



LAURINBURG Bike Plan 2022



July 2022

Table of Contents

Introduction	٠	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	. 1
Existing Conditions	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	13
Public Engagement	٠	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	٠	•	25
Recommendations	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	33
Implementation	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	71
Appendix - Digital																						

Acknowledgements

This project was made possible by a planning grant initiative through the North Carolina Department of Transportation - Integrated Mobility Division (IMD), and City of Laurinburg resolution R-2020-03 to support the development of a Comprehensive Bicycle Plan.

Thank you to all those who participated in this planning process through meeting participation, virtual workshops, online survey or interactive map commenting, and focus group discussions. The full list of Advisory Committee members is included in Chapter 1.

This plan is dedicated In Memoriam to Councilmember Don Rainer, who served on the Advisory Committee before his passing in 2021.

"The bicycle planning grant provides an opportunity to form a blueprint for realistic and obtainable bicycle infrastructure for the City of Laurinburg." - 2020 Grant Application

City of Laurinburg

Executive Summary

Project Background

The purpose of this Bike Plan is to evaluate the existing biking conditions within the City of Laurinburg and recommend infrastructure projects, policies, and programs to improve safety, connectivity, and well-being for people of all-ages-and-abilities. This Plan will create a **direction for positive change** in peoples' lives by designing better environments for biking throughout the city.

Vision & Goals

This Plan will **identify new opportunities and ongoing initiatives** to create and enhance the biking environment for those of all-ages-andabilities, connecting people with place and creating greater access to those destinations where they live, work, play, and learn. While the Bike Plan's goals will be developed through this planning process, there are many goals which this Plan can accomplish (image on right).

Planning Process

Over the course of 10 months, the Bike Plan was developed through a three-phase process with many opportunities for public participation.



Benefits of Biking

Extensive research has been conducted at the federal, state, and local level to better understand the benefits of biking and what improved bike infrastructure offers to communities. Decades of research suggest the following:









Bicycling expands mobility options for all.



Bicycling promotes a healthier environment.

Bicycling makes our roads more safe for all users.





IMPROVE SAFETY

Address areas of concern or acute danger for bicyclists and pedestrians within the transportation system in order to reduce the number of bike crashes, injuries, and fatalities over time.

IMPROVE ACCESS

Create a connected network of bike facilities that allow people of all-ages-and-abilities safe, convenient, affordable access to their destinations.



GROW THE ECONOMY

Realize the economic benefits of bike-friendly communities, retain wealth within the community through affordable transportation alternatives and increasing access, sales, and growth in local businesses.

ENHANCE HEALTH

Improve community health statistics through more and greater opportunities for active transportation, outdoor recreation for health and wellness.

PROMOTE EOUITY

Ensure equal opportunity access to community destinations, facilities, and resources through improvements to the bike facilities network.



PROTECT THE ENVIRONMENT

Improve air and water quality by replacing automobile trips with biking trips, reducing carbon emissions and stormwater runoff; protect and conserve natural resources and wildlife habitats through greenways and shared-use path dedication.

Community Characteristics

Population has declined slightly in Laurinburg over the past decade, from just over 16,000 in 2010 to an estimated 15,500 in 2018. Over a third (34%) of Laurinburg residents live below the federal poverty level, a figure higher than both state (15%) and national averages (13%). Many of these residents rent (rather than own) their homes, and for just over 30% of renters, housing costs consume greater than 50% of their monthly income. This leaves little to spend on transportation, and **around 14% of Laurinburg households do not have access to a vehicle**, which is also higher than state (6%) and national averages (9%).



Existing Facilities

Laurinburg currently features few existing facilities for bicyclists. **Just over three miles of facilities are currently found within city limits;** of these, 2.26 miles exist as wide, paved shoulders found along two corridors: Atkinson Street, a north-south street that parallels Main Street, and Mcgirts Bridge Road, and east-west street on the north side of Laurinburg that connects Main Street/US 401 and North Caledonia Road.

Laurinburg's transportation network is defined by its major thoroughfares, upon which bicyclists and pedestrians rely to travel to their destinations. These thoroughfares play an important role in shaping this Plan's recommendations and the future Laurinburg bike network.

Crash Analysis

Bike and pedestrian crashes in Laurinburg are relatively uniform in their distribution, although few crashes occur south of US-74 despite the importance of several regional commercial and recreational destinations. **Crashes are located in close proximity to city thoroughfares**, such as Main Street, Caledonia Road, US 501/McColl Road, and Church Street. A cluster of pedestrian crashes can be seen in proximity to the Walmart, located in the triangle formed by West Boulevard, US 501/McColl Road, and I-74. This high concentration of crashes suggest that **existing roadway facilities are inadequate to protect bike and pedestrian users**, and that this is a key destination for residents.

Public Engagement

The Public Engagement section describes the processes, strategies and activities used to engage with the Laurinburg community to date. It also summarizes information received from the public, whether through online survey methods, virtual interaction, or public meetings.

PROJECT WEBSITE

The website for the Bike Plan's development, **www.bikelaurinburg. com**, was established early in the Plan's development to serve as a key focal point both for disseminating information and receiving feedback.

ONLINE SURVEY

The survey, which could be accessed through the project website, allowed members of the public to provide feedback on issues central to the Bike Plan's development, such as areas of concern, important destinations, and desired improvements to the bike network. The survey generated **67 responses**.

INTERACTIVE MAP

The Interactive Map allowed respondents the opportunity to leave feedback on the existing Laurinburg transportation network from the convenience of their home rather than at an in-person public meeting on a specific date/time. **The map recieved 124 unique points of interest by the end of the project**.

FOCUS GROUPS

Focus group meetings ('listening sessions' with community members) allowed the project team to verify data with group perspectives, as well as to supplement the same information with **local insight and perspectives not captured through data**.

PUBLIC WORKSHOP #1 - THURSDAY JUNE 24, 2021

Attendees were informed of the project purpose, schedule, and how they could become more involved through the website, survey, and interactive map. Polling questions were used to better engage the audience, learn more about their biking experience, user group profile, and what may encourage them to bike more often.

PUBLIC WORKSHOP #2 - TUESDAY SEPTEMBER 28, 2021

The workshop was hosted on MURAL, a digital whiteboard platform, where visitors could review the project's process and schedule and navigate the boards at their own pace, view draft recommendations for Laurinburg's bike network, including concept designs, and assisting the team in developing priorities. A presentation accompanied the workshop and MURAL board (image below), with video of the workshop posted to the project website and streamed via Facebook Live.



Project material shared during the Virtual Open House event.

Мар #	Corridor Name (Route Number) From (south/west) to To (north/east)	Length (mi)	Bikeway Type
1	Atkinson Street (SR 1107) From S Main Street to Church Street (S 74 Bus)	1.30	Bike Lane
2	Atkinson Street (SR 1107) From Church Street (S 74 Bus) to Gill Street / Railroad Street	0.23	Shared Lane Markings
3	Azure Court From West Boulevard to Church Street (S 74 Bus)	0.56	Bike Lane
4	Biggs Street (SR-1642) From S Main Street to Railroad Street	1.56	Bike Lane
5	Biggs Street (SR-1641) @ Johns Road (US 501 Bus)	1.00	Intersection
6	Charlotte Street From Raleigh Street to US 401 Bypass Service Road	0.22	Bike Lane
7	Church Street (US-74 BUS) @ McColl Road (US 501 Bus)	1.00	Intersection
8	Crepe Myrtle Avenue (NC-99348) From S Main Street to Sunset Drive	0.22	Bike Lane
9	Crepe Myrtle Greenway From Sunset Drive to Raleigh Street	0.44	Greenway
10	Dogwood Mile St Connector From McColl Road (US 501 Bus) to Lauchwood Drive	1.05	Sidepath
11	E Church Street (US 74 Bus) From Everett Street to Caledonia Road	0.46	Shared Lane Markings
12	Everett Street From E Vance Street to Fairly Street	0.49	Bike Lane
13	Fairly Street From Gill Street to S Main Street	0.11	Shared Lane Markings
14	Fairly Street From S King Street to Gill Street	0.27	Bike Lane
15	Johns Road (US 501 Bus) From S Caledonia Road to S Main Street	1.27	Sidepath
16	Lauchwood Circle From US 401 Service Road to S Main Street	0.07	Bike Lane
17	Lauchwood Drive (SR 1674) From S Main Street to S Caledonia Road	0.87	Sidepath
18	Lauchwood Drive (SR 1674) @ S Main Street	1.00	Intersection
19	Leith Creek Greenway - phase 1 From Caledonia Rd to N Gill Street	0.44	Greenway
20	McGirts Bridge Rd (SR 1433) From N Main Street to Caledonia Rd	0.43	Bike Lane

Мар #	Corridor Name (Route Number) From (south/west) to To (north/east)	Length (mi)	Bikeway Type
21	N Caledonia Rd (SR 1433) From Old Lumberton Road to McGirts Bridge Road	0.38	Bike Lane
22	N Caledonia Rd (SR 1439) From Church Street (S 74 Bus) to Old Lumberton Road	0.48	Bike Lane
23	N Gill Street (SR-1107) From W Bizzell St to N Main Street (US 401 Bus)	0.69	Bike Lane
24	N Gill Street (SR 1107) From Railroad Street to W Bizzell St	0.06	Shared Lane Markings
25	N Gill Street (SR 1107) From Hillside Avenue to N Main Street (US 401 Bus)	0.33	Bike Lane
26	N Main Street (US 15 Bus) From Railroad Street to Aberdeen Road	0.55	Bike Lane
27	Peden Street From West Boulevard to Church Street (S 74 Bus)	0.57	Bike Lane
28	Railroad Street From S Gill Street to Biggs Street	0.16	Shared Lane Markings
29	S Caledonia Road (SR 1438) From I-74 Bridge (overpass) to E Vance Street	0.84	Bike Lane
30	S Caledonia Road (SR 1439) From E Vance Street to Church Street (S 74 Bus)	0.33	Bike Lane
31	S Main Street (US 15 Bus) From Church Street (S 74 Bus) to Railroad Street	0.25	Shared Lane Markings
32	S Main Street (US 15 Bus) From McColl Road (US 501 Bus) to Armory Street	0.72	Sidepath
33	Scotland Crossing Drive From McColl Road (US 501 Bus) to West Boulevard	0.27	Bike Lane
34	Sunset Drive From Atkinson Street to West Boulevard	0.71	Bike Lane
35	US 401 Service Road (SR-1174) From Lauchwood Circle to Ford Drive	0.09	Sidepath
36	Vance Street From Everett Street to S Caledonia Road	0.50	Bike Lane
37	W Church Street (US 74 Bus) From Scotland High School to Everett Street	0.87	Bike Lane
38	West Boulevard (SR 1108) From US 401 Bypass Service Road to McColl Road (US 501 Bus)	0.97	Bike Lane
39	West Boulevard Intersection (SR 1108) @ McColl Road (US 501 Bus)	1.00	Intersection

Near-Term priority projects list (continued).

Near-Term priority projects list (relative priority).

Recommendations

A mix of facilities and implementation strategies (detailed in Chapter 5) are recommended to create this network that include bike lanes, buffered bike lanes, shared-lanes, sidepaths, trails, pavement markings, traffic calming, and crossing improvements.

Forming the Bike Network

The City of Laurinburg should strive to construct an interconnected and seamless network of bike facilities, to be constructed incrementally over time. The network should be thoughtfully planned to connect users to desired destinations, both civic and recreational, and consider the comfort level of cyclists of all ages and abilities.

Prioritization

Evaluation criteria were developed from the Plan's Goals, public feedback, and technical analysis, in order to identify projects that will deliver the greatest impact.

- **Accessibility:** Proximity to education, recreational facilities, shopping, and points of interest
- **Safety:** Proximity to corridors with high traffic volumes and/or crashes
- Constructability: Property constraints and corridor ownership
- Cost: Cost of construction
- **Public Input:** Community-identified needs through public engagement

Prioritized Recommendations

This plan is a **living document, and must be re-evaluated** as needs change. The prioritization timeline is a *suggestion* for the City of Laurinburg based on a data-driven process, and does not represent a rigid sequence for construction.



Project Prioritization map.

Priority Projects

Representing five (5) near-term, high-priority needs, and include conceptual design visuals and planning-level cost estimates. See Chapter 4 for more details.

WEST BOULEVARD

The I-74 overpass bridge is narrow, and there are no existing bike facilities or sidewalks. A sidepath along the south side of West Boulevard is proposed, with a separate bike/ped bridge and intersection improvements.

Cost Estimate: **\$1.8 - 2.2M** (planning level)

DRAGON PARK

This east-west connection is needed between Dragon Park and the Scotland Crossing Shopping Center. A recreational greenway is proposed along the west side of Bridge Creek; this priority project would connect a residential neighborhood further west with this recreational asset in addition to shopping destinations.



BIGGS STREET

Reducing the two travel lanes to 12-feet wide would allow for traditional bike lanes, or potentially buffered bike lanes. This parallel route to S. Main Street is a valuable low-stress corridor <u>directly into</u> <u>downtown</u> (significant destination from public outreach) that will support most bike users because it has less than 1,500 vehicles per day.



DOWNTOWN RAILROAD CROSSINGS

Railroad crossings represent a safety hazard for even advanced users. Adding advisory cyclist lane markings should help define the bicyclist zone, and reduce vehicle speeds, allowing Downtown to feel more bicycle-friendly.

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ATKINSON STREET

Public feedback identified this intersection (between Plaza Road and Atkinson Street) as a safety hazard and potential barrier to biking. The skewed angle of Atkinson Street, and lack of shoulder/sidewalks means that biking along or across S. Main Street is difficult. For the short-term, this concept design utilizes the signalized intersection at Plaza Road to safety cross, and connects with sidepaths (10' wide minimum) that extend further north/south. In the long-term, the Atkinson Street and Biggs Street intersections should be redesigned (as a four-way signal) for improved visibility and safety.

•	Cost Estimate: \$600 - 650K	•
•	(planning level)	•
	••••••••••••••••••••••	•

Design Guidance

Chapter 4 - Design Guidance summarizes design selection resources and facility design considerations, including the range of speeds and volumes at which various bikeway facilities are most **likely to be suitable for the "Interested but Concerned" user group**. This is the single largest group of bicyclists, and has the lowest tolerance for stressful biking conditions.

Policy & Program Recommendations

The project recommendations understandably receive the most attention in many plans, but they represent only one component of a successful Bike Plan. Bicyclists are benefited the most in the long term by having <u>favorable public and private policies that promote biking</u> <u>within their community</u>. The recommendations in Chapter 4 - Program & Policies are based on a review of Laurinburg's specific ordinance and plan language, as well as feedback from the Steering Committee and staff on existing actions.

Five-Year Implementation Plan

Completion of the Bike Plan is only the first step in creating a bike-friendly Laurinburg. Chapter 5 - Implementation provides a series of actions steps for moving forward with the recommendations of the Plan.

Partners

Successful implementation will require the <u>cooperation of a variety</u> of agencies and organizations. Several of these partnerships already exist, and this Plan will build on those partnerships. Examples of these partnerships include the relationship between NCDOT, the City, and the Lumber River RPO. Still other connections will be created by this Plan. These coalitions will likely be formed within the City of Laurinburg itself, as the City coordinates its efforts with local schools, athletic associations, and other community groups.

Funding

Funding sources can be used for a variety of activities, including: programs, planning, design, implementation, and maintenance. This section 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.

FEDERAL FUNDING SOURCES

- Surface Transportation Block Grant (STBG)
- Congestion Mitigation and Air Quality (CMAQ)
- Highway Safety Improvement Program (HSIP)
- RAISE Grants
- Recreational Trails Program (RTP)
- Safe Routes to Schools (SRTS)

STATE FUNDING SOURCES

- Strategic Transportation Investments (STI)
- Governor's Highway Safety Program (GHSP)
- Powell Bill
- Parks & Recreation Trust Fund (PARTF)
- Spot Safety Program

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INTRODUCTION

Introduction

he City of Laurinburg, county seat of Scotland County, is located in the Sandhills region of eastern North Carolina, near the border with South Carolina and approximately 100 miles south of Raleigh. Home to approximately 15,000 residents and in close proximity to the natural beauty of the Lumber River, the North Carolina Sandhills, and other regional destinations, Laurinburg offers a comfortable rural living for those that call it home.

Biking is a transportation choice for many due to necessity, or for those people making environmental and health-conscience decisions. The purpose of this Bike Plan is to evaluate the existing biking conditions within the City of Laurinburg and recommend infrastructure projects, policies, and programs to improve safety, connectivity, and well-being for people of all-ages-and-abilities. This Plan will create a **direction for positive change** in peoples' lives by designing better environments for biking throughout the city. The presence of bike infrastructure means **access to jobs, schools, and health care**, as well as healthier communities because of new outdoor options for mobility needs. Overall, this plan aims to ensure that businesses, citizens, and visitors to Laurinburg realize the health, mobility, safety, environmental, and economic benefits of biking.



Vision & Goals

aurinburg's vision is to provide for its residents a vibrant, healthy, safe, and attractive community, and this Bike Plan is an important step towards realizing that vision. This Plan will **identify new opportunities and ongoing initiatives** to create and enhance the biking environment for those of allages-and-abilities, connecting people with place and creating greater access to those destinations where they live, work, play, and learn.

While the Bike Plan's goals will be developed through this planning process, there are many goals which this Plan can accomplish:











IMPROVE SAFETY

Address areas of concern or acute danger for bicyclists and pedestrians within the transportation system in order to reduce the number of bike crashes, injuries, and fatalities over time.

IMPROVE ACCESS

Create a connected network of bike facilities that allow people of all-ages-and-abilities safe, convenient, affordable access to their destinations.

GROW THE ECONOMY

Realize the economic benefits of bike-friendly communities, retain wealth within the community through affordable transportation alternatives and increasing access, sales, and growth in local businesses.

ENHANCE HEALTH

Improve community health statistics through more and greater opportunities for active transportation, outdoor recreation for health and wellness.

PROMOTE EQUITY

Ensure equal opportunity access to community destinations, facilities, and resources through improvements to the bike facilities network.

PROTECT THE ENVIRONMENT

Improve air and water quality by replacing automobile trips with biking trips, reducing carbon emissions and stormwater runoff; protect and conserve natural resources and wildlife habitats through greenways and shared-use path dedication.

Planning Process

ver the course of 10 months, the Bike Plan was developed through a three-phase process encompassing aspects of planning and design for non-motorized travel, with numerous opportunities for public participation. The Bike Plan process began in May 2021 with the initial Advisory Committee meeting, and concluded in February 2022 with its adoption by City Council.

The Advisory Committee was an essential element of the process. Composed of stakeholders representing Laurinburg, the Advisory Committee guided the planning process, providing valuable insight on community needs and values, and integrated Laurinburg's goals and objectives within the final plan. The initial Advisory Committee meeting was held in late May 2021, introducing the Committee to the planning process, orienting them to the Plan's broad objectives, and seeking initial direction on key issues and public engagement. Subsequent committee meetings focused on engagement results, City goals and objectives, and implementation priorities.

Advisory Committee:

- Michael Mandeville, City of Laurinburg Community Development Director
- Mac McInnis, City of Laurinburg Planner/ Code Enforcement Officer
- Daniel Walters, City of Laurinburg Downtown Development Coordinator
- Councilwoman Mary Jo Adams, City of Laurinburg
- Councilman Don Rainer, City of Laurinburg, In Memoriam
- Stanton Cadow, St. Andrews University
- Greg Wood, Director, Scotland Community Hospital
- Andy Kurtzman, Scotland Community Health
- Roylin Hammond, Former Scotland County Emergency Services Director

- Cory Hughes, Scotland County Tourism Development Authority Director
- Bryan Graham, Scotland County Parks and Recreation Director
- Dr. Michael Riles, Scotland County Board of Education Chief Accountability Officer
- Janet Robertson, Lumber River Rural Planning Organization
- Bryan Kluchar, NCDOT Division 8
- Kathy Vollert, NCDOT Division 8
- Tony Sumter, NCDOT Integrated Mobility Division
- Bob Dean, Business Owner and Bicyclist
- Walter Brown, Sr., City of Laurinburg Resident
- Alisha Brown, City of Laurinburg Resident

VISION



Planning-Design-Construction Graphic.

The Plan developed in three broad phases (Figure 1.1):



Outreach & Data Analysis, the first phase of the planning process, centered on project commencement, initial public engagement, and investigation of Laurinburg's overall transportation network, particularly as it influences bike user behavior. The initial Survey and Interactive Web Map identified community perspectives on biking within Laurinburg, highlighting both community trends, issues, and values, as well as (with the Map) specific locations of interest within the City. Coupled with data-driven analyses of the transportation network, this phase set the foundation for future stages of the process. **Discussion & Draft Recommendations**, the second phase of the planning process, used feedback received and existing conditions data analysis to begin framing a biking network. Higher-priority corridors that connect to key destinations became primary connections, and lower-priority corridors that complete the network secondary connections. From this network the project team individual projects, them within tables and maps, and with the Advisory Committee and second round of public outreach to prioritize (rank) into near-, mid-, and long-term needs.

Final Recommendations & Reporting, the

third phase of the planning process, tied everything together into a graphicallyfriendly final plan with funding considerations and implementation strategy. The North Carolina Department of Transportation – Integrated Mobility Division provided the final review of the plan to ensure compatibility with other Bike and Pedestrian Plans across the State, integrated with regional Comprehensive Transportation Planning, and compliant for future funding opportunities.

Benefits of Biking

hy should Laurinburg care about biking? What does being "bike-friendly" do to benefit such a city? It's not the first time these questions have been asked. In fact, extensive research has been conducted at the federal, state, and local level to better understand the benefits of biking and what improved bike infrastructure offers to communities. Decades of research suggest the following:



Bicycling supports the economy.



Bicycling promotes better community health.



Bicycling expands mobility options for all.



Bicycling promotes a healthier environment.



Bicycling makes our roads more safe for all users.





Bicycling supports the economy.

Investing in bike infrastructure can stimulate the local economy by generating tourism revenue, supporting local business, and creating jobs. Many tourists seek out places where they feel comfortable walking and biking to explore a new area, and when they do, they spend money. A study of four North Carolina shared-use paths showed **\$19.4 million in annual sales revenues driven by traffic from the shared-use paths.** Active streets that support biking are generally more attractive to businesses, increasing the opportunity for economic development.

Building bike infrastructure creates an average of 9.6 jobs for every \$1 million spent compared to roadway projects, which create 7.8 jobs per \$1 million invested. Providing bike infrastructure can also mean cost-effective mobility. For the cost to construct a one-mile, four-lane freeway (\$50 million), an entire network of bike facilities for a midsized city can be built. A community's walkability or bike-ability consistently ranks as one of the most important community amenities by prospective home buyers. According to the Urban Land Institute, **50% of US residents say walkability is a high priority when considering where to live**. This preference for communities that accommodate walking and biking is reflected in property values across the country. Studies have shown that property values may increase by as much as \$7 per square foot for every foot closer its location to a greenway, trail, or shared-use path.

Finally, it's expensive to own a car. The American Automobile Association (AAA) found that **the average American household spends almost \$10,000 per year to own and operate a single car**, compared with just \$120/year to own and maintain a bike. Providing infrastructure for people to travel safely by bike is a major cost saving for those who cannot afford to own and maintain a reliable automobile, retaining wealth within your community.



Bicycling promotes better community health.

Providing facilities for walking and biking will allow Laurinburg residents to incorporate physical activity into their daily lives through active transportation, recreation, and exercise. According to its 2019 Community Health Needs Assessment, 36% of Scotland County residents are obese. One-in-five of those surveyed (20%) in the assessment said they did not regularly exercise. The Center for Disease Control and Prevention (CDC) recommends at least 150 minutes of moderate exercise each week, yet many people do not have safe access to basic forms of physical activity such as walking and biking. **Two-thirds of County residents lack access to exercise opportunities (68%).**

In addition, the health and well-being benefits of increased physical activity has a positive impact on individual and societal health costs. Each year North Carolinians spend \$50 billion on health care, nearly \$8,000 per person. According to a recent study, medical costs due to physical inactivity amount to almost 14% of this figure. Walking and biking act as preventative measures against physical inactivity and other conditions, potentially saving individuals and families thousands of dollars on health care. **Every dollar invested in pedestrian and bike trails can result in a savings of nearly \$3 in direct medical expenses.**

Bicycling expands mobility options for all.

Almost 40% of all trips made in the United States are two miles or less, yet only 13% of these short trips are taken on a bike or on foot. Many of these trips could be made by walking or biking if sidewalks, bike lanes, paths, or other facilities were provided to improve safety, efficiency, and convenience. By diverting short driving trips to walking or bike trips, traffic congestion and motor vehicle miles driven can be reduced. **An individual who shifts three trips a week averaging 2.4 miles from driving to biking reduces congestion costs to other road users by approximately \$216 in urban areas.** Increasing the ability to cycle also bolsters transit ridership as biking can be involved at either end of the trip, whether it is through one's own neighborhood, along a tree-lined greenway, or down a city street.

An adopted Bike Plan also allows us to account for the different types of bicyclists. There are at least four different types, with differing skill levels, needs, and interests that influence whether and how different types of bike facilities are used (**Fig. 1.2**). These user types will be discussed throughout this plan, but they are summarized as follows:

NOT INTERESTED:

These bicyclists are either unable to bike, or uninterested in biking. The size of this group is highly variable among communities, and is likely influenced by personal or environmental factors. These users may either **lack the basic skillset for biking**, or there are **few opportunities for basic skills training** or safe biking suitable to their skillset.

INTERESTED, BUT CONCERNED:

This is the single largest group of bicyclists as identified through research, and has the lowest tolerance for stressful biking conditions. Those in this group may be **relatively new to biking**, and have developed the necessary basic skillset to safely ride a bike. However, as they have a low tolerance for stress, these users

avoid biking except where they have access to separated bikeways,

or low-volume streets with safe roadway crossings. Planning and designing bike facilities for this user groups is important, as it represents the greatest return on investment for encouraging more users to choose biking as a viable transportation option. The resulting bikeway network designed for this user group will serve bicyclists of all-ages-and-abilities, including the Somewhat Confident and Highly Confident groups.

SOMEWHAT CONFIDENT:

The next smallest group, these bicyclists may also be known as Enthused and Confident Bicyclists. They are comfortable on most types of bike facilities. They have a lower tolerance for traffic stress than the Highly Confident Bicyclist and generally prefer low-volume residential streets and striped or separated bike lanes on major

streets. These user types are willing to tolerate higher levels of traffic stress for short distances to complete trips to destinations or to avoid out-of-direction travel.

HIGHLY CONFIDENT:

Finally, this user type represents the **smallest portion of the population**. While some degree of variation may exist within this group, these individuals prefer direct routes and do not avoid operating in mixed traffic, even on roadways with higher vehicle operating speeds and traffic volumes. Many also enjoy bikeways separated from traffic; however, they may avoid bikeways which they perceive to be less safe or too crowded with pedestrians or other slower moving bicyclists, or which require deviation from their preferred route.

BICYCLIST DESIGN USER PROFILES

Interested **but Concerned**

OW STRESS

TOLERANCE

%-56% of the total population

Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separated bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.

Somewhat Confident

Generally prefer more

-9% of the total population 4-7% of the total population

separated facilities, but are

Highly

comfortable riding in bicycle lanes or on paved shoulders if need be.

Comfortable riding with traffic; will use roads without bike lanes.

HIGH STRESS TOLERANCE

Confident

Figure 1.2: Bicyclist Design User Profiles. Source: FHWA Bikeway Selection Guide (2019)



Bicycling promotes a healthier environment.

About 30% of all air pollution in the US comes from the extraction and burning of fossil fuels in motor vehicles. Fossil fuel emissions are harmful to children, senior citizens, and individuals with heart or other respiratory illnesses as well as those susceptible to developing such conditions. These emissions are especially harmful to lowincome populations that more often reside in neighborhoods near highways.

Building on an earlier study that deemphasized cycling in a suite of tools to limit future carbon emissions, a 2015 study using a "high-shift" movement towards cycling indicated a 7% reduction in CO2 emissions by 2030, also saving \$6 trillion globally in the process. In other studies, if 20% of people used bikes instead of cars for short trips in Milwaukee and Madison, Wisconsin, 57,405 fewer tons of carbon dioxide would be emitted; a 2011 study found that Barcelona's bike-share program reduces carbon dioxide emissions in that city by about 9,000 metric tons each year. While the benefits achieved now by cycling and those forecasted in many studies under different assumptions focus on the conversion of automobile trips to biking trips, biking helps the environment in other ways that may not be as obvious. Sustainability professionals talk about the carbon footprint of modes of transportation: the amount of carbon dioxide created and emitted in the manufacture and transportation of a vehicle to its new owner. While carbon footprints are difficult to calculate, driven 100,000 miles over its useful life, a car may require as much carbon to create as it does to drive over that mileage. Bikes require a small fraction of the amount of materials and transportation cost to create and transport, and therefore would be expected to represent a proportionately higher savings for embodied carbon compared to those required to manufacture a new automobile.

Bicycling makes our roads safer for all users.

North Carolina is currently ranked as one of the most unsafe states (13th of 50) for biking based on per capita bicyclist fatalities. According to the 2011 Bicycle and Pedestrian Safety Survey, at least **70% of North Carolinians would walk or bike more for daily trips if walking and biking conditions were improved**. Unfortunately, in the same survey 80% of respondents felt that biking for daily needs was somewhat or very dangerous due to a lack of on-road bike facilities; lack of alternatives for cycling on main arterials; lack of bike paths and greenways; and motorists or bicyclists not sharing the road as contributing factors. Much progress has been made (and will continue) within North Carolina communities to plan, design, construct, and enjoy walking and biking facilities since this survey was conducted.



Bike-friendly communities are safer for all road users, including motorists. The "safety in numbers" principle states that as walking and biking rates increase, streets become safer for its more vulnerable users. When walking and biking rates double, pedestrian-motorist collision risk decreases by 34%. **Installing bike lanes reduces motor vehicle travel lane widths while making pedestrians and bicyclists more visible to drivers.** These changes are often effective at slowing traffic to people-friendly speeds and can help to ensure speed limit compliance by matching the physical design of the road to the posted speed limit. Furthermore, installing bike lanes increases cyclist predictability; reduces wrong-way riding and sidewalk riding (a contributing factor to many bike-car collisions); and increases traffic control compliance.



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02

EXISTING CONDITIONS

Plans, Policies, and Ordinances

aurinburg has a history of working with partners and its citizens to continually enhance the City and Region's quality of life. To accomplish this, the City manages some of the changing forces despite state and federal policy shifts, growth pressures, or changing demographic characteristics. This management is integrated within short-range reviews and regulations governing private and public developments as well as long-term visioning encapsulated in area, corridor, and/or town-wide planning studies. Laurinburg also participates in county and state partnerships on roadway improvements, utility infrastructure, and programs that can further support positive changes. The following plans and city ordinances were reviewed from perspectives of biking and larger community goals.



Caledonia Road, looking north towards downtown Laurinburg.

Laurinburg Walks: A Plan for Health and Mobility | 2015



his plan was proposed with the intention of increasing physical activity amongst the citizens, in part to address high rates of obesity and improve health outcomes. The plan outlines resident demographics including age, mobility, income, access to a car, obesity, disease, and other factors. There is a notable lack of existing sidewalks, with less than 10% of the total road mileage within the City having a proper sidewalk. This scarcity has contributed to decreased pedestrian activity and increased the occurrence of road accidents. The I-74 Interstate Bypass and areas of downtown have been topics of particular concern.

The plan makes a case for increased sidewalk infrastructure, identifying **25 miles of roadway along which sidewalk implementation is a priority**. Priority areas are partially the result of community input in identifying problem areas. The project includes recommendations for these priority areas as well as the addition of greenway and intersection crossing improvements.

KEY TAKEAWAYS:

- Recommends 25 miles of sidewalk implementation along community identified priority areas.
- Identifies the need to make the City pedestrian-friendly to address the increased rates of obesity and related disease in the population.
- Identifies of making the City a place where walking is a safe and viable transportation option for the citizens.
- Proposes sidewalks, greenways, and improved intersections for pedestrian use and safety.

Sandhills Regional Bike Plan | 2019

project in conjunction with the Scotland County Comprehensive Transportation Plan (2016) and Laurinburg Walks (2015), this plan outlines both the need for and possible implementation of additional bike routes and bike safety in the City of Laurinburg. The main goal is the **addition of three miles of bike paths that connect the Morgan Recreational Complex to Downtown Laurinburg**. These additions would also work to connect current bike trails, such as the 200-mile long US 1 Carolina Connection route.



The objective of this plan is to address the needs described by public input including, but not limited to, the safety and viability of bike trails for health and recreation as well as utility transportation purposes. Poverty and obesity are high in the region in part due to its rural location, and numerous citizens reached out regarding the implementation of safe and reliable bike paths as a means of promoting increased health, job opportunities, and economic growth. The positive environmental impacts of increased biking as a mode of transportation that might replace some automotive trips were also addressed. Concurrently with the public's input, the plan outlines objectives related to increasing the livability and attraction of the City of Laurinburg to improve the economies of the City and surrounding areas.

Implementation of this project will increase the safety and viability of biking, which in turn will aid in increasing the overall health and welfare of the population, particularly those living in poverty. Job opportunities and economic growth are made more possible as rural areas become better connected with proximate employment centers.

KEY TAKEAWAYS:

- Highlights the need for additional bike paths in the City of Laurinburg as well as connections between said paths to current infrastructure.
- Outlines a connection of both bike and greenway paths for implementation.
- Address the impact of these proposed paths on the overall health, wellness, and economic status of the citizens.

Laurinburg Municipal Ordinances

he longest-term benefits to biking or, for that matter, any aspect of public life in a municipality, are more likely to be tied to how new development and redevelopment is regulated by local governments. Transportation is highly oriented towards the rules and funding policies, laws, and regulatory positions taken by the N.C. Department of Transportation (a funding partner for this current study). Laurinburg manages private development "behind the curb," including buildings, setback requirements from streets, open space, sidewalk, greenway, and other requirements.

Currently, the City of Laurinburg's municipal ordinances only cite the term "bicycle" as a definition or where and how they should not be ridden (e.g., handlebar-riding, cemeteries, sidewalks or public walks within the city center).

Ideally, these restrictions would be joined with requirements that encourage, not just discourage bike riding. These measures may include:

- The **requirement for bike parking** at civic, commercial, and largescale (greater than 50 units) residential developments;
- **Appropriate design standards for bike racks,** including the preference for loop-style racks over flimsy and usually nondurable comb-style racks;
- Requirements for new development to adhere the recommended projects shown in this plan through the **reservation of rights-of-way** (good) or **construction of 10' paved trails** that fulfill the function of those recommendations shown on this plan (much better);
- **Review of standards** for cross-access, intersection design, driveway number & spacing, and street cross-sections (potentially based on NCDOT's Complete Streets Planning & Design Guidelines);
- Development of a parks / open space / greenway plan that may make additional policy and infrastructure recommendations.

KEY TAKEAWAYS FROM ORDINANCES:

- All of the code language now is oriented towards restricting bike usage.
- The Code of Ordinances needs to substantially include new language on bike parking, private development requirements, and other ways of encouraging bike use.
- Towns and cities in North Carolina can work with NCDOT to develop street standards that are safer, more responsive to varying development contexts, and include biking and walking provisions along streets.

Community Characteristics

population has declined slightly in Laurinburg over the past decade, from just over 16,000 in 2010 to an estimated 15,500 in 2018. Over a third (34%) of Laurinburg residents live below the federal poverty level, a figure higher than both state (15%) and national averages (13%). Many of these residents rent (rather than own) their homes, and for just over 30% of renters, housing costs consume greater than 50% of their monthly income. This leaves little to spend on transportation, and **around 14% of Laurinburg households do not have access to a vehicle**, which is also higher than state (6%) and national averages (9%).

Other key statistics include:

- **37% of households** have at least one person with a disability;
- Unemployment is estimated at 16%, though it should be noted this figure fluctuates with economic conditions;
- Median age is estimated at just over **39 years**; and
- Nearly **75%** of the population is **18 years or older**.

MODE SPLITS

Despite higher than average levels of poverty and nearly 1-in-6 residents without access to a vehicle, **the vast majority of Laurinburg residents must commute by automobile due to the lack of viable alternatives**. More than 95% of Laurinburg residents commute via motor vehicle, whether alone (82%) or shared (13%). Less than 1% of the population bikes, although a small percentage use public transportation, which requires



Visual summary of Laurinburg's demographics.

Existing Facilities

KEY DESTINATIONS & TRIP GENERATORS

Certain community features, such as downtowns, schools and universities, and key shopping destinations generate traffic and influence travel patterns within the community. These are called **trip generators**, and understanding their location in Laurinburg is important to understanding a community's transportation network as a whole. Many of these trip generators (**Fig. 2.1**) are found **in proximity to Laurinburg's downtown**, although some destinations are located outside of the downtown area.

EXISTING & PROPOSED FACILITIES

Laurinburg currently features few existing facilities for bicyclists. Just over three miles of facilities are currently found within city limits; of these, 2.26 miles exist as wide, paved shoulders found along two corridors: Atkinson Street, a north-south street that parallels Main Street, and Mcgirts Bridge Road, and east-west street on the north side of Laurinburg that connects Main Street/US 401 and North Caledonia Road. The remaining 0.87 miles are shared use paths, largely as recreational amenities at community parks. A shared use path extends along Lauchwood Drive at the Scotland Memorial Hospital; this approximately ¹/₄-mile facility could provide a safe, separated east-west connector to key shopping destinations if connected to a broader bike network. The City has proposed construction of a loop network of over 22 miles of shared-use paths to provide greater connectivity for residents (Fig 2.1). The proposed Laurinburg Recreational Complex-Downtown connector, a bike facility with multiple treatments, is not pictured here.



Figure 2.1: Existing and Planned Facilities map.

Laurinburg's transportation network is defined by its major thoroughfares, upon which bicyclists and pedestrians rely to travel to their destinations. These thoroughfares play an important role in shaping this Plan's recommendations and the future Laurinburg bike network. Some of these roads are listed below; a full list of roadway facilities may be found in the Digital Appendices of this Plan.

Corridor Name (Route Number) From (south/west) to To (north/east)	Length (mi)	Max. AADT	Min. ROW Width	Posted Speed	No. of Lanes	Lane width (feet)
McColl Road US 15/401	1.81	18,500	150	35 / 45	4	13-14
Turnpike Road to S Main Street/US 15 Bus	1.01	10,000	100		1	10 11
McColl Road US 15/501	4.84	14 500	110	35 / 45	Д	12
S Main Street/US 15 Bus to Wagram Road		1-1,000	110	00740	т	12
S Main Street US 15 Bus	0.64	13 500	100	35	1/5	13
McColl Road (US 501 Bus) to Atkinson Street	0.04	10,000	100	55	4/5	13
McColl Road US 15/401	1.67	10,500	150	25	2	12
Gum Swamp Creek bridge to Turnpike Road	1.07	10,500	130	30	۷	12
S Main Street US 15 Bus	0.50	0.900	100	25	Λ	11
Atkinson Street to Johns Road	0.00	9,000	100	30	4	11
S Main Street US 15 Bus	0.70	0.000	60	05	0.40	10
Johns Road to Church Street	0.73	9,300	60	35	2/3	12
E Church Street US 74 Bus	0.00	7 000	<u> </u>			11 10
US 15 Bus to Highland Road	2.06	7,900	60	20/35/45	Z	11-12
W Church Street US-74 Bus	0 5 4	7 500	100	05	0.40	11
Turnpike Road to McColl Road (US 501 Bus)	0.54	7,500	100	35	2/3	11
West Boulevard SR 1108	0.40	7000	<u> </u>	05		11
Turnpike Road to I-74 Bridge (overpass)	0.40	7,200	60	35	Z	11
West Boulevard SR 1108	0.00	7000	50	05	0.40	10
I-74 Bridge (overpass) to US 401 Bypass Service Road	0.38	7,200	50	30	2/3	13
W Church Street US 74 Bus	0.00	7000	60	00 / 0E	0	10.17
US 15/501 to US 15 Bus	0.90	7,000	UU	20/30	Z	13-17
Lauchwood Drive SR 1674	1 01	7000	00	0F	0	10
S Main Street to S Caledonia Road	1.21	7,000	80	35	3	13

 Table 2.2: Existing Characteristics for Selected Roadways within Laurinburg.

Crash Analysis

rash analysis serves a two-fold purpose: rate metrics and frequencies tell us about broader trends in a transportation network, while geospatial analyses highlight locations of particular concern and reveal specific intersections or corridors where concentrations of crashes have been occurring. Both are crucial to understanding a multimodal network and how it serves, or fails to serve, bike and pedestrian users.

Bike and pedestrian crashes in Laurinburg are relatively uniform in their distribution, although few crashes occur south of US-74 despite the importance of several regional commercial and recreational destinations. **Crashes are located in close proximity to city thoroughfares**, such as Main Street, Caledonia Road, US 501/McColl Road, and Church Street. A cluster of pedestrian crashes can be seen in proximity to the Walmart, located in the triangle formed by West Boulevard, US 501/McColl Road, and I-74. This high concentration of crashes suggest that **existing roadway facilities are inadequate to protect bike and pedestrian users**, and that this is a key destination for residents (**Fig. 2.3**).



Figure 2.3: Bike and Pedestrian Crash Analysis map.

Level of Traffic Stress

B ike and pedestrian users in Laurinburg face a very different set of circumstances attempting to travel throughout the city than do automobile users. Whereas drivers have an interconnected network of roadways designed for their travel, bicyclists face a total lack of safe, adequate facilities to reach their destinations. Currently, there are **no dedicated bike lanes within city limits and less than one mile of greenways or trails**, limited to recreation loops within parks. While just over two miles of streets may have wide shoulders, these are not considered adequate facilities for all bicyclist users.

Bicyclists must then interact with traffic in order to travel around Laurinburg. **Bicycle Level of Traffic Stress (LTS)** is a planning-level tool that provides insight into how different types of bike users perceive the Laurinburg transportation network, and their relative likelihood of using a particular facility to travel (**Table 2.4**).

Fig. 2.5 shows LTS for Laurinburg's streets. Not surprisingly, major arterials and cross-town connectors appear as higher stress corridors, in contrast with the relatively calm, low-stress neighborhood streets with fewer vehicles. Main Street, West Boulevard, US 501/McColl Road and Caledonia Road are visible as moderate stress corridors; these conditions are challenging for all but the most confident of bicyclists and present a psychological barrier for most users. Within residential areas, conditions improve, and several low-stress connectors are visible (green). Formalizing these low-speed, low-traffic connectors as a low-stress network, whether through signage or traffic calming measures, may help to create a greater degree of comfort for novice bicyclists within Laurinburg.

WHAT IS LEVEL OF TRAFFIC STRESS (LTS)?

LTS measures a road's suitability for different types of bicyclists, showing how connected a bike network is for different types of users.

		Charao	cteristics	
Level	Category	Traffic Volume	Traffic Speed	User Comfort
0	Prohibited	Interstates & Freew	rays	N/A
1	Low Stress	Low volumes	Low speeds (<30mph)	All ages and abilities
2	Moderate Stress	Moderate volumes	Moderate speeds (30-35-mph)	Most adult bicyclists
3	High Stress	High volumes	Moderate- to high speeds (35+ mph)	Experienced, confident bicyclists
4	Highest Stress	High volumes	High speeds (45+ mph)	Advanced, highly skilled bicyclists only

Table 2.4: Level of Traffic Stress.



Figure 2.5: Bicycle Level of Traffic Stress (LTS) map.

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03

PUBLIC ENGAGEMENT

Public Engagement

whice engagement plays an integral role in any design or study, as its results will impact the daily lives of community members and local businesses. Meaningful engagement means stronger results, tighter community bonds, and a greater chance of implementation. Furthermore, engagement provides invaluable feedback to planners, engineers, and designers that might not be fully understood looking at data alone; the human element and a diversity of perspectives helps to re-frame the project team's view of the issues and provide better suggestions for improvement.

This section describes the processes, strategies and activities used to engage with the Laurinburg community to date. It also summarizes information received from the public, whether through online survey methods, virtual interaction, or public meetings.


BikeLaurinburg.com (Project Website)



he website for the Bike Plan's development, www. bikelaurinburg.com, was established early in the Plan's development to serve as a key focal point both for

disseminating information and receiving feedback.

The website features information on project purpose, dates and locations of upcoming meetings, and ways to get involved with the project. These include the Online Survey and Interactive Map.



View of the Project Website (www.BikeLaurinburg.com).

Online Survey

he Online Survey was one of two early means of online engagement. The survey, which could be accessed through the project website, allowed members of the public to provide feedback on issues central to the Bike Plan's development, such as areas of concern, important destinations, and desired improvements to the bike network. Open from May to September of 2021, the survey generated **67 responses.** Key takeaways are as follows:

> Safety concerns prevent Laurinburg residents from biking more.



Increasing separation for biking facilities may increase biking opportunities for all.

Prefer off-street

75% bike facilities:

WHY DON'T YOU BIKE MORE OFTEN?



Better connections to recreational opportunities & downtown Laurinburg are a must.



Interactive Map

ike the Online Survey, the Interactive Map provided another early means of online engagement. The Interactive Map allowed respondents the opportunity to leave feedback on the existing Laurinburg transportation network from the convenience of their home rather than at an in-person public meeting on a specific date/time. The project team asked for locations that may serve as potential barriers to biking, destinations that resident's bike to currently or would like to bike to in the future, as well as any areas of acute safety concerns. Community feedback was excellent, generating **124 unique points** on the map (**Fig. 3.1**). These points were used to identify priority corridors or areas of interest for priority project design, as well as to aid in evaluation and prioritization of recommendations.





Figure 3.1: Interactive Map identifying comment location and type.

Focus Groups

ocus group meetings, conducted towards the end of the first phase, offered an opportunity to discuss in more detail some of the issues, goals, and potential strategies for improvements to Laurinburg's bike network. Meetings were held as one-hour sessions and centered on the topic of biking in Laurinburg. Focus group members were identified by members of the Advisory Committee for inclusion based on their ability to provide different perspectives on biking, and representing different facets of the community. These individuals included residents, agency representatives, community leaders, advocates, and elected officials. In contrast to the volumes of quantitative data produced during the initial investigation phase of the project, these 'listening sessions' with community members in a virtual format allowed the project team to verify data with group perspectives, as well as to supplement the same information with local insight and perspective not captured through data. A summary of the key themes discussed are included in Fig. 3.2.



Coordinate between Public Health and Parks & Recreation.

Unsafe crossings and high-stress roads form barriers to active transportation. Create low-stress connections between parks to encourage healthy, active lifestyles and improve personal & community health.

Focus on Community Engagement.

Commitment to progress for ALL residents is a must. Lean on partnerships between community programs/resources to increase safety education, build skills & confidence, and support development of an interconnected bike network.



Safety is the focus for overcoming the I-74 Highway "barrier".

Current crossings are limited & unsafe. Explore opportunities for separated facilities, shared-use paths or trails to create connections across I-74, such as Bridge Creek.



Emphasis on Downtown.

Lots of activity & new growth happening Downtown, but there are few safe connections from neighborhoods. Use low-stress bike connections as a catalyst for local business growth Downtown.



Equitable access to facilities & community resources.

Elderly without access to cars have no safe way to travel. Lack of sidewalks & bike facilities leave people walking worn paths along the roadside in high-speed & high-traffic locations. Connect SCATS transit stops with sidewalks, bike lanes and trails for transit users.

Figure 3.2: Key themes from the focus group meetings.

Public Workshop #1

he first of two public workshops was held virtually on **Thursday, June 24,2021** and utilized the Zoom platform, as well as streamed via Facebook Live. Attendees were informed of the project purpose, schedule, and how they could become more involved through the website, survey, and interactive map. Polling questions were used to better engage the audience, learn more about their biking experience, user group profile, and what may encourage them to bike more often. There were a total of 12 Zoom attendees, and the video was posted to the project website for those who were unable to attend.

Public Workshop #2

he second public workshop was held on **Tuesday, September 28, 2021**, in a virtual format due to concerns over the Delta variant. The workshop was hosted on MURAL, a digital whiteboard platform, where visitors could review the project's process and schedule and navigate the boards at their own pace, view draft recommendations for Laurinburg's bike network, including concept designs, and assisting the team in developing priorities. Comments left via sticky notes provided valuable insight on additional priorities and considerations from the community. A presentation accompanied the workshop and MURAL board (**Fig. 3.3**), with video of the workshop posted to the project website and streamed via Facebook Live.



Figure 3.3: Project material shared during the Virtual Open House event.

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04

RECOMMENDATIONS

Recommendations

his section presents physical and policy recommendations for the City of Laurinburg to incrementally pursue over the next ten years. A mix of facilities and implementation strategies (detailed in Chapter 5) are recommended to create this network that include bike lanes, buffered bike lanes, shared-lanes, sidepaths, trails, pavement markings, traffic calming, and crossing improvements. Several priority projects are included with additional visualizations and bike design guidance.



Forming the Bike Network

he City of Laurinburg should strive to construct an interconnected and seamless network of bike facilities. to be constructed incrementally over time. The network should be thoughtfully planned to connect users to desired destinations, both civic and recreational, and consider the comfort level of cyclists of all ages and abilities. Gaps in the bike network, whether roadway segments or dangerous intersections, serve as potential barriers to most bicyclists, and therefore continual outreach to users is necessary to identify, document, and prioritize potential projects to fill network gaps.

All roadway improvement projects, whether City or NCDOT funded, should include considerations for a bike facility treatment. Critical network links are those providing **connection to key community destinations** and points of interest, as well as those **addressing known safety issues**.

Selecting the best bikeway facility type for a given roadway can be challenging since the selection must balance traffic conditions, land use context, and implementation cost. **Figure 4.1** highlights the relationship between facility type and roadway speed and volume situations.

Selecting a bikeway type is not a prescriptive process and other factors need to be considered beyond speed and volume. For instance, the types of traffic (transit, truck traffic, taxi zones, etc), on-street parking, available roadway or roadside space, intersection density, and surrounding land use all play a role in determining the best low-stress facility type.

PRINCIPLES OF THE NETWORK

There are seven key principles for bike network design, and among these, the first three are particularly important in guiding bikeway selection:

- **Safety**: Reduce the frequency and severity of crashes and minimize potential conflict points between vehicles and bicyclists.
- **Comfort:** Minimize stress, anxiety, and safety concerns for the design user.
- **Connectivity:** Direct and convenient trips that provide access to desired community destinations served by the roadway network.





The Seven Principles of Bike Network Design:

- Safety
- Comfort

- CohesionAttractiveness
- Connectivity
 Directness
- Unbroken Flow
- Source: FHWA Bikeway Selection Guide

TYPES OF BIKE FACILITIES

Separated



Separated Bike Lanes

A separated bike lane is an exclusive space for bicyclists along or within a roadway that is physically **separated from motor vehicles and pedestrians** by both vertical and horizontal elements. Separated bike lanes may be flush with the sidewalk or street, or located at an intermediate elevation in between. For street level separated bike lanes without a raised median, vertical objects are needed in the street buffer to provide separation. Examples of vertical objects include flexible delineator posts, parking stops, planter boxes, concrete barriers or rigid bollards.

Sidepaths

Sidepaths are **physically separated from adjacent travel lanes above the curb**. They may be located on one side of a street, or both sides. Unlike two-way separated bike lanes, which provide for the exclusive travel of bicyclists, sidepaths are designed to support and encourage pedestrian use as well. Sidepaths are often referred to as "Shared Use Paths" (SUPs) or "Multi-Use Paths" (MUPs) because they accommodate both pedestrians and bicyclists.

Greenways

Greenways are similar to sidepaths; however, they may be **independently aligned along a stream corridor**. Many cities or State DOTs use the terms "Shared Use Paths" or "Multi Use Paths" interchangeably with Greenway. For this plan, we are choosing to use Greenway to define their environmental features or functions in addition to their transportation function related to recreation, exercise, or environmental conservation.



Buffered Bike Lanes

Buffered bike lanes are **conventional bike lanes paired with a designated buffer** space that further separates the bike lane from the adjacent motor vehicle travel lane and/or parking lane. A buffered bike lane is allowed as per MUTCD guidelines for buffered preferential lanes.

Conventional Bike Lanes



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

Shared



Bike Boulevards

Bike boulevards are low-stress bikeways primarily located on low-volume, low**speed**, **residential streets**. Treatments such as shared lane markings, wayfinding signs, and traffic calming features (e.g., speed humps, chicanes, curb extensions, or partial closures) are implemented to prioritize bike travel, including at crossings with higher volume arterials. At approaches to higher speed and volume streets, many bike boulevards transition to bike lanes, separated bike lanes, or shared use paths.

Shared Lanes

In shared lanes, **bicyclists ride in mixed traffic**, therefore their personal level of comfort and safety will vary widely based on traffic operating speeds and volumes. To improve operations in shared lanes, shared lane markings (SLM) and signs can be added to inform people driving that bicyclists may operate in the lane and to show where to expect bicyclists. The Manual on Uniform Traffic Control Devices suggests SLMs be restricted to roadways with operating speeds of 35 miles per hour or less. The City may prefer to reduce this to 25 miles per hour or less.

Recommendations

he proposed bike network was developed with the goal of creating a network of wellconnected, low-stress facilities. Biking needs to be a safe, convenient, and pleasant form of transportation for the broadest array of people. Aligning with the vision of this plan of creating safe and comfortable bikeways, this low-stress network would be appropriate for people of all ages and abilities. The bikeways and road treatments described on the next page are designed to appeal to many types of riders, creating bikeways that 'interested but concerned' bicyclists are willing to use.

BIKE FACILITY NETWORK

This comprehensive network should be built incrementally over time. As Laurinburg continues to evolve, new development and roadway construction projects should incorporate these facilities. As progress is made on priority projects, **new priorities should be selected from this bikeway network map (Fig. 4.2)**.

A draft list of projects were presented during the second virtual public workshop in September, and feedback received was used to revise the prioritization timeline according to local priority.



Figure 4.2: Bikeway Network map.



Recommended Facilities

he map for **Figure 4.2** represents the longterm vision for the fully-realized Laurinburg bike network, not all of these projects can or should be built at once. **Figure 4.3** is a map representing those bikeway facilities that are recommended for construction as a part of this Plan. Over time, as these facilities are constructed, this Plan should be revisited to identify new projects for construction and/or changes to this Plan that are merited due to new travel patterns, development, or user preference.



Site for a proposed Leith Creek Greenway.

Figure 4.3: Bikeway Facilities map.

Prioritization

ith more project needs than there are funds available, prioritization of projects enables cities to identify implementable projects that most contribute to accomplishing community-defined goals and objectives for its bike and pedestrian network. Evaluation criteria were developed from the Plan's Goals, public feedback, and technical analysis, in order to identify projects that will deliver the greatest impact.

- · Accessibility: Proximity to education, recreational facilities, shopping, and points of interest
- Safety: Proximity to corridors with high traffic volumes and/or crashes
- Constructability: Property constraints and corridor ownership
- Cost: Cost of construction
- Public Input: Community-identified needs through public engagement

Projects located in close proximity to identified points of interest or meeting these criteria received higher scores. Translated, these scores indicate a project's likelihood of improving the quality of biking within the Laurinburg area. Taking these scores into consideration, project costs were also assigned a cost category as follows:

- Low \$0 to \$250,000
- Medium \$250,001 to \$499,999
- High \$500,000 and greater

Projects receiving both a high score and a low cost category were sorted into Near-Term recommendations. These projects represent the highest rate of return on their implementation. Other projects were sorted into Mid- or Long-Term recommendations accordingly based upon score and cost category.





Figure 4.4 identifies a timeline for all projects recommended through this Plan. **Tables 4.4 to 4.6** on subsequent pages correspond to the projects identified here.

This plan is a **living document, and must be reevaluated** as needs change. The prioritization timeline is a *suggestion* for the City of Laurinburg based on a data-driven process, and does not represent a rigid sequence for construction. The City will continuously review and consider the most-appropriate bicycle improvement projects, and revise accordingly.



Figure 4.4: Project Prioritization map.

Мар #	Corridor Name (Route Number) From (south/west) to To (north/east)	Length (mi)	Bikeway Type	Cost Category	Priority
1	Atkinson Street (SR 1107) From S Main Street to Church Street (S 74 Bus)	1.30	Bike Lane	Low Cost	Near-Term
2	Atkinson Street (SR 1107) From Church Street (S 74 Bus) to Gill Street / Railroad Street	0.23	Shared Lane Markings	Low Cost	Near-Term
3	Azure Court From West Boulevard to Church Street (S 74 Bus)	0.56	Bike Lane	Low Cost	Near-Term
4	Biggs Street (SR-1642) From S Main Street to Railroad Street	1.56	Bike Lane	Medium Cost	Near-Term
5	Biggs Street (SR-1641) @ Johns Road (US 501 Bus)	1.00	Intersection	High Cost	Near-Term
6	Charlotte Street From Raleigh Street to US 401 Bypass Service Road	0.22	Bike Lane	Low Cost	Near-Term
7	Church Street (US-74 BUS) @ McColl Road (US 501 Bus)	1.00	Intersection	High Cost	Near-Term
8	Crepe Myrtle Avenue (NC-99348) From S Main Street to Sunset Drive	0.22	Bike Lane	Low Cost	Near-Term
9	Crepe Myrtle Greenway From Sunset Drive to Raleigh Street	0.44	Greenway	Medium Cost	Near-Term
10	Dogwood Mile St Connector From McColl Road (US 501 Bus) to Lauchwood Drive	1.05	Sidepath	High Cost	Near-Term
11	E Church Street (US 74 Bus) From Everett Street to Caledonia Road	0.46	Shared Lane Markings	Low Cost	Near-Term
12	Everett Street From E Vance Street to Fairly Street	0.49	Bike Lane	Low Cost	Near-Term
13	Fairly Street From Gill Street to S Main Street	0.11	Shared Lane Markings	Low Cost	Near-Term
14	Fairly Street From S King Street to Gill Street	0.27	Bike Lane	Low Cost	Near-Term

 Table 4.5: Near-Term priority projects list (relative priority).

Мар #	Corridor Name (Route Number) From (south/west) to To (north/east)	Length (mi)	Bikeway Type	Cost Category	Priority
15	Johns Road (US 501 Bus) From S Caledonia Road to S Main Street	1.27	Sidepath	High Cost	Near-Term
16	Lauchwood Circle From US 401 Service Road to S Main Street	0.07	Bike Lane	Low Cost	Near-Term
17	Lauchwood Drive (SR 1674) From S Main Street to S Caledonia Road	0.87	Sidepath	High Cost	Near-Term
18	Lauchwood Drive (SR 1674) @ S Main Street	1.00	Intersection	High Cost	Near-Term
19	Leith Creek Greenway - phase 1 From Caledonia Rd to N Gill Street	0.44	Greenway	High Cost	Near-Term
20	McGirts Bridge Rd (SR 1433) From N Main Street to Caledonia Rd	0.43	Bike Lane	Low Cost	Near-Term
21	N Caledonia Rd (SR 1433) From Old Lumberton Road to McGirts Bridge Road	0.38	Bike Lane	Low Cost	Near-Term
22	N Caledonia Rd (SR 1439) From Church Street (S 74 Bus) to Old Lumberton Road	0.48	Bike Lane	Low Cost	Near-Term
23	N Gill Street (SR-1107) From W Bizzell St to N Main Street (US 401 Bus)	0.69	Bike Lane	Low Cost	Near-Term
24	N Gill Street (SR 1107) From Railroad Street to W Bizzell St	0.06	Shared Lane Markings	Low Cost	Near-Term
25	N Gill Street (SR 1107) From Hillside Avenue to N Main Street (US 401 Bus)	0.33	Bike Lane	Low Cost	Near-Term
26	N Main Street (US 15 Bus) From Railroad Street to Aberdeen Road	0.55	Bike Lane	Low Cost	Near-Term
27	Peden Street From West Boulevard to Church Street (S 74 Bus)	0.57	Bike Lane	Low Cost	Near-Term
28	Railroad Street From S Gill Street to Biggs Street	0.16	Shared Lane Markings	Low Cost	Near-Term

 Table 4.5: Near-Term priority projects list (continued).

Мар #	Corridor Name (Route Number) From (south/west) to To (north/east)	Length (mi)	Bikeway Type	Cost Category	Priority
29	S Caledonia Road (SR 1438) From I-74 Bridge (overpass) to E Vance Street	0.84	Bike Lane	Low Cost	Near-Term
30	S Caledonia Road (SR 1439) From E Vance Street to Church Street (S 74 Bus)	0.33	Bike Lane	Low Cost	Near-Term
31	S Main Street (US 15 Bus) From Church Street (S 74 Bus) to Railroad Street	0.25	Shared Lane Markings	Low Cost	Near-Term
32	S Main Street (US 15 Bus) From McColl Road (US 501 Bus) to Armory Street	0.72	Sidepath	High Cost	Near-Term
33	Scotland Crossing Drive From McColl Road (US 501 Bus) to West Boulevard	0.27	Bike Lane	Low Cost	Near-Term
34	Sunset Drive From Atkinson Street to West Boulevard	0.71	Bike Lane	Low Cost	Near-Term
35	US 401 Service Road (SR-1174) From Lauchwood Circle to Ford Drive	0.09	Sidepath	Low Cost	Near-Term
36	Vance Street From Everett Street to S Caledonia Road	0.50	Bike Lane	Low Cost	Near-Term
37	W Church Street (US 74 Bus) From Scotland High School to Everett Street	0.87	Bike Lane	Low Cost	Near-Term
38	West Boulevard (SR 1108) From US 401 Bypass Service Road to McColl Road (US 501 Bus)	0.97	Bike Lane	Low Cost	Near-Term
39	West Boulevard Intersection (SR 1108) @ McColl Road (US 501 Bus)	1.00	Intersection	High Cost	Near-Term

 Table 4.5: Near-Term priority projects list (continued).

Map #	Corridor Name (Route Number) From (south/west) to To (north/east)	Length (mi)	Bikeway Type	Cost Category	Priority
40	Aberdeen Road (US 15 Bus) From N Main Street to Scotland High School	0.78	Bike Lane	Low Cost	Mid-Term
41	Dragon Park Greenway Connection From Patsy Lane to US 401	0.51	Greenway	Medium Cost	Mid-Term
42	E Church Street (US 74 Bus) From Caledonia Road to Highland Road	0.98	Bike Lane	Low Cost	Mid-Term
43	Ford Drive (NS-99304) From McColl Road (US 501 Bus) to S Main Street	0.22	Bike Lane	Low Cost	Mid-Term
44	Leith Creek Greenway - phase 2 From Church Street (S 74 Bus) to Caledonia Rd	0.80	Greenway	High Cost	Mid-Term
45	McColl Road (US 15/401) From Turnpike Road to S Main Street	1.81	Sidepath	High Cost	Mid-Term
46	McGirts Bridge Rd (SR 1433) From Caledonia Road to Produce Market Rd	0.44	Bike Lane	Low Cost	Mid-Term
47	N Main Street (US 401 Bus) From Aberdeen Road to Wagram Rd / McColl Road	1.44	Paved Shoulder	Medium Cost	Mid-Term
48	Old Lumberton Road (SR 1438) From N Caledonia Road to Highland Road	1.18	Paved Shoulder	Medium Cost	Mid-Term
49	S Caledonia Road (US-501) From Johns Road / Eastover Lane to I-74 Bridge (overpass)	0.63	Sidepath	High Cost	Mid-Term
50	S Main Street (US 15 Bus) From Johns Road (US 501 Bus) to Church Street (S 74 Bus)	0.73	Sidepath	High Cost	Mid-Term

 Table 4.6: Mid-Term priority projects list (relative priority).

Map #	Corridor Name (Route Number) From (south/west) to To (north/east)		Bikeway Type	Cost Category	Priority
51	S Main Street (US 15 Bus) From Armory Street to Johns Road (US 501 Bus)	0.68	Sidepath	High Cost	Mid-Term
52	S Main Street (US-15 BUS) @ Atkinson Street	1.00	Intersection	High Cost	Mid-Term
53	Stewartsville Road (SR 1601) From Hall Street to S Caledonia Road	0.21	Bike Lane	Low Cost	Mid-Term
54	Stewartsville Road (SR 1601) From I-74 Bridge (overpass) to Hall Street	0.89	Bike Lane	Low Cost	Mid-Term
55	W Church Street (US-74 Bus) From Turnpike Road to McColl Road (US 501 Bus)	0.39	Sidepath	High Cost	Mid-Term
56	W Railroad Street (SR 1394) From Scotland High Drive to S Gill Street	0.65	Bike Lane	Low Cost	Mid-Term
57	West Boulevard (SR 1108) From I-74 Bridge (overpass) to US 401 Bypass Service Road	0.38	Sidepath	Medium Cost	Mid-Term
58	West Boulevard (SR 1108) From Turnpike Road to I-74 Bridge (overpass)	0.40	Sidepath	Medium Cost	Mid-Term
59	West Boulevard Bridge (SR 1108) @ US 74 Bypass	0.02	Bridge	High Cost	Mid-Term
61	Bridge Creek Greenway From Bridge Creek to West Boulevard	1.05	Greenway	High Cost	Mid-Term

 Table 4.6: Mid-Term priority projects list (continued).

Мар #	Corridor Name (Route Number) From (south/west) to To (north/east)		Bikeway Type	Cost Category	Priority
3	Blues Farm Road (SR 1117) From Xway Road to McColl Road (US 501 Bus)	1.67	Sidepath	High Cost	Long-Term
16	Hasty Road (SR 1615) From Barnes Bridge Road to Blues Farm Road	1.51	Bike Lane	Medium Cost	Long-Term
19	Lee Mill's Road (SR 1425) From N Main Street to Highland Road	1.01	Paved Shoulder	Medium Cost	Long-Term
20	McColl Road (US 15/401) From Gum Swamp Creek bridge to Turnpike Road	0.63	Sidepath	High Cost	Long-Term
30	McGirts Bridge Rd (SR 1433) From Produce Market Road to Highland Road	0.72	Sidepath	High Cost	Long-Term
36	Old Johns Road (SR 1601) From Harry Malloy Road to I-74 Bridge (overpass)	0.75	Sidepath	High Cost	Long-Term
40	Produce Market Road (SR-1439) From Old Lumberton Road to N Main Street (US 401 Bus)	1.21	Sidepath	High Cost	Long-Term
41	S King Street (SR-1300) From Azure Court to W Railroad Street	2.02	Sidepath	High Cost	Long-Term
42	Turnpike Road (SR 1105) From McColl Road (US 501 Bus) to W Railroad Street	1.66	Paved Shoulder	Medium Cost	Long-Term
43	Turnpike Road (SR 1105) From Barnes Bridge Road to McColl Road (US 501 Bus)	3.34	Bike Lane	High Cost	Long-Term
44	W Railroad Street (SR 1394) From Turnpike Road to Scotland High Drive	1.92	Paved Shoulder	High Cost	Long-Term
46	Xway Road (SR 1108) From Gum Swamp Creek bridge to Turnpike Road	1.24	Greenway	High Cost	Long-Term
48	Bridge Creek Greenway (-) From Bridge Creek To West Boulevard	1.05	Greenway	High Cost	Long-Term
59	Produce Market Road (SR-1439) From Old Lumberton Road To N Main Street (US 401 Bus)	1.30	Sidepath	High Cost	Long-Term
61	S King Street (SR-1300) From Azure Court To W Railroad Street	0.63	Sidepath	High Cost	Long-Term

 Table 4.7: Long-Term priority projects list (relative priority).

Priority Projects (West Boulevard)

ublic outreach feedback has suggested that this corridor has several common destinations, however it is challenging to access without a vehicle. The I-74 overpass bridge is narrow, and there are no existing bike facilities or sidewalks. A sidepath along the south side of West Boulevard is proposed, with a separate bike/ped bridge and intersection improvements.

EXISTING CONDITIONS:

- Length: 0.6 miles
- Travel Lanes: 2-3
- AADT: 6,000 to 7,400 vehicles per day
- Speed Limit: 35 mph
- Right-of-Way: 78'-100'
- NCDOT Projects: EB-5872A Project

DESTINATIONS NEARBY OR PLANNED:

- Bridge Creek Greenway
- Walmart
- Future Scotland Crossing Drive bike lanes

POTENTIAL FUNDING SOURCES:

Strategic Transportation Investments (STI); Governor's Highway Safety Program; Recreational Trails Fund (RTF)



*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.



- Separated sidepath (12' wide)
- Connection to Dragon Park Greenway
- Proposed pedestrian/bike bridge over I-74
- High visibility crosswalks at US 401
- Connection to future bike lanes along Scotland Crossing Drive



Figure 4.8: Concept Design of West Boulevard Corridor.

Priority Projects (Dragon Park)

riginally identified in the Sandhills Regional Bike Plan, this east-west connection is needed between Dragon Park and the Scotland Crossing Shopping Center. A recreational greenway is proposed along the west side of Bridge Creek; this priority project would connect a residential neighborhood further west with this recreational asset in addition to shopping destinations.

EXISTING CONDITIONS:

- Length: 0.5 miles
- Travel Lanes: N/A
- Right-of-Way: N/A
- Traffic Signals: McColl Road/US 401

DESTINATIONS NEARBY OR PLANNED CONNECTIONS:

- Scotland Crossing Shopping Center
- Dragon Park (James L. Morgan Recreation Complex)

POTENTIAL FUNDING SOURCES:

Parks and Recreation Trust Fund



*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.



- Proposed greenway over Bridge Creek
- Connection with Dragon Park
- Connect residential neighborhood to shopping center
- High visibility crosswalks at US 401



Figure 4.9: Concept Design Dragon Park Greenway Connection.

Priority Projects (Biggs Street)

B iggs Street was identified by committee members as a low volume road with plenty of unnecessary pavement width, and therefore an ideal candidate for a lane diet. Reducing the two travel lanes to 12-feet wide would allow for traditional bike lanes, or potentially buffered bike lanes. This parallel route to S. Main Street is a valuable low-stress corridor <u>directly into downtown</u> (significant destination from public outreach) that will support most bike users because it has less than 1,500 vehicles per day.

EXISTING CONDITIONS:

- Length: 0.6 miles
- Travel Lanes: 2 (34'-42' pavement width)
- AADT: 1,400 vehicles per day
- Speed Limit: 35 mph
- Right-of-Way: 50'-60'

DESTINATIONS NEARBY OR PLANNED CONNECTIONS:

- Scotland Tennis Center
- National Guard Armory
- Downtown

POTENTIAL FUNDING SOURCES:

Powell Bill; Municipal Bond

Cost Estimate: **\$325 - 375K** (planning level)

*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.



- Proposed bike lanes with lane diet
- Bike crossings at Biggs Street/Johns Road intersection



Figure 4.10: Concept Design of Biggs Street Corridor.

Priority Projects (Atkinson Street)

Public feedback identified this intersection (between Plaza Road and Atkinson Street) as a safety hazard and potential barrier to biking. The skewed angle of Atkinson Street, and lack of shoulder/sidewalks means that biking along or across S. Main Street is difficult. For the short-term, this concept design utilizes the signalized intersection at Plaza Road to safety cross, and connects with sidepaths (10' wide minimum) that extend further north/south. In the long-term, the Atkinson Street and Biggs Street intersections should be redesigned (as a four-way signal) for improved visibility and safety.

EXISTING CONDITIONS:

- Travel Lanes: 3-5
- AADT: 10,000 to 14,000 vehicles per day
- Speed Limit: 35 mph
- Right-of-Way: 80'-100' (Main Street); 64' (Atkinson Street)
- NCDOT Projects: EB-6015B, EB5865; Sidewalks along US 401

DESTINATIONS NEARBY OR PLANNED CONNECTIONS:

- Walgreens
- National Guard Armory

POTENTIAL FUNDING SOURCES:

Strategic Transportation Investments (STI); SPOT Safety Program; Transportation Alternatives Program (TAP)

Cost Estimate: **\$600 - 650K** (planning level)

*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.



- Proposed sidepath (12' wide)
- Connection to Biggs Street bike lanes
- High visibility crossings at Plaza Drive/ Main Street intersection
- Transition to pair of bike lanes further north on Atkinson Street



Figure 4.11: Concept Design of Atkinson Street and Main Street Intersection.

Priority Projects (Downtown Railroad Crossings)

owntown Laurinburg is a significant destination, identified by many during public outreach, with low-speed, low-volume roadways that are ideal for biking. Railroad crossings, however, represent a safety hazard for even advanced users. Adding advisory cyclist lane markings should help define the bicyclist zone, and reduce vehicle speeds, allowing Downtown to feel more bicyclefriendly.

EXISTING CONDITIONS:

- Travel Lanes: 2
- AADT: 2,200 (Gill Street), 2,700 (Biggs Street), 6,000 (Main Street)
- Speed Limit: 20 mph (Downtown), 35 mph (N. of RR)
- Right-of-Way: 50' (Gill Street), 50' (Biggs Street), 60' (Main Street)
- Traffic Signals: Main Street / US 15 Business

DESTINATIONS NEARBY OR PLANNED CONNECTIONS:

- Downtown Laurinburg
- Jaycee Park (0.5 miles north)

POTENTIAL FUNDING SOURCES:

Powell Bill; SPOT Safety Program; Highway Safety Improvement Program (HSIP); Strategic Transportation Investments (STI)



*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.



- Advisory lane crossings at Railroad Street
- Shared Lane Markings along key streets in Downtown Laurinburg
- Bike Lanes along Gill Street, north of Bizzell Street
- Discourage bike crossing along Biggs Street due to unsafe, oblique angle



Figure 4.12: Concept Design of Downtown Railroad Crossings.

Design Guidance

electing a suitable bike facility type depends on site context, including land uses, traffic volumes and speeds, visibility, and destinations. The following presents a Bikeway Selection Framework consistent with national and international guidance. The selection framework can be used to select and evaluate bikeway facility types.

- If a **street** has been selected for a bikeway, the framework can help identify candidate bikeway facilities for that street.
- If a **bikeway facility** (e.g., sidepath) has been selected, the framework can help identify candidate streets with suitable conditions for that facility type.
- If a bikeway facility **has been selected for a street**, the framework can help identify what the target motor vehicle speed on that street should be and suggest traffic calming measures.

The framework can be used to evaluate if an existing bikeway facility remains suitable for prevailing conditions based on motor vehicle traffic speeds and volumes. Motor vehicle speed and volume are key considerations in identifying a suitable bikeway facility based on bicyclist's level of comfort. **Higher motor vehicle speeds require increased separation** for the safety and comfort of people cycling, while higher volumes increase the frequency of potential conflicts. The type of conflicting traffic can also impact the suitable bikeway type: streets carrying more trucks, military transports, and buses may also warrant different infrastructure.

This section summarizes design selection resources and facility design considerations, including the range of speeds and volumes at which various bikeway facilities are most **likely to be suitable for the "Interested but Concerned" user group**. The posted speed is used in this framework since it is generally known, whereas 85th percentile operating speed is usually not known. Additional considerations related to cycling and walking volumes and transit operations are also provided, which impact facility selection. Designers are encouraged to use engineering judgment to select a facility based on considerations of safety and accessibility.



Planning-Design-Construction process graphic.

RESOURCES

It's important to recognize that there are a number of valuable guidance documents available to planners, designers, and the public. The following is a brief listing of those that are regularly employed and that were used during the development of this plan, for example:

- American Association of State Highway and Transportation
- Officials. 2012. "Table 2-3. General Considerations for Different
- Bikeway Types," Guide to Bicycle Facilities. 4th Edition.
- Pedestrian and Bicycle Information Center, PedBikeInfo.org (website accessed 8.19.2021: www.pedbikeinfo.org).
- Austroads. 2014. "Figure 2.2," Cycling Aspects of Austroads Guides. Publication AP-G88-14.
- de Groot, R. editor (CROW). 2016. "Table 5-2: Selection plan for cycle facilities in the case of road sections in built-up areas," Design Manual for Bicycle Traffic.
- Federal Highway Administration (FHWA). 2015. Separated Bike Lane Planning and Design Guide.
- FHWA, "Bicycle Road Safety Audit Guidelines and Prompt Lists," May 2012 (website accessed 8.20.2021: https://safety. fhwa.dot.gov/ped_bike/tools_solve/fhwasa12018).
- USDOT FHWA, "BIKESAFE: Bicycle Safety Guide and Countermeasure Selection System," (website accessed 8.19.2021: www.pedbikesafe.org/bikesafe).

- Massachusetts Department of Transportation. 2015. Separated Bike Lane Planning & Design Guide.
- Ministry of Transportation Ontario. 2013. "Figure 3.3," Ontario Traffic Manual. Book 18: Cycling Facilities.
- National Association of City Transportation Officials. 2014. Urban Bikeway Design Guide. 2nd Edition.
- Transportation Association of Canada. 2017. "Chapter 5, Bicycle Integrated Design," Geometric Design Guide for Canadian Roads.
- Troels Andersen, et al. 2012. Figure showing "cycling solutions in relations to motor traffic volume and speed", p. 53, Collection of Cycling Concepts 2012. Cycling Embassy of Denmark.
- Winters, M., Davidson, G., Kao, D., & Teschke, K. 2011. "Motivators and Deterrents of Bicycling: Comparing influences on Decisions to Ride". Transportation, 38, pp. 153-168.
- Charles A. Flink and Robert Searns, Greenways: A Guide to Planning, Design and Development, Island Press, 1993

FACILITY SELECTION: Along the Street

Bike Infrastructure Type

Shared Lane Markings ("Sharrows")

On low-volume, low-speed residential streets and some low-speed (downtown) commercial areas, bikes can and do travel safely with other cars. On-street parking may indicate a need for sharrow markings for bicyclist paths.

Suitable Conditions

Posted Speed Limit	Vehicle Volumes	Walking/Cycling Volumes	Transit Operations
5-20 mph	0-2,500 vehicles	0-10/hour (often	Vertical buffers are
	per day (vpd)	heavier in	prohibitive with bus transit
		neighborhoods in	service. Painted buffers
		early evening)	share the same concerns as
			Bike Lanes.

Multi-use Lanes (Striped Shoulder; Advisory Lanes)

Some places, notably Fayetteville, NC, have adopted multi-use lanes with a striped shoulder in very limited applications: low-volume areas to demarcate space for bicyclists, pedestrians, and even parking or trash pickup.

Suitable Conditions

Posted Speed Limit	Vehicle Volumes	Walking/Cycling Volumes	Transit Operations
5-25 mph	0-3,000 vehicles per day (vpd)	0 - 10/hour (often heavier in neighborhoods in early evening)	Transit is seldom a factor on suburban residential streets, and when it is present is typically of a slow speed and
			Infrequent headway.

Design Image



Table 4.13: Facilities selection guidance along Laurinburg streets.

FACILITY SELECTION: Along the Street

Bike Infrastructure Type

Bike Lane (Buffered Bike Lane)

Bike lanes are relatively easy to implement where the existing pavement has sufficient width to accommodate them - bike lanes are between 4' and 6' typically (wider bike lanes tend to get used for parking). As volumes and speeds approach the upper end of the ranges shown, a 1' to 2' painted buffer is warranted.

Suitable Conditions

Posted Speed	Vehicle	Walking/Cycling	
Limit	Volumes	Volumes	Transit Operations
20-40 mph	2,500-4,000	0 - 10/hour	Possible, but "leap-frogging"
	vehicles per day		occurs with bikes and buses.
	(vpd)		Bus turnouts are favored
			by bicyclists, but not bus
			drivers. Driver training can
			help address the problems.

Separated Bike Lane (One/Two-Way Bike Lanes)

Vertically separated bike lanes (the bike lane typically sits at sidewalk level, not street level) or those with vertical buffers or parked car buffers, allow for a wider range of users and can provide for two-way ('contraflow') travel.

Suitable Conditions

Posted Speed	Vehicle	Walking/Cycling	Transit Operations
Limit	Volumes	Volumes	
30-50 mph	4,000-40,000 vehicles per day (vpd)	10+ per hour	Vertical buffers are prohibitive with bus transit service. Painted buffers share the same concerns as Bike Lanes.





Table 4.13: Facilities selection guidance along Laurinburg streets (continued).

FACILITY SELECTION: At Intersections & Amenities

Category

Bike Lane Conflicts/Treatments at Intersections

Signage and pavement markings generally accomplish the task of increasing awareness of potentially crossing bicyclists, but limiting dual turning lanes and free-flow "slip" turn lanes is critical.

Sidepaths at Intersections

As sidepaths approach a street intersection, the desired 10' minimum separation from the back of the curb should narrow so that crossing bicyclists can see and be seen by turning vehicles.

Crossing the Tracks

Railroad crossings are subject to outdated design standards that produce a variety of issues, including signage, safety equipment, grade differentials between tracks and roadway approaches, and acute intersection angles like that shown below. Providing smooth approaches with rubberized fills for flange gaps is preferred (bottom-right), or creating 90-degree crossings for wheelchairs and bikes that easily get skinny tires caught in the flange gaps at track / pavement interfaces.

Managing Trailheads from Roadways

Roadway crossings have to be carefully managed, especially when they are not located at intersections. Lock-down bollards spaced no more than 5' apart permits bicyclists and pedestrians (including those using appliances like wheelchairs) to pass through and prevents motorized vehicle access except for reasons of maintenance and emergency response.

Additional signage can be employed facing motor vehicle traffic on the crossing roadway, but may be overkill, particularly in low-volume locations.

Bike Parking

Laurinburg's bike parking policy should stipulate clear areas around visible, accessible, and secure parking near main entrances. "Art" racks are great, but make sure their purpose is served - and obvious.




Program & Policy Recommendations

he project recommendations understandably receive the most attention in many plans, but they represent only one component of a successful Bike Plan. Bicyclists are benefited the most in the long term by having favorable public and private policies that promote biking within their community. The recommendations in this section are based on a review of Laurinburg's policy and program environment including specific ordinance and plan language, as well as feedback from the Steering Committee and staff on existing actions.

It's important to understand that many of the design guidelines, policy directives, and standards were put into place long ago and well before a good understanding about how people wanted to move around their city was developed. Periodically re-examining standards and ordinances isn't an admission of wrong-doing before, but rather an acknowledgment that Laurinburg is adapting to a new vision that requires new guidance.

Engineering

Funding, design, and construction of the physical infrastructure that enables bicycling and walking

Education

Training and public outreach that reinforce safe driving, cycling and walking behaviors

Equity

Intentional consideration of groups that experience barriers to mobility, such as low-income and disabled populations

Enforcement

Conducting law enforcement operations that reinforce traffic safety laws designed to protect cyclists and pedestrians

Evaluation

Data collection, research, and tracking of cycling and walking behaviors and trends

Encouragement

Programs that engage community partners, spur more physical activity, and support more active-travel tourism



Figure 4.15: The Six Es of Bike Planning.



Program Recommendations

he importance of programmatic elements to bicycling is hard to overstate. Programs can encourage more biking and make more biking safer for more people. Program development that is successful and sustained should consider three key concepts, and keep in mind that what worked in Chicago may not work in Raleigh, and what works in Raleigh may not work in Laurinburg.

NEED

- What does the **data** and **community** tell us about programs that are most useful?
- Are they directed towards **safety**, more **mobility**, an aging or youthful demographic?
- Work with decision-makers informally to refine or even change the original idea to make it better.

LEVERAGING

- A large fraction of people won't get into bicycling but they may get involved if it's part of **another community event**, offered for their kids, or part of an effort that a health-focused partner is undertaking.
- **Seek out partners** that can lend a program needed energy and talents.

RESOURCES

- Once the needs and partners refine the concept and fill some talent gaps, what resources are still needed?
- Can a **pilot** work initially through a grant program, or can volunteers provide free labor or advertising?
- Can the **business community** get behind the endeavor and offer prizes or rewards for participants?

The other intangible that is often seen in successful programs, particularly those just starting out, is a champion. Champions provide connections to the community, energy for crossing through difficult obstacles, and a clear point-of-contact for the program. The recommendations for programs reflect some of the interests of partners as much as narrowly focusing on bike promotion and should be viewed flexibly as the actual implementation is likely to require it.



Watch for Me NC. Run by NCDOT in partnership with local communities like Laurinburg, <u>Watch for Me NC</u> strives to reduce the number of pedestrians and bicyclists hit and injured in automobile crashes.

The Watch for Me NC program contains many elements that can be tailored to Laurinburg's needs, and be an important part of the mission for the BPAC recommended previously. Some of the benefits include **improving relationships with schools as partners**, improving law enforcement, and providing an ongoing resource for developing walksupportive policies.

> "This is an awesome idea. I believe every road and street in the county should have access for people to bike, walk, run without fear of being hit by moving vehicles."

- Walter Brown, Resident



Tie Childhood Health Back to Biking to School. The number of resources available to start a bike-(and walk-)-to-school program in North Carolina, as well as successful examples, have been steadily increasing. Collectively known as Active Routes to School (ARTS), the recommendation here is to work with a single school where there is a staff member that is eager to be the champion for starting the program. This champion can also be found in parentteacher associations but be aware that they have children that will quickly age out of their current school and thus a succession plan should be in place before that happens. The best places to start for resources are NCDOT's Active Routes to School Program and the National Safe Routes To School Program. In both programs there are excellent resources for getting an active route to school effort started. But before that happens, find a great partner - one possibility is the **Scotland County Health Department** with focus areas on childhood and community-at-large health. This organization also conducts Health Impact Assessments (HIAs) that are good places to get compelling arguments and data on why it's important to start thinking about getting kids active on their way to school (increasing childhood activity is the number 3 priority action in the most recent HIA). For example, the 2019 report cites obesity as the number one priority in those surveyed, and lack of physical exercise the number one behavior risk - enter bicycling as a low-impact solution (key for a population with a median age of nearly 40 years and nearly twoin-five households having a person with a disability) for addressing those very issues. Scotland Memorial Hospital and the St. Andrews University programs in health sciences and sports studies may also be good places for eager, young assistance.



Get Biking (and Walking) Back into the Classroom. Sometimes schools really aren't in the best locations for biking, but the neighborhoods that children live in might work out better. If a community wants more kids to be biking to school, then they want to make sure it's safe to do that. NCDOT has created an entire curriculum on safe biking and walking to school called Let's Go NC! Lesson plans and materials for teachers were created for the express purpose of exposing young people to better, safer habits when they bike or walk anyplace, including to school. Again, finding that principal or teacher interested in getting on-board is crucial, but there are other resources that can be used to supplement that training.

We're Going to Need a Bigger Map. Scotland County already has a bike facilities map but getting more detail into the Laurinburg part of the map would be great for Laurinburg's cycling community. The recommendation here is to start with the county map as a template, then assign biking safety categories to each street in the Laurinburg network. Ideally, this map lives on-line to facilitate easy updates, perhaps even going so far as to include temporary (six months or longer) construction impacts that might cause a route detour. The obvious partner is Scotland County Parks and Recreation Department, but also St. Andrews again may be able to provide graphic and other talent through their Division of Liberal and Creative Arts program.



Work with the League of American Bicyclists (LAB) to Execute a Bike Training Seminar. One of the authors of this report is a League Certified Master Instructor and can help move this idea forward. But again: it's important to locate the school, church, boy / girl scout troop, or other organization to make such a clinic get traction. Note that bike rodeos are good for younger kids (less than third grade) but **a bike clinic contains valuable skills to get kids safer on roads**, which will happen eventually. The safety clinic teaches helmet fitting (and gives away helmets to those that need them), bike checks, and key on-bike safety maneuvers like scanning and signaling.

Annual Saints-and-Sinners Bike Ride. Starting and finishing at St. Andrews University with a halfway / turnaround point at the county courthouse downtown, this ride would be about seven miles using a circuitous route and some police escort through the less-amenable streets and intersections. Taking place on a weekend in early spring or late fall helps with the temperature-related concerns and could be undertaken in conjunction with an existing festival to help support both. Such a ride would highlight the difficulties now in getting across an Interstate freeway and along major arterials in addition to getting people used to the idea of biking in general. A strong potential partner is the **Sandhills Cycling Club**, which is highly experienced in coordinating road events.



Open Street and Better Block Events. These events can take place in as little as a few downtown blocks, helping to support local businesses in the process. A variation on this theme is the (temporary) conversion of some of those blocks to bike lanes or buffered bike lanes or using roundabouts to control intersection traffic. Regardless, **make the experience fun and about more than biking to attract a larger group of attendees**. Again, consider intersecting these events with others that already have an established following, like the Kuumba Festival or Scotland Highland Games in the fall.

Get Business Involved. The Scotland County Chamber has an impressive array of actions that they are tackling (they also mention 147 of bike trails prominently as an attraction), one of which is to develop a small business incubator. Why not creatively finance a small business to start a bike repair and rental shop in downtown Laurinburg or near the campus of St. Andrews? The recommendation is to find seed money in the City's general fund and a matching donation from the Chamber or another partner to create a small business in downtown – perhaps first as a "pop-up" store that transitions to a full-time business operator that hires more help. Secondary recommendation: include ice cream, coffee, and / or beer offerings to help create a sit-and-stay-for-a-while atmosphere. Keep Safe and Cycle On. A three-time All-America City and a Tree City since 1980 - it would probably come as a surprise to many of Laurinburg's nearly 16,000 residents to learn that the city has one of the highest crime rates in North Carolina, ranking 84th out of the 87 municipalities recording federal data in 2020 for combined violent and property crime (source: Safewise, which includes their own telephone survey as well as relying on data submitted to the FBI). Having people out and about on bikes increases the levels of natural surveillance, and keeping walking and biking pathways welllit, litter-free, and at a high level of maintenance is also critical to preventing crime, according to the methodology established under Crime Prevention through Environmental Design (CPTED). Few people will venture out, however, if they don't have a sense of personal security. The recommendation here is to **develop a priority system** for targeting needed maintenance actions in public spaces, and also training at least one police officer as a CTPED Specialist to help conduct site audits and site plan reviews.

Remove the I-74 Barrier and (Re-) Open the Bermuda Triangle.

The Interstate that traverses the southern boundary of Laurinburg cuts the entire community apart and is especially noticeable when biking. This recommendation calls for **studying and creating detailed recommendations for building 1-2 short-term and longterm crossings that can be constructed** or reconstructed to reattach the important St. Andrews University campus to the rest of the community. It is also noted that many destinations – especially places to eat – are inside the "Bermuda Triangle" of McColl, West, and I-74. Part of this recommendation is therefore to study how to make this area more accessible by all modes of travel. Although this recommendation is a "stretch" goal to implement, there are shorterterm solutions that can measurably help achieve these goals – and creating a great, longer-term connection could be one of the mostimportant economic accomplishments since the construction of I-74.





Policy Recommendations

Programs like those listed in this document focus on encouragement, enforcement, and education aspects of bike promotion. Policies typically involve how a physical space is designed through both public and private land development actions. It's obvious too that biking is different in many respects from walking, as much of the former takes place on or at least across roads. Making biking improvements therefore often leads to better and safer roads for everyone – bike lanes, for example, also serve as recovery areas for drifting cars. The following recommendations, also unlike the program recommendations, are largely within the sole purview of the City government to enact, potentially making the level of responsibility higher but the level of coordination among many parties lower. Sophisticated policy analysis isn't always necessary, but a few key steps are worthwhile to keep in mind as these changes begin to be considered in earnest.

- Work with those affected to craft the broad and the specific points in the policy language.
- Clearly identify how and to what degree different groups, especially those often left out of decision-making, will be affected by the proposed policy change.
- If the enacted policy is complex, then it may be worthwhile to publish a one-page summary of the new process or policy, or even stage a brief workshop to step developers or other entities through the new practice.

Utilize the NCDOT Complete Streets Policy and resources. In 2019 a new statewide Complete Streets policy was passed that directs roadway improvements to consider and incorporate all modes of travel when designing new or improving existing infrastructure. The <u>Complete</u> <u>Streets Implementation Guide</u> is one of several useful tools that explain how (and when) NCDOT staff are incorporating all modes into the planning, programming, design, and maintenance processes.

Slow Traffic Down, Especially in Residential and Downtown Areas.

Since bikes are treated like automobiles on North Carolina's streets, they are especially susceptible to interactions with cars. The slower the speed the less the energy created during a collision and the more time everyone has to react to avoid one in the first place.

Examples of speed controls include smaller curb radii, with a recommendation for a maximum radius of 15 feet in residential and downtown areas where speed limits are 25 mph or less, as contained in **NACTO guidelines**. Similarly, restrict the use of "slip-right" or high-speed





right-turning lanes unless necessary (which is rare and are usually only built to make cars move faster than otherwise would be safely possible), and generally restrict the use of turning lanes, especially in areas with high pedestrian volumes.

Add Bike Parking to City Policies and Standards. At some point, the bike has to be parked. Laurinburg's Unified Development Orginance (UDO) is silent on this issue currently. The recommendation is



to incorporate new requirements into the UDO that requires shortand / or long-term bike parking for all new civic / commercial developments, new residential developments of greater than 50 units, and major redevelopments. These standards will be supplemented with adequate guidance on the placement, installation, and design of bike racks.

Require Greenways and Sidewalks. Ensure that 10' (minimum) hard surface and two-foot (2') minimum clear zones are built into private site developments and plan reviews. Fee-in-lieu provisions can be established in hardship cases but ensure that dollar amounts are sufficient to cover typically higher public sector construction costs. Second, ensure that connections between properties (cross-access) are made and that City ordinance language requiring reservation is modified to require construction (or dedication plus fee-in-lieu for construction). Sidewalks are just that – places for people to walk – but are often used by immature or low-skill bike riders to cover shorter distances. Therefore, requiring minimum 5' sidewalks everywhere in new and rehabilitated street construction is important to people movement, and mirrors several instances of this requirement in the UDO.



Modify the Requirements for Sketch, Preliminary, and Final Plat Reviews. Modify Article 9.46 (Sketch Plans) and Article 9.49 (Information to be provided on Preliminary and Final Plats) of the UDO to include a cover sheet that shows locations and connections / entranceways to commercial centers, parks, schools, SCATS transit stops / routes, and other biking or walking destinations.

Sidewalk and Biking Connectivity in the UDO. Modify Section 9.75.3 of the UDO to include biking and walking connections in this language addressing connectivity requirements. Modify the language further to reflect differences in access levels in downtown and other places where high levels of pedestrian and biking activity are likely to occur.

Include More Specific Language on Sidewalk and Bike Lane

Requirements in Street Design. Article 9 of the UDO mentions several times that new streets will be required to provide safe passage for pedestrians and bicyclists. However, modification of the width chart on page 9-66 (9.77.2) to specifically show widths of sidewalks and bikeway provisions included in the build-out of various types of streets would cement this requirement more firmly in the design and

review process. In very low-volume situations an alleyway designation could be added to these standards to reflect an important part of the local street network and encourage rear-loading of residents and commercial operations (e.g., trash collection).

Plan for Success. Review and revise City ordinances to allow for and encourage complementary uses within one-half-mile of each other. Ultimately, infrastructure, policies, and programs will not be successful in promoting safe cycling unless complementary land uses, including recreational uses, are within this comfortable biking distance. This recommendation is to review and modify City zoning ordinances that exclude complementary uses within the same category, as well as careful reviews of parking requirements, pedestrian accommodations / access, and orientation and design of buildings in relationship to streets. Street development have changed over the past one hundred years (right); note how places have become more disconnected over time. This disconnection makes communities more isolated; services more expensive to build and maintain; and increases the consumption of viable tracts of open space - in addition to making them very unlikely to be served by any mode of transportation other than a private car.

Plan for Success, Part 2. Create (1) a Parks / Greenway Master Plan, and (2) an overlay district for the interchange area around I-74, McColl, and Main Street (the aforementioned Bermuda Triangle). A number of commenters expressed an interest in reaching the St. Andrews campus, Scotland health clinic, and shopping opportunities in this area. A Parks and Greenways Master Plan would provide detailed specifications, funding opportunities, and specific alignments for a new trails systems, one that could connect to existing neighborhoods, parks, schools, and commercial areas.



"I'm excited to see this is being discussed. We have so much space to add greenways, trails, and off street walk/bikeways."

- Survey Respondent

05

IMPLEMENTATION

Implementation

F ollowing through on these recommendations will require persistence and leadership from the local community. Although local sources of funding can go a long way in achieving community aims, there are a variety of ways for the residents of Laurinburg to encourage biking and walking in their community. This section outlines the organizational structure and steps necessary to successfully achieve the goals set forth by this Plan.



Five-Year Implementation Plan

ompletion of the Bike Plan is only the first step in creating a bike-friendly Laurinburg. Implementing this Plan will require a coordinated effort amongst Town officials, leaders, and citizen volunteers. This section provides a series of actions steps for moving forward with the recommendations of the Plan.

1. ADOPT THIS PLAN.

Adoption of this Plan will be the first step to implementation for Laurinburg. Once adopted, the Plan should be forwarded to regional and state decision-makers, such as the Lumber River RPO and NCDOT Transportation Planning Division, Integrated Mobility Division, and NCDOT Division offices, for inclusion in a regional planning and development processes.

2. FORM A BIKE & PEDESTRIAN ADVISORY COMMITTEE.

The planning process has engaged many citizens in visioning and goal-setting for Laurinburg. Building on this momentum to keep citizens engaged in a permanent committee structure will allow continued citizen involvement in the Plan's implementation.

3. SECURE FUNDING FOR SHORT-TERM PROJECTS.

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

4. BEGIN WORK ON TOP-PRIORITY PROJECTS.

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

5. ADOPT POLICY CHANGES THAT SUPPORT THE GOALS OF THE PLAN.

Proposed ordinance changes that will be crucial to balancing the public/private burden of implementing this Plan are listed in the Policy Recommendations section of the Plan.

6. DEVELOP SUPPORTIVE EDUCATION, ENCOURAGEMENT AND ENFORCEMENT PROGRAMS.

Better bike facilities alone do not make a city bike friendly. A variety of programs should also be implemented to create and support a multimodal friendly culture. Programs and policy priorities should be implemented alongside infrastructure improvements.

7. EMBARK ON COMPLEMENTARY PLANNING EFFORTS.

The City should incorporate the recommendations of the Plan into future and existing Plans developed and updated at the local, regional and statewide level.

Partners

Uccessful implementation will require the cooperation of a variety of agencies and organizations. Several of these partnerships already exist, and this Plan will build on those partnerships. Examples of these partnerships include the relationship between NCDOT, the City, and the Lumber River RPO. Still other connections will be created by this Plan. These coalitions will likely be formed within the City of Laurinburg itself, as the City coordinates its efforts with local schools, athletic associations, and other community groups.

CITY OF LAURINBURG

Laurinburg is responsible for implementing this Plan, that is, the design and construction of individual bicycle and pedestrian projects whether in-house or through a consultant/contractor. Through its adoption, the City will be empowered to act as a champion for bike and pedestrian needs. The City should form pedestrian and bike advisory committees that will serve as champions for bike and pedestrian planning in Laurinburg. As champions of active transportation, committee members should encourage the full implementation of this Plan. This includes advocating for the project and programmatic recommendations in this Plan, as well as developing other events and programs as they work in the community. A great example of this is in practice is a wayfinding signage program. This would be functional for pedestrians and would enhance the sense of community and aesthetics in Laurinburg.

SCOTLAND COUNTY

Planning by the Scotland County government has a very tangible effect on the City of Laurinburg. The County is the primary organization governing land use planning, transportation planning, and public health initiatives within and around the City. It is vital that these plans align with common goals that span municipal boundaries. There are several crucial ways for the County to support this Plan:

- Support active transportation through regional trails and networks.
- Promote active transportation and public health through countywide programming.
- Prioritize pedestrian safety when updating the CTP.





NCDOT

As the administrator of the Bicycle and Pedestrian Planning Grant Initiative and the primary agency concerned with transportation planning, engineering, and construction in the State of North Carolina, NCDOT will be an important partner in the implementation of this Plan. After the adoption of this Plan, NCDOT should continue to provide technical assistance and consulting regarding bike transportation planning in Laurinburg. It will be the primary partner for the design and construction of recommended projects made in Chapter 4 of this Plan.

City staff must continue its coordination with IMD, regional planning partners such as the Lumber River RPO, and consider additional grant opportunities (e.g., corridor feasibility studies) offered by the IMD planning program to fully realize the value of this Bicycle Plan.

The Strategic Prioritization Office of Transportation (SPOT) process prioritizes most NCDOT division projects, per the state's Strategic Transportation Investment (STI) law. SPOT is a data-driven approach to project prioritization for all transportation mode projects, including bike and pedestrian project improvements. STI Prioritization 7 will be the next opportunity for the City to submit a new project to the Lumber River RPO for consideration. STI provides three funding tiers for transportation projects: Statewide Mobility, Regional Impact, or Division Needs, and all bike and pedestrian projects fall within the Division Needs tier.

LUMBER RIVER RPO

As the RPO responsible for long-range transportation planning within the Laurinburg area, LRRPO should consider implementing the projects recommended in this Plan. For the infrastructure needs to be met, LRRPO should continue to revise and integrate the multimodal transportation needs of the City in its CTP, last updated in 2017 Potential projects submitted through the SPOT process should be reviewed with the LRRPO and NCDOT Division 8 staff for appropriate inclusion of Bike and Pedestrian accommodations in accordance with current Complete Streets policy.



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION



Funding

hen considering possible funding sources for bike 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 section 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, bikes, and the programs themselves may change over time.

FEDERAL FUNDING SOURCES

- Surface Transportation Block Grant (STBG)
- Congestion Mitigation and Air Quality (CMAQ)
- Highway Safety Improvement Program (HSIP)
- RAISE Grants
- Recreational Trails Program (RTP)
- Safe Routes to Schools (SRTS)

STATE FUNDING SOURCES

- Strategic Transportation Investments (STI)
- Governor's Highway Safety Program (GHSP)
- Powell Bill
- Parks & Recreation Trust Fund (PARTF)
- Spot Safety Program

Surface Transportation Block Grant (STBG)

The STBG program is designed to respond to local transportation needs across all modes. Transportation Alternatives Program (TAP) funding is set aside within this program. Bike and pedestrian improvements are the most common type of project funded with TAP dollars, including sidewalks and greenways.

Within the STBG and TAP set-aside, percentages of the State's allocation are available for areas meeting certain population thresholds. Laurinburg should coordinate with the Lumber River RPO and NCDOT to discuss opportunities to apply for STBG or TAP funding. TAP and STBG dollars are also programmed through the NC Strategic Transportation Investments (STI) formula discussed below. STBG or TAP funds can be used for all phases of a project, including design, environmental review, and construction.

Local agencies must provide a 20% local match to receive funding for a bike or pedestrian project. Town staff should consult with NCDOT to develop cost estimates for future construction projects and options for administering federally-funded projects. Local staff should plan to devote significant time to administering federally funded projects. NCDOT's Local Programs Management Office has more information on the steps involved with locally-administered bike and pedestrian construction projects.

https://connect.ncdot.gov/municipalities/Funding/Pages/default.aspx

https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm

Congestion Mitigation and Air Quality (CMAQ)

CMAQ funds are available to regions of the State that do not meet the National Ambient Air Quality Standards (NAAQS) for ozone, carbon monoxide, or particulate matter. These regions are referred to as non-attainment areas or maintenance areas (former nonattainment areas that are now in compliance). Laurinburg does not currently fall within a non-attainment area, and is therefore not eligible for these funds.

Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program (HSIP) aims to reduce traffic fatalities and serious injuries on all public roads, including non-State-owned public roads. The NCDOT HSIP follows a data-driven approach to select safety projects, select design options (often referred to as "countermeasures"), and evaluate performance. NCDOT traffic engineers work with local agencies to evaluate high-crash locations as possible HSIP projects. NCDOT reviews the past 10 years of bike and pedestrian crash history at potential project sites. Local agencies should contact their respective Division office to discuss bike and pedestrian safety concerns along local or State-owned roadways. HSIP-funded bike and pedestrian improvement projects often do not require a local funding match. Common HSIP-funded project types include pedestrian hybrid beacons (PHBs), road diets, pedestrian refuge medians, and pedestrian signals at marked crosswalks.

https://www.ncdot.gov/initiatives-policies/safety/Pages/default.aspx

https://safety.fhwa.dot.gov/hsip/about.cfm

RAISE Grants

The RAISE Transportation Discretionary Grants program replaced the Better Utilizing Investment to Leverage Development (BUILD) Grant, but the program remains substantially the same. Like BUILD, the RAISE program uses a competitive, merit-based selection process to award grants to state, local, and tribal agencies for projects with exceptional benefits and significant local or regional impacts. Past grant awards have included multimodal projects that enhanced pedestrian and bike networks. RAISE funds are separate from the FAST Act, and may be subject to future federal budgetary adjustments. Local agencies should watch for future announcements for RAISE grants and consult with NCDOT when considering an application.

https://www.transportation.gov/RAISEgrants

Recreational Trails Program (RTP)

The FAST Act allows a set aside to be directed toward the Recreational Trails Program (RTP). In North Carolina, the Department of Natural and Cultural Resources (DNCR) manages RTP. The NC Division of Parks and Recreation (State Trails Program) provides grant funding to local groups to acquire property or build trails. Grants are usually limited to \$100,000 per community or project. RTP-funded trail projects include paved greenways and natural surface hiking trails.

https://www.ncdcr.gov/grant-audience/recreational-trails-program-rtp

Safe Routes to Schools (SRTS)

Safe Routes to School (SRTS) is an approach that promotes walking and biking to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and biking to school. SRTS initiatives improve safety and levels of physical activity for students. SRTS programs can be implemented by a department of transportation, metropolitan planning organization, local government, school district, or even a school. Infrastructure projects can only be considered Safe Routes to School projects if they are located within two miles of an elementary or middle school. Projects to improve walking and biking safety are eligible under the Transportation Alternatives Program.

https://www.transportation.gov/mission/health/Safe-Routes-to-School-Programs

Strategic Transportation Investments (STI)

STI defines the overall structure and criteria for distributing NCDOT's federal and state transportation dollars among new projects. Bike and Pedestrian projects are eligible within the Division Needs funding tier, meaning they compete for dollars, across all modes and with other communities in the same NCDOT Highway Division.

STI follows a data-driven scoring process for all transportation projects. Each mode has a separate scoring methodology, described by the Strategic Mobility Formula (also known as "SPOT"). The SPOT 6.0 version (currently closed, awaiting 7.0) evaluated bike and pedestrian projects on the following criteria:

■ Safety (15%)

Connectivity (10%)

Access (10%)

■ Cost Effectiveness (5%)

Demand (10%)

■ Local Input (50%)

Local input is the most significant part of a project's overall score, so it is important to coordinate with the LRRPO and NCDOT Division 8 office. For more information about the next round of SPOT criteria, review online resources provided by NCDOT:

https://connect.ncdot.gov/projects/planning/Pages/ PrioritizationResources.aspx.

Governor's Highway Safety Program

The Governor's Highway Safety Program (GHSP) offers grants for safety improvement projects for state highways in North Carolina. Projects must focus on reducing crashes, injuries, and fatalities as conditional requirements for qualifying for a potential grant. Learn more about the GHSP:

https://connect.ncdot.gov/municipalities/Law-Enforcement/Pages/ Law-Enforce-ment-Reporting.aspx.

Powell Bill

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

Parks & Recreation Trust Fund

PARTF provides grants to local governments to assist with public park and recreation projects, including trails and greenways. PARTF is administered by the NC Division of Parks which solicits applications from local agencies for funding. Local governments can apply to acquire land for parks and build trails or greenways for public use. A proposed project must be located on a single site. A local agency must provide at least a 50% local match of the total project cost, but the appraised value of donated land to the local agency can be used as part of the match.

https://www.ncparks.gov/more-about-us/parks-recreation-trustfund/parks-and-recreation-trust-fund

Spot Safety Program

The NCDOT Spot Safety Program constructs smaller improvement projects to address safety issues. The maximum Spot Safety funds per project is \$250,000. A NCDOT committee recommends Spot Safety projects to the Board of Transportation (BOT) for approval and funding. The committee considers criteria such as the frequency and severity of crashes, levels of traffic congestion, pedestrians and school access, and local support. Local agencies should contact their NCDOT Division to discuss locations that may have high crash rates and other safety concerns to see if Spot Safety is a possible funding source for their bike and pedestrian improvement. PAGE INTENTIONALLY LEFT BLANK



