

Chatham County Bicycle Plan

Chatham County | North Carolina | 2011

DRAFT FOR PUBLIC REVIEW

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Executive Summary

This Bicycle Plan is the first bicycle plan for Chatham County, NC. Its goals include making bicycling a viable transportation option for residents and provide a high quality recreation amenity for residents and visitors alike. To meet this overarching goal, the Plan includes an evaluation of **Existing Conditions (Chapter 2)** and research of state and national **Design Standards (Chapter 3)** in order to create a **Recommended Bicycle Network (Chapter 4)**. The plan also uses research of best practices and investigation of other plans to **Recommend Programs** (education, encouragement, and enforcement) and **Policies (Chapter 5)** that lead to a better bicycling climate. Finally, the Plan outlines a strategy for **Implementation (Chapter 6)** of the recommendations.



Photo by Wayne Clark

Existing Conditions

Chatham County has over 130 miles of signed state, county and local on-road bicycle routes. None of these routes have extra accommodation for bicycles nor do bicycle lanes exist in the county. The county's only off-road facility is the American Tobacco Trail, a shared use path connecting Durham to Cary that runs 4.1 miles through the northeastern corner of the county. A survey of nearly 500 residents and non-resident bicyclists found that more would bike (and more often) if the county had more on and off road facilities and safer driving by bicyclists, among other factors.

Recommended Bicycle Network

The Plan recommends a final long term bicycle network consisting of over 400 miles of on and off road facilities. These facilities include shared roads, signed routes, bicycle lanes and off-road shared use paths. The network also includes intersection improvements. In all, 26 short-term (less than 10 year) and 28 long-term projects are necessary to complete this bicycle network. **Chapter 4** provides more detail regarding the network, projects and their costs.

Summary of Recommended Bicycle Network

Facility Type	Existing (miles)	Future (miles)		Total (miles)
		Short-Term	Long-Term	
Shared Roads	0	87.1	54.0	141.1
Signed Routes on Shared Roads	131.3	0	0	131.3
Bicycle Lane - Construction	0	1.1	34.7	35.8
Bicycle Lanes- Restripe	0	0.4	3.5	3.9
<i>Total On- Street Facilities</i>				<i>312.1</i>
Shared Use Paths	4.1	2.0	105.0	111.1
Total Facilities (miles)				423.2

Programs and Policy Recommendations

Providing a quality environment for bicycling also requires education, encouragement and enforcement programs and bike-friendly policies, described in **Chapter 5**. Education programs include distribution of safety materials, bicycle rodeos, and training to law enforcement regarding bicycle traffic laws.

Encouragement programs seek to persuade non riders to bicycle and riders to bicycle more; these programs could include awareness days and events and bicycle map enhancements. Targeting roads traveled heavily by bicycles for stricter traffic enforcement (speeding, passing too closely to bicycles) is another way to improve safety for cyclists. Many local examples point to the effectiveness of these programs.

Implementation

Implementation of the Plan requires the coordination of county and municipality governments both within and outside the county. Coordination should start with the creation of a new Bike and Pedestrian Subcommittee within the County's Transportation Advisory Board (TAB). This subcommittee can help the TAB advise the County Commissioners regarding issues related to walking and biking and help coordinate the implementation of the Bike Network and the various programs and policy improvements described above. **Chapter 6** describes specific implementation steps, responsible parties and time frame for actions.

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Chapter 1: Introduction

This chapter gives a **Background** of bicycling initiatives in the county, includes the **Purpose and Scope** of the plan, describes the overarching **Vision Statement** for Chatham County as related to bicycling, sets **Goals and Objectives** for the plan, describes the **Methodology** that created the plan, and finally describes the **Plan Chapters**.

1.1 Background, Purpose and Scope

This is the first official Bicycle Plan for Chatham County, though there have been other initiatives aimed at improving the county's bicycling environment. In the late 1990s, NCDOT's Division of Bicycle and Pedestrian Transportation, along with the Pittsboro-Siler City Convention & Visitor's Bureau, worked with local bicycle advocates and governments to create the Chatham County Bicycle Map showing a bicycle network utilizing existing roads. This map is set for updates and reprinting in 2011. More recently, the County's Public Health Department, in its *Chatham County 2010 Community Health Assessment*, found that one of the four major health concerns affecting Chatham residents was physical inactivity, noting that the county lacks many safe areas to bike or walk.

The **purpose** of this Plan is to identify facility, program and policy recommendations to improve bicycling conditions in Chatham County. The Plan accomplishes this by establishing a vision and goals for bicycling in the county, assessing existing conditions and initiatives, identifying the needs of the users and recommending policies, projects and programs to achieve the vision.

The Plan will serve as the basis for the Bicycle Element of the county's upcoming Comprehensive Transportation Plan, which is set to be completed in late 2012. It will also help the county secure funding for future bicycle facilities, since projects identified in an adopted Bicycle Plan score higher in NCDOT's Division of Bicycle and Pedestrian Transportation ranking system.

The Plan covers the entire county, including the Town of Siler City, Town of Pittsboro, Town of Goldston and the portion of the Town of Cary located in Chatham County. It addresses both on and off road projects, policies and programs for both recreational and non-recreational riding.

Chapter Contents

- 1.1 Background, Purpose and Scope
- 1.2 A Vision for Bicycling in Chatham County
- 1.3 Goals and Objectives
- 1.4 Methodology
- 1.5 Plan Chapters

1.2 A Vision for Bicycling in Chatham

A vision helps focus a project to the final outcome and define its goals and objectives. The Vision expresses the desired outcome of the Plan, rather than the current conditions.



The Vision

Chatham County has a bicycle transportation system that contributes to a healthier, more active population. This system provides an alternative to driving, improving the environment and reducing congestion. Riders of all experience levels have safe and accessible bicycling options. The system provides a high-quality recreation amenity for both residents and non-residents, contributing to the local economy and quality of life. Chatham accommodates the bicycle as a viable part of its transportation system.

The Vision was drafted from comments from the online survey of local residents and riders, existing County plans and reports and input from County staff, and was refined through discussions with select Chatham Transportation Advisory Board (TAB) members and other bicycle supporters. The Vision also draws from the TAB's Strategic Plan, which states that the TAB values a transportation system that supports social/equity, health, economics, education, environment, connectivity and a balance of travel modes.

1.3 Goals and Objectives

These goals and objectives were created through conversations with county staff and public input.

Goal 1: Provide a safe bicycling transportation network for all experience levels

- Objective 1.1: Assess and make recommendations on existing bicycle network deficiencies.
- Objective 1.2: Assess and make recommendations on creating new bicycle facilities to connect county destinations.
- Objective 1.3: Ensure adequate parking for bicycles at public and commercial facilities throughout the county.

Goal 2: Encourage more residents to ride bicycles

- Objective 2.1: Develop encouragement programs to increase bicycling rates.

Goal 3: Improve bicycle safety through education and enforcement

- Objective 3.1: Develop and implement bicycle safety education programs for motorists, bicyclists, students and the public.

Goal 4: Make Chatham County a preferred bicycle tourism destination

- Objective 3.1: Assess and update county Bicycle Map to help educate both residents and tourists.
- Objective 3.2: Encourage the opening of a bicycle shop in the county.
- Objective 3.3: Promote bicycling through local businesses, the Chamber of Commerce, and other Chatham organizations.

The goals and objectives were developed through input from the public, county and municipal staff.

1.4 Methodology

To develop a bicycle plan for Chatham County, activities included data collection, visioning and goal setting, analysis and Bike Network and program recommendations.

Data collection activities included:

- Windshield surveys on select roads
- Google Street View™ review of other roads
- Geographic information systems (GIS) analysis
- Discussion with county citizen’s advisory boards, Pittsboro and Siler City government representatives and other county staff

Public input included a survey of bicycle interests and needs with more than 400 residents and non-resident Chatham bicyclists, more focused review of the plan from Chatham residents subset of these survey respondents, and a thorough review of existing plans and policies, many which included public input.

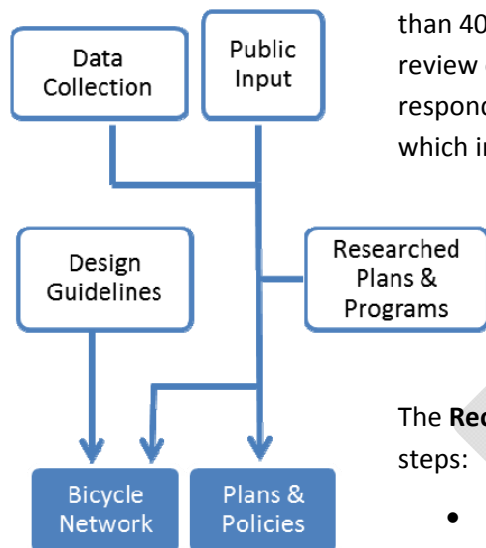


Figure 1: Plan Methodology

These activities also provided input to set the **vision, goals and objectives**, and provided a comprehensive depiction of the existing bicycling network and facilities in the county (Chapter 2).

The **Recommended Bicycle Network** was developed in the following steps:

- Analyze existing bicycle conditions (as outlined in Chapter 2)
- Research bicycle facility types as well as state, federal and other guidelines (Chapter 3)
- Map and analyze destinations, bicycle attractors such as parks and schools, vehicle counts provided by NCDOT and rider observations
- Input off-road bicycle routes from the Chatham Parks and Recreation Master Plan (2009-2029) and from the US 64 Corridor Plan

Programs for education, encouragement and enforcement to improve bicycling and **policies** that help improve the conditions for bicycling in the county were taken from national examples, and include resources for additional information.

1.5 Plan Chapters

The Plan includes the following chapters:

- **Chapter 2: Existing Conditions** gives an overview of the county's transportation system, existing bicycle facilities and conditions, crash statistics, and plans and policies related to bicycling; and provides results of a survey regarding bicycling in the county.
- **Chapter 3: Recommended Bicycle Network** proposes a future bicycle network that includes on and off street facilities. It describes the type, length and estimated cost of projects to complete the network. It also discusses other improvements that help improve bicycling in the county.
- **Chapter 4: Program and Policy Recommendations** provides potential programs and policy changes to help support bicycling, including encouragement, education and enforcement programs and policies at county and municipal levels.
- **Chapter 5: Implementation** describes how Chatham County and its municipalities can make the Recommended Bicycle Network a reality. It includes implementation steps, describes evaluation and monitoring options and includes potential funding sources.

There are also five appendices that complement these chapters:

- **Appendix A: Bicycle Survey Results** provides a complete summary of the Bicycling in Chatham County Survey, which was instrumental in the completion this plan. Highlights of the survey are included in Chapter 2.
- **Appendix B: Facility Design Guidelines** provides an overview of national and state guidelines for bicycle facilities, including on and off street facilities, intersections, signage, and parking.
- **Appendix C: Tables of Projects** includes a complete list of each short- and long-term project, including lengths and costs.
- **Appendix D: References and Image Sources** includes an extensive bibliography and the source of each of the images within the Plan.

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Chapter 2: Existing Conditions

Existing conditions were evaluated in order to understand the barriers, opportunities for improvement and desires of current users and residents for a bicycle transportation system, including:

- A **Community Overview** of socioeconomic and geographic characteristics and a description of the existing transportation system
- A description of the **Existing Bicycle Facilities and Conditions**
- **Bike Crash Statistics** since 1997
- A review of **Existing Plans, Policies and Programs** that contribute to the bicycling environment in Chatham County
- A **Summary Survey Results** from residents and existing riders on biking attitudes, perceptions and route conditions

Chapter Contents

- 2.1 Community Overview
- 2.2 Existing Bicycle Facilities and Conditions
- 2.3 Bike Crash Statistics
- 2.4 Existing Plans, Policies and Programs
- 2.5 Summary of Survey Results

2.1 Community Overview

Chatham is a large, mostly rural county characterized by rolling hills, densely wooded areas and farmland. It is located at the geographic center of the State of North Carolina and between two large metropolitan regions – the Raleigh-Durham “Triangle” and the Greensboro “Triad”. Jordan Lake, a regional recreation attraction, is located in the eastern portion of the county.

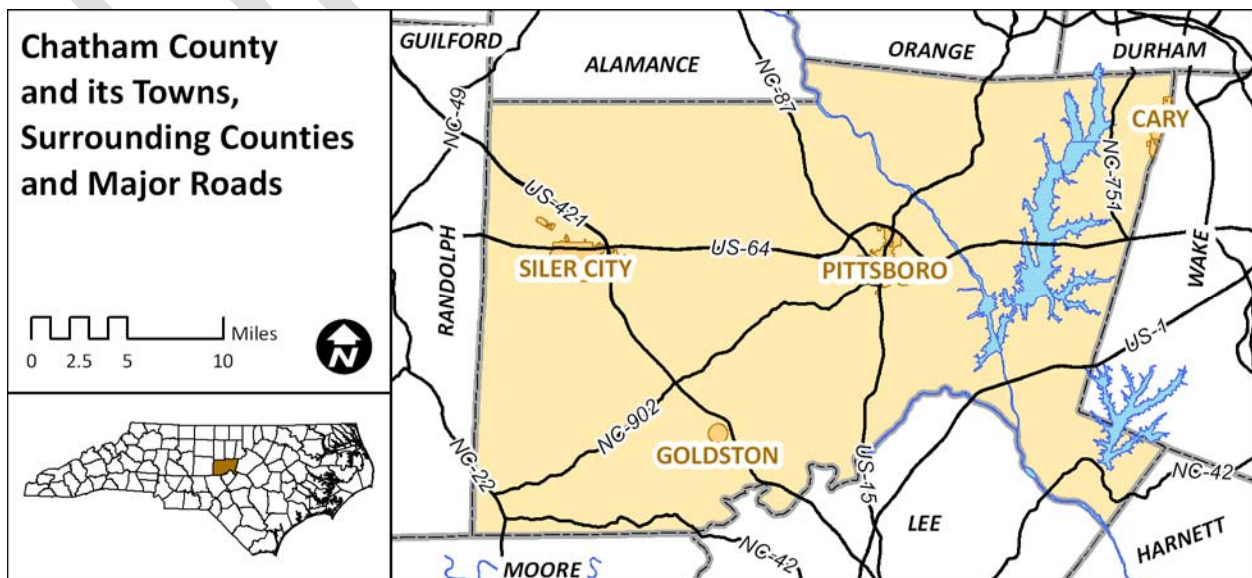
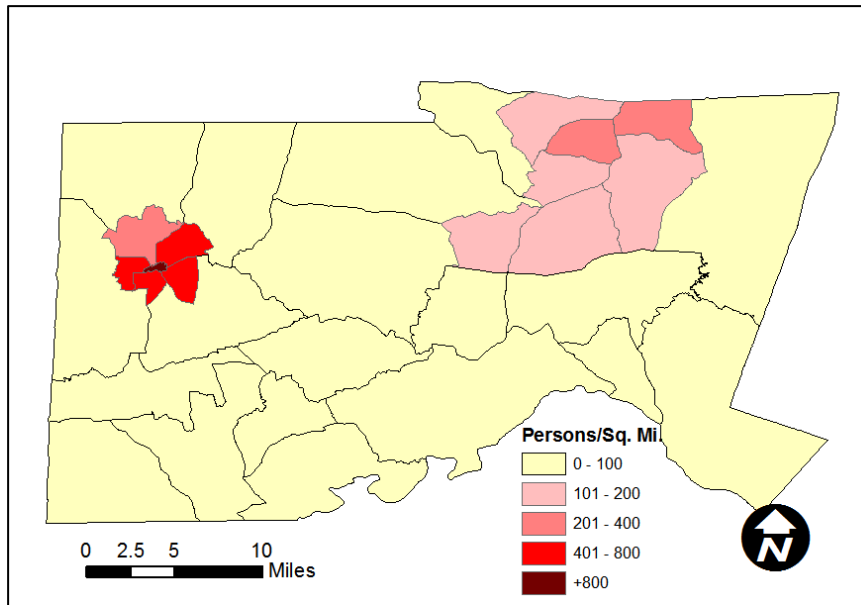


Figure 2: Context Map



The eastern portion of the county, including the Towns of Pittsboro and Cary, includes many suburban housing developments and a population density higher than the rest of the county. The western portion of the county is characterized by working lands, with the exception of the Town of Siler City, which has the highest population densities in the county, as shown in the map at right.

Figure 3: Population density in Chatham County (2000)

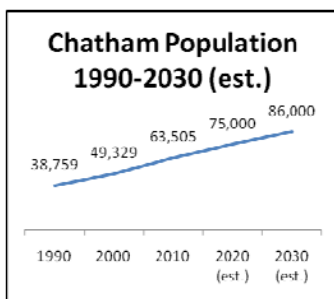


Figure 4: Population growth, 1990 to 2030 (estimated)

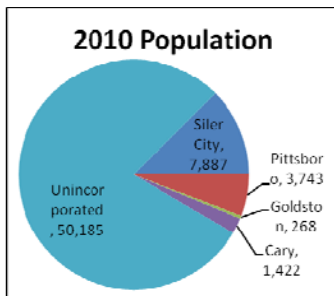


Figure 5: 2010 Populations

Chatham’s population grew by 32% over the past 10 years, to 63,505 according to the 2010 Census¹, largely due to growth pressures from the adjacent Triangle region. The State has estimated that the population will continue to increase to over 75,000 in 2020 and 86,000 in 2030². According to the 2010 Census, 21% of the population lives in the incorporated towns of Siler City (7,887), Pittsboro (3,743), Goldston (268) and Cary (1,422 in Chatham). The county’s population has increasingly become Hispanic (12.9% of residents), mostly in the western section of the county.

As of 2000, more than half of Chatham residents were employed out of the county, making it difficult for many to commute by bike³. In 2009, 76% of residents commuted to work alone by automobile⁴; less than one percent used bicycling as their primary method of getting to work. Many recreational bicyclists in the county ride in from other counties, notably Wake and Orange Counties.

¹ Chatham County North Carolina. (2011). Population and Income Information. Available: www.chathamnc.org/Index.aspx?page=26. Retrieved on March 21, 2011.

² Office of State Budget and Management. (September 2010) *County/State Population Projections*. Available: www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/county_projections.shtm. Retrieved on March 1, 2011.

³ Chatham County North Carolina. (2011). Chatham County’s Economy. Available: www.chathamnc.org/Index.aspx?page=27. Retrieved on March 21, 2011.

⁴ U.S. Census Bureau. (2010). *2005-2009 American Community Survey, Table B08301 MEANS OF TRANSPORTATION TO WORK - Universe: WORKERS 16 YEARS AND OVER*. Available: factfinder.census.gov.

A third of the local economy is based on agriculture and agribusiness⁵. Tourism, mostly ecotourism and outdoor recreation, experienced double-digit growth over the past three years. Bicycling could potentially be an important part of this tourism in the county.

Four major US highways cross Chatham – US 64, US 421, US 15-501 and US 1 – as shown on the context map in Figure 2. These roads are four lane highways with a combination of controlled access at-grade connections. Other roads in the county are generally two lane rural roads, oftentimes windy and hilly, with a few locations having turning lanes and traffic signals. There are sidewalks in Pittsboro, Siler City and some of the newest subdivisions in the county; bikes have been observed using these.

2.2 Existing Bicycle Facilities and Conditions

Chatham County's bicycle facilities are mostly on-road, signed routes with no dedicated space for bicyclists. As shown on the Chatham County Bicycle Map, there are three designated state bicycle routes, two "bicycle highways" and three suggested, unmarked "connector" routes; and, portions of the US 1 Bicycle Highway, North Carolina Mountains to Sea Trail and the Piedmont spur of this trail briefly enter the county. There are two off-road facilities – the American Tobacco Trail and Old Bynum Bridge, described below. Bike parking facilities are almost nonexistent, with a bike rack only at Mary Hayes Barber Holmes Park in Pittsboro at the new Chatham Public Library at the Central Carolina Community College (CCCC) in Pittsboro.

The existing bicycle network is shown in Figures 8, 9 and 10 on the pages that follow. These maps also show potential attractors such as recreation areas and schools.

The **American Tobacco Trail (ATT)** is a shared use path that traverses 4.68 miles in the northeastern corner of the county. It is part of a larger 22 mile rails-to-trails project that connects Cary and Apex to the southeast with Durham to the north. It was constructed in an abandoned corridor of the Norfolk Southern Railroad and opened in May 2010⁶. The Chatham portion is surfaced with ten feet of asphalt and six feet of granite screenings for horses and joggers/walkers. The

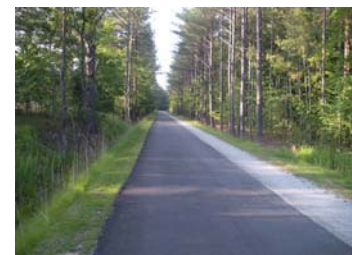


Figure 6: American Tobacco Trail in Chatham County

⁵ Chatham County North Carolina. (2011). *Agriculture in Chatham County*. Available: www.chathamnc.org/Index.aspx?page=28. Retrieved on January 25, 2011.

⁶ Triangle Trails Conservancy. (Dec 6 2010). *The American Tobacco Trail*. Available: www.triangletrails.org/ATT.HTM. Retrieved on January 25, 2011.

asphalt is in good condition and includes a very slight grade, with no steep slopes or sharp curves. Based on weekend observations and user comments, it is utilized by a large range of age groups and experience levels. Over 50% of the survey respondents stated they had ridden the trail, with 15% more planning to ride in the future.



Figure 7: Old Bynum Bridge

The **Old Bynum Bridge** also provides a short off-road facility for crossing the Haw River by Bynum. The bridge is closed to vehicular traffic and is part of State Bike Route 3. It is seventeen feet wide with some cracks and vegetation. It has signage and pavement markings and is physically blocked from vehicular traffic.

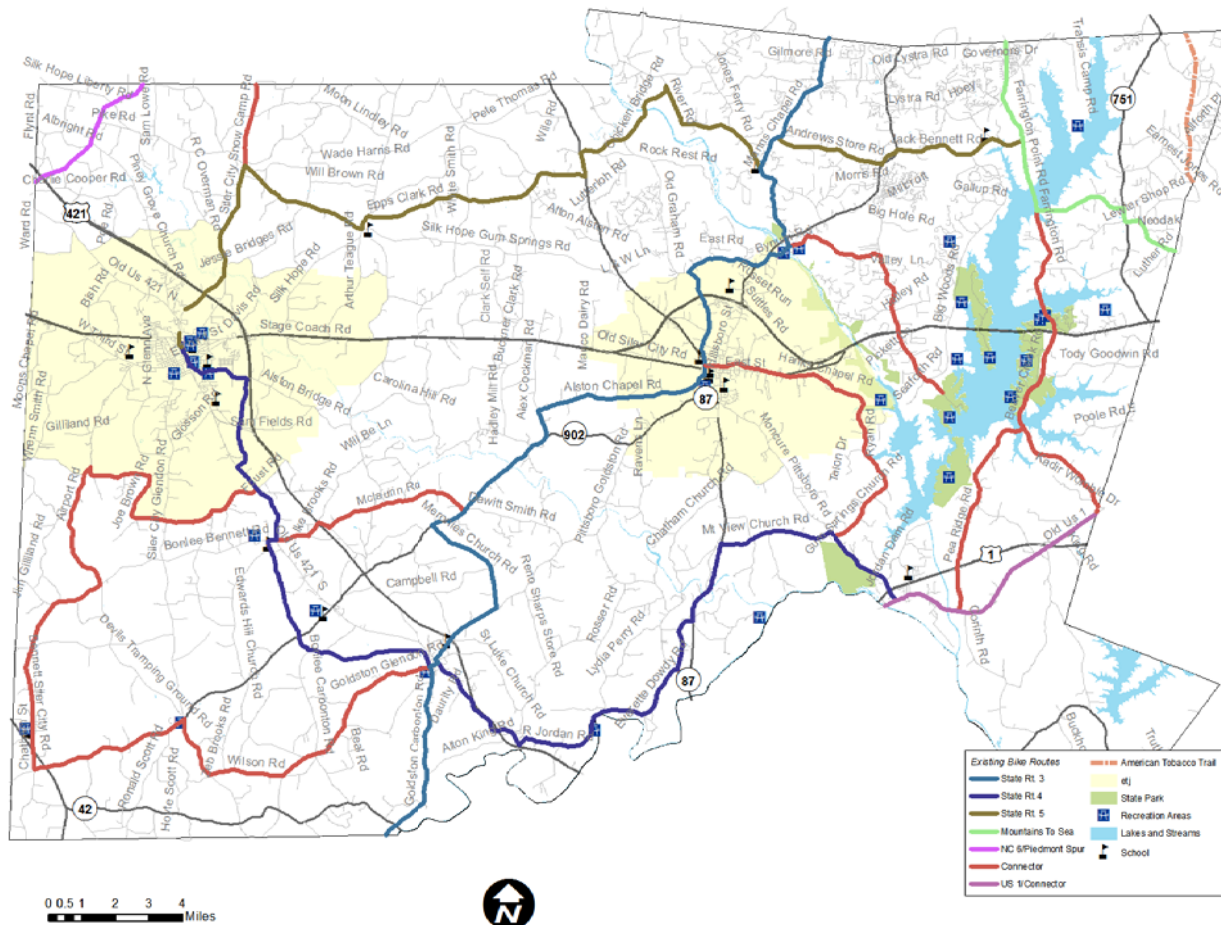


Figure 8: Existing Bike Routes, Roads and Attractions

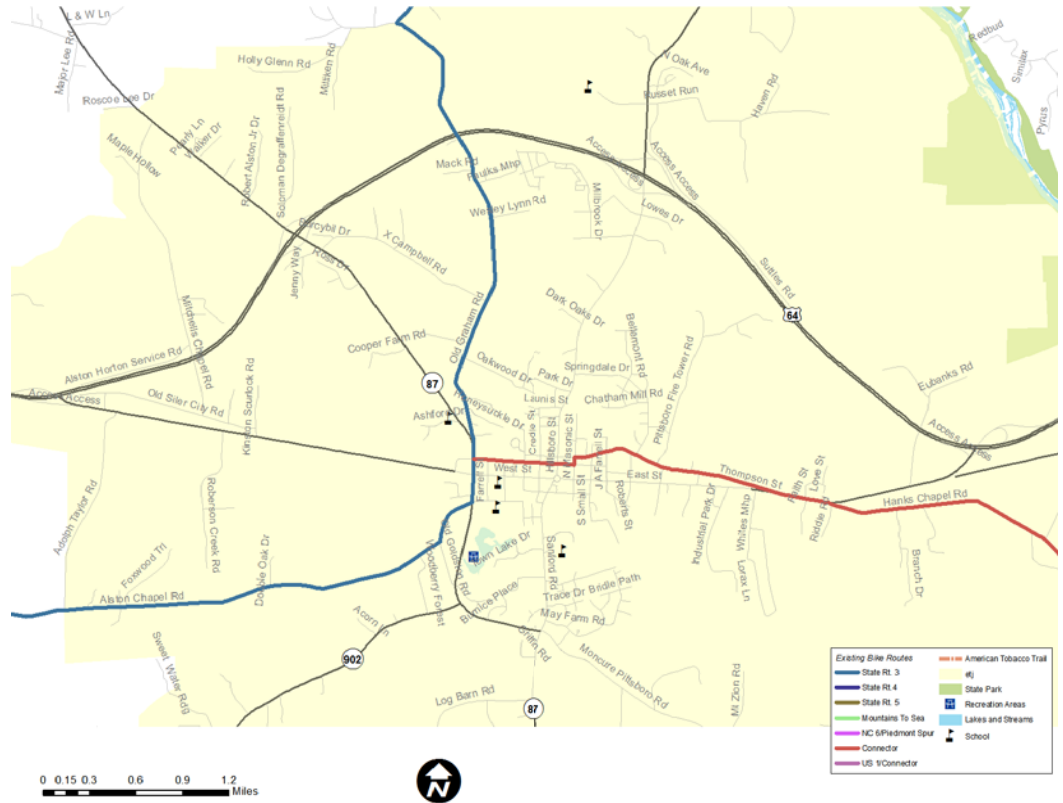


Figure 9: Existing Bike Routes, Roads and Attractions – Pittsboro

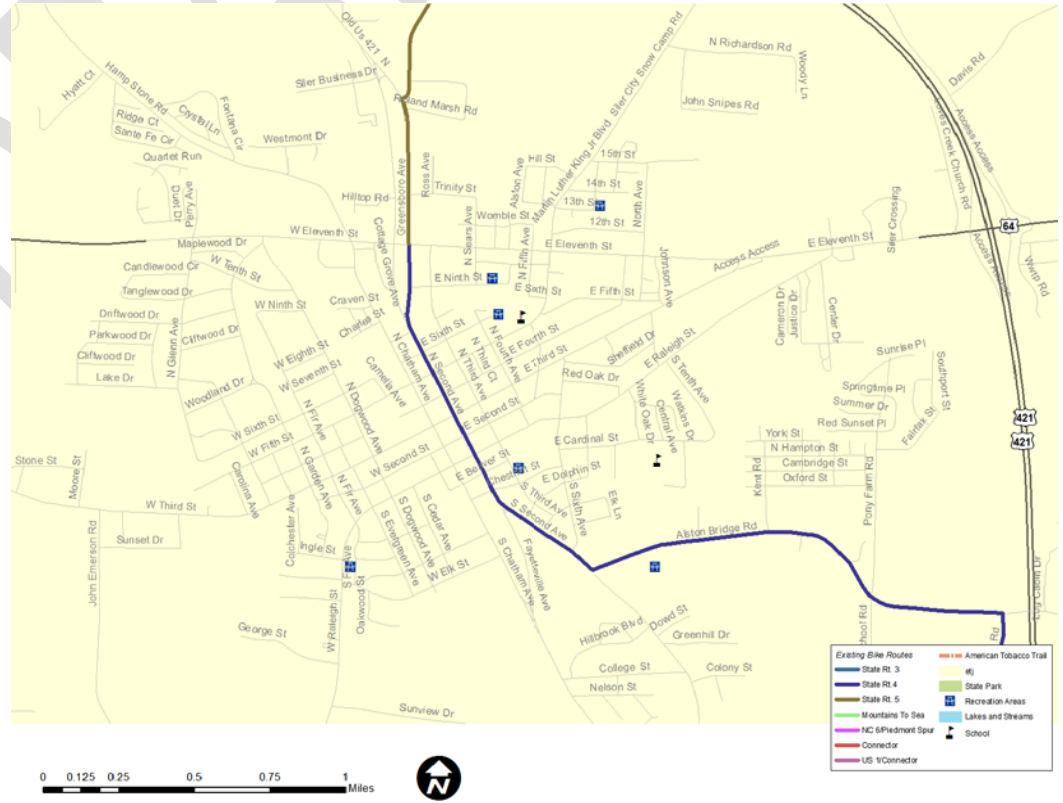


Figure 10: Existing Bike Routes, Roads and Attractions – Siler City

In summary, the existing bike network accommodates experienced road cyclists but not casual, inexperienced or commuter cyclists outside of residential subdivisions or the American Tobacco Trail. Bike routes typically follow rural two-lane roads, with no separate facilities for bicycling and often high speeds and poor sight distances due to curves and hills. In most cases, these are less travelled local roads with signs designating the route and “Share the Road” signs that increase motorists’ awareness of bicyclists. In some cases, signed bike routes go through more congested areas, mostly in the northeast portion of the county. Other than route signs, there is no bicycling infrastructure, such as bike-activated traffic signals, striped bike lanes or bike markings painted on streets. On US 64 and US 15-501, there are outside shoulders with no rumble strips, but these are not always of uniform width or clear of debris and the speed limit is 55mph.

Time and resource constraints limit the ability to inspect every road in the county; therefore, this Plan relies on user surveys and other sources to shed light on current deficiencies in the on-road biking network. Figures 11-13 on the pages that follow show routes and intersections where conditions are suboptimal for bikes and/or conflicts between vehicles and bicycles exist. These are also highlighted in Tables 2 and 3.

Table 1. Road Bicycling Issues

Issue	Road Segment(s)
Vehicles not obeying traffic laws (passing bicycles too closely, speeding)	O’Kelly Chapel Rd, Mt. Carmel Church Rd
No shoulder	Most two-lane rural roads
Heavy vehicular traffic	NC 751, US 15-501
Poor pavement quality (uneven or poor surface)	Andrews Chapel Rd between Mann’s Chapel and US 15-501, Rives Chapel Rd
Poor quality or debris in shoulder	US 15-501 north of US 64 to Orange County Line; US-64
High number of logging trucks	Moncure Pittsboro Rd
Road is curvy and hilly; poor sight lines	Hamlet’s Chapel Rd

Table 2. Intersection Issues

Issue	Intersection(s)
Traffic Signals not activated by bicycles	Beaver Creek at US 64; US 15-501 at Old Lystra; US 15-501 at Mann’s Chapel Hill Rd; NC 751 at US 64
Cars not aware of bicyclists	Chatham Courthouse Circle
Left turn extremely difficult	Intersections on NC 751
Dangerous/unsafe driver behavior	Mann's Chapel Rd at Andrews Store; Martha's Chapel Hill at NC 1108; US 64 at Big Woods; US 64 at Mt. Gilead Rd; US 64 at Foxfire Trace; US 15-501 in front of Lowe’s Home Improvement

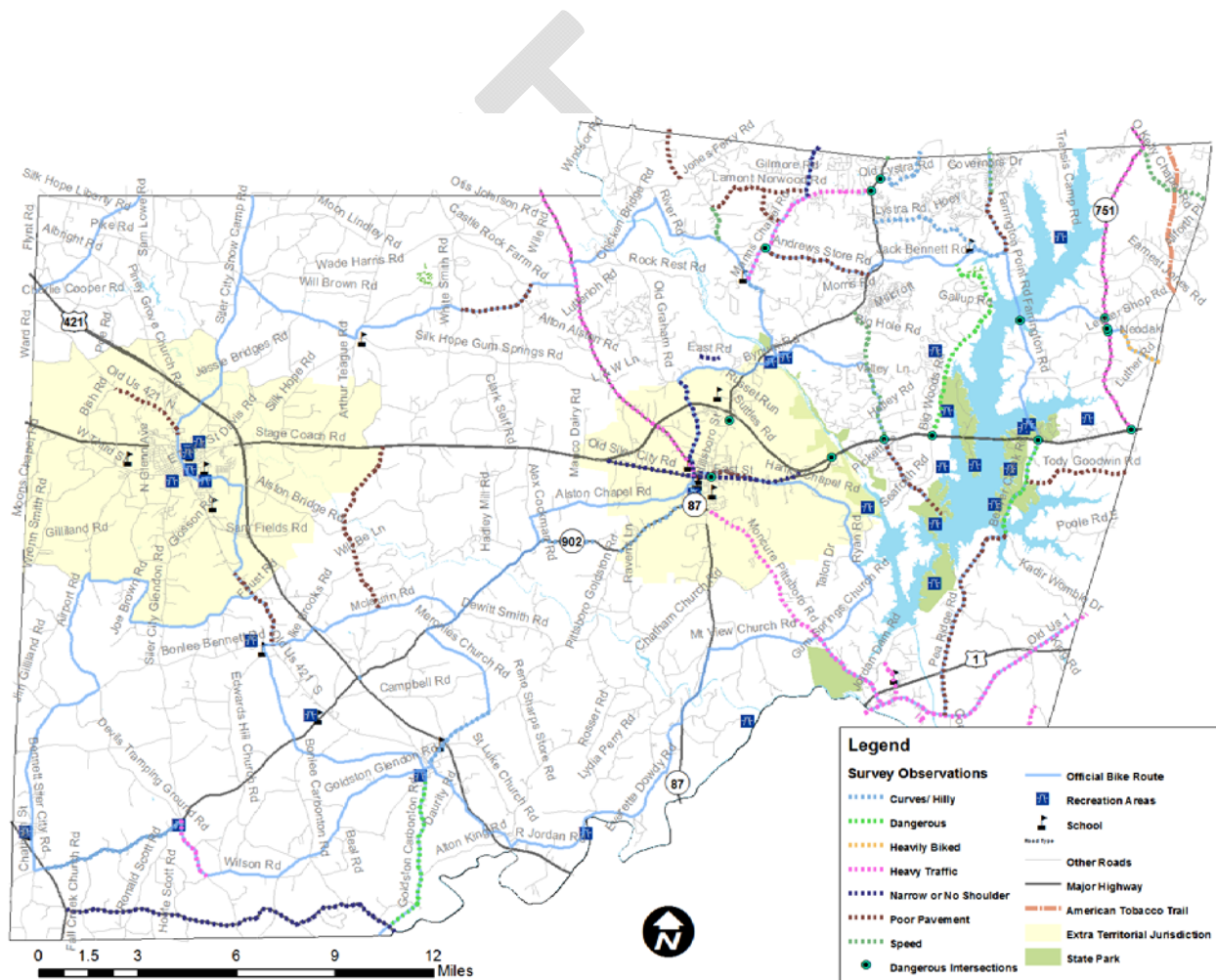


Figure 11: Map of Bicycling Issues

Chapter 2: Existing Conditions

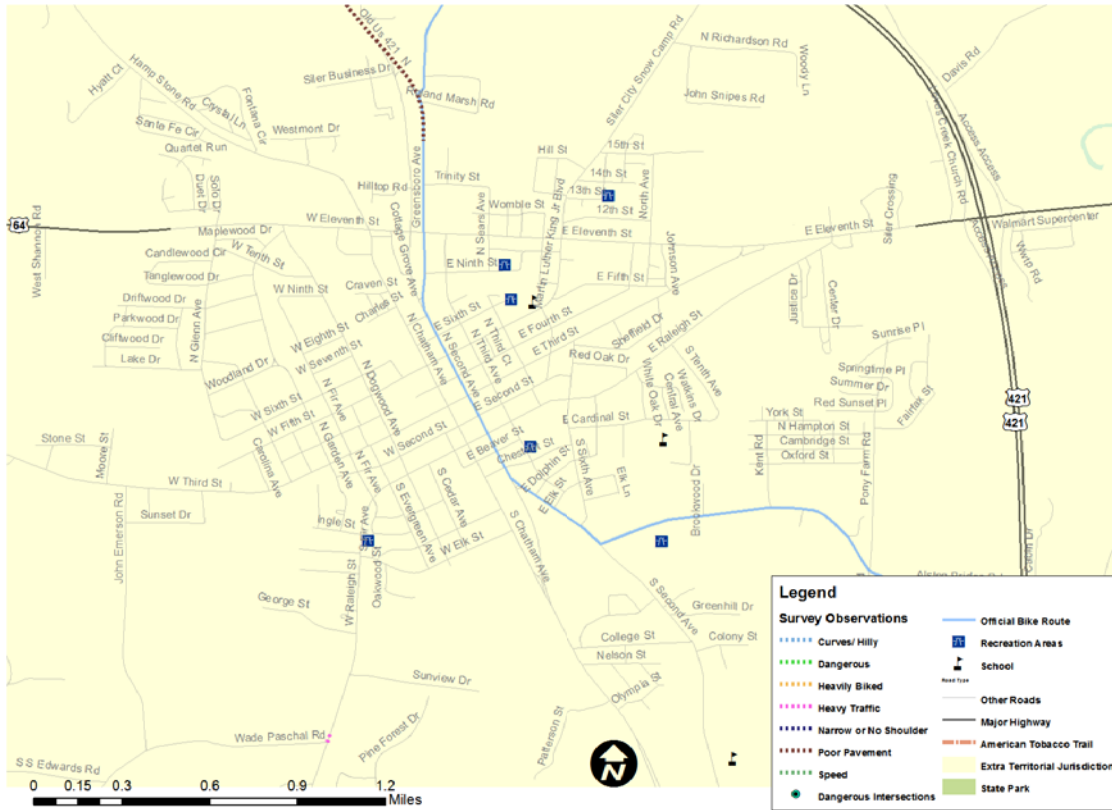


Figure 12: Map of Bicycling Issues – Siler City

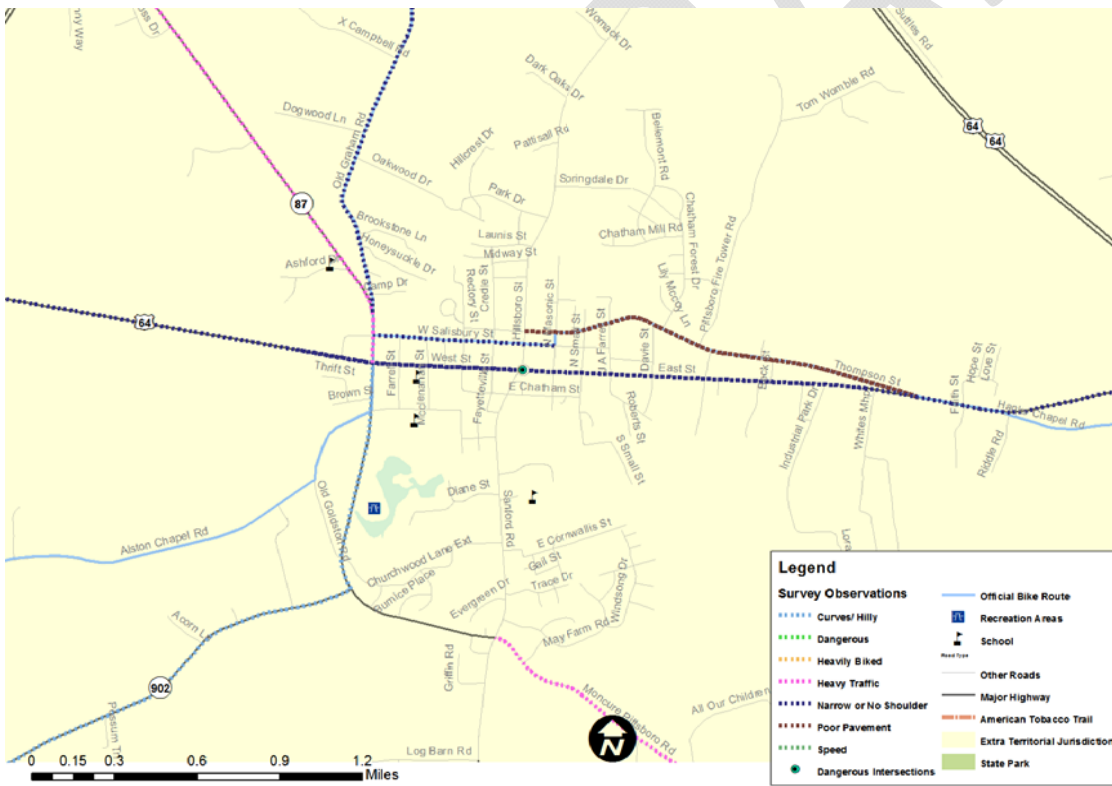


Figure 13: Map of Bicycling Issues – Pittsboro

2.3 Bike Crash Statistics

It's important to analyze the historical incidence of bike crashes in the county. This can be used as a baseline for improvement as safety infrastructure and initiatives take place in the future. Between 1997 and 2008, there were 65 reported bike crashes in the county on the whole, 13 of which were in Siler City and two in Pittsboro⁷. Minorities are disproportionately represented, involved in nearly half of the bike crashes in the county and over 80% in Siler City. Certain age groups also have higher crash rates, notably children under 15 (32%) and those between 30 and 39 years of age (26%). Many of these crashes (nearly three per year) have been severe. These data include only crashes in which a police report was filed. The table below summarizes the number of bike crashes by year.

Table 3. Bike Crashes, 1997-2008

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Unincorporated	4	3	4	3	6	4	5	4	2	4	4	7	50
Siler City	1	1	2	1	1	0	2	2	0	2	0	1	13
Pittsboro	0	0	0	0	2	0	0	0	0	0	0	0	2
Total	5	4	6	4	9	4	7	6	2	6	4	8	65

2.4 Existing Plans, Policies and Programs

There are a number of existing plans, policies and programs that pertain to bicycling in Chatham County. These exist at three levels:

- **Local**, which includes those in Chatham County, Siler City or Pittsboro
- **Regional**, which includes those promulgated in the region, generally by the Triangle Area Rural Planning Organization (TARPO) and the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO)
- **State**, which includes any NCDOT programs or laws that pertain to bicycling

Recommendations for modifying these plans, policies and programs are discussed in Chapter 5, Program and Policy Recommendations.

⁷ UNC Highway Safety Research Center. (2011). *North Carolina Pedestrian and Bicycle Crash Data Tool*. Available: <http://www.pedbikeinfo.org/pbcat/> Retrieved on February 25, 2011.

2.4.1 Local

Pittsboro Pedestrian Transportation Plan (2009)

Pittsboro's Pedestrian Transportation Plan provides an assessment of existing conditions and recommendations for both on- and off-street pedestrian improvements, including a greenway near downtown Pittsboro along railroad alignments and sewer easements. The plan includes many potential programs and policy recommendations to improve bicycling in the town and other parts of the county.

Pittsboro Land Use Plan (2001, currently in review)

Pittsboro's current Land Use Plan includes a vision and goals that promote safe access for multiple modes, including bicycling as well as the creation of greenways. While the draft plan does not include specific recommendations regarding bicycling, it promotes alternative transportation options and includes general background information about the type and usage of bicycling facilities.

Pittsboro Zoning Ordinance (1994, amended 2007)

Pittsboro's zoning ordinance has language that supports bicycling, including references to accommodating bicyclists when designing parking and when creating site plans for libraries, schools, public buildings and mixed use planned development. The ordinance also states that off-street parking shall include a bicycle rack, unless "excepted by Commissioners". However, some language in the ordinance may preclude the types of bicycling facilities recommended in this Plan.

Pittsboro Subdivision Regulations (1993)

Pittsboro's subdivision regulations define street classifications but only as related to vehicular traffic, without reference to the multi-modal nature of the streets. Amendments to certain sections can be a way to include "Complete Streets" concepts to support bicycling in new development.

Siler City Ordinances

Siler City's ordinances prohibit bicycling and skateboarding on sidewalks in the downtown area, but permit it in the rest of the town. The ordinances include sidewalk requirements for varying types of roadways and may also require developers to set aside a 10 foot easement for pedestrian facilities if there's no access from a subdivision to schools, parks, playgrounds or other facilities.

Chatham County Compact Communities Ordinance (2004)

The CCO promotes compact developments which protect rural farmland and create a more sustainable development pattern. The CCO has three goals that specifically promote bicycling, including “compact... development...that is...walkable and bikable,” “a grid network of streets” and “parks...throughout...linked together by... trails.” Other key points include requiring mixed uses, interconnectivity of streets and creation of narrow streets. In its appendix, the CCO “strongly encourages” bike racks – at least 1 per block – in a village center. The CCO only applies to a very small area of the county, bounded on the east by US 15-501, by Andrews Store Rd on the south and by Mann’s Chapel Rd on the west and north.

Chatham County Subdivision Regulations (1980, revised 2008)

The County’s subdivision regulations have some provisions for bicycles. Block lengths are “geared toward creating a street network that accommodates bicycle... scale connections.” Maximum block lengths range from 480 feet in 8-unit developments to 660 feet in medium density and compact community areas, and 1320 feet in other areas. These regulations also discuss easements up to 20 feet which may be required for pedestrian or bicycling egress and ingress from schools, neighborhood parks and other public spaces.

Chatham County Zoning Ordinance (2008)

The County Zoning Ordinance does not include any requirements for bicycle parking or accommodation. The county permits bicycle shops in areas zoned for business (general, neighborhood, community and regional), though none currently exist in the county.

The Chatham Land Conservation and Development Plan (2001)

The Chatham Land Conservation and Development Plan includes two objectives that specifically address bicycling in the county. The first supports creating a greenway network that “includes...biking...trails when appropriate.” The second includes a suggestion to incorporate bike trails in new communities, including bike shoulders along roads and generally promoting alternative modes of transportation. The Plan has 28 specific recommendations, one of which is a review of roadway design, including support for bicycle facilities. The Transportation element of the plan reiterates the awareness of bicycling when revising roadway standards. The Schools element recommends locating schools in neighborhoods and encouraging new adjacent residential development as ways to provide bicycle access for children.

Chatham County Parks and Recreation Master Plan (in process)

Chatham’s Parks and Recreation Master Plan 2009-2029, currently being considered for adoption, evaluates existing park and recreation facilities and proposes guidelines to implement the recommendations. This includes several recommendations related to bicycle facilities, including specific greenways and a comprehensive Greenway Master Plan. The plan also recommends bike lanes, provisions for bicycle travel on new roadways, bike racks at all publically owned facilities and bike trails at future parks. Public input indicated that bike trails were a high priority. The plan also highlights the potential of ecotourism, especially the economic impact of attracting bicyclists.

Advisory Boards

Citizen-led advisory boards can be instrumental in implementing the Bicycle Plan. Citizen advisory boards at the county level that have an impact on bicycling are the Transportation Advisory Board (TAB), the Recreation Advisory Board and the Active Chatham Alliance. Pittsboro also has a Recreation Advisory Board.

2.4.2 Regional

DCHC MPO Long Range Transportation Plan 2035 (2009)

The Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) covers the northeastern portion of Chatham. The Long Range Transportation Plan (LRTP) provides recommendations for all transportation investments in this area. One of the LRTP’s goals is a bicycle and pedestrian system that includes safety, access to public transit, recreational opportunities and off-road facilities. The table below summarizes the bicycle projects listed in the LRTP for the county.

Table 4. DCHC MPO LRTP Bicycle Projects in Chatham County

Location	Type	Length (miles)	Cost
American Tobacco Trail	Path	5.2	completed
Mt. Carmel Church Rd	Lanes	1.2	\$600,000
NC 751	Lanes	3.2	\$1,600,000
Farrington Point/ Farrington Mill Rd	Lanes	3.66	\$1,830,000
O’Kelly Chapel Rd	Lanes	2.9	\$1,450,000
US 15-501 South	Lanes	3.2	\$1,600,000
Totals		19	\$7,080,000

Triangle GreenPrint Regional Open Space Assessment (2002)

This assessment identified important green spaces in the Triangle region, including Chatham County. Although not at a high level of detail, this document can be used to help identify potential greenway corridors in the county.

2.4.3 State

State Transportation Improvement Program (STIP)

The State Transportation Improvement Program (STIP) contains funding information and schedules for various transportation divisions including bicycle and pedestrian projects, highways/roads and transit. The Siler City 2013-2019 TIP Project list includes a paved trail along Loves Creek from SR 2208 (South Second Avenue) to Pony Farm Road in Siler City. Other Chatham TIP projects include road widening or creation of new roads. These projects, when appropriate, should accommodate multi-modal travel.

Additionally, the North Carolina Department of Transportation (NCDOT) has adopted a number of policies addressing bicycles on state maintained roadways. These policies and guidelines, applied on these roadways when there is new construction or resurfacing projects, impact the bicycling environment in Chatham County and include the following:

Resolution Mainstreaming Bicycling and Walking as part of Transportation System (2000)

The NC Board of Transportation reaffirmed the importance of non-motorized transportation in its highway system. It states that “bicycling and walking accommodations shall be a routine part of the North Carolina Department of Transportation's planning, design, construction, and operations activities.”

NCDOT Bike Policy (1978, updated 1991)

The NCDOT policy details guidelines for planning, design, construction, maintenance and operations pertaining to bicycle facilities. All bicycle improvements undertaken by the NCDOT are based upon this policy. The policy urges strong education of motorists and school children regarding traffic laws and safety. Lastly, the policy indicates that any state funded buildings, parks and recreational facilities should include bicycle parking facilities.

NC Complete Streets Policy (2009)

This NCDOT policy requires that planners and designers consider multi-modality when planning and constructing any new or improved transportation facilities in growth areas of counties and municipalities. The policy is intended to encourage non-vehicular travel without reducing the safety, efficiency or function of the facility while ensuring that all users are considered in the creation and usage of the facility. NCDOT has convened a group of stakeholders that is currently in the process of developing guidelines for the design of complete streets.

Administrative Action to Include Local Adopted Greenway Plans in the NCDOT Highway Planning Process and Guidelines (1994)

This action requires highway planners developing highway alignments to take into consideration locally adopted greenway and greenway crossings corridors.

Bridge Policy

This policy controls the design elements of new and reconstructed bridges on the state highway network, including minimum handrail height where bikeways cross bridges.

2.5 Summary of Survey Results

The general public was surveyed to assess existing conditions and potential remedies which would improve bicycling conditions and increase bicycling. The survey was provided in electronic format via “Survey Monkey” and was distributed via email to the County’s Transportation Advisory Board, Recreation Advisory Board and Planning Board; to bike rider groups who ride in the county; to County employees; and, was linked on the County website. 463 survey responses were received. This section provides key results of the survey; full results are provided in Appendix A.

To begin, survey respondents were asked to self-assess their ability level in one of four categories – Beginner, Intermediate, Expert and Non-rider. Survey responses dramatically differed based on the experience level of the respondent. Beginner and non-riders said they were most comfortable on off-street bike trails, while intermediate and advanced riders most liked riding on quiet back or local roads. Riders of all types ride because of exercise and recreational purpose, although 25% and 30% would or do ride to shop or commute to work, respectively. Only 12% of riders surveyed stated that the majority of their trips are for utilitarian (i.e. work, shopping, etc.) reasons.

Table 5. Survey Responses, Type of Rider, by Location

Location	Type of Rider				Total
	Advanced	Intermediate	Beginner	Non-Rider	
Chatham	77 15%	99 21%	16 3%	40 9%	225 49%
Not Chatham	146 32%	42 9%	7 2%	12 3%	207 45%
Did Not Answer	11 2%	8 2%	1 0%	11 2%	31 7%
Total	227 49%	149 32%	24 5%	63 14%	463 100%

The survey asked respondents whether they would ride more often, and asked what factors limited their riding. The majority of respondents felt that they would like to ride more often. The three most commonly cited factors in not riding more were consistent across biking experience levels, although advanced riders felt that unsafe/unlawful motorist behavior limited their riding more than any other factor. The table below provides the top three rankings for each of the experience levels.

Table 6. Survey Responses, Reasons for Not Riding More, by Experience Level

	Advanced	Intermediate	Beginner	Non-Rider
#1	Unsafe / unlawful motorists’ behavior	No bike paths, bike lanes or bike routes	No bike paths, bike lanes or bike routes	Unsafe / unlawful motorist’s behavior
#2	No bike paths, bike lanes or bike routes	Unsafe / unlawful motorist’s behavior	Unsafe / unlawful motorists’ behavior	No bike paths, bike lanes or bike routes
#3	Bikeways / roads are in poor	Bikeways / roads are in poor condition	Bikeways / roads are in poor condition	I don't have enough time

As expected, the average one-way ride distance (currently or potentially) of those surveyed differed based on experience level, with most advanced riders riding 20 miles or more while beginner and intermediate riders between one and five miles. Non-riders most often said they would not ride, but nearly as many said they would potentially ride one to five miles.

The survey also asked what improvements would encourage more bike riding. Almost two thirds of intermediate and advanced riders indicated they would ride more with either bike lanes or paved and widened shoulders. Beginner and intermediate riders felt that more off-street bike trails and paths would encourage them to ride. More driver and bicyclist education and better enforcement of traffic laws were a priority for advanced riders. On-road bike signage, maintenance of existing facilities, and bicycle parking and amenities like benches were seen as lower priorities for encouraging more biking.

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Chapter 3: Recommended Bicycle Network

This chapter describes the proposed **Bicycle Network** for Chatham County. This includes **Prioritization** for the recommended projects, which are grouped into **Short-Term** and **Long-Term Projects**. It also describes **Other Improvements** that could help improve the bicycling conditions for riders in the county. The chapter’s focus is on infrastructure improvements; non-infrastructure programs and initiatives are described in Chapter 5.

Chapter Contents

- 3.1 Chatham’s Bicycle Network
- 3.2 Prioritization Criteria
- 3.3 Short-Term Projects
- 3.4 Long-Term Projects
- 3.5 Other Improvements

3.1 Chatham’s Bicycle Network

Chatham’s Bicycle Network consists of both existing and proposed bicycle transportation facilities, including shared roads, paved shoulders, on-street bicycle lanes and shared use paths. In all, the fully completed network will cover 423 miles, as shown in the table below and in the maps on the pages that follow.

The on-road bike routes include adding 181 miles of on-road facilities, the majority of which is improvements to “share the road” signage. On roads with more automobile traffic, widened shoulders are recommended. In the communities of Siler City and Pittsboro, the network includes dedicated bike lanes. 111 miles of new off-road shared use paths are also included, mostly in the long-term. The Bicycle Network also includes the improvement of nine specific intersections to further enhance safety for bicyclists.

Table 7. Summary of Recommended Bicycle Network

Facility Type	Existing (miles)	Future (miles)		Total (miles)
		Short-Term	Long-Term	
Shared Roads	0	87.1	54.0	141.1
Signed Routes on Shared Roads	131.3	0	0	131.3
Bicycle Lane – Construction	0	1.1	34.7	35.8
Bicycle Lanes – Restripe	0	0.4	3.5	3.9
<i>Total On-Street Facilities</i>	<i>131.3</i>	<i>88.6</i>	<i>92.2</i>	<i>312.1</i>
Shared Use Paths	4.1	2.0	105.0	111.1
Total Facilities (miles)	135.4	90.6	197.2	423.2

3.2 Prioritization Criteria

Resource and funding constraints dictates that not all the network elements will be completed at the same time. Because of these constraints, projects have been placed into two phases – short-term, which can be completed within five years, and long-term, which may take up to 20 or 30 years to complete. Projects were prioritized based on three criteria: 1) impact on existing ridership, 2) impact on attracting ridership and 3) ease of construction/cost-effectiveness.

Impact on Existing Ridership

Survey comments and conversations with existing bicycle users have pinpointed the most heavily used routes. Among these routes, those that connect major attractors and have the most safety issues (i.e. conflicts with motorists, low visibility for cyclists) were identified as higher priority than those routes with fewer issues. These routes include the existing signed and connector bicycle routes.

Impact on Attracting Ridership

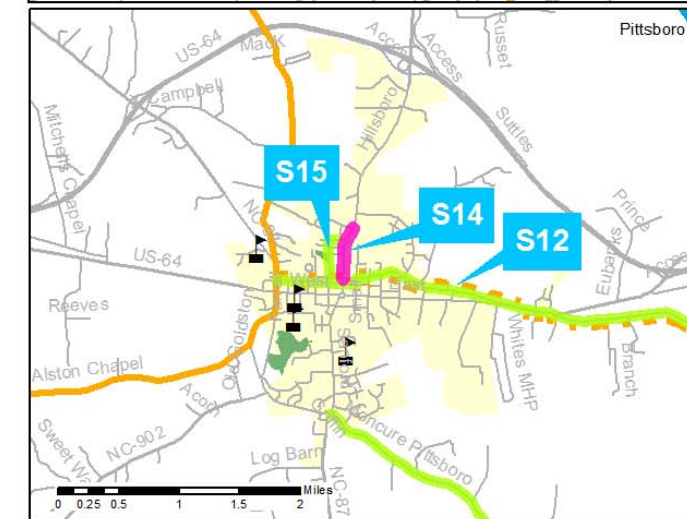
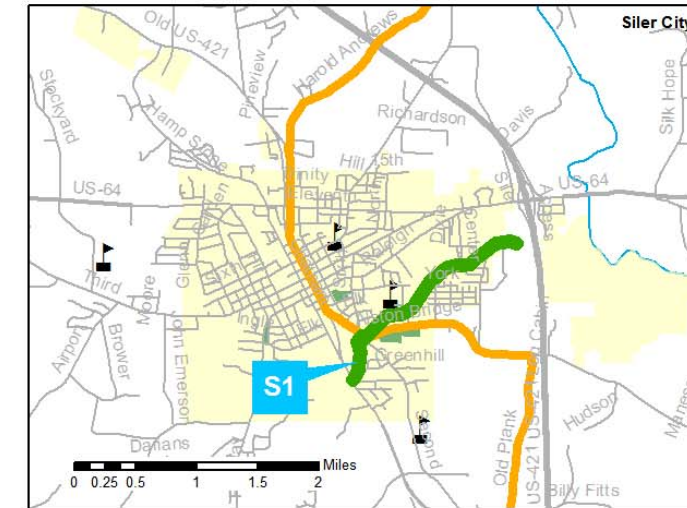
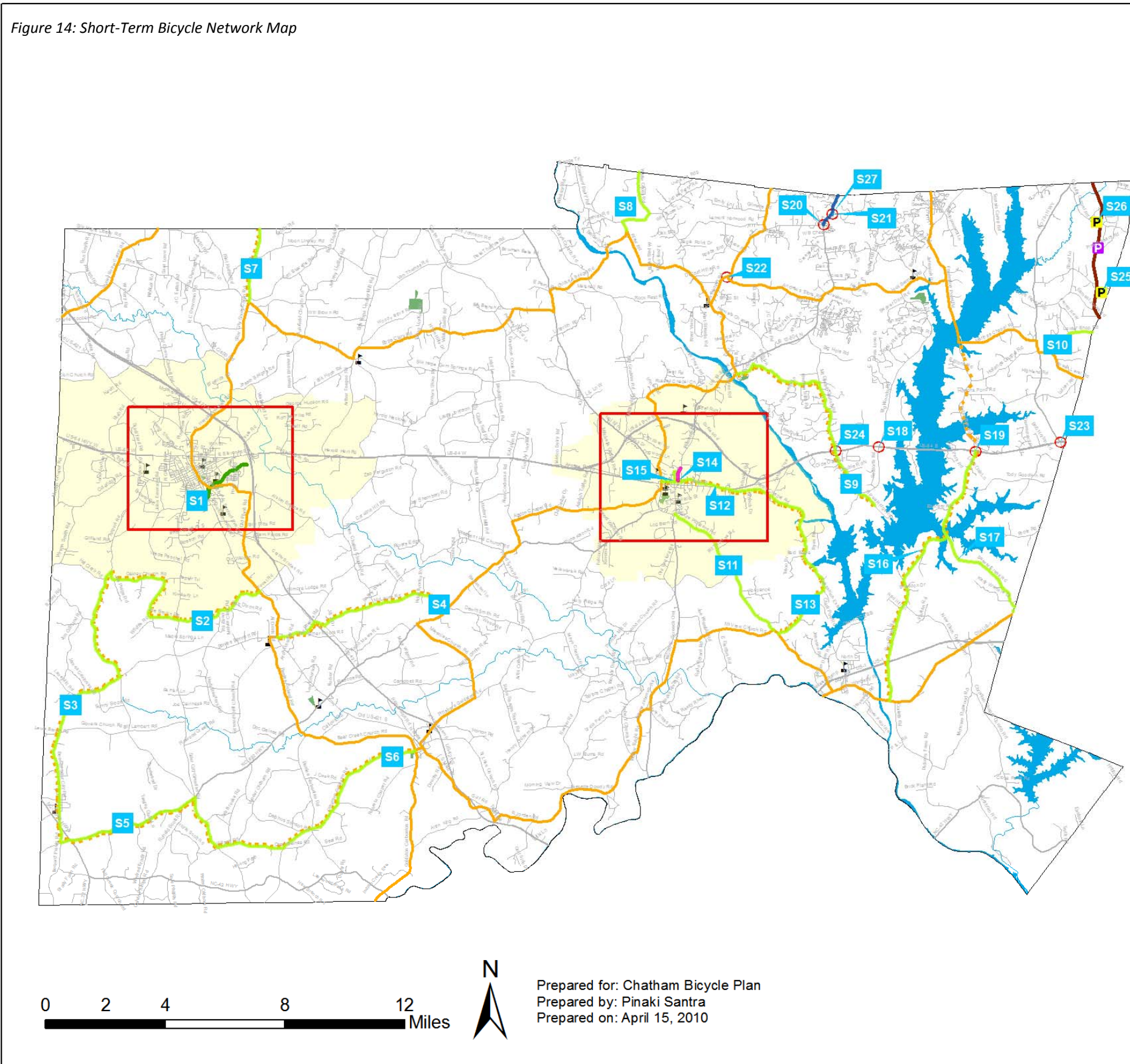
Projects that might increase ridership are also prioritized. These projects include routes that link desired destinations (i.e. residential centers and parks). While not excluding the current experienced cyclists, these projects are designed to attract more inexperienced riders. These generally include off-street facilities, bicycle lanes or routes on lightly travelled roads.

Ease of Construction/Cost-Effectiveness

Projects that require fewer resources (i.e. restriping, signage improvements and signaling improvements) typically involve fewer parties to implement and are a more efficient usage of limited resources.

Note: While ideally projects should be selected and implemented in order of priority, Chatham should take advantage of opportunities that arise through routine maintenance (such as repaving, restriping or addition) or new road construction.

Figure 14: Short-Term Bicycle Network Map



Legend

Short Term Improvements

-  Bike Lane - Construction
-  Bike Lane - Restripe
-  Shared Road
-  Shared Use Path
-  Intersection Improvements
-  Future Trail Parking

Existing Facilities










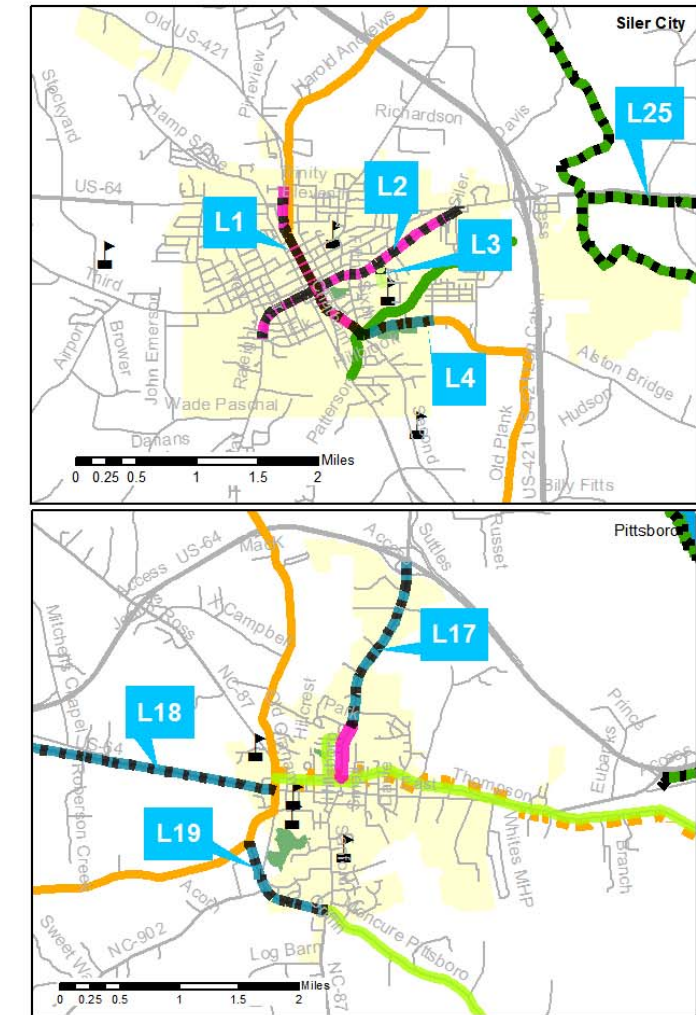
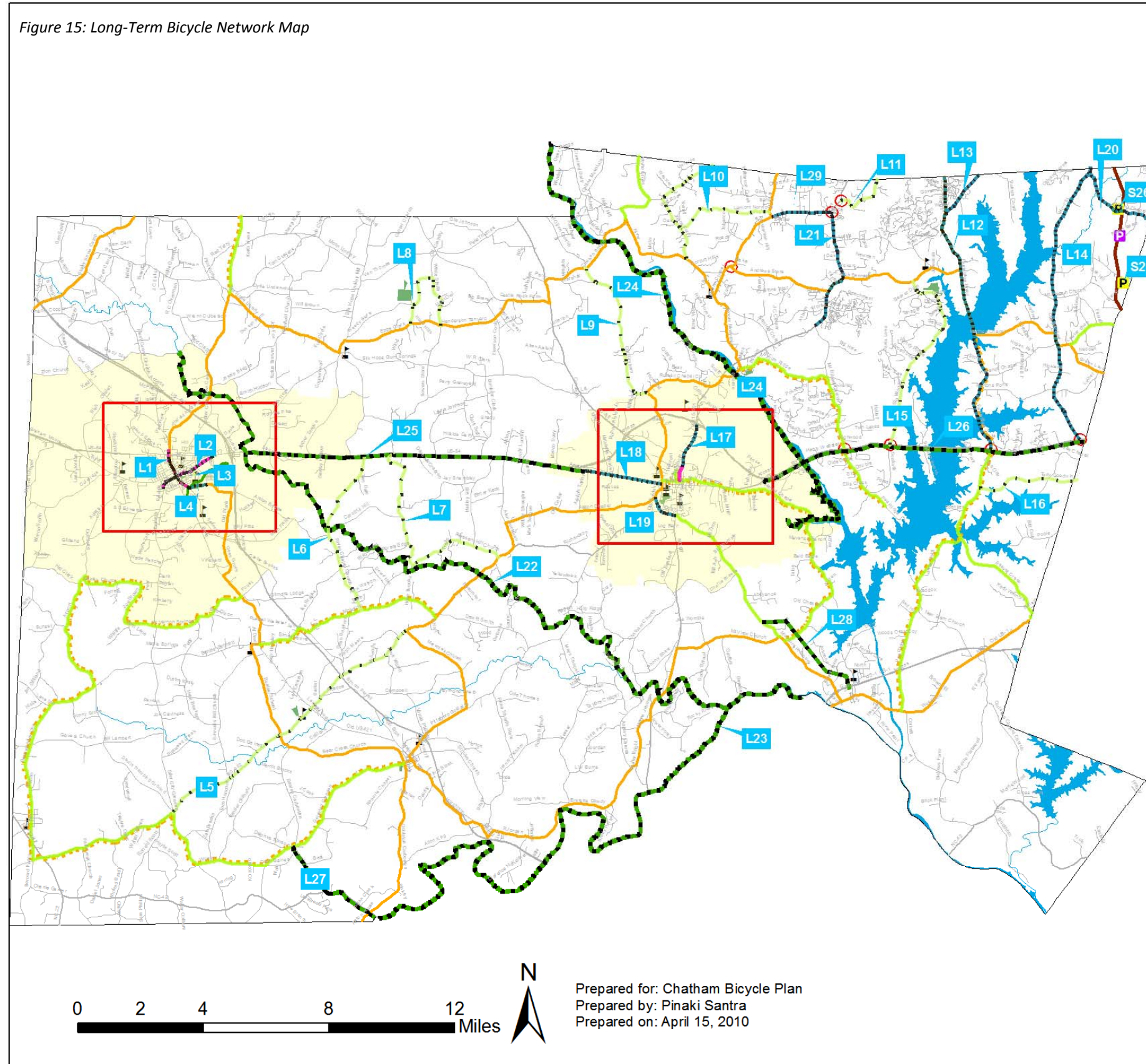
-  Existing, Numbered Routes
-  Existing, Unsigned Routes
-  American Tobacco Trail
-  Existing Trail Parking
-  Major Roads
-  Roads
-  Extraterritorial Jurisdiction
-  Schools
-  Water Body

Figure 15: Long-Term Bicycle Network Map



Legend

Long Term Improvements

- Bicycle Lane - Construction
- Bicycle Lane - Restripe
- Shared Road
- Shared Use Paths

Short Term Improvements

- Bike Lane - Restripe
- Shared Road
- Shared Use Paths
- Future Trail Parking
- Intersection Improvements

Existing Facilities

- Existing, Numbered Routes
- Existing, Unsigned Routes
- American Tobacco Trail
- Existing Parking
- Roads
- Major Roads
- Extraterritorial Jurisdiction
- Schools
- Water Body

3.3 Short Term Projects

The following infrastructure projects are relatively low-cost projects that are either funded, part of an existing state-wide program or can be incorporated in future resurfacing projects. The section includes a description, location, planning-level cost estimates and potential funding sources for each project. (Cost estimates do not include right-of-way, utility work or necessary bridges.) The projects are described in further detail in Appendix C.

Projects S2-13 and S15-17: Shared Roads **88.1 miles**
County-wide **\$40,400**

Install “Share the Road” signage on the connector routes and ensure that directional signage is installed at junctions with signed routes. The Share the Road signs should be added after junctions with other roads. These signs will raise awareness to both bicyclists and motorists of the fact that bicyclists use the road and the state law regarding sharing the road. The directional signs will ensure that new riders and visitors can find and stay on the state and county routes.

Potential Funding Sources: NCDOT Division Bike and Pedestrian Transportation funding

Resources: NCDOT Share the Road Program:
www.ncdot.org/bikeped/safetyeducation/signing



Figure 16: Share the Road sign

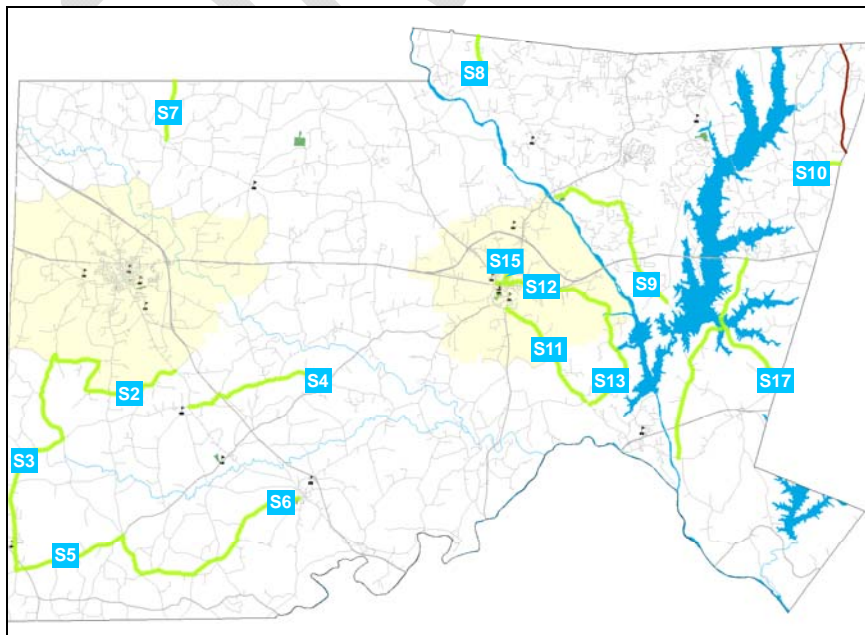


Figure 17: S2-13 and S15-17: Shared Roads Project Map

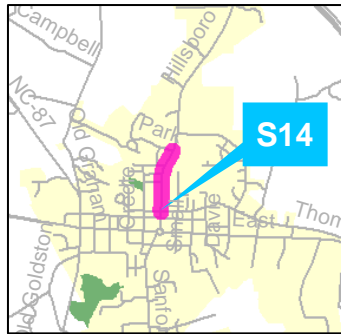


Figure 18: S14: Hillsboro St Bicycle Lanes Project Map

Project S14: Hillsboro Street Bicycle Lanes **0.4 miles**
Launis St to Thompson St, Pittsboro **\$6,600**

Restripe the existing pavement on Hillsboro St, just north of downtown Pittsboro: reduce the driving lanes to 11 feet in each direction, remove on-street parking on one side of the street*, and add a four foot wide bike lane on the non-parking side and a five foot wide bike lane on the other side. The project will help bicycle commuters in Pittsboro reach downtown and county offices, and avoid areas of Hillsboro Street with diagonal parking due to potential hazards.

Potential Funding Sources: This should be combined with a future resurfacing project. Funding can be out of NCDOT Transportation Enhancement Program or State Street-Aid (Powell Bill) Program funds.

*The existing on-street parking would need to be studied to determine the feasibility of eliminating parking.

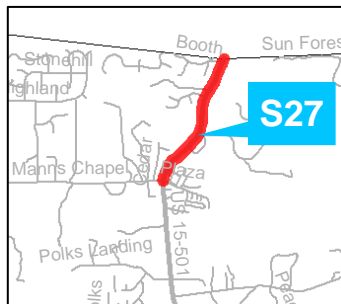


Figure 19: S27: US 15-501 Bike Lane Construction Project Map

Project S27: US 15-501 Bike Lane Construction **1.1 miles**
Northern Chatham County **\$600,000**

This widens the road to install bicycle lanes between the Orange County line and Cole Park Plaza, an important commuter route for bicyclists to and from Chapel Hill.



Figure 20: S1: Love's Creek Greenway Project Map

Project S1: Love's Creek Greenway **2.0 miles**
SW of Downtown to US 421 Bypass **\$750,000**

This shared use path along an existing sewer easement is part of Siler City's funded Transportation Improvement Program and is currently in progress.

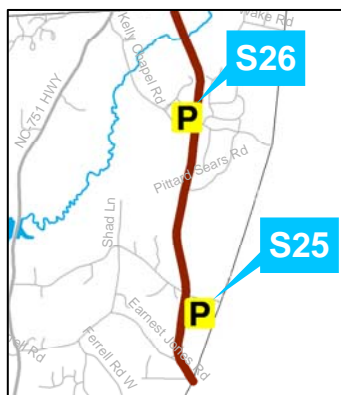


Figure 21: S25-26: Car Parking for the ATT Project Map

Projects S25-26: Car Parking for the ATT **\$1.2 million**
New Hope Church and O'Kelly Chapel Rds

These projects construct new car parking lots for users of the American Tobacco Trail. Both of these projects are currently underway: the lot at New Hope Church Rd will be a paved lot constructed by the Town of Cary using CMAQ funding; and, the O'Kelly Chapel Rd lot is being implemented by NCDOT and the County. Car parking lots are needed as many ATT users are not comfortable riding on roads or do not live close enough to access the trail by bicycle. Trail users currently park on the shoulders along nearby roads, creating a potential safety risk for both vehicles and bicyclists.

Projects S18-21: Bike Actuated Signals
Four locations

\$20,000

These projects will add bicycle detection loops to four intersections, either by installation or calibrating of existing detectors for bikes. These intersections have signals that currently do not detect the presence of bicyclists, who must either wait extremely long or cross at a red light.

Potential Funding Sources: NCDOT Division Bike and Pedestrian Transportation funding, NCDOT road maintenance funding



Figure 22: S18-21: Bike Actuated Signals Project Map

Projects S22-24: Improved Signage at Intersections
Three locations

\$4,800 - \$6,000

These projects will install signage that indicates the presence of bikes and bike route directional signage to help route wayfinding and safety.

Potential Funding Sources: NCDOT Division Bike and Pedestrian Transportation funding, NCDOT road maintenance funding.



Figure 23: S22-24: Improve Signage at Intersections Project Map

3.3 Long Term Projects

Long-term projects are higher cost projects that entail more significant construction and complexity. While the details of each of these projects have not been completely finalized, the plan provides estimates of the relative costs. These are described in further detail in Appendix D.

Projects L3, L5-11, L15-16, L29: Shared Roads **55.7 miles**
County-wide **\$25,800**

Install “Share the Road” signage on the connector routes and ensure that directional signage is installed at junctions with signed routes. The Share the Road signs should be added after junctions with other roads. These roads have been deemed lower priority than the Short-Term Shared Road projects as they are less used bicycle routes or have less vehicular traffic.

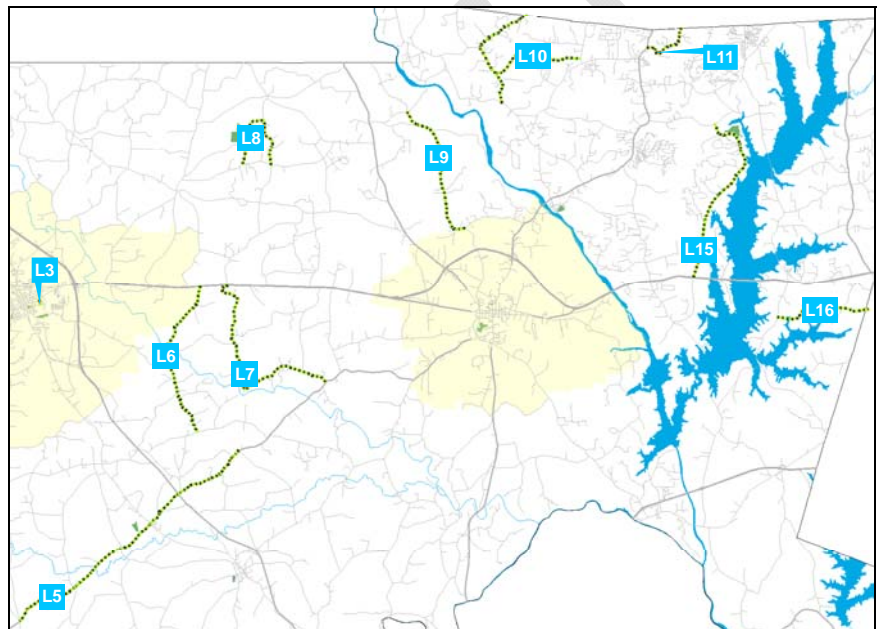


Figure 24: L3, L5-11, L15-16, L29: Shared Roads Project Map

Projects L4, L12-14, L17-21: Bicycle Lanes **34.7 miles**
County-wide **\$17.4 million**

These projects would construct additional width to existing roadways to provide either four foot wide paved shoulders or bike lanes. These are roads that have relative high vehicular volume or speed and either handle significant existing bicycle ridership or connect major attractors within and outside the county.

Potential Funding Sources: State Transportation Improvement Program, Transportation Enhancement Program, part of other roadway expansion (capacity) projects

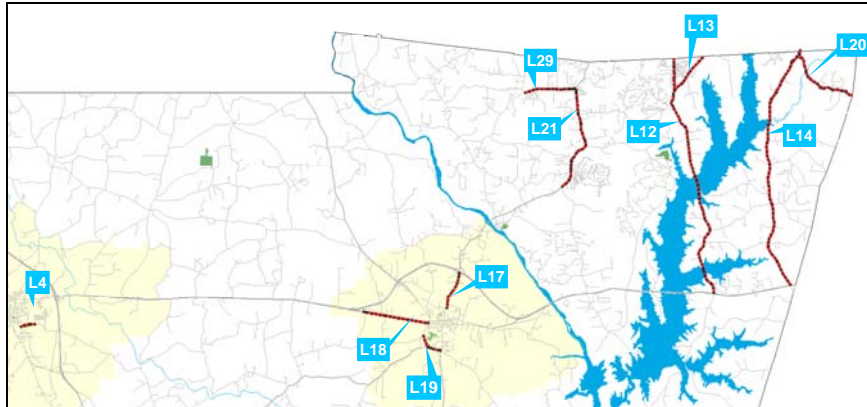


Figure 25: L4, L12-14, L17-21: Bicycle Lanes Project Map

Project L1: 2nd Ave Bike Lanes, Siler City **2 miles**
Trinity to 6th St **\$30,000**

This project would reduce the number of vehicular travel lanes from four to three and would add bike lanes in each direction.

Potential Funding: This could be done as part of a repaving project

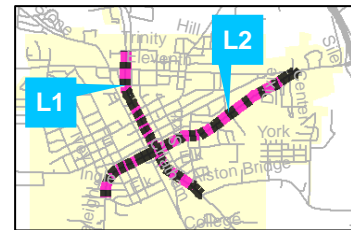


Figure 26: L1-2: 2nd Ave and Raleigh Ave Bike Lanes, Siler City Project Map

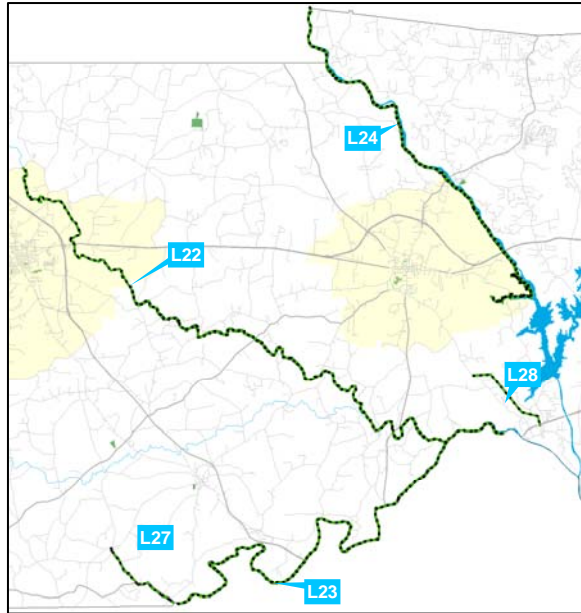
Project L2: Raleigh Ave Bike Lanes, Siler City **1.5 miles**
Elk St to US 64 **\$23,000**

This project would add bike lane striping bicycle to the existing 2 lane roadway.

Potential Funding: This could be done as part of a repaving project

Projects L22-24, L27-28: Shared Use Paths **84 miles**
Countywide **\$4.3 - \$22 million**

The Chatham Parks and Recreation Master Plan 2009-2030 includes potential shared use paths around the county, including three along rivers. The plan does not propose specific path surface or width; these paths may be natural surface paths that can only accommodate hikers and mountain bicycles or they could be paved paths that accommodate all types of bicycles and users. The cost estimates (with the exception of project L24, the Haw River Trail, which has already been designated as unpaved) include both unpaved and paved estimates.



Potential Funding Sources: Adopt-A-Trail (AAT) Grant Program; Recreational Trails Program; Parks and Recreation Trust Fund; Chatham Recreation Exaction Fund

Figure 27: L22-24, L27-28: Shared Use Paths Project Map



Figure 28: US 64 Shared Use Path Concept

Projects L25-26: US 64 Shared Use Paths West & East of Pittsboro

**84 miles
\$7.6 million**

The US 64 Corridor Study includes a bicycle and pedestrian path adjacent to the roadway as part of its long-term improvement recommendations. This path starts west of the Haw River in Pittsboro and extends through eastern Chatham County, connecting to the American Tobacco Trail in western Wake County. This Bicycle Plan also proposes a future similar shared use path along US 64 between Pittsboro and Siler City.

Potential Funding Sources: Could be part of the overall US 64 project; some of the funding sources listed above for shared use paths

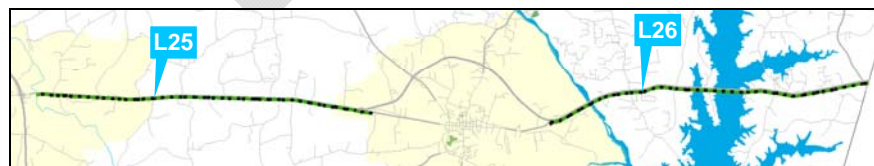


Figure 29: L25-26: US 64 Shared Use Paths Project Map

3.5 Other Improvements

There are other types of roadway improvements that are not specifically identified but can contribute to an improved bicycling climate in the county. These include traffic calming, roadway maintenance programs, and spot improvements.

Traffic calming is intended to slow vehicular traffic in order to improve safety and a generally improved environment for pedestrians and bicycles as well as vehicles. Traffic calming measures could include speed bumps/humps, curb extensions, median islands or lane narrowing.

Roadway maintenance programs, including pothole repair and resurfacing projects, help improve the driving condition for vehicles and bicyclists alike. It's important that maintenance, especially on roads designated for bike routes, is compatible with comfortable bike riding. One method, called "chip seal", is a more cost effective method of extending pavement life but is uncomfortable for bike riders; many survey respondents mentioned the poor condition of roadways with this treatment.

Spot improvements to the road network include the installation of bicycle friendly drainage grates.

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Chapter 4: Program and Policy Recommendations

To provide a good environment for bicycling in Chatham County, not only are safe and convenient bike facilities needed, but these must be complimented by programs and policies that support bicycling. This Chapter makes **Program Recommendations**, including education, encouragement and enforcement programs, as well as **Policy Recommendations**.

Chapter Contents
4.1 Program Recommendations
4.2 Policy Recommendations

4.1 Program Recommendations

Programs that support bicycling can be generally categorized as education, encouragement or enforcement – often referred to as the Three E’s. Recommendations, with potential responsible parties and links to local examples (when available), are detailed on the pages that follow.

4.1.1 Education

Education programs seek to educate the public regarding proper bicycle riding, North Carolina bicycling laws, proper motorist behavior around bicyclists and regarding safe and improved bicycle routes and facilities. Education can refer to safety materials, training programs and events. The table on the following page summarizes the proposed education programs.

There are many bicycle **safety materials** available for general use. In particular, NCDOT provides many ready-made guides that cover topics ranging from bike safety, tips to conducting a repair clinic and bicycle driving laws. Most of these guides can be downloaded from the NCDOT website; alternatively, NCDOT can provide up to 500 copies to agencies and residents. Several items, including videos and some manuals, are only available for loan. The guides should be distributed as broadly as possible, including to those taking vehicle driver tests, at festivals or at local restaurants. (Resource: www.ncdot.gov/bikeped/safetyeducation/materials)

Training programs can include those aimed at local staff and schools. Local staff tasked with implementing the Bicycle Plan should be kept up-to-date on bicycling accommodation methods and design in order to help institutionalize the accommodation of bicycles throughout the county. Training can include brown bag lunch sessions, modifications of

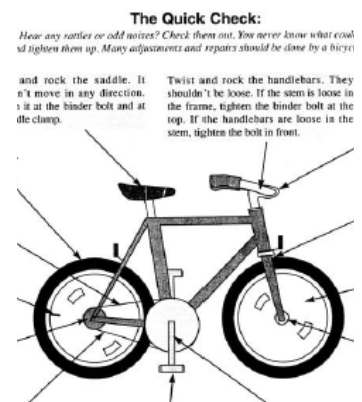


Figure 30: Example of NCDOT Handout



Figure 31: Example of NCDOT Poster

employee handbook or invitations to webinars. Chatham County Schools should implement safe bicycle education in elementary schools. NCDOT provides materials that can help the schools develop an education program that highlights safety and the benefits of bicycling through events and encouragement programs.

Events promoted throughout the year provide opportunities for bicycle safety training and promote bicycling as a recreational activity and a potential alternative to driving. Events could include:

- Bicycle Repair Clinics, where participants can learn about maintenance and socializing while exchanging tips. Partners can include bike activists and nearby bicycle shops. (Resource: www.durhambikecoop.org)
- Bicycle Rodeos, which are safety clinics that include bike inspections and instruction on riding safely targeted to young cyclists through middle school age. Siler City has hosted a Bicycle Rodeo in the past, but has been discontinued. Many communities in North Carolina (including Jacksonville, Wilson, Marvin, for example) have hosted bicycle rodeos, so these communities can be resources in planning a future rodeo. Partners include local law enforcement and schools.



Figure 32: Bicycle Rodeo in Elizabeth City

Table 8. Education Program Recommendations

Program	Details	Potential Responsible Party
Safety Materials	Create or borrow safety materials for distribution to county residents and riders	Bike Pedestrian Advisory Board/ Chatham County Schools/ Chatham Sheriff's Office
Local Staff Training	Educate staff that will be part of implementation of plan	Bike Pedestrian Advisory Board/ Planning
School Training	Teaching children the safe, proper usage of bicycles	Chatham County Schools/ Chatham Sheriff's Office/ Siler City and Pittsboro Police Departments
Events	Events educate the public on safe riding promote safe bicycle riding. Events could include bike rodeos or bicycle safety clinics	Bike Pedestrian Advisory Board
Bike Safety Campaign	Coordinated outreach to educate public on best bicycling practices and awareness	Bike Pedestrian Advisory Board/ Chatham Sheriff's Office/ Siler City and Pittsboro Police Departments
Law Enforcement Training	Periodic training of law enforcement on the share the road laws to address common misconceptions	NCDOT Division of Bike and Pedestrian Transportation/ Chatham Sheriff's Office/ Siler City and Pittsboro Police Departments

All of these safety materials, training programs and events can be part of a broader **bicycle safety campaign**. Campaigns typically include coordinated outreach that increases the awareness around safety issues, including public service announcements (in English and Spanish), posters in high traffic areas and pamphlets. Messages in these campaigns should be consistently provided and convey information to improve bicycle safety. (Resource: www.bikesbelong.org/assets/documents/uploads/Bikes_Belong_Foundation_Safety_Campaign_Best_Practices_Report_reduced.pdf)

4.1.2 Encouragement

Establishing biking as an important recreational and commute mode in the county requires the initiation of encouragement activities. Many Chatham County residents might not be receptive to riding on the roads or in greenways unless given support through events and programs, including school encouragement, awareness days, bike tours/mass rides and an updated bicycle map.

Table 9. Encouragement Program Recommendations

Program	Details	Potential Responsible Party
School Encouragement	Programs that help encourage children to bicycle to school	Chatham County Schools
Awareness Days	Days, such as Bike to Work Day/Week, that spread awareness of the bicycle facilities and benefits of biking	Bike Pedestrian Advisory Board/ Planning
Bike Tours/ Mass Rides	Group bike rides can help encourage bikers that are hesitant to bike solo, and highlight attractions and the bicycle network	Pittsboro/Siler City Convention and Visitors Center/ Cycling groups such as Carolina Tarwheels
Updated Bicycle Map	Updated existing map that includes updated transportation (bike/road) network	NCDOT Division of Bike and Pedestrian Transportation/ Pittsboro/Siler City Convention and Visitors Center

There are a variety of **school encouragement** programs that parents and school administrators can use to encourage safe bicycling and walking to school. A prominent program, the Safe Routes to School Program, provides grant funding, resources and potential program examples.

Awareness days dedicated to specific themes, such as bicycling and active recreation, can be used to promote bicycling and related causes. Specific types of awareness days include:

- **Open Streets (or Ciclovias):** Cities around the world have temporarily closed their streets to automobile traffic on specific days, and used them instead for active recreation activities. Locally, Durham, with its inaugural Bull City Summer Streets in 2010, closed several streets downtown. The event drew over 1000 participants despite poor weather. (Resource: bullcitysummerstreets.tumblr.com)
- **Bike to Work Day/Month:** The League of American Bicyclists (LAB) sponsors May as Bike to Work month, with Bike to Work Day in the third week. LAB also provides ideas on events and programs that increase awareness of biking.
- **Strive not to Drive Days:** These are often annual events that encourage the public to not use single occupancy vehicles to get to work or activities, but instead explore the benefits of walking, bicycling, carpooling or using public transit. Partners could include TARPO, Triangle Transit and Chatham Transit. (Resource: sites.google.com/site/strivenottodrive)
- **Family Bike Days:** Supports the riding of bicycles of all family members to increase awareness of enjoyment of riding and safety concerns. (Resource: www.sfbike.org/?family_day)
- **International Walk and Bike to School Day:** Held on the first Wednesday in October, this event promotes using active transportation to attend school.
- **Commute Challenge:** Employers can promote the usage of alternative commute modes by encouraging employees to pledge to change commuting habits for a certain period, in exchange for chances at prizes or other incentives. At the end of the period, employers or other organizations can publish the results of the challenge and its impact on commuting and the environment. Go Triangle sponsors a yearly Smart Commute Challenge; in 2010, nearly 10,000 participated over a six week period. (Resource: www.smartcommutechallenge.org)

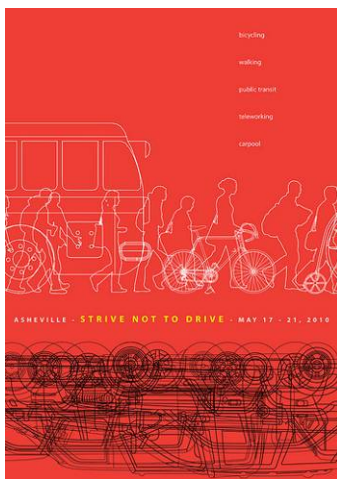


Figure 33: Asheville Strive Not to Drive Poster

Many riders might be more receptive to riding in a group as part of a **bike tour/mass ride**. Chatham County bike tours, potentially organized by the Pittsboro/Siler City Convention Bureau with support from local biking groups like the Carolina Tarwheels, could lead cyclists from Chatham County historic landmarks or to/from recreation areas. This could be combined to coincide with Bike Day or Bike Month. (Resource: Blue Ridge Breakaway in Haywood County: blueridgebreakaway.com)

Bicycle maps both educate the public on preferred bicycle routes and safety tips as well as encourage the public to try these routes. Chatham County’s bike map was developed over ten years ago and is currently being reprinted. Other local examples, such as from Randolph County, can be used for ideas in updating the county’s map.

Bicycling Randolph County

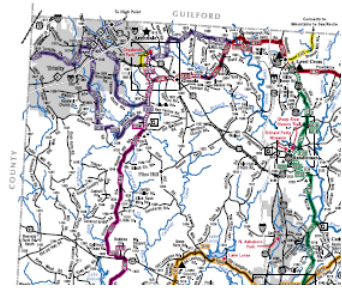


Figure 34: Randolph County Bicycle Map

4.1.3 Enforcement

Enforcement programs address unlawful behavior from road users and other residents that impact the bicycle environment, including driving, bicycling and leash laws.

Table 10. Enforcement Program Recommendations

Program	Details	Potential Responsible Party
Driving Laws	Target unsafe share the road practices (passing too closely, tailgating) especially in zones with high numbers of bike traffic and crashes	Chatham Sheriff’s Office/ Siler City and Pittsboro Police Departments
Bicycling Laws	Target the most unsafe bicycling behaviors (wrong way riding, biking without lights)	Chatham Sheriff’s Office/ Siler City and Pittsboro Police Departments
Leash Laws	Cite owners who do not leash potentially dangerous animals; educate residents regarding existing leash laws	Chatham Sheriff’s Office/ Siler City and Pittsboro Police Departments

Many survey responses cited unsafe **driving**, including tailgating, passing at unsafe distances, general speeding and harassment, as an impediment to bicycling safely in the county. Law enforcement should increase enforcement of these unsafe, illegal practices by giving out citations or warnings, especially on roads more commonly traveled by bicyclists or with a history of crashes.

According to **bicycling laws** in North Carolina, bicyclists must follow all pertinent traffic laws. Bicyclists who ride against traffic and signals and violate other laws endanger themselves, other bikers and motorists, while also tarnishing the public image of bicyclists. Unfortunately, according to the survey, law enforcement personnel sometime reprimand law abiding cyclists. Law enforcement personnel should be continually trained on the rights and responsibilities of both bicyclists and motorists; this training can focus on commonly misunderstood biking laws. For instance, survey respondents indicated that law enforcement sometimes think that cyclists are required to ride as far right as possible and in a single line, both of which are not true.

Increased enforcement of local **leash laws** may reduce instances where bicyclists are harassed or even injured by loose pets. Many bicyclists indicated this as a problem on Chatham County roads, causing some riders to modify their routes or even decrease their riding. Leaflets regarding leash laws can be provided at places like pet shops or veterinary offices to educate owners of their leashing responsibilities.

NC Bicycle Laws (NCDOT 2008)

In North Carolina, the bicycle has the legal status of a vehicle. This means that bicyclists have full rights and responsibilities on the roadway and are subject to the regulations governing the operation of a motor vehicle. North Carolina traffic laws require bicyclists to:

- Ride on the right in the same direction as other traffic
- Obey all traffic signs and signals
- Use hand signals to communicate intended movements
- Equip their bicycles with a front lamp visible from 300 feet and a rear reflector that is visible from a distance of 200 feet when riding at night
- Wear a bicycle helmet on public roads, public paths and public rights-of-way if the bicyclist is under 16 years old

(Source: NCDOT, www.ncdot.gov/bikeped/lawspolicies/laws)

4.2 Policy Recommendations

Policies and codes at the local level have an impact on the bicycling climate. The changes recommended in this section address future development and roadway design; they can be implemented as part of routine code updates or in major updates. The tables on the pages that follow summarize the recommended changes for Chatham County, Siler City and Pittsboro.

Table 11. Chatham County Policy Recommendations

Document	Reference	Existing Text	Recommended Change
Compact Communities Ordinance	Section 10. Recreation and Open Space 10.2. Active Recreational Facilities	Any land proposed for dedication for active recreation shall be physically integrated into the design of the community and be easily and safely accessible by pedestrians.	ADD "...and bicyclists" as follows: ...by pedestrians and bicyclists.
Land Conservation and Development Plan	Transportation Section	N/A	Include references to the Bicycle Plan in future updates.
Subdivision Regulations	7.2. Rural Roads, B. Relation to Present, Proposed and Future Road System	N/A	Add: 6. The recommended bicycling facilities within the Chatham Bicycle Plan shall be provided upon development of land adjacent to them.

Table 12. Siler City Policy Recommendations

Document	Reference	Existing Text	Recommended Change
UDO	Article XIV. Streets and Sidewalks; § 193 Street Classification	N/A	ADD: (a)(4) Regardless of Street classification, every street should be designed to accommodate all road users, including vehicles, bicycles and pedestrians.
UDO	Article XIV. Streets and Sidewalks; § 196 Entrances to Streets (a)(1)	Vehicles can enter and exit from the lot in question without posing any substantial danger to themselves, pedestrians, or vehicles traveling in abutting streets...	ADD "bicyclists" as follows: ...pedestrians, bicyclists , or vehicles...
UDO	Article XIV. Streets and Sidewalks; § 199 Street Width, Sidewalk, and Drainage Requirements in Subdivisions (a)	Street rights-of-way are designed and developed to serve several functions: (i) to carry motor vehicle traffic, and in some cases, allow on-street parking...	ADD "and bicycle" as follows: ...to carry motor vehicle and bicycle traffic...
UDO	Article XIV. Streets and Sidewalks; § 204 Road and Sidewalk Requirements in Unsubdivided Developments (a)	(a) Within unsubdivided developments, all private roads and access ways shall be designed and constructed to facilitate the safe and convenient movement of motor vehicle and pedestrian traffic.	ADD "bicycle" as follows: ...motor vehicle, bicycle and pedestrian traffic.

Table 13. Pittsboro Policy Recommendations

Document	Reference	Existing Text	Recommended Change
Zoning Ordinance	Article XV. Regulation of Development within Major Transportation Corridors	N/A	All new development within the Major Transportation Corridor district shall include the bicycling facilities indicated on the Recommended Network Map in Chapter 4 of the Chatham County Bicycle Plan.

Note: In addition to these changes, the Pittsboro Master Pedestrian Plan includes many proposed revisions to the Pittsboro Zoning Ordinance and Subdivision Regulations that address bicycling and greenways as well as pedestrian features.

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Chapter 5: Implementation

This chapter describes how Chatham County and its municipalities can make the recommended network, programs and policy changes a reality. It includes specific **Implementation Steps**, described in as much detail as practical, and **Potential Funding Sources** to complete the plan.

Chapter Contents

5.1 Implementation Steps

5.2 Potential Funding Sources

5.1 Implementation Steps

Implementation of the Plan requires the coordination of a multitude of agencies and groups such as the Board of County Commissioners, NCDOT and the municipalities. The Transportation Advisory Board can serve as a coordinating party for these agencies. Steps to implement the Plan include:

1. Establish a citizen advisory committee to lead bicycling and pedestrian efforts and ensure that the Plan is implemented.
2. Institute a coordination policy with NCDOT to ensure that roadway projects include bicycle facilities, when appropriate.
3. Fund, design and construct the recommended projects.
4. Make the recommended policy changes.
5. Implement the recommended education, encouragement and enforcement programs.
6. Coordinate this Plan with other plans, including the upcoming Comprehensive Transportation Plan.
7. Update the countywide bicycle map to include new facilities and information about encouragement and education programs.
8. Apply to become a Bike Friendly Community.
9. Maintain the on and off road bicycle facilities.
10. Evaluate and monitor implementation of the Plan.

These steps are further described on the pages that follow and in the tables on pages 46 and 47, which detail specific tasks, leads and support, time horizons and page references to the strategy in the Plan.

5.1.1 Establish a Citizen Advisory Committee

Implementation of the Bike Plan should be spearheaded by a newly formed Bike and Pedestrian Subcommittee (BPS) within Chatham County's Transportation Advisory Board (TAB). The BPS will coordinate

and help implement the action steps of this Plan and will improve the TAB's ability to advise the Board of County Commissioners on matters related to biking and walking. The BPS should focus on both bicycle and pedestrian transportation as many of the improvements and programs are complementary.

The TAB's bylaws allow for non-TAB members to serve on subcommittees. The BPS should include representatives from the TAB, the Recreation Advisory Board and Active Chatham, as well as any pertinent municipal groups such as the Pittsboro Parks and Recreation Board. In addition to representatives from these groups, bicyclists and pedestrians from around the county should also be encouraged to join.

5.1.2 Coordinate with NCDOT

The County and each municipality should develop processes and policies that improve communication and coordination with NCDOT regarding road projects. Since NCDOT has ownership of most of the roads in the county, most of the projects detailed in this plan will require NCDOT approval and oversight. County and municipal staff and bicycle advocates should be involved in the early stages of any design and maintenance processes to ensure that road projects contribute to an improved bicycling environment in the county. For instance, Orange County currently works with NCDOT on all resurfacing projects to identify opportunities to add two foot shoulders to existing roadways. There may also be opportunities to reallocate road space as part of restriping after a resurfacing project.

5.1.3 Construct the Recommended Projects

Over the next few years, county and municipal staff, in consultation with the BPS, DCHC MPO, TARPO and NCDOT, should actively pursue the funding and construction of the recommended short-term projects. The recommended long-term projects should also be programmed as opportunities arise.

5.1.4 Make Policy Changes

County and municipal staff should pursue the recommended policy changes as soon as practical to ensure new development contributes to an improved bicycling environment.

Recommended Short-Term Projects

Love's Creek Greenway
2.0 miles

US 15-501 Bike Lanes
1.1 miles

Hillsboro St Bike Lanes
0.4 miles

Shared Roads
88.1 miles

Car Parking for the ATT
2 locations

Bike Actuated Signals
4 locations

Intersection Signage
3 locations

5.1.5 Implement Programs

The BPS should actively seek opportunities to implement the recommended programs and work with the appropriate partners to secure funding and resources.

5.1.6 Coordinate with Other Plans

Both local and other regional transportation and land use planning should be coordinated and not conflict with this plan. Of particular note, this Bicycle Plan is intended to be part of Chatham County's Comprehensive Transportation Plan (CTP), which is in the beginning stages and is slated for completion in the year or two.

Regional cooperation is also a key for successful implementation of this Plan. Many of the proposed routes go to the county border, some of which connect with proposed or existing routes. As seen in the survey respondent profile, many out-of-county bicyclists ride in the county. As counties and municipalities build out their bicycle network or update their bicycle plans, Chatham County should be kept informed about projects that might impact the county.

5.1.7 Update the Bicycle Map

Chatham County's bike map was developed over ten years ago and is currently being reprinted. It should be updated to include the American Tobacco Trail (with parking locations noted), new Chatham County parks and an updated road network, and should be periodically updated to include the new recommended facilities as they are constructed.

5.1.8 Become a Bike Friendly Community

The League of American Bicyclists (LAB) has established a Bicycle Friendly Community (BFC) program recognizing communities that actively support bicycling. Meeting many of this Plan's goals would also meet many of the criteria for the BFC program, including a well-connected bicycle network and education, enforcement and encouragement programs, as well as the existence of an adopted plan and advisory committee. Recognizing that there are different levels of support, LAB has instituted three separate rankings – Gold, Silver and Bronze. In North Carolina, the municipalities of Carrboro (Silver), Chapel Hill, Cary, Charlotte, Davidson, and Durham (Bronze) have all received the BFC designation. Though nearly all the communities in the program are municipalities, there are some counties included as well. Communities of all sizes, even with populations less than 10,000, have

been accepted into the program. Chatham County or municipalities may not be able to apply for the program in the short-term, but achieving a designation can be a realistic mid-term goal after the implementation of the programs and a portion of the bicycle network.

5.1.9 Maintain Facilities

Maintaining high quality facilities is as important as building them. Maintenance strategies should be integrated into existing on and off-street maintenance programs. If roads are swept periodically, maintenance crews should ensure that the roads are swept to the curb or edge of shoulder, an area often neglected in street cleaning, but often used by cyclists. Additionally, the BPS can work with local groups, such as bicycle advocates or trail groups, to create “adopt a bikeway” programs that clean up litter and identify major issues with facilities.

5.1.10 Evaluate and Monitor

The County should establish performance measures to track progress toward meeting the objectives of the plan. The performance measures should be gathered with low-cost methods, preferably using already existing data sources. Within two years of adoption of the Plan, the county should provide a report that determines the performance measures, provides an *updated* baseline profile of current conditions of these performance measures and sets targets for future years to guide the Plan. Performance measures and evaluation techniques could include:

- Estimated ridership by manual counts
- Online surveys to measure changes in attitudes and preferences and bicycling conditions; build upon the survey conducted for this Plan
- Number of attendees of education and enforcement programs
- Bicycle mode share from existing sources, such as the Census Journey to Work data and Census Transportation Planning Package (CTPP)

These and other performance measures should be collected and disseminated annually or bi-annually if possible.

Table 14. Short-Term Implementation Tasks

Task	Lead Agency (Support)	Importance
Create Bicycle and Pedestrian Subcommittee (BPS) within Transportation Advisory Board (TAB)	TAB (<i>Recreation Advisory Board, Active Chatham, Pittsboro Parks and Recreation</i>)	Essential to have a dedicated group to implement the Plan and coordinate actions
Update Chatham County policies	Chatham County Commissioners (<i>BPS, Planning Department</i>)	Ensures that policies conducive to bicycling are implemented countywide
Update Siler City policies	Siler City Board of Commissioners (<i>BPS, Planning Department</i>)	Ensures that policies conducive to bicycling are implemented in Siler City
Update Pittsboro policies	Pittsboro Board of Commissioners (<i>BPS, Planning Department</i>)	Ensures that policies conducive to bicycling are implemented in Pittsboro
Identify and secure funding for recommended short-term projects	Transportation Planner (<i>NCDOT</i>)	Ensures that short-term projects are funded and completed
Complete recommended short-term projects	NCDOT, municipalities (<i>BPS</i>)	
Develop a long-term funding strategy	BPS (<i>Transportation Planner, NCDOT</i>)	Improves the success of the overall bicycle network by planning for the recommended long-term projects
Develop updated Chatham County Bike Map	Pittsboro-Siler City Convention and Visitor's Bureau (<i>BPS, NCDOT</i>)	Bicycle map needs to showcase bicycling for both residents and visitors
Introduce Safe Routes to School Program	Chatham County Schools (<i>BPS, NCDOT</i>)	This program is a proven way to increase physical activity among youths, bring awareness to cycling and walking and potentially bring more advocates for Plan implementation
Implement recommended education and encouragement events	BPS (<i>Chatham County Schools, CVB</i>)	Help market the benefits of biking, the proper ways to share roads with bicyclists and potentially bring more advocates for Plan implementation
Plan and apply for designation by the League of American Bicyclists as a 'Bicycle Friendly Community' by 2020	BPS (<i>Municipalities, NCDOT, Transportation Planner</i>)	Provides a goal for Plan implementation and an opportunity for the county to showcase and market its bicycling environment

Table 15. Long-Term Implementation Tasks

Task	Lead Agency (Support)	Importance
Identify and secure funding for recommended long-term projects	Transportation Planner (NCDOT)	Ensures that long-term projects are funded and completed
Complete recommended long-term projects	NCDOT, municipalities (BPS)	

Table 16. Ongoing Implementation Tasks

Task	Lead Agency (Support)	Importance
Coordinate with NCDOT Division 8 regarding projects on state maintained roadways	NCDOT (Transportation Planner, BPS)	Ensure that roadway projects contribute to an improved bicycling environment
Coordinate with other local plans, including the upcoming Comprehensive Transportation Plan (CTP)	Transportation Planner, NCDOT (BPS)	Ensure that all plans are in pursuit of the same goals and projects
Continually support and evaluate implementation of this Plan	BPS (NCDOT)	Ensure that the plan meets changing county conditions
Coordinate with other regional planning efforts	BPS (DCHC MPO, TARPO, Town of Cary, Town of Chapel Hill, Town of Carrboro)	Many riders live outside of the county; ensure that these regional connections are phased and communicated to the public
Implement law enforcement training regarding sharing the road laws	Chatham County Sheriff's Department (BPS)	Ensure safety of all road users
Maintain bicycle facilities	NCDOT, Siler City, Pittsboro (BPS, Triangle Rails to Trails)	Routine, adequate maintenance is just as important as constructing new facilities

5.2 Funding Sources

Various funding sources are available to Chatham County and its municipalities to help construct facilities, perform planning activities and support new programs. Some of the programs described in this section are directed for general road construction and maintenance, activities which can still improve bicycle transportation.

North Carolina Division of Parks and Recreation Programs

The North Carolina Division of Parks and Recreation manages three grant programs. The Adopt-A-Trail (AAT) Grant Program funds projects related to the promotion, construction or renovation of trails or trail-side facilities, providing up to 100% of projects costs with a maximum project cost of \$5,000. The Recreational Trails Program (RTP) funds projects related to the construction or renovation of trails or trail-side

facilities, providing up to 75% of project costs with a maximum project cost of \$75,000. The Parks and Recreation Trust Fund (PARTF) provides dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the public, with a maximum project cost of \$500,000. (www.ncparks.gov/about/grants/trails_main.php)

Congestion Mitigation & Air Quality (CMAQ) Program

This competitive program funds transportation projects and programs in air quality nonattainment and maintenance areas to help achieve and maintain national standards for air quality pollutants. Bicycle projects are eligible as long as they are not exclusively used for recreational purposes. The program currently has a minimum project cost of \$100,000 and will fund up to 80% of the project cost. Projects in Chatham County must be located in Baldwin, Center, New Hope or Williams Townships.

(www.ncdot.org/doh/preconstruct/tpb/services/air.html)

Transportation, Community and System Preservation (TCSP) Program

This comprehensive initiative of research and grants investigates the relationships between transportation, community and system preservation plans and practices and identifies private sector-based initiatives to improve such relationships. States, metropolitan planning organizations, local governments and tribal governments are eligible for discretionary grants to carry out eligible projects to integrate transportation, community and system preservation plans and practices that improve the efficiency of the transportation system; reduce environmental impacts of transportation; reduce the need for costly future public infrastructure investments; ensure efficient access to jobs, services, and centers of trade; and, examine community development patterns and identify strategies to encourage private sector development patterns and investments that support these goals.

(www.fhwa.dot.gov/tcsp)

Safe Routes to School

The Safe Routes to School program is a federally funded initiative, administered by NCDOT, to increase rates of walking and biking to school. NCDOT provides reimbursement grants for both infrastructure and non-infrastructure projects. Infrastructure projects must be within two miles of an elementary or middle school and will encourage and enable children to walk or bike to school. Non-infrastructure projects (such as the education and encouragement programs described in Chapter 4) must support increased walking or biking to school. Any

county agency, school board and non-profit organization is encouraged to apply. For more information, contact NCDOT's Division of Bicycle and Pedestrian Transportation at (919) 807-0774.

Transportation Improvement Program

NCDOT's Division of Pedestrian and Bicycle Transportation manages selection and approval for bicycle-specific TIP projects. These "independent" projects are handled and funded separately from "incidental" projects that are included (i.e. bike lanes, bicycle safe drainage grates) in roadway new construction or enhancements.

Secondary Road Improvement Program

This program funds the improvement and maintenance of secondary roads, selected and prioritized in accordance with statewide criteria developed by NCDOT. Funds are allocated to each County annually from the Highway Fund and from the Highway Trust Fund.

High Hazard Elimination Program

This federally funded safety program provides funds to improve facilities with high crash rates. Projects are rated based on projected benefits in reducing crashes as compared to the costs of the project. The Safety Oversight Committee selects and approves projects before final approval by the NC Board of Transportation.

Bicycle and Pedestrian Planning Grant Initiative

This annual matching grant program, administered by the DBPT, funds local comprehensive plans for walking and/or biking. Municipalities are reimbursed for planning activities included in creation of the plans and are limited to 18 months for plan completion. As only municipalities are eligible for the program, this would only apply if Siler City and Pittsboro would be interested in creating municipal specific plans.

Transportation Enhancement Program

This federal program, administered by NCDOT's Program Development Branch, funds surface transportation and related projects that benefit the traveling public and help communities increase transportation choices and access, enhance the built or natural environment and create a sense of place. The program has twelve qualifying activities and funds up to 80% of the project cost. Funding is allocated by county through an equity program. (www.ncdot.org/programs/enhancement)

TJCOG Transportation Demand Management Program

Triangle J Council of Governments (TJCOG), a voluntary council of

governments in the Triangle and surrounding region, coordinates funding for marketing activities that promote alternative commuting practices such as bicycling, using transit and carpooling. TJCOG provides funding through an annual competitive grant program to its local governments. (www.tjcog.dst.nc.us/regplan/transdemand.shtml)

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