

Thank you to the local residents, community leaders, and government staff that participated in the development of this plan through meetings, workshops, comment forms, and plan review. Special thanks to those who participated as steering committee members, listed below.

PROJECT STEERING COMMITTEE

The Steering Committee is made up of local residents, government staff, and community leaders.

- | | |
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Prepared for the City of Hickory, North Carolina

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Prepared by Alta Planning + Design

Adopted by the City of Hickory on December 15, 2020

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Executive Summary



“I would love to see all of Hickory on both sides of the railroad tracks connected by walking/biking trails. ”

- Survey respondent

WHY SHOULD WE PLAN FOR BICYCLING AND WALKING IN HICKORY?

The City of Hickory is quickly gaining recognition as one of the top small cities in the nation due its unique combination of business-friendliness, low housing costs, vibrant music scene, growing craft beer industry, robust downtown, and college City setting. With this recognition, the City faces challenges and opportunities for retaining the small city character and quality of life that is attracting a growing number of people, most notably retirees. **One essential aspect of small city living is the freedom and ability to walk out of your front door, and get to where you want to go on foot or by bicycle.** This ability of residents to participate in this simple activity is at the root of a remarkable set of positive community benefits related to public health and safety, recreation, transportation, local economy, and tourism.

The problem is, as Hickory grows, its roads are not designed to accommodate vehicular traffic AND walkers and bicyclists. City roadways, in their current condition, feel unsafe for many

experienced bicyclists, and intimidating for people who would otherwise consider bicycling and walking. Hickory residents have long supported the idea of creating a safe and connected network of bicycle facilities, as is well documented in many of the City’s past and current plans and initiatives. The City has responded by investing in its initial greenways and side paths. What has been missing, that this plan provides, is a comprehensive analysis of the City’s opportunities for creating such a network, and a strategic set of recommendations to successfully make it happen.

WHAT DOES THIS PLAN RECOMMEND?

This bicycle and pedestrian transportation plan, known as Walk Bike Hickory, features policy, program, and infrastructure recommendations that, if adopted, funded, and implemented, will create the walk- and bicycle-friendly community that residents have long supported. This plan documents the past and current support for a walk- and bicycle-friendly Hickory, and highlights some of the current conditions impacting walking and bicycling in the city today (see Chapter 2).



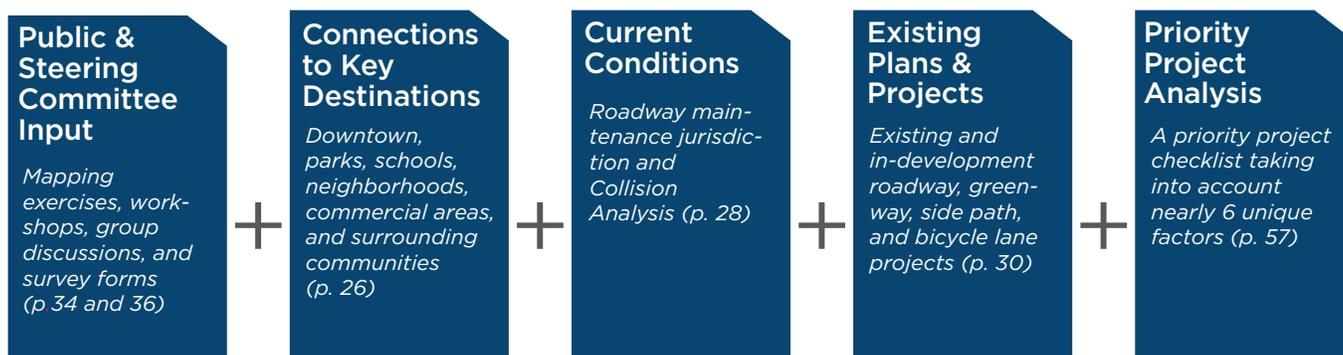
KEY STEPS IN THE PLANNING PROCESS:



PUBLIC INPUT RESPONSE HIGHLIGHTS:



BASIS OF RECOMMENDATIONS:



TOP 12 PRIORITY PROJECTS:

1. **Scenic Lake Route along 6th Street NW, 21st Ave NW, and 12th Street Drive NW;** from Old Lenoir Road to 6th Street NW
2. **17th Street NW Bike Lanes,** from 9th Avenue NW to 1st Avenue SW
3. **17th Street NW extension with Bike Lanes and Sidewalks,** from 9th Avenue NW to Clement Boulevard
4. **Clement Blvd Bike Lanes,** from 17th St NW to planned MUP "Aviation Walk"
5. **Sidewalks on 8th Avenue SE and 3rd Street SE,** from 5th Street SE to 10th Avenue SE
6. **Sidewalks on 7th Ave SW, 3rd Ave SW, and 15th St SW and Pedestrian Crossing at 7th Avenue and 13th Street SW**
7. **Sidewalk on 12th Avenue NE,** from 5th Street NE to 8th Street Drive NE
8. **Sidewalk on 17th Avenue NE,** from 5th Street NE to 4th Street Drive NE
9. **Multi-Use Path on 8th Avenue NE and C Avenue SE,** from 8th Avenue NE to 13th Street SE
10. **Multi-Use Path on 8th Avenue NW and 9th Avenue NW,** from 2nd Street NE to 6th Street NW
11. **Multi-Use Path on 12th Avenue NW,** from 6th Street NW to Old Lenoir Road
12. **Multi-Use Path on 16th Street NE and 12th Avenue NE/Springs Road NE,** from Highland Avenue to McDonald Parkway



BIG PICTURE RECOMMENDATIONS:

1 KEEP MOMENTUM ON BICYCLE + PEDESTRIAN PROJECTS THAT ARE ALREADY IN-DEVELOPMENT.

Map 2.2 features projects that have some level of funding, design, or construction in progress. The funded multi-use path projects should continue to be constructed, and the funded highway projects should be designed to include the pedestrian and bicycle facilities recommended in this plan.

2 STRATEGICALLY AND PROACTIVELY FUND AND BUILD PRIORITY PROJECTS.

Map 3.4 features a set of priority projects that developed out of the Hickory Pedestrian + Bicycle Plan planning process. These are detailed in individual project cut-sheets that summarize why the project is a priority, and what the key opportunities and challenges are to its development. See the Project Priority Project List (page 57) for how priorities were selected.

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

As Hickory continues to grow, new development and roadway construction projects should incorporate facilities recommended in **Maps 3.1 and 3.2**. As progress is made on priority projects, new priorities should be selected from this comprehensive map of recommendations.

4 IMPLEMENT PROGRAMS THAT SUPPORT AND ENCOURAGE WALKING + BICYCLING.

As new facilities are built, people will want to know where they are, how to get to them, and how to ride safely on them; new programs can help address these issues, and are outlined starting on page 126. Motorists can also use encouragement to slow down, yield when appropriate, and pass bicyclists safely, and a safety campaign should be launched to do just that.

Together, these recommendations make up the core of this plan, as featured in Chapter 3. They are supplemented by a detailed set of action steps, and a list of resources for the latest information on bicycle facility design and bicycle-related policy in Chapter 4.



Chapter 1: Introduction



“I’d love biking and walking routes connecting dining and shopping and entertainment, to create an activity destination and facilitate a day spent downtown.”

- Survey respondent

PROJECT BACKGROUND

In 2019, the City of Hickory began developing a comprehensive pedestrian and bicycle plan (Walk Bike Hickory). **The City of Hickory will use this plan to:**

- » Incorporate active transportation facilities into upcoming roadway projects;
- » Provide multi-modal transportation choices;
- » Improve safety along routes used for walking and bicycling; and
- » Address demands for walking and bicycling for recreation and transportation.

The purpose of this plan is to identify opportunities and constraints for walking and bicycling in Hickory, and to establish recommendations for improvement. This plan aims to use walking and bicycling as a tool for improvements in mobility, safety, health, economy, environment, and overall quality of life. The goal is to create safe and connected routes for walking and bicycling in Hickory, with connections to surrounding communities.

Walk Bike Hickory will provide a framework for the City, residents, developers, NCDOT, and other regional planning partners to strategically build better connections for walking and bicycling in Hickory. The plan provides detailed pedestrian and bicycle facility recommendations needed to seek project funding, coordinate with future development, and shape policy and program decisions for the City.

The City of Hickory has long supported the goal of improving walking and bicycle transportation, as evident in numerous greenway and multi-use path projects that have been completed in recent years or scheduled for construction in the near future, including the Riverwalk, City Walk, and Book Walk projects. In addition, the active support for bicycle and greenway infrastructure from groups like Friends of Hickory and the Hickory Velo Club a desire for a more walkable and bikeable Hickory.



PLAN VISION & GOALS

Hickory envisions creating a network of safe, accessible walking and biking infrastructure that will be supported by the following goals:

- 

ENHANCE CONNECTIVITY
Create a well-connected network of pedestrian- and bicycle-friendly streets and paths as part of a diverse network of transportation options in Hickory.
- 

PROMOTE EQUITY + ACCESS FOR ALL
Create a network of bike and pedestrian routes that allows ALL Hickory residents to access parks, Lake Hickory, downtown, and activity centers by walking and biking.
- 

INCREASE SAFETY
Address the safety and level of comfort of the transportation system for pedestrians and bicyclists. Reduce the number of pedestrian- and bicyclist-involved crashes, injuries, and fatalities over time.
- 

INCREASE HEALTH + LIVABILITY
Transportation systems have a direct impact on health and overall quality of life. Implement complete street solutions that will accommodate all modes, including pedestrians and bicycles, to support healthy, safe neighborhoods where walking and biking are convenient for people of all ages and abilities.
- 

SUPPORT ACTIVE, ACCESSIBLE DEVELOPMENT
As land in Hickory continues to be developed, dedicate areas for future greenways and provide sidewalks and bikeways that promote an active lifestyle and access to key destinations.
- 

PRIORITIZE THE HICKORY URBAN BIKE LOOP
The Friends of Hickory's Hickory Urban Bike Loop (HUB loop) will connect the four quadrants of the city with a continuous loop of bicycle facilities.



PLANNING PROCESS

The planning process began in late 2019 with a kick-off meeting with the project Steering Committee, followed by data collection and analysis of existing conditions. Next, project planners developed a draft proposed bicycle network, based on past plans, existing conditions analysis, and initial public outreach. The proposed network was refined through a process of multiple draft reviews and revisions, with feedback from City staff, project consultants, a public workshop, and review by the project Steering Committee.

The Steering Committee met at key stages throughout development of the plan, with members representing a range of perspectives. The committee had representation from the following groups (see the acknowledgements section of this Plan for a list of individual members):

- » Catawba Valley Medical Center
- » LiveWell Catawba
- » Frye Regional Medical Center

- » Catawba County Economic Development Corporation
- » Hickory Velo Club
- » Friends of Hickory
- » Cycling Industry Advocates
- » Hickory Police Department
- » Hickory Fire Department
- » Hickory Planning Department
- » Hickory City Manager’s Office
- » Hickory Public Services
- » Hickory Parks, Recreation and Sports Tourism
- » Deluxe Printing
- » Lenoir Rhyne University
- » Greenway Public Transportation
- » Hickory Metro Convention & Visitors Bureau
- » Hickory Community Development Department
- » Hickory Transportation Department

In addition to the public representation on the Steering Committee and the public open houses, a public survey form was distributed to gather feedback on current walking and biking habits and preferences. For the results of committee and public feedback, please refer to the public input section of Chapter 2, and Appendix C: Meeting Summaries.

HICKORY PEDESTRIAN + BICYCLE PLAN
The City of Hickory is working on its Pedestrian + Bicycle Plan to shape the future of walking and bicycling in the city, and we need your help! The plan will incorporate an analysis of existing conditions for biking and walking, input from community residents (that's you!) and stakeholder agencies and organizations as well as best practices in bicycle and pedestrian facility design. Your responses to this survey will help the city better understand the needs and desires of residents and community stakeholders. Even if you do not walk or bike regularly, your feedback is helpful. All responses will remain anonymous.

1. How often do you use the following means of transportation in Hickory?

	Everyday	A few times per week	A few times per month	A few times per year	Never
Automobile (drive alone)	<input type="checkbox"/>				
Automobile (carpool)	<input type="checkbox"/>				
Walk	<input type="checkbox"/>				
Bicycle	<input type="checkbox"/>				
Public transit	<input type="checkbox"/>				
Taxi/ride hail (Uber, Lyft, etc.)	<input type="checkbox"/>				
Other (e.g., scooter share)	<input type="checkbox"/>				

2. What is the average distance of your typical walking + biking trips? (One-way)

	Exercise/ Recreation	Commuting to work/school	Other
Walking Trips	0 (I don't walk)	<input type="checkbox"/>	<input type="checkbox"/>
	less than 1/2 mile	<input type="checkbox"/>	<input type="checkbox"/>
	1/2 mile	<input type="checkbox"/>	<input type="checkbox"/>
Biking Trips	more than 1 mile	<input type="checkbox"/>	<input type="checkbox"/>
	1 mile	<input type="checkbox"/>	<input type="checkbox"/>
	1.2 miles	<input type="checkbox"/>	<input type="checkbox"/>
	3.5 miles	<input type="checkbox"/>	<input type="checkbox"/>
more than 5 miles	<input type="checkbox"/>	<input type="checkbox"/>	

3. How Comfortable do you feel walking + biking in Hickory?

	Very Comfortable	Somewhat Comfortable	Neutral	Slightly Uncomfortable	Very Uncomfortable
Traveling by walking	<input type="checkbox"/>				
Traveling by biking	<input type="checkbox"/>				

4. Based on your answer to Question 3, why do you feel particularly comfortable/uncomfortable?

5. To where would you walk or bike if safe and comfortable routes were accessible? (Check all that apply.)

<input type="checkbox"/> School	<input type="checkbox"/> Grocery Stores/Shopping Centers
<input type="checkbox"/> Work	<input type="checkbox"/> Libraries/Community Centers
<input type="checkbox"/> Transit Stops	<input type="checkbox"/> Parks/Recreation Centers
<input type="checkbox"/> Within my neighborhood	<input type="checkbox"/> Dining/Entertainment
<input type="checkbox"/> To another neighborhood	<input type="checkbox"/> To another neighborhood
<input type="checkbox"/> Other (please specify):	

6. What are your biking improvements?

<input type="checkbox"/> Comfortable	<input type="checkbox"/> Direction
<input type="checkbox"/> Comfortable separated	<input type="checkbox"/> Better lighting
<input type="checkbox"/> Paved off	<input type="checkbox"/> Other (please specify):
<input type="checkbox"/> Unpaved	
<input type="checkbox"/> Safer curbs	

7. Tell us more about how you currently or would like to walk and bike around Hickory, and what destinations you'd visit by walking or biking in Hickory:

-Please see reverse side for additional questions-

Hickory Pedestrian + Bicycle Plan-Community Survey
Introduction
The City of Hickory is working on its Pedestrian + Bicycle Plan to shape the future of bicycling in the city, and we need your help! The Plan will incorporate an analysis of existing conditions for biking and walking, input from community residents (that's you!) and stakeholder agencies and organizations as well as best practices in bicycle and pedestrian facility design. Your responses to this survey will help the City better understand the needs and desires of residents and community stakeholders. Even if you do not walk or bike regularly, your feedback is helpful. All responses will remain anonymous.

***1. How often do you use the following means of transportation?**

	Everyday	A few times per week	A few times per month	A few times per year	Never
Automobile (drive alone)	<input type="checkbox"/>				
Automobile (carpool)	<input type="checkbox"/>				
Walk	<input type="checkbox"/>				
Bicycle	<input type="checkbox"/>				
Public Transit	<input type="checkbox"/>				
Taxi/ride hail (Uber, Lyft, etc.)	<input type="checkbox"/>				
Other (e.g., scooter share)	<input type="checkbox"/>				

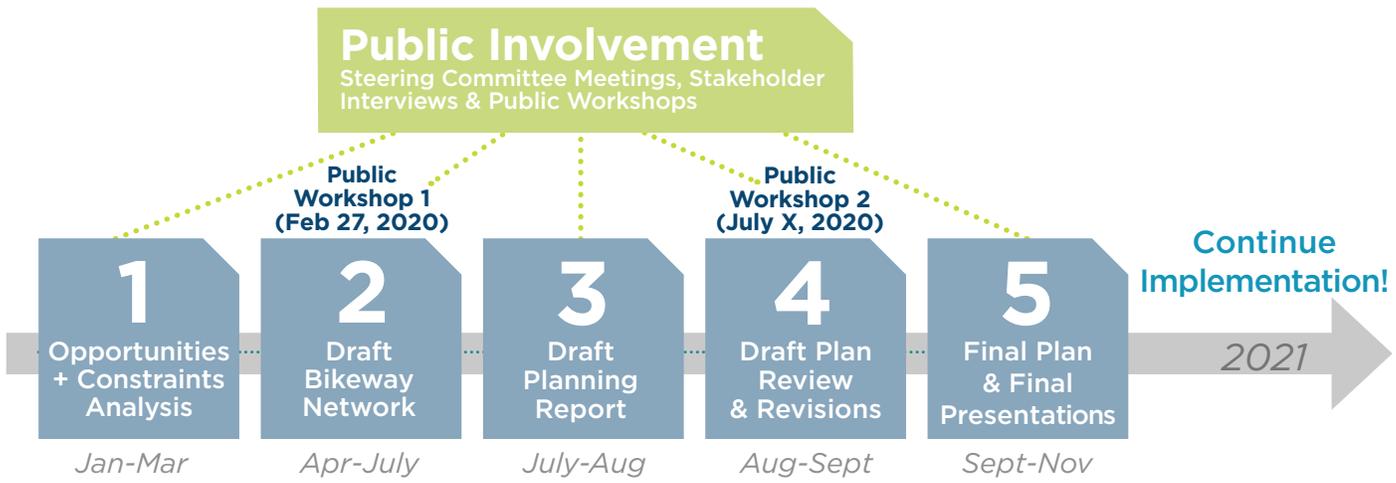
***2. What is the average distance of your typical WALKING trips (one-way)?**

	Exercise/ Recreation	Commuting to work/school	Shopping/Routing errands	Connect to Transit	Other (please specify)
0 (I don't walk)	<input type="checkbox"/>				
less than 1/2 mile	<input type="checkbox"/>				
1/2 mile	<input type="checkbox"/>				
1 mile	<input type="checkbox"/>				

9 of 30 answered



Key Steps in the Planning Process



Open comment maps were used to gather public input on bicycling conditions during steering committee meetings and public workshops.



Meeting participants were also invited to indicate their preferences for a variety of aspects of the plan, including types of bicycle infrastructure and programs.

BENEFITS OF A PEDESTRIAN- AND BICYCLE-FRIENDLY HICKORY

Potential benefits for the City of Hickory in supporting and implementing this plan include improvements in safety, health, economic impact, mobility, and environmental stewardship.

SAFETY

TRENDS AND CHALLENGES

According to a survey of 16,000 North Carolina residents for the 2011 North Carolina Bicycle and Pedestrian Safety Summit, the most commonly reported safety issue for walking and bicycling was inadequate infrastructure (75%).¹ A lack of safe crossings, greenways, and bicycle facilities, such as bicycle lanes and side paths, lead to unsafe conditions for pedestrians and bicyclists.

- » From 2007-2018, there were **61 reported bicycle crashes** within the Hickory city limits and **282 reported pedestrian crashes**, including **one bicyclist fatality and 10 pedestrian fatalities** (see Map 2.3).
- » On average, in NCDOT’s Division 12 (which includes the City of Hickory), **15 pedestrians and 2 bicyclists are killed each year in collisions with motor vehicles, while many more are seriously injured** (combined 5-year average for 2014-2018).²
- » In 2019, 18% of all traffic fatalities in North Carolina were bicyclists and pedestrians.²
- » North Carolina is ranked as one of the least safe states for bicycling (42nd).³

Bicycle Facilities and Safety Benefits

<p>Provides continuity on lower-volume roads & designates preferred routes</p>	<p>SIGNED BIKE ROUTES</p> 	<p>BIKE LANES</p> 	<p>Crash reductions observed up to 35%</p>
	<p>PAVED SHOULDERS</p> 	<p>SEPARATED BIKEWAYS</p> 	
<p>Improves safety for all road users; can reduce “struck from behind crashes”</p>	<p>SHARED-LANE MARKINGS</p> 	<p>SHARED-USE PATHS</p> 	<p>Crash reductions observed up to 60%</p>
	<p>Provides continuity & increases awareness of bicyclists’ presence</p>		

Sources for Graphic: 1) U.S. Department of Transportation Federal Highway Administration, Crash Modification Factor (CMF) Clearinghouse; CMF ID: 1719 and CMF ID: 4097, and 2) Teschke, Kay. Route Infrastructure and the Risk of Injuries to Bicyclists. American Public Health Association. December 2012.



IMPROVING SAFETY

When Hickory residents don't walk or ride a bike, the primary reason is because, "it doesn't feel safe." (according to the public survey of 423 individuals). Separate studies conducted by the Federal Highway Administration and the University of North Carolina Highway Safety Research Center demonstrate that installing pedestrian and bicycle facilities directly improves safety by reducing the risk and severity of pedestrian-automobile and bicycle-automobile crashes (see examples below). **Some facilities improve safety for both bicyclists and pedestrians, such as side paths, paved shoulders, bicycle/pedestrian overpasses or underpasses, and intersection crossing improvements** (below). The following web addresses link to more comprehensive research on safety.

- » <http://www.walkbikenc.com/>
- » http://www.pedbikeinfo.org/data/factsheet_crash.cfm

Pedestrian Facilities with Pedestrian Crash Countermeasures

FACILITY TYPE	PEDESTRIAN CRASH REDUCTION FACTOR
Install bicycle & pedestrian overpass/underpass	90%
Install sidewalk or side path (to avoid walking along roadway)	88%
Provide paved shoulder (of at least 4 feet)	71%
Install raised median at unsignalized intersection	46%
Install crossing refuge island	36%
Install crossing countdown signal heads	25%

HEALTH IMPACTS OF ACTIVE TRANSPORTATION

TRENDS AND CHALLENGES

The state of North Carolina ranks 36th compared to all other states in core determinants of health, dropping three ranks from the previous year.⁴ In addition, Catawba County is ranked 27th (out of 100) in North Carolina for health outcomes. This ranking is based on two types of measures: how long people live and how healthy people feel while alive.⁵ According to the 2019 *Community Health Assessment* conducted by the Catawba County Public Health Department and LiveWell Catawba, **the county's top two causes of death are cancer and heart disease, both of which can be prevented through more active lifestyles, including walking and biking.**⁶

Other key trends and challenges related to health and transportation in North Carolina and Hickory:

- » 65% of adults in North Carolina are either overweight or obese.⁶ The state is also ranked 30th in the nation for childhood obesity.⁷
- » **25% of adults in Catawba County report no leisure-time physical activity**, compared to 24% of all North Carolinians.⁷
- » Every dollar invested in pedestrian and bicycle infrastructure can result in a savings of nearly \$3 in direct medical expenses.⁸

Federal Highway Administration. (2008). *Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes*. https://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_tctpepc/

Active Transportation: Pathway to Health



Source: WalkBikeNC

BETTER HEALTH THROUGH ACTIVE TRANSPORTATION

The City of Hickory can make strides to improve community health by improving streets that are unsafe for walking and bicycling, thereby creating more opportunities for healthy living and active transportation. Using active transportation to and from school, work, parks, restaurants, and other routine destinations is one of the best ways that children and adults can lead measurably healthier lives. Increasing one’s level of physical activity through walking and bicycling reduces the risk and impact of cardiovascular disease, diabetes, chronic disease, and some cancers. It also helps to control weight, improves mood, and reduces the risk of premature death.⁹

- » Two 14-year studies of more than 60,000 people investigated if total physical activity, as well as different types of physical activity, were associated with heart failure risk. It found that **walking or bicycling at least 20 minutes per day was associated with the largest risk reduction of heart failure.**¹⁰
- » Active transportation (i.e., biking and walking) can dramatically improve health by **reducing and preventing not only incidences of obesity, but community levels of diabetes, stroke, and heart disease**, as noted in the figure above.

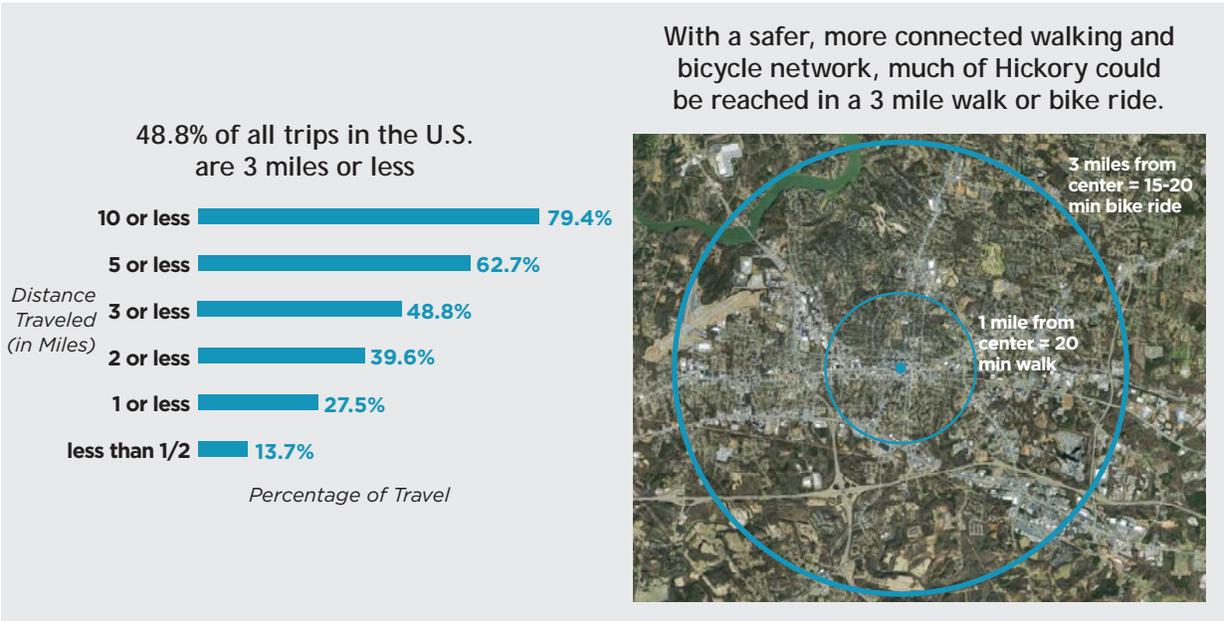
ECONOMIC IMPACTS OF ACTIVE TRANSPORTATION

ECONOMIC TRENDS IN NORTH CAROLINA

Bicycle and pedestrian facilities generate economic returns by raising property values, supporting local businesses and jobs, and attracting visitors. Below are some key economic trends related to bicycling and greenway trails in North Carolina:

- » A combined three-year study of four greenways in North Carolina (including the American Tobacco Trail) found that **every \$1.00 of initial trail construction supports \$1.72 annually from sales revenue, sales tax revenue, and benefits related to health and transportation.**¹¹
- » A study of the behavioral effects of completing a critical link in the American Tobacco Trail (ATT) found that with the connection installed over I-40, use of the ATT increased by 133%, with an additional \$3.7 million spent annually on goods and services for those using the trail. The research also portrayed exceptional gains in the amount of physical activity occurring.¹²
- » The cost of purchasing and maintaining a bicycle to an individual, and the cost of building and maintaining bicycle facilities to a community, is negligible compared to those same costs for cars and highways.

Daily Trip Distances of Americans Walk & Bike Trip Times in Hickory



More than half of all driving trips are for a distance of five miles or less. Even for those who are only willing to bike distances of one mile or less, there is potential to replace one-quarter (27.5%) of short driving trips with biking. Source: Bicycle and Pedestrian Information Center website, www.pedbikeinfo.org

- » Walking and bicycling, when it can be used in a community as a viable form of transportation, can at least partially replace car ownership and maintenance, keeping household disposable income available for other important wants and needs.

MOBILITY AND ACCESSIBILITY
BENEFITS OF ACTIVE
TRANSPORTATION

OPPORTUNITY TO INCREASE WALKING & BICYCLING RATES

According to the 2011 Bicycle and Pedestrian Safety Survey, at least 70 percent of North Carolinians would walk or bike more for daily trips if walking and bicycling conditions were improved. With appropriate accommodations, walking and bicycling can replace driving for commuting to work, running errands, or making other short trips.

Commute rates for walking and bicycling in North Carolina currently fall below the national average, with just 0.2% of North Carolina commuters bicycling to work and 1.8% walking to work, compared to 0.6% bicycling and 2.9% walking nationwide. This places North Carolina 43rd for both walking and bicycling commute rates in nationwide state rankings.³ **In Catawba County, approximately 0.1% of commute trips are made by bike, 0.9% by foot, and only 0.4% by public transit, all well below the state and national rates.⁶**

Hickory is fortunate in having banks, schools, parks, a library, offices, and agencies within downtown and nearby. However, without the safe facilities, such as sidewalks, street crossings, and bike lanes, access to the city's resources is limited—especially those without a vehicle.

More than 3% of Hickory workers do not have access to a vehicle (compared to 2.2% in North Carolina),¹³ and other segments of the population



cannot drive due to age, income, or physical disability (e.g., children under the age of 16 years, older adults who no longer drive, and those with mobility issues that prevent them from driving). Taken together, nearly 30% of the overall population does not drive.

In order to meet the mobility needs of all Hickory residents—those with and without a car—more walking and bicycling facilities are needed to improve access to the many downtown destinations and safely facilitate more short distance trips by walking and biking.

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The consultant team conducting fieldwork in January 2020.



Chapter 2: Existing Conditions



“[It] Would be nice to run/walk or bike into downtown Hickory and also along the lake and up to the Hickory Crawdads.”

- Survey respondent

LOCAL CONTEXT

The City of Hickory is a craftsman community located in Catawba County, North Carolina, at the foot of the Blue Ridge Mountains. The City has an approximate population of 40,925 residents.

Portions of the city have some of the highest mortality rates in the state of North Carolina due to various factors, including lack of physical activity. A better active living culture and supporting infrastructure is crucial to the public and economic health of the community and the region. The City is undertaking numerous greenway and complete street projects through state, federal, and local funding. Friends of Hickory have established a plan for an approximate 13-mile bike loop around the City. At the same time, LiveWell Catawba is undertaking a community health assessment to determine areas of highest need for active living and healthy lifestyle investments and programs.



CATAWBA COUNTY COMMUNITY HEALTH ASSESSMENT (2019)

The Community Health Assessment (CHA) provides extensive data analysis regarding health indicators and community input about residents' health and wellness. This includes health indicators affected by travel modes, active living, and access to mobility options and is cross-tabulated with demographic variables such as race and income. Updated every 4 years, the CHA provides an opportunity to track changes in health indicators across time.

The 2019 Catawba County Community Health Assessment found that the top three leading causes of death in the county are Cancer, Heart Disease, and Chronic Lung Disease.

Physical activity can impact these and other diseases, including mental health. A moderate level of exercise has been proven to reduce the risk of certain cancers, heart failure, and lung conditions including Asthma. Despite these and many other benefits for physical and mental health, the CHA found that 24.8% of adults over the age of 20 reported that they engaged in no physical activity for leisure, compared to the statewide reported inactivity of 23% of adults over the age of 20.

The majority of those who do exercise do so at their home, but many take to walking tracks or trails to engage in physical activity. While Hickory has many parks, the opportunities to walk on trails is limited within the city.

One of the other opportunities to engage in regular physical activity is through an active commute, including commuting by public transit. For a variety of reasons, the majority of commuters travel alone in their vehicles. Incentivizing an active commute, whether through built improvements, encouragement, or incentive programs, may help the community's overall health.

Transportation

Nearly 3/4 of survey respondents said they wanted more transportation options in the county.



HOW RESIDENTS GET TO WORK

Average travel time to work is 22.6 minutes

Drove alone.....	84.8%	Bicycle.....	0.1%
Carpool.....	8.7%	Taxi, motorcycle or other..	2.0%
Public transportation.....	0.2%	Worked at home.....	3.4%
Walk.....	0.9%		



Motor vehicle collision injuries: 9,857
Bicyclists hit by motor vehicles: 85
Pedestrians hit by motor vehicles: 174
EMS transports for motor vehicle accidents: 2,472



Residents of WALKABLE COMMUNITIES are 2x as LIKELY TO MEET PHYSICAL ACTIVITY GUIDELINES compared to those who do not live in walkable neighborhoods



For every 0.6 MILE WALKED there is a 5% REDUCTION IN THE LIKELIHOOD OF OBESITY



A minimum of 20 MINUTES OF PHYSICAL ACTIVITY, 3X WEEK, STRENGTHENS THE LUNGS, including those of individuals living with asthma

 20 MINUTES WALKING OR BIKING each day is associated with **21% LOWER RISK OF HEART FAILURE FOR MEN** and **29% LOWER RISK FOR WOMEN**

 MODERATE EXERCISE for 30-60 minutes a day REDUCES THE RISK OF LUNG, BREAST AND COLON CANCER by a minimum of **20%**

 PHYSICAL ACTIVITY HELPS PREVENT OR DELAY ARTHRITIS, OSTEOPOROSIS AND DIABETES, while helping maintain balance, mental cognition, and independence



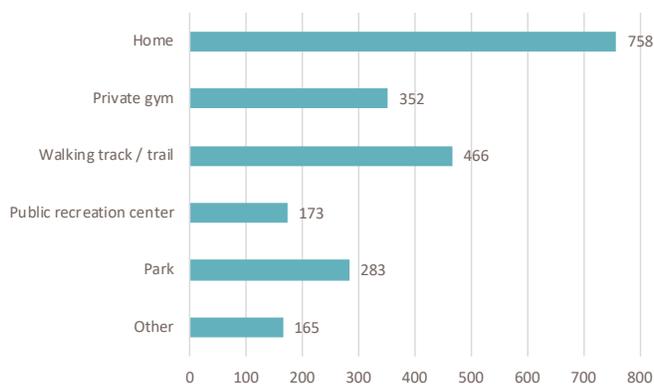
Physical Activity

N.C. MEDICAID RECIPIENTS' PHYSICAL ACTIVITY

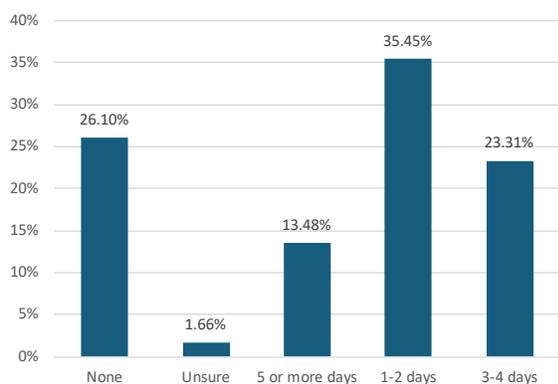
61.6% of N.C. Medicaid recipients reported engaging in leisure-time physical activity or exercise in the past 30 days.



WHERE RESIDENTS EXERCISE (OUTSIDE OF WORK) SELF-REPORTED IN THE COMMUNITY HEALTH OPINION SURVEY

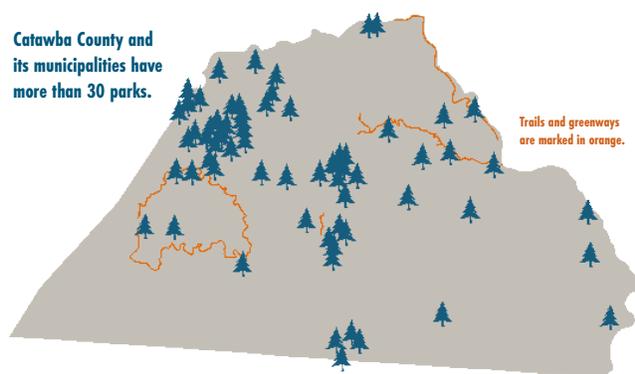


More than 1 in 4 respondents in the Community Health Opinion Survey said they did not engage in any physical activity during their out-of-work time that lasts at least half an hour.

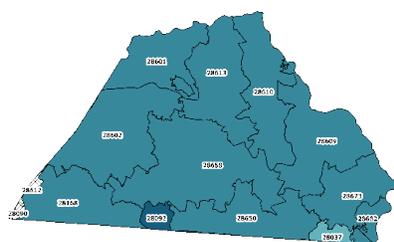


PARKS, WALKING TRACKS AND TRAILS IN CATAWBA COUNTY

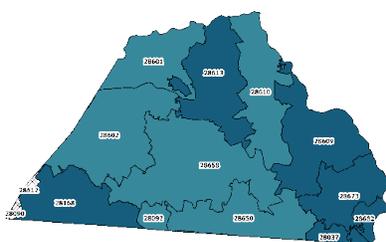
Catawba County and its municipalities have more than 30 parks.



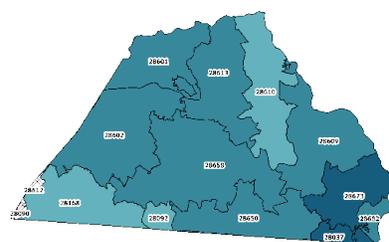
The U.S. Department of Health and Human Services recommends that healthy adults engage in physical activity at least 150 minutes a week (30 minutes a day, 5 days a week). Adults who took the Community Health Opinion Survey and lived in the southeastern portion of Catawba County were the most likely to meet this recommendation, while adults in the 28092 ZIP code were most likely to report engaging in no physical activity.



NONE



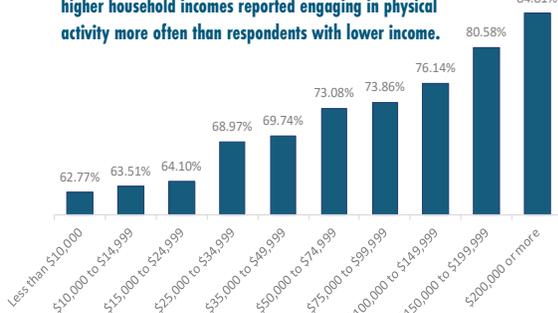
1-2 DAYS



5 DAYS (RECOMMENDED)

RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND INCOME

Community Health Opinion Survey respondents who had higher household incomes reported engaging in physical activity more often than respondents with lower income.



INDIVIDUALS ENGAGING IN PHYSICAL ACTIVITY 5+ DAYS A WEEK

Among Community Health Opinion Survey respondents, men (16.4%) were more likely to engage in physical activity at least five days a week than women (12.5%).

SOURCES:

- » Community Health Opinion Survey, 2019
- » Centers for Disease Control and Prevention. (2019). Obesity, Total, Adults Aged 20+ Years, Age-Adjusted Percentage, Catawba County, 2013 and 2016. Retrieved from <https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html>.
- » County Health Rankings & Roadmaps. (2019). Catawba County Profile - Adult Obesity. Retrieved from: <http://www.countyhealthrankings.org/app/north-carolina/2019/rankings/catawba/county/outcomes/overall/snapshot>.
- » The North Carolina Partnership for Children. (2019). Community Early Childhood Profile - Catawba County- Smart Start's Measures of Impact- Final Results for Fiscal Year 2017-2018.
- » Eat Smart Move More North Carolina. (2019). North Carolina Pediatric Nutrition and Epidemiology Surveillance System (NC-PedNESS). Retrieved from <https://www.eatsmartmovemorenc.com/facts/#facts-dataChildren>.
- » North Carolina Division of Health and Human Services State Center for Health Statistics. (2018). BRFSS (Behavioral Risk Factor Surveillance System) Data for Adults in North Carolina Enrolled in Medicaid- 2018 BRFSS Medicaid Data Table. Retrieved from <https://schs.dph.ncdhs.gov/data/brfss/medicaid/>



Demographic and transportation data from Hickory and Catawba County provide additional local context.

INCOME & PROSPERITY

- » Hickory’s 2019 median household income was \$46,390. This is lower than the state median income of \$52,413.
- » 16.3% of Hickory’s residents live below the poverty line, compared to 14% of North Carolinians.
- » 23% of Hickory’s residents work in the manufacturing sector, followed by 20% in education.

TRANSPORTATION

- » The majority of households in Hickory have at least one vehicle available to them for daily transportation, with many households having two or more. **5% of households do not have access to a vehicle, and this figure is higher for renting households.** Because most residents have access to at least one vehicle, there is a lower demand for public transportation, walking, and bicycling as primary modes of transportation for the majority of the community.
- » In 2016, about 81% of Hickory workers commuted to jobs by driving alone, while 8.7% of workers commuted as part of a carpool. 2.1% of commuters take advantage of transportation options such as walking, biking, or transit.
- » 79% of Catawba County residents work within the county, with an average commute time

of 20 minutes. This is lower than the average commute time in North Carolina of 24 minutes. Catawba County also attracts workers from neighboring counties within the Hickory MSA.

- » In 2018, there were 2,370 reported vehicle crashes in Hickory. 23 involved pedestrians, and 2 involved cyclists. Of these pedestrian and bicycle crashes, zero were reported as fatalities (NCDOT North Carolina 2018 Traffic Crash Facts).
- » 1.2% of Hickory workers walk to work, lower than the North Carolina average of 1.8%.

PEDESTRIAN & BICYCLE NETWORK

Today, Hickory’s downtown and immediate surroundings are generally accessible by a network of sidewalks. There are substantial gaps in the network, especially further from downtown. Some major thoroughfares have sidewalk gaps and lack crosswalks or other crossing opportunities.

Hickory’s bike network is very limited and is primarily made up of a handful of disconnected bike lanes and shoulders, as well as a few miles of off-street paths. The neighborhood streets with low traffic volumes and low speeds offer options for bicycles to recreate, but serve a limited number of destinations. Major thoroughfares pose barriers to bicyclists.

Expanding bicycle and pedestrian facilities to enhance the city’s mobility options is a priority for the City of Hickory.



Members of the public providing input on existing conditions for bicycling and walking in Hickory.

CURRENT CONDITIONS

Maps 2.1-2.5 and Table 2.1 that follow describe key opportunities and challenges in Hickory related to current conditions for walking and bicycling, and provide a basic inventory of existing facilities, destinations, and conditions. It is based on input from the Steering Committee, general public, field review, and available data.

KEY TAKEAWAYS

- » The immediate downtown area is walkable; improved railroad crossings and other enhancements could enhance pedestrian and bicycle **access to surrounding neighborhoods**.
- » Many sidewalks in Hickory do not meet **minimum accessibility standards** set forth by the Americans with Disabilities Act of 1990. Crossings lack pedestrian amenities and connectivity.
- » Most major roadways lack dedicated bicycle facilities. Some roads have **oversized travel lanes** that could be re-configured with bike facilities and traffic calming elements.
- » **Driveway consolidation** may be necessary along some roads to maintain a safe and comfortable pedestrian zone.

PHOTO INVENTORY ISSUES AND OPPORTUNITIES



Most major roadways lack dedicated bicycle facilities. Oversized drive lanes along some streets could provide space for bike lanes.



While sidewalks are present along many streets, some are impeded or require repairs.



Existing grade and utilities make sidewalk widening or installation challenging in some locations.



Amenities such as these bus shelters and artistic benches in Hickory promote transit use.



Many intersections lack pedestrian signals and marked crosswalks.



Crossings lack designated pedestrian space. There are unnecessary driveways/curb cuts along many roads.



Concrete parking stops are another example of impedents along the narrow sidewalk.



A number of high-stress interchanges and intersections lack bicycle and pedestrian facilities.



Some sidewalks lack curb ramps and limit accessibility.



This potential pedestrian space is unclear and fragmented by driveways and utilities.



Details such as sidewalk misalignment with the crosswalk are overlooked in certain instances.



The sidewalk transition to curb ramp is sometimes narrow and does not meet accessibility standards.



Some utility poles impede the pedestrian space.



Sidewalk lacks curb ramps and does not meet ADA-accessibility standards.



Flashing beacon provides enhanced visibility for pedestrian crossings on 8th Avenue NE.



Street lacks marked crosswalk.



Table 2.3 Inventory of Select Roadways

Roadway	Predominant Pavement Width (LF)	Number of Lanes	AADT*	Speed Limit (MPH)	Presence of Curb + Gutter	Presence of Sidewalks	Presence of Bike Facility
10th Ave Dr SE	22	2	2,500	35	no	no	no
10th St Pl NW/16th Ave NW/11th St NW	20	2	unavailable	25	yes	no	no
12th Ave NW	30	2	12,000	35	one side	no	shared lane markings
12th St Dr NW/21st Ave NW/6th St NW	27	2	2,400	35	yes	no	paved shoulders
14th Ave Dr NW	24	2	unavailable	25	yes	no	paved shoulders
16th Ave NW (west of 4th St NW)	24	2	unavailable	35	south side	no	no
16th Ave NW (east of 4th St NW)	52	4	14,000	35	yes	no	no
17th St NW	22	2	2,500	25	no	partial	bike lanes (partial)
19th St SW	20	2	2,200	45	no	no	no
1st Ave NW	30	2	unavailable	35	yes	partial	no
1st Ave SW (one way)	30	2	6,600	25	yes	partial	no
23rd St NW	20	2	unavailable	35	no	no	no
27th St NW	25	2	unavailable	35	varies	no	no
2nd Ave NW (one way)	30	2	6,600	25	yes	partial	no
2nd Ave SW (one way)	24	2	5,900	35	yes	partial	no
2nd St NW (north of 16th Ave NW)	20	2	1,300	25	no	no	no
3rd Ave NW (one way)	30	2	5,500	25	yes	partial	no
3rd St Dr SW	22	2	unavailable	35	yes	partial	no
3rd St NW	48	2	unavailable	20	yes	partial	no
4th St Dr NW	24	2	4,400	35	varies	partial	no
4th St NW	24	2	4,700	35	yes	yes	no
4th St SW	50	4	7,200	35	yes	yes	no
5th St NE	32	3	10,000	25	yes	partial	bike lanes (partial)
8th Ave NE	63	2-4	unavailable	25	yes	yes	no
6th Ave SW	20	2	unavailable	25	yes	partial	no
6th St NW	28	2	unavailable	35	yes	partial	no

*AADT = Annual average daily traffic

Source: NCDOT Roadway Data (2014-2018) and Google Earth Imagery Data from 8/1/2020.

Table 2.3 Inventory of Select Roadways (Continued)

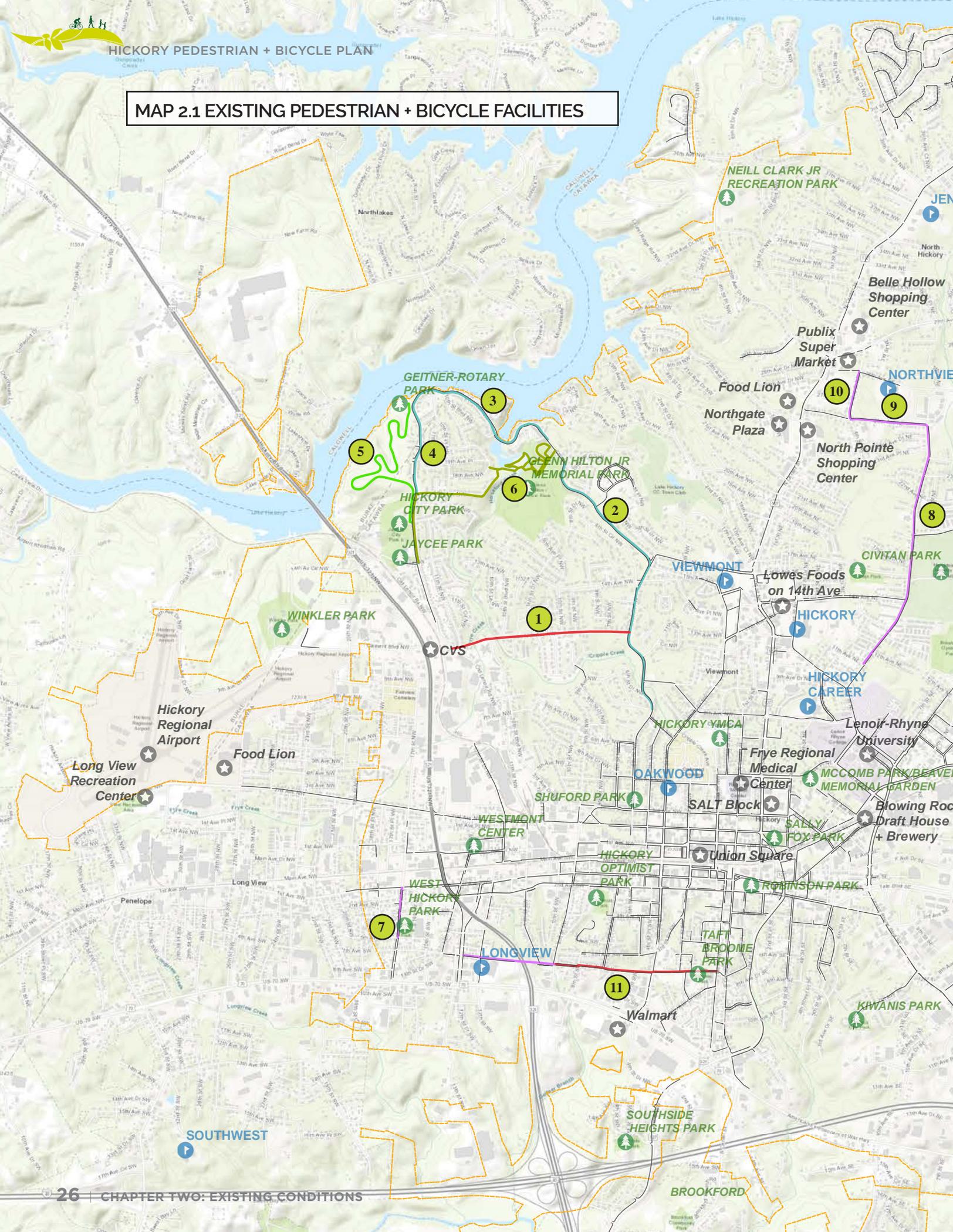
Roadway	Predominant Pavement Width (LF)	Number of Lanes	AADT*	Speed Limit (MPH)	Presence of Curb + Gutter	Presence of Sidewalks	Presence of Bike Facility
C Ave SE	22	2	unavailable	35	no	no	no
8th St Dr NE	48	4	6,300	35	yes	partial	no
8th St NE (one way)	32	3	8,600	35	yes	yes	no
9th Ave SE	22	2	unavailable	35	no	partial	no
Falling Creek Rd NE	20	2	unavailable	35	no	no	no
Main Ave NW	20	2	1,100	35	no	partial	no
NC 127	60	5	18,000	45	yes	partial	no
Tate Blvd SE	64	4	14,000	45	no	no	no

*AADT = Annual average daily traffic

Source: NCDOT Roadway Data (2014-2018) and Google Earth Imagery Data from 8/1/2020.



MAP 2.1 EXISTING PEDESTRIAN + BICYCLE FACILITIES



MAP 2.1 EXISTING PEDESTRIAN + BICYCLE FACILITIES

ABOUT THIS MAP

This map features existing pedestrian and bicycle facilities in Hickory, consisting of sidewalks, sidepaths, greenways, bike lanes, shared lane markings, paved shoulders, and trails within parks.

EXISTING BICYCLE FACILITIES

1. 12th Avenue NW Shared Lane Markings
2. 6th Street NW Paved Shoulders
3. 21st Avenue NW Paved Shoulders
4. 12st Street Drive NW Paved Shoulders
5. Geitner Park Trail
6. Glen C. Hilton Jr. Memorial Park Trails
7. 17th Street SW Bicycle Lanes
8. 5th Street NE Bicycle Lanes
9. 26th Avenue NE Bicycle Lanes
10. 2nd Street NE Bicycle Lanes
11. 7th Avenue SW Shared Lane Markings

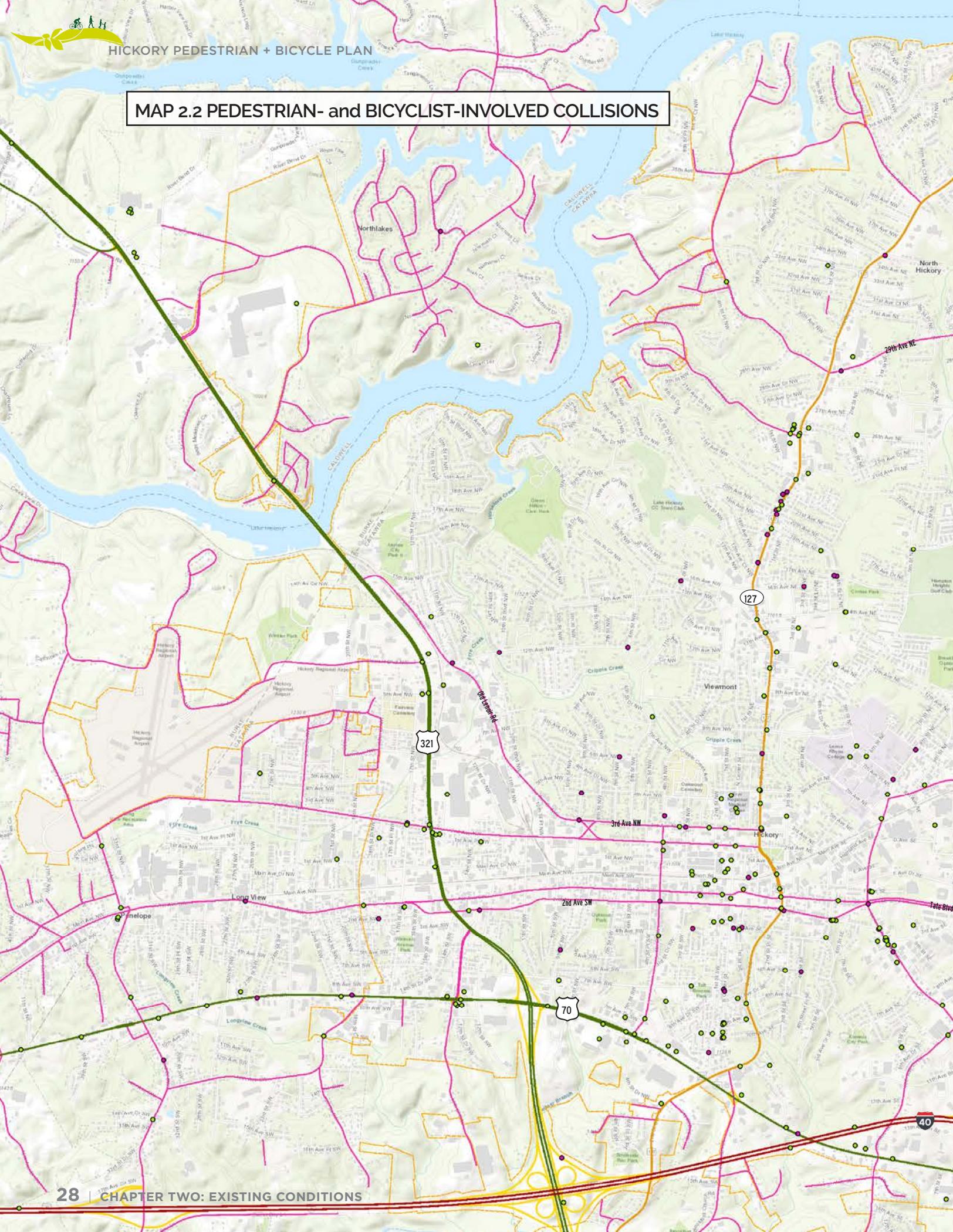
-  Key Destinations
-  Public Schools
-  Parks

-  Sidewalks
-  Greenway
-  Bike Lane
-  Sharrow
-  Wide Shoulder
-  Bike Route
-  Hickory City Limits





MAP 2.2 PEDESTRIAN- and BICYCLIST-INVOLVED COLLISIONS



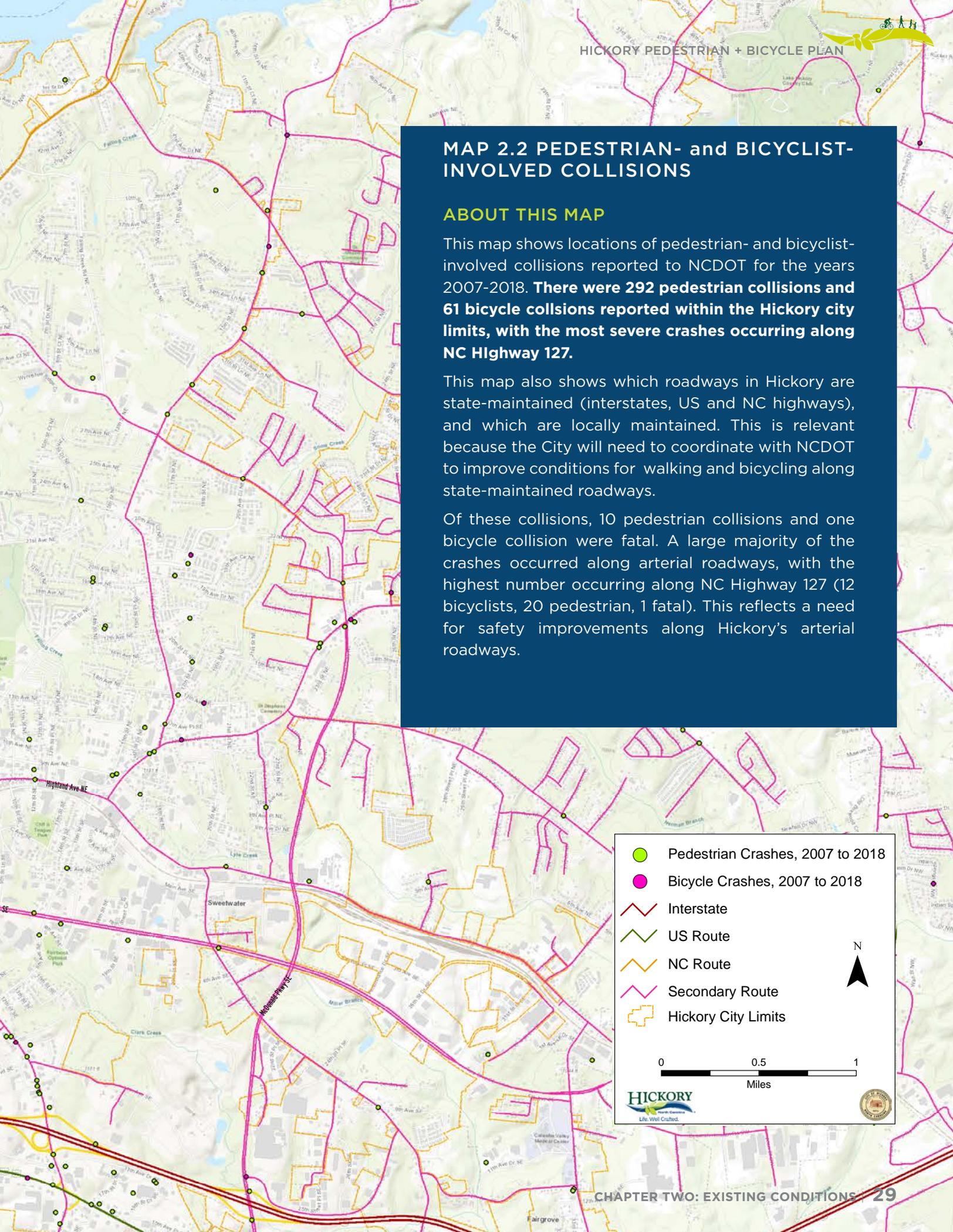
MAP 2.2 PEDESTRIAN- and BICYCLIST- INVOLVED COLLISIONS

ABOUT THIS MAP

This map shows locations of pedestrian- and bicyclist-involved collisions reported to NCDOT for the years 2007-2018. **There were 292 pedestrian collisions and 61 bicycle collisions reported within the Hickory city limits, with the most severe crashes occurring along NC Highway 127.**

This map also shows which roadways in Hickory are state-maintained (interstates, US and NC highways), and which are locally maintained. This is relevant because the City will need to coordinate with NCDOT to improve conditions for walking and bicycling along state-maintained roadways.

Of these collisions, 10 pedestrian collisions and one bicycle collision were fatal. A large majority of the crashes occurred along arterial roadways, with the highest number occurring along NC Highway 127 (12 bicyclists, 20 pedestrian, 1 fatal). This reflects a need for safety improvements along Hickory's arterial roadways.



- Pedestrian Crashes, 2007 to 2018
- Bicycle Crashes, 2007 to 2018
- Interstate
- US Route
- NC Route
- Secondary Route
- Hickory City Limits

N

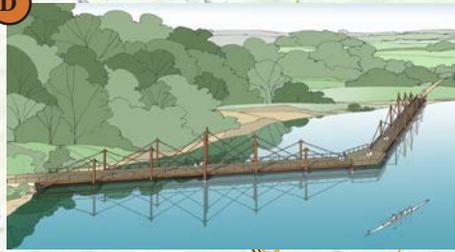
0 0.5 1
Miles

HICKORY
North Carolina's
 Life. Well Lived.

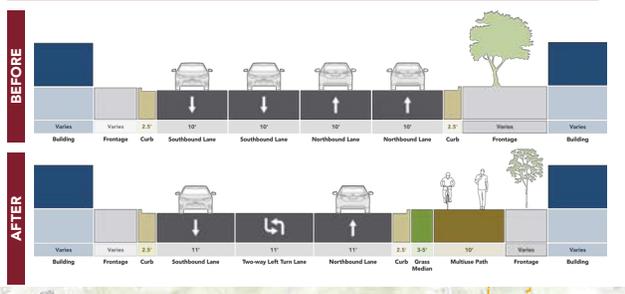




MAP 2.3 IN-DEVELOPMENT PEDESTRIAN + BICYCLE FACILITIES and FUNDED HIGHWAY PROJECTS



OLD LENOIR ROAD TYPICAL CROSS SECTIONS





MAP 2.3 IN-DEVELOPMENT PEDESTRIAN + BICYCLE PROJECTS and FUNDED HIGHWAY PROJECTS

ABOUT THIS MAP

This map features multi use path projects that are currently funded and in various stages of development and/or construction. These **multi use paths are named and numbered in the legend below.**

It also depicts funded highway projects that are scheduled for improvement in the next 5 to 10 years. These highway projects will be an opportunity to incorporate pedestrian and bicycle facilities along these roadways (with the exception of I-40).

FUNDED HIGHWAY PROJECTS

1. NC Highway 127
2. 29th Avenue NE and 24th Street NE
3. 16th Street NE (between 21st Avenue NE and 29th Avenue Drive NE)
4. 16th Street NE, 12th Avenue NE, and Springs Rd NE
5. US Highway 321
6. 2nd Avenue SE and 2nd Street SE
7. Lenoir Rhyne Boulevard SE
8. Interstate 40

- A** City Walk
- B** 9th St NW
- C** Old Lenoir Rd
- D** Riverwalk
- E** Book Walk
- F** BUILD Projects
- G** Hickory Urban Bike Loop
- Highway Funded Projects
- Hickory City Limits





PREVIOUS PLAN REVIEW

The following section summarizes the recommendations in previously adopted plans for the City as they relate to the future of walking and bicycling in Hickory.

HICKORY BY CHOICE 2030 COMPREHENSIVE PLAN (2017)

The long-range Hickory By Choice 2030 Comprehensive Plan serves to guide the development and preservation of Hickory's land use, transportation, natural resources, and parks. The plan was published in 2010 and updated in 2017. Within the transportation chapter of the plan objectives for planning for a system of better pedestrian and bicyclist accommodations are highlighted, directing the reader to refer the Sidewalk, Bikeway, Greenway, and Trail Master Plan for specific bicycle and pedestrian guidelines and recommendations. The priorities for encouraging walkability through both land use and transportation improvements within the long-range plan sets a foundation upon which this plan's priorities and recommendations build.

SIDEWALK, BIKEWAY, GREENWAY + TRAIL MASTER PLAN (2005)

The Hickory Regional Planning Commission and the Hickory Recreation Commission published the City's Sidewalk, Bikeway, Greenway, and Trail Master Plan. The plan's primary objectives and goals are to support the mobility needs, safety, and quality of life of the city through bicycle and pedestrian facilities, education,

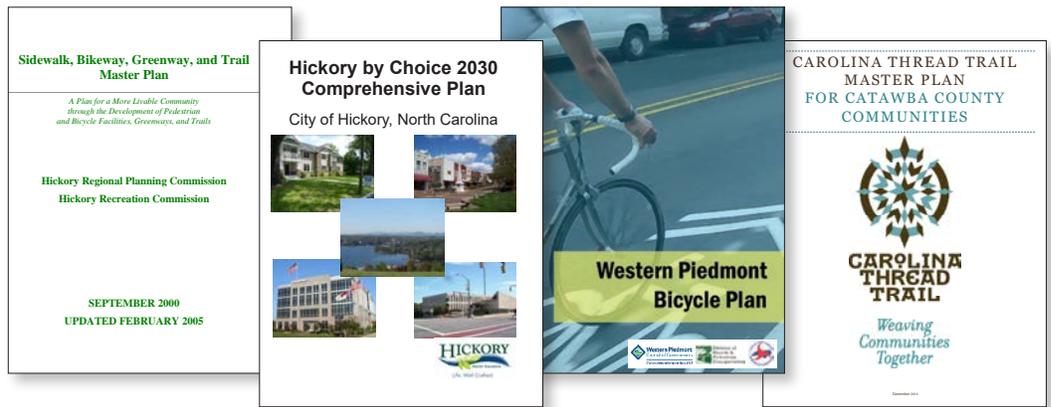
enforcement, and encouragement. Facilities should be integrated with schools, open space, transit, and land development planning. The plan outlines AASHTO guidance in order to determine under what roadway conditions sidewalks should be installed, as well as the types of bicycle facilities based on AASHTO's *Guide for the Development of Bicycle Facilities* (1991). Network recommendations consist of 137 miles of sidewalks, 132 miles of bikeways, and 8.8 miles of greenway. The recommendations and goals in this master plan establish the baseline for which the recommendations in the Pedestrian and Bicycle Plan are developed.

CATAWBA COUNTY HEALTH PARTNERS WALKABILITY STRATEGIC ACTION PLAN (2011)

The Walkability Strategic Action Plan aims to create a culture of walkability by identifying and promoting safe and accessible pedestrian routes in the community. This plan outlines 7 objectives for the City of Hickory, including the following:

- » Assessment of the current assets and barriers to walking
- » Identification of community partners and leadership within the community for outreach and programmatic recommendations
- » Development of walkable routes and promotion of these routes through data sharing and communication.

Many of the aforementioned objectives are undertaken within current planning efforts and this plan.



Sampling of cover pages from previous planning reports.

WESTERN PIEDMONT BICYCLE PLAN (2013)

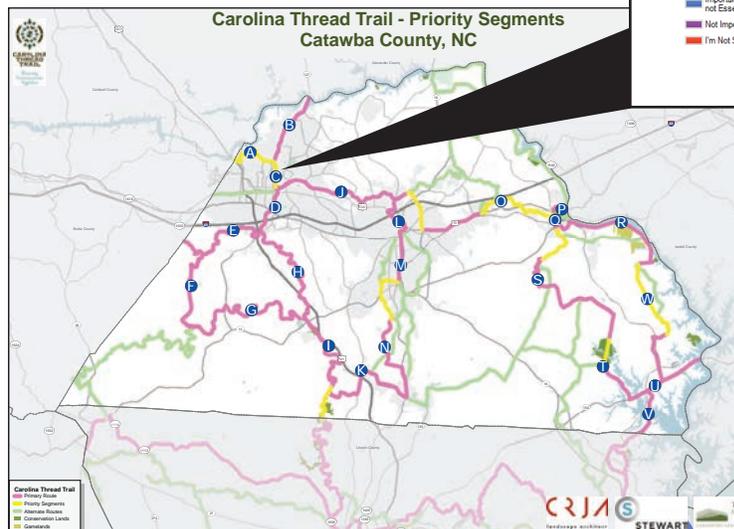
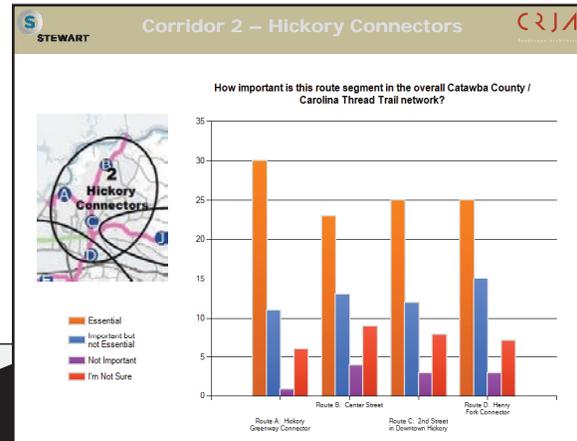
Covering the counties of Alexander, Burke, Caldwell, and Catawba, the Western Piedmont Bicycle Plan makes recommendations on priority segments that connect to points of interest (POIs) within this region. Downtown Hickory is identified as one of the primary POIs in Catawba County. Priority Segments connect Hickory to surrounding Cities; recommendations include a combination of sharrows, bike lanes, and warning signage on Hickory streets. The plan also identifies off-road projects, including a greenway along Main Avenue NE and a pedestrian bridge over NC-127.



(Above) A map from the Western Piedmont Bike Plan with recommendations for the City of Hickory.

CAROLINA THREAD TRAIL MASTER PLAN (2011)

The Carolina Thread Trail (CTT) is a regional network of interconnected trails throughout 15 counties of the Piedmont Region, adopted by the local constituent governments. The Master Plan identifies Hickory connectors based on recommendations from previous plans and establishes connections to major destinations within Hickory (e.g. the SALT Block and Ivey Arboretum). CTT-identified corridors and connections to major destinations are reflected in this plan.



(Left and above) Priority Segments Map for Catawba County from the CTT Master Plan. The inset map points to Hickory on the map.



PUBLIC INPUT ON EXISTING CONDITIONS

Public input related to bicycling in Hickory has been collected through various processes over the past several months, helping to inform this planning process from the outset. Outreach for Walk Bike Hickory was conducted through the city’s webpage, a public survey/comment form, and public workshops. Steering committee members and City staff helped to spread the word about Walk Bike Hickory, especially in advance of public meetings.

OPEN HOUSE #1

The first Open House for the Hickory Pedestrian and Bicycle Plan was held on February 27, 2020 at Ridgeview Recreation Center in Hickory from 5:00-7:00pm. Approximately 35 people visited, including citizens, city council members, members of the Friends of Hickory Bicycle Advisory

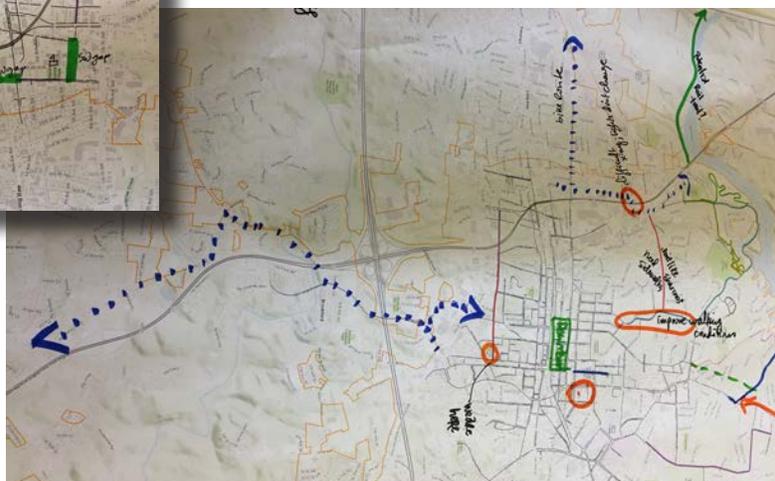
Committee, City Staff, representatives from the local health department and health care system, and Steering Committee members. Participants in the Open House were given information about the project and were encouraged to participate by reading the information boards, some of which had space for the participants to “vote” on ideas, projects, and general information that resonated with themselves or their families. Participants indicated they “liked” or “voted” for the various items on posters by placing a sticker next to the item(s). Additionally, maps were on display in which stakeholders were encouraged to indicate their frequented destinations and/or corridors that they like to use for walking and biking or ones that have room for improved pedestrian and/or bicycling accommodations. Key take-aways are summarized on the following pages.

Mapping Exercise and Comments:

Large-format maps showing existing conditions and upcoming road projects were on display on tables for participants to mark their thoughts, ideas, and concerns regarding opportunities and constraints for bicycling in Hickory.

Emergent themes included:

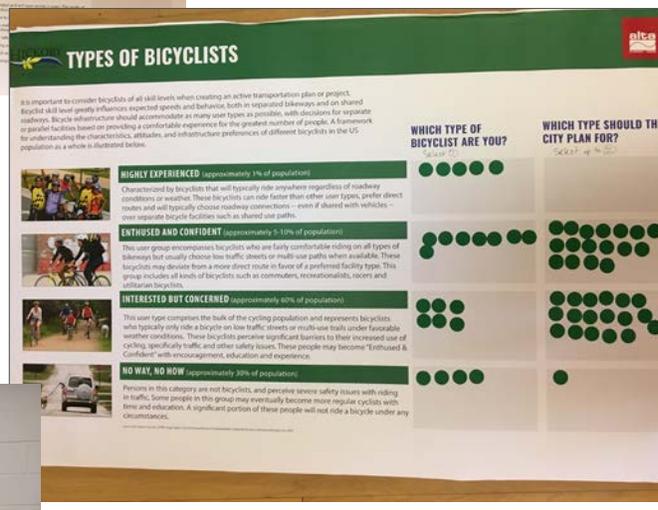
- » Sidewalk gaps are present along some major corridors as well as small gaps throughout downtown. Gaps were highlighted most frequently in locations surrounding schools and places of interest.





- » Key corridors have the potential to have a road diet or a lane diet to make them more friendly for pedestrians and bicyclists.
- » Increasing the opportunities for crossing major roads should be considered.
- » Lighting for pedestrians is lacking in many places.
- » Destinations include shopping centers, parks, hospitals, schools (including LRU and CVCC), and downtown including SALT Block and the YMCA.

Information Boards: the “Types of Bicyclists” board offered a chance for participants to learn about the generally-regarded types of bicyclists that exist under a planning and design framework. From this information, participants indicated which type of bicyclist they consider themselves and what type of bicyclist(s) the network in Hickory should accommodate. Both of these pieces of information serve to guide the planning process. While participants at the meeting represented each type of bicyclist, most agreed that





planning and designing for the ‘Enthusied and Confident’ and ‘Interested but Concerned’ riders was their top priority.

The “Walk and Bike Programs” board presents various examples of non-infrastructure programs that can encourage active transportation and educate the community about active transportation safety, benefits, and incentives. While most participants could see the benefits of all of the programs, the highest-voted programs were ‘Walk- and Bike-Friendly Community’ (20 votes), ‘Open Street Events/Cyclovias’ (12 votes), ‘Educate motorists, cyclists, and pedestrians’ (11 votes), and ‘Wayfinding Signage Program’ (9 votes).

WALK BIKE HICKORY PUBLIC SURVEY

A survey was available for public responses between Fall 2019 and Winter 2020. The survey was available to be taken both online and printed. Respondents shared their experiences walking and biking in Hickory, including their common reasons for walking and biking, their comfort while doing so, and their suggestions for improving walking and biking in Hickory. The summary of responses is presented on this and the following pages. Long-form comments offer additional feedback and a selection of these comments are presented throughout these pages. These responses express some of the most common sentiments of Hickory residents and visitors.

RESPONDENT INFORMATION

- » 82% of respondents drive alone in their vehicle every day
- » 69% of respondents rarely or never carpool
- » 76% of respondents walk every day or a few times per week
- » 1/4 of the respondents never bicycle
- » 90% of respondents were from residents of Hickory
- » The most common respondent was a white male between the ages 46-64.
- » Respondents were most likely to live in a household earning \$50,000-\$99,000, with 7% of respondents of households earning less than \$49,999 yearly
- » More than 80% of respondents have earned a Bachelor’s or Graduate degree.

To where would you walk and bike if safe, comfortable routes were accessible?



As most neighborhoods do not have sidewalks, we have to travel by car to those that do to enjoy a good walk.

Access to downtown and schools would be ideal.

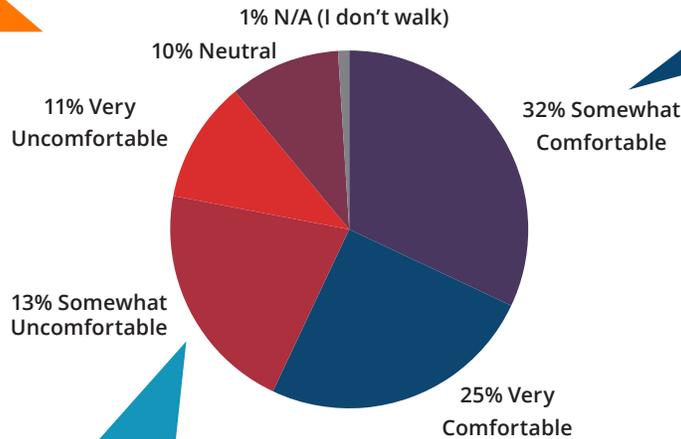
I would walk and bike everywhere if it felt safe. It is much more fun than driving.



How comfortable do you feel walking and biking in Hickory?

I have to walk down many roads, with a young child, that don't have a sidewalk, just to get to family activities/shopping/recreational areas. I constantly have to avoid speeding cars and I don't feel safe.

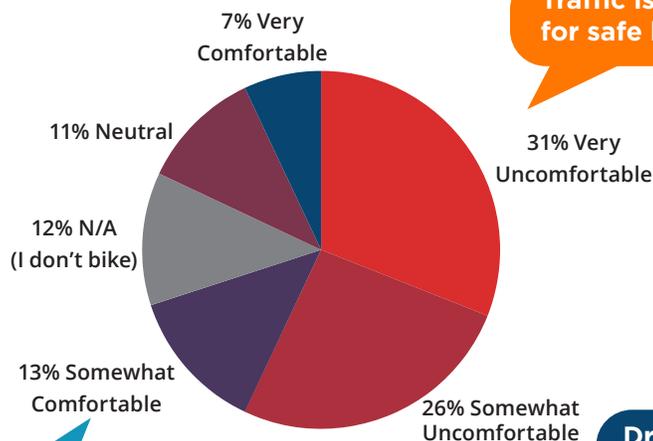
WALKING



I feel somewhat comfortable walking because I feel Hickory is relatively safe. However, there are not currently enough sidewalks (although I see that improving little by little).

Biggest issue with walking in Hickory is that the sidewalks don't connect and aren't consistent on one side of the road. You may have to cross a major road, not at an intersection, in order to continue walking on a sidewalk.

BIKING



Traffic is too heavy and fast for safe biking on streets

I'm a female, so I always feel safer biking than walking.

Drivers sometimes seem to think cyclists are not permitted on the road. They pass too closely even when there are few other cars and additional lanes available.



WHAT ARE YOUR TOP PRIORITIES FOR WALKING & BIKING IMPROVEMENTS?

80% Paved off-street paths/trails/greenways

64% Comfortable on-street bike facilities

44% Safer crossings at major streets

43% Unpaved paths/dirt trails

41% Comfortable sidewalks

22% Better pedestrian lighting

8% Directional signage and wayfinding

6% Other

I would like a more robust network of sidewalks and crosswalks.

“Driver education”

“Places to park bikes”



WHAT WE HEARD

Featured below are comments that best represent the majority of the written feedback received.

Once I get downtown, I feel comfortable walking around, but my house does not connect well to other locations

Having more connected community with sidewalks and bike paths will foster a healthier and happier community. If more sidewalks were in Hickory, I would feel that I could safely walk with my daughter to explore the city.

I would like to see more sidewalks and bike routes around the city. I would like to see them from my house to the Greenway, Recreational areas, Parks, and the lake.

I would like to integrate walking and biking into all of my daily activities- work, shopping, and entertainment. I would LOVE Hickory to be known as being super supportive of cyclists and pedestrians

Drivers do not respect pedestrians at crosswalks and driveways. Drivers do not respect cyclists in their lane.

I've always desired an easier, more enjoyable way to walk, and especially bike in the community. I would walk/bike instead of drive as much as possible. This would greatly increase the appeal of the city; biking for food, coffee, light shopping, visiting friends, and recreation would be great.

I can't [walk]. Not enough sidewalks.

Since the Pandemic, it has been wonderful to see people out and about. Thankfully, many who have stayed at home and have used this time to get exercise have frequently walked on along North Center Street. While the Pandemic has been tragic for so many, it has also been a wonderful gift for neighbors to once again reconnect.





*Bike racks near
Union Square*



Chapter 3: Recommendations



“I would like to integrate walking and biking into all of my daily activities—work, shopping, and entertainment. I would LOVE Hickory to be known as being super supportive of cyclists and pedestrians.”

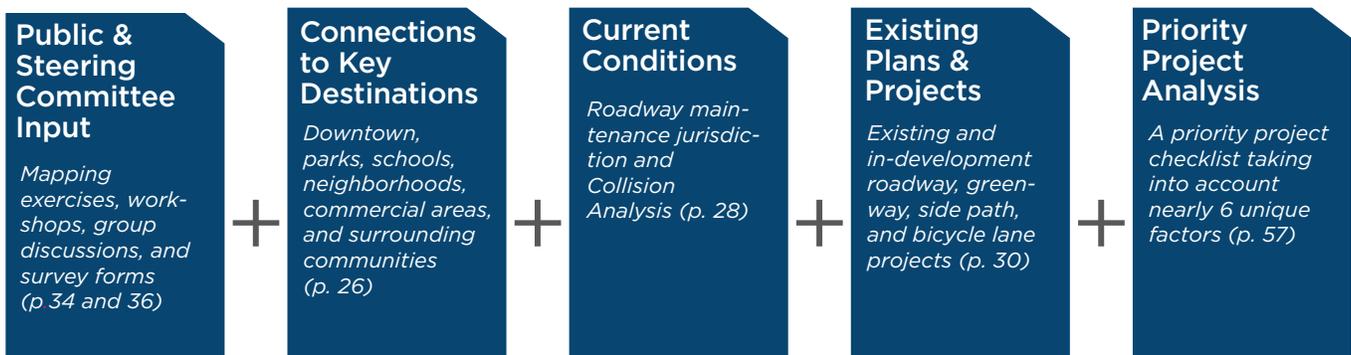
- Survey respondent

OVERVIEW

This chapter outlines the recommendations for making Hickory safer and more enjoyable for walking and bicycling, with improved connections within city and beyond. A diverse mix of facilities are recommended to create these connections, taking into account the needs of pedestrians with varying levels of mobility as well as different types of bicycling (recreational versus transportation). In addition to the infrastructure recommendations that make up the bulk of this chapter, program recommendations are also included to further meet the goals of this plan.

Recommendations were developed based on information from several sources: Public and Steering Committee input, obtained through facilitated meetings, in-person workshops and public comment forms; connectivity to destinations; review of current roadways and facilities; existing plans and projects, and a prioritization process. These sources form the basis of recommendations in this chapter.

BASIS OF RECOMMENDATIONS



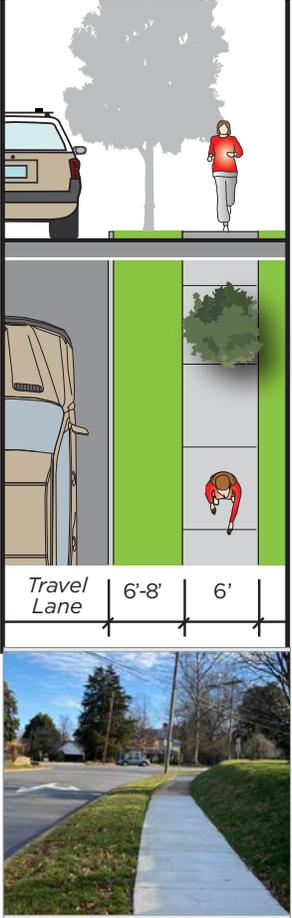
- Map 3.1: Pedestrian Facility Recommendations
- Map 3.2: Bicycle Facility Recommendations
- Map 3.3: Hickory Urban Bike (HUB) Loop
- Map 3.4: Bicycle Facility Prioritization
- Map 3.5: Priority Projects



PEDESTRIAN + BICYCLE FACILITY TYPES SUMMARY

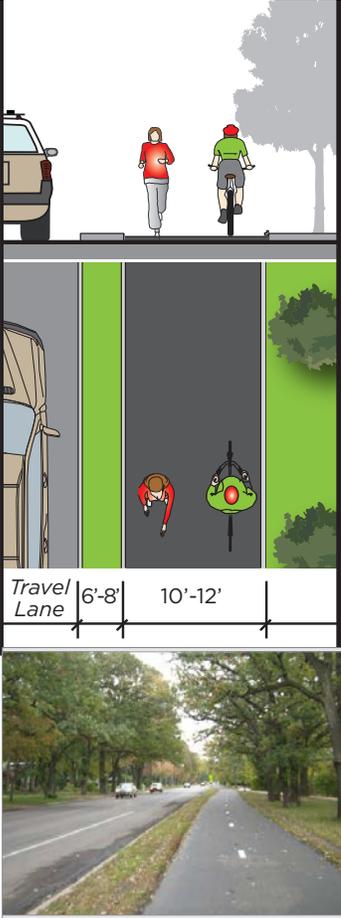
These are diagrams of the primary facility types recommended in this plan. See the maps (and legends) starting on page 52 to see where these different types of facilities are recommended in Hickory. For more information on facility design, please see the design references and resources in Appendix B.

Sidewalks



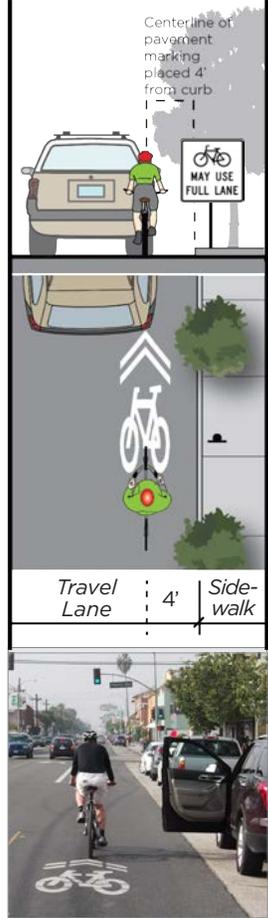
Sidewalks provide dedicated space intended for use by pedestrians that is safe, comfortable, and accessible to all. Sidewalks are physically separated from the roadway by a curb or unpaved buffer space. Sidewalks are appropriate on all types of roadways where pedestrian activity is likely. A minimum width of 6 ft enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass. A planting strip of 6-8 ft can provide separation from motor vehicles and space to plant shade trees.

Multi-Use Paths



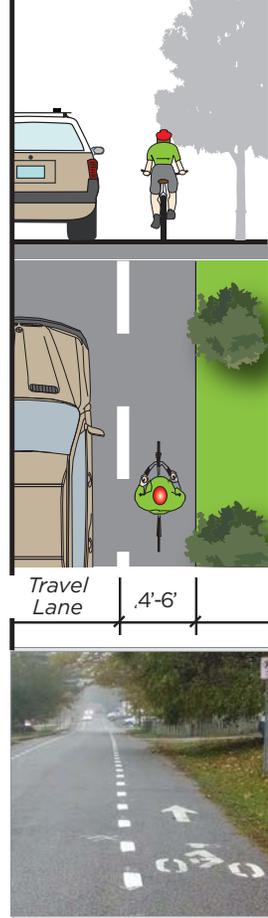
A multi-use path located immediately adjacent and parallel to a roadway is called a sidepath. Greenways are multi-use paths located in parks, along rivers, and in utility corridors. Multi-use paths can offer a high-quality experience for users of all ages and abilities as compared to on-roadway facilities in heavy traffic environments, allow for reduced roadway crossing distances, and maintain rural and small City community character. Minimum recommended pathway width is 10 ft. In low-volume situations and constrained conditions, the absolute minimum width is 8 ft.

Shared Lane



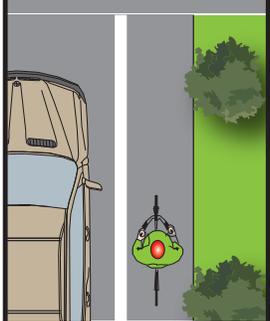
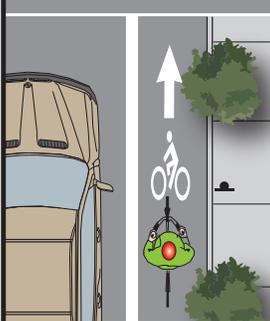
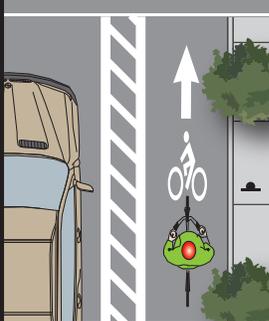
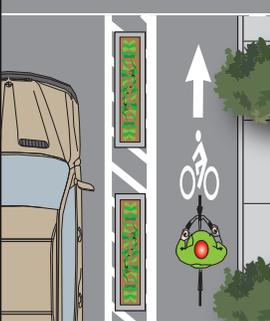
Shared Lane Markings (SLMs), or "sharrows," are road markings used to indicate a shared lane environment for bicycles and automobiles. Among other benefits, SLMs reinforce the legitimacy of bicycle traffic on the street, recommend proper bicyclist positioning, and may be configured to offer directional and wayfinding guidance. SLMs are only recommended in areas where there are constraints.

Advisory Shoulder



Bicycle boulevards are generally low-volume, low-speed neighborhood streets that may be already conducive to cycling by all ages and abilities. The safety and comfort of bicycle boulevards can be enhanced through traffic calming techniques such as reduced speed limits, speed humps, and chicane curb extensions. As part of a bicycling network, bike boulevards should offer directional and wayfinding guidance.

PEDESTRIAN + BICYCLE FACILITY TYPES SUMMARY (CONTINUED)

Paved Shoulder	Bicycle Lane	Buffered Bicycle Lane	Separated Bicycle Lane													
  <table border="1" data-bbox="170 961 440 1041"> <tr> <td>Travel Lane</td> <td>≥ 4-7'</td> <td></td> </tr> </table>	Travel Lane	≥ 4-7'		  <table border="1" data-bbox="480 961 750 1041"> <tr> <td>Travel Lane</td> <td>4-6.5'</td> <td>Side-walk</td> </tr> </table>	Travel Lane	4-6.5'	Side-walk	  <table border="1" data-bbox="807 961 1076 1041"> <tr> <td>Travel Lane</td> <td>* 4-6.5'</td> <td>Side-walk</td> </tr> </table>	Travel Lane	* 4-6.5'	Side-walk	  <table border="1" data-bbox="1149 961 1419 1041"> <tr> <td>Travel Lane</td> <td>3'</td> <td>5-7'</td> <td>Side-walk</td> </tr> </table>	Travel Lane	3'	5-7'	Side-walk
Travel Lane	≥ 4-7'															
Travel Lane	4-6.5'	Side-walk														
Travel Lane	* 4-6.5'	Side-walk														
Travel Lane	3'	5-7'	Side-walk													
																
<p><i>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. Paved shoulders can reduce “bicyclist struck from behind” crashes, which represent a significant portion of rural road crashes. For preferred rumble strip placement see FHWA’s Achieving Multimodal Networks (2016).</i></p>	<p><i>Bike lanes designate an exclusive space for bicyclists, directly adjacent to motor vehicle travel lanes. The preferred minimum width is 6.5 ft to allow bicyclists to ride side-by-side or pass each other without leaving the bike lane. Absolute minimum bike lane width is 4 ft when no curb and gutter is present or 5 ft when adjacent to a curbface, guardrail, other vertical surface or on-street parking stalls (AASHTO Bike Guide 2012).</i></p>	<p><i>A horizontal buffer between the bike lane and motor vehicle travel lane can provide added separation between cyclists and motor vehicles. This treatment is appropriate on roadways with higher traffic volumes and speeds, adjacent to parking lanes, or a high volume of truck or oversized vehicle traffic. The buffer can be 1.5-4 ft, or wider. If 4 ft or wider, mark with diagonal or chevron hatching.</i></p>	<p><i>A separated bike lane is a facility for exclusive use by bicyclists that is located within or directly adjacent to the roadway and is physically separated from motor vehicle traffic with a vertical element. Preferred minimum width of a one-way separated bike lane is 7 ft (2.1 m). This width allows for side-by-side riding or passing. Separated bike lanes should be considered as an option in the design process for the bicycle lanes recommended in this plan, especially for inclusion on projects with new roadway construction.</i></p>													



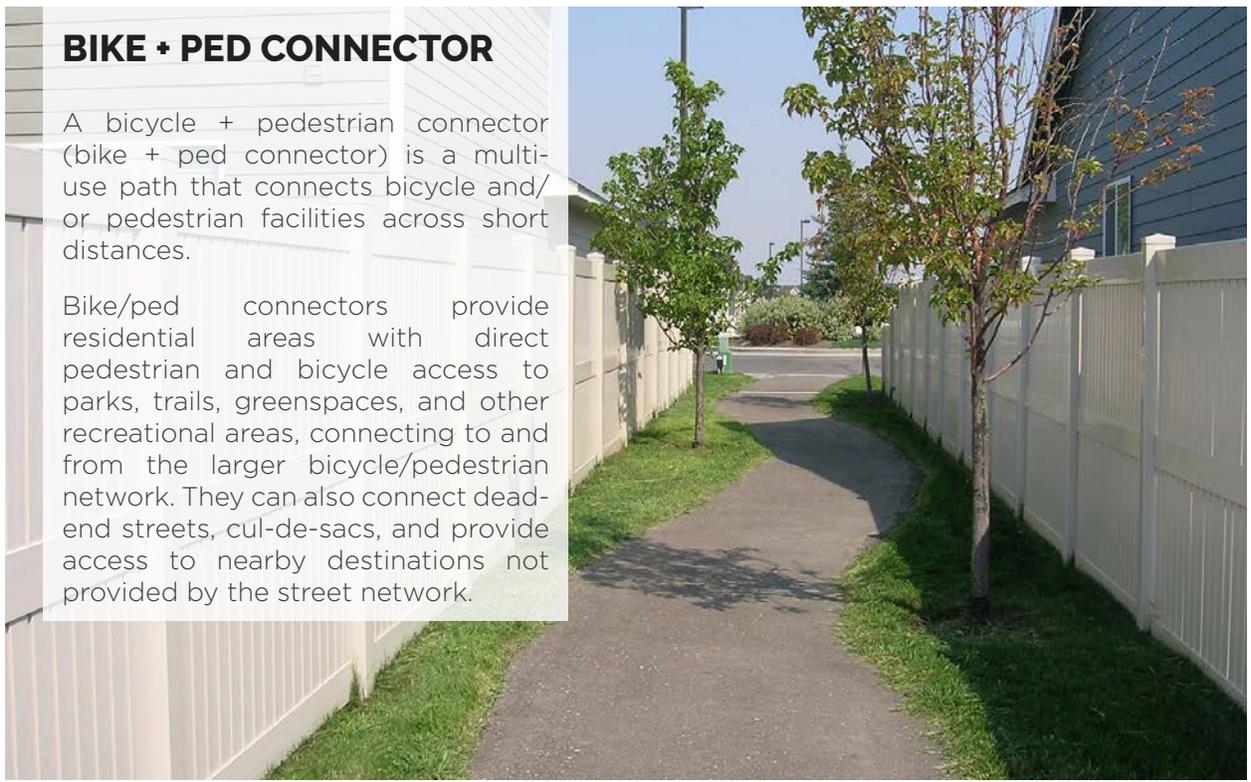
Pedestrian + Bike Facility Types

These are images of the primary facility types recommended in this plan.



SIDEWALKS

Sidewalks provide dedicated space intended for use by pedestrians that is safe, comfortable, and accessible to all. Sidewalks are physically separated from the roadway by a curb or unpaved buffer space. Sidewalks are recommended on all but the most low-speed and low-volume roadways. Sidewalks are appropriate on all types of roadways where pedestrian activity is likely.



BIKE + PED CONNECTOR

A bicycle + pedestrian connector (bike + ped connector) is a multi-use path that connects bicycle and/or pedestrian facilities across short distances.

Bike/ped connectors provide residential areas with direct pedestrian and bicycle access to parks, trails, greenspaces, and other recreational areas, connecting to and from the larger bicycle/pedestrian network. They can also connect dead-end streets, cul-de-sacs, and provide access to nearby destinations not provided by the street network.



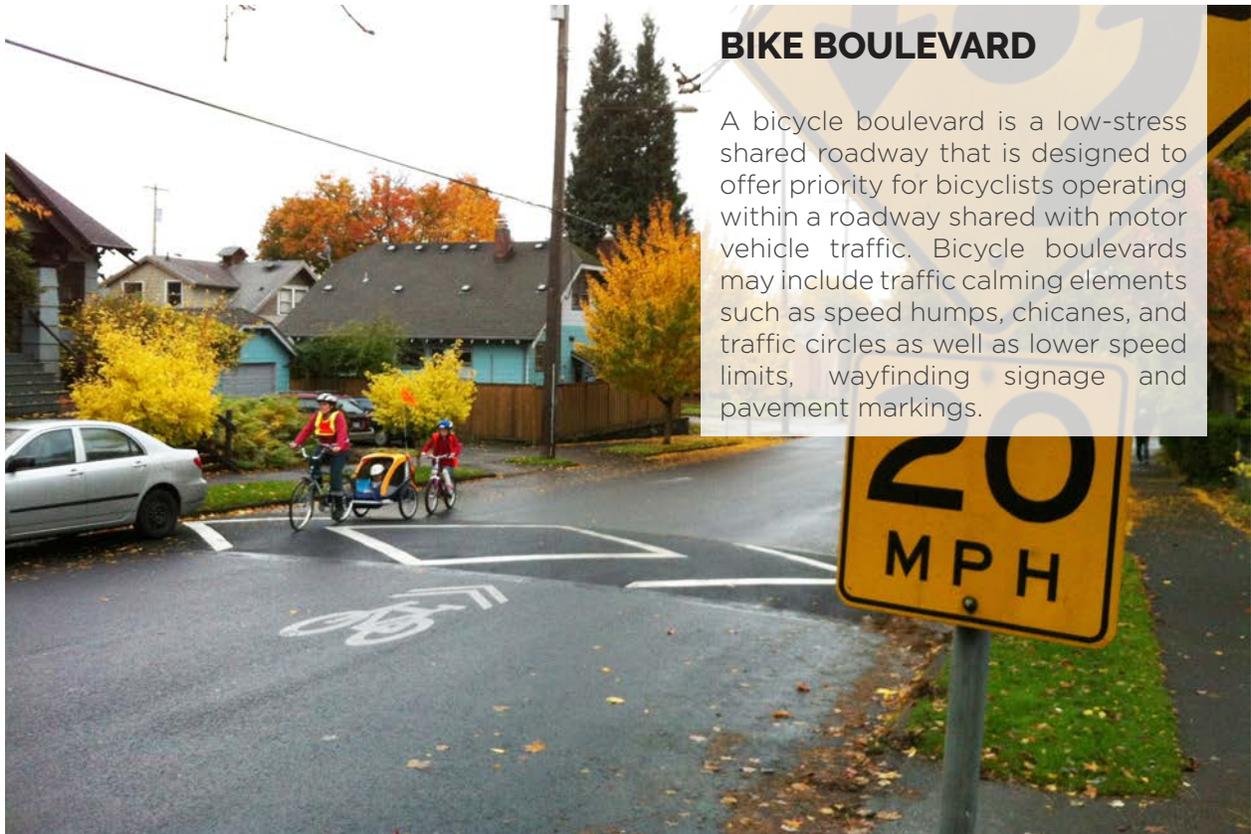
MULTI-USE PATHS

A multi-use path along a roadway is called a sidepath, it provides a travel area separate from motorized traffic. Sidepaths are desirable for bicyclists of all skill levels preferring separation from traffic. Multi-use paths may be implemented immediately adjacent and parallel to a roadway, or in their own independent right-of-way.



CROSSING IMPROVEMENTS

Roadway crossings represent a key safety challenge for bicyclists and pedestrians, especially at non-signalized intersections, greenway crossings, or across streets lacking bicycle and pedestrian infrastructure. A combination of actuated signals and traffic controls can increase driver awareness of bike crossings. Crossing treatments are based on trail and roadway characteristics. Key roadway factors influencing the selected treatment include the posted speed limit, traffic volume, line of sight, street width, roadway and greenway geometry, and intersection configuration.



BIKE BOULEVARD

A bicycle boulevard is a low-stress shared roadway that is designed to offer priority for bicyclists operating within a roadway shared with motor vehicle traffic. Bicycle boulevards may include traffic calming elements such as speed humps, chicanes, and traffic circles as well as lower speed limits, wayfinding signage and pavement markings.

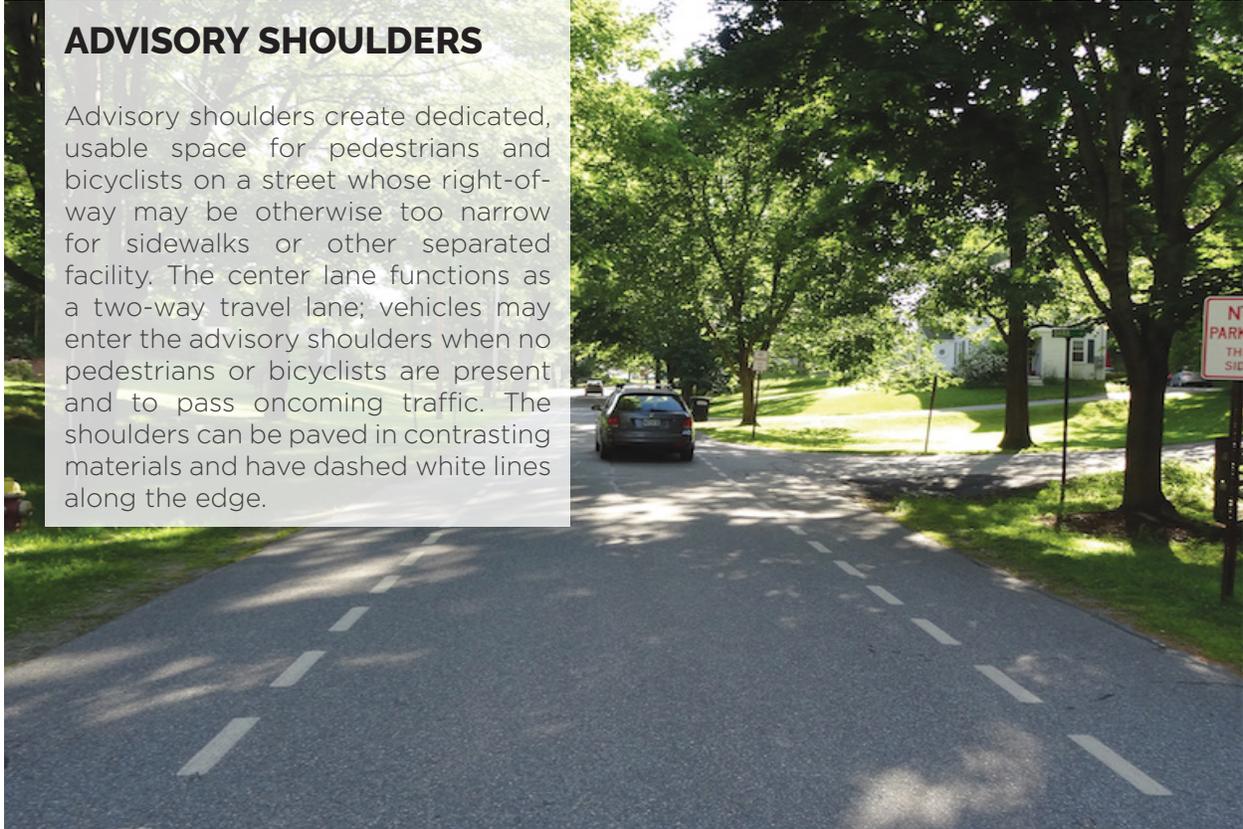


ENHANCED SHARED ROADWAY

There may not always be an opportunity to create a dedicated bikeway or off-street path. In these cases, a marked shared roadway (shared lane markings + “Bike Route” signage) can be enhanced with bicycle-oriented wayfinding and selected traffic calming devices.

ADVISORY SHOULDERS

Advisory shoulders create dedicated, usable space for pedestrians and bicyclists on a street whose right-of-way may be otherwise too narrow for sidewalks or other separated facility. The center lane functions as a two-way travel lane; vehicles may enter the advisory shoulders when no pedestrians or bicyclists are present and to pass oncoming traffic. The shoulders can be paved in contrasting materials and have dashed white lines along the edge.



UPHILL BIKE LANE + DOWNHILL SHARED LANE MARKINGS

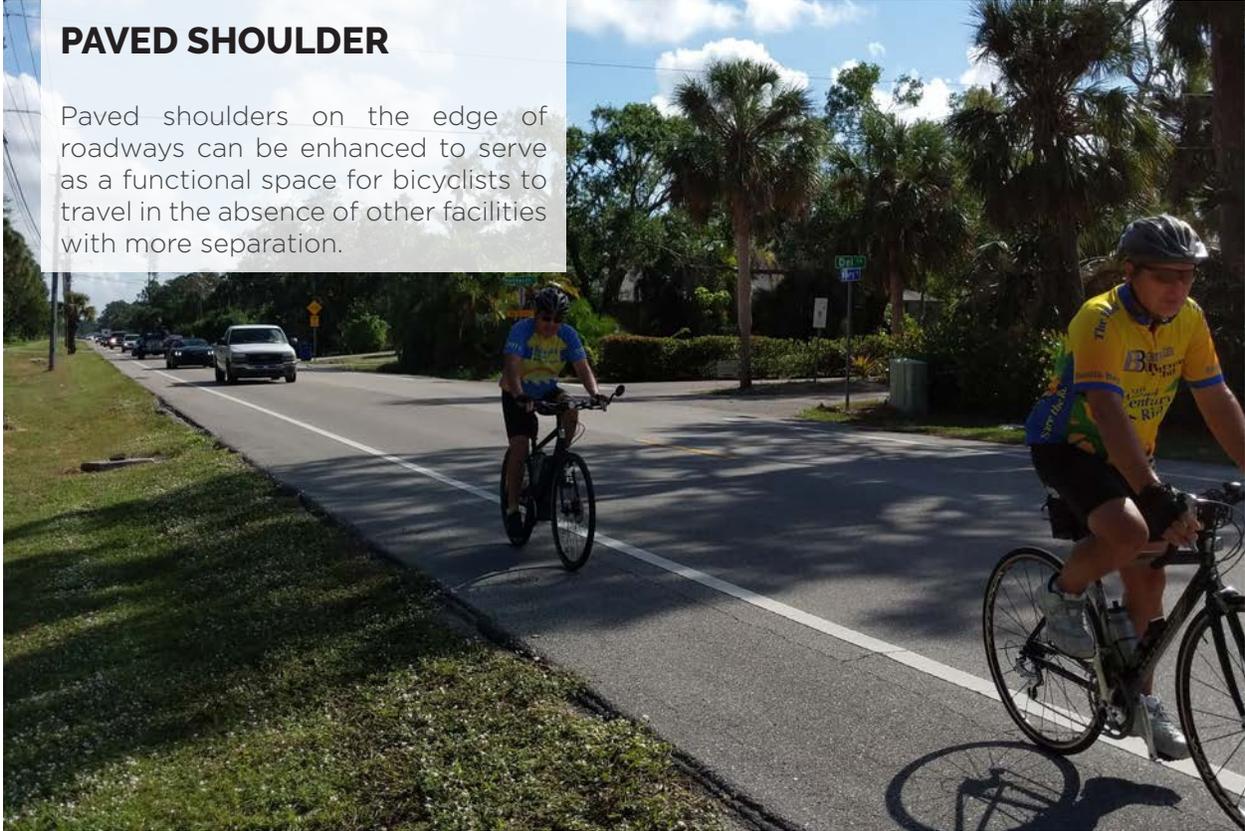
When roadways have a steep grade, uphill bike lanes can be used to provide separated space for bicyclists travelling slower than motor vehicles, enabling motorists to safely pass slower-speed bicyclists. Uphill bike lanes (also known as “climbing lanes”) can be combined with shared lane markings in the downhill lane, where the bicyclists are more able to match traffic speeds.





PAVED SHOULDER

Paved shoulders on the edge of roadways can be enhanced to serve as a functional space for bicyclists to travel in the absence of other facilities with more separation.



STANDARD BIKE LANES

Standard Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. Bike lanes make bicycling a more visible and comfortable option for people who usually would drive or walk.



BUFFERED BIKE LANES

Buffered bike lanes are conventional bike lanes (see “Bike Lanes” definition above) with a painted buffer between the bike lane and the travel lane. Buffered bike lanes provide added safety and comfort by further separating bicyclists from motorists.



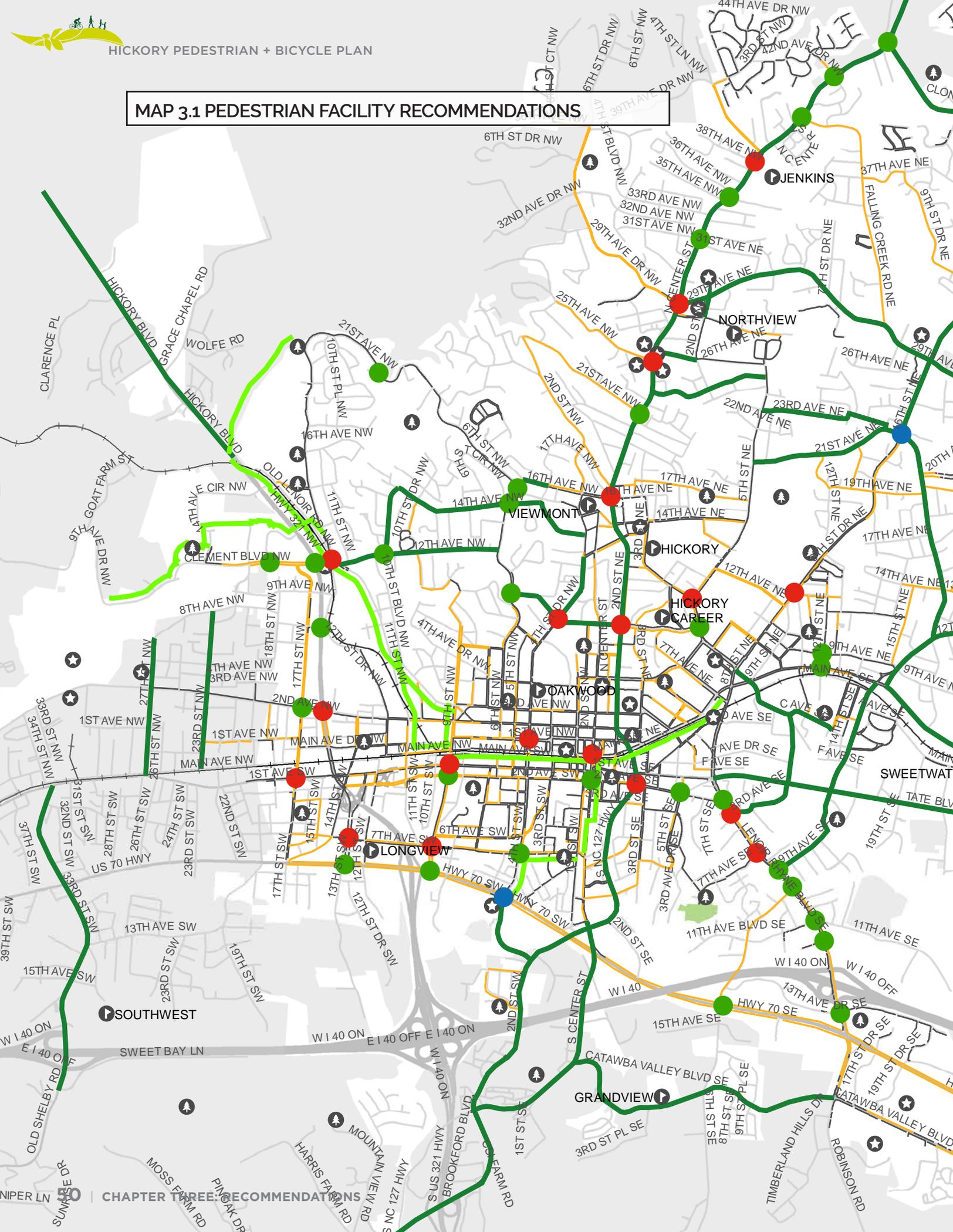
SEPARATED BIKE LANES

Separated Bike Lanes, sometimes called “Cycle Tracks,” or “Protected Bike Lanes” are dedicated bikeways that use a vertical element to provide separation from motor vehicle traffic. The vertical separation discourages drivers from parking or idling in the bikeway.



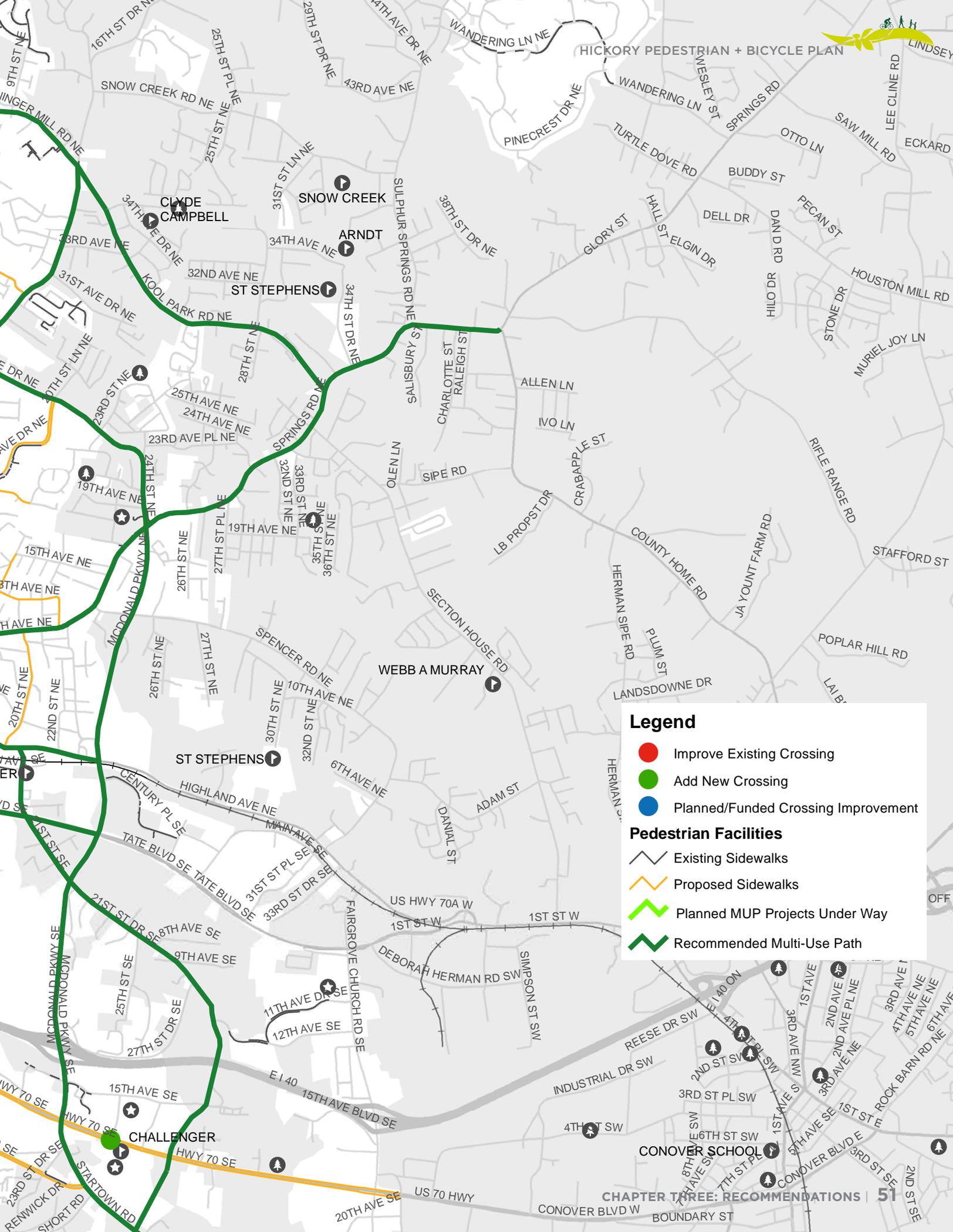


MAP 3.1 PEDESTRIAN FACILITY RECOMMENDATIONS





HICKORY PEDESTRIAN + BICYCLE PLAN



Legend

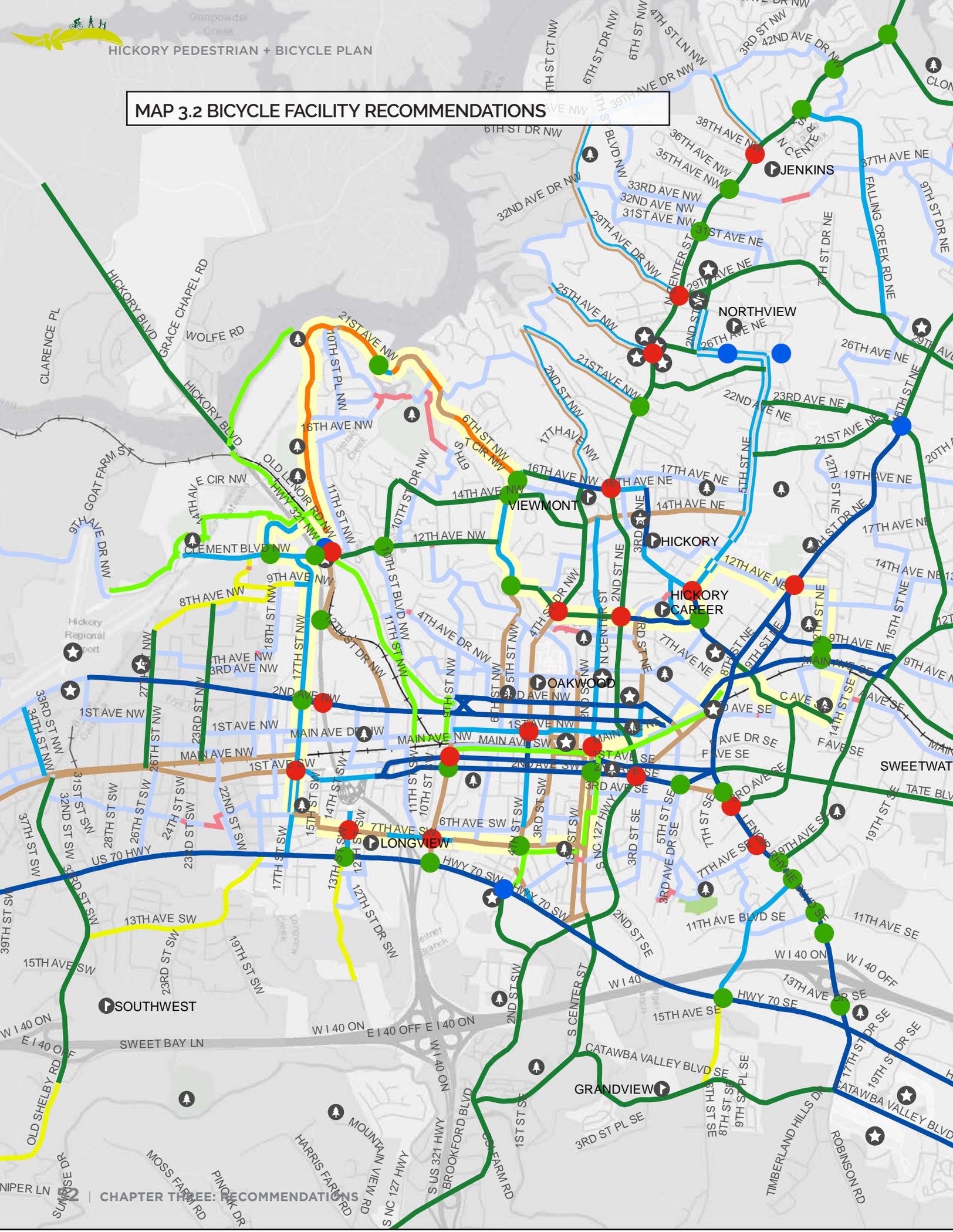
- Improve Existing Crossing
- Add New Crossing
- Planned/Funded Crossing Improvement

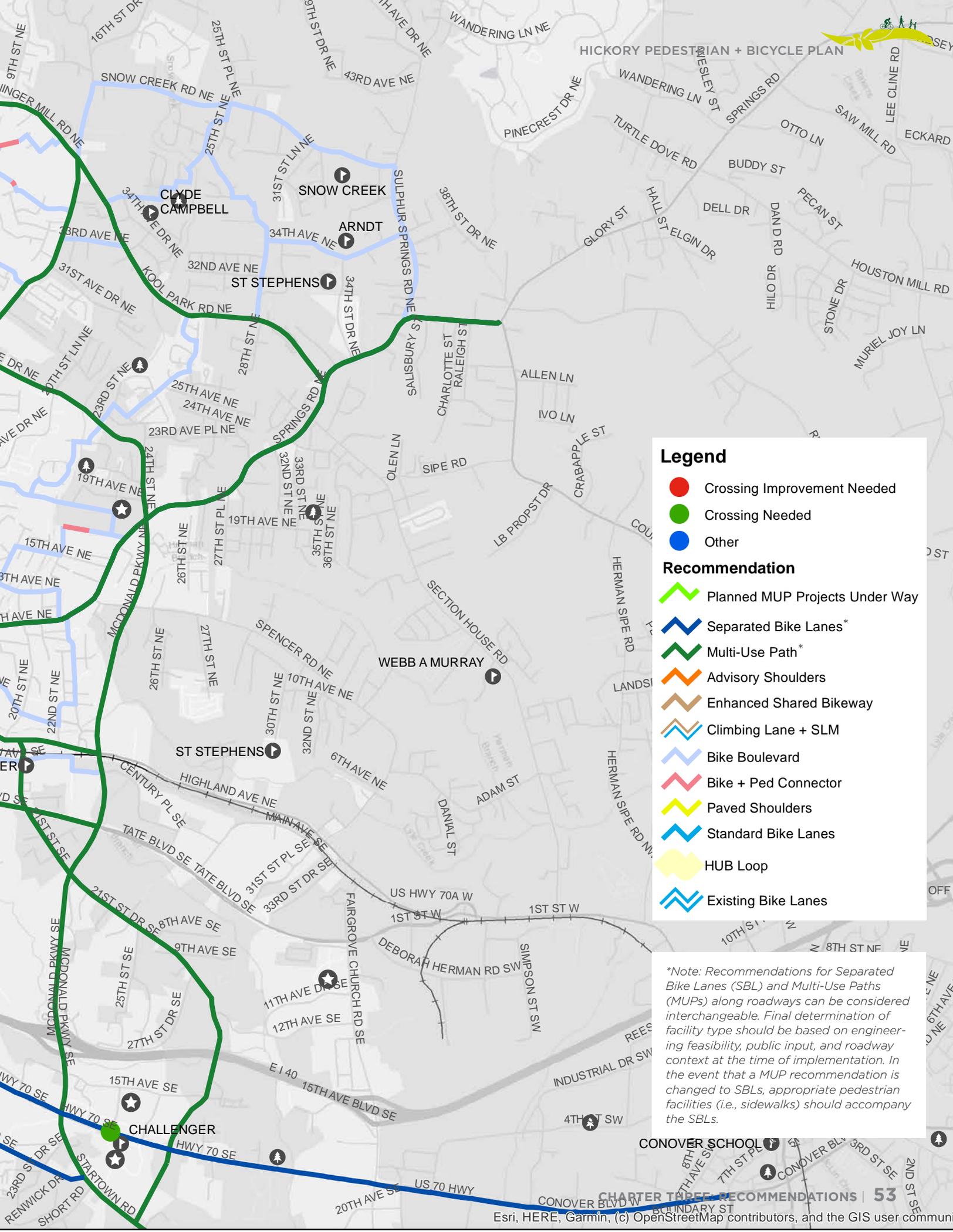
Pedestrian Facilities

- Existing Sidewalks
- Proposed Sidewalks
- Planned MUP Projects Under Way
- Recommended Multi-Use Path



MAP 3.2 BICYCLE FACILITY RECOMMENDATIONS





Legend

- Crossing Improvement Needed
- Crossing Needed
- Other

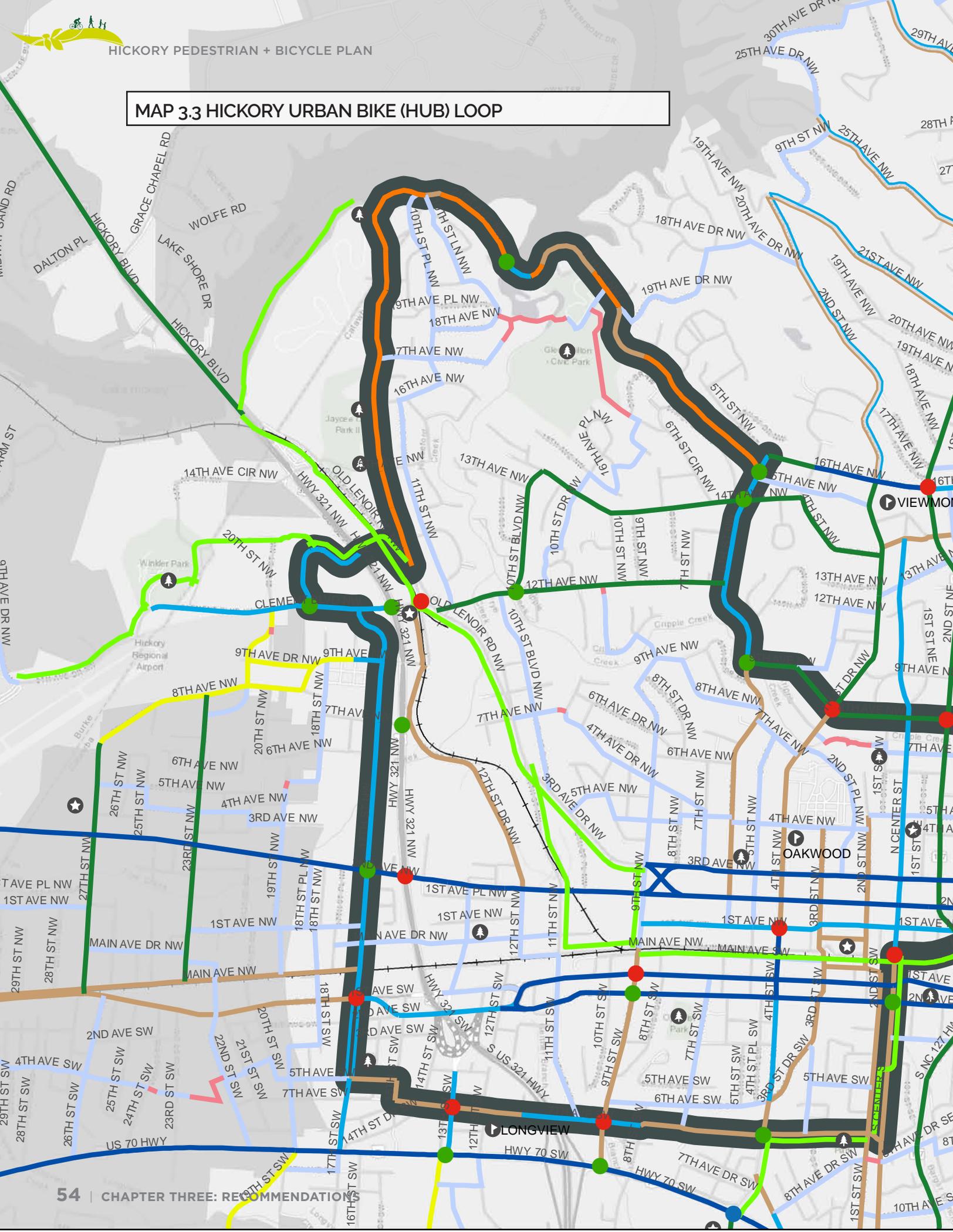
Recommendation

- Planned MUP Projects Under Way
- Separated Bike Lanes*
- Multi-Use Path*
- Advisory Shoulders
- Enhanced Shared Bikeway
- Climbing Lane + SLM
- Bike Boulevard
- Bike + Ped Connector
- Paved Shoulders
- Standard Bike Lanes
- HUB Loop
- Existing Bike Lanes

*Note: Recommendations for Separated Bike Lanes (SBL) and Multi-Use Paths (MUPs) along roadways can be considered interchangeable. Final determination of facility type should be based on engineering feasibility, public input, and roadway context at the time of implementation. In the event that a MUP recommendation is changed to SBLs, appropriate pedestrian facilities (i.e., sidewalks) should accompany the SBLs.



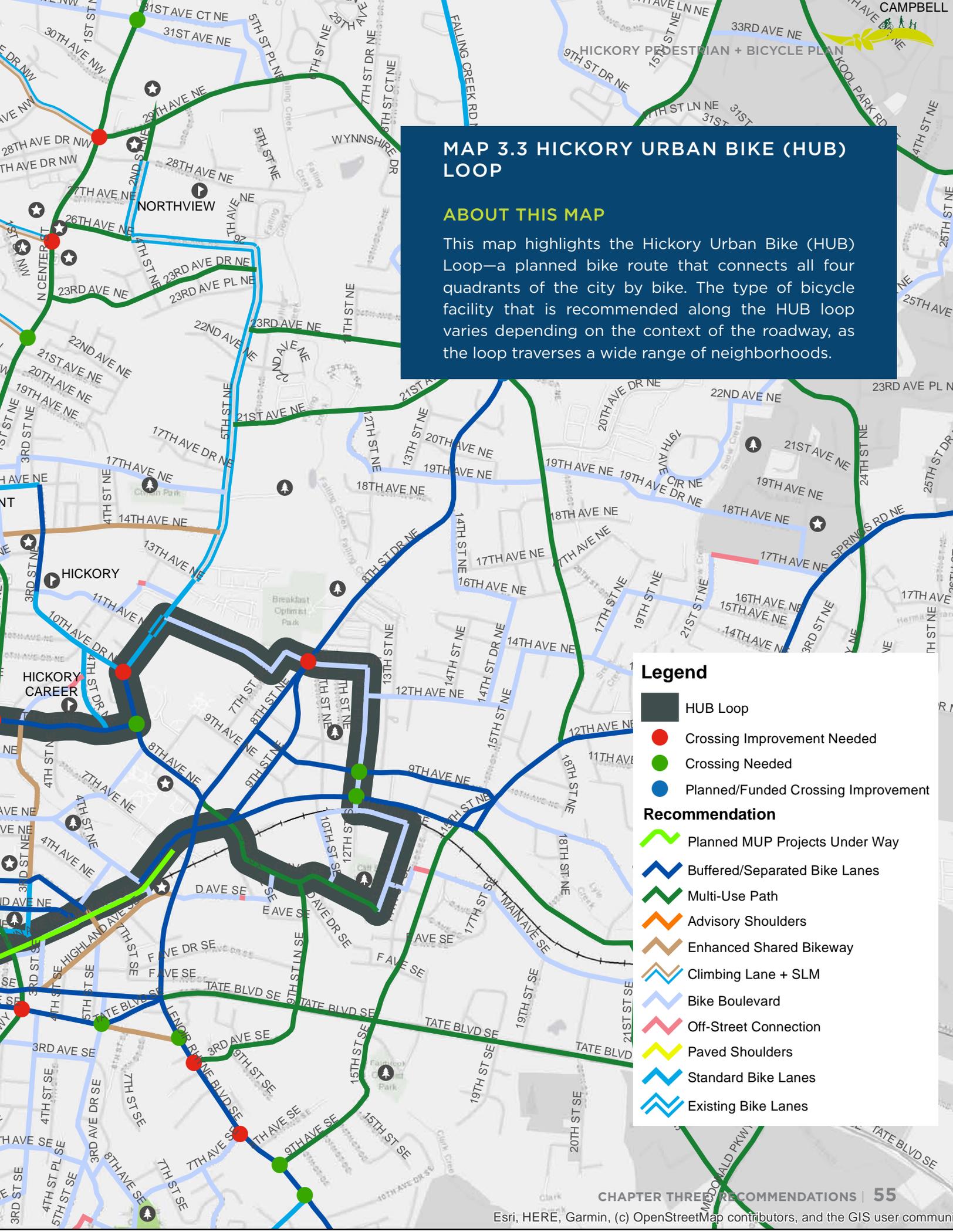
MAP 3.3 HICKORY URBAN BIKE (HUB) LOOP



MAP 3.3 HICKORY URBAN BIKE (HUB) LOOP

ABOUT THIS MAP

This map highlights the Hickory Urban Bike (HUB) Loop—a planned bike route that connects all four quadrants of the city by bike. The type of bicycle facility that is recommended along the HUB loop varies depending on the context of the roadway, as the loop traverses a wide range of neighborhoods.



Legend

- HUB Loop
 - Crossing Improvement Needed
 - Crossing Needed
 - Planned/Funded Crossing Improvement
- Recommendation**
- Planned MUP Projects Under Way
 - Buffered/Separated Bike Lanes
 - Multi-Use Path
 - Advisory Shoulders
 - Enhanced Shared Bikeway
 - Climbing Lane + SLM
 - Bike Boulevard
 - Off-Street Connection
 - Paved Shoulders
 - Standard Bike Lanes
 - Existing Bike Lanes



PRIORITIZATION PROCESS

The projects listed in Table 3.1 correspond to the recommended projects in Map 3.2. Each project was scored based on the factors listed below, generally receiving one point per criteria fulfilled. Projects can score multiple points for certain criteria, such as connections to parks and schools. For example, if a project connects to a park, school, shopping center, and transit stop, it scores two points within that single criteria. That score is then multiplied by the weight attributed to that category. The weights were determined based on feedback from the Steering Committee on the relative importance of each of the criteria.

This project list should be considered as a general guide when weighing priorities, rather than a

fixed phasing plan. Opportunities to develop any project should be considered as they arise, such as through the development process, or through roadway construction projects, regardless of ranking.

Bicycle boulevard projects are scored in the prioritization table; however these projects should be high priority and can be implemented in near term with relatively low investment in wayfinding and maps.

Sidewalk projects were prioritized separately using a qualitative assessment of need. Sidewalk projects are listed in Table 3.2, starting on page 64, with the more highly prioritized projects at the top of the table.

Criterion	Input	Score	Scoring Notes	Weight
CONNECTS KEY DESTINATIONS	Proposed project is within 1/4 -mile of a shopping center, school, park, or transit stop.	0.5	If the project is located within ¼-mile of one of the four categories, it receives 0.5 points, to a maximum of 2 points.	2.2
		0.5		
		0.5		
		0.5		
ADDRESSES A SAFETY CONCERN	Pedestrian and bicycle crash locations	1	Proposed project is located within ¼-mile of a pedestrian- OR bicyclist-involved crash	4.2
		2	Proposed project is located within ¼-mile of a pedestrian- AND bicyclist-involved crash	
ADDRESSES A CONNECTIVITY NEED	Proposed project meets needs of walkers/bikers who use these modes out of necessity	1	Projects connects housing to jobs or transit	4.0
		1	Project location has a worn “goat” path, or is known route for bicyclists (based on public input)	
PROJECT TIMING	Proposed project doesn’t conflict with a scheduled road project	1	Proposed project is along a roadway with planned maintenance	2.2
BIKE LOOP	Proposed project is along the City’s Bike Loop	1	HUB Loop Route	4.2
REMOVES GAP	The project fills a critical/persistent gap, or improves the crossing of a major barrier in the road network	1	Project fills a gap	4.0
		1	Project improves connectivity over a major barrier	

Table 3.1 Priority Bicycle and Multi-Use Path Projects

Recommended Bike Facility	Roadway	From	To	Prioritization Score
Standard Bike Lanes	17th St NW extension	Clement Blvd	9th Ave NW	23.9
Multi-Use Path	NC 127	Lake Hickory	Huffman Farm Rd	23
Buffered/Separated Bike Lanes	8th St Dr NE/SE + Lenoir Rhyne Blvd SE	21st Ave NE	Catawba Valley Blvd SE	21.9
Standard Bike Lanes	Clement Blvd	western entrance to LP Frans Stadium	US 321	21.7
Enhanced Shared Bikeway	S Center St	Main Ave NW	11th Ave NW	19.9
Standard Bike Lanes	17th St NW	9th Ave NW	1st Ave SW	19.7
Multi-Use Path	8th Ave NE/C Ave SE	8th Ave NE	13th St SE	18.6
Enhanced Shared Bikeway	14th Ave NE	4th St Dr NW	5th St NE	16.6
Buffered/Separated Bike Lanes	2nd Ave SE/Tate Blvd SE (one way)	new 1-way transition	Lenoir Rhyne Blvd SE	14.8
Quiet Street/Bike Blvd	12th Ave NE/15th St NE/13th Ave NE/22nd St NE	12th St NE	12 Ave NE	14.6
Quiet Street/Bike Blvd	12th St NE	13th Ave NE	Main Ave SE	14.6
Enhanced Shared Bikeway	1st Ave SW	Cline Park Dr	17th St SW	14.6
Standard Bike Lanes	2nd Ave SW	1st Ave Dr SW	new 1-way transition	14.6
Buffered/Separated Bike Lanes	5th St NE/8th Ave NE	10th Ave Dr NE	8th St NE	14.6
Quiet Street/Bike Blvd	9th Ave NE/22nd St NE/9th Ave Dr NE/22nd St PI NE	16th St NE	12th St NE	14.6
Multi-Use Path	16th St NE/12th Ave NE/Springs Rd NE	Highland Ave NE	McDonald Pkwy NE	13.9
Multi-Use Path	Springs Rd NE	McDonald Pkwy NE	County Home Rd	13.9
Standard Bike Lanes	5th St NE	10th Ave Dr NE/11th Ave PI NE	12th Ave NE/13th Ave NE	13.3
Multi-Use Path	29th Ave NE	Center St	16th St NE	12.8
Buffered/Separated Bike Lanes	3rd Ave NE/NW (one way)	9th St NW	Main Ave NE	12.8
Buffered/Separated Bike Lanes	US 70	I-40 Access Rd	Northwest Blvd	12.8



Recommended Bike Facility	Roadway	From	To	Prioritization Score
Scenic Lake Route (advisory shoulders)	12th St Dr NW/21st Ave NW/6th St NW	Old Lenoir Rd NW	15th Ave NW	12.6
Buffered/Separated Bike Lanes	1st Ave SE (one way)	new 1-way transition	Lenoir Rhyne Blvd SE	12.6
Buffered/Separated Bike Lanes	2nd Ave NW	30th St PI NW	9th St NW	12.6
Standard Bike Lanes	19th St Ln NW/13th Ave Dr NW	Clement Blvd	US 321	12.4
Enhanced Shared Bikeway	1st St SW	Government Ave SW	11th Ave SW	11.5
Multi-Use Path	23rd Ave Dr NE	Center St	5th St NE	11.5
Standard Bike Lanes	6th St NW	16th Ave NW	2nd Ave NW	11.5
Standard Bike Lane/Enhanced Shared Bikeway	7th Ave SW	15th St SW	Center St	11.5
Buffered/Separated Bike Lanes	8th Ave NE	2nd St NE	8th Ave Ne	11.5
Multi-Use Path	8th Ave NE/9th Ave NW	6th St NW	2nd St NE	11.5
Standard Bike Lane	16th Ave NE	2nd St NE	3rd St NE	11.3
Buffered/Separated Bike Lanes	3rd St NE	16th Ave NE	12th Ave NE	11.3
Multi-Use Path	29th Ave Dr NE	16th St NE	Springs Rd NE	10.8
Multi-Use Path	16th St NE	21st Ave NE	Cloninger Mill Rd NE	10.6
Quiet Street/Bike Blvd	10th Ave SW/3rd St SE	1st St SW	2nd Ave SE	10.4
Quiet Street/Bike Blvd	12th Ave NE/7th St NE/13th Ave NE	5th St NE	12th St NE	10.4
Quiet Street/Bike Blvd	13th St SE	Main Ave SE	C Ave SE	10.4
Multi-Use Path	15th St SE	Highland Ave	Tate Blvd SW	10.4
Quiet Street/Bike Blvd	17th Ave NE	2nd St PI NE	5th St NE	10.4
Quiet Street/Bike Blvd	18th St NW/3rd Ave SW/19th St SW	1st Ave NW	US 70	10.4
Quiet Street/Bike Blvd	3rd Ave SE	S Center St	3rd St SE	10.4
Standard Bike Lanes	4th St SW	2nd Ave SW	6th Ave SW	10.4
Quiet Street/Bike Blvd	5th St SE/5th St Ct SE	1st Ave SE	5th St SE to 3rd Ave Dr SE connector	10.4

Recommended Bike Facility	Roadway	From	To	Prioritization Score
Quiet Street/Bike Blvd	8th Ave Dr SE/.../3rd Ave Dr SE	S Center St	Kiwanis Park driveway	10.4
Buffered/Separated Bike Lanes	8th St NE	5th Ave NE	Lenoir Rhyne Blvd NE	10.4
Buffered/Separated Bike Lanes	9th Ave PI NE (one way)	9th St NE	15th St NE	10.4
Enhanced Shared Bikeway	9th St SW	Main Ave NW	US 70	10.4
Quiet Street/Bike Blvd	Main Ave Dr NW	17th St PI NW	11th St NW	10.4
Standard Bike Lanes	17th St SW	5th Ave SW	US 70	10.2
Buffered/Separated Bike Lanes	9th St NE (one way)	8th Ave NE	8th St Dr NE	10.2
Multi-Use Path	McDonald Pkwy	Springs Rd NE	Milton St	9.7
Multi-Use Path	33rd St SW	Main Ave NW	Sweet Bay Ln	9.5
Paved Shoulders	10th Ave Dr SE	13th Ave SE	Lenoir Rhyne Blvd SE	9.3
Multi-Use Path	12th Ave NW	Old Lenoir Rd NW	6th St NW	9.3
Standard Bike Lanes	1st Ave NW/NE	9th St NW	3rd St NE	8.6
Buffered/Separated Bike Lanes	2nd Ave NE (one way)	9th St NW	Main Ave NE	8.6
Enhanced Shared Bikeway	2nd St NW	5th Ave NW	Government Ave SW	8.6
Enhanced Shared Bikeway	4th St Dr NW	8th Ave NW	1st Ave NW	8.6
Enhanced Shared Bikeway	Government Ave SW	3rd St SW	1st St SW	8.6
Standard Bike Lanes	N Center St	14th Ave NE	Main Ave NE	8.6
Quiet Street/Bike Blvd	12th St NE/19th Ave NE	21st Ave NE	16th St NE	7.5
Quiet Street/Bike Blvd	17th Ave NE	17th Ave NE to 21st St NE connector	Springs Rd NE	7.5
Off-Street Connection	17th Ave NE to 21st St NE connector	17th Ave NE	21st St NE connector	7.5
Quiet Street/Bike Blvd	17th St NE/5th Ave NE/21st St NE	13th Ave NE	northern terminus of 21st St NE	7.5
Quiet Street/Bike Blvd	19th Ave NE/19th Ave Dr NE/18th Ave NE/23rd St NE	16th St NE	17th Ave NE	7.5
Multi-Use Path	21st St Dr SE	Highland Ave	StarCity Rd	7.5



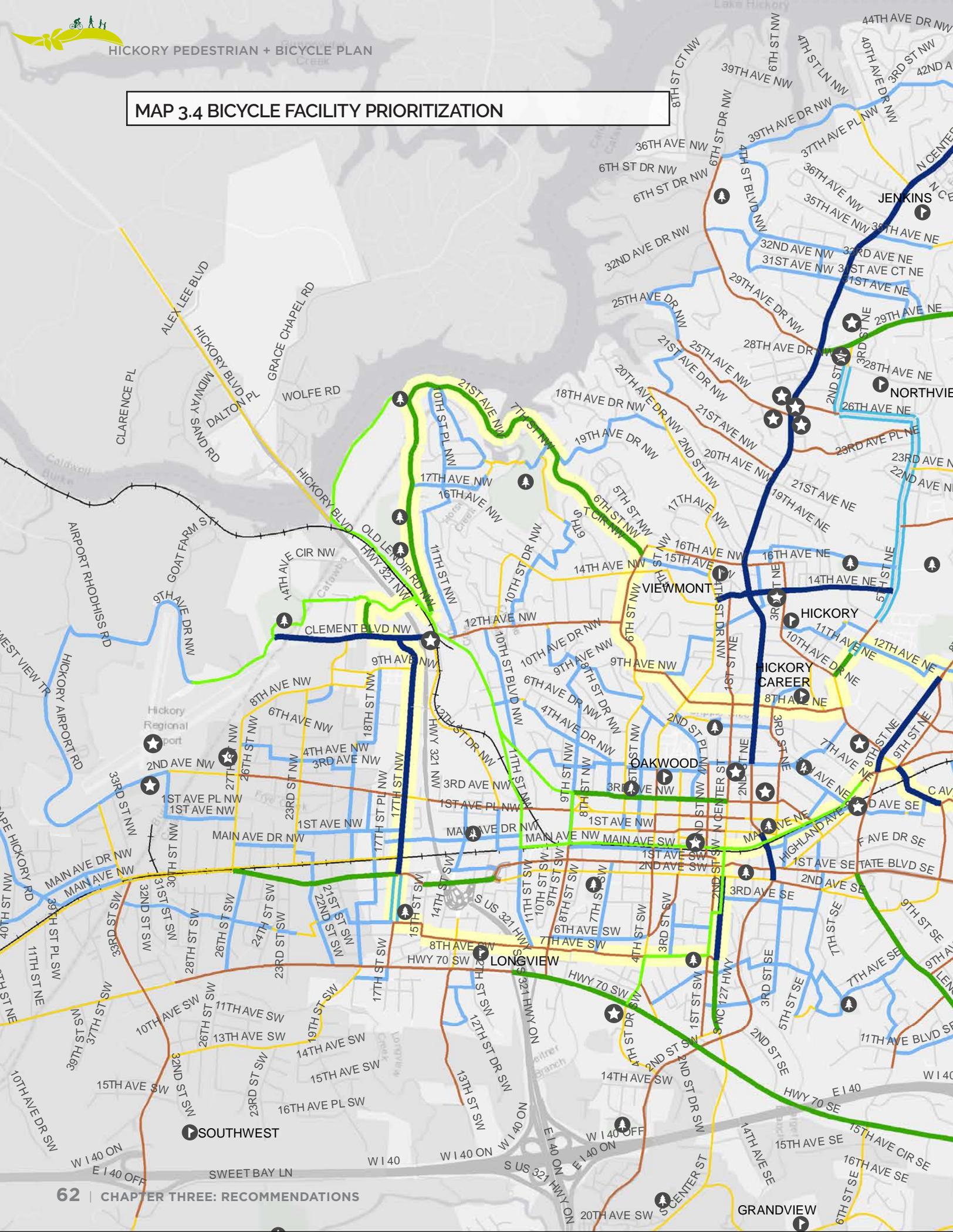
Recommended Bike Facility	Roadway	From	To	Prioritization Score
Climbing Lane + SLM	29th Ave Dr NW/6th St Dr NW	36th Ave NW	Center St	7.5
Enhanced Shared Bikeway	3rd St NE	8th Ave NW	3rd Ave NE	7.5
Buffered/Separated Bike Lanes	4th St SW	1st Ave NW	2nd Ave SW	7.5
Quiet Street/Bike Blvd	5th Ave NW/25th St NW/.../3rd Ave NW	27th St NW	19th St NW	7.5
Quiet Street/Bike Blvd	5th Ave NW/5th Ave PI NE/Stasavich PI NE	2nd St NW	8th Ave NE	7.5
Standard Bike Lanes	10th Ave Dr NE	12th Ave NE	5th St NE	7.3
Quiet Street/Bike Blvd	12th Ave NE/Hickory High School driveway	3rd St NE	12th Ave NE/Hickory High School driveway connector	7.3
Buffered/Separated Bike Lanes	16th Ave NW	4th St NW	Center St	7.3
Quiet Street/Bike Blvd	17th Ave NE	N Center St	2nd St PI NE	7.3
Quiet Street/Bike Blvd	2nd St Dr NE/13th Ave NE	16th Ave NE	4th St Dr NW	7.3
Enhanced Shared Bikeway	3rd St Dr SW	4th Ave NW	4th St SW	7.3
Quiet Street/Bike Blvd	8th Ave Dr SW	4th St SW	1st St SW	7.3
Off-Street Connection	A Ave SE connector (paper street)	14th St SE	15th St SE	7.3
Quiet Street/Bike Blvd	A Ave SE/Main Ave SE	15th St SE	McDonald Pkwy SE	7.3
Quiet Street/Bike Blvd	B Ave SE/14th St SE	13th St SE	A Ave SE connector	7.3
Buffered/Separated Bike Lanes	Highland Ave NE (one way)	8th Ave NE	16th St NE	7.3
Multi-Use Path	Tate Blvd SE	Lenoir rhyne Blvd SE	McDonald Pkwy SE	7.3
Enhanced Shared Bikeway	15th St SW	5th Ave SW	7th Ave SW	6.4
Multi-Use Path	21st Ave NE	5th St NE	8th St Dr NE	6.4
Climbing Lane + SLM	21st Ave NW	2nd St Dr NW	Center St	6.4
Climbing Lane + SLM	25th Ave NW	25th Ave Dr NW	Center St	6.4
Quiet Street/Bike Blvd	5th Ave NW/10th St Dr NW/.../4th Ave NW	3rd Ave Dr NW	6th St NW	6.4

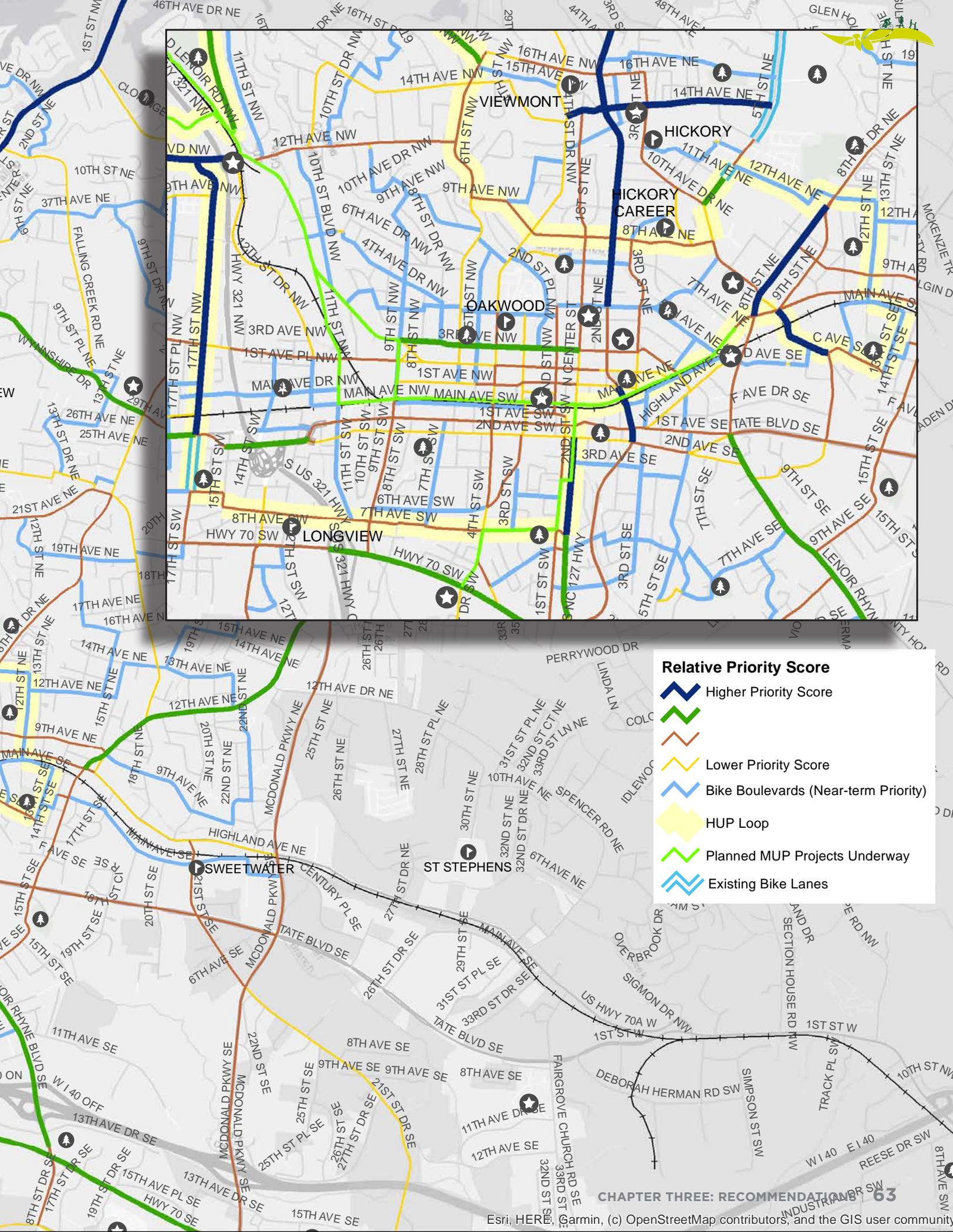
Recommended Bike Facility	Roadway	From	To	Prioritization Score
Enhanced Shared Bikeway	5th Ave SW	17th St SW	15th St SW	6.4
Enhanced Shared Bikeway	7th Ave SW	15th St SW	Center St	6.4
Multi-Use Path	9th Ave SE	Tate Blv SE	Lenoir Rhyne Blvd SE	6.4
Multi-Use Path	Cloninger Mill Rd NE/ Kool Park Rd NE	N Center St	Springs Rd NE	6.4
Quiet Street/Bike Blvd	Main Ave SE	12th St SE	13th St SE	6.4
Quiet Street/Bike Blvd	10th Ave SW/12th St SW	13th St SW	US 70	6.2
Quiet Street/Bike Blvd	12th Ave SW/12th St Dr SW	13th St SW	10th Ave SW	6.2
Quiet Street/Bike Blvd	12th St NW	2nd Ave NW	Main Ave NW	6.2
Paved Shoulders	13th St SW	US 70	14th Ave Ct SW	6.2
Quiet Street/Bike Blvd	14th St SW	2nd Ave NW	1st Ave SW	6.2
Standard Bike Lanes	1st Ave Dr SW	1st Ave SW	2nd Ave SW	6.2
Quiet Street/Bike Blvd	1st Ave NW	23rd St NW	17th St NW	6.2
Off-Street Connection	1st St SW to S Center St connector	1st St SW	S Center St	6.2
Multi-Use Path	21st St SE	Highland Ave	StarCity Rd	6.2
Multi-Use Path	26th Ave NE	Center St	2nd St NE	6.2
Quiet Street/Bike Blvd	2nd St PI NE	17th Ave NE	16th Ave NE	6.2
Quiet Street/Bike Blvd	3rd Ave Dr SE/8th Ave SE/7th Ave SE	8th Ave SE	Lenoir Rhyne Blvd SE	6.2
Quiet Street/Bike Blvd	3rd St SW	3rd St Dr SW	7th Ave SW	6.2
Enhanced Shared Bikeway	4th St SW	4th St Dr SW	8th Ave Dr SW	6.2
Quiet Street/Bike Blvd	5th Ave SW	3rd St SW	1st St SW	6.2

For the rest of the project list and priority scores, see Appendix E on page 141.



MAP 3.4 BICYCLE FACILITY PRIORITIZATION





Relative Priority Score

-  Higher Priority Score
-  Planned MUP Projects Underway
-  Lower Priority Score
-  Bike Boulevards (Near-term Priority)
-  HUP Loop
-  Existing Bike Lanes



Table 3.2 Sidewalk Projects (in priority order)

Recommended Sidewalks	Roadway	From	To
Sidewalk	8th Ave SE	3rd St SE	5th St SE
Sidewalk	3rd St SE	8th Ave SE	10th Ave SE
Sidewalk	10th Ave SE	NC 127	3rd St SE
Sidewalk	12th Ave NW	11th St NW	6th St PI NW
Sidewalk	12th Ave NW	Old Lenoir Rd NW	6th St NW
Sidewalk	N Center St/NC 127	29th Ave Dr NW	Cloninger Mill Rd NE
Sidewalk	12th Ave NE	5th St NE	8th St NE
Sidewalk	12th Ave NE	5th St NE	8th St NE
Sidewalk	2nd St Dr NW/2nd St NW	21st Ave NW	16th Ave NW
Sidewalk	17th Ave NE/2nd St PI NE	5th St NE	16th Ave NE
Sidewalk	LR Blvd SE	Tate Blvd SE	8th Ave SE
Sidewalk	5th St SE	Existing SB sidewalk	8th Ave SE
Sidewalk	5th St SE	Existing NB sidewalk	8th Ave SE
Sidewalk	10th Ave SE	NC 127	S Center St
Sidewalk	2nd St SW/NC 127	S Center St	Existing connection to 4th St Dr SW
Sidewalk	4th St Dr NW	2nd St SW/NC 127	US 321
Sidewalk	3rd St Dr SW	4th St SW	Existing on 3rd St Dr SW
Sidewalk	7th Ave SW	14th St Dr SW	17th St SW
Sidewalk	17th St SW/NW	1st Ave SW	Existing on 17th St NW
Sidewalk	17th St NW	Existing on 17th St NW	2nd Ave NW
Sidewalk	17th St NW	2nd Ave NW	7th Ave NW
Sidewalk	17th St NW	7th Ave NW	9th Ave NW
Sidewalk	17th St NW	9th Ave NW	Existing on 17th St NW
Sidewalk	17th St NW	Existing on 17th St NW	7th Ave NW
Sidewalk	17th St NW	Existing on 17th St NW	2nd Ave NW
Sidewalk	17th St NW	2nd Ave NW	Existing on 17th St NW
Sidewalk	17th St NW	Main Ave Dr NW	1st Ave SW
Sidewalk	Clement Blvd NW	US 321	Existing on Clement Blvd NW

Table 3.2 Sidewalk Projects, continued

Recommended Sidewalks	Roadway	From	To
Sidewalk	15th Ave NW	Old Lenoir Rd NW	Existing on 15th Ave NW
Sidewalk	29th Ave Dr NW/6th St Dr NW	NC 127	36th Ave NW
Sidewalk	29th Ave Dr NW/6th St Dr NW	NC 127	36th Ave NW
Sidewalk	2nd St NE/NC 127	16th Ave NE	17th Ave NE
Sidewalk	2nd St NE/NC 127	17th Ave NE	18th Ave NE
Sidewalk	2nd St NE/NC 127	18th Ave NE	19th Ave NE
Sidewalk	N Center St/NC 127	21st Ave NE	Existing on N Center St/NC 127
Sidewalk	N Center St/NC 127	26th Ave NE	28th Ave NE
Sidewalk	N Center St/NC 127	28th Ave NE	Existing on 29th Ave NE
Sidewalk	N Center St/NC 127	29th Ave Dr NW	Existing on N Center St/NC 127
Sidewalk	39th Ave Dr NW	N Center St/NC 127	3rd St NW
Sidewalk	39th Ave Dr NW	N Center St/NC 127	3rd St NW
Sidewalk	Cloninger Mill Rd NE	N Center St/NC 127	16th St NE
Sidewalk	Cloninger Mill Rd NE	N Center St/NC 127	16th St NE
Sidewalk	16th St NE	Cloninger Mill Rd NE	29th Ave Dr NE
Sidewalk	16th St NE	29th Ave Dr NE	Kool Park Rd NE
Sidewalk	29th Ave Dr NE	13th St NE	16th St NE
Sidewalk	29th Ave NE	13th St NE	2nd St NE
Sidewalk	29th Ave NE	13th St NE	N Center St/NC 127
Sidewalk	29th Ave Dr NE/24th St NE	16th St NE	Springs Rd NE
Sidewalk	29th Ave Dr NE/24th St NE	16th St NE	Springs Rd NE
Sidewalk	16th St NE	29th Ave Dr NE	21st Ave NE
Sidewalk	16th St NE	16th St NE	29th Ave Dr NE
Sidewalk	8th St Dr NE	16th St NE	Existing on 8th St Dr NE
Sidewalk	8th St Dr NE	Existing on 8th St Dr NE	9th St NE
Sidewalk	8th St NE	8th St Dr NE	10th Ave NE
Sidewalk	16th St NE	12th Ave NE	8th St Dr NE
Sidewalk	16th St NE	12th Ave NE	8th St Dr NE



Table 3.2 Sidewalk Projects, continued

Recommended Sidewalks	Roadway	From	To
Sidewalk	12th Ave NE/Springs Rd NE	22nd St NE	14th St PI NE
Sidewalk	12th Ave NE/Springs Rd NE	22nd St NE	14th St PI NE
Sidewalk	12th Ave NE	18th St NE	22nd St NE
Sidewalk	12th Ave NE	16th St NE	20th St NE
Sidewalk	12th Ave NE	20th St NE	22nd St NE
Sidewalk	3rd Ave NW	3rd St NW	4th St NW
Sidewalk	3rd Ave NW	3rd St NW	2nd St NW
Sidewalk	5th Ave SW	7th St SW	Existing on 5th Ave SW
Sidewalk	42nd Ave Dr NW	N Center St/NC 127	Existing on 42nd Ave Dr NW
Sidewalk	3rd St NW	39th Ave Dr NW	2nd St NW
Sidewalk	Falling Creek Rd NE	N Center St/NC 127	29th Ave NE
Sidewalk	9th St Dr NE	Falling Creek Rd NE	16th St NE
Sidewalk	36th Ave NW	6th St Dr NW	Existing on 36th Ave NW
Sidewalk	20th Ave Dr NE	16th St NE	Existing on 20th Ave Dr NE
Sidewalk	20th Ave Dr NE	16th St NE	Existing on 20th Ave Dr NE
Sidewalk	20th Ave Dr NE	Existing on 20th Ave Dr NE	29th Ave Dr NE
Sidewalk	20th Ave Dr NE	Existing on 20th Ave Dr NE	29th Ave Dr NE
Sidewalk	25th Ave NW	N Center St/NC 127	9th St NW
Sidewalk	21st Ave NW	N Center St/NC 127	2nd St Dr NW
Sidewalk	17th Ave Ct NW	2nd St NW	N Center St/NC 127
Sidewalk	14th Ave NW/10th St Blvd NW	6th St NW	12th Ave NW
Sidewalk	2nd St NE/NC 127	8th Ave NE	10th Ave NE
Sidewalk	8th Ave NE	2nd St NE/NC 127	5th St NE
Sidewalk	4th St NE	7th Ave NE	Existing on 4th St NE
Sidewalk	4th St NE	Existing on 4th St NE	8th Ave NE
Sidewalk	7th Ave NE	4th St NE	Stasavich PI NE
Sidewalk	6th St NW	2nd Ave NW	3rd Ave NW
Sidewalk	3rd St NE	4th Ave NE	5th Ave NE

Table 3.2 Sidewalk Projects, continued

Recommended Sidewalks	Roadway	From	To
Sidewalk	Highland Ave NE	21st St NE	Existing on Highland Ave NE
Sidewalk	20th St NE	Highland Ave NE	12th Ave NE
Sidewalk	5th St Ct SE	Tate Blvd SE	1st Ave SE
Sidewalk	2nd St SE/NC 127	Main Ave NE	1st Ave SE
Sidewalk	S Center St	4th Ave SE	Existing on S Center St
Sidewalk	8th Ave Dr SE	2nd St SE/NC 127	S Center St
Sidewalk	S Center St	7th Ave SW	10th Ave SW
Sidewalk	17th St SW	2nd Ave SW	Existing on 17th St SW
Sidewalk	17th St SW	2nd Ave SW	Existing on 17th St SW
Sidewalk	LR Blvd SE	8th Ave SE	9th Ave SE
Sidewalk	LR Blvd SE	9th Ave SE	10th Ave Dr SE
Sidewalk	LR Blvd SE	10th Ave Dr SE	US Hwy 70
Sidewalk	10th Ave Dr SE	LR Blvd SE	US Hwy 70
Sidewalk	8th St Dr SE	US Hwy 70	Catawba Valley Blvd SE
Sidewalk	8th St Dr SE	US Hwy 70	16th St SE
Sidewalk	8th St Dr SE	16th St SE	Catawba Valley Blvd SE
Sidewalk	Catawba Valley Blvd SE	17th St Dr SE	21st St SE
Sidewalk	Catawba Valley Blvd SE	21st St SE	Startown Rd
Sidewalk	Catawba Valley Blvd SE	Startown Rd	Existing on Catawba Valley Blvd SE
Sidewalk	Catawba Valley Blvd SE	23rd St Dr SE	21st St SE
Sidewalk	9th Ave SE	Tate Blvd SE	Existing on 9th Ave SE



PRIORITY PROJECT CUT-SHEETS

Twelve projects were identified by city staff and the Steering Committee as top priorities for near-term implementation based on their prioritization score, near-term feasibility, and an equitable distribution throughout the city. These twelve projects include 4 bike lane projects, 4 sidewalk projects, and 4 multi-use path projects. Further details for each of these projects are provided in the project “cut-sheets” on the following pages.

The priority projects are listed below, and Map 3.5, on the facing page, shows the location of each project using project identification numbers 1-12. (The number is for identification purposes only, and does not reflect a prioritized ranking.):

- 1. Scenic Lake Route along 6th Street NW, 21st Ave NW, and 12th Street Drive NW;** from Old Lenoir Road to 6th Street NW
- 2. 17th Street NW Bike Lanes,** from 9th Avenue NW to 1st Avenue SW
- 3. 17th Street NW extension with Bike Lanes and Sidewalks,** from 9th Avenue NW to Clement Boulevard
- 4. Clement Blvd Bike Lanes,** from 17th St NW to planned MUP “Aviation Walk”
- 5. Sidewalks on 8th Avenue SE and 3rd Street SE,** from 5th Street SE to 10th Avenue SE
- 6. Sidewalks on 7th Ave SW, 3rd Ave SW, and 15th St SW and Pedestrian Crossing at 7th Avenue and 13th Street SW**
- 7. Sidewalk on 12th Avenue NE,** from 5th Street NE to 8th Street Drive NE
- 8. Sidewalk on 17th Avenue NE,** from 5th Street NE to 4th Street Drive NE
- 9. Multi-Use Path on 8th Avenue NE and C Avenue SE,** from 8th Avenue NE to 13th Street SE

10. Multi-Use Path on 8th Avenue NW and 9th Avenue NW, from 2nd Street NE to 6th Street NW

11. Multi-Use Path on 12th Avenue NW, from 6th Street NW to Old Lenoir Road

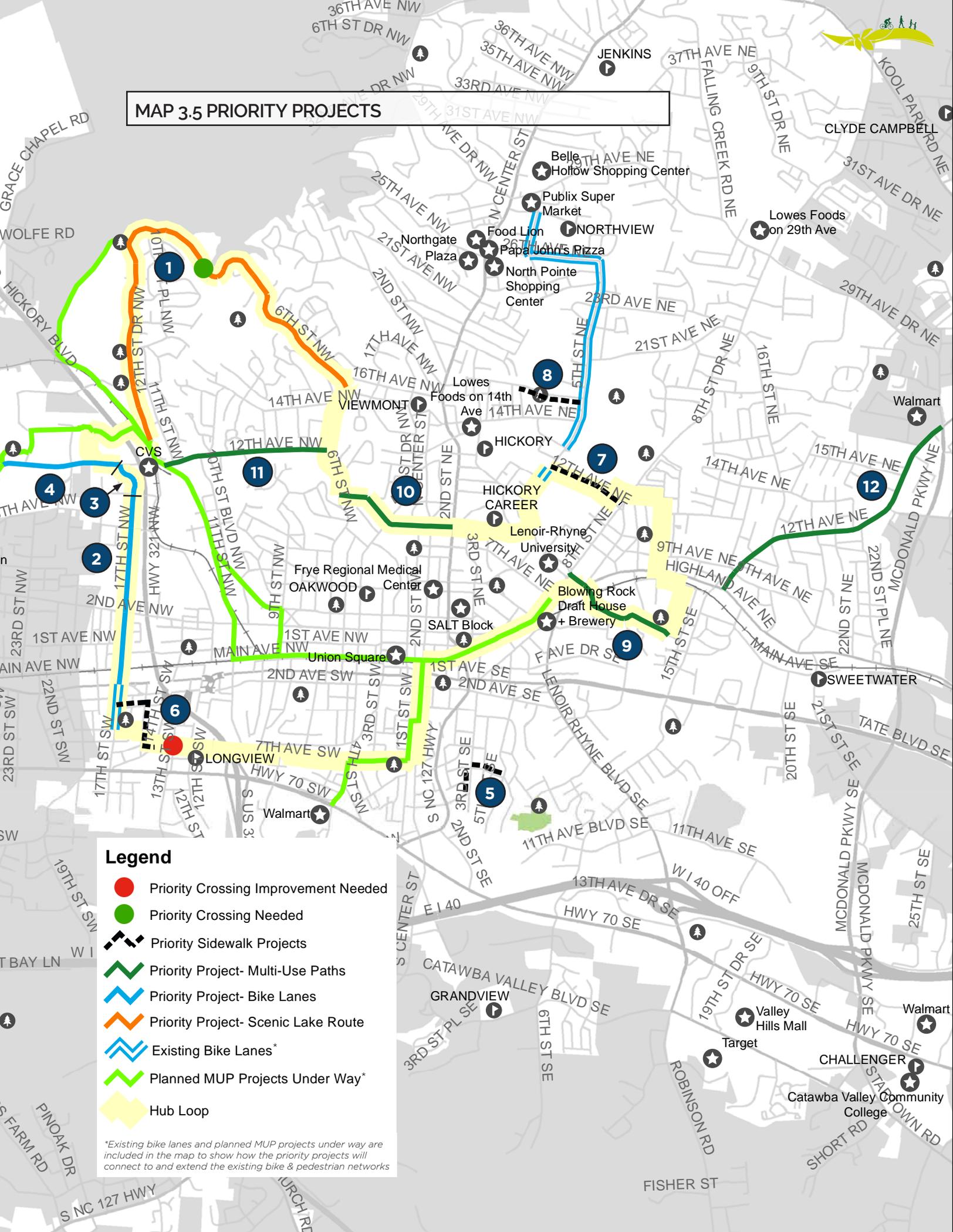
12. Multi-Use Path on 16th Street NE and 12th Avenue NE/Springs Road NE, from Highland Avenue to McDonald Parkway

ESTIMATED CONSTRUCTION COSTS

Each project cut-sheet shows a planning level cost estimate; a more in-depth estimate for each project is provided in Appendix F. Other key considerations for these costs are noted below:

- » The estimates are based on preliminary assessment of feasibility, and not engineering design; they are for planning purposes only. Costs will likely change as more information becomes available in the design phase.
- » Costs are based on 2020 unit prices; inflation not included.
- » Each project estimate includes a built-in 30% construction contingency.
- » Costs exclude right-of-way acquisition, engineering design, and construction engineering & inspection.
- » Costs exclude special landscaping, lighting, and green infrastructure.

MAP 3.5 PRIORITY PROJECTS



- Legend**
- Priority Crossing Improvement Needed
 - Priority Crossing Needed
 - Priority Sidewalk Projects
 - Priority Project- Multi-Use Paths
 - Priority Project- Bike Lanes
 - Priority Project- Scenic Lake Route
 - Existing Bike Lanes*
 - Planned MUP Projects Under Way*
 - Hub Loop

*Existing bike lanes and planned MUP projects under way are included in the map to show how the priority projects will connect to and extend the existing bike & pedestrian networks



PRIORITY PROJECT #1:
*SCENIC LAKE ROUTE ALONG 6TH STREET NW,
21ST AVE NW, AND 12TH STREET DRIVE NW,
FROM OLD LENOIR ROAD TO 6TH STREET NW*

This project was one of the most frequently discussed connections during the planning process, during Steering Committee meetings and public meetings alike. This is the top of the Hickory Urban Bikeway (HUB) loop that is planned to connect all four quadrants of the city with bicycle facilities. This section of the loop provides direct access to Lake Hickory,

This project will transform this section of the loop into a "Scenic Lake Route" that will provide designated space for bicyclists in the form of Advisory Shoulders (or Advisory Bike Lanes) and more comfortable conditions for people walking. This treatment accommodates low to moderate volumes of two-way motor vehicle traffic while prioritizing space for bicyclists with little or no widening of the paved roadway surface.

In some sections of the route, where the road is curvy, the center line can be maintained with advisory shoulders, or solid striped bike lanes where the pavement width allows. In more constrained and curvy sections, the road can transition to shared lane markings with a centerline.

ROADWAY CHARACTERISTICS (EXISTING):

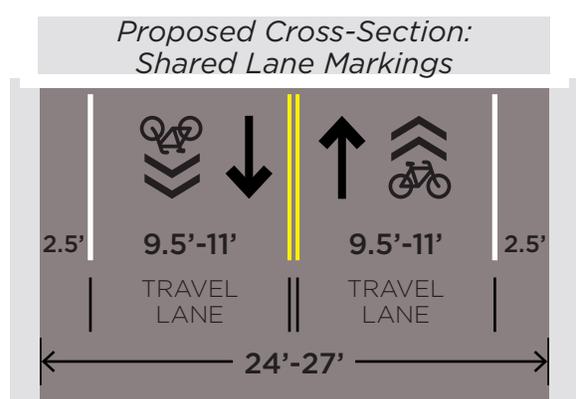
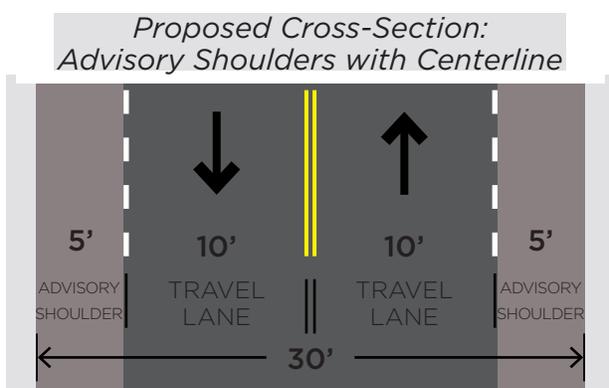
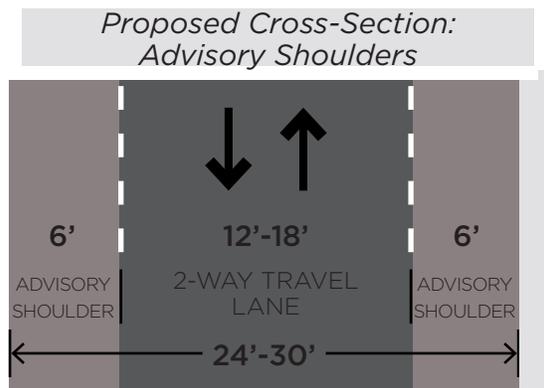
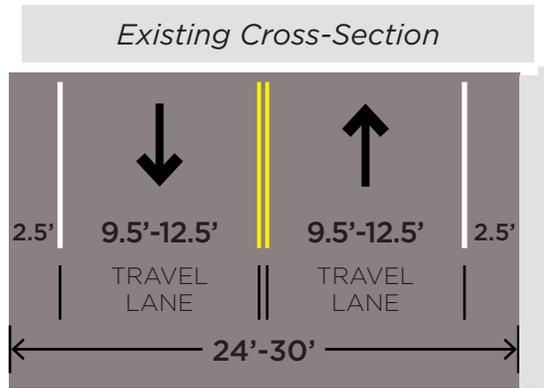
- » AADT = 840-2,400
- » Speed Limit = 35 mph
- » Curb + Gutter presence varies- one side in places, both sides in others
- » Shoulders and gutter pan are uneven and do not provide a safe space for bicycling

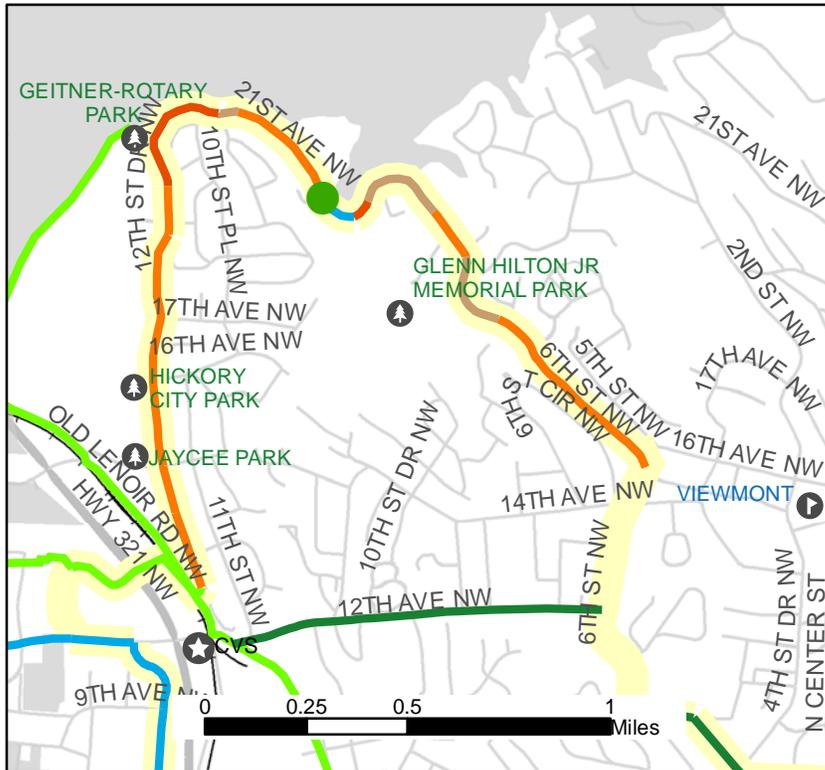
PROPOSED FACILITY TYPES:

- » 5'-6' Advisory shoulders (also known as Advisory Bike Lanes or ABLs)
- » Shared Lane Markings (SLM)
- » 5' Bike Lanes
- » Wayfinding Signage
- » Lowered speed limit of 25 mph

PROJECT LENGTH & ESTIMATED COST:

- » 2.95 miles
- » \$300,000
- » Prioritization Score = 12.6





Legend

- Crossing Needed
- Scenic Lake Route- Advisory Shoulders
- Scenic Lake Route- AS with centerline
- Scenic Lake Route- Bike Lanes
- Scenic Lake Route- Shared Lane Markings
- Priority Multi-Use Path Projects
- Priority Bike Lane Projects
- Planned MUP Projects Under Way
- HUB Loop





PRIORITY PROJECT #2:
BIKE LANES AND SIDEWALKS ON 17TH STREET NW, FROM 9TH AVENUE NW TO 1ST AVENUE SW

This project will extend the existing bike lanes on 17th Street SW that currently run from 5th Avenue SW to 1st Avenue SW, providing a continuous facility along 17th Street SW/NW, and constituting the western side of the Hickory Urban Bikeway (HUB) Loop.

The project was selected as a priority bike lane project, but sidewalks are also recommended for this roadway. When the road is widened to accommodate the bike lanes, sidewalks and curb and gutters will be added. The cost estimate provided here and in Appendix F includes the cost of sidewalks being added on the east side; however, the side(s) on which sidewalk is built is ultimately subject to subsequent feasibility study and engineering.

ROADWAY CHARACTERISTICS (EXISTING):

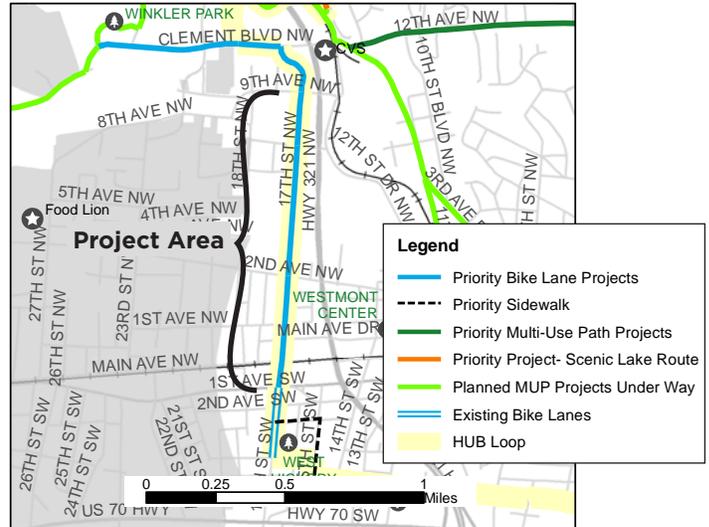
- » AADT = 2,500 - 4,800
- » Speed Limit = 25-35 mph
- » Curb + Gutter presence varies

PROPOSED FACILITY TYPES:

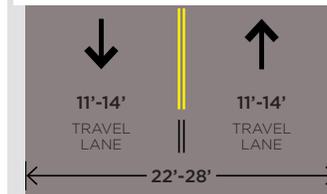
- » 5' Bicycle Lanes
- » 5' Sidewalks
- » Wayfinding Signage

PROJECT DETAILS:

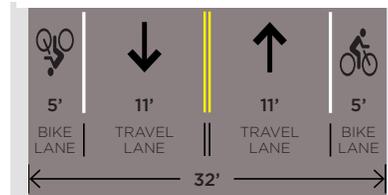
- » 1.06 miles
- » \$4,800,000
- » Priority Score = 19.7



Existing Cross-Section- 1st Ave SW to 7th Ave NW



Proposed Cross-Section- 1st Ave SW to 7th Ave NW



Existing Conditions- north of 1st Avenue SW



Proposed Treatment- Looking south towards 1st Avenue SW



PRIORITY PROJECT #3:
17TH STREET NW EXTENSION WITH BIKE LANES
AND SIDEWALKS, FROM 9TH AVENUE NW TO
CLEMENT BOULEVARD

This project will extend 17th Street NW from its current northern terminus at 9th Avenue NW further north to Clement Boulevard, and it will be a critical connection to complete the Hickory Urban Bikeway (HUB) Loop.

This new section of 17th Street NW will be built with 5-foot bike lanes and sidewalks that will match the recommended cross-section on 17th Street NW, as described on the previous pages.

ROADWAY CHARACTERISTICS (FUTURE):

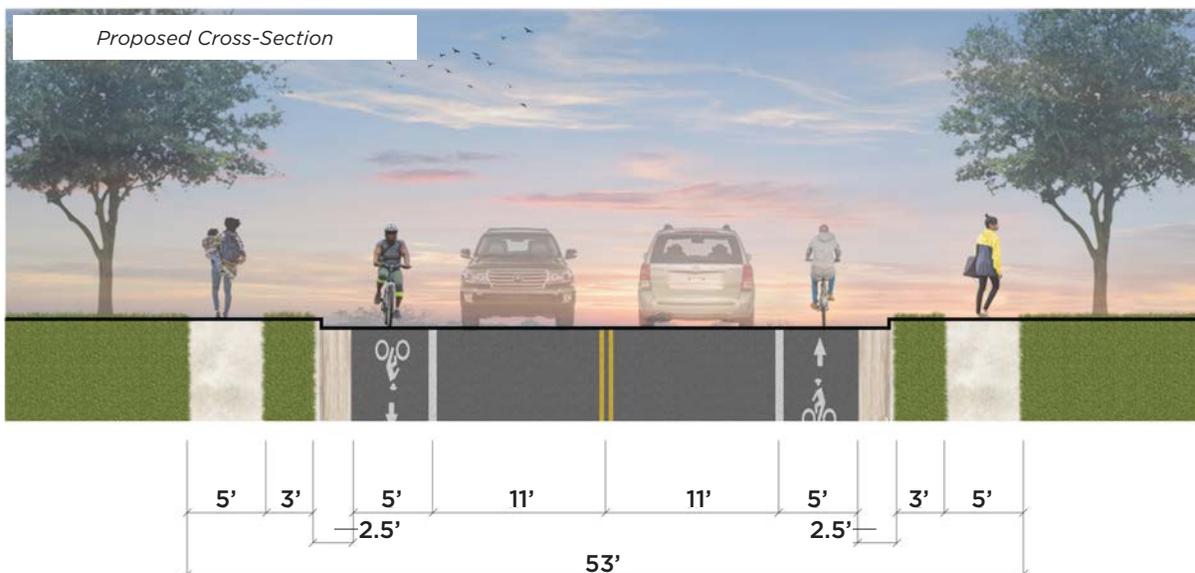
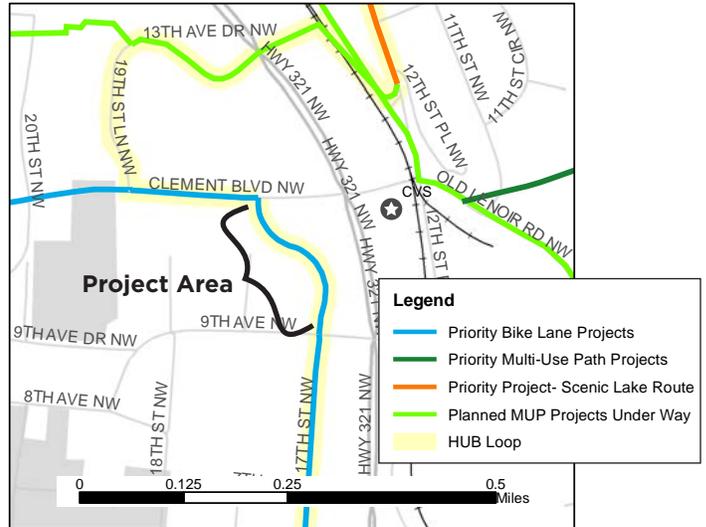
- » Proposed Speed Limit = 25 mph

PROPOSED FACILITY TYPES:

- » New roadway connection
- » 5' Bike Lanes
- » 11' Travel Lanes
- » 5' Sidewalks

PROJECT LENGTH & ESTIMATED COST:

- » 0.20 miles
- » \$1,100,000
- » Prioritization Score = 23.9



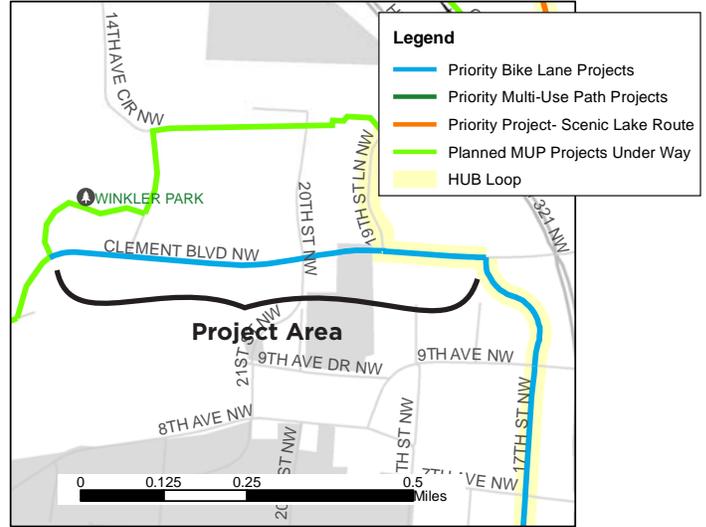
PRIORITY PROJECT #4:
BIKE LANES ON CLEMENT BLVD, FROM 17TH ST NW TO PLANNED MUP "AVIATION WALK"

Clement Boulevard is currently five-lanes wide—two travel lanes in each direction, and a middle turn lane. The average daily traffic counts are only 3,900 vehicles per day. Removing the middle turn lane to reduce the number of lanes from five to four will create space that can be converted to bike lanes on either side.

This segment of bike lanes will provide a dedicated bicycle facility along Clement Boulevard, connecting bicyclists to Winkler Park and Frans Stadium. This project also completes another section of the Hickory Urban Bikeway (HUB) Loop, connecting the proposed bike lanes on 17th Street NW and the 17th Street extension to the bike lanes recommended for 19th Street Lane NW and to the planned multi-use path "Aviation Walk" that will cross over US 321 to Winkler Park. Sidewalks are also recommended for this roadway, and are shown in the cross-section below for illustrative purposes, but they are not included in the cost estimate.

ROADWAY CHARACTERISTICS (EXISTING):

- » AADT = 3,900 vehicles per day
- » Speed Limit = 35 mph
- » Pavement Width = 55'



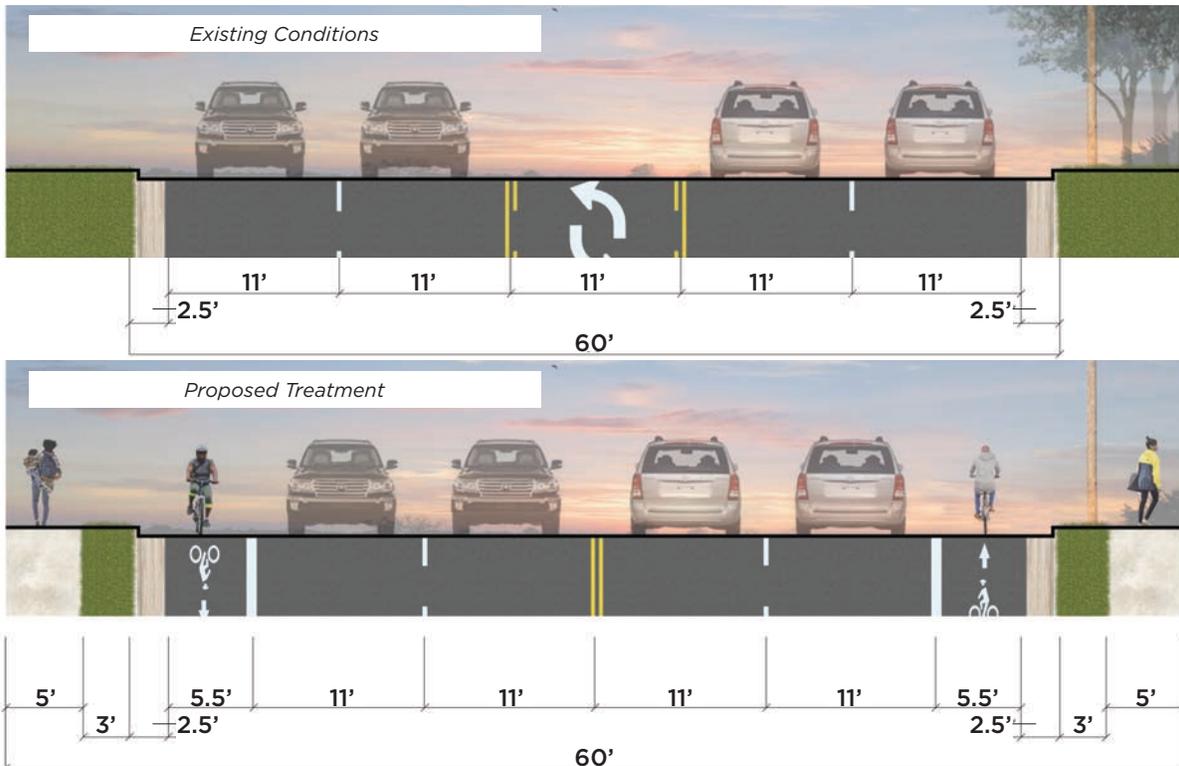
- » Curb and gutter present
- » Number of Lanes: 5 including center turn lane

PROPOSED FACILITY TYPES:

- » Two 5.5' Bike Lanes
- » Four 11' Travel Lanes

PROJECT LENGTH & ESTIMATED COST:

- » 0.66 miles
- » \$130,000
- » Prioritization Score = 21.7



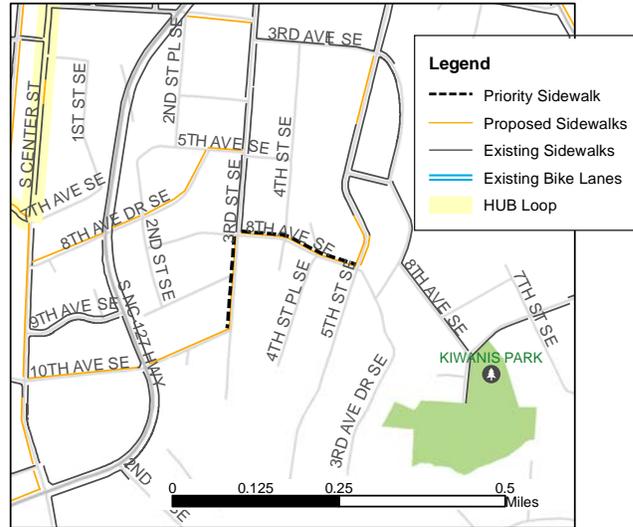


PRIORITY PROJECT #5:
SIDEWALKS ON 8TH AVENUE SE AND 3RD STREET SE, FROM 5TH STREET SE TO 10TH AVENUE SE

A sidewalk on the north side of 8th Avenue SE connecting to a sidewalk on the west side of 3rd Street SE will fill in gaps in the sidewalk network in the southeast quadrant of Hickory. The existing sidewalks on 3rd Street SE end at the intersection with 8th Avenue. The sidewalk segment on 8th Avenue connects the pedestrian network from 3rd Street to 5th Street, where sidewalks pick up to the north of 8th Avenue.

This area is primarily residential, with nearby Kiwanis Park attracting foot traffic from nearby residences.

The Hickory Engineering Department's Manual of Practice specifies design standards for sidewalks to be 5-feet wide with a 3-foot planting strip between the street. The graphics and cost estimates reflect these current design standards; however, it is the recommendation of this plan that the City consider updating the design standards to **require minimum 6- to 8-foot planting strips, which will allow space for shade trees to be planted.** Wider planting strips and shade trees should be considered and implemented where feasible for pedestrian comfort, streetscape enhancement, and benefits such as traffic calming.



ROADWAY CHARACTERISTICS (EXISTING):

- » AADT = No data
- » Speed Limit = 25 mph
- » Number of Lanes = no lane striping
- » Pavement Width = 20-23'
- » Curb/no gutter on 3rd Street SE, no curb or gutter on 8th Avenue SE

PROPOSED FACILITY TYPES:

- » 5' Sidewalks with 3' buffer (or greater)

PROJECT LENGTH & ESTIMATED COST:

- » 0.32 miles
- » \$340,000





PRIORITY PROJECT #6: SIDEWALKS ON 7TH AVE SW, 3RD AVE SW, AND 15TH ST SW; PEDESTRIAN CROSSING AT 7TH AVENUE AND 13TH STREET SW

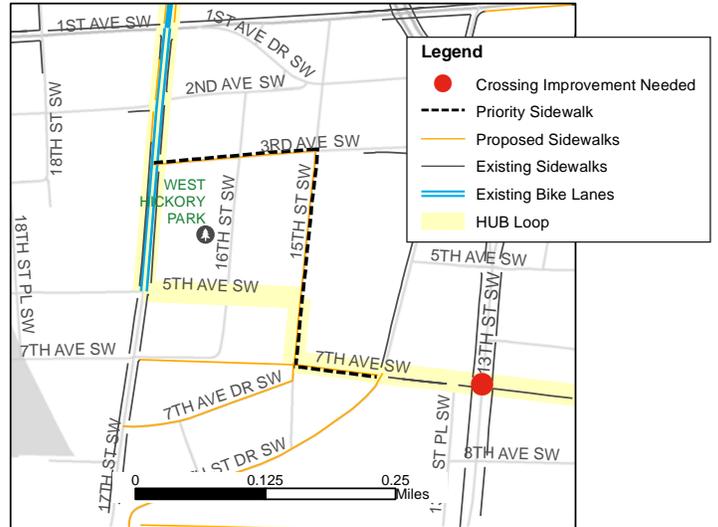
Filling in these sidewalk gaps as well as improving pedestrian crossings creates a more friendly pedestrian environment to the west of busy Highway 321. These sidewalks facilitate pedestrian access to West Hickory Park.

On 7th Avenue, the sidewalk is specified to be installed on the south side of the street, continuing from the existing sidewalk that ends at 14th Street SW. On 3rd Avenue and 15th Street, the sidewalk can be installed on the side that is most practical and feasible.

At the intersection of 13th Street SW and 7th Avenue SW, high-visibility crosswalks on 3 legs of the intersection (South, West, and East) as well as a Rectangular Rapid Flashing Beacon (RRFB) allow for a safer pedestrian crossing environment.

ROADWAY CHARACTERISTICS (EXISTING):

- » AADT = 3,900 on 13th St SW
- » Speed Limit = 45 mph on 13th St SW, 25-35 mph on 7th Ave SW, no posted speed limit on 15th St or 3rd Ave (default speed limit is 35 mph throughout the city if not otherwise posted)
- » Curb and gutter present on 7th Avenue SW and absent on 15th Street and 3rd Avenue SW



PROPOSED FACILITY TYPES:

- » 5' Sidewalk with 3' buffer (or greater)
- » High-visibility crosswalks
- » Rectangular Rapid Flashing Beacon on 13th Street SW
- » Reduce speed limits to 25 mph on 15th St SW and 3rd Ave SW, and 35 mph on 7th Ave SW and 13th St SW

PROJECT LENGTH & ESTIMATED COST:

- » 0.44 miles
- » \$740,000





PRIORITY PROJECT #7:
SIDEWALK ON 12TH AVENUE NE SIDEWALK
FROM 5TH STREET NE TO 8TH STREET DRIVE
NE

This sidewalk segment is adjacent to the Lenoir Rhyne University and would connect to existing sidewalks at both ends (5th Street NE and 8th Street NE). This project fills a long gap in the sidewalk network and provides a separated walking facility in an area that has a mix of single-family and multi-family housing. This project also falls along the Hickory Urban Bike (HUB) Loop.

ROADWAY CHARACTERISTICS (EXISTING):

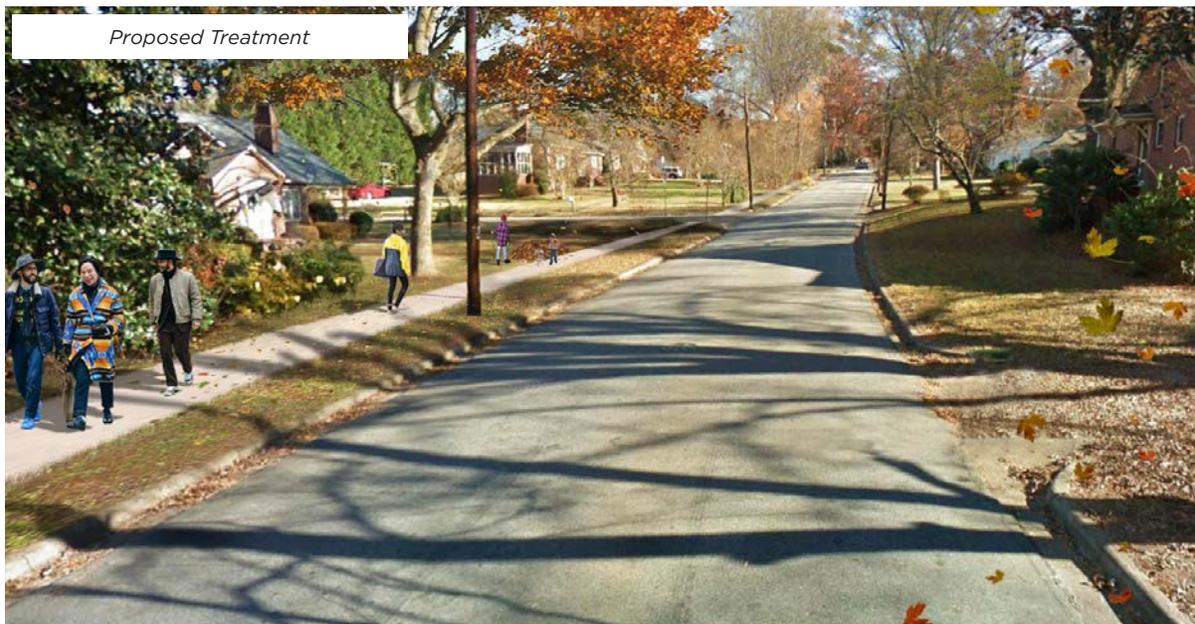
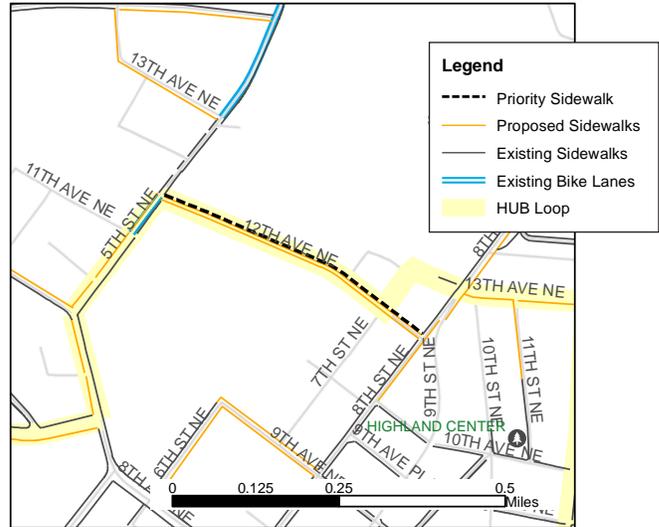
- » AADT = no data
- » Speed Limit = 25 mph
- » Two lane road without lane delineation
- » Speed tables along the street
- » Curb and gutter present for most of the corridor

PROPOSED FACILITY TYPES:

- » 5' sidewalk on one side with 3' buffer (or greater)

PROJECT LENGTH & ESTIMATED COST:

- » 0.44 miles
- » \$670,000



PRIORITY PROJECT #8:
SIDEWALK ON 17TH AVENUE NE FROM 5TH STREET NE TO 4TH STREET DRIVE NE

This sidewalk provides pedestrian access to Civitan park and connects to the existing sidewalk on 5th Street NE. This sidewalk connection improves access to the park from the east and from the south and west via 4th Street Drive.

The surrounding area is primarily residential, with a mix of single family and multi-family housing. Other destinations in this area include churches and the Hampton Heights Golf Club.

ROADWAY CHARACTERISTICS (EXISTING):

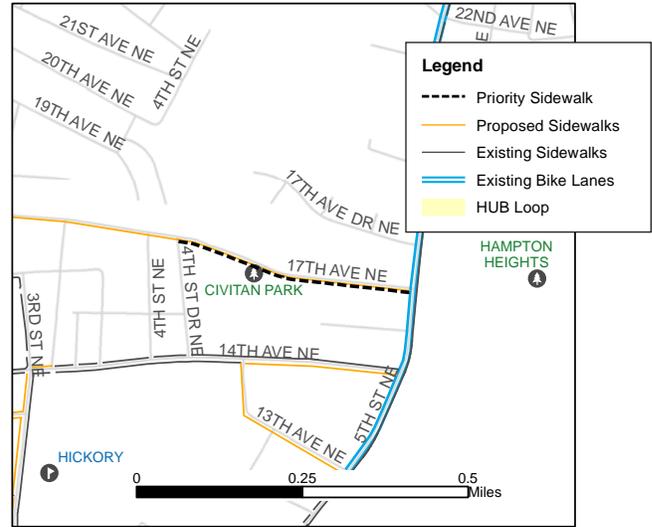
- » AADT = no data
- » Speed Limit = 25 mph
- » Two lane road without lane delineation
- » Curb and gutter present for over 75% of the segment

PROPOSED FACILITY TYPES:

- » 5' sidewalk on south side with 3' buffer (or greater)

PROJECT LENGTH & ESTIMATED COST:

- » 0.36 miles
- » \$440,000



PRIORITY PROJECT #9:
MULTI-USE PATH ON 8TH AVENUE NE AND C AVENUE SE FROM 8TH AVENUE NE TO 13TH STREET SE

This area is primarily industrial with some single family residences. The corridor stretches between Lenoir Rhyne University and Cliff Teague Park, providing access through an area that lacks bicycle and pedestrian facilities.

This segment is along the HUB loop, enhancing the loop for bicyclists of all ages and abilities. The segment connects to sidewalks at both ends.

ROADWAY CHARACTERISTICS (EXISTING):

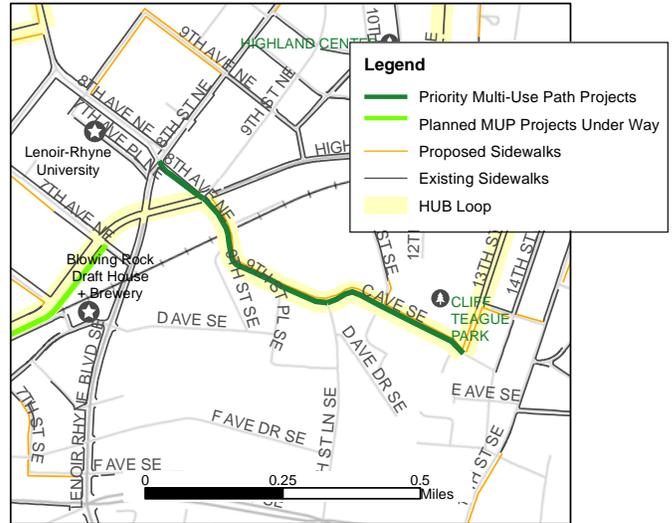
- » AADT = no data
- » Speed Limit = none posted (local limit)
- » Curb and gutter absent for most of the corridor

PROPOSED FACILITY TYPES:

- » 10' paved Multi-Use Path on north side with 3' buffer (or greater) where feasible
- » The side on which the path is built is subject to change, depending on further feasibility study and engineering design at the time of implementation.

PROJECT LENGTH & ESTIMATED COST:

- » 0.71 miles
- » \$1,700,000
- » Prioritization Score = 8.6





PRIORITY PROJECT #10:
MULTI-USE PATH ON 8TH AVENUE NW AND 9TH AVENUE NW, FROM 2ND STREET NE TO 6TH STREET NW

A multi-use path on this roadway segment will enhance pedestrian and bicycle access to the Hickory YMCA. The land use on this corridor is a mix of single- and multi- family residential.

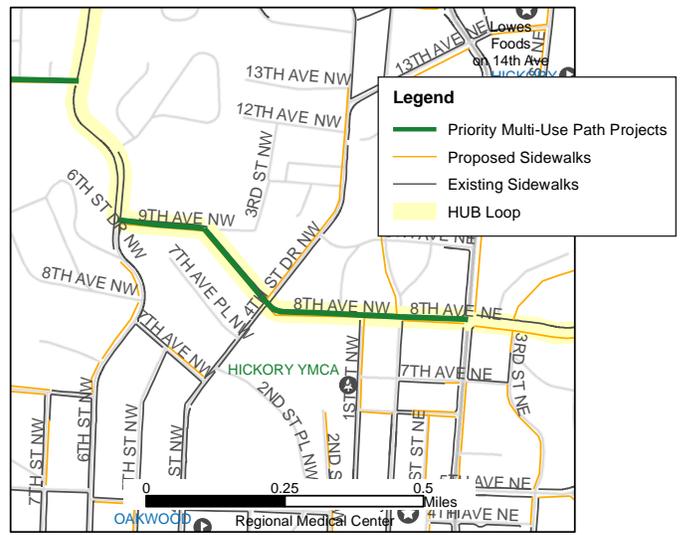
This segment is on the HUB loop.

ROADWAY CHARACTERISTICS (EXISTING):

- » AADT = 4,000-5,100 vehicles per day
- » Speed Limit = 25 mph

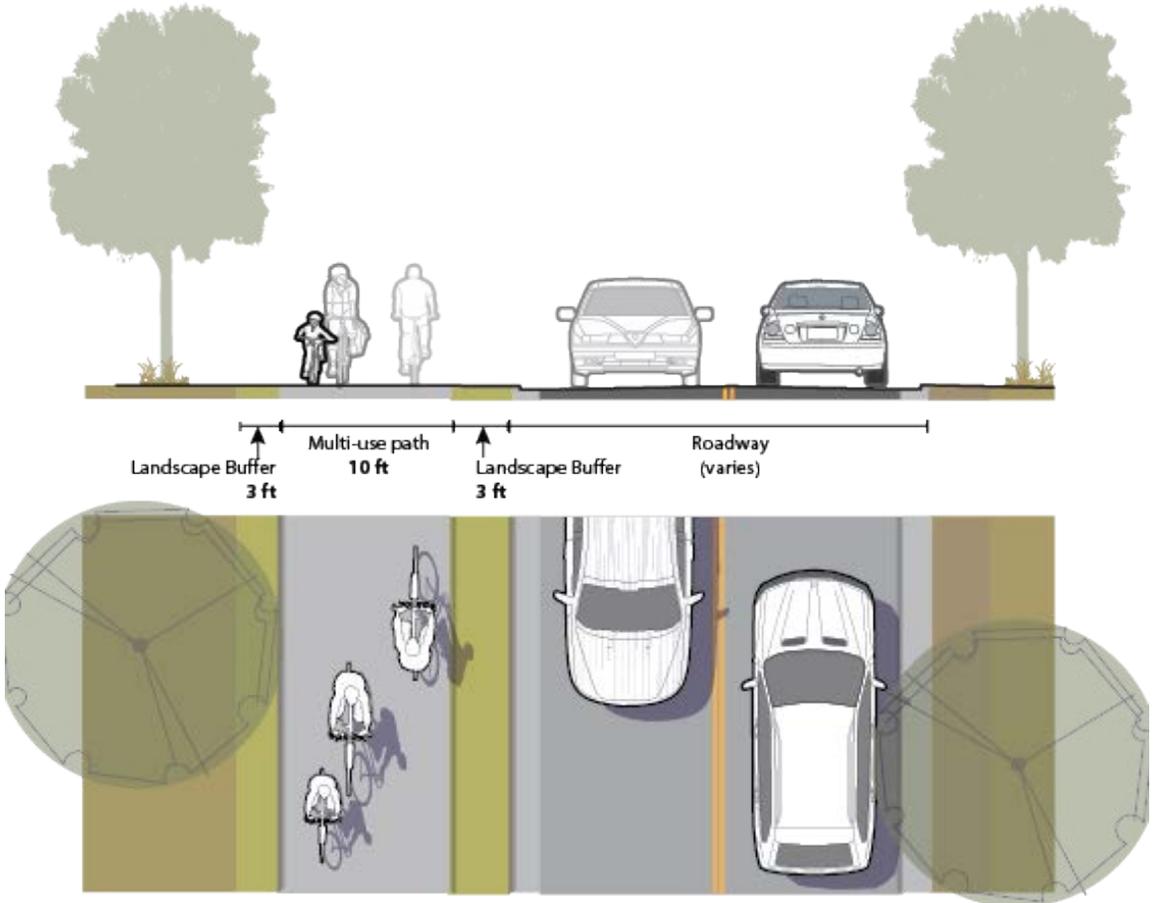
PROPOSED FACILITY TYPES:

- » 10' paved Multi-Use Path on north side with 3' buffer where feasible
- » The side on which the path is built is subject to change, depending on further feasibility study and engineering design at the time of implementation.



PROJECT LENGTH & ESTIMATED COST:

- » 0.70 miles
- » \$1,400,000
- » Prioritization Score = 11.5



PRIORITY PROJECT #11:
MULTI-USE PATH ON 12TH AVENUE NW FROM
6TH STREET NW TO OLD LENOIR ROAD

12th Avenue NW is one of the most continuous east-west connections in this area of Hickory. For this reason, it carries a high volume of vehicle traffic and has the potential to be an important pedestrian connection with enhanced facilities. Bicyclists use this roadway, but more bicyclists will find this road useful with an enhanced bicycle facility.

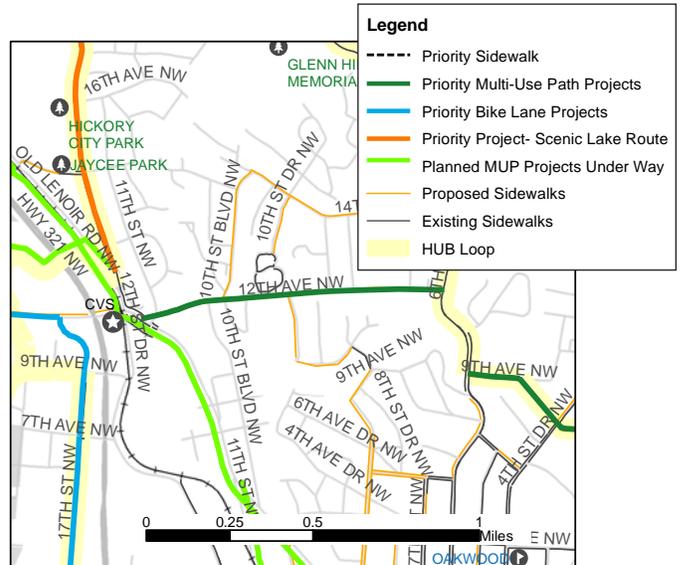
This high traffic volume corridor lacks pedestrian and bicycle facilities. Land uses on this street are primarily low-density residential. The corridor connects to commercial destinations at its western terminus. Both ends of the segment connect to the HUB loop and existing sidewalks.

ROADWAY CHARACTERISTICS (EXISTING):

- » AADT = 13,000 vehicles per day
- » Speed Limit = 35 mph
- » Two lanes
- » Intermittent curb and gutter

PROPOSED FACILITY TYPES:

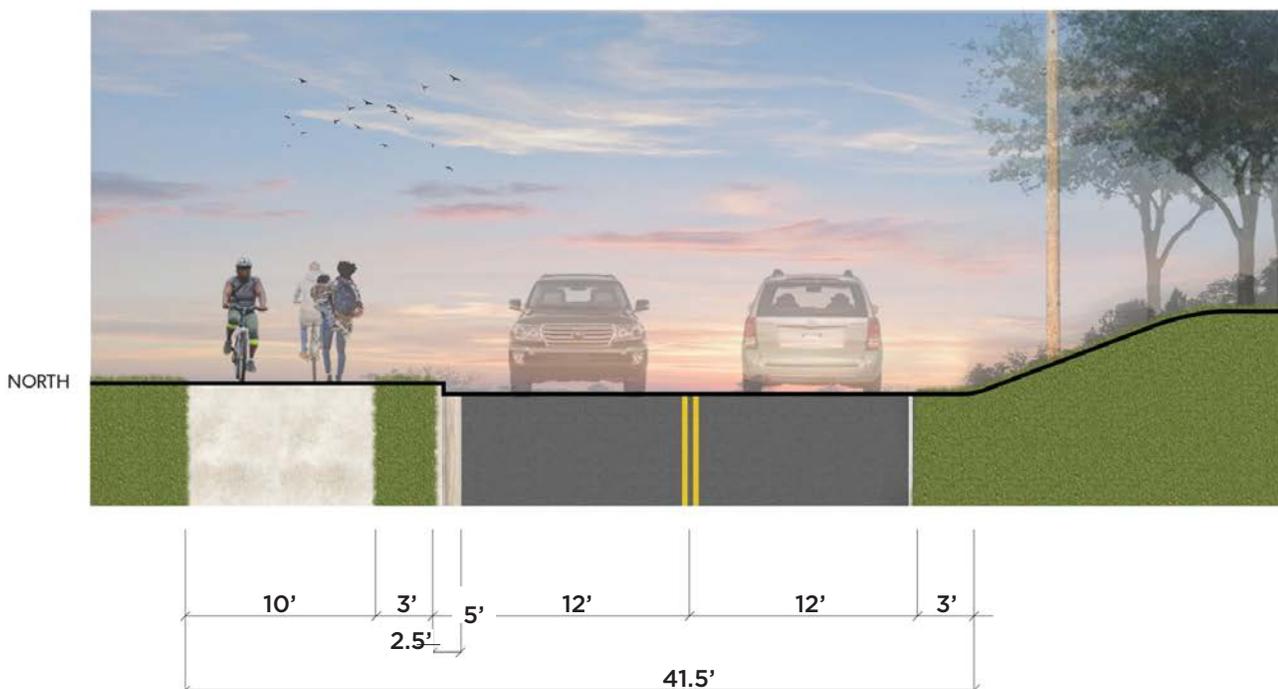
- » 10' paved Multi-Use Path on north side with 3' buffer where feasible
- » The side on which the path is built is subject to change, depending on further feasibility study and engineering design at the time of implementation.



- » Consider adding Shared Lanes Markings to the roadway as well for cyclists who prefer to ride in the road, especially eastbound to avoid having to cross the street to access the multi-use path. (Note: shared lane markings were not included in the cost estimate.)

PROJECT LENGTH & ESTIMATED COST:

- » 0.92 miles
- » \$1,600,000
- » Prioritization Score = 9.3





PRIORITY PROJECT #12:
MULTI-USE PATH ON 16TH STREET NE AND 12TH AVENUE NE/SPRINGS ROAD NE, FROM HIGHLAND AVENUE TO McDONALD PARKWAY

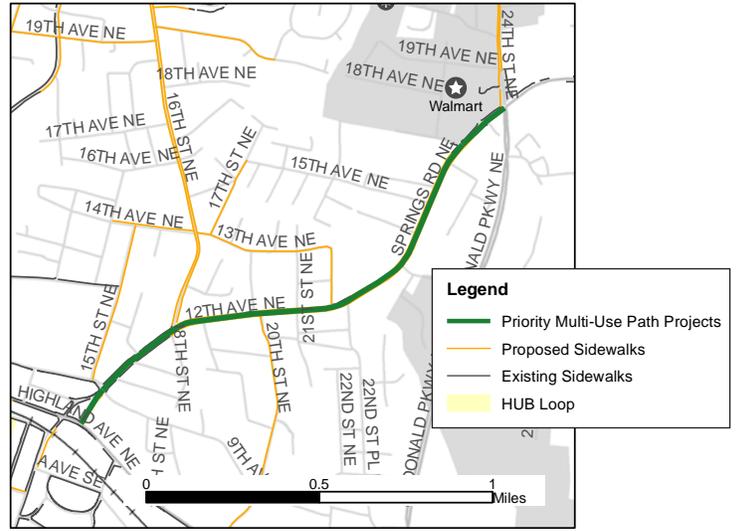
This multi-use path creates a bicycle and pedestrian connection in northeastern Hickory that extends the existing network between Highland Avenue NE and McDonald Parkway NE. This corridor is a mix of commercial businesses, churches, and some residential sections. This project will improve pedestrian and bicycle access to the businesses along 12th Avenue/Springs Road NE, including the Walmart Neighborhood Market, and will provide connectivity to neighborhoods in northeast Hickory.

ROADWAY CHARACTERISTICS

- » AADT = 16,000 to 19,000 vehicles per day
- » Speed Limit = 45 mph
- » Five lanes
- » Curb and gutter present
- » Sidewalks present in short sections

PROPOSED FACILITY TYPES:

- » 10' paved Multi-Use Path on west/north side with 3' buffer where feasible
- » The side on which the path is built is subject to change, depending on further feasibility study and engineering design at the time of implementation.
- » Detailed feasibility study should evaluate opportunities for a road diet, medians/median refuges, mid-block crossings, and separated or buffered bike lanes for this corridor, in addition to pedestrian facilities (sidewalks). A road diet option may prove cost effective for bikeway implementation and will have safety benefits for all modes



PROJECT LENGTH & ESTIMATED COST:

- » 1.65 miles
- » \$3,100,000
- » Prioritization Score = 13.9



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*Map-mark up session at the Walk
Bike Hickory Kick-off Meeting*



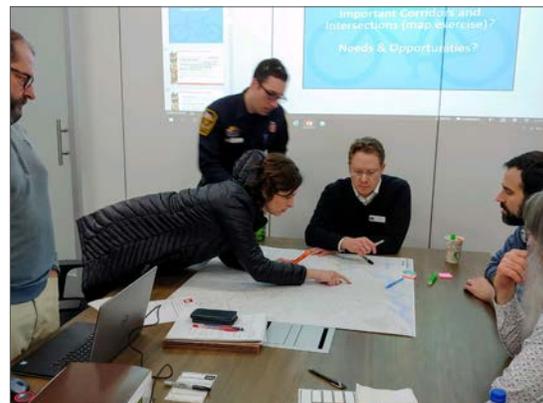
Chapter 4: Implementation

IMPLEMENTATION OVERVIEW

This chapter defines a structure for managing the implementation of this Plan. Implementing its recommendations will require leadership and dedication to pedestrian and bicycle facility development on the part of a variety of agencies. Equally critical, will be meeting the need for a recurring source of revenue. Even small amounts of local funding are essential for matching and leveraging outside sources. Most importantly, the City need not accomplish the recommendations of this plan by acting alone; success will be realized through collaboration with regional and state agencies, the private sector, and non-profit organizations. Funding resources that may be available to Hickory are presented in the appendix of this plan.

Other important actions can be taken in advance of major investments, including formalizing a Bicycle and Pedestrian Advisory Committee (BPAC), initiating education and safety programs, and incorporating recommendations from this Plan into other City documents, policies, and procedures. Getting a project “shovel-ready”

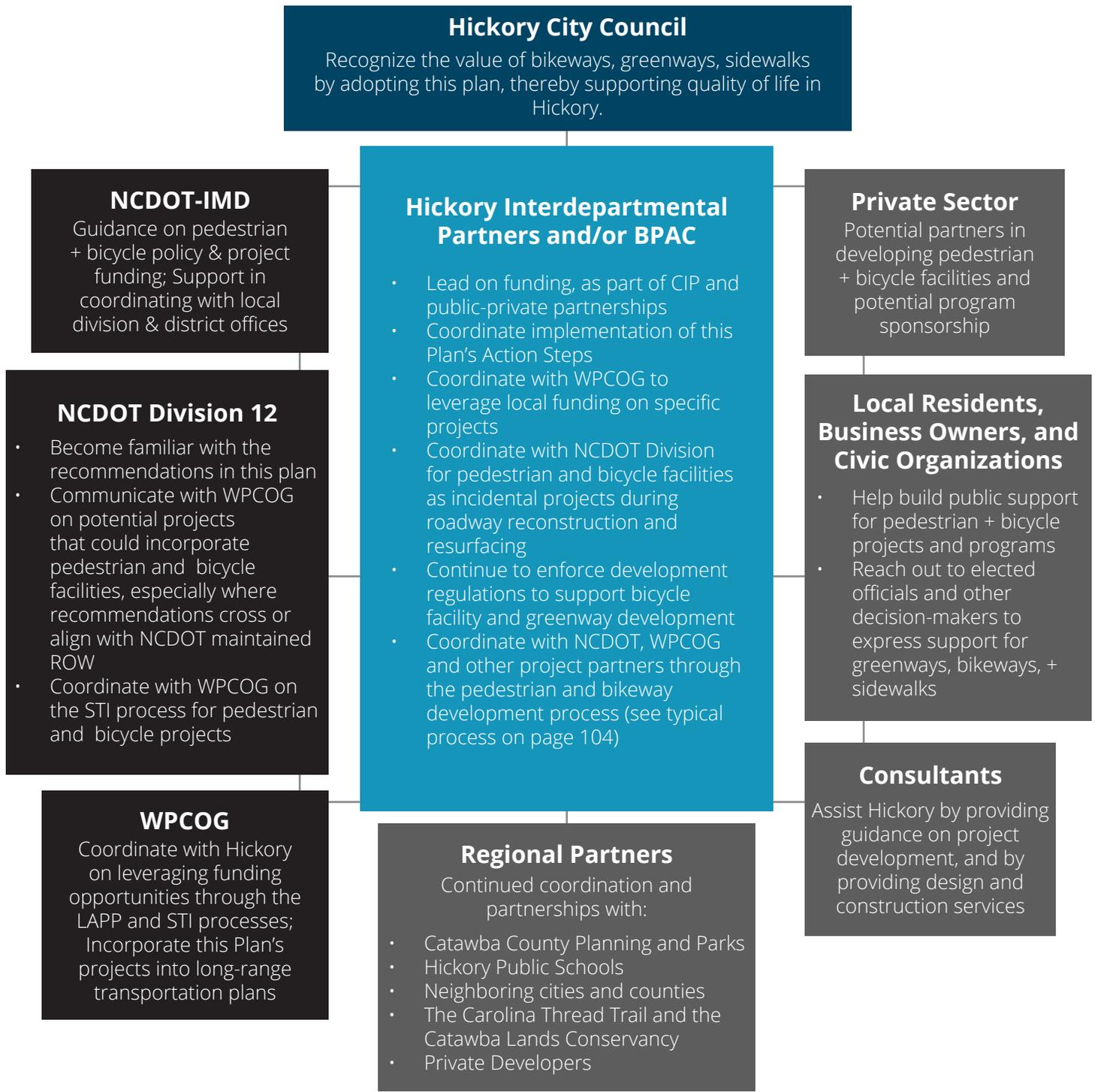
can be a huge step towards implementation, as many outside funding sources look more favorably upon projects that are already in public right-of-way, planned, and designed. Following through on these priorities will allow the key stakeholders to prepare for the development of larger bicycle and trail projects over time, while taking advantage of strategic opportunities as they arise.



Members of the Walk Bike Hickory Steering Committee and/or the Friends of Hickory Bicycle Advisory Committee could be good candidates for a future standing Bicycle and Pedestrian Advisory Committee (BPAC) during plan implementation.



KEY PARTNERS & ROLES IN IMPLEMENTATION



Acronym Legend:
 BPAC: Bicycle & Pedestrian Advisory Committee
 NCDOT: North Carolina Department of Transportation
 IMD: Integrated Mobility Division
 WPCOG: Western Piedmont Council of Governments
 STI: Strategic Transportation Investments

Table 4.1 Implementation Action Steps

#	TASK	LEAD	SUPPORT	DETAILS	PHASE
ADMINISTRATIVE ACTION STEPS					
1	Adopt Walk Bike Hickory as the City’s Pedestrian + Bicycle Transportation Plan.	City Council	City Staff, Project Consultants, Steering Committee	Through adoption, the Plan becomes an official planning document of the City. Adoption does not commit the city to dedication of funding, but rather shows intention to support plan implementation over time. It also signals to outside funding groups that Hickory has undergone a successful, supported planning process, which is key to securing outside funding.	2021
2	Designate staff to lead implementation of Walk Bike Hickory, including a “Pedestrian + Bike Plan Coordinator”.	City Council & City Manager	Multiple departmental directors	The City Manager and City directors of Planning, GIS, Development Services, Public Works & Transportation, and Parks, Recreation, and Cultural Resources should each identify their respective departmental staff leads for implementing this bicycle plan. A staff organizational chart for plan implementation should be shared among departments, so there is a known point person for each. A single point person among the designated staff should be designated as the “Ped + Bike Plan Coordinator”.	2021
3	Designate a Bicycle and Pedestrian Advisory Committee (BPAC) for plan implementation.	City Council	City Manager and designated staff from step above	The City of Hickory should form a Bicycle and Pedestrian Advisory Committee (BPAC) out of the plan’s steering committee to assist in the implementation of this plan. The BPAC should have representation from active pedestrians and commuting and recreational cyclists and should champion the recommendations of this plan. The formation of this group would be a significant step in becoming designated as a Walk and Bicycle Friendly Community (see section that follows). The committee would provide a communications link between the residents of the community and local government. They should also continue to meet periodically, and be tasked with assisting City staff in community outreach, marketing, and educational activities recommended by this plan. See Appendix C: Program resources for more details.	2021
4	Communicate this plan’s priority projects to potential implementation partners.	[future] Ped + Bike Plan Coordinator	BPAC & NCDOT-Integrated Mobility Division (IMD)	The purpose of this step is to network with potential project partners, and to build support for implementing the top projects. Possible groups to receive a presentation/coordination meeting include: WPCOG, NCDOT Division 12, Catawba County Parks, Recreation and Open Space, neighboring jurisdictions. Consider a presentation at an annual Hickory Pedestrian & Bicycle Workshop.	2021



Table 4.1 Implementation Action Steps (Continued)

#	TASK	LEAD	SUPPORT	DETAILS	PHASE
ADMINISTRATIVE ACTION STEPS (CONTINUED)					
5	Begin Annual Hickory Ped + Bike meeting.	[future] Ped + Bike Plan Coordinator	Departmental leads, stakeholders, NCDOT Division 12 highway staff and planning engineer	Coordination between key project partners will provide a level of accountability, and ensure that recommendations are implemented. Key project partners (see task 4 above & organizational chart) should meet on an annual basis to discuss and evaluate the implementation of this Plan. A brief progress benchmark memo should be a product of these meetings, and participants should reconfirm the plan's goals each year. The meetings could also occasionally feature special training sessions, or include on-site tours of recently completed projects and upcoming priority project corridors.	Ongoing (Beginning Winter 2020-2021)
6	Update Hickory Ped + Bike Plan	City Council & [future] Ped + Bike Plan Coordinator	BPAC	This plan should be updated by 2025 (about five years from adoption). If many projects and programs have been completed by then, a new set of priorities should be established. If not, a new implementation strategy should be established, potentially reassigning project priorities.	2025
INFRASTRUCTURE, POLICY, AND FUNDING ACTION STEPS					
7	Ensure that Hickory Ped + Bike Plan recommendations are implemented as part of new development.	[future] Ped + Bike Plan Coordinator	Designated staff from Planning, GIS, and Development Services departments	Other City documents and maps should be updated with recommendations from Bike Hickory, to ensure bicycle facilities are implemented with new development. Consider updates to the development standards to better support bicycling and bicycle parking standards (refer to the recommendations in Appendix A).	2021
8	Ensure that projects are incorporated in NCDOT's prioritization process and in the future planning of the NCDOT Planning Branch	[future] Ped + Bike Plan Coordinator	WPCOG, NCDOT Division 12, and NCDOT Planning Branch	The City of Hickory, WPCOG, and NCDOT Division 12 should coordinate to fund recommendations from this plan over time. Use the plan cut-sheets and recommendation maps to communicate project details and to submit projects for funding. The City will need to be prepared to match at least 20% of their submitted project totals. Projects that have secured public right-of-way and design completed (or at least underway) will be more competitive.	2021 onward
9	Seek multiple funding sources and facility development options.	[future] Ped + Bike Plan Coordinator	BPAC (for potential grant writing assistance, funding research, letters of support, etc.)	It will be necessary to consider many different sources of funding that together will support plan implementation. Funding sources can be used for a variety of activities, including: programs, planning, design, implementation, and maintenance. The appendix outlines the most likely sources of funding from the federal, state, and local government levels as well as from the private and non-profit sectors.	2019 onward



Table 4.1 Implementation Action Steps (Continued)

#	TASK	LEAD	SUPPORT	DETAILS	PHASE
INFRASTRUCTURE, POLICY, AND FUNDING ACTION STEPS (CONTINUED)					
10	Adopt guidelines for greenway trail accessibility	City Council	Hickory Parks, Recreation & Cultural Resources	Adopt the Outdoor Area Guidelines from the US Access Board. The guidelines are available for download and review here: https://www.access-board.gov/attachments/article/1637/outdoor-guide.pdf	2021
11	Develop a long-term funding strategy.	[future] Ped + Bike Plan Coordinator & departmental leads	City Council	To allow continued development of the project recommendations, capital funds for pedestrian and bicycle facility construction should be set aside every year. Funding for an ongoing maintenance program should also be included in the City's operating budget. Consider incorporating Walk Bike Hickory recommendations into a multi-year bond package for the City of Hickory, along with other initiatives, such as with projects related to parks, recreation, and transportation improvements.	2021 onward
12	Begin Priority Projects	[future] Ped + Bike Plan Coordinator	City Council, departmental leads, private contractors	Dedicate funding, seek proposals, and hire a contractor for a site survey, construction documents, and permitting. Confirm that the project can be designed completely within existing public right-of-way, and secure easements if needed. When design is complete, select a phase of the project to be constructed first, based on costs and funding available at that stage. Send the project out to bid, select a contractor, and begin work. See typical project development cycle later in this chapter.	2021 onward
13	Invest in staff training opportunities related to pedestrian and bicycle infrastructure.	City Council	[future] Ped + Bike Plan Coordinator & departmental leads	Consider trainings from the National Association of City Transportation Officials (NACTO) on the Urban Bikeway Design Guide. These trainings can be customized for Hickory staff, helping to ensure that as new facilities are designed and constructed, they are up to world-class standards for safety and functionality. If Hickory hosts the workshop, they could strategically invite NCDOT division staff, WPCOG staff, and others who would be partners in implementation. Cost sharing for the training could come from participation of staff from neighboring municipalities. More info: https://nacto.org/training-and-workshops/	Training would be most beneficial before design phase of major projects
14	Maintain pedestrian and bicycle facilities.	Designated staff from Public Works & Transportation and Parks, Recreation, and Cultural Resources	BPAC & General Public (for reporting maintenance needs); NCDOT	Hickory should define a maintenance plan, budget, and schedule for existing and future pedestrian and bicycle facilities, pavement markings, and sidewalks, working with NCDOT where necessary. See maintenance program recommendations in Chapter 3 for more on this topic.	2021 onward



Table 4.1 Implementation Action Steps (Continued)

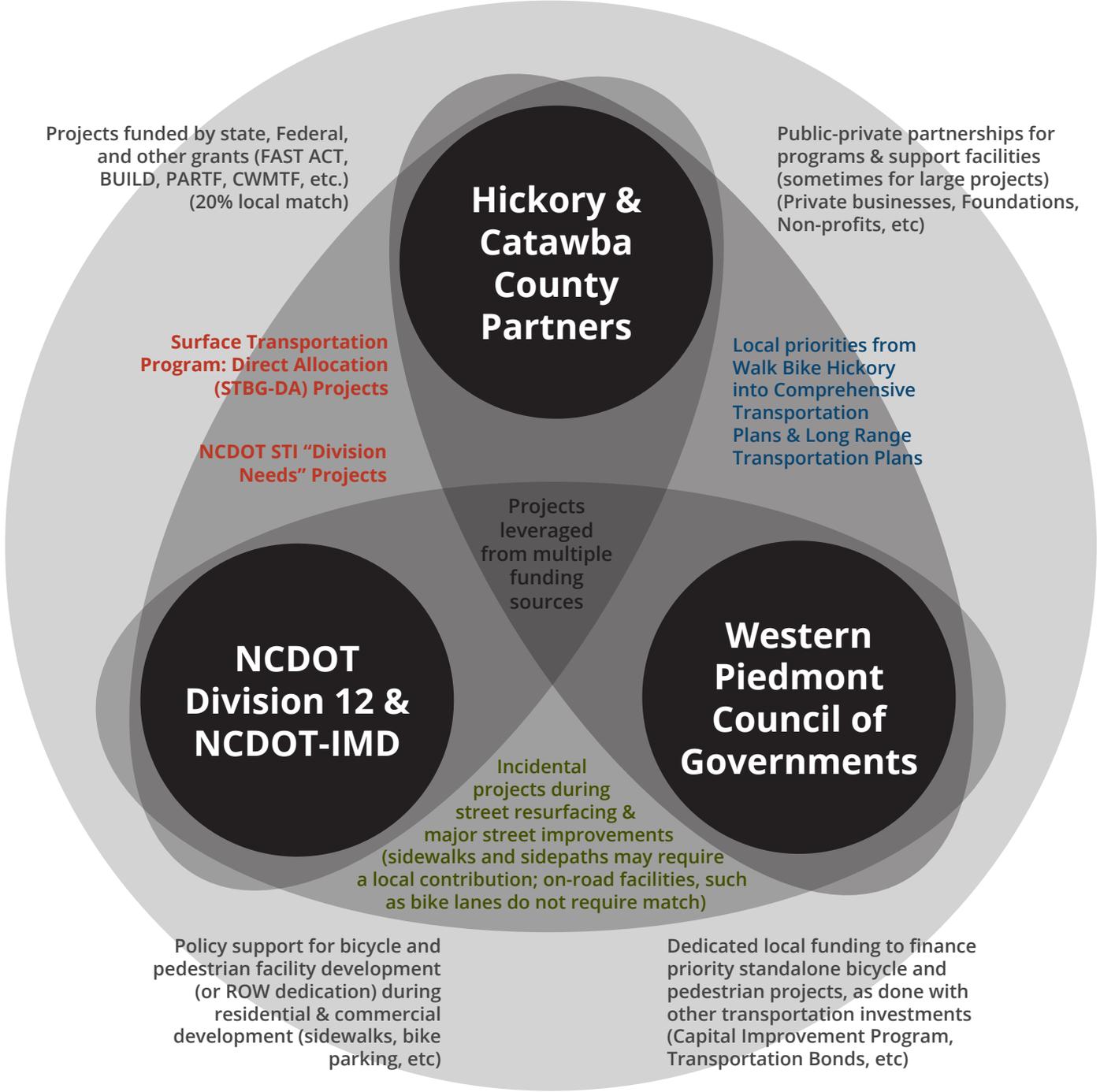
#	TASK	LEAD	SUPPORT	DETAILS	PHASE
INFRASTRUCTURE, POLICY, AND FUNDING ACTION STEPS (CONTINUED)					
15	Continue participating in NCDOT and ITRE's Non-Motorized Traffic Monitoring Program (Pedestrian & Bicycle Counts)	Public Works & Transportation and Parks, Recreation, and Cultural Resources	NCDOT & ITRE https://www.ncdot.gov/divisions/bike-ped/Pages/research-data.aspx	Since late 2014, NCDOT and local governments have installed equipment that uses electromagnetic bicycle detectors and infrared technology to count bicycle and pedestrian traffic. Over time, Hickory can expand this program as more bike facilities are constructed, and use this data to justify investment, prioritize projects, and understand preferred bicycling routes and behavior.	2021 onward
16	Coordinate with NCDOT Division 12 on their 3-year road resurfacing schedule (and any short term changes to it) to accomplish projects that require pavement markings.	[future] Ped + Bike Plan Coordinator & Designated staff from Public Works & Transportation	NCDOT Division 12	Resurfacing is a very important opportunity for implementing bike facilities, especially ones that are primarily pavement markings. It is essential for implementation that the City stay in close touch with NCDOT Division 12 Operations and Maintenance staff to stay on top of the resurfacing schedule and keep closely abreast of any updates or changes to the schedule. Checking in with the Division at least once every quarter is not too often. Additionally, a BPAC representative could be assigned to reviewing the three-year resurfacing/restriping schedule from Division 12 on a regular basis to ensure there are no missed opportunities.	2021 onward
PROGRAM ACTION STEPS					
17	Initiate efforts to provide safe routes to school	City of Hickory	Catawba County Schools, NCDOT Bike/Ped Division	This effort will complement the objectives and priorities of Walk Bike Hickory. Additionally, NCDOT is looking to ways to continue some Safe Routes to School (SRTS) funding; coordinate with NCDOT-IMD regarding any future opportunities for SRTS funding.	2021 onward
18	Launch new programs.	[future] Ped + Bike Plan Coordinator & BPAC	NCDOT Bike/Ped Division, Hickory Police Dept., Catawba County Schools & Catawba County Human Services, LiveWell Catawba, public health advocates	These groups should coordinate to launch new programs, as described in Chapter 3, such as launching a safety campaign, developing a map or mobile app with bike routes, hosting an "open streets" event, and pursuing some form of greenways signage and wayfinding program. Walk Bike Hickory committee members could also be called upon for program involvement.	Most feasible to begin programs after a BPAC is formed
19	Distribute bicycle and pedestrian safety information.	BPAC	NCDOT Bike/Ped Division, Police Department	NCDOT has print material with safety tips for motorists, bicyclists and pedestrians available for download at https://www.watchformenc.org/program-materials/ . Other methods of distribution could include web sites, social media, and 'on-the-ground' in park kiosks. The Watch for Me NC program is another resource for this task (with more information at https://www.watchformenc.org/).	2021

Table 4.1 Implementation Action Steps (Continued)

#	TASK	LEAD	SUPPORT	DETAILS	PHASE
PROGRAM ACTION STEPS (CONTINUED)					
20	Conduct communication & outreach campaigns related to walking and bicycling.	BPAC	Local newspapers, City website & social media managers	BPAC should publicly announce their successes as progress is made. This could be achieved partly through social media, and by establishing a page on the City website dedicated to bike/ped education and project updates. Also, BPAC should provide regular (annual) reports to the City Council on implementation progress.	2021
21	Seek designation as a Bicycle-Friendly Community	[future] Ped + Bike Plan Coordinator	BPAC (members could be assigned tasks to complete individual portions of the application process)	The development and implementation of this plan is an essential first step toward becoming a designated Bicycle-Friendly Community. With progress on program, policy, and infrastructure recommendations, the City should be in a position to apply for and receive recognition by 2022. See https://bikeleague.org/community for more information on the application process.	2022



TYPICAL PROJECT FUNDING PARTNERS AND METHODS



FACILITY DEVELOPMENT METHODS

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. See the appendix for more information.

RESIDENTIAL AND COMMERCIAL DEVELOPMENT

The construction of sidewalks, bicycle facilities, trails, greenways, and safe crosswalks should be required during development. Construction of facilities that corresponds with site construction is more cost-effective than retrofitting. In commercial development, emphasis should also be focused on safe pedestrian and bicyclist access into, within, and through large parking lots. This ensures the future growth of the pedestrian and bicycle networks and the development of safe communities.

ROADWAY CONSTRUCTION

Pedestrians and bicyclists should be accommodated any time a new road is constructed or an existing road is reconstructed. In the longer-term, all new roads with moderate to heavy motor vehicle traffic should have sidewalks, bicycle facilities, and safe intersections. Also, case law surrounding the Americans with Disabilities Act (ADA) has found that roadway resurfacing constitutes an alteration, which requires the addition of curb ramps at intersections where they do not yet exist.

REPAVING

Repaving projects provide a clean slate for revising pavement markings. When a road is repaved, the roadway should be restriped to 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, though this will likely require a local contribution. NCDOT provides three-year plans that include resurfacing schedules. Please see the following website: <https://connect.ncdot.gov/resources/Asset-Management/HMIP-Plans/Pages/HMIP.aspx>.

BRIDGE CONSTRUCTION OR REPLACEMENT

Provisions should always be made to include walking and bicycling facilities as a part of vehicular bridges. See NCDOT's "List of Bridges and Current Status": <https://www.ncdot.gov/initiatives-policies/Transportation/bridges/Pages/default.aspx>. Even though bridge construction and replacement does not occur regularly, it is important to consider these policies for long-term bicycle planning.

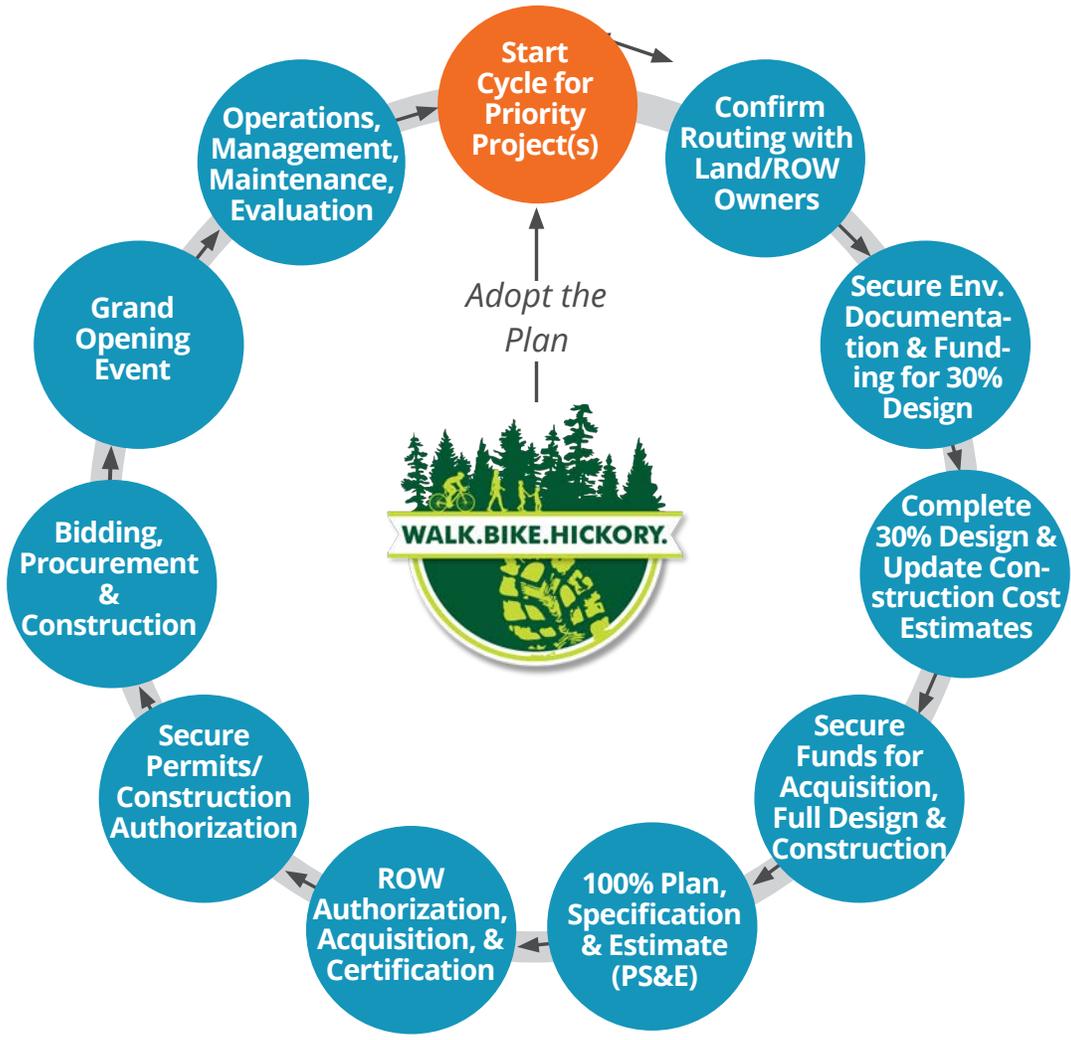
CITY EASEMENTS

Hickory should continue to revise existing utility easements to accommodate public access greenway trail facilities. Adopting policy language to allow for public access for trail users, as a matter of right, on all new sewer and utility easements would greatly enhance the development of greenways. Sewer easements are very commonly used for this purpose, offering cleared and graded corridors that easily accommodate trails. This approach avoids the difficulties associated with acquiring land, and it better utilizes the City's resources.



TYPICAL PROJECT DEVELOPMENT PROCESS

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





Appendix A: Pedestrian + Bicycle Policy and Regulatory Review

Appendix B: Design Guideline Reference + Resources

Appendix C: Program Resources

Appendix D: Funding Sources

Appendix E: Prioritization Scores

Appendix F: Cost Estimates



Appendix A: Pedestrian + Bicycle Policy and Regulatory Review

Pedestrian and bicycle needs must be considered within the context of Hickory’s transportation and land use system. To improve safety, community character, and transportation choices requires investment in public transit, bikeways, sidewalks and land use patterns that put a variety of destinations and services within close proximity. Through the statewide promotion of Complete Street design guidelines, and by working to advance Complete Streets and Context-Sensitive Solutions (CSS), the North Carolina Department of Transportation is a willing partner to those communities desiring a transportation system that reinforces community character for economic development, community health, and livability. The City has established a great policy vision for Complete Streets in the 2030 Comprehensive plan (see box, right).

One of the most cost-effective implementation strategies for Hickory is to establish land use and transportation policies and development regulations that promote walkable and bikeable new development, programs, and capital projects. As part of a comprehensive approach to developing recommendations for a more walkable and bikeable city, the project team reviewed Hickory’s zoning, subdivision, and engineering standards to identify general issues and opportunities

impacting the pedestrian and bicycling environment. Following is a review of Hickory’s existing development regulations to identify model standards and opportunities for improvement that can be applied throughout the city. The project team identified appropriate model regulatory and policy language from around North Carolina and the U.S. for elements including pedestrian and greenway facilities, connectivity, Complete Streets, and bicycle parking to provide examples methods for Hickory to maximize pedestrian, bikeway, and greenway improvements in conjunction with new development, redevelopment, and corridor improvement projects.

The subsections below include recommendations for pedestrian- and bicycle-related elements of Complete Streets and complete pedestrian and bikeway networks. Sidewalks, bikeways, and streetscape amenities such as street trees and lighting are some most fundamental elements of Complete Streets for pedestrians, transit users and cyclists. Access management, multi-modal level of service assessments, and traffic calming

*“A network of neighborhoods supports a multi-modal transportation system that is centered on mixed-use districts, corridors and the downtown. . . Street trees, landscaping and other amenities provide natural breaks between vehicle routes and sidewalks. The **complete streets are built for pedestrians, bicycles and vehicles**, with on-street parking on many of them. While private transportation is still popular, the community is less reliant on automobiles. . .”*

-Hickory’s 2030 Comprehensive Plan

are also critical for developing complete street networks for walking and cycling through the development review and capital project implementation process. The NCDOT Complete Street Planning and Design Guidelines and design guidelines that accompany this plan also include recommendations on complete street design elements specifically for people walking and cycling.

The recommendations below are organized into major categories of “Complete Streets and Greenways”, “Pedestrian-oriented Urban Design Elements”, and “Connectivity.” All of the major categories are interrelated, but based on the existing conditions analysis, and the goals of this plan, the following key recommendations from the table below should be implemented first.

Priority Policy and Regulatory

Recommendations:

1. Update development regulations and engineering standards to include and reflect best practices for pedestrian, bikeway, and greenway design.
2. Revise and update connectivity requirements to promote comprehensive, low-stress pedestrian, bikeway, and greenway networks.
3. Develop a policy to require all projects by the City and NCDOT and regional partners review the recommendations of this plan to ensure that implementation capital projects include recommended pedestrian treatments.

These approaches will complement other specific capital projects, and education, enforcement, and evaluation recommendations provided elsewhere in this planning document.

Mural on 1st Avenue NW





Topics/Strategies	Comments/Recommendations
	Land Development Code
Complete Streets and Greenways	
<p>1.1. Implement Complete Streets Policy</p> <p>A complete streets policy allows cities and Counties to work towards creating a street network that encourages pedestrian and bicycle travel and provides safe and comfortable roadways for all users.</p> <p>NCDOT's <i>Complete Streets Planning and Design Guidelines</i> will apply to all NCDOT-maintained streets in the City. The NCDOT guidelines also provide excellent guidance for locally maintained streets and street networks and complete streets planning and design processes, which can be applied in Hickory.</p>	<p>Excellent. The Transportation Vision Statement in the <i>2030 Comprehensive Plan</i> provides great policy support for complete streets and walkable/bikeable community goals:</p> <p><i>A network of neighborhoods supports a multi-modal transportation system that is centered on mixed-use districts, corridors and the downtown. . . Street trees, landscaping and other amenities provide natural breaks between vehicle routes and sidewalks. The complete streets are built for pedestrians, bicycles and vehicles, with on -street parking on many of them. While private transportation is still popular, the community is less reliant on automobiles. . .</i></p>
<p>1.2 Develop Complete Street Design Guidelines for a variety of contexts and all street/roadway user groups</p> <p>The subsections below include recommendations for pedestrian-related elements of Complete Streets and complete pedestrian and greenway networks. Sidewalks, greenways, and streetscape amenities such as street trees and lighting are some most fundamental elements of Complete Streets for pedestrians and greenway users. Access management, multi-modal level of service assessments, and traffic calming are also critical for developing complete street networks for walking through the development review and capital project implementation process.</p>	<p>Good, but improvements to make the requirements more context-sensitive should be considered.</p>

Comments/Recommendations	
Engineering Dept. Manual of Practice	General Recommendations
<p>Good. No policy referenced, although most typical street cross-sections do include sidewalk on at least one side and some do include bike lanes or wide outside lanes for bicycle use.</p>	<p>In addition to the very thorough NCDOT Complete Streets Planning and Design Guidelines, Smart Growth America provides great resources for designing streets that cater to all users, including a best practices guide co-authored with APA.</p> <p>Dunn, NC has one of the best complete street policy statements of any community in NC.</p> <p>Zoning Ordinance Sec. 22-352. Circulation and connectivity. (a) Purpose and intent. <i>The purpose of this section is to support the creation of a highly connected transportation system with the city in order to provide choices for drivers, bicyclists, and pedestrians; promote walking and bicycling; connect neighborhoods to each other and to local destinations such as schools, parks, and shopping centers; reduce vehicle miles of travel and travel times; increase effectiveness of municipal service delivery, and free up arterial capacity to better serve regional long distance travel needs.</i></p>
<p>Needs Improvement.</p> <p>Most typical street cross-sections in Chapter 300 Streets do include sidewalk on at least one side and some do include bike lanes or wide outside lanes for bicycle use. However, the standards could be considered for updating in a number of arenas as detailed below.</p>	<p>The NCDOT Complete Street Planning and Design Guidelines and the design guidelines that accompany this plan include recommendations on complete street design elements for pedestrians and greenway users. Hickory could adopt and endorse the NCDOT guidelines and other national guidelines, including the NACTO Urban Street Design Guide.</p> <p>The design guidance should be integrated into Hickory’s development regulations and Manual of Practice. See examples from the Raleigh Street Design Manual and the Charlotte Urban Street Design Guidelines.</p> <p>Consider adopting by reference for street design one or more of the following and including in the new UDO:</p> <ul style="list-style-type: none"> - NCDOT Complete Streets Planning and Design Guidelines - NCDOT Traditional Neighborhood Street Design Guidelines - The design guidelines included in this plan



Topics/Strategies	Comments/Recommendations
	Land Development Code
<p>1.3. Require pedestrian accommodations, including by roadway type</p> <p>Pedestrian facilities should be determined based on street types and land uses of a given roadway corridor.</p>	<p>Hickory has good sidewalk requirements, but improvements to make the requirements more context-sensitive should be considered.</p> <p>Sec. 8.7 Sidewalk and Pedestrian Access (TA 18-01)</p> <p><i>8.7.1 Construction Specifications</i></p> <p><i>A. All development projects, regardless of if they are located within a subdivision or not, shall be required to install sidewalks along all adjacent streets. If development or redevelopment occurs in an area where the current sidewalk network is more than 500 feet away, a fee in-lieu may be utilized as outlined within this Land Development Code.</i></p> <p><i>B. If an in-lieu payment is made, such funds shall be deposited in the appropriate community service area account and expended only for the purchase of right of way for sidewalks, or for the development of sidewalks; serving the property or development in the immediate area, and only within the community service area in which the property is located.</i></p> <p><i>C. Within subdivisions, sidewalks shall be installed along at least one side of all proposed streets (public and private)</i></p>
<p>1.4. Require designated bikeways (bike lanes, shoulders, greenways, etc) during new development or redevelopment or capital roadway projects</p>	<p>Needs improvement.</p> <p>None required.</p>

Comments/Recommendations	
Engineering Dept. Manual of Practice	General Recommendations
<p>Hickory has good sidewalk requirements that are generally based on street type and/or land use context.</p> <p>However, sidewalks appear to be only required on one side of local streets and sidewalks wider than 5 feet are only shown on one cross-section (“4-lane divided/curb and gutter” section shows a 10-foot “sidewalk”).</p>	<ol style="list-style-type: none"> 1. Consider a greater range of sidewalks requirements based on street and land use context. Along collector and arterials, consider minimum 6-foot sidewalks. In areas such as downtown and pedestrian-oriented business districts with buildings at the back of the sidewalk and ground level retail, sidewalks should be as wide as 10-16 feet wide. See the NCDOT <i>Complete Street Planning and Design Guidelines</i> for contextually-based streetscape and sidewalk design requirements. Consider including these guidelines by reference in local design guidance or requirements 2. Sidewalks should be required on both sides of arterials, collectors, and local streets serving non-residential uses or residential development of 4 dwelling units per acre or greater. 3. The design guidelines recommended as part of this plan should be considered for incorporation or inclusion by reference in the City’s Zoning and Subdivision regulations and Construction and Development Guidelines. 4. Make the City’s Fee-In-Lieu for Sidewalks) more limited as to when they can or cannot be used. See the City of Asheville’s ordinance (Sec. 7-11-7, Sidewalk Requirements) for an example of more targeted language that Hickory could adapt. 5. The City should consider revising its ADA (“wheelchair”) ramp detail in the <i>Engineering Dept. Manual of Practice</i> Chapter 400 to include a perpendicular curb ramp specification, which are preferred by the US Access Board’s ADA Standards (see Chapter 4, Ramps and Curb Ramps).
<p>Needs improvement.</p> <p>Bike lanes, a 10-foot “sidewalk”, or wide lanes are noted on some cross-section typologies. However, insufficient guidance on when or where such sections should be used or required.</p>	<p>See Chapter 4 of the NCDOT <i>Complete Streets Planning and Design Guidelines</i> for guidance.</p> <p>Additionally, a wider range of bikeway typologies should be considered based on street typology including buffered and separated bike lanes as noted in the Plan’s design guidelines and as detailed in various publications including the NACTO <i>Urban Bikeway Design Guide</i> and the soon-to-be-released update to the AASHTO <i>Guide for the Development of Bicycle Facilities</i>.</p> <p>Also, see:</p> <p style="padding-left: 40px;">Chapter 6 of Catawba Forest, NC UDO for recommendations for bike-ways and greenways, especially sections 6.8.2, 6.9, 6.10.</p> <p style="padding-left: 40px;">Chapter 7 of the Wilson, NC UDO regarding greenways.</p>



Topics/Strategies	Comments/Recommendations
	Land Development Code
1.5. Require dedication, reservation or development of greenways	<p>Good, but could be improved to be more specific to greenways and to require or incentivize construction by developers.</p> <p>Sec. 8.14 Public Sites</p> <p><i>Where a proposed park or other recreation area, school site or other public site shown on the adopted master plans of the City of Hickory is located in whole or in part within the proposed subdivision, the proposed park or recreation area, school site or other public site shall be reserved for possible acquisition by the City Council or school board for a period of 18 months from the approval of the preliminary plat.</i></p>
1.6. Require new sidewalks, greenways, etc., to connect to existing facilities	<p>Needs Improvement.</p> <p>No design standards included.</p>



Comments/Recommendations	
Engineering Dept. Manual of Practice	General Recommendations
<p>Needs Improvement.</p> <p>No design standards included.</p>	<p>Consider requiring or incentivizing the construction of planned greenways by developers. Where greenway construction cannot politically or legally be required, consider offering incentives in the form of reduced fees, cost sharing, density bonuses, or reduction in other open space requirements when adopted greenways are constructed through private development.</p> <p>See requirements in Catawba Forest, NC <u>UDO</u>, Section 6.8.2 Greenways: <i>“When required by Catawba Forest Open Space & Greenways Plan or the Catawba Forest Transportation Plan, greenways and multi-use paths shall be provided according to the provisions [that follow in the section cited above].”</i></p> <p>For additional examples of incentives, see also: https://www.law.ufl.edu/pdf/academics/centers-clinics/clinics/conservation/resources/incentive_strategies.pdf</p>
<p>N/A</p>	<p>Connectivity of facilities is critical for walking and biking conditions. New development should be required to connect to or extend existing facilities bicycle and pedestrian facilities.</p> <p>See the following for other examples:</p> <p><u>Chapter 6</u> of Catawba Forest, NC UDO for recommendations for bike-ways and greenways, especially sections 6.5.3, 6.8.2, 6.9, 6.10.</p> <p><u>Chapter 7</u> of the Wilson, NC UDO regarding greenways.</p> <p><u>New Hanover County, NC’s EDZD Zoning District</u> provides points for new developments that connect to the existing bikeway network and key destinations and provides a good definition of the bikeway network. (Section 54.1-14 and following.)</p>



Topics/Strategies	Comments/Recommendations
	Land Development Code
<p>1.7. Consider pedestrian concerns and Level of Service (LOS) in Traffic Impact Analyses and other engineering studies</p> <p>Beyond LOS for motor vehicle travel at intersections, Hickory should consider adopting multi-modal of service standards where active transportation and transit use are expected to be high. Consideration of bicycle and pedestrian levels of service assure adequate facilities for bicyclists and pedestrians in new development and capital improvements. This also helps promote walking and bicycling and transit use as a legitimate means of transportation.</p>	<p>Needs improvement.</p> <p>None required.</p>
<p>1.8. Adopt traffic calming programs, policies, and standards</p> <p>Traffic calming on local streets increases safety and comfort for all roadway users, including pedestrians and cyclists. It also increases neighborhood livability.</p>	<p>N/A</p>
<p>1.9. Develop an access management program or policy</p> <p>Limiting turning movements on major roadways and requiring cross-access between adjacent parcels of land, including commercial developments, is a great tool for reducing the amount of traffic and turning movements on major roads while increasing safety and connectivity for pedestrians, bicycles, and cars.</p>	<p>Needs improvement.</p> <p>None required.</p>

Comments/Recommendations	
Engineering Dept. Manual of Practice	General Recommendations
N/A	<p>The NCDOT <i>Complete Streets Planning and Design Guidelines</i> provides factors of “Quality of Service” and LOS for bicycle, pedestrian, and transit modes (See Chapter 3, page 39 and Chapter 5).</p> <p>The City of Raleigh uses multimodal level of service approach in determining road improvements and traffic mitigation in their <i>Street Design Manual</i>.</p> <p>Charlotte, NC uses Pedestrian LOS and Bicycle LOS Methodologies for intersection improvements in their <i>Urban Street Design Guidelines</i>.</p>
<p>The City’s manual includes a detail for speed tables, but further information is needed on when this and other traffic calming devices should be considered. Needs improvement.</p>	<p>FHWA has developed a comprehensive <i>Traffic Calming ePrimer</i>.</p> <p>The City of Huntersville has a good <i>Traffic Calming Policy</i>.</p> <p>See also the NACTO <i>Urban Bikeway Design Guide</i> section on Bicycle Boulevards.</p>
N/A	<p>The NCDOT <i>Complete Streets Planning and Design Guidelines</i> provides recommended “Access Density” guidelines (See Chapter 4, page 61 and 62 and following). These guidelines could be the basis for regulatory updates to the municipal codes.</p>



Topics/Strategies	Comments/Recommendations
	Land Development Code
Pedestrian & Bicycle Urban Design Elements	
2.1 Require Planting Strips and Street Trees	<p>None required.</p> <p>Needs improvement.</p>
2.2 Require Pedestrian-Scale Street Lighting	<p>Pedestrian-scale lighting not specifically required. Needs improvement.</p> <p>8.6.13 Street Lights</p> <p><i>Streetlights may be provided and installed at such locations and in such manner and design as set forth in the City's Engineering Manual of Practice.</i></p> <p>9.7.B. <i>Lighting fixtures shall be limited to heights of 30 feet for parking lots and 20 feet for pedestrian walkways.</i></p>

Comments/Recommendations	
Engineering Dept. Manual of Practice	General Recommendations
<p>Needs improvement.</p> <p>Planting strips from 3-12 feet are shown in the <i>Manual of Practice</i> street sections. However, street trees between sidewalk and the street are not referenced or required in the Manual (including in the Landscaping chapter) nor is there specification on where various buffer/ planting strip widths are appropriate.</p>	<p>When planted in a planting strip between the sidewalk and the curb, street trees provide a buffer between the pedestrian zone and the street. In addition to their value for improving the air quality, water quality, and beauty of a community, street trees can also help slow traffic and improve comfort for pedestrians. Trees add visual interest to streets and narrow the street’s visual corridor, which may cause drivers to slow down.</p> <p>Planting strips of 6 feet are sufficient for small maturing trees. 8 feet or greater is recommended for large maturing trees and to provide greater separation between pedestrians and the roadway.</p> <p>See NCDOT <i>Complete Streets Planning and Design Guidelines</i> (Chapter 4) for context-based pedestrian and “green” zone recommendations.</p> <p>See also, City of Wendell <u>UDO</u> Chapter 8, especially section 8.8, Street Trees.</p>
<p>No specifications included. Needs improvement.</p>	<p>Pedestrian-scale lighting along streets and at intersections is one of the most important tools for pedestrian crash prevention. Hickory should consider adding additional detail to its good street lighting standards.</p> <p>See City of Wendell <u>UDO</u>, Sections 11.10 and 11.11 for pedestrian-scaled lighting requirements by zoning district and for lighting requirements for greenways and walkways.</p>



Topics/Strategies	Comments/Recommendations
	Land Development Code
<p>2.3. Adopt bicycle parking requirements</p>	<p>Not required. Needs improvement.</p> <p>LDC 9.2.4.H. Bicycle Parking</p> <p><i>Bicycle parking may substitute for up to ten percent of required parking. For every five secure bicycle parking spaces provided, the motor vehicle parking requirement is reduced by one space. Existing parking may be converted to take advantage of this provision.</i></p>
<p>Connectivity Requirements</p>	
<p>3.1. Revise block size requirements</p> <p><i>“[A] Good [street] network provides more direct (shorter) routes for bicyclists and pedestrians to gain access to the thoroughfares and to the land uses along them (or allows them to avoid the thoroughfare altogether). Likewise, good connections can also allow short-range, local [motor] vehicular traffic more direct routes and access, resulting in less traffic and congestion on the thoroughfares. This can, in turn, help make the thoroughfare itself function as a better, more complete street. For all of these reasons, a complete local street network should generally provide for multiple points of access, short block lengths, and as many connections as possible.” (NCDOT Complete Streets Planning and Design Guidelines, p 59)</i></p>	<p>Needs improvement.</p> <p>LDC 8.5.2 Block Lengths</p> <p><i>Block lengths shall not exceed 1,500 feet or be less than 300 feet.</i></p> <p>Development location, type, and intensity should determine the length of a block, with shorter blocks being more appropriate in areas of higher density. See notes in far right column.</p>

Comments/Recommendations	
Engineering Dept. Manual of Practice	General Recommendations
<p>No specifications included. Needs improvement.</p>	<p>Bicycles should receive equal consideration when calculating parking needs with specific calculations provided for determining the amount of bicycle parking provided by district type or land use type. Design and location standards for bicycle parking should be clearly stated to provide for safe and convenient access to destinations. Different standards of bicycle parking are needed for short-term visitors and customers and for longer term users like employees, residents, and students.</p> <p>See City of Wilson UDO, Chapter 9: Parking & Driveways, Section 9.4 and 9.6.</p> <p>Good standards for bicycle parking design can be found through the Association of Pedestrian and Bicycle Professionals' <i>Bicycle Parking Guidelines</i>. (www.apbp.org)</p> <p>Bicycle Parking Model Ordinance, Change Lab Solutions:</p> <p>City of SF Zoning Administrator Bulletin for designs/layout/etc. The bulletin is in itself a great document that includes limits on hanging racks, how to park family bikes, and various configurations:</p>
<p>N/A</p>	<p>Development location, type, and intensity should determine the length of a block, with shorter blocks being more appropriate in areas of higher density. Maximum block length in any situation should rarely exceed 800-1000 feet for good connectivity. In areas with highest development density (urbanized, mixed use centers and high-density neighborhoods) block lengths can be as little as 200 feet (or consistent with the standard minimum block sizes in Hickory's CBD). In areas with blocks as long as 800 feet or greater, a pedestrian and/or bicycle path of 6-8 feet in width should be required, with an easement of 15-20 feet wide.</p> <p>See the example table on page 59 of the NCDOT Complete Streets Planning and Design Guidelines for a context-based approach to block size.</p> <p>Consider allowing larger blocks – up to a maximum, such as 800 feet – where development densities are expected be lower (> 4 du).</p> <p>See City of Charlotte Subdivision Ordinance, Section 20-23 for good example of context-based connectivity requirements and block standards.</p>



Topics/Strategies	Comments/Recommendations
	Land Development Code
<p>3.2. Require connectivity/cross-Access between adjacent land parcels</p> <p><i>“[A] Good [street] network provides more direct (shorter) routes for bicyclists and pedestrians to gain access to the thoroughfares and to the land uses along them (or allows them to avoid the thoroughfare altogether). Likewise, good connections can also allow short-range, local [motor] vehicular traffic more direct routes and access, resulting in less traffic and congestion on the thoroughfares. This can, in turn, help make the thoroughfare itself function as a better, more complete street. For all of these reasons, a complete local street network should generally provide for multiple points of access, short block lengths, and as many connections as possible.”</i> (NCDOT Complete Streets Planning and Design Guidelines, p 59)</p>	<p>Good requirements for collector and arterial streets and subdivision street connections. Consider additional criteria for street connectivity determination.</p> <p>LDC 8.6.1 Continuation or Projection of Arterial and Collector Streets & 8.6.5 Connectivity</p>
<p>3.3. Limit dead end streets or cul-de-sacs</p> <p>Dead end streets or Cul-de-sacs, while good at limiting motor vehicular traffic in an area, are a severe hindrance pedestrian and bicycle connectivity and over all neighborhood/community accessibility, including for emergency access and other services.</p>	<p>Needs improvement.</p> <p>Reduce maximum length and provide requirements for bike/ped connections where street connections may be impractical or supplemental.</p> <p>8.6.6 Cul-de-Sacs (TA 18-01)</p> <p><i>A. Maximum Length. Except where otherwise approved by the Planning Director due to unusual land configuration (e.g., a narrow peninsula), cul-de-sac streets shall be subject to the following maximum length limits: (1) the maximum length is 1,500 feet to the beginning of the turning point</i></p>
Resources	

Comments/Recommendations	
Engineering Dept. Manual of Practice	General Recommendations
N/A	<p>See notes above regarding Block Size. Requiring connectivity or cross-access between adjacent developments is a great tool for reducing the amount of traffic on major roads while increasing connectivity for pedestrians, bicycles, service vehicles, and neighborhood access.</p> <p>For good model language, see City of Wilson, NC <u>UDO</u>, Section 6.4: Connectivity Or City of Catawba Forest, NC <u>UDO</u>, Section 6.5, Connectivity.</p> <p>Both codes above also provide requirements for when bicycle/pedestrian connections between parcels, public open space, and between cul-de-sacs is required.</p>
n/a	<ul style="list-style-type: none"> • Make the maximum length for Cul-de-sacs 250-300 feet to limit the distance that a person biking or walking would have to travel along a cul-de-sac • Consider requiring other traffic calming/traffic diversion measures that allow for connectivity and improve the pedestrian and biking environment such as street trees, narrow street width standards, traditional traffic calming devices, emergency and/or bike/ped connections only between streets and T intersections. <p>For good model language, see City of Wilson, NC <u>UDO</u>, Section 6.4: Connectivity or City of Catawba Forest, NC <u>UDO</u>, Section 6.5, Connectivity.</p> <p>Both codes above also provide requirements for when bicycle/pedestrian connections between parcels, public open space, and between cul-de-sacs is required.</p>



Topics/Strategies	Comments/Recommendations
	Land Development Code
<p>The following documents were referenced for this policy and regulatory review.</p> <p>Other references for best practices are listed in the columns on far the right.</p>	<p>City of Hickory Land Development Code</p>

Comments/Recommendations	
Engineering Dept. Manual of Practice	General Recommendations
<p>City of Hickory Engineering Dept. <u>Manual of Practice</u></p>	<p>REFERENCED DOCUMENTS AND OTHER RESOURCES:</p> <ol style="list-style-type: none"> 1. NCDOT <u>Complete Streets Planning and Design Guidelines</u> (July 2012): 2. NCDOT <u>Traditional Neighborhood Development (TND) Guidelines</u>. 3. City of Wilson, NC <u>UDO</u>. 4. City of Wendell, NC <u>UDO</u>. 5. City of Catawba Forest, NC <u>UDO</u>. 6. See City of Davidson, NC <u>Planning Ordinance</u>. 7. Association of Pedestrian and Bicycle Professionals' Bicycle Parking Guidelines, www.apbp.org. 8. <u>Making Neighborhoods More Walkable and Bikeable</u>, ChangeLab Solutions. 9. <u>Getting the Wheels Rolling: A Guide to Using Policy to Create Bicycle Friendly Communities</u>, ChangeLab Solutions <p>And other documents noted in this column in the rows above.</p>



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

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

All resources listed below are linked through the web page listed above, retrieved in July 2020.

NATIONAL GUIDELINES

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

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

The Federal Highway Administration (FHWA):

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

Manual on Uniform Traffic Control Devices (MUTCD):

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

National Association of City Transportation Officials (NACTO):

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

Safe Routes to School (SRTS) Non-Infrastructure:

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

US Access board:

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

NORTH CAROLINA GUIDELINES

North Carolina Department of Transportation (NCDOT):

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

Greenway Construction Standards:

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

NCDOT Bicycle and Pedestrian Policies
<https://connect.ncdot.gov/projects/BikePed/Pages/Policies-Guidelines.aspx>

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

- » Achieving Multimodal Networks (2016)
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/
- » Separated Bike Lane Planning and Design Guide (2015)
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page00.cfm
- » Incorporating On-Road Bicycle Networks into Resurfacing Projects (2016)
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/resurfacing/
- » Small City and Rural Multimodal Networks Design Guide (2017)

Main Guide:
<http://ruraldesignguide.com/>

Section specific to side paths:
<http://ruraldesignguide.com/physically-separated/sidepath>





Appendix C: Program Resources

PROGRAM RECOMMENDATIONS

These program recommendations are essential and complementary to the recommended infrastructure projects. Each of the following program ideas (among others) were presented at committee meetings, public meetings, and through a public comment form, to gauge interest among Hickory residents and project stakeholders. **The program ideas that follow were the highest rated by the public.**

BICYCLE AND PEDESTRIAN COORDINATOR STAFF POSITION

The City of Hickory should designate a staff member to “wear the hat” of local bicycle and pedestrian coordinator. While at this point in time the bicycle and pedestrian coordinator position does not need to be a full-time dedicated staff position, this Plan recommends that the City assign an existing staff member to now dedicate some specified level of time (10-15%) to bicycle and pedestrian issues. The tasks of this staff member would include coordination with NCDOT and regional transportation planners at the Western Piedmont Council of Governments (WPCOG) and the Greater Hickory Metropolitan Planning Organization regarding infrastructure improvements for pedestrians and bicyclists. This staff member would also

Example Maintenance Policies from the AASHTO Guide for the Development of Bicycle Facilities

- » Establish a regular sweeping schedule for roadways and pathways that anticipates both routine and special sweeping needs. This may involve more frequent sweeping seasonally, and also should include periodic inspection, particularly in areas that experience frequent flooding, or in areas that have frequent vandalism. The sweeping program should be designed to respond to user requests for sweeping activities.
- » Remove debris in curbed sections with maintenance vehicles that pick up the debris; on roads with flush shoulders, debris can be swept off the pavement.
- » Reduce the presence of loose gravel on roadway shoulders by paving gravel driveway approaches, prioritized on corridors that receive heavy bicyclist use. Also require parties responsible for debris to contain it; for example, require tarps on trucks loaded with gravel. Local ordinances often require tow-vehicle operators to remove glass after crashes, and contractors are usually required to clean up daily after construction operations that leave gravel and dirt on the roadway.

From 2014 Advocacy Advance report (“How Communities are Paying to Maintain Trails, Bike Lanes, and Sidewalks”)

- » In case study communities, the report notes that bicycle lanes are treated like other road facilities and contracted out to private firms for regular sweeping. Sweeping costs were reported between \$55-62 per curb mile of bicycle lanes for sweeping once a month, plus additional monthly sweeps during peak months for bicycle traffic. Some cities use stormwater management funds to cover the cost of street sweeping.

serve as liaison to the Friends of Hickory Bicycle Advisory Committee and to community members and organizations assisting in the development of a more bicycle and pedestrian friendly community.

BECOME DESIGNATED AS A BICYCLE AND WALK FRIENDLY COMMUNITY

This Pedestrian and Bicycle Plan will help to transform Hickory into a “Bicycle Friendly Community” (BFC) and “Walk Friendly Community” (WFC). The BFC and WFC campaigns are awards program that recognizes municipalities that actively support bicycling and walking. The development and implementation of this Plan is an essential first step in becoming a Bicycle and/or Walk Friendly Community. Having a citizen’s board officially dedicated to these issues, such as the Bicycle Advisory Committee, also helps tremendously. Hickory should make progress in accomplishing the goals of this Plan, and then apply for BFC and WFC status.

BICYCLE FACILITY MAINTENANCE

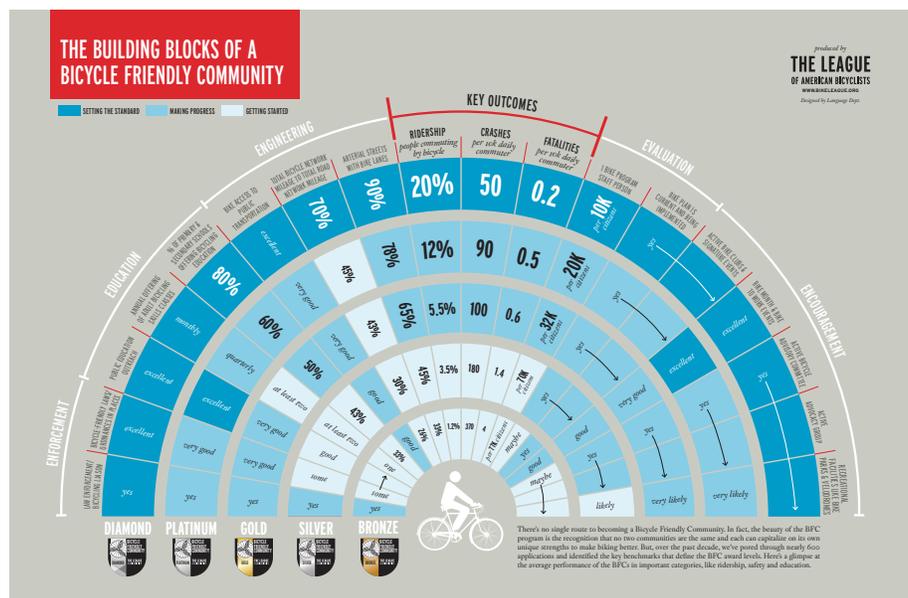
Bicycle facilities require regular maintenance in order to keep them free of debris and structural deterioration. Bikeways are especially vulnerable

to the accumulation of leaves and gravel as they are blown off the travel lane by automobile traffic. Such accumulation, as well as potholes, cracks, and joints, create serious obstacles and hazards to bicyclists. A good maintenance program is necessary to protect the public investment in bikeways and keep them safe for their users.

Currently, Hickory only has four sections of bike lanes (on 17th St NW, 5th St NE, 26th Ave NE, and 2nd St NE), but as this plan is implemented, the City should commit to a maintenance program that sweeps its growing number of bicycle lanes on a regular basis. The American Association of State Highway and Transportation Officials (AASHTO) has provided some model maintenance policy language in its Guide for the Development of Bicycle Facilities. On the previous page, there are some examples of recommended maintenance policies regarding roadway sweeping, specifically. The AASHTO Guide also has policy recommendations for the following areas: surface repairs, pavement overlays, vegetation, traffic signal detectors, signs and markings, drainage improvements, chip sealing, patching activities, utility cuts, snow clearance, and operating bikeways in work zones.



Above: Walk Friendly Communities info is available at: <http://walkfriendly.org/about/>
 Right: Building Blocks of Bicycle Friendly Communities, from <https://bikeleague.org/sites/default/files/BFC%20infographic.pdf>





SAFETY CAMPAIGN TO EDUCATE MOTORISTS, BICYCLISTS, AND PEDESTRIANS

The public survey form for Walk Bike Hickory indicated that when people choose not to ride their bike in Hickory, it is because they do not feel safe (see page 34). Watch for Me NC is an ongoing comprehensive grant program and campaign administered by the NCDOT Integrated Mobility Division (NCDOT IMD) that helps address this issue. It is aimed at increasing safety and reducing the number of bicyclists and pedestrians hit and injured in crashes with vehicles. The campaign consists of educational messages on traffic laws and safety, and an enforcement effort by area police.

A recommended first step would be to publish a foldable paper map, as described on the following page, with the entire opposite side of the map dedicated to pedestrian and bicycle safety education. The City of Durham, for example, has done this for nearly a decade, distributing tens of thousands of maps featuring bicycle education information at festivals, events, and their visitors bureau.

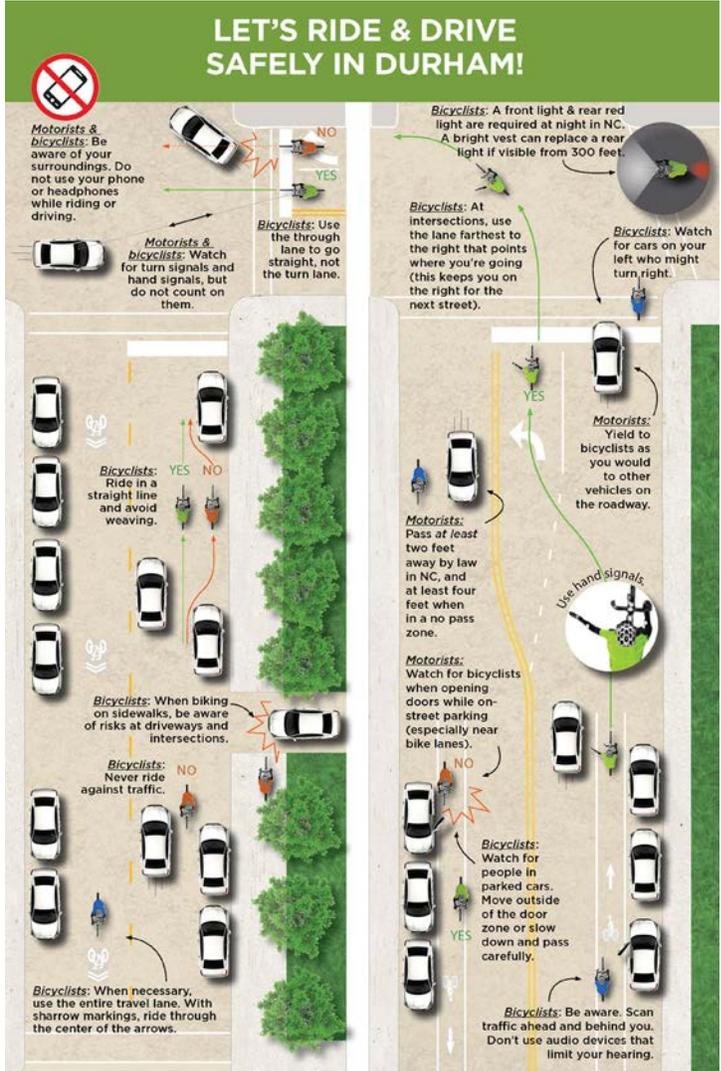


Watch for Me NC campaign bumper stickers.

Consider also implementing a rail safety program, such as **NC's BeRailSafe**, especially as proposed projects are constructed in close proximity to railroads. NCDOT has resources available for this topic:

www.ncdot.gov/divisions/rail/Pages/be-rail-safe.aspx

www.ncdot.gov/divisions/rail/Pages/safety-education.aspx



An example education resource featured in the Durham Bike & Hike Map that outlines how motorists and bicyclists can ride and drive safely. Full map available here: <https://durhamnc.gov/1031/Durham-Bike-Hike-Map>



MAP OR MOBILE APP WITH BIKE ROUTES AND GREENWAYS

One of the most effective ways of encouraging people to walk more often or to ride a bicycle is through the use of maps and guides to show where you can walk and bike, and to guide people to enjoyable routes and destinations. These maps can also be designed so that a portion of the map

is devoted to bicycle and pedestrian safety education, such as informational graphics that demonstrate bicycle hand signals and how to share the road and the trail safely. The map should be made available online and printed as needed to be actively distributed to residents and visitors. A City map could be created following completion of this plan.

DURHAM BIKE & HIKE MAP 2018

Points of Interest:

- 177 Access Point
- Valley View Bridge
- Durham Performing Arts Center
- Research Triangle Park
- Research Triangle Park
- Carolina Theatre/Convention Center
- Duke Smith Center
- Durham Bulls Athletic Park
- Durham City Hall
- Old Durham County Courthouse
- Durham County Stadium
- Heritage Center
- Historic Durham Athletic Park
- Teacher Museum of Art
- NCJW Museum
- Johnson's Hill Country Store
- Climate Center
- Golden Bell Studios
- NC Museum of Life & Science
- Durham County Justice Center
- Trailheads/Parking
- Bicycle Shop
- Shops, Lakes, & Creeks
- Parks & Open Space
- Research Triangle Park
- Transportation Center
- Parks with Restrooms (Apr. 25 - Oct. 15 only)
- County Boundaries
- Rail Road
- Shops, Lakes, & Creeks
- Parks & Open Space
- Research Triangle Park
- Durham City Limits
- East Coast Greenway

BIKE & HIKE LEGEND:

- MULTI-USE PATH** (e.g., the American Tobacco Trail, etc.): closed to motor vehicles
- BICYCLE LANE** or wide shoulder, usually on higher traffic streets
- SHARED ROADWAY** on lower traffic streets or on streets with shared lane markings (Chaperons)
- SHARED ROADWAY WITH WIDER OUTSIDE LANE** on moderate and higher traffic streets
- HIKING/WALKING TRAIL** (e.g., Eco State Park, Mountains-to-Sea Trail): not for bicycling
- ROADS OFTEN USED BY EXPERIENCED CYCLISTS** higher speeds and/or volume, turning routes, different routes, or connections that demand attention
- DIFFICULT CONNECTION** on roads with higher speeds and/or volume, combined with narrow lanes or other problems for cyclists
- STEEP HILL** arrows point in uphill direction

TIPS FOR SAFER BICYCLING:

- OBEY TRAFFIC SIGNALS & SIGNS
- RIDE WITH TRAFFIC
- BE BRIGHT AT NIGHT
- LOOK BEFORE ENTERING TRAFFIC & CHANGING LANES
- USE HAND SIGNALS
- WEAR A HELMET

TIPS FOR SAFER WALKING:

- BE BRIGHT AT NIGHT
- WALK FACING TRAFFIC
- WATCH FOR TURNING CARS
- BE CAREFUL IN PARKING LOTS
- BE CAREFUL AT DRIVEWAYS
- PULL THE PLUG AND PAY ATTENTION

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



OPEN STREETS EVENTS

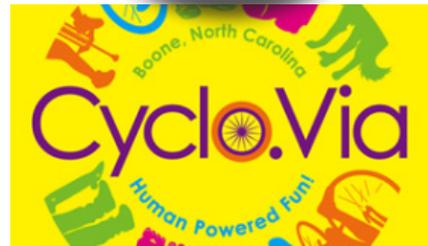
Open Streets Events are periodic street closures (usually on Sundays) that create a temporary park that is open to the public for walking, bicycling, dancing, hula hooping, roller skating, and other forms of human-powered activity. These programs are known by many names: Ciclovias, Open Streets, Sunday Parkways, Summer Streets, and Sunday Streets. They promote health by creating a safe and attractive space for physical activity and social interaction.

For this type of program, organizers should consider lessons learned and best practices from other communities. Some recommendations include:

- » These events lend themselves to innovative partnerships and public/private funding. Health care providers whose mission includes facilitating physical activity are often major sponsors. Businesses may also support the event if it brings customers to their location. Since they often take place on Sundays, partnerships with local churches in Hickory could also be pursued.

- » Informing residents and businesses along the route about the upcoming street ‘closure’ is essential. They should be notified numerous times (3-6 times is not too much), including a reminder the day before the event. Expectations about vehicle access to and from residences should be managed clearly.
- » Closing a street in Hickory may be challenging due to through traffic needs - however, it would be most visible and potentially impactful.
- » For a local event example, refer to Charlotte’s recurring Open Streets 704 event: <http://openstreets704.com/>
- » Videos of Sunday Parkways events: <http://www.streetfilms.org/tag/ciclovias/>

Examples of Open Street events in Durham and Boone, NC





SIGNAGE AND WAYFINDING

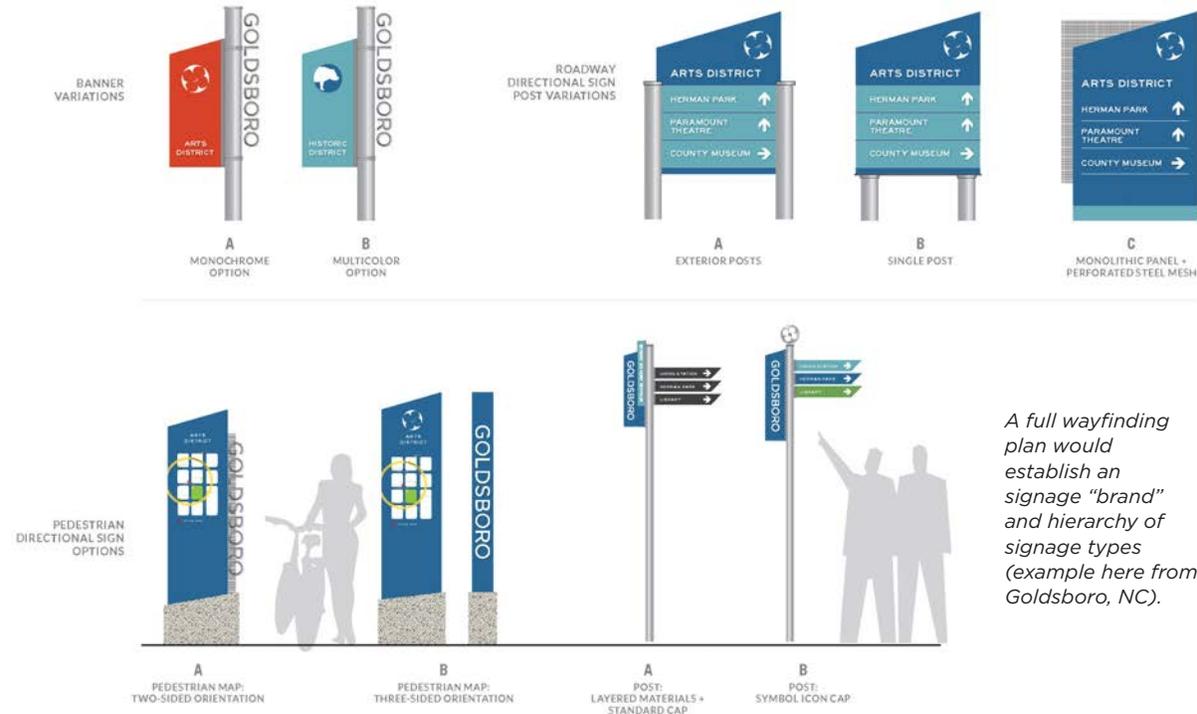
A relatively low-cost program that the City of Hickory can pursue is to post simple wayfinding signs, to make it easier for people to find destinations, and to point how short it is to walk to various places in City. The Walk [Your City] program is designed to do just that. See below and visit <http://walkyourcity.org/> for more information. BlueCross BlueShield of North Carolina has partnered on these efforts in the past. For a step-by-step guide to help non-professionals participate in the process of developing and designing a signage system,

as well as information on the range of signage types, visit the Project for Public Places website: www.pps.org/reference/signage_guide

For a longer-term, more comprehensive approach to wayfinding, the City should conduct a full wayfinding plan. The plan would establish an agreed-up signage “brand” (a.k.a., look and feel of the signs), a hierarchy of signage types (route confirmation, directional, and kiosk signage, for example), and a signage placement plan that shows exactly where each sign and sign type will be placed.



Road signage has traditionally been expensive and car-centered, leaving walkers and bikers by the wayside. Walk [Your City] lets anyone from citizens to corporations quickly and affordably promote healthy lifestyles, public safety, and human-centered transit. Visit <http://walkyourcity.org/> for more information.



A full wayfinding plan would establish a signage “brand” and hierarchy of signage types (example here from Goldsboro, NC).



GREENWAY TRAIL MAINTENANCE

Greenway maintenance is essential to the long-term viability and sustainability of the City’s greenway trails. Construction of greenway trails should not take place without a maintenance plan and priority in place. This Plan recommends a strong, collaborative approach to maintenance.

Maintenance Principles

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

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

Greenway Trail Flooding

The most frequently mentioned maintenance issue during this planning process was trail flooding along the Beaver Creek Greenway, near I-540. A solution for flooding on Beaver Creek Greenway is in development as of late 2018.

In general, trail flooding can sometimes be addressed by elevating sections of trail as a

boardwalk, but that option may be constrained by floodplain regulations in some areas. Another potential solution is to reroute trail alignments further from floodways. At a minimum, when trails are designed to flood, then quarterly inspections should be made to ensure its integrity, and signage should be used to both caution trail users of flooding potential, and to inform them that the trail is designed to flood periodically.

Longevity of Facilities

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

Range of Trail Maintenance Costs

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

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

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

SIGNAL DETECTION AND ACTUATION FOR BICYCLISTS

Bicyclists in Hickory who submitted written comments for this Plan’s public comment form indicated a desire for bicycles to be detected at signals. A pilot project could be pursued to install these at intersections along US Bike Route 1/NC Bike Route 1: Carolina Connection (Old US 1/Salem St). These could also be installed as opportunities arise, such as during traffic signal replacement, and/or during major intersection and roadway improvements along the route.

Bicycle detection is used at actuated signals to alert the signal controller of bicycle crossing demand on a particular approach. Bicycle detection occurs either through the use of push-buttons or by automated means (e.g., in-pavement loops, video, microwave, etc). Inductive loop vehicle detection at many signalized intersections is calibrated to the size or metallic mass of a vehicle. For bicycles to be detected, the loop must be adjusted for bicycle metallic mass. Otherwise, undetected bicyclists must either wait for a vehicle to arrive, dismount and push the pedestrian button (if available), or cross illegally.

Proper bicycle detection meets two primary criteria: 1) accurately detects bicyclists; and 2) provides clear guidance to bicyclists on how to actuate detection (e.g., what button to push, where to stand). See the NACTO Urban Bikeway Design Guide (<https://nacto.org/publication/>

[urban-bikeway-design-guide/bicycle-signals/signal-detection-and-actuation/](#)) for more on these four primary types of bicycle signal detection:

- » **Loop detection (preferred)** – Induction loop embedded in the pavement; sensitivity settings need to be monitored and adjusted over time for best results
- » **Video** – Video detection aimed at bicyclist approaches and calibrated to detect bicyclists
- » **Push-button** – User-activated button mounted on a pole facing the street (If provided, shall be located so bicyclists can activate the signal without dismounting. If used, push buttons should have a supplemental sign facing the bicyclist’s approach to increase visibility.)
- » **Microwave** – Miniature microwave radar that picks up non-background targets

As a pilot project, the City could consider adding signal detection and actuation for bicyclists as a recommendation for the Ten Ten Rd widening project (U-5825) (Bike Route 5).





OVERVIEW

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

FEDERAL FUNDING SOURCES

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

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 big programs - Transportation Investments Generating Economic Recovery (TIGER), Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ), and Highway Safety Improvement Program (HSIP) - and funding levels between highways and transit.

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 oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system. For more information, visit: <https://www.transportation.gov/fastact>.

TRANSPORTATION ALTERNATIVES

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). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, side paths, and rail-trails. TA funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TA does not provide a guaranteed set-aside for this activity as SAFETEA-LU did.



Funding for the Surface Transportation Block Grant Program (STPBG) will grow from the current level of \$819 million per year to \$835 million in 2016 and 2017 and to \$850 million in 2018 through 2020.

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 the complete list of eligible activities, visit: <http://www.fhwa.dot.gov/fastact/factsheets/stb-gfs.cfm>.

For funding levels, visit: <http://trade.railstotrails.org/index>.

SURFACE TRANSPORTATION PROGRAM

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. Unlike most highway projects, STP-funded pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. 50 percent of each state’s STP funds are allocated by population to the MPOs; the remaining 50 percent may be spent in any area of the state. For more information, visit <http://www.fhwa.dot.gov/specialfunding/stp/>.

HIGHWAY SAFETY IMPROVEMENT PROGRAM

HSIP provides \$2.4 billion for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds. For more information: <http://www.fhwa.dot.gov/fastact/factsheets/hsipfs.cfm>.

CONGESTION MITIGATION/AIR QUALITY PROGRAM

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. States with no non-attainment areas may use their CMAQ funds for any CMAQ or STP eligible project. These federal dollars can be used to build bicycle and pedestrian facilities that reduce travel by automobile. Purely recreational facilities generally are not eligible. Communities located in attainment areas who do not receive CMAQ funding apportionments may apply for CMAQ funding to implement projects that will reduce travel by automobile. For more information: <http://www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm>.

FEDERAL TRANSIT ADMINISTRATION ENHANCED MOBILITY OF SENIORS AND INDIVIDUALS WITH DISABILITIES

This program can be used for capital expenses that support transportation to meet the special needs of older adults and persons with disabilities, including providing access to an eligible public transportation facility when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. For more information: <https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310>.



SAFE ROUTES TO SCHOOL (SRTS) PROGRAM

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

For more information: <http://saferoutespartnership.org/healthy-communities/policy-change/federal/FAST-act-background-resources>

OTHER FEDERAL FUNDING SOURCES

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: http://www.ncparks.gov/About/grants/lwcf_main.php

RIVERS, TRAILS, AND CONSERVATION ASSISTANCE PROGRAM

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service

(NPS) program providing technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for 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. This program may benefit trail development in North Carolina locales indirectly through technical assistance, particularly for community organizations, but is not a capital funding source. Annual application deadline is August 1st. For more information: <http://www.nps.gov/ncrc/programs/rtca/> or contact the Southeast Region RTCA Program Manager Deirdre “Dee” Hewitt at (404) 507- 5691

FEDERAL LANDS TRANSPORTATION PROGRAM (FLTP)

The FLTP funds projects that improve access within federal lands (including national forests, national parks, national wildlife refuges, national recreation areas, and other Federal public lands) on federally owned and maintained transportation facilities. More than \$300 million per fiscal year has been allocated to the program for 2017 and 2018. For more information: <https://flh.fhwa.dot.gov/programs/fltp/>

ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANTS

The Department of Energy’s Energy Efficiency and Conservation Block Grants (EECBG) may be used to reduce energy consumptions and fossil fuel emissions and for improvements in energy efficiency. Section 7 of the funding announcement states that these grants provide opportunities for the development and implementation of transportation programs to conserve energy used in transportation including development of infrastructure such as bike lanes and pathways



and pedestrian walkways. Although the current grant period has passed, more opportunities may arise in the future. For more information: <https://www.energy.gov/eere/wipo/weatherization-and-intergovernmental-programs-office>

BUILD DISCRETIONARY GRANTS

The U.S. Department of Transportation's (DOT) Better Utilizing Investments to Leverage Development (BUILD) discretionary grants are intended to fund capital investments in surface transportation infrastructure. The grant program focuses on "capital projects that generate economic development and improve access to reliable, safe, and affordable transportation for disconnected both urban and rural, while emphasizing improved connection to employment, education, services and other opportunities, workforce development, or community revitalization." Infrastructure improvement projects such as recreational trails and greenways with an emphasis on multi-modal transit qualify for this grant. Pre-Application deadlines are typically in May, with final application deadlines in June. For more information: <https://www.transportation.gov/BUILDgrants>

ECONOMIC DEVELOPMENT ADMINISTRATION

Under Economic Development Administration's (EDA) Public Works and Economic Adjustment Assistance programs, grant applications are accepted for construction, non-construction, technical assistance, and revolving loan fund projects. "Grants and cooperative agreements made under these programs are designed to leverage existing regional assets and support the implementation of economic development strategies that advance new ideas and creative approaches to advance economic prosperity in distressed communities." Application deadlines are typically in March and June. For more information: <https://www.eda.gov/funding-opportunities/>

ENVIRONMENTAL SOLUTIONS FOR COMMUNITIES GRANT PROGRAM

The National Fish and Wildlife Foundation (NFWF) and Wells Fargo seek to promote sustainable communities through Environmental Solutions for Communities by supporting highly-visible projects that link economic development and community well-being to the stewardship and health of the environment. Priority for grants to projects that successfully address one or more of the following:

- » Support innovative, cost-effective programs that enhance stewardship on private agricultural lands to enhance water quality and quantity and/or improve wildlife habitat for species of concern, while maintaining or increasing agricultural productivity.
- » Support community-based conservation projects that protect and restore local habitats and natural areas, enhance water quality, promote urban forestry, educate and train community leaders on sustainable practices, promote related job creation and training, and engage diverse partners and volunteers.
- » Support visible and accessible demonstration projects that showcase innovative, cost-effective and environmentally-friendly approaches to improve environmental conditions within urban communities by 'greening' traditional infrastructure and public projects such as storm water management and flood control, public park enhancements, and renovations to public facilities.
- » Support projects that increase the resiliency of the Nation's coastal communities and ecosystems by restoring coastal habitats, living resources, and water quality to enhance livelihoods and quality of life in these communities.
- » In North Carolina, strong preference will be given to projects located in the regions of Charlotte, Raleigh, or Winston Salem.

For more information: <https://www.nfwf.org/environmentalsolutions/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.

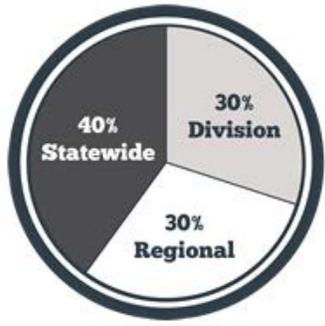
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) STRATEGIC TRANSPORTATION INVESTMENTS (STI)

Passed in 2013, the Strategic Transportation Investments law (STI) allows NCDOT to use its funding more efficiently and effectively to enhance the state's infrastructure, while supporting economic growth, job creation and a higher quality of life. This process encourages thinking from a statewide and regional perspective while also providing flexibility to address local needs.

STI also establishes the Strategic Mobility Formula, a new way of allocating available revenues based on data-driven scoring and local input. It was used for the first time to develop NCDOT's current construction schedule, the 2016-2025 State Transportation Improvement Program (STIP).

The STIP, which identifies the transportation projects that will receive funding during a 10-year period, is a state and federal requirement. Federal law requires it to be updated at least every four years. NCDOT, however, updates it every two years. Work is currently underway to update the STIP for 2018-2027.

The new Strategic Mobility Formula funds projects in three categories: Division Needs, Regional Impact, and Statewide Mobility. 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:



STI Revenue Distribution (Source: www.ncdot.gov/strategic-transportationinvestments)

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 Strategic Transportation Investments 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). Since state law prohibits state monies from being the match for bicycle and pedestrian projects, the City will need to supply the 20% match from other sources, such as the City's own funds, matching grants, etc.**
- » Limited number of project submittals per MPO/RPO/Division
- » Minimum project cost requirement is \$100,000
- » Bike/Ped projects typically include: bicycle lanes, side 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.

For more information on STIP: <https://www.ncdot.gov/initiatives-policies/Transportation/stip/Pages/default.aspx>

To access the STIP: <https://connect.ncdot.gov/projects/planning/Pages/State-Transportation-Improvement-Program.aspx>

For more about the STI process: <https://www.ncdot.gov/initiatives-policies/Transportation/stip/Pages/strategic-transportation-investments.aspx>



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 handicapped accessible sidewalk ramps are now a standard feature of all NCDOT highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds, 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.

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.

Hickory could consider this resource for its proposed creekside greenways. For more information: <http://www.duke-energy.com/community/foundation/water-resources-fund.asp>

CLEAN WATER MANAGEMENT TRUST FUND

The Clean Water Management Trust Fund is available to any state agency, local government, or non-profit 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.

The application deadline is typically in February. For more information: <http://www.cwmtf.net/#appmain.htm>



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 maintained 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>

POWELL BILL FUNDS

Annually, State street-aid allocations (Powell Bill Funds) are made to incorporated municipalities which establish their eligibility and qualify as provided 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 or for planning, construction, and maintenance of bike-ways or sidewalks along public streets and highways. 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 after. More information: <https://connect.ncdot.gov/municipalities/State-Street-Aid/Pages/default.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. 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. State Highway Applicants must use the web-based grant system to submit applications. For more information: <http://www.ncdot.org/programs/ghsp/>

EAT SMART, MOVE MORE NORTH CAROLINA COMMUNITY GRANTS

The Eat Smart, Move More (ESMM) NC Community Grants program provides funding to local communities to support their efforts to develop community-based interventions that encourage, promote, and facilitate physical activity. The current focus of the funds is for projects addressing youth physical activity. Funds have been used to construct trails and conduct educational programs. For more information: <http://www.eat-smartmovemorenc.com/Funding/Funding.html>

THE NORTH CAROLINA DIVISION OF PARKS AND RECREATION – RECREATIONAL TRAILS AND ADOPT-A-TRAIL GRANTS

The North Carolina Division of Parks and Recreation and the State Trails Program offer funds to help 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. “The Adopt-a-Trail Grant Program (AAT) awards \$108,000 annually to government agencies, nonprofit organizations and private trail groups for trail projects. The Recreational Trails Program (RTP) is a \$1.3

million grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. Grant applicants must be able to contribute 20% of the project cost or in-kind contributions. Both grant applications are typically due in January or February. For more information: <https://www.ncparks.gov/more-about-us/grants/trail-grants>

NC PARKS AND RECREATION TRUST FUND (PARTF)

The Parks and Recreation Trust Fund (PARTF) provide 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. Grant applications are typically due in February. For more information: <https://www.ncparks.gov/more-about-us/parks-recreation-trust-fund/parks-and-recreation-trust-fund>



The City of Hickory has received two PARTF grants in the past, one for land acquisition in 2003, and another for the Beaver Creek Greenway in 2007.



COMMUNITY DEVELOPMENT BLOCK GRANT FUNDS

Community Development Block Grant (CDBG) funds are available to local municipal or county governments that qualify for projects to enhance the viability of communities by providing 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. All North Carolina small cities are eligible to apply for funds except for 23 entitlement cities that receive funds directly from the U.S. Department of Housing and Urban Development (HUD) (Hickory does not receive direct funds, so it is eligible to apply). Each year, CDBG provides funding to local governments for hundreds of critically-needed community improvement projects throughout the state. More information: <https://www.nccommerce.com/ruraldevelopment/state-cdbg/grant-categories>

CLEAN WATER MANAGEMENT TRUST FUND (CWMTF)

This fund was established in 1996 and has become one of the largest sources of money in North Carolina for land and water protection, eligible for application by a state agency, local government, or non-profit. At the end of each year, a minimum of \$30 million is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies, and conservation non-profits to help finance projects that specifically address water pollution problems. Funds may be used for planning and land acquisition to establish a network of riparian buffers and greenways for environmental, educational, and recreational benefits. Deadlines are typically in February. For more information: <http://www.cwmtf.net/#appmain.htm>

SAFE ROUTES TO SCHOOL (SRTS)

SRTS is managed by NCDOT, but is federally funded; See Federal Funding Sources above for more information.

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 toward planning and establishing 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 a 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 31 at 5:00 pm and recipients are notified by mid-July each year.

For more about Tree City USA status, including application instructions, visit: https://www.ncforestservice.gov/Urban/urban_grant_program.htm



LOCAL GOVERNMENT FUNDING SOURCES

Municipalities often plan for the funding of pedestrian and bicycle facilities or improvements through development of Capital Improvement Program (CIP) or occasionally, through their annual Operating Budgets. In Raleigh, for example, the greenways system has been developed over many years through a dedicated source of annual funding that has ranged from \$100,000 to \$500,000, 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 not already in place.

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 City-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 another small City that has used this type of financing.

OTHER LOCAL FUNDING OPTIONS

- Bonds/Loans
- Taxes
- Impact fees
- Exactions
- Installment purchase financing
- In-lieu fees
- Partnerships

PRIVATE AND NON-PROFIT FUNDING SOURCES

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

UNION BANK

Union Bank is a community bank serving the north central North Carolina region with a location in Hickory. Union Bank strives to make the communities it serves better by providing strong financial and customer service. With its strong commitment to the communities it serves, Union Bank is involved in a variety of different local projects.

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 ROBERT WOOD JOHNSON FOUNDATION

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans.

Grant making is concentrated in four areas:

- » To ensure that all Americans have access to basic health care at a reasonable cost
- » To improve care and support for people with chronic health conditions
- » To promote healthy communities and lifestyles
- » To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

Projects considered for funding typically are innovative and aim to create meaningful, transformative change. Project examples include: service demonstrations; gathering and monitoring of health-related statistics; public education; training and fellowship programs; policy analysis; health services research; technical assistance; communications activities; and evaluations. For more specific information about what types of projects are funded and how to apply, visit <http://www.rwjf.org/en/how-we-work/grants/what-we-fund.html>



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. For more information: <http://nccommunityfoundation.org/>

RITE AID FOUNDATION GRANTS

The Rite Aid Foundation is a foundation that supports projects that promote health and wellness in the communities that Rite Aid serves. Award amounts vary and grants are awarded on a one year basis to communities in which Rite Aid operates. The Rite Aid Foundation focuses on three core areas for charitable giving: children’s health and well-being; special community health and wellness needs; and Ride Aid’s own community of associates during times of special need. Online resource: <https://www.riteaid.com/about-us/rite-aid-foundation>

Z. SMITH REYNOLDS FOUNDATION

This Winston-Salem-based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. The Foundation focuses its grant making on five focus areas: Community Economic Development; Environment; Public Education; Social Justice and Equity; and Strengthening Democracy. Deadline to apply is typically in August. For more information: www.zsr.org

BANK OF AMERICA CHARITABLE FOUNDATION, INC.

The Bank of America Charitable Foundation is one of the largest in the nation. There are numerous different initiatives and grant programs, yet the ones most relevant to increased recreational opportunities and trails are the Revitalizing Neighborhoods and Environment Programs. Starting in 2013, a new 10-year, \$50 billion goal to be a catalyst for climate change was launched. This initiative aims to spark the “innovation economy and advance a transition to a low-carbon future.” For more information: www.bankofamerica.com/foundation

DUKE ENERGY FOUNDATION

Funded by Duke Energy shareholders, this non-profit organization makes charitable grants to selected non-profits or governmental subdivisions. Each annual grant must have:

- » An internal Duke Energy business “sponsor”
- » A clear business reason for making the contribution

The grant program has several investment priorities: Education; Environment; Economic and Workforce Development; and Community Impact and Cultural Enrichment. Related to this project, the Foundation would support programs that support conservation, training, and research around environmental and energy efficiency initiatives. For more information: <http://www.duke-energy.com/community/foundation.asp>

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 (\$250 to \$2,000) 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, and building trails. Grants cannot be used for academic research, institutional support, lobbying, or political activities. For more information: <http://www.rlch.org/funding/kodak-american-greenways-grants>

NATIONAL TRAILS FUND

American Hiking Society created the National Trails Fund in 1998, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. 73 million people enjoy foot trails annually, yet many of our favorite trails need major repairs due to a \$200 million backlog of badly needed maintenance. 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 \$10,000 per project.

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: <http://www.americanhiking.org/national-trails-fund/>

THE CONSERVATION ALLIANCE

The Conservation Alliance is a non-profit 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.conservation-alliance.com/grants>

THE JOHN REX ENDOWMENT

The John Rex Endowment sees environmental, policy, and systems approaches as necessary to achieve long-term, sustainable changes that support healthy weight in children. Learn about their goal to improve policies and implement changes to the built environment that increase children's access to healthy foods and active living opportunities in Catawba County municipalities:

<http://www.rexendowment.org/what-we-fund/funding-areas/healthy-weight>



NATIONAL FISH AND WILDLIFE FOUNDATION (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, non-profit, 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. A few of the most relevant programs for bicycle and pedestrian projects include Acres for America, Conservation Partners Program, and Environmental Solutions for Communities. Funding priorities include bird, fish, marine/coastal, and wildlife and habitat conservation. Other projects that are considered include controlling invasive species, enhancing delivery of ecosystem services in agricultural systems, minimizing the impact on wildlife of emerging energy sources, and developing future conservation leaders and professionals.

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 have intentions 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>

BLUE CROSS BLUE SHIELD OF NORTH CAROLINA FOUNDATION (BCBS)

Blue Cross Blue Shield (BCBS) focuses on programs that use an outcome approach to improve the health and well-being of residents. Healthy Places grant concentrates on increased physical activity and active play through support of improved build environment such as sidewalks, and safe places to bike. 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. For more information: <http://www.bcbsncfoundation.org/>

ALLIANCE FOR BIKING & WALKING: ADVOCACY ADVANCE GRANTS

Bicycle and pedestrian advocacy organizations play the most important role in improving and increasing biking and walking in local communities. Rapid Response Grants enable state and local bicycle and pedestrian advocacy organizations to develop, transform, and provide innovative strategies in their communities. Since 2011, Rapid Response grant recipients have won \$100 million in public funding for biking and walking. The Advocacy Advance Partnership with the League of American Bicyclists also provides necessary technical assistance, coaching, and training to supplement the grants. For more information, visit www.peoplepoweredmovement.org

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>

An example crowdsourcing tool used locally with some success is "ioby", which offers the ability to organize different forms of capital—cash, social networks, in-kind donations, volunteers, advocacy: <https://www.ioby.org/about>

BICYCLE/TRAIL PARTNERSHIP CASE STUDIES IN THE CAROLINAS

Hickory may be able to partner with the private sector for funding or sponsorship for some aspects of this plan. Some examples of trail partnerships in the Carolinas are provided below.

WILMINGTON/NEW HANOVER COUNTY & BLUE CROSS BLUE SHIELD (BCBS)

BCBSNC and their GO NC! program donated funds to complete the final phase of the 15-mile Gary Shell CrossCity Trail from Wade Park to the drawbridge at Wrightsville Beach. In addition to completing the trail, other enhancements include mile markers along the 15-mile trail and five bicycle fix-it stations along the trail. This partnership came about during development of the WMPO's Wilmington/New Hanover County Comprehensive Greenway Plan in 2012. <http://www.bcbsnc.com/content/campaigns/gonc/index.htm>

SPARTANBURG, SC & THE MARY BLACK FOUNDATION

The Mary Black Foundation Rail Trail was a collaboration between the Mary Black Foundation, Palmetto Conservation Foundation, City of Spartanburg, Partners for Active Living, SPATS, and local citizens. It extends from downtown Spartanburg at Henry Street, between Union and Pine Streets, and continues 2 miles to Country Club Road. Since its inception there has been buzz about redeveloping the Rail Trail corridor. The commuter and recreational trail brings



together all walks of life, and connects neighborhoods, businesses, restaurants, a school, a bike shop, the YMCA, a grocery store, and a skate park. As the Hub City Connector segment of the Palmetto Trail through Spartanburg County, the Rail Trail is an outdoor transportation spine for Spartanburg from which other projects are expected to spin off. One great example is the first phase of B-cycle bicycle-sharing program located at the Henry Street trailhead. Project contact: Lisa Bollinger, Spartanburg Area Transportation Study, Spartanburg, SC.

SWAMP RABBIT TRAIL AND GREENVILLE HEALTH SYSTEM, GREENVILLE, SC

The Greenville Health System Swamp Rabbit Trail is a shared-use-path that runs along the Reedy River through Greenville County, connecting parks, schools, and local businesses. The GHS Swamp Rabbit has become very popular among residents and visitors for recreational and transportation purposes. The Greenville Health System has become a private sponsor because of the health benefits offered by the trail as well as the branding opportunity achieved by having its name and logo on the trail's signs. The GHS Swamp Rabbit Trail continues to increase in size and popularity, with communities in neighboring counties making plans to extend the trail into their Cities. Project contact: Ty Houck, Greenville County Parks, Recreation and Tourism, Taylors, SC.



This table is a continuation of Table 3.1 from page 61, and it reports the prioritization scores of all projects, excluding sidewalks (which were ranked qualitatively).

Table 3.1 (continued from page 61) Priority Bicycle and Multi-Use Path Projects

Recommended Bike Facility	Roadway	From	To	Prioritization Score
Quiet Street/Bike Blvd	5th Ave SW/.../4th Ave SW/.../5th Ave SW	22nd St SW	17th St SW	6.2
Quiet Street/Bike Blvd	7th St SW	1st Ave SW	7th Ave SW	6.2
Multi-Use Path	9th St Ln SE	C Ave SE	Tate Blvd SE	6.2
Quiet Street/Bike Blvd	Main Ave NW	12th St NW	11th St NW	6.2
Quiet Street/Bike Blvd	Main Ave SE/10th St SE	12th St SE	C Ave SE	6.2
Multi-Use Path	16th St NE	12th Ave NE	8th St Dr NE	5.3
Multi-Use Path	23rd Ave NE	5th St NE	21st Ave NE	5.3
Enhanced Shared Bikeway	2nd Ave SE	5th St SE	Lenoir Rhyne Blvd	5.3
Quiet Street/Bike Blvd	33rd Ave NE	16th St NE	Kool Park Rd NE	5.3
Multi-Use Path	4th St Dr SW	US 70	2nd St SW	5.3
Paved Shoulders	9th Ave NW	8th Ave NW	17th St Dr NW	5.3
Standard Bike Lane	9th Ave NW	17th St Dr NW	17th St NW	5.3
Quiet Street/Bike Blvd	9th St NW	9th Ave NW	Main Ave NW	5.3
Enhanced Shared Bikeway	Main Ave NW	34th St NW	17th St SW	5.3
Quiet Street/Bike Blvd	11th St SW	Main Ave NW	7th Ave SW	5.1
Quiet Street/Bike Blvd	14th St NE/16th Ave NE/14th St Dr NE	8th St Dr NE	12th Ave NE	5.1
Quiet Street/Bike Blvd	19th St NW	19th St NW paper street connector	1st Ave NW	5.1

Recommended Bike Facility	Roadway	From	To	Prioritization Score
Quiet Street/Bike Blvd	19th St NW	1st Ave NW	Main Ave NW	5.1
Multi-Use Path	23rd St NW	8th Ave NW	Main Ave NW	5.1
Multi-Use Path	3rd Ave SE	Lenoir Rhyne Blvd SE	Tate Blvd SE	5.1
Standard Bike Lane	4th St SW	8th Ave Dr SW	US 70	5.1
Quiet Street/Bike Blvd	6th Ave SW	9th St SW	4th St SW	5.1
Multi-Use Path	8th Ave NE	8th St NE	Highland Ave NE	5.1
Quiet Street/Bike Blvd	Main Ave Dr NW	27th St NW	23rd St NW	5.1
Quiet Street/Bike Blvd	Main Ave Dr NW/22nd St NW/22nd St SW	23rd St NW	US 70	5.1
Quiet Street/Bike Blvd	2nd St PI NW	4th St Dr NW	3rd Ave NW	4.4
Quiet Street/Bike Blvd	5th Ave NE	5th Ave PI NE	Mai Ave NE	4.4
Quiet Street/Bike Blvd	Main Ave SE/8th St SE	3rd St SE	Highland Ave SE	4.4
Quiet Street/Bike Blvd	Main Ave SW	9th St SW	3rd St SW	4.4
Multi-Use Path	10th St Blvd NW	14th Ave Dr NW	12th Ave NW	4.2
Quiet Street/Bike Blvd	16th St NE	Snow Creek Rd NE	Cloninger Mill Rd NE	4.2
Quiet Street/Bike Blvd	18th St PI NW	Clement Blvd NW to 18th St PI NW connector	9th Ave NW	4.2
Paved Shoulders	19th St SW	US 70	13th Ave SW	4.2
Standard Bike Lane	34th St NW	Hickory Airport Rd	Main Ave NW	4.2
Off-Street Connection	Clement Blvd NW to 18th St PI NW connector	Clement Blvd NW	18th St PI NW	4.2
Quiet Street/Bike Blvd	12th Ave NE	4th St Ln NE	5th St NE	4
Off-Street Connection	12th Ave NE/Hickory High School driveway connector	Hickory High School driveway	12th Ave NE	4
Multi-Use Path	16th Ave NW	5th St NW	4th St NW	4
Quiet Street/Bike Blvd	18th St NW/5th Ave NW	9th Ave NW	19th St NW	4
Off-Street Connection	19th St NW paper street connector	5th Ave NW	19th St NW	4
Quiet Street/Bike Blvd	26th St SW	1st Ave SW	US 70	4
Quiet Street/Bike Blvd	2nd Ave SW/2nd Ave PI SW/4th Ave SW	33rd St SW	24th St SW	4
Standard Bike Lane	3rd St NE	3rd Ave NE	1st Ave NE	3.3

Recommended Bike Facility	Roadway	From	To	Prioritization Score
Enhanced Shared Bikeway	3rd St NW/SW	4th Ave NW	4th St SW	3.3
Quiet Street/Bike Blvd	3rd St SE	Main Ave SE	1st Ave SE	3.3
Quiet Street/Bike Blvd	4th Ave NW	6th St NW	2nd St NW	3.3
Multi-Use Path	4th St Dr NW	16th Ave NW	8th Ave NW	3.3
Quiet Street/Bike Blvd	5th St NW	7th Ave NW	1st Ave NW	3.3
Quiet Street/Bike Blvd	6th St NW	2nd Ave NW	1st Ave NW	3.3
Enhanced Shared Bikeway	6th St PI SE	Main Ave NE	Highland Ave SE	3.3
Quiet Street/Bike Blvd	7th Ave NW	1st St NW	3rd St NE	3.3
Quiet Street/Bike Blvd	7th St NE	3rd Ave NE	5th Ave NE	3.3
Buffered/Separated Bike Lanes/MUP	Catawba Valley Blvd SE	S Center St	StarCity Rd	3.3
Enhanced Shared Bikeway	Highland Ave SE	Lenoir Rhyne Blvd SE	1st Ave SE	3.3
Enhanced Shared Bikeway	Trade Alley NW	3rd St SW	2nd St NW	3.3
Quiet Street/Bike Blvd	10th St PI NW/16th Ave NW/11th St NW	21st Ave NW	12th Ave NW	2.2
Enhanced Shared Bikeway	12th St NW	9th Ave NW	2nd Ave NW	2.2
Standard Bike Lane	13th St SW	5th Ave SW	US 70	2.2
Quiet Street/Bike Blvd	15th Ave NW	6th St NW	4th St Dr NW	2.2
Quiet Street/Bike Blvd	1st Ave SW	14th St SW	new 1-way transition	2.2
Quiet Street/Bike Blvd	26th St Dr NE/36th Ave NE/28th St NE	24th St PI NE	Kool Park Rd NE	2.2
Multi-Use Path	2nd St NE	29th Ave NE	28th Ave NE	2.2
Climbing Lane + SLM	2nd St NW	21st Ave NW	16th Ave NW	2.2
Quiet Street/Bike Blvd	36th Ave NE/.../25th ST NE	Kool Park Rd NE	Snow Creek Rd NE	2.2
Quiet Street/Bike Blvd	3rd St NE	8th Ave NE	3rd St NE to 4th St Dr NE connector	2.2
Off-Street Connection	3rd St NE to 4th St Dr NE connector	3rd St NE	4th St Dr NE	2.2
Multi-Use Path	4th St NW/13th Ave PI NW	4th St NW	4th St Dr NW	2.2
Paved Shoulders	6th St SE	US 70	Catawba Valley Blvd SE	2.2



Recommended Bike Facility	Roadway	From	To	Prioritization Score
Quiet Street/Bike Blvd	7th St Dr SE/9th Ave Dr SE/12th Ave SE	7th Ave SE	10th Ave Dr SE	2.2
Quiet Street/Bike Blvd	D Ave SE	Lenoir Rhyne Blvd SE	D Ave SE connector	2.2
Paved Shoulders	Falling Creek Rd NE	N Center St	29th Ave Dr NE	2.2
Multi-Use Path	Hickory Blvd	Alex Lee Blvd	Old Lenoir Rd NW	2.2
Quiet Street/Bike Blvd	Hickory YMCA 1st St NW entrance driveway	multi-use paths within YMCA property	7th Ave NW	2.2
Multi-Use Path	Highland Ave NE	16th St NE	McDonald Pkwy NE	2.2
Quiet Street/Bike Blvd	Main Ave Way SE	NC 127	3rd St SE	2.2
Multi-Use Path	S Center St	11th Ave SW	Brooksford Blvd	2.2
Quiet Street/Bike Blvd	Tabernacle Ch driveway/13th St NE/.../13th St Dr NE	Falling Creek Rd NE	23rd Ave NE	2.2
Quiet Street/Bike Blvd	10th Ave SW/17th St SW	19th St SW	US 70	1.1
Off-Street Connection	10th St Blvd NW to Unnamed St connector	10th St Blvd NW	Unnamed St	1.1
Off-Street Connection	10th St Blvd NW to Unnamed St connector	10th St Blvd NW	Unnamed St	1.1
Quiet Street/Bike Blvd	10th St Ln NW/10th St Blvd NW/1st Ave NW	21st Ave NW	10th St PI NW	1.1
Quiet Street/Bike Blvd	10th St PI NW/4th Ave Dr NW/7th St NW	7th Ave NW connector	3rd Ave NW	1.1
Enhanced Shared Bikeway	11th Ave SW	US 70	Center St	1.1
Quiet Street/Bike Blvd	15th St NE/23rd Ave Ct NE	23rd Ave NE	16th ST NE	1.1
Off-Street Connection	16th Ave Ln NW to Unnamed Street connector	16th Ave Ln NW	Unnamed Street	1.1
Quiet Street/Bike Blvd	16th Ave Ln NW/8th St Dr NW/.../10th St PI NW	8th St Dr NW	12th Ave NW	1.1

Recommended Bike Facility	Roadway	From	To	Prioritization Score
Buffered/Separated Bike Lanes	16th St NE	9th Ave NE	Highland Ave NE	1.1
Quiet Street/Bike Blvd	17th Ave NW/10th St Blvd NW	12th St Dr NW	Glenn Hilton Jr Memorial Park	1.1
Quiet Street/Bike Blvd	18th St Pl NW	2nd Ave NW	1st Ave NW	1.1
Quiet Street/Bike Blvd	19th St Pl NE/19th Ave Cir NE/.../23rd St NE	19th Ave Dr NE	29th Ave Dr NE	1.1
Quiet Street/Bike Blvd	24th St Dr NE/25th St NE/.../23rd St NE	Kool Park Rd NE	29th Ave Dr NE	1.1
Multi-Use Path	27th St NW	8th Ave NW	1st Ave SW	1.1
Quiet Street/Bike Blvd	34th Ave NE/34th Ave Ct NE	28th St NE	Sulphur Springs Rd NE	1.1
Quiet Street/Bike Blvd	39th Ave Dr NW	6th St Dr NW	4th St Ct NW	1.1
Climbing Lane + SLM	39th Ave Dr NW	3rd St NW	Center St	1.1
Quiet Street/Bike Blvd	3rd Ave SE	3rd St SE	5th St SE	1.1
Standard Bike Lane	4th St Dr NE	10th Ave Dr NE	8th Ave NE	1.1
Off-Street Connection	4th St Dr NW to 1st St NW connector	4th St Dr NW	1st St NW	1.1
Enhanced Shared Bikeway	4th St SW	6th Ave SW	7th Ave SW	1.1
Quiet Street/Bike Blvd	5th St SE	Highland Ave SE	1st Ave SE	1.1
Off-Street Connection	5th St SE to 3rd Ave Dr SE connector	5th St SE	3rd Ave Dr SE	1.1
Quiet Street/Bike Blvd	5th St Pl NW/19th Av Dr NW/8th St NW/18th Av Dr NE/20th Av Dr NW	6th St NW	2nd St NW	1.1
Quiet Street/Bike Blvd	6th St SE/Kiwanis Park driveway	3rd Ave Dr SE	7th Ave SE	1.1
Paved Shoulders	8th Ave NW	27th St NW	9th Ave NW	1.1
Off-Street Connection	D Ave SE connector	D Ave SE western section	D Ave SE eastern section	1.1
Quiet Street/Bike Blvd	Glenn C. Hilton Jr. Memorial Park driveway	6th St NW	southwest terminus	1.1
Quiet Street/Bike Blvd	Hickory YMCA 4th St Dr NW entrance driveway	4th St Dr NW	multi-use paths within YMCA property	1.1
Quiet Street/Bike Blvd	Snow Creek Rd NE	16th St NE	Sulphur Springs Rd NE	1.1



Recommended Bike Facility	Roadway	From	To	Prioritization Score
Quiet Street/Bike Blvd	10th St Blvd NW	12th Ave NW	3rd Dr NW	0
Quiet Street/Bike Blvd	10th St Ln NW/.../8th Ave NW	12th Ave NW to 10th St Ln NW connector	6th St NW	0
Quiet Street/Bike Blvd	10th St NE	Main Ave Dr NW	US 70-A	0
Quiet Street/Bike Blvd	11th Ave Blvd SE	10th Ave Dr SE	Lenoir Rhyne Blvd SE	0
Off-Street Connection	12th Ave NW to 10th St Ln NW connector	12th Ave NW	10th St Ln NW	0
Paved Shoulders	13th Ave SW	33rd St SW	19th St SW	0
Multi-Use Path	14th Ave Dr NW	10th At Blvd NW	4th St NW	0
Off-Street Connection	20th St NW connector	20th St NW	20th St NW dead end	0
Paved Shoulders	21st St NW	Clement Blvd NE	8th Ave NW	0
Quiet Street/Bike Blvd	23rd St SW	Main Ave NW	1st Ave SW	0
Off-Street Connection	23rd St SW to 22nd St SW connector	23rd St SW	22nd St SW	0
Off-Street Connection	24th St SW to 5th Ave SW connector	24th St SW	5th Ave SW	0
Quiet Street/Bike Blvd	25th Ave Dr NW/30th Ave Dr NW/30th Ave NW	25th Ave NW	29th Ave Dr NW	0
Quiet Street/Bike Blvd	2nd Ave NE	Hickory Airport Rd	30th St PI NW	0
Quiet Street/Bike Blvd	30th ST PI NW/1st Ave NW	2nd Ave NW	27th St NW	0
Quiet Street/Bike Blvd	36th St NW	Main Ave Dr NW	Main Ave NW	0
Quiet Street/Bike Blvd	37th Ave NE/9th St Dr NE/.../32nd Ave PI NE	Falling Creek Rd NE	16th St NE	0
Quiet Street/Bike Blvd	3rd St NW/42nd Ave Dr NW/42nd Ave Ct NW/2nd St NE	39th Ave Dr NW	Falling Creek Rd NE	0
Quiet Street/Bike Blvd	3rd St NW/9th Ave NW	12th Ave NW	8th Ave Dr NW	0
Quiet Street/Bike Blvd	5th Ave SW	24th St SW to 5th Ave SW connector	23rd St SW to 22nd St SW connector	0
Quiet Street/Bike Blvd	7th Ave NW	11th St NW	eastern terminus/7th Ave NW connector	0

Recommended Bike Facility	Roadway	From	To	Prioritization Score
Quiet Street/Bike Blvd	7th Ave NW	6th St NW	4th St Dr NW	0
Off-Street Connection	7th Ave NW to 10th St PI NW connector	7th Ave NW	10th St PI NW	0
Quiet Street/Bike Blvd	8th Ave Loop NW	8th Ave NW	23rd St NW	0
Paved Shoulders	9th Ave Dr NW	21st St NW	9th Ave NW	0
Quiet Street/Bike Blvd	9th St NW/8th St Dr NW	26th Ave NW	21st Ave NW	0
Enhanced Shared Bikeway	alley behind Taco Bell	Clement Blvd NW	9th Ave NW	0
Quiet Street/Bike Blvd	Cape Hickory Rd	West Ridge Dr	Main Ave NW	0
Quiet Street/Bike Blvd	Cline Park Dr/3rd St NE/Wilson Rd	US 70-A	10th St NE	0
Quiet Street/Bike Blvd	D Ave SE/9th St PI SE	D Ave SE connector	C Ave SE	0
Quiet Street/Bike Blvd	Hickory Airprt Rd/9th Ave Dr NW	2nd Ave NW	Clement Blvd NW	0
Quiet Street/Bike Blvd	Main Ave Dr NW	39th St NW	34th St NW	0
Quiet Street/Bike Blvd	Main Ave Dr NW	41st St NW	39th St NW	0
Quiet Street/Bike Blvd	Main Ave NW	39th St NW	34th St NW	0
Paved Shoulders	Old Shelby Rd	Sweet Bay Ln	south of Hildebrna Shelby Rd	0
Quiet Street/Bike Blvd	Sulphur Springs Rd NE	Snow Creek Rd NE	Springs Rd NE	0



COST ESTIMATES

The project cut-sheets show a planning level cost estimate. The total featured on the cut-sheet is based on the preliminary engineering estimates, the details of which are provided on the below and on the following pages.

 NC License #P-1301	PLANNING ESTIMATE - PROJECT 1 HICKORY, NC PRIORITY PROJECTS
LOCATION:	6TH ST NW, 21ST AVE NW, AND 12TH ST DR NW - FROM OLD LENOIR RD TO 6TH ST NW
DESCRIPTION:	15,560 LF OF ADVISORY BIKE LANES AND SHARED LANE MARKINGS
TOTAL LENGTH:	2.95 MILES
EST. CONSTRUCTION COST:*	\$300,000
COUNTY:	CATAWBA
DIVISION:	12

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N		800	MOBILIZATION	1	LS	\$17,000.00	\$17,000.00
	4025000000-E			CONTR FURN, ***SIGN (E)	612	SF	\$20.00	\$12,240.00
	4072000000-E		903	SUPPORTS, 3-LB STEEL U-CHANNEL	68	LF	\$70.00	\$4,760.00
	4102000000-N		904	SIGN ERECTION, TYPE E	68	EA	\$100.00	\$6,800.00
	4399000000-N		1105	TEMPORARY TRAFFIC CONTROL	1	LS	\$50,000.00	\$50,000.00
	4688000000-E		1205	THERMOPLASTIC PAVEMENT MARKING LINES (6", 90 MILS)	7,500	LF	\$2.25	\$16,875.00
	4725000000-E		1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	83	EA	\$250.00	\$20,750.00
	4850000000-E		1205	REMOVAL OF PAVEMENT MARKING LINES (4")	37,763	LF	\$1.50	\$56,644.50
				MINOR ITEMS (5%)	1	LS	\$9,000.00	\$9,000.00

CONSTRUCTION COST SUBTOTAL	\$209,000.00
CONTINGENCY (30%)	\$62,700.00
UTILITES	\$0.00
OPINION OF PROBABLE CONSTRUCTION COST	\$271,700.00
NCDOT ADMINISTRATION FEE (10%)	\$27,170.00
OPINION OF TOTAL CONSTRUCTION COST	\$298,870.00

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY _____ HEM
 DATE _____ 10/26/2020

 NC License #P-1301	PLANNING ESTIMATE - PROJECT 2 HICKORY, NC PRIORITY PROJECTS
LOCATION:	17TH ST NW - FROM 9TH AVE NW TO 1ST AVE SW
DESCRIPTION:	5,649 LF OF ROADWAY WIDENING w/ BIKE LANES. 5' WIDE SIDEWALK WITH 3' LANDSCAPE BUFFER ON EAST SIDE OF ROAD

TOTAL LENGTH:	1.06 MILES
EST. CONSTRUCTION COST:*	\$4,800,000

COUNTY: CATAWBA DIVISION: 12

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N	800		MOBILIZATION	1	LS	\$125,000.00	\$125,000.00
	0000400000-N	801		CONSTRUCTION SURVEYING	1	LS	\$50,000.00	\$50,000.00
	0043000000-N	226		GRADING	1	LS	\$548,000.00	\$548,000.00
	1121000000-E	520		AGGREGATE BASE COURSE	1,960	TON	\$40.00	\$78,400.00
	1275000000-E	600		PRIME COAT	1,740	GAL	\$12.50	\$21,750.00
	1297000000-E	607		MILLING ASPHALT PAVEMENT, 1.5" DEPTH	4,961	SY	\$2.20	\$10,914.93
	1519000000-E	610		ASPHALT CONC SURFACE COURSE, TYPE S9.5B	710	TON	\$125.00	\$88,750.00
	1575000000-E	620		ASPHALT BINDER FOR PLANT MIX	45	TON	\$600.00	\$27,000.00
	2549000000-E	846		2'-6" CONCRETE CURB & GUTTER	8,340	LF	\$30.00	\$250,200.00
	2591000000-E	848		4" CONCRETE SIDEWALK	2,480	SY	\$60.00	\$148,800.00
	2605000000-N	848		CONCRETE CURB RAMP	26	EA	\$3,000.00	\$78,000.00
	2612000000-E	848		6" CONCRETE DRIVEWAY	770	SY	\$75.00	\$57,750.00
	4399000000-N	1105		TEMPORARY TRAFFIC CONTROL	1	LS	\$100,000.00	\$100,000.00
				RAILROAD CROSSING	1	LS	\$250,000.00	\$250,000.00
				CULVERT EXTENSIONS	1	LS	\$100,000.00	\$100,000.00
				DRAINAGE ALLOWANCE	1	LS	\$231,000.00	\$231,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$83,000.00	\$83,000.00
				MINOR ITEMS (5%)	1	LS	\$104,000.00	\$104,000.00

CONSTRUCTION COST SUBTOTAL	\$2,356,000.00
CONTINGENCY (30%)	\$706,800.00
UTILITIES	\$1,240,000.00
OPINION OF PROBABLE CONSTRUCTION COST	\$4,302,800.00
NCDOT ADMINISTRATION FEE (10%)	\$430,280.00
OPINION OF TOTAL CONSTRUCTION COST	\$4,733,080.00

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY HEM
 DATE 10/20/2020



 NC License #P-1301 LOCATION: DESCRIPTION:	PLANNING ESTIMATE - PROJECT 3 HICKORY, NC PRIORITY PROJECTS 17TH ST NW ROADWAY EXTENSION - FROM 9TH AVE NW TO CLEMENT BLVD 1,065 LF OF ROADWAY INCLUDING BIKE LANES AND 5' WIDE SIDEWALK WITH 3' LANDSCAPE BUFFER
TOTAL LENGTH: 0.20 MILES EST. CONSTRUCTION COST:* \$1,100,000	COUNTY: <u>CATAWBA</u> DIVISION: <u>12</u>

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N	800		MOBILIZATION	1	LS	\$41,000.00	\$41,000.00
	0000400000-N	801		CONSTRUCTION SURVEYING	1	LS	\$10,000.00	\$10,000.00
	0043000000-N	226		GRADING	1	LS	\$237,000.00	\$237,000.00
	1121000000-E	520		AGGREGATE BASE COURSE	1,830	TON	\$40.00	\$73,200.00
	1275000000-E	600		PRIME COAT	1,330	GAL	\$12.50	\$16,625.00
	1519000000-E	610		ASPHALT CONC SURFACE COURSE, TYPE S9.5B	270	TON	\$150.00	\$40,500.00
	1575000000-E	620		ASPHALT BINDER FOR PLANT MIX	20	TON	\$600.00	\$12,000.00
	2549000000-E	846		2'-6" CONCRETE CURB & GUTTER	2,130	LF	\$30.00	\$63,900.00
	2591000000-E	848		4" CONCRETE SIDEWALK	1,190	SY	\$60.00	\$71,400.00
	2605000000-N	848		CONCRETE CURB RAMP	6	EA	\$3,000.00	\$18,000.00
	4399000000-N	1105		TEMPORARY TRAFFIC CONTROL	1	LS	\$5,000.00	\$5,000.00
				DRAINAGE ALLOWANCE	1	LS	\$95,000.00	\$95,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$16,000.00	\$16,000.00
				MINOR ITEMS (5%)	1	LS	\$32,000.00	\$32,000.00

CONSTRUCTION COST SUBTOTAL	\$732,000.00
CONTINGENCY (30%)	\$219,600.00
UTILITIES	\$0.00
OPINION OF PROBABLE CONSTRUCTION COST	\$951,600.00
NCDOT ADMINISTRATION FEE (10%)	\$95,160.00
OPINION OF TOTAL CONSTRUCTION COST	\$1,046,760.00

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY HEM
 DATE 10/25/2020



NC License #P-1301

PLANNING ESTIMATE - PROJECT 4

HICKORY, NC PRIORITY PROJECTS

LOCATION: **CLEMENT BLVD FROM PLANNED 17TH EXTENSION TO 19TH ST LN NW (PLANNED MULTI-USE PATH "AVIATION WALK")**

DESCRIPTION: **3464 LF OF A 5 TO 4 LANE ROAD DIET WITH BIKE LANES**

TOTAL LENGTH:	0.66 MILES
EST. CONSTRUCTION COST:*	\$130,000

COUNTY: CATAWBA DIVISION: 12

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N		800	MOBILIZATION	1	LS	\$12,000.00	\$12,000.00
	4399000000-N		1105	TEMPORARY TRAFFIC CONTROL	1	LS	\$16,000.00	\$16,000.00
	4685000000-E		1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	8,660	LF	\$2.00	\$17,320.00
	4688000000-E		1205	THERMOPLASTIC PAVEMENT MARKING LINES (6", 90 MILS)	6,645	LF	\$2.25	\$14,951.25
	4725000000-E		1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	28	EA	\$250.00	\$7,000.00
	4850000000-E		1205	REMOVAL OF PAVEMENT MARKING LINES (4")	10,400	LF	\$1.50	\$15,600.00
	4875000000-N		1205	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	19	EA	\$55.00	\$1,045.00

CONSTRUCTION COST SUBTOTAL	\$84,000.00
CONTINGENCY (30%)	\$25,200.00
UTILITIES	\$0.00
OPINION OF PROBABLE CONSTRUCTION COST	\$109,200.00
NCDOT ADMINISTRATION FEE (10%)	\$10,920.00
OPINION OF TOTAL CONSTRUCTION COST	\$120,120.00

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY HEM
 DATE 10/26/2020



 NC License # _____	PLANNING ESTIMATE - PROJECT 5 HICKORY, NC PRIORITY PROJECTS
LOCATION:	8TH AVE SE - FROM 3RD ST SE TO 5TH ST SE - & 3RD ST SE - FROM 8TH AVE TO 10TH AVE SE
DESCRIPTION:	1,700 LF OF 5' WIDE SIDEWALK WITH 3' LANDSCAPE BUFFER (WHERE FEASIBLE)

TOTAL LENGTH:	0.32 MILES
EST. CONSTRUCTION COST:*	\$340,000

COUNTY: CATAWBA DIVISION: 12

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N	800		MOBILIZATION	1	LS	\$17,000.00	\$17,000.00
	0000400000-N	801		CONSTRUCTION SURVEYING	1	LS	\$8,000.00	\$8,000.00
	0043000000-N	226		GRADING	1	LS	\$67,000.00	\$67,000.00
	2549000000-E	846		2'-6" CONCRETE CURB & GUTTER	350	LF	\$30.00	\$10,500.00
	2591000000-E	848		4" CONCRETE SIDEWALK	620	SY	\$60.00	\$37,200.00
	2605000000-N	848		CONCRETE CURB RAMP	11	EA	\$3,000.00	\$33,000.00
	2612000000-E	848		6" CONCRETE DRIVEWAY	140	SY	\$75.00	\$10,500.00
	4399000000-N	1105		TEMPORARY TRAFFIC CONTROL	1	LS	\$6,000.00	\$6,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
				MINOR ITEMS (5%)	1	LS	\$10,000.00	\$10,000.00

CONSTRUCTION COST SUBTOTAL	<u>\$236,000.00</u>
CONTINGENCY (30%)	<u>\$70,800.00</u>
UTILITIES	<u>\$0.00</u>
OPINION OF PROBABLE CONSTRUCTION COST	<u>\$306,800.00</u>
NCDOT ADMINISTRATION FEE (10%)	<u>\$30,680.00</u>
OPINION OF TOTAL CONSTRUCTION COST	<u>\$337,480.00</u>

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY HEM
 DATE 10/16/2020



NC License #

PLANNING ESTIMATE - PROJECT 6

HICKORY, NC PRIORITY PROJECTS

7TH AVE SW (SOUTH SIDE) - FROM 15TH ST SW TO 14TG ST SW - & 3RD AVE SW (SOUTH SIDE) - FROM 17TH ST SW TO 15TH ST SW. THEN 15TH ST SW (EAST SIDE)- FROM 3RD AVE SW TO 7TH AVE SW - & A PEDESTRIAN CROSSING FROM 17TH AVE TO 13TH ST SW

LOCATION: _____

DESCRIPTION: 2306 LF OF 5' WIDE SIDEWALK WITH 3' LANDSCAPE BUFFER (WHERE FEASIBLE)

TOTAL LENGTH:	0.44 MILES
EST. CONSTRUCTION COST:*	\$740,000

COUNTY: CATAWBA DIVISION: 12

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N	800		MOBILIZATION	1	LS	\$33,000.00	\$33,000.00
	0000400000-N	801		CONSTRUCTION SURVEYING	1	LS	\$15,000.00	\$15,000.00
	0043000000-N	226		GRADING	1	LS	\$66,000.00	\$66,000.00
	2549000000-E	846		2'-6" CONCRETE CURB & GUTTER	1,590	LF	\$30.00	\$47,700.00
	2591000000-E	848		4" CONCRETE SIDEWALK	1,100	SY	\$60.00	\$66,000.00
	2605000000-N	848		CONCRETE CURB RAMP	8	EA	\$3,000.00	\$24,000.00
	2612000000-E	848		6" CONCRETE DRIVEWAY	250	SY	\$75.00	\$18,750.00
	4399000000-N	1105		TEMPORARY TRAFFIC CONTROL	1	LS	\$12,000.00	\$12,000.00
				RRFB CROSSING	1	LS	\$20,000.00	\$20,000.00
				SIGNAL UPGRADES	1	LS	\$30,000.00	\$30,000.00
				DRAINAGE ALLOWANCE	1	LS	\$58,000.00	\$58,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$17,000.00	\$17,000.00
				MINOR ITEMS (5%)	1	LS	\$20,000.00	\$20,000.00

CONSTRUCTION COST SUBTOTAL	\$469,000.00
CONTINGENCY (30%)	\$140,700.00
UTILITES	\$60,000.00
OPINION OF PROBABLE CONSTRUCTION COST	\$669,700.00
NCDOT ADMINISTRATION FEE (10%)	\$66,970.00
OPINION OF TOTAL CONSTRUCTION COST	\$736,670.00

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY _____ HEM
 DATE _____ 10/20/2020



 NC License # _____	PLANNING ESTIMATE - PROJECT 7 HICKORY, NC PRIORITY PROJECTS
LOCATION: 12TH AVE NE - FROM 5TH ST NE TO 8TH ST NE	
DESCRIPTION: 2,337 LF OF 5' WIDE SIDEWALK WITH 3' LANDSCAPE BUFFER (WHERE FEASIBLE)	

TOTAL LENGTH:	0.44 MILES	
EST. CONSTRUCTION COST:*	\$670,000	
COUNTY: <u>CATAWBA</u>		DIVISION: <u>12</u>

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N		800	MOBILIZATION	1	LS	\$25,000.00	\$25,000.00
	0000400000-N		801	CONSTRUCTION SURVEYING	1	LS	\$15,000.00	\$15,000.00
	0043000000-N		226	GRADING	1	LS	\$61,000.00	\$61,000.00
	2549000000-E		846	2'-6" CONCRETE CURB & GUTTER	30	LF	\$30.00	\$900.00
	2591000000-E		848	4" CONCRETE SIDEWALK	1,060	SY	\$60.00	\$63,600.00
	2605000000-N		848	CONCRETE CURB RAMP	6	EA	\$3,000.00	\$18,000.00
	2612000000-E		848	6" CONCRETE DRIVEWAY	290	SY	\$75.00	\$21,750.00
	3345000000-E		864	REMOVE & RESET EXISTING GUARDRAIL	57	LF	\$15.00	\$855.00
	4399000000-N		1105	TEMPORARY TRAFFIC CONTROL	1	LS	\$11,000.00	\$11,000.00
				DRAINAGE ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$17,000.00	\$17,000.00
				MINOR ITEMS (5%)	1	LS	\$12,000.00	\$12,000.00

CONSTRUCTION COST SUBTOTAL	\$298,000.00
CONTINGENCY (30%)	\$89,400.00
UTILITIES	\$220,000.00
OPINION OF PROBABLE CONSTRUCTION COST	\$607,400.00
NCDOT ADMINISTRATION FEE (10%)	\$60,740.00
OPINION OF TOTAL CONSTRUCTION COST	\$668,140.00

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY HEM
 DATE 10/16/2020

	PLANNING ESTIMATE - PROJECT 8 HICKORY, NC PRIORITY PROJECTS
NC License # _____	
LOCATION: _____	17TH AVE NE - FROM 5TH ST NE TO 4TH ST DR NE
DESCRIPTION: _____	1,905 LF OF 5' WIDE SIDEWALK

TOTAL LENGTH:	0.36 MILES
EST. CONSTRUCTION COST:*	\$440,000

COUNTY: CATAWBA DIVISION: 12

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N	800		MOBILIZATION	1	LS	\$25,000.00	\$25,000.00
	0000400000-N	801		CONSTRUCTION SURVEYING	1	LS	\$13,000.00	\$13,000.00
	0043000000-N	226		GRADING	1	LS	\$65,000.00	\$65,000.00
	2549000000-E	846		2'-6" CONCRETE CURB & GUTTER	460	LF	\$30.00	\$13,800.00
	2591000000-E	848		4" CONCRETE SIDEWALK	920	SY	\$60.00	\$55,200.00
	2605000000-N	848		CONCRETE CURB RAMP	5	EA	\$3,000.00	\$15,000.00
	2612000000-E	848		6" CONCRETE DRIVEWAY	190	SY	\$75.00	\$14,250.00
	4399000000-N	1105		TEMPORARY TRAFFIC CONTROL	1	LS	\$9,000.00	\$9,000.00
				DRAINAGE ALLOWANCE	1	LS	\$19,000.00	\$19,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$14,000.00	\$14,000.00
				MINOR ITEMS (5%)	1	LS	\$12,000.00	\$12,000.00

CONSTRUCTION COST SUBTOTAL	<u>\$290,000.00</u>
CONTINGENCY (30%)	<u>\$87,000.00</u>
UTILITIES	<u>\$20,000.00</u>
OPINION OF PROBABLE CONSTRUCTION COST	<u>\$397,000.00</u>
NCDOT ADMINISTRATION FEE (10%)	<u>\$39,700.00</u>
OPINION OF TOTAL CONSTRUCTION COST	<u>\$436,700.00</u>

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY _____ HEM
 DATE _____ 10/16/2020



 NC License # _____	PLANNING ESTIMATE - PROJECT 9 HICKORY, NC PRIORITY PROJECTS
LOCATION: 8TH AVE NE/C AVE SE - FROM 8TH AVE NE TO 13TH ST SE	
DESCRIPTION: 3741 LF OF 10' WIDE MULTI-USE PATH WITH 3' LANDSCAPE BUFFER	

TOTAL LENGTH:	0.71 MILES	
EST. CONSTRUCTION COST:*	\$1,700,000	
COUNTY: CATAWBA		DIVISION: 12

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N		800	MOBILIZATION	1	LS	\$45,000.00	\$45,000.00
	0000400000-N		801	CONSTRUCTION SURVEYING	1	LS	\$30,000.00	\$30,000.00
	0043000000-N		226	GRADING	1	LS	\$123,000.00	\$123,000.00
	2549000000-E		846	2'-6" CONCRETE CURB & GUTTER	2,770	LF	\$30.00	\$83,100.00
	2591000000-E		848	4" CONCRETE MULTI-USE SIDE PATH	3,830	SY	\$60.00	\$229,800.00
	2605000000-N		848	CONCRETE CURB RAMP	14	EA	\$3,000.00	\$42,000.00
	4399000000-N		1105	TEMPORARY TRAFFIC CONTROL	1	LS	\$30,000.00	\$30,000.00
				RAILROAD CROSSING	1	LS	\$100,000.00	\$100,000.00
				DRAINAGE ALLOWANCE	1	LS	\$98,000.00	\$98,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$26,000.00	\$26,000.00
				MINOR ITEMS (5%)	1	LS	\$42,000.00	\$42,000.00

CONSTRUCTION COST SUBTOTAL	<u>\$953,000.00</u>
CONTINGENCY (30%)	<u>\$285,900.00</u>
UTILITIES	<u>\$280,000.00</u>
OPINION OF PROBABLE CONSTRUCTION COST	<u>\$1,518,900.00</u>
NCDOT ADMINISTRATION FEE (10%)	<u>\$151,890.00</u>
OPINION OF TOTAL CONSTRUCTION COST	<u>\$1,670,790.00</u>

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY HEM
 DATE 10/15/2020

	PLANNING ESTIMATE - PROJECT 10 HICKORY, NC PRIORITY PROJECTS
NC License # _____	
LOCATION: _____	8TH AVE NE / C AVE SE - FROM 8TH AVE NE TO 13TH ST SE
DESCRIPTION: _____	3,710 LF OF 10' WIDE MULTI-USE PATH WITH 3' LANDSCAPE BUFFER

TOTAL LENGTH:	0.70 MILES
EST. CONSTRUCTION COST:*	\$1,400,000
COUNTY: CATAWBA _____	DIVISION: _____ 12

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N	800		MOBILIZATION	1	LS	\$61,000.00	\$61,000.00
	0000400000-N	801		CONSTRUCTION SURVEYING	1	LS	\$27,000.00	\$27,000.00
	0043000000-N	226		GRADING	1	LS	\$190,000.00	\$190,000.00
	2549000000-E	846		2'-6" CONCRETE CURB & GUTTER	50	LF	\$30.00	\$1,500.00
	2591000000-E	848		4" CONCRETE MULTI-USE SIDE PATH	3,240	SY	\$60.00	\$194,400.00
	2605000000-N	848		CONCRETE CURB RAMP	15	EA	\$3,000.00	\$45,000.00
	2612000000-E	848		6" CONCRETE DRIVEWAY	720	SY	\$75.00	\$54,000.00
	4399000000-N	1105		TEMPORARY TRAFFIC CONTROL	1	LS	\$10,000.00	\$10,000.00
				SIGNAL IMPROVEMENTS	1	LS	\$90,000.00	\$90,000.00
				DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$27,000.00	\$27,000.00
				MINOR ITEMS (5%)	1	LS	\$37,000.00	\$37,000.00

CONSTRUCTION COST SUBTOTAL	\$859,000.00
CONTINGENCY (30%)	\$257,700.00
UTILITIES	\$80,000.00
OPINION OF PROBABLE CONSTRUCTION COST	\$1,196,700.00
NCDOT ADMINISTRATION FEE (10%)	\$119,670.00
OPINION OF TOTAL CONSTRUCTION COST	\$1,316,370.00

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY _____ HEM
 DATE _____ 10/15/2020



 NC License # _____	PLANNING ESTIMATE - PROJECT 11 HICKORY, NC PRIORITY PROJECTS
LOCATION: 12TH AVE NW - FROM 6TH ST NW TO OLD LENOIR RD	
DESCRIPTION: 4,851 LF OF 10' WIDE MULTI-USE PATH WITH 3' LANDSCAPE BUFFER	

TOTAL LENGTH:	0.92 MILES	
EST. CONSTRUCTION COST:*	\$1,600,000	
COUNTY: <u>CATAWBA</u>		DIVISION: <u>12</u>

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N	800		MOBILIZATION	1	LS	\$52,000.00	\$52,000.00
	0000400000-N	801		CONSTRUCTION SURVEYING	1	LS	\$31,000.00	\$31,000.00
	0043000000-N	226		GRADING	1	LS	\$193,000.00	\$193,000.00
	2549000000-E	846		2'-6" CONCRETE CURB & GUTTER	1,180	LF	\$30.00	\$35,400.00
	2591000000-E	848		4" CONCRETE MULTI-USE SIDE PATH	4,490	SY	\$60.00	\$269,400.00
	2605000000-N	848		CONCRETE CURB RAMP	18	EA	\$3,000.00	\$54,000.00
	2612000000-E	848		6" CONCRETE DRIVEWAY	460	SY	\$75.00	\$34,500.00
	4399000000-N	1105		TEMPORARY TRAFFIC CONTROL	1	LS	\$40,000.00	\$40,000.00
				LIGHT POLE RELOCATION	1	EA	\$3,000.00	\$3,000.00
				SIGNAL IMPROVEMENTS	1	LS	\$30,000.00	\$30,000.00
				DRAINAGE ALLOWANCE	1	LS	\$35,000.00	\$35,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$35,000.00	\$35,000.00
				MINOR ITEMS (5%)	1	LS	\$43,000.00	\$43,000.00

CONSTRUCTION COST SUBTOTAL	<u>\$989,000.00</u>
CONTINGENCY (30%)	<u>\$296,700.00</u>
UTILITIES	<u>\$100,000.00</u>
OPINION OF PROBABLE CONSTRUCTION COST	<u>\$1,385,700.00</u>
NCDOT ADMINISTRATION FEE (10%)	<u>\$138,570.00</u>
OPINION OF TOTAL CONSTRUCTION COST	<u>\$1,524,270.00</u>

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY HEM
 DATE 10/15/2020

 NC License #P-1301	PLANNING ESTIMATE - PROJECT 12 HICKORY, NC PRIORITY PROJECTS
LOCATION:	16TH ST NE /12TH AVE NE (SPRINGS RD) - FROM McDONALD PARKWAY TO HIGHLAND AVE - MUP LOCATED ON NORTH/WEST SIDE OF ROADWAY
DESCRIPTION:	8,711 LF OF 10' WIDE MULTI-USE PATH WITH 3' LANDSCAPE BUFFER

TOTAL LENGTH:	1.65 MILES		
EST. CONSTRUCTION COST:*	\$3,100,000	COUNTY: <u>CATAWBA</u>	DIVISION: <u>12</u>

ITEM NO.				ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
LINE NO.	DESC.	NO.	SECT. NO.					
ROADWAY ITEMS								
	0000100000-N		800	MOBILIZATION	1	LS	\$80,000.00	\$80,000.00
	0000400000-N		801	CONSTRUCTION SURVEYING	1	LS	\$40,000.00	\$40,000.00
	0043000000-N		226	GRADING	1	LS	\$229,000.00	\$229,000.00
	2591000000-E		848	4" CONCRETE MULTI-USE SIDE PATH	7,690	SY	\$60.00	\$461,400.00
	2605000000-N		848	CONCRETE CURB RAMP	26	EA	\$3,000.00	\$78,000.00
	2612000000-E		848	6" CONCRETE DRIVEWAY	1,400	SY	\$75.00	\$105,000.00
	4399000000-N		1105	TEMPORARY TRAFFIC CONTROL	1	LS	\$50,000.00	\$50,000.00
				EROSION CONTROL ALLOWANCE	1	LS	\$52,000.00	\$52,000.00
				MINOR ITEMS (5%)	1	LS	\$66,000.00	\$66,000.00

CONSTRUCTION COST SUBTOTAL	<u>\$1,497,000.00</u>
CONTINGENCY (30%)	<u>\$449,100.00</u>
UTILITIES	<u>\$860,000.00</u>
OPINION OF PROBABLE CONSTRUCTION COST	<u>\$2,806,100.00</u>
NCDOT ADMINISTRATION FEE (10%)	<u>\$280,610.00</u>
OPINION OF TOTAL CONSTRUCTION COST	<u>\$3,086,710.00</u>

NOTE: ESTIMATE IS NOT BASED ON AN ENGINEERING DESIGN, AND IS FOR PLANNING PURPOSES ONLY.
 BASED ON 2020 UNIT PRICES, INFLATION NOT INCLUDED.
 EXCLUDES SPECIAL LANDSCAPING, LIGHTING, AND GREEN INFRASTRUCTURE.
 EXCLUDES ROW ACQUISITION, ENGINEERING DESIGN, PERMITTING, AND CONSTRUCTION ENGINEERING & INSPECTION.

COMPUTED BY HEM
 DATE 11/16/2020



WALK.BIKE.HICKORY.

*Prepared for the City of Hickory
Prepared by Alta Planning + Design*

November 2020