

2018

Comprehensive



Bicycle & Pedestrian

Plan

Town of Carthage

NORTH CAROLINA



TABLE OF CONTENTS

	Acknowledgements	
	Executive Summary.....	I
SECTION 1	INTRODUCTION & OVERVIEW	
1.1	History.....	5
1.2	Overall Goals.....	7
1.3	Previous Planning Studies and Documents.....	7
1.4	Benefits of Planning for a Bikeable and Walkable Community.....	8
1.5	Scope, Methodology, and Purpose of Plan.....	10
SECTION 2	EVALUATING CURRENT CONDITIONS	
2.1	Overview.....	12
2.2	Local Transportation Network Assessment.....	14
2.3	Assessment of the Bike and Pedestrian Compatibility of the Local Transportation System.....	15
2.4	Inventory and Assessment of Existing Bike and Pedestrian Facilities.....	16
2.5	Community Concerns, Needs, and Priorities.....	18
2.6	Special Population Sectors.....	28
SECTION 3	EXISTING PLANS, PROGRAMS, AND POLICIES	
3.1	Local, Regional, and State Plans and Guidelines.....	31
3.2	Programs and Initiatives.....	33
3.3	Pedestrian and Bike Laws.....	35
SECTION 4	STRATEGIC BICYCLE AND PEDESTRIAN SYSTEM PLAN	
4.1	System Overview.....	38
4.2	Special Focus Areas.....	40
4.3	Potential Projects and Infrastructure Improvements.....	42
	Bicycle Facility Project Examples.....	54
	Shared Use Path Project Examples.....	59
	Sidewalk Facility Project Examples.....	62
SECTION 5	PROGRAM AND POLICY RECOMMENDATIONS	
5.1	Ancillary Facilities and Programs.....	66
5.2	Policy Recommendations.....	72
5.3	Facility Recommendations and Action Items.....	73
5.4	Program Recommendations.....	77
5.5	Funding.....	82

APPENDICES

APPENDIX A

Health Impact Analysis (**HIA**)

APPENDIX B

Community Survey Documents

APPENDIX C

Existing Conditions Maps and Analysis

APPENDIX D

Project Maps & Tables

APPENDIX E

Action Plan Checklist

APPENDIX F

Opinion of Probable Costs for Courthouse Square Pedestrian Improvements

ACKNOWLEDGEMENTS

Thanks to the more than 368 local residents, community leaders, and government staff that participated in the development of this plan through meetings, events, comment forms, and plan review. Special thanks to those who participated as steering committee members, listed below.

PROJECT STEERING COMMITTEE

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

TOWN OF CARTHAGE

Kathy Liles
Chris Lassiter
George Wilson
Dorie Dutton
Rich Tompkins
Tom Robinson
Kevin Kimball
Ken Howell
Chad Beane
Debbie Gordon
Robert Gordon
Roger Leeson
Michael Taylor

TRIANGLE J COG

Matt Day

NCDOT

Betsy Kane
Bryan Lopez
Dagoberto JaurezPazos
Michael Ricketts
Travis Morgan

MCGILL ASSOCIATES

Greg Lambert
Jim Ford
David White
Kurtis Durrant



Prepared for the Town of Carthage, North Carolina

Project Contact: Katherine Liles, Planning Director, Town of Carthage
4396 Hwy 15-501 (Town Hall), Carthage, NC 28327 | Phone (910) 947-2331 | www.townofcarthage.org

This project was made possible with a matching grant from the North Carolina Department of Transportation (NCDOT) Division of Bicycle and Pedestrian Transportation (DBPT).

Prepared by McGill Associates, 1915 Evans Road, Cary, NC 27513 Web: www.mcgillengineers.com

EXECUTIVE SUMMARY *for the* CARTHAGE BICYCLE & PEDESTRIAN PLAN

BACKGROUND:

The Town of Carthage, North Carolina, is committed to providing its citizens with a safe community in which to live, work, and play. Part of this commitment includes the future improvement and/or construction of bicycle and pedestrian-friendly transportation corridors throughout the Town. Consequently, The Town of Carthage hired McGill Associates to develop a Comprehensive Bicycle and Pedestrian Master Plan, which would assist the Town in its efforts. A portion of the funding for the plan was derived from a grant, which was received from the North Carolina Department of Transportation (NCDOT), Division of Bicycle and Pedestrian Transportation (DBPT).

On February 28th, 2017, McGill Associates met with members of the Bicycle and Pedestrian Plan Steering Committee to define their vision for the proposed Carthage bicycle and pedestrian network. After a brief introduction, the Steering Committee participated in an exercise designed to elicit their perceptions of the needs and desires for a bicycle and pedestrian system in the Town.

“Carthage Bike and Pedestrian plan will provide safe walking and biking in and around the Town to promote the health, vitality, and enjoyment of the community and provide opportunities for healthy living that will attract new growth and business to our communities.”

Vision Statement

PLANNING PROCESS:

The planning process consisted of ongoing public engagement, steering committee meetings, and development of a draft network. Residents were encouraged to provide input through a public survey where they identified major opportunities and constraints for walking and biking in Carthage. Survey results indicated that top locations in need of improvements were the downtown area along Monroe, providing connections to schools, and other local destinations. Throughout the planning process, the Steering Committee provided input on existing conditions, proposed projects, and implementation of the bicycle and pedestrian network.

KEY FINDINGS:

Existing conditions are examined in Section 2. Some findings that support the need for this Plan include:

- A lack of dedicated space for bicyclist and pedestrians along many streets in Carthage.

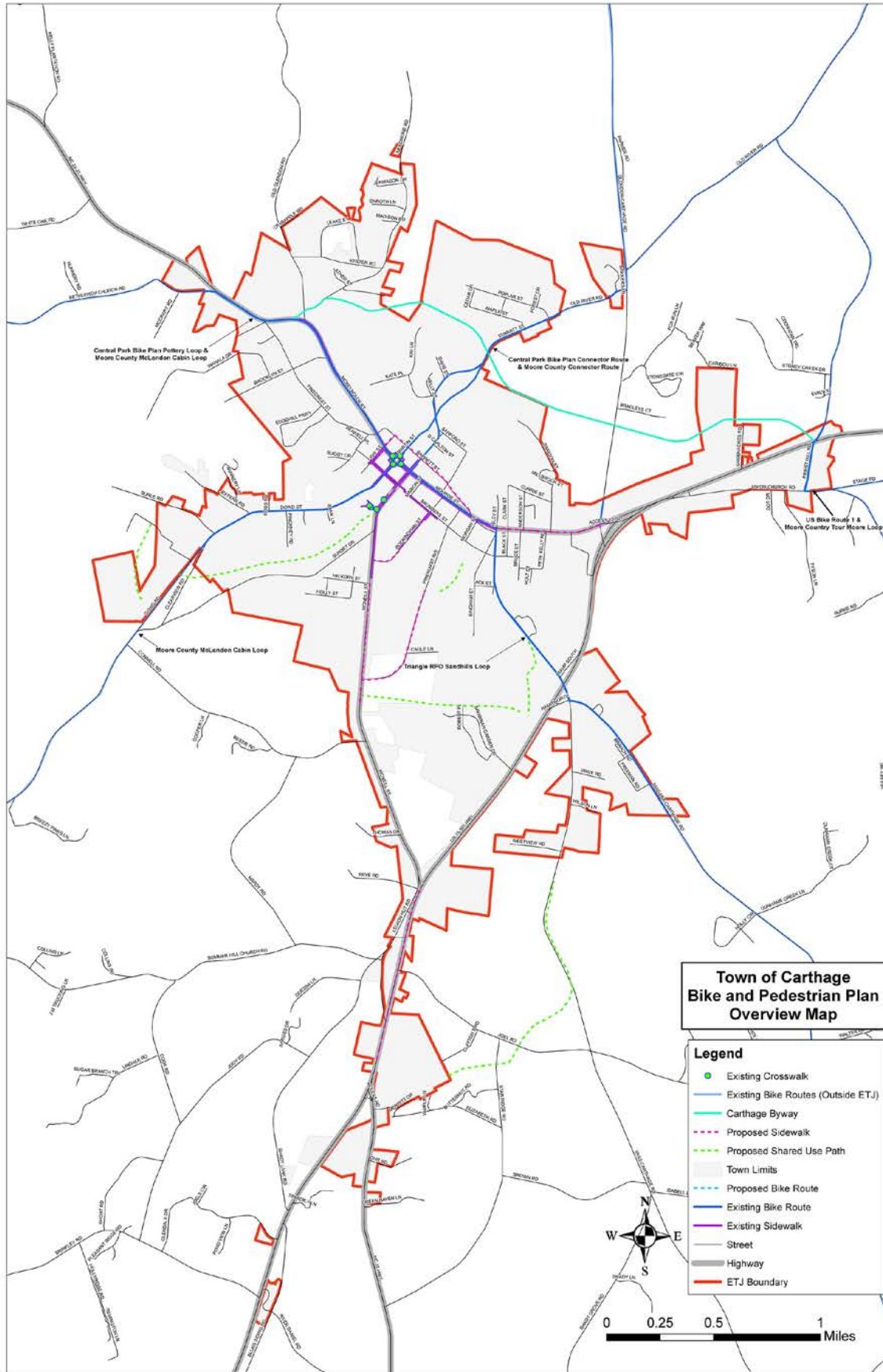
- A desire among residents to see walking and biking connections between the north and south sides of town.
- Opportunities for connecting key town destinations in a relatively short distance from downtown.
- Proper installation of features such as drainage grate slots perpendicular to travel lanes.

INFRASTRUCTURE RECOMMENDATIONS:

A number of projects were identified through the planning process and are highlighted in Section 4. Rather than recommending an extensive network of infrastructure, the Steering Committee and project consultant determined that a better approach for the Town was to break priority projects into three groups: Bicycle, Shared Use Paths (Greenways), and Sidewalks. Each of these groups connected to major points of interest and then could be broken into either short-term or long-term goals. These points of interest and project designations are supported by feedback through public comments and Steering Committee confirmation. Individual projects are described in greater detail in Section 4 but a few of the top projects are:

- Greentree Shared Use Path – Connection from Greentree Apartments to the Health Department (*Greenway Project*)
- Downtown Missing Sidewalks along Monroe Street (*Sidewalk Project*)
- Paved Shoulder from Barrett Street to Glendon Carthage Road (*Bicycle Project*)
- Spot Improvements Projects:
 - Correcting Current Bicycle Maps and Plans
 - Updating Ordinances to Support Bicycle and Pedestrian Facilities.
 - Producing Various Maps Showing Where People Can Walk and Bike in Town like the “*Carthage Mural Walking Trail*”
 - Installing Informational Kiosks in Downtown

See overview map of network projects on next page.



NEXT STEPS:

Outlined in Section 5 are nearly 36 specific action steps for implementation and options for potential funding sources for the plan. It is recommended by this plan that multiple funding sources be pursued simultaneously, and that the Town consider setting aside Capital Improvement Plan (CIP) funding to use as a match to outside funding as the plan is implemented over time.

- END OF SECTION -

SECTION ONE:

INTRODUCTION & OVERVIEW

I.1 HISTORY

The History of The Town of Carthage

The Town of Carthage is situated in what is often referred to as the Sandhills of North Carolina. The Sandhills consist of a strip of ancient beach dunes in the interior of North and South Carolina (evidenced by a former coastline when the ocean level was higher, or the land was lower) and divides the “piedmont” and the “coastal plain”. Approximately 54 miles southwest of Raleigh (Interstate 95), the state capitol, Carthage is 75 miles east of the Charlotte metro area (Interstates 77 and 85). The Town spans approximately 14.9 square miles, having 14.3 square miles of land and 0.6 square miles of water. Major thoroughfares to The Town of Carthage include NC Highway 24/27, NC Highway 22, and U.S. Highway 15-501.

The Town of Carthage is locally recognized as an outstanding residential community. The Town of Carthage, North Carolina, is a municipality of Moore County.

Carthage is the oldest town in Moore County, NC. It was incorporated in 1796 and serves as the County seat. Activities in Carthage have always revolved around the courthouse and still do today with the fifth and current courthouse still in use since 1922. The town itself was not laid out until 1803. The National Historic District of Carthage is proud of its more than 50 buildings and residences of historical significance dating back to the pre-Civil War period. From the 1850's to the 1920's, the town's growth was due to its successful buggy industry. Alexander Kelly and Thomas Tyson founded the Tyson Jones Buggy Factory in 1855. This major industry remained the largest factory in Moore County into the 20th century producing the “Cadillac” of horse drawn carriages. At its peak in 1890, the factory turned out approximately 3,000 vehicles per year. The horse drawn buggy brought prosperity to Carthage, but the automobile spelled doom for the buggy industry. However, the annual Buggy Festival of Carthage honors the town's heritage of carriage makers and is a great family-friendly event.

Carthage is on a high commanding ridge, and the courthouse site marks the highest elevation in that part of the County.

Carthage Elementary School was projected to reach 100% capacity for the school year 2013-2014 but has actually surpassed that capacity and is now anticipated to reach 110% and 120% capacity for the 2018-2019 school year and again in 2023-2024 respectively.

Roads

North Carolina has long been known as the “Good Roads State”. The State has the largest state-maintained highway system and the second largest ferry system in the nation. As of 2009, the North Carolina Department of Transportation maintains 79,185 miles of roadway. Moore County

is uniquely located at the geographic center of the State, thus well positioned to utilize the State's extensive public highway system.

Road infrastructure is critical to the County's economy as roads connect the area to employment centers, hospitals, universities, tourist destinations, as well as distribution points such as deep water ports, and airports that move both goods and people. Roads also provide key evacuation routes for people seeking shelter from natural and man-made disasters. There are several major north/south and east/west highways that exist in or around Moore County that help connect the County to the above mentioned areas in the rest of the State and region.

In 2010, the North Carolina Department of Transportation's (NCDOT's) Transportation Planning Branch (TPB) in coordination with the Triangle Area Rural Planning Organization (TARPO) began working with the Moore County Transportation Committee to kick off a Moore County Comprehensive Transportation project. The project will analyze the transportation needs of the entire County through approximately 2040. Early in the project, key areas (US Highway I between Vass and Pinebluff; Highway 24/27 around the historic districts of Carthage and Cameron; a Western Connector of N.C. Highway 211 bypass around Pinehurst and its traffic circle; and a re-alignment of NC Highway 73 in West End) in the County were identified by NCDOT as its proposed priorities.

As of 2012, Moore County has seen the road infrastructure expand within the County related to road widening and new bridge projects. NC Highway 211 was widened from two-lanes to four-lanes to accommodate the increasing traffic from Pinehurst/Aberdeen area, through West End/Seven Lakes to NC Highway 220 (I-73/74). The highway serves the Seven Lakes Community and the Village of Pinehurst, as well as the major trucking commerce that enters the County. Several other projects are underway, but the focus will be on the future of US Highway I, U.S. 15-501, NC Highway 211 western connector, and the Carthage bypass.

These types of transportation projects will be a driving factor in future development. The coordination of land use and transportation planning should focus on the well-being of a community, assessing and evaluating how land use decisions effect the transportation system and if this increases feasible options for people to access opportunities, goods, services, and other resources that improve the quality of their lives. In turn, transportation planning should take into consideration what the existing and future transportation systems may have on land use development demand, choices, and patterns and vice versa, as well as their effects upon the quality of life and the character of Moore County, including its natural and cultural resources.

Highways

Moore County is located between two major north/south interstate systems. I-73/74 just to the west as well as I-95 to the east, however, neither run through the County itself. Moore County lays approximately equal distance from New York City, New York and Miami, Florida along US Highway I which runs from the County line just north of the Town of Cameron, to the County line just south of the Town of Pinebluff. US Highway I is a multi-lane, limited access highway in Moore County from just south of Vass, to the Lee County line. This highway is Moore County's main connection to the City of Raleigh, the State Capitol and the Raleigh-Durham International Airport (RDU) located between the cities of Raleigh and Durham along I-40. Travel times to and from Moore County to RDU improved with the opening (in December 2012) of the I-540

extension that connects US Highway 1 directly to the airport via a limited access interstate highway loop.

Another north/south highway in Moore County is U.S. 15-501 that primarily connects Carthage to Aberdeen via the Pinehurst traffic circle where N.C. Highways 2 (Midland Road), Highway 211, and Highway 2; linking the Pinehurst Village business and historic district with the traffic circle.

According to NCDOT Scenic Byway routes are “carefully selected to embody the diverse beauty and culture of the Tar Heel State and provide travelers with a safe and interesting alternate route”. North Carolina Highway 24/27, west of Carthage (Sandhills Scenic Drive) and North Carolina Highway 705 (Pottery Road) were recently named Scenic Byways by the NCDOT. Highway 73 is currently under study for potential Scenic Byway designation.

I.2 OVERALL GOALS

Carthage’s current bicycling and walking network is fragmented, as direct bicyclist and pedestrian connections to key destinations do not yet exist. Bicycle and pedestrian planning will be critical to the enhancement of the overall quality of life.

Through this plan, the Town of Carthage aims to:

- Improve bicyclist and pedestrian safety;
- Improve accessibility and connectivity to community destinations;
- Stimulate economic development;
- Create opportunities for active and healthy lifestyles;
- Enhance the environment and overall quality of life.

I.3 PREVIOUS PLANNING STUDIES AND DOCUMENTS

Current planning studies include several on-going efforts by State and local entities, which were taken into consideration as the Comprehensive Bicycle and Pedestrian Plan for The Town of Carthage has evolved. They are discussed in Section 3 and include, but are not limited to, the Town of Carthage Land Use Plan and updated Triangle Area Rural Planning Plan and the Organization Bicycle and Pedestrian Plan.

Past and Current Municipal Efforts

Carthage Development Ordinance

The Carthage Development Ordinance (CDO) establishes various rules and regulations associated with development within the Town, including requirements for sidewalks. The current ordinance requires 5’ concrete sidewalks on one side of all public streets.

Carthage Mural Project

The first of twenty proposed murals celebrating the 238-year-old town’s history was unveiled in September (2014) as part of the Carthage Mural Project, a sub-committee of the Carthage

Century Committee. The 89-foot-wide by 17-foot-high mural commemorates the Town's connection to the Tyson and Jones Buggy Co, which existed in Carthage from 1850 until 1929. The town hosts a Buggy Festival each year to celebrate the former Carthage business. Although town beautification is a favorable side effect of the downtown murals, the Carthage Mural Project Committee is clear on the overall goal of the project. "This is economic development," said Mark Fry, Carthage Mural Project Chairman. "Maybe not traditional economic development, but the goal is to bring people into the town."

I.4 BENEFITS OF PLANNING FOR A BIKEABLE AND WALKABLE COMMUNITY

Community Health (Appendix A "Health Impact Analysis")

There are numerous benefits to be gained by biking and walking - the most prevalent being the acquisition of healthier lifestyles. Unhealthy eating habits, which are primarily due to the increased consumption of fast food, continue to contribute to rising obesity rates in Americans of all ages. Walking is a preventive measure for heart disease, cancer, diabetes, and mental health diseases. 'Walkable communities' encourage people to walk - whether consciously or subconsciously, thereby, increasing physical activity and decreasing television or computer time (which promulgate sedentary lifestyles).

By providing accessible, inviting pedestrian facilities, The Town of Carthage can provide equal opportunities for everyone to improve health and prevent disease through routine or planned walking exercise(s). This, in turn, saves governments and local employers the money in health care costs and the lost productivity due to sick days that would otherwise have occurred.

Studies show that walking increases:

- Energy, stamina, and metabolism
- Wellness, fitness, and psychological well-being
- The reduction of risk factors (such as high blood pressure, anxiety, obesity, etc.), which contribute to coronary artery disease, some cancers, and other chronic diseases
- HDL – the 'good' cholesterol
- Muscle development and bone density

Additional information regarding aspects of walking/biking and health can be found in **Appendix A** Health Impact Analysis (HIA).

Transportation Alternatives

Bicycling and walking also creates an alternative to vehicular transportation. Nationally, traffic congestion in urban areas is getting worse and the cost of owning/operating an automobile is rising astronomically. Bicycle and pedestrian facilities are necessary to provide a means whereby people may choose to bicycle or walk instead of drive; thus, reducing the number of vehicles on the road.

Bicycling and walking are a cost-effective means of transportation. There are no fees, taxes, or licenses required as compared to the average annual cost of operating an automobile - which can easily exceed \$5,000 per year. Economically speaking, bicycling or walking is by far the most affordable mode of transportation available to anyone.

For some segments of the population, walking is the *only* means of transportation available. Such a cross section of the community primarily includes people, whose incomes prohibit them from purchasing/maintaining automobiles, and senior citizens, who eventually become unable to drive. These members of our society rely heavily on walking in order to work, shop, exercise, and/or participate in other social activities.

Environmental Benefits

Bicycling and walking is not only the most affordable mode of transportation, it also has the least negative impact on the environment. Choosing to bicycle or walk to destinations as an alternative to using a vehicle will reduce air pollution. Improving air quality is a major concern across the United States. During the 1996 Olympics in Atlanta, Georgia, some Atlanta thoroughfares in the area were closed to vehicular traffic in order to relieve traffic congestion. During this period of time, the local, environmental air quality monitoring indicated a significant decrease in various air pollutants when compared to periods of normal traffic flow. It is a well-known statistic that air pollutants will increase in direct proportion to the increased vehicular miles that are traveled each year in this country.

Bicycling and walking, as opposed to driving vehicles, also positively impacts the availability and conservation of our natural resources. Reducing the consumption of petroleum (specifically in cars and asphalt) will be increasingly beneficial in the years to come. Although sensitive populations should *decrease* bicycling and walking during ozone-active days, an overall *increase* in the amount of bicycling and walking done on a regular basis could actually reduce mobile emissions/ozone. As more bicycling and walking occurs, lesser emissions are produced; thus, creating a cyclic phenomenon, which is naturally and environmentally friendly.

Some bicycle and pedestrian facilities (such as greenways or shared use paths) are often developed along rivers and streams. Often, these facilities create “buffers”, which separate drainage areas from new development; thereby improving the water quality for watersheds. As an added benefit, greenways help provide connectivity for wildlife habitats and natural ecosystems.

Safety

The bicycling and walking community needs to be safe and comfortable. Any area, which seems dangerous or has obstacles, discourages people from bicycling and walking; and consequently, the would-be bicyclists and walkers resort to other methods of transportation. Bicycle and pedestrian routes need to be designed to minimize vehicular conflict by providing pathways, which are safe and free of hazards. Safety is a *major* component in all phases of this Comprehensive Bicycle and Pedestrian Plan.

Community Identity

Bicycle and pedestrian facilities are an important medium for maintaining and enhancing the public and social interaction of a community. The bicycle and pedestrian experience should be aesthetically inviting and elicit feelings of pleasure and comfort. Open spaces, parks, the downtown area, convenient retail, and other similar destinations - all enhance the bicycle and pedestrian environment. In addition, the ideal bicycle and pedestrian environment should possess amenities such as landscaping, benches, specialty paving, safety, and other elements that create a safe environment that bicyclists and pedestrians enjoy. The restoration or construction of new sidewalks should be an important aspect in The Town of Carthage - as sidewalks often serve as catalysts for walking, outdoor dining, window shopping, sitting areas (benches) for social interaction, business engagements, and tourism.

I.5 SCOPE, METHODOLOGY, AND PURPOSE OF PLAN

McGill Associates, P.A., was contracted by The Town of Carthage to prepare a Town-wide bicycle and pedestrian plan as a guide for identifying and prioritizing safe bicycle and pedestrian linkages; thereby, creating a viable bicycle and pedestrian network. Many areas within the Town limits lack sufficient bicycle and pedestrian facilities. The Town recognizes the need to plan for the future by developing a bicycle and pedestrian network, which provides connectivity for its users. Using a proactive approach (such as this) is imperative in establishing priorities for future bicycle and pedestrian facilities, reducing construction costs, and implementing facilities in a logical manner.

The study area spans the Carthage Town limits and the immediate, surrounding extraterritorial jurisdiction (ETJ). Although the research will be focused primarily within the Town limits, it is important to understand the existing bicycle and pedestrian patterns into and out of Carthage and their destination points.

In order to comprehend the existing conditions, identify user needs, and be able to recommend appropriate improvements in the bicycle and pedestrian plan, the following processes were used:

- 1. Inventory of the existing bicycle and pedestrian system:** A biking shared use path, and sidewalk inventory of the Town's facilities was conducted - identifying existing safety issues.
- 2. Assessment of the needs of the bicyclist and pedestrian:** The needs of bicyclists and pedestrians and their apparent lack of connectivity to destination points were identified and evaluated through data collected via public meetings, surveys, and direction provided by Town Staff and the Project Steering Committee.
- 3. Formulation of objectives and recommendations:** Guidelines for the future development of facilities, repair of existing facilities, and maintenance were created. Probable costs for all recommendations were provided.

- 4. Implementation of improvements by action-oriented method:** Key bicycle and pedestrian linkages and sidewalk needs were identified and prioritized. Possible funding sources for the Town to pursue were identified.
- 5. Examination and possible revision of current policies/programs:** Guidelines and implementation of current policies and existing bicycle and pedestrian programs were identified and addressed.

These components (above) provide justification for the proposed improvements. Also, any time that recommendations for improvements or new construction are made, these recommendations must be prioritized. Implementing all of the proposed improvements at one time – or in a short time frame - would be overwhelming; it is important that the most immediate needs be recognized first as the implementation of capital improvements begins.

Bicycle and pedestrian facility-related needs – which are considered to be of the highest priority – are called “critical” needs. The critical facility needs for the Town are all focused on improving safety conditions for bicyclists and pedestrians. In addition to sidewalk improvements, other emphasis should be placed on immediately addressing unmarked crosswalks and inappropriate signage. The ‘safety of pedestrians’ is critical; it is the most important component of the bicycle and pedestrian facilities.

Bicycle and pedestrian facilities are the primary focus of this plan - in particular, sidewalks (located on Town streets and state roads) and pedestrian safety at intersection and crosswalks. In addition, off-street bicycle and pedestrian facilities such as shared use paths and multi-purpose trails are examined. Thus, the Town Bicycle and Pedestrian Plan delineates the (current and future) location, implementation, and maintenance of the proposed facility improvements; thereby, creating a bicycle and pedestrian network that allows for connectivity within the Town as well as with its neighboring communities.

The improvements recommended in this Bicycle and Pedestrian Plan are intended to be implemented over a period of time and will require creative funding mechanisms. Therefore, another significant short-term goal will be to identify improvement costs and funding opportunities, as well as prioritizing the improvements and projects.

- END OF SECTION -

SECTION TWO: EVALUATING CURRENT CONDITIONS

2.1 OVERVIEW

This Section inventories and evaluates the existing bicycle and pedestrian facility conditions in the Town of Carthage. To begin this process, information was gathered from a variety of sources, which included interviews, site analysis, a public questionnaire, community meetings, relevant planning documents, and direction from the Project Steering Committee and Town staff.

In general, a bicycle and pedestrian-friendly environment indicates a strong and actively-involved community. Improving the walkability between destinations within the Town of Carthage would serve – not only to support walking and biking as a safe and healthy alternative to driving – but would enhance the vitality of the entire community.

User Demographics/Current Usage

According to the United States Census bureau, the estimated population for the Town of Carthage in 2010 was 2,205 people. This gave the Town of Carthage a population density (at that time) of approximately 378.8 individuals per square mile as compared to the state average of 196.1. Census 2000 gauged the Town's population at 1,862. This means that the average growth rate between 2000 and 2010 was 18.42%. There are several reasons for the rapid increase in population – some being typical; and some, atypical:

The Federal Census, *2010 American Community Survey* gives a breakdown of the population of the Town of Carthage according to the following age groups:

Age Distribution of Population of the Town of Carthage

AGE	NO. RESIDENTS	PERCENTAGE
Under 5 years	118	5.4
5 to 9	151	6.8
10 to 14	162	7.3
15 to 19	125	5.7
20 to 24	89	4.0
25 to 29	121	5.5
30 to 34	144	6.5
35 to 39	120	5.4
40 to 44	135	6.1
45 to 49	149	6.8
50 to 54	127	5.8
55 to 59	121	5.5
60 to 64	157	7.1
65 to 69	105	4.8
70 to 74	99	4.5
75 to 79	89	4.0
80 to 84	79	3.6
85 yrs. and over	114	5.2

Source: U.S. Census Bureau, 2010 American Community Survey: General Profile of Characteristic at <http://factfinder.census.gov>

The “adolescent” population is the largest demographic for the Town, with children between the ages of 10 and 14 supplying 7.3% of the population, followed by senior population at 7.1%, 5 to 9 and 45 to 49 both having 6.8%.

Other important statistics that are revealed about Carthage include:

- The population density is approximately 378 people per square mile
- The daytime population change due to commuting is approximately + 3,792 (2017)
- 1.9% of the population report walking as the main way they get to work.
- 3.05% of the population report biking to work.
- 18.3% of the population lives in poverty
- There were 330 total reported crashes between 2013-2015, none were fatal.



***North, South Carolina
Sandhills Region***

Physical Characteristics

The Town of Carthage is located in the “sandhills” of North Carolina. The Sandhills is a region in the interior of the states of North Carolina and South Carolina. It is a strip of ancient beach dunes, which generally divides the Piedmont area from the Coastal Plains and is the evidence of a former coastline (when the ocean level was higher or the land, lower). These beach deposits were formed approximately twenty (20) million years ago during the Miocene Epoch. Typically, beach fossils/deposits can be found near the front edges of the Sandhills. The Coastal Plains are also “terraced” from other ocean levels; but, none have been as long-lasting so as to build dunes of the size in the Sandhills.



Because the soils in this area are predominantly porous and sandy, the Sandhills suffers from drought; therefore, irrigation is required for agriculture. Some areas are noted for peach production, primarily because peaches need a well-drained soil to prosper.

Prior to agricultural use, most of the Sandhills were forested with Longleaf Pine, Loblolly Pine, Turkey Oak, and Blackjack Oak. In areas of extreme drainage, the forests are quite scrubby in appearance. Additionally, the Longleaf Pine begins to dominate in an area such as this – where frequent lightning-induced fires are typical. The Sandhills region of North Carolina most notably refers to the area in and surrounding the municipalities

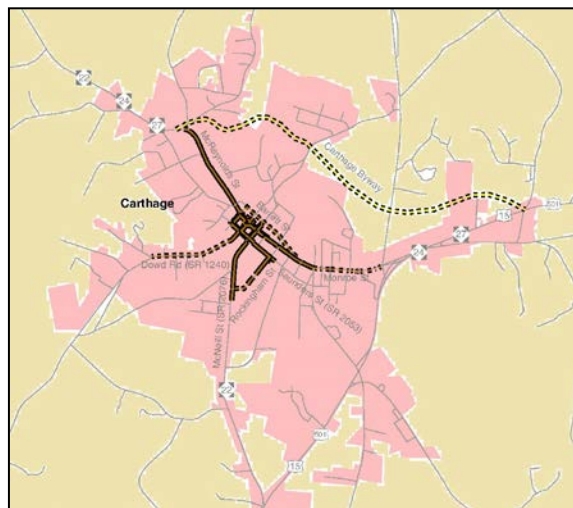
of Carthage, Southern Pines, and Aberdeen (in other words, Moore County). Sitting at an approximate elevation of only 561 feet, the Town of Carthage has a total area of 5.83 square miles. Two (2) local thoroughfares are the predominant venues for transportation – US 15-501 (traveling north/south) and NC 24-27 Hwy (traveling east/west). The Town of Carthage is located approximately 68 miles from the state’s capitol city, Raleigh; and the Moore County Airport is situated approximately eight (8) miles to the southeast. The area is home to eleven (11) churches and three (3) synagogues representing most religions and denominations.

2.2 LOCAL TRANSPORTATION NETWORK ASSESSMENT

MCTS (Moore County Transportation Services)

Moore County Transportation Services (MCTS) provides transportation services on an advanced reservation basis. Services for senior citizens, persons with disabilities, limited general public individuals, and human service agencies are provided on a county-wide basis. Limited out-of-county services are provided for specialized care (for example: a trip to a specialized medical provider in the Triangle region).

MCTS is primarily controlled by an advisory board. The purpose of the Transportation Advisory Board (TAB) is to assist the MCTS in accomplishing its stated goal to provide safe and efficient transportation to the citizens of Moore County and promote community support for and participation in the MCTS department.



The Town of Carthage is located in Moore County in the State of North Carolina.

Carthage Pedestrian Crash Data

When pedestrian paths cross vehicular pathways there is always the possibility of collision, injury, and/or death. The history of pedestrian/vehicular crashes in Carthage is that there have only been three (3) incidents between 2010 to 2014 and those have been on major roadways. The residential areas of Carthage do not have a history of accidents involving pedestrians but with the lack of existing pedestrian facilities available for jogging, running, walking or riding a bike; the likelihood these numbers will go up is increased.

Statewide Pedestrian Crash Data - Crash Location by City For Years 2010,2011,2012,2013,2014																
Crash Location by City	714	None - Rural Crash	Beulaville	Biscoe	Candor	Canton	Carolina Beach	Carrboro	Carthage	Pinehurst	Rockingham	Sanford	Siler City	Southern Pines	Spring Lake	Vass
Intersection	0	180	1	0	0	2	0	17	0	0	5	7	5	6	2	0
Intersection-Related	0	121	1	0	0	1	1	2	1	0	4	8	2	3	0	0
Non-Intersection	1	2,047	1	1	2	1	4	11	1	5	15	24	4	14	8	0
Non-Roadway	0	544	3	1	0	6	2	10	1	3	21	24	6	8	6	1
Unknown	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2,895	6	2	2	10	7	40	3	8	45	63	17	31	16	1

2.3 ASSESSMENT OF THE BIKE AND PEDESTRIAN COMPATIBILITY OF THE LOCAL TRANSPORTATION SYSTEM

Pedestrian System Access

The pedestrian system in the Town of Carthage consists of mainly formal sidewalks on busy thoroughfares. Most of the sidewalks were in good condition at the time of this study. There is a limited number of sidewalks in the downtown retail area to nearby residential areas but many of them are not fully ADA compliant. Accessibility concerns are related to the lack of curb ramps at all street crossings, sidewalk obstructions, condition of paving, and missing segments within the system.

Walking Trip Characteristics

Walking trips are typically broken down into two (2) main categories: walking for recreation and walking to reach a destination.

Many residential areas within the Town lack sidewalks. Pedestrian travel is often along the edge of or within a roadway. A number of comments from residents were of their frustration about having to use their car to drive to a separate location to access amenities.

Busy roadways pose a major barrier for pedestrians trying to walk from one point to another. According to NCDOT, the roadways with the highest Annual Average Daily Traffic counts (2016 AADT) in the Town of Carthage include:

- **US 15/501** – 7,400 – 8,500 AADT
- **NC Highway 24/27** – 2,000 – 2,600 AADT
- **NC22** – 3,600 – 4,600 AADT

There are a number of intersections along these typically busy corridors that have a perception of being unsafe because of the volume and/or speed of vehicular traffic that bicyclists and pedestrians must navigate. Most of these intersections do not have pedestrian signals or crosswalks.

To create a pedestrian-friendly transportation system in the Town of Carthage, existing bicycle and pedestrian corridors will have to be strengthened by filling in gaps, repairing existing facilities, and providing safe and efficient paths across busy vehicular corridors. Additional bicycle and pedestrian corridors need to be provided to connect major portions of the Town (east to west and north to south) and to serve as neighborhood connectors. New connectors need to be provided to reach important destinations, especially near public schools, parks, and popular commercial areas.

2.4 INVENTORY AND ASSESSMENT OF EXISTING BIKE AND PEDESTRIAN FACILITIES

McGill Associates, P.A. conducted an inventory of bicycle and pedestrian facilities. This inventory delineates the location(s) of existing sidewalks and their condition(s) as well - shown on the *Gap Analysis*, found in **Appendix C**.

This inventory includes the existing condition of Town sidewalks, shared use paths, suggested locations of crosswalks and curb ramp improvements as well as suggested signalized crossings. The inventory was developed to identify needed linkages that would improve connectivity and to assess both the condition of facilities and ADA compliance.

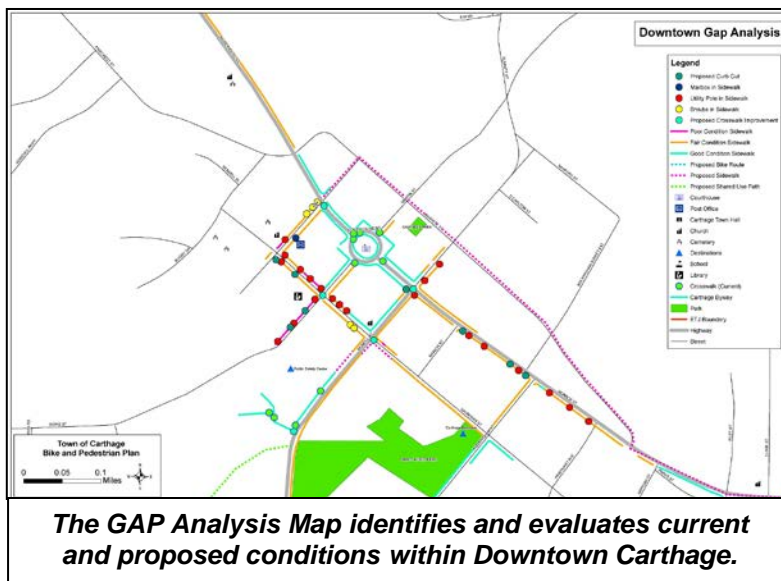
In addition to the visual survey, interviews were conducted with appropriate staff and agencies within the Town government. These interviews were designed to solicit information from knowledgeable staff about departmental issues and concerns with the existing bicycle and pedestrian network and how it currently serves the needs of the citizens of Carthage.

Visual Survey Results

Sidewalks

The locations and conditions of existing sidewalks are shown on the area gap analysis. Existing sidewalks in the pedestrian network were rated as good, fair, or poor.

- Good – overall good, usable condition. Sidewalks must be at least four feet wide. A few minor cracks, small amount of spalling, and/or discoloration is acceptable.
- Fair – usable condition. Any sidewalk less than four feet in width, moderate number of cracks, minor settling or uplifting, spalling, and/or intrusive vegetation.
- Poor – dangerous or unusable sidewalks. Major cracks and breakage, major uplifting or settling, crushed concrete, missing segments, and/or excessive vegetation intrusion.



Overall, the existing sidewalks in Carthage are in good condition. The major issues for the overall bicycle and pedestrian system are:

- **ADA accessibility:** Most pedestrian facilities are not in compliance with Federal/State accessibility standards. Curb ramps, tactile detection pads, and paved paths would improve the existing system.
- **Lack of sidewalks:** While many of the residential areas in or near Downtown have access to pedestrian pathways, a number of residential areas within the Town limits do not have pedestrian paths of any kind.
- **Lack of Connectors:** A number of neighborhoods and popular destinations in the Town lacked connecting sidewalks or other connections to the next destination, adjacent residential area or to shopping areas.
- **Debris:** Several sidewalks were obstructed by cars parked improperly, trash cans, utility poles and vegetative overgrowth blocking the safe accessibility of these paths.
- **Poor repair:** Many of the existing sidewalks in the Town needed repairs to correct broken segments.



Lack of sidewalks makes getting to commercial areas and other attractions around Carthage difficult and unsafe.

Intersections

There are several busy intersections serving both vehicular and pedestrian traffic within the Town. Some intersections offer safe pedestrian facilities. However, many other intersections within the Town require safety upgrades like pedestrian signals, marked crosswalks, areas of refuge, tactile warning devices, curb ramps, paved paths, or a combination of these needs in order to protect bicyclists and pedestrians as they navigate near vehicular traffic. Specific projects are identified in Section 4 of this document as well as in **Appendix D**.

Barriers

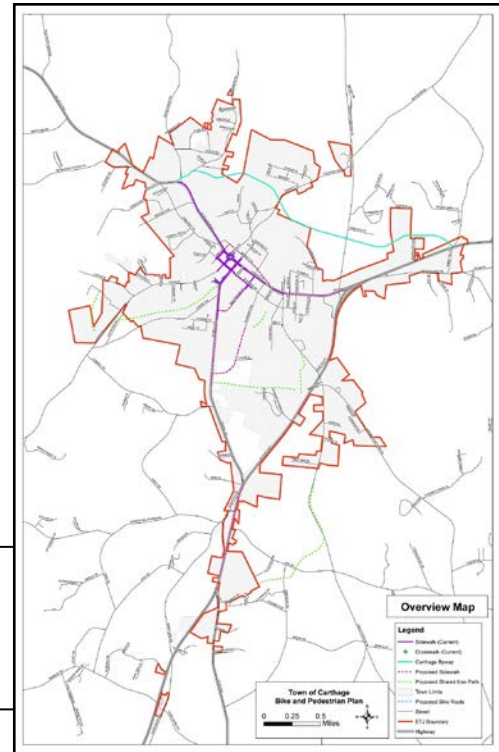
In addition to the lack of safe and complete sidewalks, curb ramps, and pedestrian crossings shown on Sidewalk Inventory/Existing Conditions Map (See **Appendix C**), other obstacles and barriers may prevent safe walking trips. Barriers consist of objects located on sidewalks which prevent a safe lateral clearance. Typical sidewalk barriers include utility poles, traffic signs, fire hydrants, trash cans, and intrusive vegetation.

Downtown Carthage Gap Analysis and Inventory Maps

The following is a visual assessment and inventory which exhibits existing sidewalk and other bicycle and pedestrian facility conditions in Carthage. (see maps in **Appendix C**).

- Overview Map
- Existing Bike Routes Map
- Existing Facilities and Destinations Map
- Existing Facilities and Destinations Map – Downtown Close Up Maps
- Existing Facilities Downtown Courthouse Area Close Up Maps
- Barrier Analysis Maps
- Downtown Courthouse Area GAP Analysis Map
- Union Pines Maps

The Overview Map shows the unique shape of Carthage and majority of the areas addressed in the plan.



2.5 COMMUNITY CONCERNS, NEEDS, AND PRIORITIES

In order to ensure a successful study, it is vital that the public user of bicycle and pedestrian facilities be able to share their issues, needs, and desires. The methodology used in establishing a Bicycle and Pedestrian Plan for municipalities should always include citizen input.

To better understand the needs of facility users, three (3) different methods were used to identify specific concerns/demands of Town residents. The different methods offer options to local citizens and present additional information that, otherwise, could not be assessed from just one (1) method. These methods consisted of conducting Steering Committee discussions, bicycle and pedestrian surveys, and Community Workshops. While the surveys and map exercises were good tools to record participant responses to specific questions, open discussion with citizens also contributed a great deal of information regarding the desires and concerns of local bicyclists and pedestrians.



Steering Committee Discussions

To act as a *guide* for the development of the Bicycle and Pedestrian Plan, a Steering Committee was formed during the initial planning process to establish a vision and identify the needs and priorities of bicyclists and pedestrians. The steering committee was composed of members from the Town staff, Town Council, NCDOT Representative(s), and local citizens. The names of Steering Committee members can be found in the Acknowledgments at the beginning of this document. The Steering Committee acted as the principle advisory body for the bicycle and pedestrian plan project. In addition, meetings were held to evaluate the planning process at various stages.



Members of the Steering Committee discuss various opportunities and constraints within Carthage.

During an initial Steering Committee meeting to solicit input on the bicycle and pedestrian environment in the Town, members taken on a walking tour of the downtown area. The members were asked to mark where on the maps for inaccuracies and document pedestrian destinations, areas where heavy bicycle and pedestrian traffic occurred, and problem intersections and gaps in the bicycle and pedestrian network. They were also asked to draw where they would like to see new sidewalks and greenways. The results of this exercise led to the maps used for the Community Workshops.

Community Workshops

Bicycle and Pedestrian Public Input was sought during both advertised, formal public workshops and festivals held in town, designed to provide drop in service for any Town resident that wished to attend and participate in either mapping exercises identifying needs and desires or open discussion to share opinions and suggestions. Community workshops were also held during the Buggy Festival to provide the public an opportunity to be involved in the planning process. This also assured a good crowd from which to attract participants for the workshop exercises.



Visitors to the annual Buggy Festival enjoyed a variety of crafts, food, games and other vendors.

Community Workshop and Festival #1

Over 54 people participated in the initial bicycle and pedestrian input session held at The Buggy Festival on May 13, 2017. The Town set up a booth so participants could drop in and were invited to fill out a bicycle and pedestrian survey, mapping analysis exercise and open discussion. A copy of the Bicycle and Pedestrian Plan survey can be found in **Appendix B**. The map exercise was used to educate the public, initiate discussions about existing bicycle and

pedestrian corridors, needed bicycle and pedestrian facilities, and dangerous conditions for both bicyclists and pedestrians in Carthage.

The consensus of opinion at this festival is the Carthage Bicycle and Pedestrian Facilities should be expanded to connect the Downtown, surrounding neighborhoods, and common destinations. Other popular ideas included having paved sidewalks in the residential areas tie to Shared Use Paths (Greenways) to fix gaps in the current sidewalk system.

A few key items that came out of the public input were:

- Dangerous intersections within Town
- Storm grates installed parallel with traffic
- Sidewalk gaps, especially within downtown along Hwy 24/27
- Lack of traffic calming measures along US 15/501



Participants provide input during the Buggy Festival.

Community Workshop #2

The second community meeting took place on October 19, 2017 in Downtown Carthage. Participants shared ideas and concerns for the Bicycle and Pedestrian system in Carthage. Participants were asked to review, comment, and share their ideas about the existing and proposed bicycle and pedestrian facilities and conditions.

Pedestrian/Bicycle Survey

To further solicit input from the public about the bicycle and pedestrian systems in Carthage, a public survey was conducted by means of “questionnaires”, which were made available to residents via Community Meetings, by pick-up at Town Hall, and via the internet from a link on the Town’s main web page. The bicycle and pedestrian survey and responses, which can be found in **Appendix B**, was designed to solicit opinions on both *general* and *specific* bicycle and pedestrian concerns in the Town of Carthage. Approximately 154 people filled out the Carthage Bicycle & Pedestrian Plan Survey representing over 6% of the overall population. A few of the key questions and summary analysis for each are on the following pages.

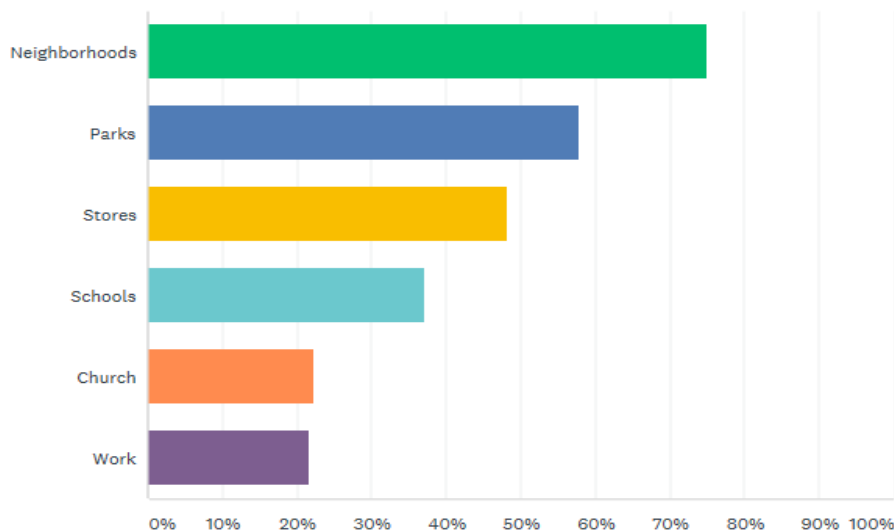
Q1

Customize

Export ▼

Where do you bike or walk in Carthage? (check all that apply)

Answered: 135 Skipped: 19



ANSWER CHOICES ▼	RESPONSES ▼
▼ Neighborhoods	74.81% 101
▼ Parks	57.78% 78
▼ Stores	48.15% 65
▼ Schools	37.04% 50
▼ Church	22.22% 30
▼ Work	21.48% 29
Total Respondents: 135	

As indicated in the above graphic, the majority of survey participants bike or walk in their neighborhoods, followed by parks, stores, and schools. While all age groups were represented, this outcome reflects the typical profile for Carthage.

Of the survey responses received, over 74% biked or walked in their neighborhoods, 57% to parks, 48% to stores, 37% to schools while both to work and church received 22% of the responses.

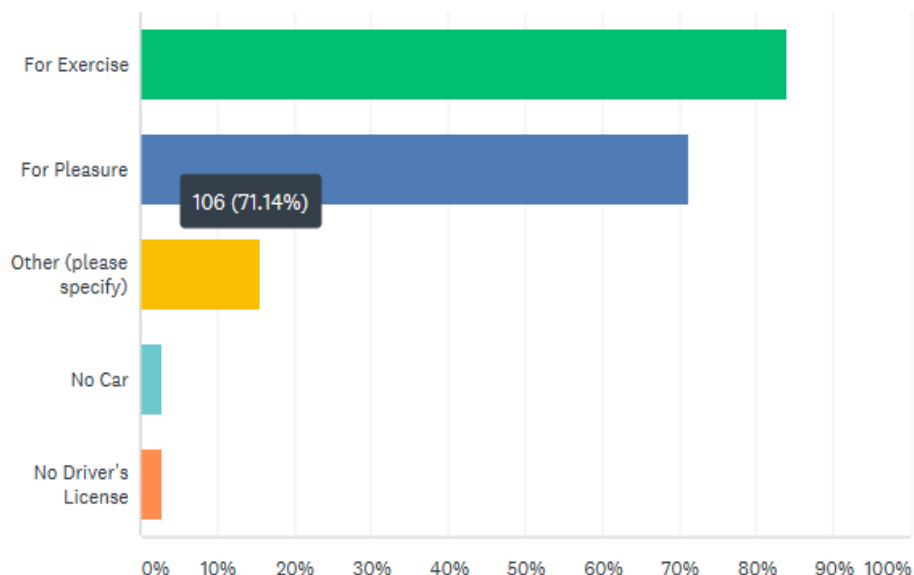
Q3

Customize

Export ▼

Why do you walk or bike in Carthage? (check all that apply)

Answered: 149 Skipped: 5



ANSWER CHOICES	RESPONSES	
▼ For Exercise	83.89%	125
▼ For Pleasure	71.14%	106
▼ Other (please specify)	15.44%	23
▼ No Car	2.68%	4
▼ No Driver's License	2.68%	4
Total Respondents: 149		

Of the survey responses received, over 83% biked or walked for exercise, 71% for pleasure, 15% for other reasons while both having no car or no driver's license received 2% of the responses.

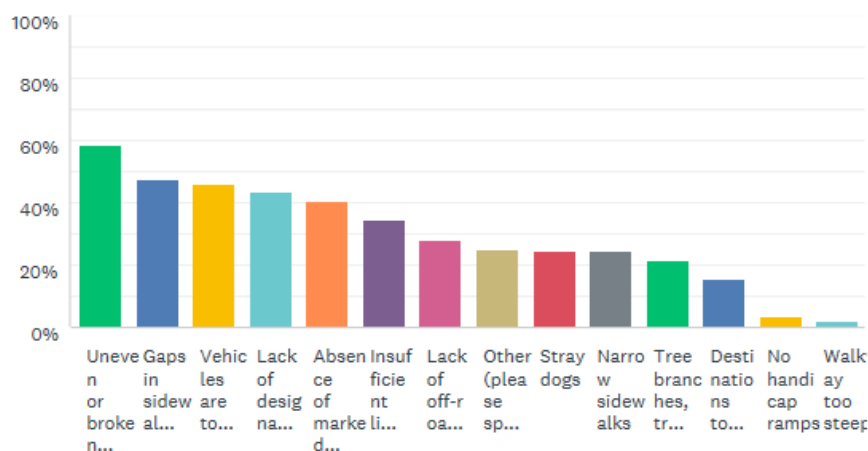
Q4

Customize

Export ▼

Problems experienced while walking or biking in Carthage are... (check all that apply)

Answered: 143 Skipped: 11



ANSWER CHOICES	RESPONSES
▼ Uneven or broken surfaces	58.74% 84
▼ Gaps in sidewalk (missing segments)	47.55% 68
▼ Vehicles are too close	46.15% 66
▼ Lack of designated bike lanes	43.36% 62
▼ Absence of marked crosswalks	40.56% 58
▼ Insufficient lighting	34.27% 49
▼ Lack of off-road biking facilities	27.97% 40
▼ Other (please specify)	Responses 25.17% 36
▼ Stray dogs	24.48% 35
▼ Narrow sidewalks	24.48% 35
▼ Tree branches, trash cans or other obstructions	21.68% 31
▼ Destinations too far apart	15.38% 22
▼ No handicap ramps	3.50% 5
▼ Walkway too steep	2.10% 3
Total Respondents: 143	

Survey participants listed uneven/broken surfaces, gaps in sidewalks (missing segments), vehicles being too close to biking/walking areas, lack of designated bike lanes and absence of marked crosswalks as their main areas of concern for problems while trying to bike and walk in Carthage.

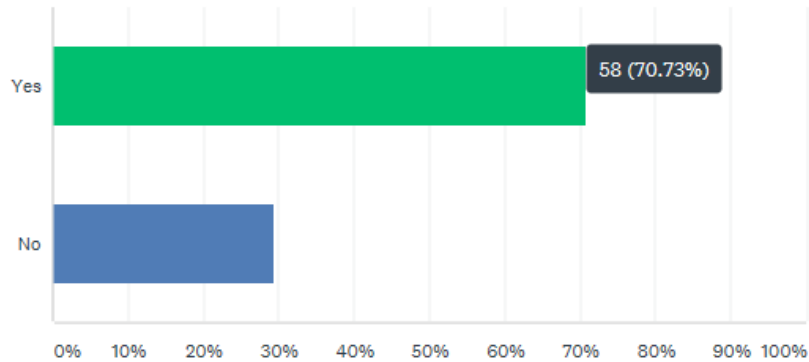
Q6

Customize

Export ▼

If No - if there was a sidewalk or greenway, would you let your children walk or bike to school?

Answered: 82 Skipped: 72



ANSWER CHOICES ▼	RESPONSES ▼	
▼ Yes	70.73%	58
▼ No	29.27%	24
TOTAL		82

70% of the survey participants stated that if there were a sidewalk or shared use paths (greenways) they would let their children bike or walk to school.

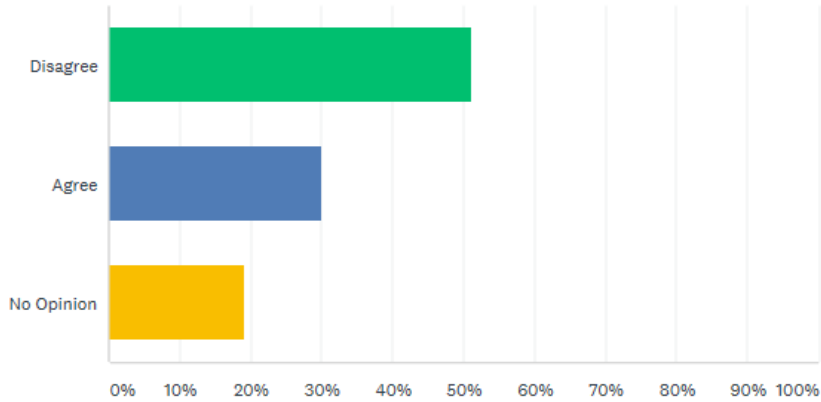
Q13

Customize

Export ▼

Getting around Carthage on foot is easy and safe.

Answered: 147 Skipped: 7



ANSWER CHOICES ▼	RESPONSES ▼	
▼ Disagree	51.02%	75
▼ Agree	29.93%	44
▼ No Opinion	19.05%	28
TOTAL		147

While 51% of those surveyed disagreed that getting around on foot is easy and safe 29% thought it was easy and safe. The comments provided on the surveys identified those areas that people thought were safe and those that were not.

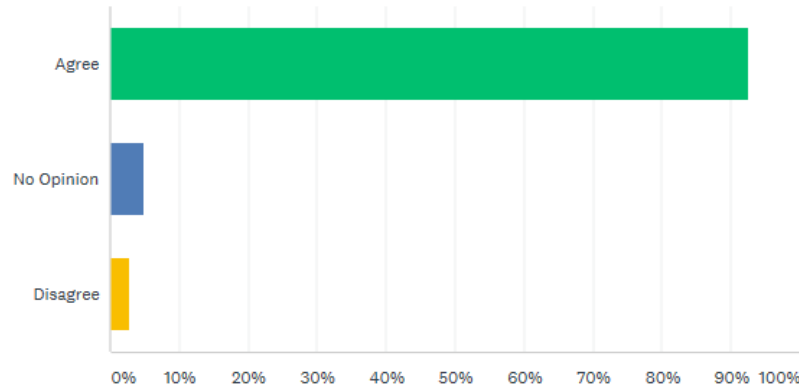
Q14

Customize

Export ▼

Carthage needs to promote and improve bike and pedestrian facilities (trails/greenways, sidewalks, multi-use trails, etc.)?

Answered: 145 Skipped: 9



ANSWER CHOICES ▼	RESPONSES ▼	
▼ Agree	92.41%	134
▼ No Opinion	4.83%	7
▼ Disagree	2.76%	4
TOTAL		145

Over 92% of survey participants agreed that Carthage needs to promote and improve the existing bicycle and pedestrian facilities, including shared use paths (greenways), sidewalks and multi-use trails.

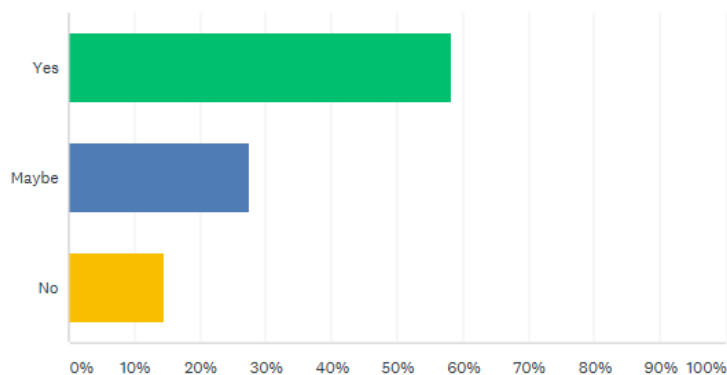
Q16

Customize

Export ▼

Would you support a tax increase to expand and maintain sidewalks, bike lanes and street crossing improvements in Carthage?

Answered: 146 Skipped: 8



ANSWER CHOICES	RESPONSES	
▼ Yes	58.22%	85
▼ Maybe	27.40%	40
▼ No	14.38%	21
TOTAL		146

The majority of survey respondents reported being in favor of a tax increase to expand and bike lanes and improving other facilities in Carthage.

Analysis

The survey indicates that people are using the existing bicycle and pedestrian facilities that have been put in place in the Town. However, many feel that there is a lack of connectivity to common destinations within the Town and that not enough biking/walking facilities exist to safely access these destinations. The study has also indicated that support for expanding the bicycle/pedestrian system exists in a major way. This survey has established both the need for improvements to the existing bicycle/pedestrian system in Carthage as well as the need for expanding these systems in the future.

Other reasons for improvements to the bicycle and pedestrian system include the growing trend of healthy living and fitness as they relate to improving quality of life. Access to bicycle and pedestrian facilities was a common theme coming from the public responses and comments were made related to the need for expanding both bicycle and pedestrian facilities (see individual comments from the survey in **Appendix B**).

Survey responses indicated participants listed the most common areas they biked and walked on were McReynolds Street, McNeill, Monroe Street and near Nick's Creek. Survey

participants indicated they would bike and walk more if they had more trails and sidewalks where they could feel safe.

Survey responses showed that participants felt most unsafe/uncomfortable near Vass-Carthage Road, Saunders Street, Dowd Street and around the Courthouse. The data collected also showed that the Food Lion in Carthage is an area of concern for a number of survey participants. Participants listed roads without sidewalks or in poor conditions were of concern.

The survey indicated the places people felt the safest walking around Carthage Elementary and local parks. Those areas with low traffic volumes was one reason people felt safe biking and walking. The survey responses also revealed that the participants were comfortable using the current sidewalks to parks and other population destinations.

Survey participants indicated that Saunders Street and McNeill Street need improved or added bicycle connections. Participants also indicated that bicycle connections need to be added or improved Downtown and around other areas in Carthage, including around schools and the Needmore Community.

Survey responses from participants indicated that pedestrian connections need to be added or improved on sidewalks along Monroe Street, Vass-Carthage Road, McNeill Street and near McNeill School. The Food Lion in Carthage is also an area participants indicated pedestrian connections needing improvement or added.

2.6 SPECIAL POPULATION SECTORS

Many different user groups will make use of the increased pedestrian facilities in Carthage. A segment of this population will be visitors while the vast majority will be residents - many with special needs. It will be imperative that new and existing facilities provide safe, pedestrian-friendly corridors for all users to navigate within the Town, particularly for senior adults and children.

Senior Citizens

Senior adults are special populations that need particular consideration in pedestrian projects. Currently, there are *independent living* and *assisted living* residences for seniors in The Town of Carthage. The US Census reported that there were 40.3 million people 65 and older in the US on April 1, 2010, increasing by 5.3 million since the 2000 Census when this population numbered 35.0 million. The percentage of the population 65 and older also increased during the previous decade. In 2010, the older population represented 13.0 percent of the total population, an increase from 12.4 percent ten



ADA requirements increase proportionally with senior populations.

years prior. The senior population now represents the fastest growing and largest percentage group in the Country and will continue to grow in the foreseeable future.

As a general trend, seniors have the time and desire to participate in pedestrian activities. Seniors also tend to rely on alternate means of transportation rather than personal vehicles.

With the promotion of healthy lifestyles and a need for alternate transportation, this population will need safe pedestrian facilities to be offered by The Town of Carthage. Special attention is needed to ensure a community where this segment of the population can safely traverse the streets.

Children

Children also require special safety procedures with regard to public safety. An equally important component in this equation is *safety education*. Many children are injured every year due to their lack of understanding of the utilization of a pedestrian system. Education programs such as *Safe Routes to School*, *Walking School Buses*, etc., should be promoted to assist children in learning how to cross a street and to walk in safe areas.



The Walking School Bus promotes fitness.

Promoting healthy lifestyles for children will encourage physical activity and the use of sidewalks for exercise. The encouragement of walking is very important; but at the same time, the pedestrian facilities must exist (sidewalks to schools) and be user-friendly.

Disadvantaged Neighborhoods

As in every Town, there are areas in Carthage that may be at an economic disadvantage. Since privately-owned automobiles are the primary means of transportation in Carthage, the lack of an automobile can lead to significant difficulties in accessing jobs, medical facilities, schools, and other destinations. It is important to provide safe, equitable pedestrian opportunities for residents of these disadvantaged areas. Public commentary indicates that areas in many outlying residential areas near the Town of Carthage limits may use Town pedestrian facilities for primary transportation. Due to a number of circumstances



At times, walking may be the only option.

the only accessible means of getting around for many pedestrians from these disadvantaged areas is to walk. This fact emphasizes the need for safe pedestrian facilities along all major corridors. A strong pedestrian network will allow those that choose to walk access to needed services, cultural/recreational amenities, jobs, and retail centers. Increased pedestrian activity may help to build a strong sense of community identity for all system users.

- END OF SECTION -

SECTION THREE: EXISTING PLANS, PROGRAMS, AND POLICIES

A few planning documents and recommendations have previously been prepared for Moore County relating to issues addressing current and future bicycle and pedestrian facilities that include Carthage and surrounding areas. Such reports and documents represent important efforts and need to be addressed and incorporated into this bicycle and pedestrian plan. Many of these planning documents - which address greenways, transportation, public transportation, capital improvements, and land-use planning provide valuable insight and background toward future decisions, which will be made for the Town. This section outlines the key documents and studies which already exist and have been reviewed in their entirety.

3.1 LOCAL, REGIONAL, AND STATE PLANS AND GUIDELINES

Transportation and Other Related Plans

Moore County Comprehensive Transportation Plan (CTP)



The CTP planning process for Moore County is underway as of the time of writing this document. The plan is a combined effort between the county, the participating municipalities and communities of Aberdeen,

Cameron, Carthage, Foxfire Town, Pinebluff, Robbins, Southern Pines, Taylortown, Vass, Town of Carthage, Whispering Pines, Woodlake, TARPO, and NCDOT. Once this plan is complete, it will provide recommendations on transportation improvements in Moore County that could be implemented over the next thirty (30) years.

Town of Carthage Land Use Plan

The purpose of this Land Use Plan is to provide direction to address transportation within and adjacent to the Town of Carthage.

Planning for transportation is so much more than just planning for roads. It is also planning for economic development, recreation, public health, utilities and conservation. Understanding the linkages of roads to our landscape and communities will provide for better long term outcomes for the Town of Carthage.

Transportation Overview of the 1999 Plan

Thoroughfare Plan analyzed the transportation system at that time and identified projects for the Transportation Improvement Program (now known as STI – Strategic Transportation

Investments). Some of those projects are just now coming to fruition. One such project is converting Monroe Street to three lanes, and possibly a Highway 24/27 Bypass.

The 1999 Plan also addressed local use of Powell Bill funding – encouraging the town to move towards programming resurfacing and repaving. The town's efforts in capital improvement programming will prevent streets from degenerating into the unacceptable condition observed in the years preceding the 1999 plan.

Some goals and objectives of the Land Use Plan are as follows:

- Street resurfacing for all Town maintained streets, to ensure that all streets are resurfaced on a rotating basis.
- Construction of sidewalks to serve Town residents and businesses.
- Establishment of Town standards for street construction, through the Subdivision Ordinance.
- Solicit input in the Design and Location of Transportation Facilities.
- Incorporate Bicycle and Pedestrian Planning into Transportation and Development Activities.
- Use Capital Improvement Budget Process to Ensure Maintenance of Town Owned and Operated Facilities.

State Transportation Improvement Program (STIP)



NCDOT officials have developed a strategic plan for transportation decision-making that focuses on achieving the department's long-term goals of safety, mobility and infrastructure health. Reforms regarding transportation projects follow the 2040 Plan. The 2040 Plan outlines a 30-year Statewide Long-Range Plan which includes the State Transportation Improvement Program (STIP) projects per NCDOT Highway Division and County. It provides costs and schedules for each project. It is important to evaluate existing initiatives in order to appropriately

incorporate current proposed improvements into the bicycle and pedestrian plan. The State Transportation Improvement Program (STIP) is important in establishing long range goals for improving pedestrian transportation.

Design Guidelines

ADA Design Guidelines

The Americans with Disabilities Act (ADA) states that cities and municipalities must construct, modify, or adapt pedestrian facilities to accommodate individuals with disabilities and accessibility limitations. The following are some basic topics that must be addressed for sidewalks to comply with ADA requirements.

- Overgrown, broken, root laden, or otherwise rough conditions are not acceptable.

- Curb ramps provide entry and exit to sidewalks.
- Ramps also provide alternate routes around staircases.
- Cuts in medians at crosswalks allow travel across divided roadways.
- Slopes must be realistic for traveling.
- Ramps provide access to buildings that are not ground level.
- Adequate width provides sufficient passing.
- Historic district exemptions should be taken into account.
- Adjusted crossing times allow for safe travel across wide intersections.



***Broken, overgrown sidewalks are not
ADA compliant***

3.2 PROGRAMS AND INITIATIVES

Safety and Education Programs and Resources

Town Planning, Zoning & Permits Department

The Planning Department is responsible for formulating and enforcing planning policies and standards that will ensure a quality living and working environment for Carthage. This is done by establishing the regulations set forth in the Carthage Development Ordinance (CDO). A major responsibility of the department is to review subdivision and site development plans to ensure compliance with the CDO. The Town Administrative Planning Department, along with Building Inspections, is located in The Town Hall Office at 4396 U.S. Highway 15-501, Carthage, North Carolina and can be reached at (910) 947-2331.

Moore County Health Department

The Moore County Health Department (MCHD) is located at 705 Carthage Avenue in Carthage and assists tremendously in promoting the wellness of individuals, families, and the community. Offering many services, the MCHD strives “*To Protect and Promote Health Through Prevention and Control of Disease and Injury*”. Some of the following CCHD-sponsored programs, which contribute to the overall fitness of the local community, include – but are not limited to – the following:

- WIC/Nutrition Services
- MooreHealth (Healthy Carolinians Task Force)
- Eat Smart, Move More Coalition



Moore County Health Department

The Moore County Health Department currently employs a staff of over 70 professionals representing a wide variety of health-related disciplines. Programs and services include community health assessment, health promotion, communicable disease, epidemiology, personal health/clinical services, and environmental health.

Today the department is involved in a wide range of collaborative community health activities designed to protect and promote health through prevention and control of disease and injury

MooreHealth (Healthy Carolinians Task Force)

MooreHealth is a volunteer community organization committed to developing cooperative planning that promotes health and improves the quality-of-life for the residents of Moore County. This organization, composed of representatives from a broad spectrum of the community, will provide a mechanism for innovative, cost-effective and challenging approaches for a healthier tomorrow by coordinating resources of Moore County for the greater benefit of its resident/



The mission of MooreHealth is to collaboratively assess needs, raise awareness, and identify resources to address them. Their core purpose is to promote

health and quality of life. Health priorities, which have been identified for 2014 to 2017 are:

- Obesity
- Substance Abuse
- Aging Issues

Eat Smart, Move More Coalition

The Eat Smart Move More Coalition encourages healthy eating and exercise habits for all North Carolinians. In addition to nutritional resources offered, the program encourages walking and biking initiatives that support accessibility and wellbeing. The following web address provides a wealth of resources on healthy habits and choices: <http://www.eatsmartmovemorenc.com>.



Moore Alive - Stress Less, Live Moore

Last year, Moore County Partners in Progress, the 501(c)(3) economic development organization serving all of Moore County, North Carolina, spearheaded the Moore Alive marketing and talent recruitment initiative to promote the local assets, amenities, and exceptionally healthy lifestyle in Moore County and its collective communities. Moore Alive wants people to know that Moore County



is a lot more than a great place to retire or play golf. There are lots of opportunities for people of all ages to succeed in Moore County, while living more healthily and enjoying the quality of life. The foundation of the Moore Alive campaign is the Moore Alive website at, www.MooreAlive.com.

Moore County Department of Aging

Many services and facilities are available to seniors and disabled adults (50 years of age and older) of Moore County, as well as their families and caregivers, through the Moore County Department of Aging located at the Senior Enrichment Center (SEC). These include:

- Fitness Program
- Nutrition Program
- Family Caregiver Program
- Information and Assistance Program
- Transportation Services
- In-Home Aide Services
- Senior Volunteer Program

When clients of the Moore County Department of Aging come to receive guidance for any of the above listed services, they become in contact with a number of local resources and opportunities that may encourage them to become involved with walking for exercise.

Economic Development



The Moore County Partners urge people to visit and relocate to Moore County – in the “heart of North Carolina”. In efforts to accomplish this end, the Economic Development group stress the unique lifestyle, which is brought on by the County’s geography, demographics, infrastructure, culture, commerce, education, and retirement living. “When you want more, look for Moore”.

3.3 PEDESTRIAN AND BIKE LAWS

The State of North Carolina follows a standard set of basic pedestrian laws, outlined in a guidebook published by the North Carolina Department of Transportation. A summary of these laws is below:

1. Pedestrians need to obey traffic control signals.
2. Pedestrians have the right-of-way in crosswalks where there are no traffic control signals.



***Walking in the roadway is lawful
since sidewalks are not provided***

3. Pedestrians have the right-of-way at intersections without marked crosswalks.
4. Pedestrians have the right-of-way in walkways at alleys, driveways, private roads and building entrances.
5. Between adjacent intersections with traffic control signals, pedestrians may cross only in a marked crosswalk.
6. Pedestrians must yield right-of-way to vehicles if they are in the roadway but not at a marked or unmarked crosswalk (intersection).
7. It is unlawful to walk in the roadway if a sidewalk has been provided.
8. If no sidewalk is provided, pedestrians should walk on the extreme left of the road, or the left shoulder, facing on-coming traffic.
9. Standing, sitting, or lying upon Highways or streets is prohibited.
10. At any street, Highway, or road crossing or intersection that is not regulated by traffic control signals or officers, a blind or partially-blind pedestrian with a white cane or guide dog shall receive the right-of-way.
11. At intersections with traffic control signals, if a blind or partially-blind pedestrian with a white cane or guide dog is partially across the street when the signal changes, that pedestrian shall have the right-of-way to finishing crossing the street.
12. A person with a mobility impairment that is using a motorized wheelchair or similar conveyance shall be given all the rights and responsibilities of a pedestrian.
13. Electric personal assistive mobility devices may be operated on public Highways with speeds of less than 25 mph, sidewalks and bicycle paths. They are required to yield right-of-way to pedestrians and other human-powered devices.

These laws are available to the public in the NCDOT booklet, [A Guide to North Carolina Bicycle and Pedestrian Laws](#), and can be accessed at the NCDOT website, <http://www.ncdot.gov/bikeped/lawspolicies/laws/>.

- Other relevant state and federal policies are listed below and can be accessed at the accompanying websites.
- NCDOT Pedestrian Policy Guidelines
http://www.ncdot.gov/_templates/download/external.html?pdf=http%3A//www.ncdot.gov/doh/preconstruct/altern//value/manuals/ppm/ppm28/ppm28-1.pdf
- NCDOT Greenway Policy
http://www.ncdot.gov/_templates/download/external.html?pdf=http%3A//www.ncdot.gov/bikeped/download/bikeped_laws_Greenway_Admin_Action.pdf
- NCDOT Board of Transportation Resolution for Bicycling and Walking
http://www.ncdot.org/transit/bicycle/laws/laws_resolution.html
- United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations (March 2010)
http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm

- FHWA Policy for Mainstreaming Non-Motorized Transportation (FHWA Guidance – Bicycling and Pedestrian Provision of Federal Transportation Legislation)
<http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm>
- TND Guidelines
- <http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf>
- NCDOT Complete Streets Policy
(http://www.bytrain.org/fra/general/ncdot_streets_policy.pdf)
- And <http://www.nccompletestreets.org/>)

- END OF SECTION -

SECTION FOUR: STRATEGIC BICYCLE AND PEDESTRIAN SYSTEM PLAN

Based on the objectives established earlier in this document – along with inventories of existing conditions and prior studies - McGill Associates has prepared recommendations for a Comprehensive Bicycle and Pedestrian Plan for The Town of Carthage. Section 4.3 describes these recommendations and/or projects, which would expand the bicycle and pedestrian facilities into a cohesive, safe, and usable network.

This section is separated into several components, which include: the *types* of recommended facilities, *specific* recommendations, and *users* of the bicycle and pedestrian facilities. (The methodology utilized in the development of these bicycle and pedestrian recommendations is described in Section 4.3)

This Bicycle and Pedestrian Plan serves as a guide for identifying and prioritizing safe bicycle and pedestrian linkages within the Town; thereby, creating a viable bicycle and pedestrian network. This guide is based on input from the public, Steering Committee members, and Town of Carthage Staff. While enhancing and prioritizing capital improvements/maintenance projects for the Town, the plan will give special consideration to *critical* areas for bicycle and pedestrian transportation and safety; as well as address the Americans with Disabilities Act (ADA) compliance issues.

Section 4.3 includes recommendations, the establishment of priorities, and implementation guidelines for proposed bicycle and pedestrian facilities. This Section 4.3 outlines the proposed bicycle and pedestrian network and identifies areas of need and areas of opportunity.

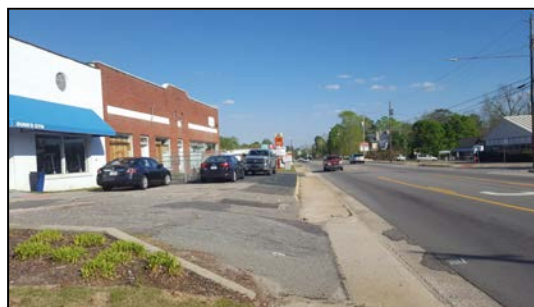
4.1 SYSTEM OVERVIEW

Overall Network

The Town of Carthage currently has a limited system of sidewalks and bicycle routes, and no multi use paths. Many residential areas lack these connections to/from retail and civic destinations.

Gaps in System

There is limited connectivity within the existing network of The Town of Carthage. There are some connections to Downtown from the residential areas close to Town and are predominantly on the south side of town; which



Several missing sidewalk sections along Monroe make it hard for pedestrian travel.

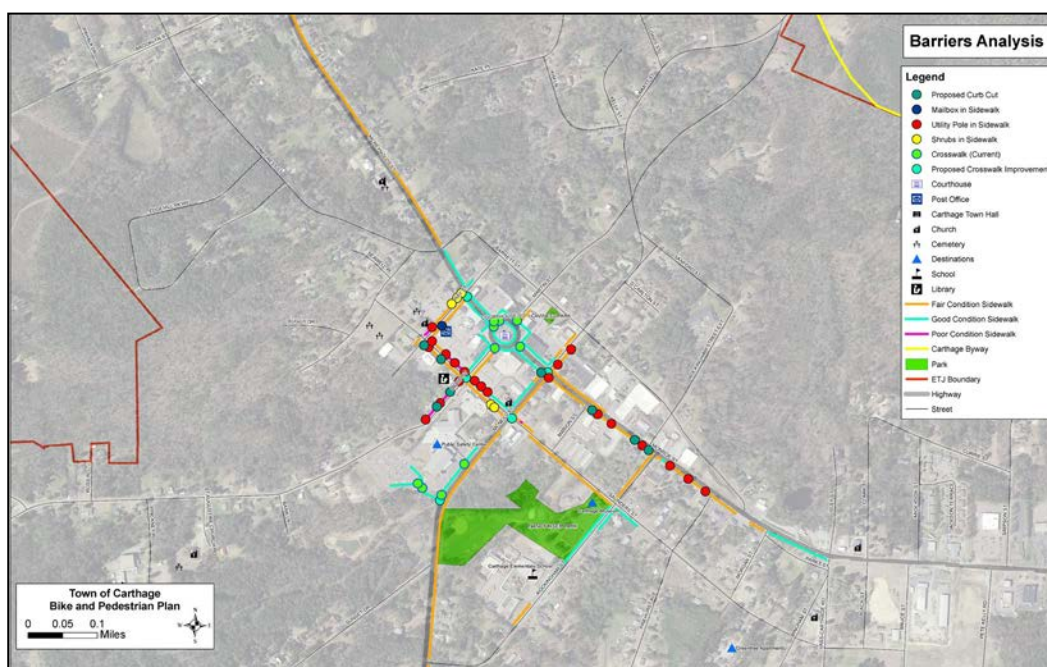
these few existing connections are often in need of accessibility improvements, maintenance, or have large gaps.

Many of the intersections along the main corridors of Monroe Street/McReynolds Street (NC 24/27) and McNeil Street (U.S. 15-501) lack clearly marked pedestrian crosswalks and pedestrian signals.

Lack of Safe Connectivity



The Barriers Analysis and Downtown Gap Analysis maps, also found in **Appendix C**, indicates where missing gaps exist and where improvements should be made now and in the future.



Generators/Attractors

Typical generators and attractors for the Town of Carthage Area can be seen on the existing facilities and destinations map on the following page and in **Appendix C**. Many of these are not currently served by pedestrian facilities and may not be attracting many pedestrians because of this deficiency.

Destinations:

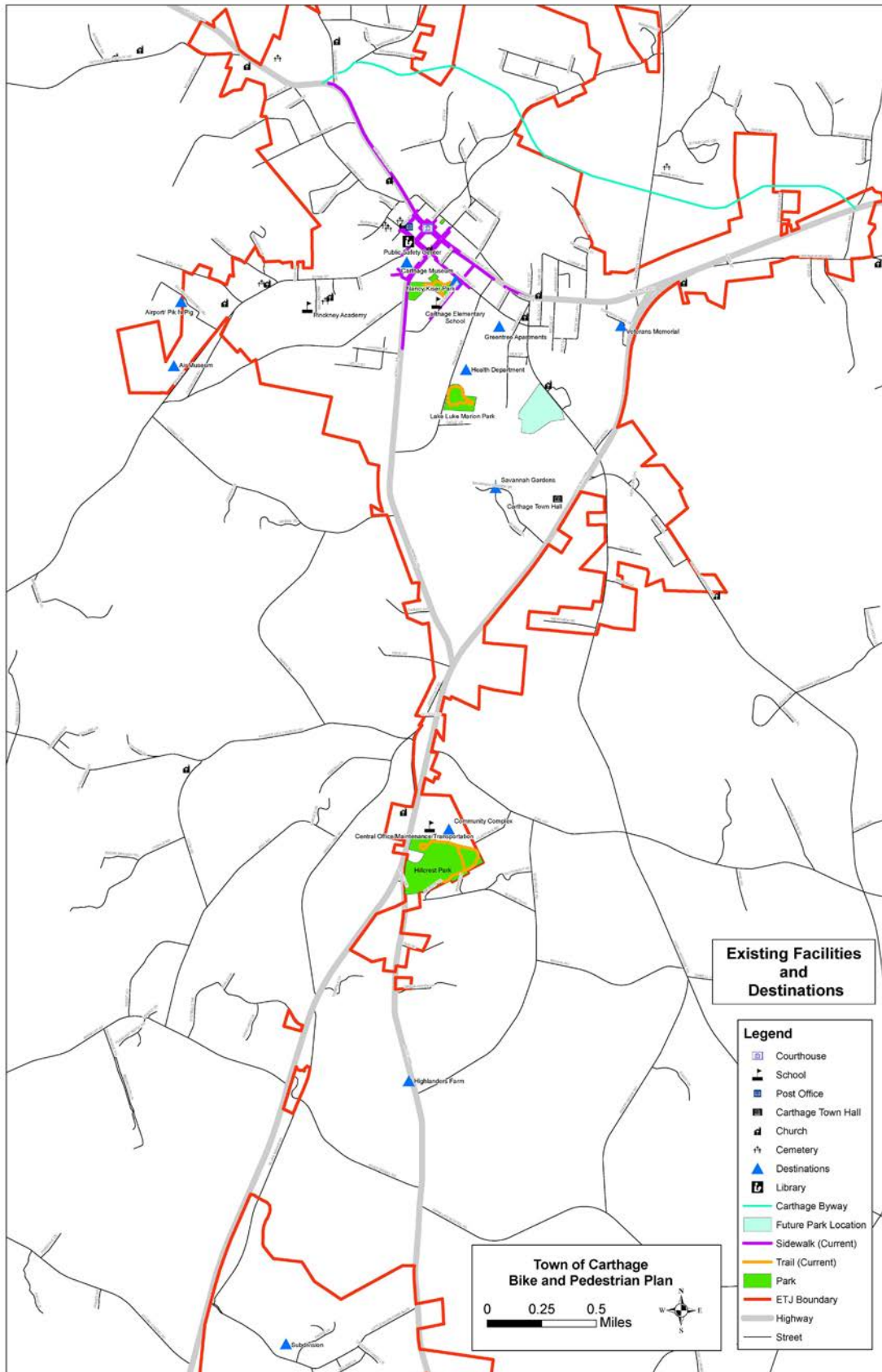
- Nancy Kiser Park
- Hillcrest Park
- Caviness Park next to Barrett St.
- The murals – Carthage Mural Walking Trail
- The airport and the James R. McConnell Air Museum
- House in the Horseshoe
- Carthage Buggy Museum
- The Library
- The War Memorial
- The Old Courthouse
- The New Courthouse
- Born Learning Trail
- Community Building and MacDonald Building
- County Agriculture Center and Walking Trail
- Town Hall Complex
- Cemeteries
- Little River
- Forest Ridge
- Needmore Community
- Savannah Gardens
- Pinkney School
- Carthage Elementary School
- Crain's Creek Middle School
- Union Pines High School
- Sandhills Farm Life Elementary

4.2 SPECIAL FOCUS AREAS

High Use Areas

Corridors with the highest usage in The Town of Carthage are located at:

- Areas associated with schools and housing: Carthage Elementary
- Areas located Downtown: Around Courthouse
- All park and greenways: Nancy Kiser Park and Hillcrest Park
- Residential neighborhoods: Union Pine, Needmore Community and Savannah Gardens



4.3 POTENTIAL PROJECTS AND INFRASTRUCTURE IMPROVEMENTS

Network Methodology

As mentioned in previous sections of this Plan, The Town of Carthage has bicycle and pedestrian facilities in some areas, but also has many areas that need improvements. Section 4.1 identified both *general* and *specific* areas that need to be addressed. Connecting bicycle and pedestrian facilities to form a cohesive network of sidewalks, multi-use trails, and bicycle lanes is a long-range project that requires extensive time and funding.

In addition to connectivity, repairing existing dangerous areas is also a major concern with the system. Hazardous areas are priorities that need to be addressed immediately. The safety of bicyclists and pedestrians is one of the main concerns of The Town of Carthage. As new projects are developed, connectivity and safety should be among the primary goals and objectives.

Carthage Bicycle and Pedestrian Plan Community Input

- *Input from community workshops*
- *Input and recommendations from Steering Committee, Town of Carthage Staff and NCDOT*
- *Site visits*
- *Review of existing planning documents*
- *Evaluations of existing facilities and gaps*
- *Evaluation of trip generators (destination areas)*

Many factors were used to develop the bicycle and pedestrian recommendations. The previous sections describe topics such as community input and planning documents that were used as information sources. In addition, the Steering Committee, Town of Carthage staff, and on-site field work were also integral parts of plan development.

Based on input from these various venues, projects and recommendations were established.

Bicycle and Pedestrian Project Types

During the process of developing project recommendations for the Carthage Comprehensive Bicycle and Pedestrian Plan, it was clear that separate groups would need to be created to clearly identify each type of project. The groups were broken down into these three (3) categories:

- Bicycle Facilities
- Shared Use Facilities (greenways)
- Sidewalk Facilities



Improperly installed drainage grates are extremely hazardous for bicyclists.

Contained in each of these groups is information used to help develop and justify the projects within the document. More detailed site analysis and the importance of each recommended project should be determined by the Town prior to creating construction documents. General recommendations for ADA compliance and safety concerns are typical of most bicycle and pedestrian plans. This plan recommends that projects related to the health, safety and welfare of the public receive priority consideration. In addition to these *general* recommendations, the document identifies and makes suggestions regarding issues that are *specific* to The Town of Carthage.

Many of the projects recommend connectivity, repair of existing facilities, and enhancement of future improvements; however, some of the future projects may not be facilities such as sidewalks or shared use paths. Rather, the projects may be goal-oriented such as establishing creative partnerships, instituting safety programs, and/or coordinating special events. Proposed programs such as these will promote bicycle and pedestrian use within the Town but are not project-based recommendations.

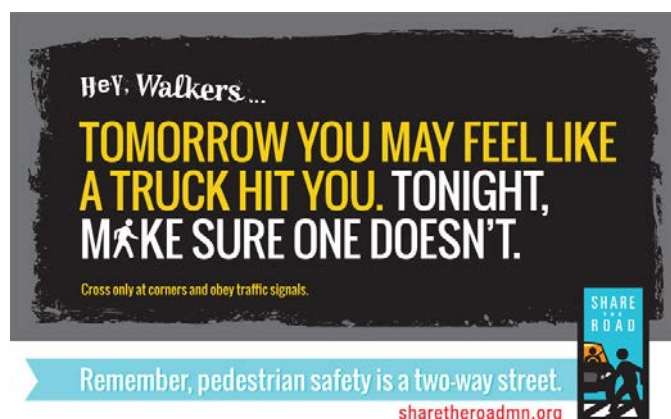
Pedestrian Crossing General Recommendations

There are numerous unsuitable crossings for both bicyclists and pedestrians that have been identified in Carthage (See Section 2 Maps and **Appendix C**). Steps to improve these conditions range from, installing high visibility striping at crosswalks to the installation of pedestrian signals at high-volume traffic intersections. In extreme cases, intersection curb radii may be reduced to shorten crossing distances. Correcting potentially dangerous intersections will not only encourage bicyclists and pedestrians to use the facilities but will also reduce potential injuries.



A list of intersection improvements was chosen by means of the previous "STIP" project list, field observation, public input and Steering Committee input.

The following lists intersections in need of practical improvements include but are not limited to such as marked pedestrian crossings, pedestrian signal heads, pedestrian refuge islands, traffic lights, and/or a combination of the above (TARPO Document <http://www.tarpo.org/topics/bikepedplan.shtml>)



Pedestrian Signals, Marked Pedestrian Crossings, and ADA Curb Ramps

Proposed locations for pedestrian signals have been restricted to areas where danger to bicyclists and pedestrians from vehicular traffic currently has been noted by the public. Locations for bicycle and pedestrian improvements are shown on the Proposed Improvements Map in this section. Pedestrian crossings at any uncontrolled intersection should include NCDOT/MUTCD approved signage to warn approaching vehicles of the crossing ahead. All pedestrian crossing locations should include A.D.A. compliant curb ramps and tactile warning devices.



Wherever possible pedestrian crossing signals/markings should be utilized. If this is not possible then marked/painted crosswalks and pedestrian signage should be installed.

As with all pedestrian crossing projects there are potential constraints and barriers that must be identified and overcome prior to proceeding with design and construction. Constraints and barriers may include financial/economic deficiencies, right-of-way acquisition/negotiation, politics, physical/mechanical obstacles, or other occurrences that may prevent action on pedestrian projects. Ensuring that all stakeholders involved with the project are involved and have an opportunity to take part in the planning and design process will help to avoid or plan to deal with most barriers encountered.

ADA Curb Ramp

All new sidewalks that are installed must have ADA compliant curb ramps at intersections and driveways. (See Section 5)



Curbs must be ADA compliant

Bicycle Facility Projects

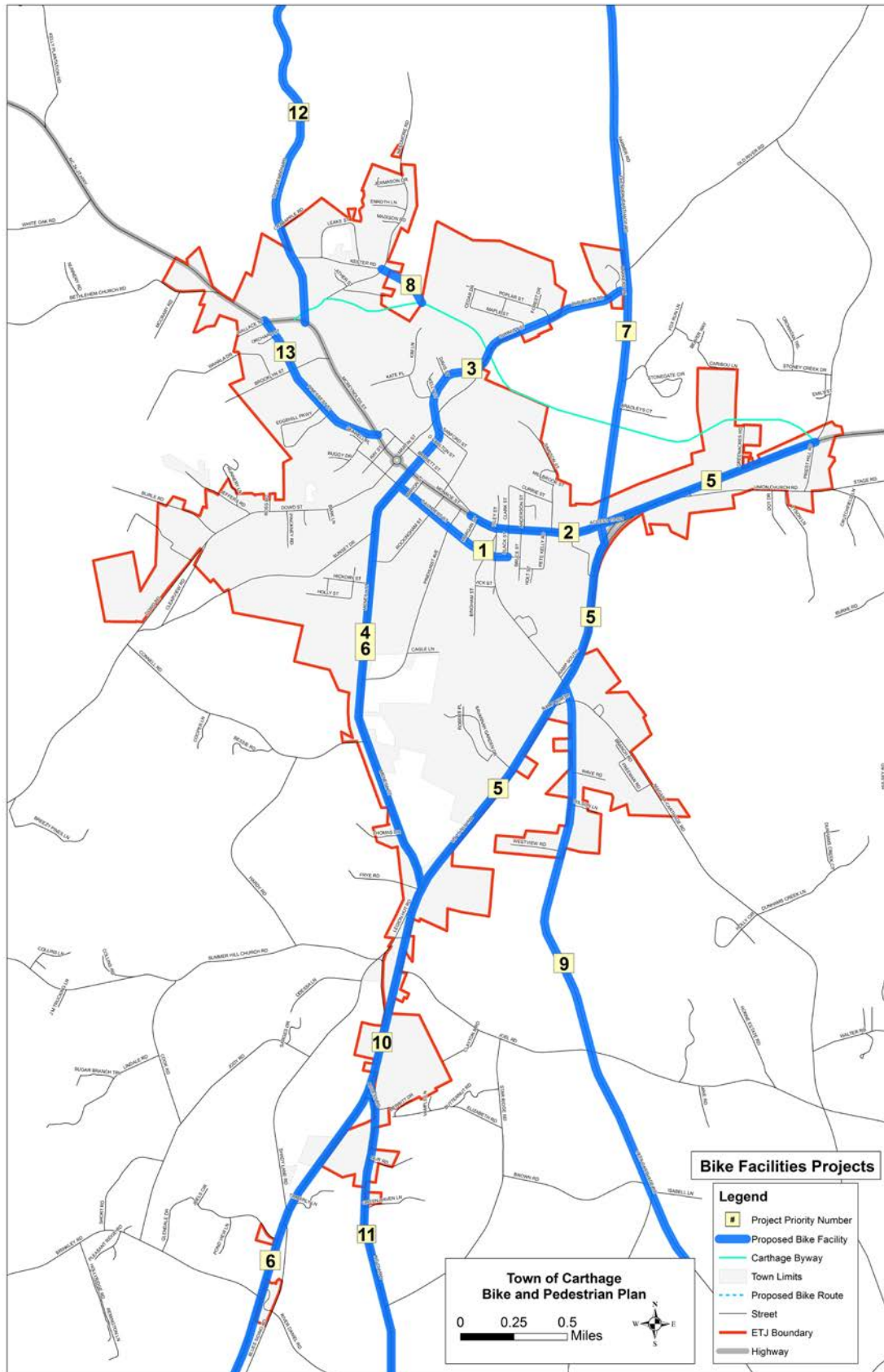
Creating a complete network of on-street bicycling facilities in Carthage will be challenging due to the existing street configuration and varying road widths. Most of the streets and highways recommended for long-range improvements are under the jurisdiction of NCDOT. Some routes are managed by the Town of Carthage and transition to NCDOT management at various places along the routes.

The proposed Bike Facilities improvements are shown in the map and table below and in Appendix D.

Recommended Bicycle Facility Improvements include the following:

1. Saunders Street Bike Signage – McNeil Street to Black Street
2. Monroe Street Corridor – Barrett Street to Glendon Carthage Road
3. Summit Street Corridor – McReynolds to Monroe Street
4. McNeil Street Corridor – US 15-501 to Monroe Street
5. US 15-501 Corridor – Priest Hill Road to McNeil Street
6. McNeil/US 15-501 Corridor – Saunders to Castle
7. Glendon Carthage Road Corridor – Old River Road to Access Road
8. Needmore Corridor – Carthage Byway to Needmore Neighborhood
9. VassCarthage Road Corridor – Niagara/Carthage to US 15-501
10. US 15-501 Corridor – Frye Road to Access Road NC 22 Hwy
11. NC 22 Hwy Corridor – US 15-501 to Little River Subdivision
12. Old Glendon Road Corridor – McReynolds Street to Glendon Carthage Road
13. Pinecrest Street Corridor – McReynolds Street to Wallace Street

Town of Carthage North Carolina				
Comprehensive Bicycle and Pedestrian Master Plan 2018				
Bike Facility Project Names				
Project # Key	Type of Facility	From	To	Linear Foot
1	Bike Signage	Along Saunders	N/A	N/A
2	Paved Shoulder	Barrett Street	Glendon Carthage Road	3,300
3	Paved Shoulder	Barrett from McReynolds	Monroe Street	3,100
4	Paved Shoulder	15 501	Monroe Street	11,000
5	Paved Shoulder	Priest Hill Road	McNeil Street	32,000
6	Paved Shoulder	Saunders	Cagle (on McNeil)	3,235
7	Paved Shoulder	Glendon Carthage Road	Old River Road	6,300
8	Paved Shoulder	Carthage Byway	Needmore Neighborhood	1,900
9	Paved Shoulder	15 501	Niagara Carthage Road	26,500
10	Paved Shoulder	Frye Road & HWY 22	Access Road & Little River	10,200
11	Paved Shoulder	15 501	Little River Subdivision	11,000
12	Paved Shoulder	Old Glendon Road	Glendon Carthage Road	28,000
13	Paved Shoulder	Pinecrest St		



Shared Use Path Facility Projects

Shared Use Path projects include multi-purpose paths or off-road bicycle and pedestrian facilities, which typically take advantage of the use of existing linear stream corridors, easements, and other open space areas. Shared Use Paths are very popular among residents and visitors. Visitors appreciate and often return to communities that provide places for bicycling and walking when they are safely removed from busy roads and streets. Trails offer scenic recreation opportunities suitable for a wide range of ages and abilities. These trails can have a tremendous impact on the economy, potentially providing additional tourist dollars. Where popular trails exist, lodging providers can encourage extended stays among their guests, thereby increasing occupancy. For residents, investment in trails and shared use paths can increase property values and improve the overall livability of a community.

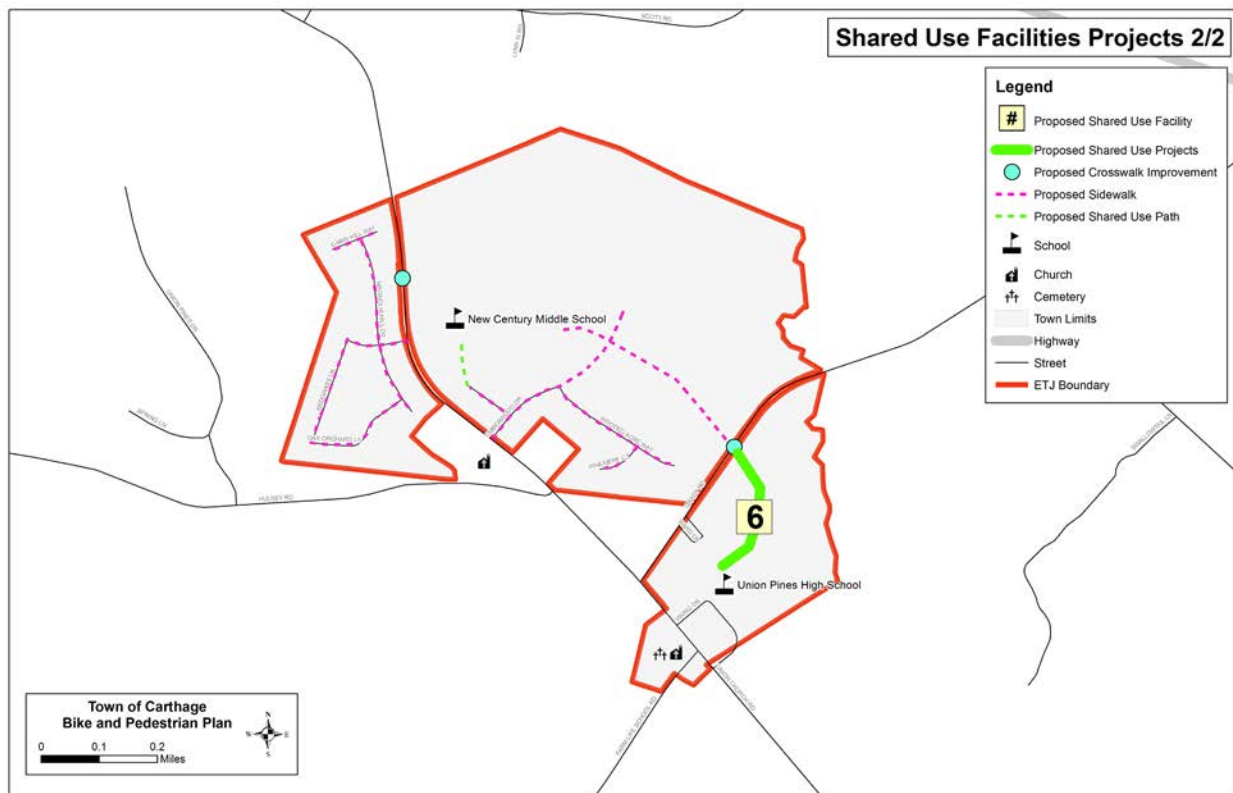
Benefits of Shared Use Paths and Greenways

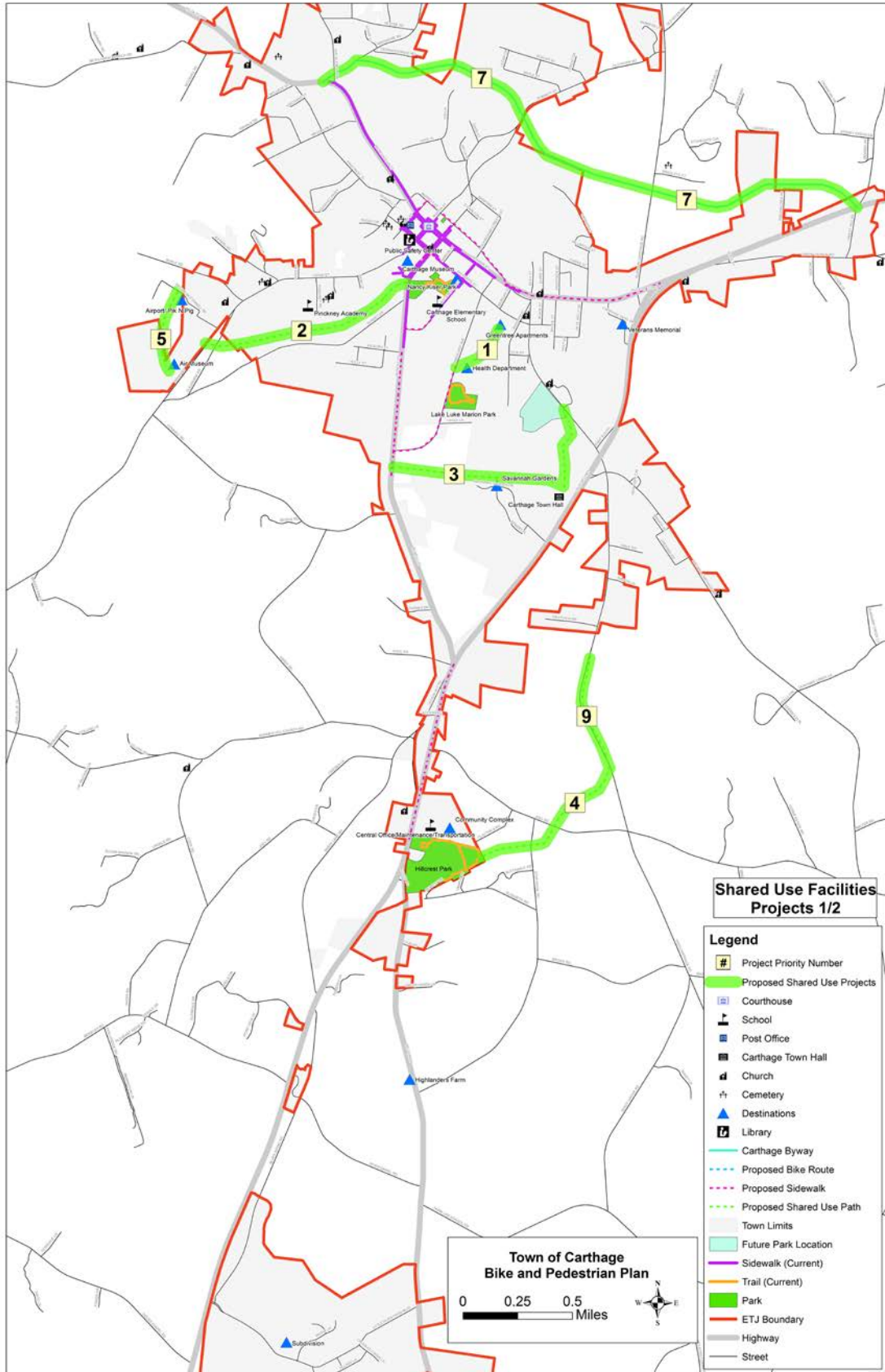
- *Encourage people to enjoy the area from an outdoor perspective*
- *Provide opportunities for families to safely enjoy a healthy activity together*
- *Encourage walking or bicycling to locations within a reasonable distance, such as school, work, and recreational areas*
- *Enhance the safety and convenience of travel to many residential and commercial areas, recreational access sites, and other points of interest.*
- *Provide benefits to all road users by reducing congestion and enhancing motorists' safety.*
- *Reduce parking congestion at popular destinations*
- *Increase safe and affordable options for recreation and exercise, thus helping to improve the health of visitors and residents alike.*
- *Increase economic benefits such as increased tourism, higher property values, additional residential and business growth, and job growth*

Recommended Shared Use Path (SUP) Facility Improvements include the following:

1. **Greentree Trail** – Saunders Street to Health Department
2. SUP - Nancy Kiser Park to Airport/Pik-N-Pig
3. SUP – McNeil Street to Town Hall
4. SUP – Hillcrest Park to Vass-Carthage Road
5. SUP – Airport to Air Museum
6. SUP – Grady Road to Union Pine High School
7. SUP – Along Carthage Byway
8. SUP – Connection to Little River in Southern Pines
9. SUP – Union Church – Martin St, block to Berryfield and Davis

Town of Carthage North Carolina				
Comprehensive Bicycle and Pedestrian Master Plan 2018				
Shared Use Facility Project Names				
Project # Key	Type of Facility	From (nearest road or landmark)	To (nearest road or landmark)	Length of 10' Greenway
1	Shared Use Path	Greentree Trail (Saunders St.)	Greentree Trail (Health Department)	1,500 LF
2	Shared Use Path	Nancy Kiser Park	Airport/Pic-N-Pig	6,500 LF
3	Shared Use Path	McNeill Street	Town Hall	7,000 LF
4	Shared Use Path	Hillcrest Park	Vass-Carthage Road	8,200 LF
5	Shared Use Path	Airport	Air Museum	1,500 LF
6	Shared Use Path	Grady Road	Union Pine High School	1,300 LF
7	Shared Use Path	Along Carthage Byway	NA	17,000 LF
8	Shared Use Path	Connection to Little River in Southern Pines	TBD	TBD
9	Shared Use Path or 6' Sidewalk w/Road Separation	Along Union Church	Martin St, block to Berryfield and Davis	3,111 LF





Sidewalk Projects

Sidewalk projects primarily range from the replacement of unsuitable facilities to the implementation of new sidewalks for connectivity to destinations or existing sidewalks. By implementing these recommendations, The Town of Carthage can provide a more safe, accessible, and usable bicycle and pedestrian network. Improvements are intended to connect to areas of high bicycle and pedestrian volumes such as parks, commercial/retail centers, government/service centers, cultural amenities, and the existing sidewalk network. *All sidewalks, whether existing or proposed, should have marked crosswalks and curb ramps at intersections and driveways as a minimum requirement.* Intersections (having a high volume of vehicular traffic) should possess pedestrian crossing signals. These facility improvements should also be evaluated as future widening and roadway projects are constructed. Sidewalk projects should include the following pedestrian-related amenities:

- Minimum of 5' in width
- ADA compliant curb cuts and ramps at all driveways and intersections
- Marked crosswalks at all intersections
- Pedestrian crossing signals at high-volume traffic intersections
- Sidewalks on one or both sides of the roadway
- Meet all established accessibility requirements

The following proposed improvements enhance the connectivity of these existing corridors by filling gaps to extend the pedestrian network into new areas to help create a more cohesive, bicycle and pedestrian friendly environment in Town. The plan calls for both the expansion of the existing network and the renovation of the portions needing repair and upgrades.

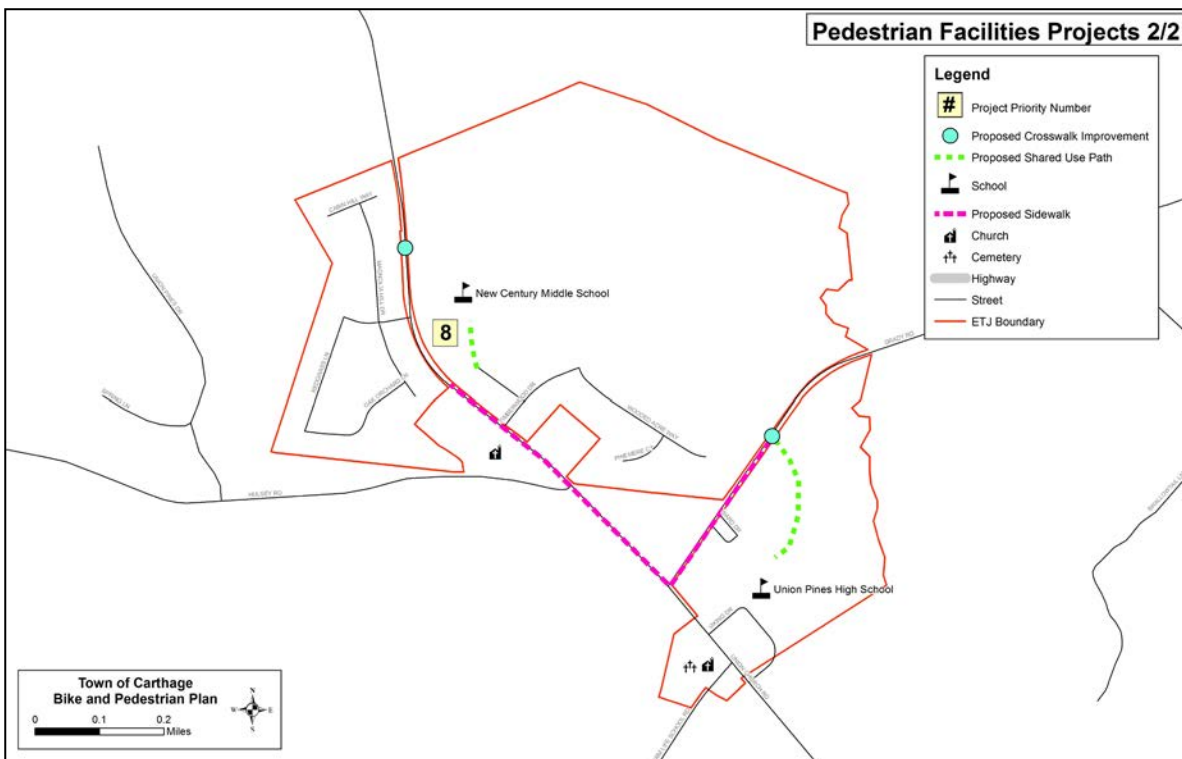
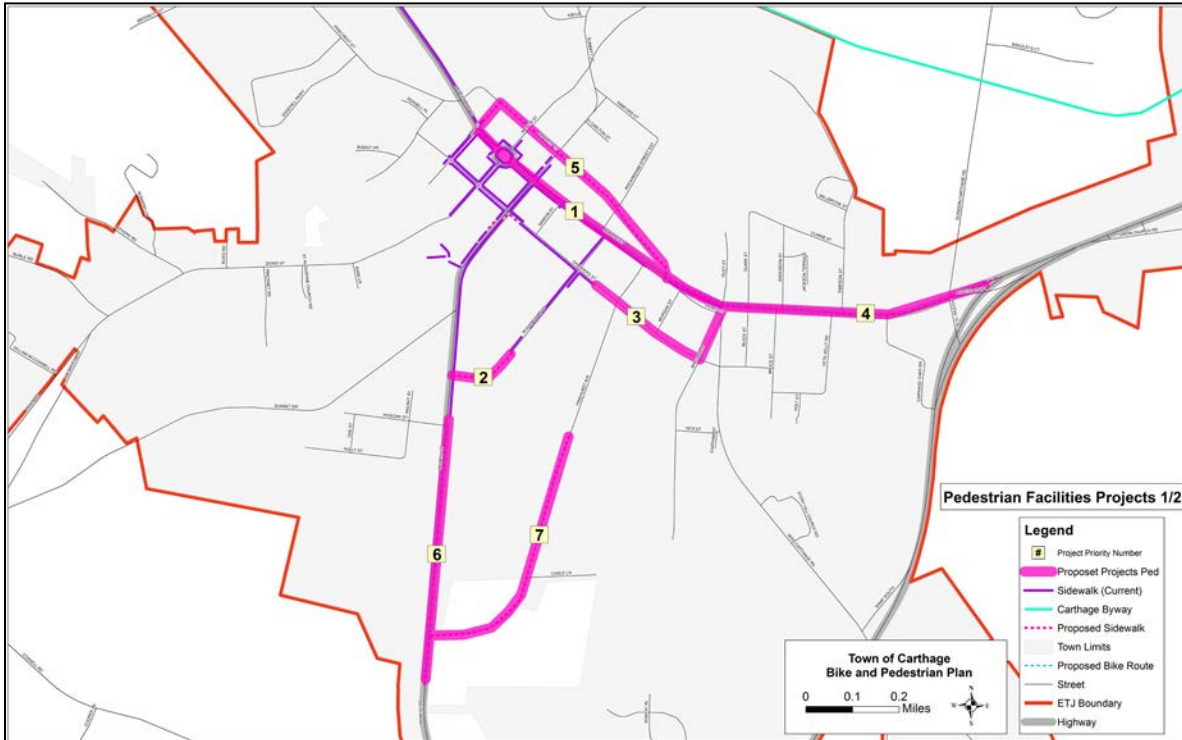
Recommended Sidewalk Facility Improvements include the following:



Some sidewalks in Carthage are obstructed and require ADA accessibility improvements. This utility pole and street sign adjacent to First Presbyterian Church on South Ray Street are examples of barriers to pedestrians in wheelchairs.

1. Monroe Street Corridor #1 – Ray Street to Vass Carthage (Regional Plan ID#M-148)
2. Rockingham Street Corridor –S. McNeil Street to Carthage Elementary School
3. Saunders Loop – Saunders to Bingham to Monroe to Rockingham (existing facility) to Saunders
4. Monroe Street Corridor #2 – Vass Carthage to US 15-501 (Regional Plan ID#M-147)
5. Barrett Street Corridor – Monroe Street to Ray Street to McReynolds
6. McNeill Street Corridor #1 – Hickory Street to Pinehurst Avenue
 McNeill Street Corridor #2 – Pinehurst Avenue to Future Savannah Gardens Shared Use Path (greenway) trailhead
7. Pinehurst Street Corridor – South McNeill Street to Health Department
8. Union Church Rd. – Entire Corridor

Town of Carthage North Carolina					
Comprehensive Bicycle and PedestrianMaster Plan 2018					
Sidewalk Facility Project Names					
Project # Key	Type of Facility	Primary Pedestrian Corridor	From (nearest road or landmark)	To (nearest road or landmark)	Length of 5' Sidewalk
		Monroe Street			
1	Sidewalk	Monroe Street (DOT closing gaps)	Ray Street	Vass Carthage	NA
	Subtotal Sidewalk Improvements				0
		Saunders Street			
2	Sidewalk	Rockingham Street	S. McNeill Street	Existing Sidewalk @ SW corner of Carthage Elementary School	900
	Subtotal Sidewalk Improvements				900
		Rockingham Street			
3	Sidewalk	Saunders Street, Bingham, Monroe SRTS	Saunders Street, Bingham, Monroe	Saunders Street, Bingham, Monroe	2,569
	Subtotal Sidewalk Improvements				2,569
		Monroe Street			
4	Sidewalk	Monroe Street (NCDOT Project)	Vass Carthage Road	15 - 501	NA
	Subtotal Sidewalk Improvements				0
		Barrett Street			
5	Sidewalk	Barrett Street	Monroe Street	Rockingham Street	950
5	Sidewalk	Barrett Street	Rockingham Street	N. McNeill Street	935
5	Sidewalk	Barrett Street	N. McNeill Street	Martin Street	415
5	Sidewalk	Barrett Street	Martin Street	N. Ray Street	435
5	Sidewalk	Barrett Street	N. Ray Street	McReynolds Street	545
	Subtotal Sidewalk Improvements				3,280
		McNeill Street			
6	Sidewalk	McNeill Street	Hickory Street	Pinehurst Ave.	2,371
6	Sidewalk	McNeill Street	Pinehurst Ave.	Future Savannah Gardens Greenway trailhead	1,129
	Subtotal Sidewalk Improvements				3,500
		Pinehurst Street			
7	Sidewalk	Pinehurst Street	S. McNeill Street	Health Department	3,200
	Subtotal Sidewalk Improvements				3,200
		Union Church Road			
8	6' Sidewalk w/Road Separation or Shared Use Path	Union Church Road Pedestrian Corridor	N/A	N/A	TBD
	Subtotal Sidewalk Improvements				0



Future Planning Efforts

Existing and future utility easements should be assessed to determine if they can be used for possible bicycle and pedestrian connections. Town of Carthage utility line easements can create a network of connectivity to neighborhoods. The associated public easements should include recreation and alternative transportation as uses for the public right-of-way, allowing trails to be constructed in the future.

Project Examples

The following pages contain samples of each type of the proposed types of recommendations: Bicycle facilities, Shared Use Paths, and Sidewalks. These samples are indicative of the scope of project recommendations for The Town. These examples give context, recommendations of facility improvement, opinions of probable cost, and other necessary and pertinent information for the project. Each project sheet is a snapshot of what the project could entail to provide a safer and more functional bicycle and pedestrian amenity. These examples are conceptual in nature. As the project comes to fruition more information will be needed to facilitate the implementation of the scope of work.

Examples begin on next page

Bicycle Facility Project #4 McNeil Corridor -US15-501 to Monroe Street

Context

15/501 is the main north-south route through East side of Carthage. The two-lane route transitions to a two-lane road at Monroe Street. It is a two-lane road through the east of downtown Carthage. West of downtown, it is a low-speed, but higher volume arterial route.

East of downtown, it is a higher-speed and high-volume route.

The Carthage Bicycle & Pedestrian Plan recommends bike lanes along the route.



Conceptual McNeil Street Corridor

Short-Term Recommendations

Adding bikeable shoulders (4 or 5-feet; 5 preferred) north of McNeil Street appears feasible given right-of-way clearance and lack of major constraints in this section.

Cost Estimate: \$704,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Long-Term Recommendations

A more progressive analysis of future volumes along 15/501 in the existing four-lane section would be necessary to determine if four-lanes are needed. Traffic volumes in downtown Carthage have increased by only 1,000 since 2002, so a road diet might be feasible. This would allow designation of the outside lane as a bicycle lane, a combined bike/pedestrian lane or a cycle track. The cost estimate could vary based on the various options.

Influences or Destinations

- Tara Plantation
- Carthage Elementary School
- Moore County Sheriff Department
- Nancy Kiser Park
- First Baptist Church of Carthage

Length: 2.1 miles

Potential Permitting Needs:

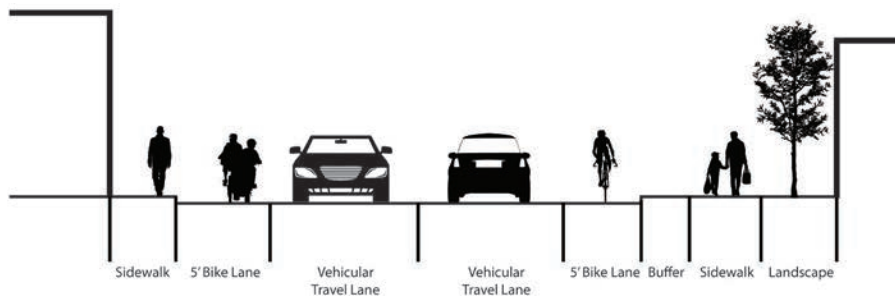
- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2016)

11,000 at Monroe St
 4,800 at US 15-501

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



Bicycle Facility Project #5 US 15-501 Corridor - Priest Hill Rd. to McNeil Street

Context

Priest Hill Rd is the main north-south route east of downtown Carthage, skirting the industrial sector. The two-lane route has various right-of-way constraints through the industrial sector. It is a low-volume route near at the northern side but traffic volumes are higher on the southern limits of the road. The route proceeds along US 15-501 the main north-south route south of downtown Carthage to the intersection of McNeil Street. This section has varying right-of-way widths resulting in the need for consistent treatment.



Conceptual 15-501 Corridor

Short-Term Recommendations

Adding bikeable shoulders (4 or 5-feet; 5 preferred) north of McNeil Street appears feasible given right-of-way clearance and lack of major constraints in this section.

Cost Estimate: \$2,048,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Long-Term Recommendations

Add bike-able shoulder (5-foot) from the McNeil Street intersection along 15/501 south to the southern Town limits will require more detailed study and investment.

Influences or Destinations

- Moore Count Social Services
- Veterans Memorial
- Town Hall
- Route shops and restaurants

Length: 6.1 miles

Potential Permitting Needs:

- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2010)

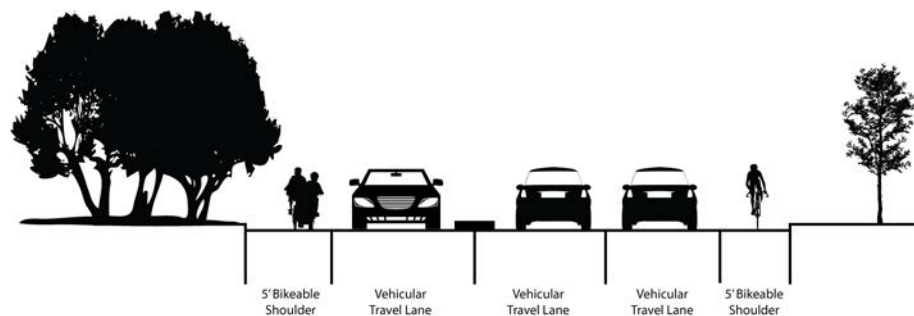
600 at Priest Hill Rd

9800 to 11000 North of McNeil St

11,000+ south of McNeil St (long-term project)

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



Bicycle Facility Project #7-Glendon Carthage Rd to Old River Rd

Context

Glendon Carthage Rd is a recently updated 2-lane route east of downtown Carthage running north and south. The access-controlled corridor is a low-speed, low-volume facility with no major roadway crossings. The route is the terminus of existing and planned greenway routes.

Conditions are not suitable for on-street bicycling along Glendon Carthage Rd, but the west side of the corridor is optimal to be upgraded to include a sidepath instead of a sidewalk.



Glendon Carthage Rd. Source: Google

Short-Term Recommendations

Install new side-paths (may be 8-foot in areas constrained by guardrail) while preserving the existing buffer between the street and sidewalk.

Upgrade curb ramps at locations where the sidepath links to a greenway to include ramps that are the same width as the pathway.

An extension from Old River Road to Carthage Rd to the entrance could be considered as a route to get bicyclists.

Cost Estimate: \$403,200

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Influences or Destinations

- Rural Properties

Length: 1.2 miles

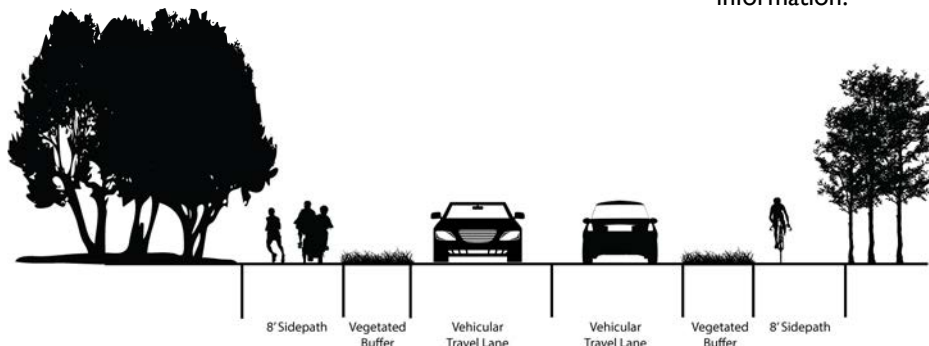
Potential Permitting Needs

- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2016) *
3,300 Glendon Carthage
710 south of Old River Rd

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



TARPO Project – Pottery Loop “Whispering Pines to Carthage

Context

The route leaves Whispering Pines on Niagara-Carthage Rd heading north toward Carthage. The segment is primarily rural with some areas of low density residential development around Whispering Pines. The end of the segment in Carthage becomes urban on Monroe Street.

There are several privately owned man-made lakes and ponds along this segment. The pavement width remains narrow along this stretch of roadway at around 18ft in total width of pavement, although speed limits are reduced to 45 mph.

Vass Rd is also narrow at 18ft in total pavement width. This segment does appear to have publicly owned ROW in hand for paved shoulder widening.

TIP project U-3628 is identified along Monroe St in Carthage, but funding availability for the project is unknown. Monroe St is urban and runs to downtown Carthage. The large paved area is 44ft in width with 3 automobile lanes and on-street parking on one side, providing options on re-designating space for a bicycle lane.



Vass Road Source: Google



Niagara-Carthage Road Source: Google

Recommendations

- 4ft paved shoulder on Niagara-Carthage Road
- 4ft paved shoulder on Vass Road
- 4ft paved shoulder on Monroe Street
- Bicycle lane on Monroe Street

Cost Estimate: \$2,600,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Length: 7.4 miles

Potential Permitting Needs:

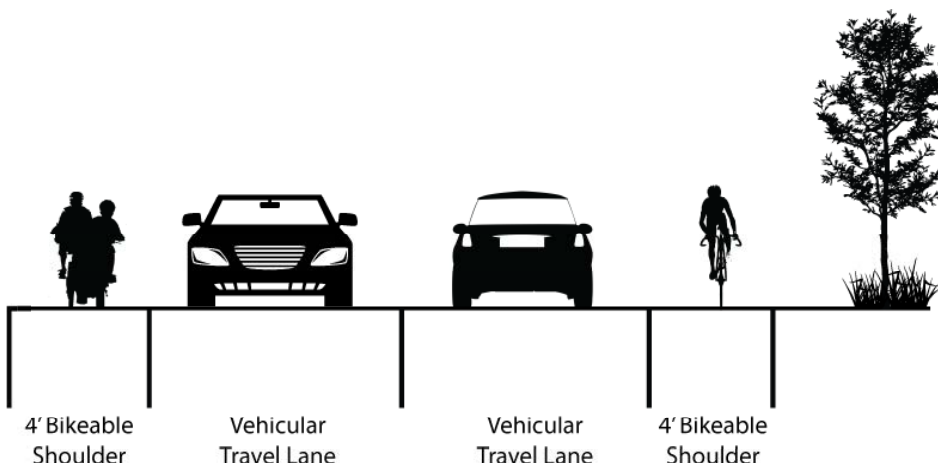
- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2016)

13,000 from Fry Rd. to Access Rd.

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



TARPO Project – Pottery Loop “Carthage to Robbins”

Context

The route begins in the heart of historic Carthage near the Courthouse Square, the roadway is 40ft in width with two travel lanes and on-street parking on both sides of the roadway leaving the courthouse on McReynolds St. After leaving the historic district on McReynolds St/NC 22, the roadway narrows to 20ft in width with minimal paved shoulder. As the route turns left onto Bethlehem Church Road, the speed increases to 55mph and the roadway narrows to 18ft in width. The route turns onto Mt Carmel Rd, with similar characteristics. Briefly the route runs along NC 24/27, where there is a high traffic area, but with 22ft width pavement, it is easier to share the road. On Flint Hill and Plank Rd, the roadway varies between 18 and 20ft in width and a grass shoulder that varies between 4 and 6ft. On Plank Rd, the speed limit lowers to 35mph on the outskirts of Robbins, but roadway characteristics remain the same. A 60ft public ROW appears to be documented on Monroe, McReynolds and NC 24/27, but nowhere else. NC 24/27 has TIP project R-2528, but no funding.



Courthouse Square Source: Google



NC27 & Flint Hill Church
 Source: Google

Recommendations

- Bicycle lane on Monroe and McReynolds St in Carthage
- 6ft paved shoulder on McReynolds/NC 22 where curb ends NC 24/27, Mt Carmel Rd, Flint Hill, and Bethlehem Church Rd.
- 4ft paved shoulder on Plank Rd and N Moore Rd.

Cost Estimate: \$5,800,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Length: 17.3 miles

Potential Permitting Needs:

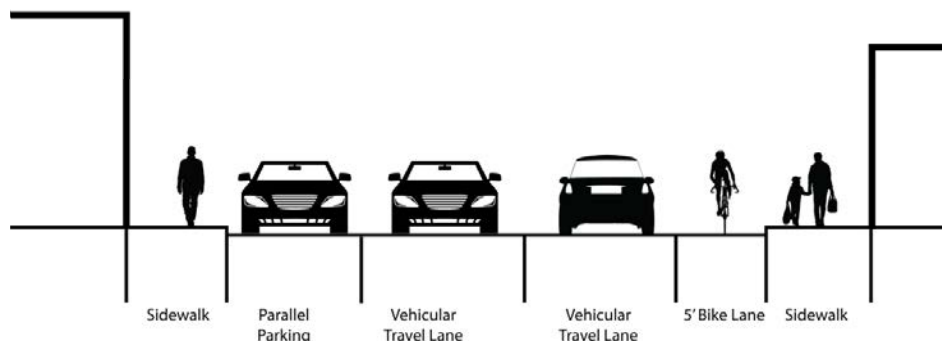
- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2016)

13,000 from Fry Rd. to Access Rd.

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



Shared Use Path (greenway) #1 Greentree Trail – Greentree Apartments to Health Department

Context

Shared Use Paths-also referred to as Greenways or Multi-Purpose Trails, provide off-road access to various destinations. **These trails are typically 8 to 10 feet wide** and allow for biking, which is not permitted on downtown sidewalks.

By providing clear and safe routes between different areas of town and connections to neighboring communities a network can be established and create a possible attraction that could increase the number of visitors to the Town.



Short-Term Recommendations

The Carthage Bicycle & Pedestrian Plan recommends construction of a Shared Use Path (greenway) between the Greentree Apartments and the Health Department/Lake Marion. This Shared Use Path would be along an existing sewer easement with wide outside lanes along the route.

Cost Estimate: \$250,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Potential Funding Mechanism

- NC Parks and Recreation Trust Fund (PARTF)
- Recreational Trails Program
- Local Donations and Fundraising

Length: 0.3 miles

Potential Permitting Needs:

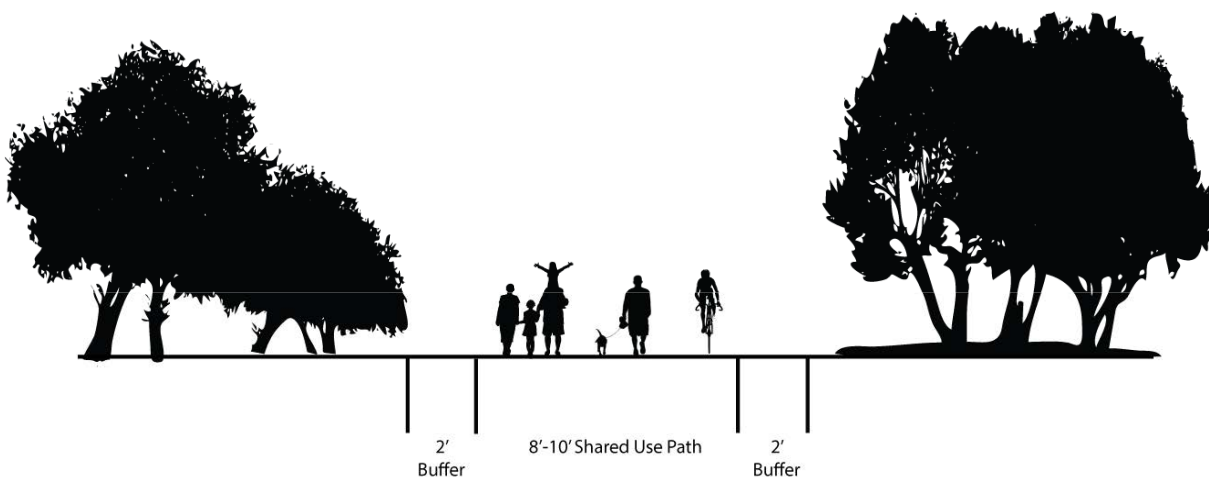
- Carthage Planning Review

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.

Influences or Destinations

- Safe Off-Road Pedestrian Linkage
- Existing Sewer Easement
- Connection to Lake Marion
- Off Road Connection from Saunders Street



Shared Use Path (greenway) #2– Nancy Kiser Park to Airport/Pik-N-Pig

Context

Shared Use Paths-also referred to as Greenways or Multi-Purpose Trails, provide off-road access to various destinations. **These trails are typically 8 to 10 feet wide** and allow for biking, which is not permitted on downtown sidewalks.

By providing clear and safe routes between different areas of town and connections to neighboring communities a network can be established and create a possible attraction that could increase the number of visitors to the Town.



Short-Term Recommendations

The Carthage Bicycle & Pedestrian Plan recommends construction of a Shared Use Path (greenway) connecting the Nancy Kiser Park located between McNeil Street and Rockingham Street, to the Airport and Pik-N-Pig restaurant. This Shared Use Path would be located along an existing sewer easement with ample room for the path.

Cost Estimate: \$986,700

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Potential Funding Mechanism

- NC Parks and Recreation Trust Fund (PARTF)
- Recreational Trails Program
- Local Donations and Fundraising

Length: 1.3 miles

Potential Permitting Needs:

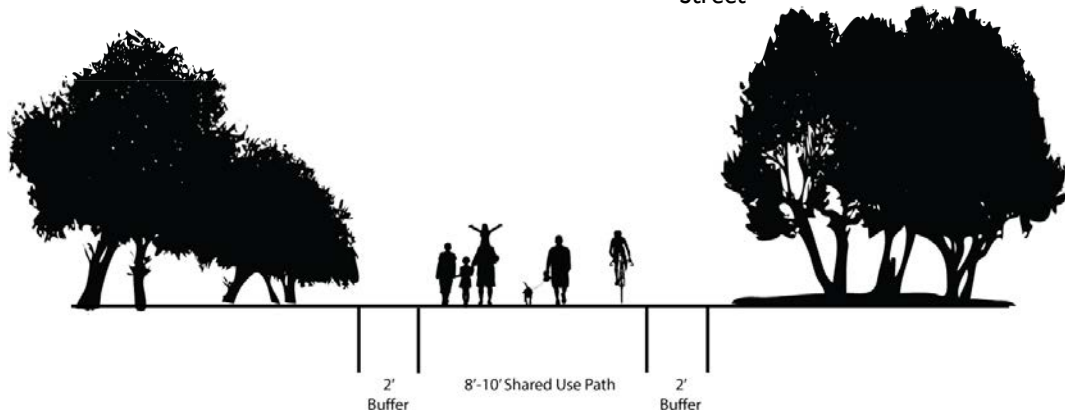
- Moore County/Carthage Land Disturbance Permit
- Carthage Planning Review

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.

Influences or Destinations

- Safe Off-Road Pedestrian Linkage
- Existing Sewer Easement
- Possible Spurs or Side Paths to Adjacent Destinations
- Off Road Connection from Saunders Street



Shared Use Path (greenway) #4– Hillcrest Park to Vass-Carthage Road

Context

Shared Use Paths-also referred to as Greenways or Multi-Purpose Trails, provide off-road access to various destinations. **These trails are typically 8 to 10 feet wide** and allow for biking, which is not permitted on downtown sidewalks. By providing clear and safe routes between different areas of town and connections to neighboring communities a network can be established and create a possible attraction that could increase the number of visitors to the Town.



Short-Term Recommendations

The Carthage Bicycle & Pedestrian Plan recommends construction of a Shared Use Path (greenway) connecting Hillcrest Park to Vass-Carthage Road. This Shared Use Path would cross over Star Ridge Road and Joel Road requiring proper signage and crossing treatments.

Length: 1.5 miles

Potential Permitting Needs:

- Moore County/Carthage Land Disturbance Permit
- Carthage Planning Review
- 401-404 Permit

Long-Term Recommendations

The Shared Use Path (greenway) would need advanced planning for where it would connect with Priority Project #9 that is a Shared Use Path or 6' Sidewalk along Union Church Road. Shared Use Paths need to connect destinations together or tie into another type bike pedestrian facility to be useful. Priority Projects #4 and #9 should be coordinated so that the time between construction of each is as minimal as possible.

Potential Funding Mechanism

- NC Parks and Recreation Trust Fund (PARTF)
- Recreational Trails Program
- Local Donations and Fundraising

Potential Site Constraints

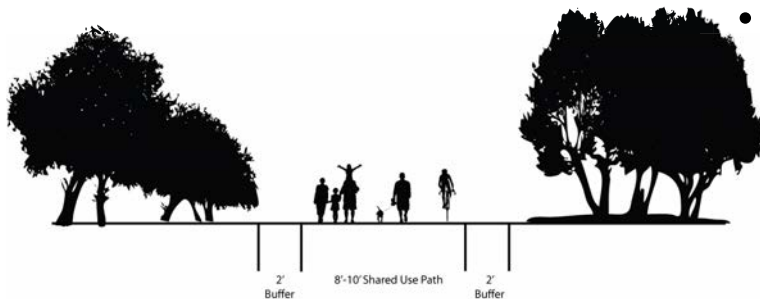
Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.

Cost Estimate: \$1,300,00

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Influences or Destinations

- Safe Off-Road Pedestrian Linkage
- Existing Sewer Easement
- Possible Spurs or Side Paths to Adjacent Destinations
- Off Road Connection from Saunders Street



Sidewalk Facility Project #I Monroe Corridor – Ray Street to Vass Carthage Road



Context

All of the proposed sidewalk improvements for the Carthage Bicycle and Pedestrian Plan consist of either new sidewalks, or accessibility improvements. These are considered to be on-road construction projects. Sidewalk project cost estimates should be revised closer to the time of expected construction and based on a detailed site analysis.

Recommendations

This project connects through the heart of Carthage with improvements to sidewalks on both sides of Monroe Street from Ray Street to Vass-Carthage.

Cost Estimate: \$400,000.00

Sidewalk project cost estimates should be revised closer to the time of expected construction and based on a detailed site analysis. Cost estimate was guided by the NCDOT Bicycle and Pedestrian Facility Cost Tool (5.24.18) <https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>

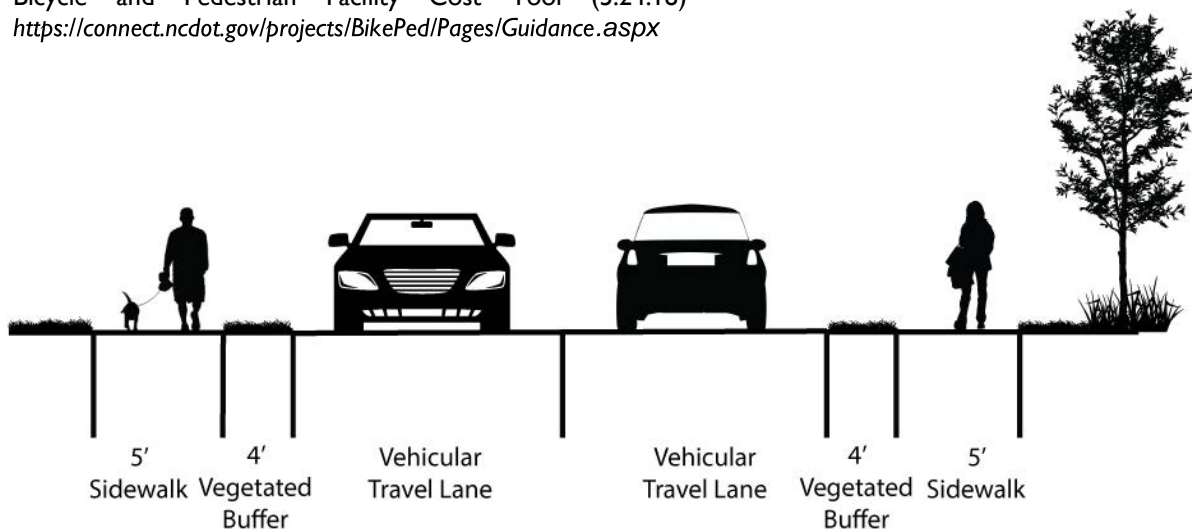
Length: Varies (refer to NCDOT Projects for more details)

Traffic Volume (2016)

10,000 Monroe Street

Long-Term Recommendations

Coordinate with NCDOT for construction transitions and similar treatments. This NCDOT project is from Vass-Carthage to US 15-501 and once completed will provide a seamless sidewalk connection through downtown Carthage.



Sidewalk Facility Projects #2 Rockingham Corridor – S. McNeil Street to Existing Sidewalk at Carthage Elementary



Conceptual sidewalk and bike lane at Carthage Elementary

Context

All of the proposed sidewalk improvements for the Carthage Bicycle and Pedestrian Plan consist of either new sidewalks, or accessibility improvements. These are considered to be on- road construction projects.

Recommendations

This project provides a safe connection for pedestrians between the existing sidewalk along the east side of McNeil to the existing sidewalk at Carthage Elementary School. Sidewalk and other pedestrian facilities that connect destinations like schools and hospitals should rank high as a Town priority.

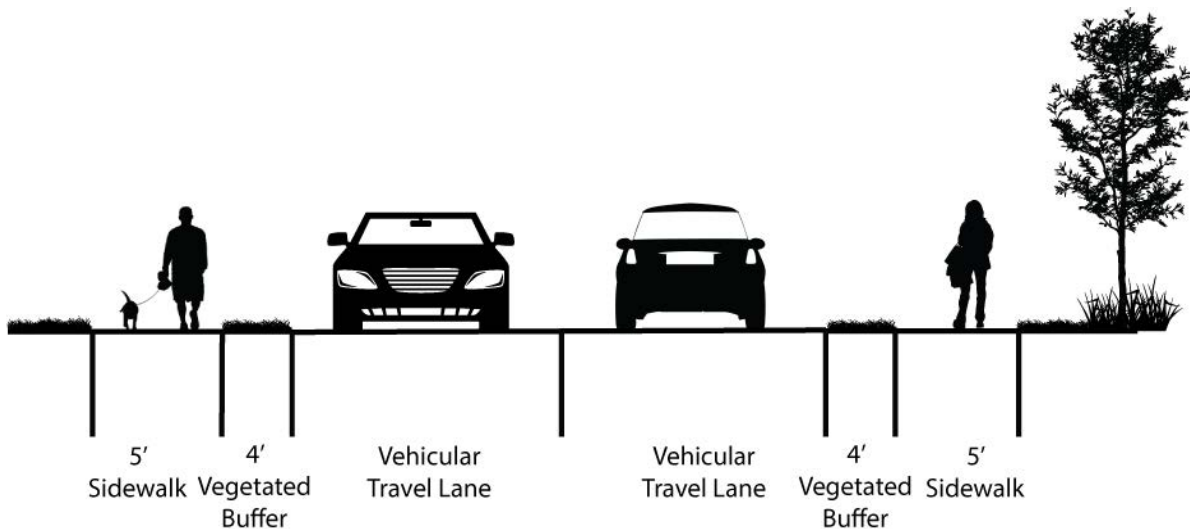
This project will also connect to the existing sidewalk network providing connections to downtown.

Length: 900 Linear Feet

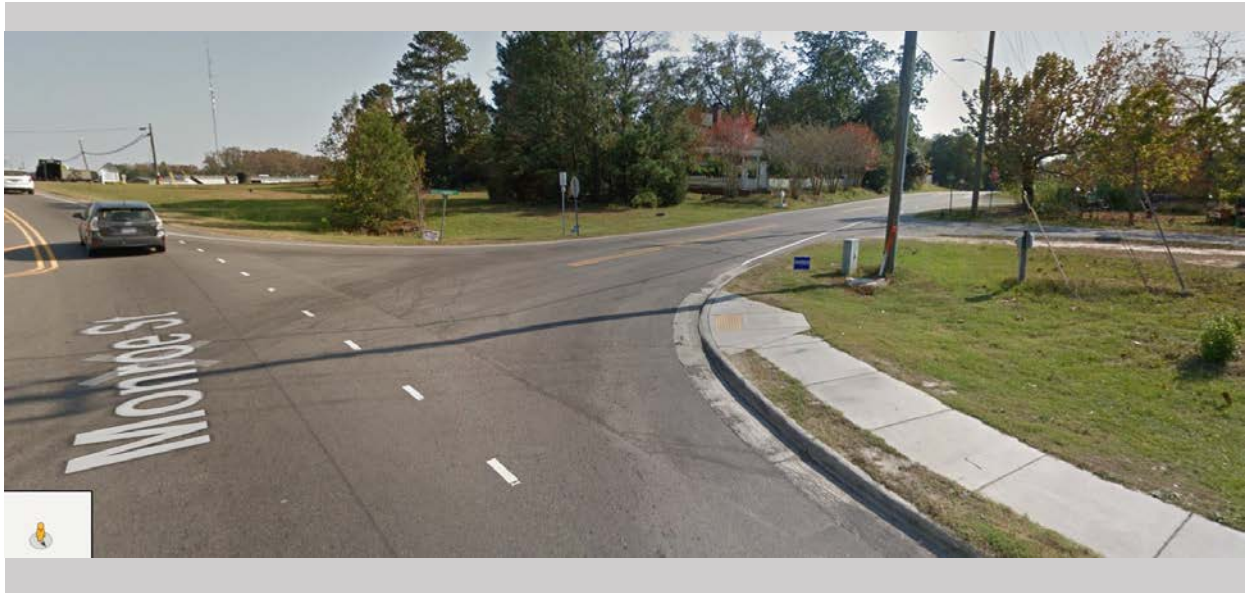
Traffic Volume (2016)
3,700 Rockingham Street

Cost Estimate: \$150,000

Sidewalk project cost estimates should be revised closer to the time of expected construction and based on a detailed site analysis. Cost estimate was guided by the NCDOT Bicycle and Pedestrian Facility Cost Tool (5.24.18)
<https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>



Sidewalk Facility Project #4 Monroe Corridor – Vass Carthage to US 15-501



Context

All of the proposed sidewalk improvements for the Carthage Bicycle and Pedestrian Plan consist of either new sidewalks, or accessibility improvements. These are considered to be on-road construction projects.

Recommendations

This project is along the transition corridor from US 15-501 to downtown Carthage. NCDOT Project # will provide accessible sidewalk facilities along both north and south sides of Monroe Street

Cost Estimate: \$ 320,000

Sidewalk project cost estimates should be revised closer to the time of expected construction and based on a detailed site analysis. Cost estimate was guided by the NCDOT Bicycle and Pedestrian Facility Cost Tool (5.24.18) <https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>

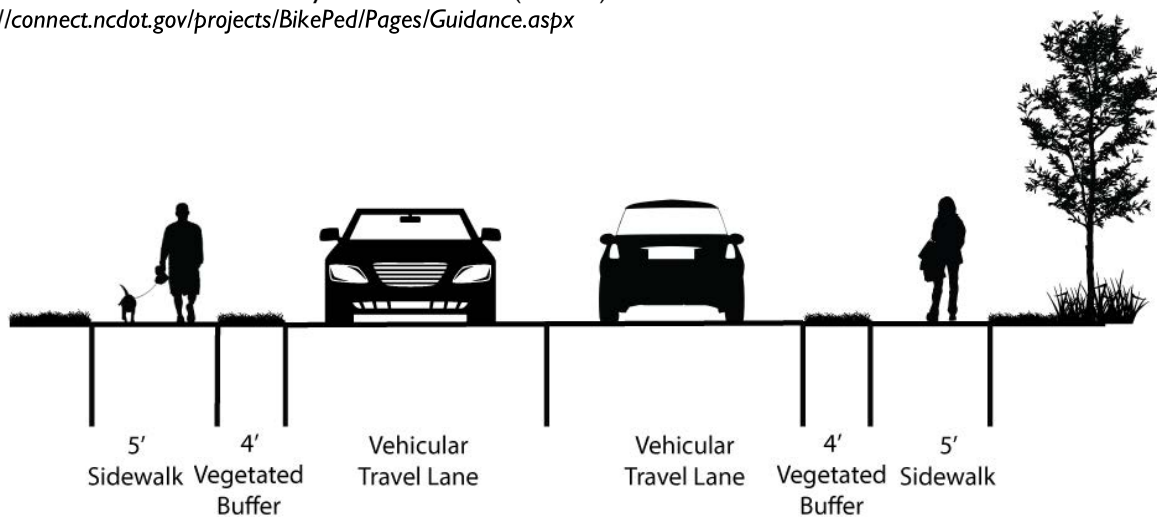
Length: Varies (refer to NCDOT # U 3826 for more details)

Traffic Volume (2016)

10,000 Monroe Street

Long-Term Recommendations

Coordinate with NCDOT # U 3826 for construction transitions and similar treatments. NCDOT #U 3826 is from Vass-Carthage to Ray Street and once completed will provide a seamless sidewalk connection through downtown Carthage

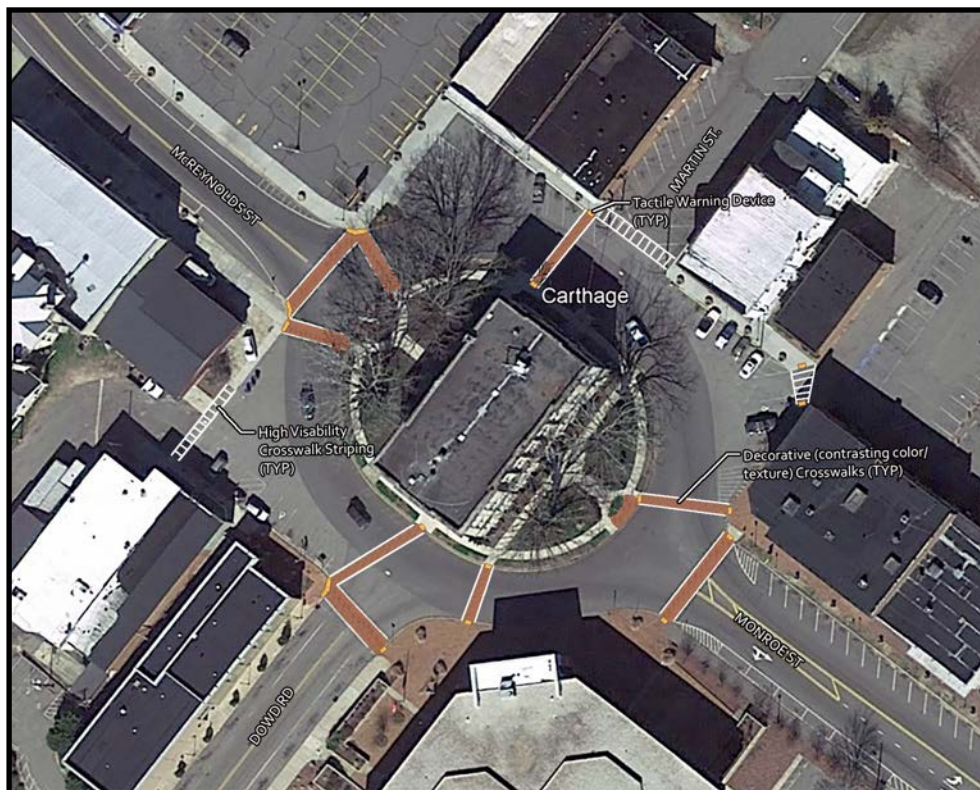


Courthouse Square Proposed Pedestrian Improvements



Courthouse Square (Martin Street, McReynolds Street, Dowd Road, and Monroe Street) Existing Conditions

While pedestrian crosswalks do exist on McReynolds Street, Dowd Road, and Monroe Street, there are few safe crossings from the Old Courthouse to adjacent blocks.



Conceptual layout for improved pedestrian access at Courthouse Square

Proposed pedestrian improvements include decorative stamped asphalt crosswalks, accessible curb ramps with tactile warning devices, safety signage as well as high-visibility (ladder) crosswalk striping for lower traffic locations. An opinion of probable costs based on the concept sketch above can be found in Appendix F. Final cost estimates must be based on completed design/construction documents.

- END OF SECTION -

SECTION FIVE:

PROGRAM AND POLICY RECOMMENDATIONS

A variety of programs and facilities (designed to increase walking and promote bicycle and pedestrian safety in the Town of Carthage) are outlined in this section. Policies are included, which recommend that the Town help with the development and maintenance of the bicycle and pedestrian network outlined in Section 4.

The following sections describe policies, programs, and action steps. These elements were developed using and evaluating existing planning documents mentioned in Section 3. The Steering Committee also assisted in developing the plan's overall goals which include the following:

- Increase bicycling and walkability in downtown.
- Promote biking and walking as a healthy exercise.
- Create a bicycle and pedestrian environment that is friendly to all users including seniors, the disabled, and children.
- Improve connections between various parts of the Town.
- Promote safety.

5.1 ANCILLARY FACILITIES AND PROGRAMS

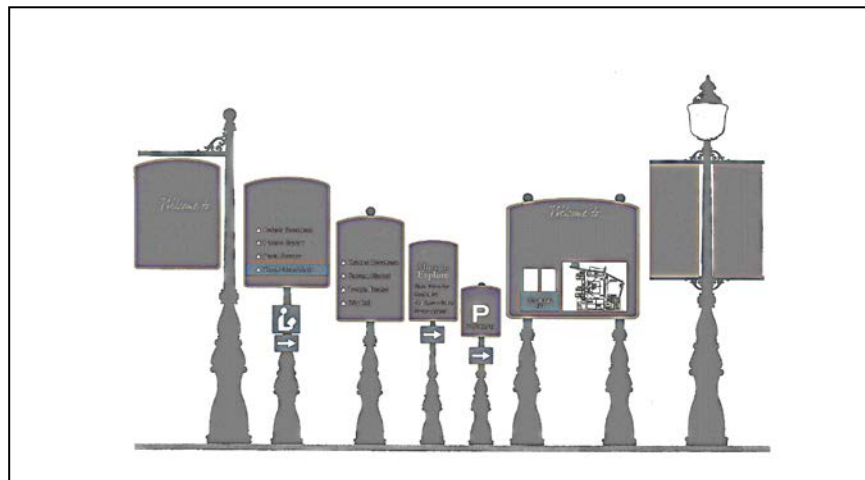
Maintenance

Safety should be a high priority with existing and new facilities. Continual maintenance will be required to have a functional bicycle and pedestrian network. Bicyclists and pedestrians typically aspire to use a facility that is in a good and safe condition; otherwise, it will not be used effectively. It is recommended that the Town staff conduct an inspection of existing facilities on a quarterly basis to (not only address previously identified maintenance issues) but also to inventory any additional areas where issues have arisen.

Signage and Way-finding

A map of existing facilities in the Town of Carthage can be found at the end of Section 2. Not only does the map delineate the conditions of existing bicycle and pedestrian facilities, they also address crosswalk needs and the lack of curb ramps. A number of destination areas such as schools and parks are shown in order to better understand the relationship of existing bicycle and pedestrian facilities to their uses.





Examples of easily identifiable pedestrian way finding signage:

Proper signage is an important part of any transportation system - whether it is bicycle and pedestrian or vehicular in nature. Signs in school zones, parking lots, and other areas alert drivers to the presence of bicyclists and pedestrians in the area. Signage for *bicycle and pedestrian* facilities is equally as important as signage for *roadways*. Often, bicycle and pedestrian facilities lack signage directing bicyclists and pedestrians along a designated route. It is hard to imagine having to bike or walk to a specific destination without knowing the exact route to use; but, this is often the case with bicyclists and pedestrians - especially visitors to the area. However, all bicycle and pedestrian facilities should have a clear and concise system of signage to direct users to various destinations, such as mural walls, the library, shopping, area parks/trails, and other bicycle and pedestrian generators. It is recommended that the Town of Carthage further evaluate the existing system of way-finding signage and make efforts to increase the use of way-finding signage as well as ensure that signage style is consistent in order to make locating bicycle and pedestrian signs easy and efficient for users. Various types of way finding signage are illustrated above.

Spot Improvement Programs

The Town of Carthage will be responsible for most of the spot improvements within the Town. Spot improvements are small projects such as the maintenance of curb ramps, the repair of damaged sidewalks, and the removal of debris that will be completed by the Town. These improvements should be performed on a case-by-case basis with special consideration given to hazardous areas. The Town should (annually) inventory and inspect areas requiring spot improvements, prioritize



Spot improvements prevent pedestrian accidents at hazardous areas.

these locations, and proceed with the proper implementations.

Traffic Calming

Carthage has many areas where vehicular and pedestrian traffic could potentially interfere with one another. Areas where traffic speed may conflict with bicycle and pedestrian routes include: The parking areas and streets near Courthouse Circle as well as those areas near the Public Safety Center:

A more comprehensive assessment of possible bicycle and pedestrian/vehicular conflicts should be conducted for areas near schools, parks, greenways, shopping, eating establishments, residential areas, and where areas of future development are known to be sited within the Town of Carthage. High pedestrian traffic areas need safe traffic speeds in order to reduce the possibility of bicycle or pedestrian/vehicle accidents. Pedestrians want to be in secure areas where they feel comfortable and vehicular traffic is controlled.



On-street parking has a traffic calming effect.

There are many simple and effective methods used to achieve traffic calming. These techniques can be as simple as lane striping or on-street parking. Subconsciously, a driver feels the need to travel slower in areas where the traffic lane is *visually* narrower. Methods such as street trees, bulb-outs, and crossing islands may not narrow the actual traffic lane; but, will create a constricted visual corridor of the roadway, causing most drivers to decrease speed. Other techniques such as speed tables, raised crosswalks, and specialty pavement - all attract the driver's attention, causing an immediate slow down. It is imperative that proper planning, evaluation, and engineering occur before these devices are implemented.

Transit Interface

Moore County Transportation Services (MCTS) offer Subscription Service, Demand Response Service, and General Public Service by utilizing conversion and lift-equipped vehicles. For a small fee, they also provide transportation for the general public. The system runs regular routes with transit stops. Moore County Transportation Services provides transportation services on an advanced reservation basis. Services for senior citizens, persons with disabilities, limited general public individuals and human service agencies are provided on a county-wide basis.



Limited out-of-county services are provided for specialized care (for example: a trip to a specialized medical provider in the Triangle region).

The Town of Carthage should consider including facilities for future MCTS stops in and around parks, schools, and medical areas. These should include bus stop shelters, benches, and other street furniture to reduce the discomfort of standing by a busy street waiting for a bus. It will be important to place these stops where they can be easily accessed by bicyclists and pedestrians. The provision of crosswalks and signals for safely crossing the street, sidewalks or paving (which is wide enough to accommodate a group of people), and clearly-marked signage leading to identifiable bus stops will be critical, as well.

Identify Countermeasures

The Town of Carthage should continue to stay aware of what measures may be used to mitigate bicycle and pedestrian accidents. National statistics indicate that nearly one-third of all pedestrian-related vehicular accidents occurred within 50 feet of a street intersection. Even though crosswalks at intersections may be properly marked with appropriate signage, accidents still occur. At times the pedestrian does not take the proper precautions when crossing intersections. Sometimes the driver is at fault by failing to yield to pedestrians. Drivers and pedestrians should both take a defensive attitude toward pedestrian/vehicular safety when approaching intersections. NCDOT has published the handbook, *A Guide to North Carolina Bicycle and Pedestrian Laws: Guidebook on General Statutes, Ordinances, and Resources* (<http://www.ncdot.gov/vikeped/lawspolicies/laws/>). This document serves as an educational tool for pedestrians, drivers, and the general public.

Statistically, less than ten percent (10%) of pedestrian fatalities in the nation involved a pedestrian walking along a road and not on a sidewalk. Most of these incidents involved the pedestrian walking “with” the traffic and being struck from behind. Safety guidelines suggest that pedestrians “face” the traffic when walking. More than one-fourth (1/4th) of all pedestrian accidents occurred at mid-blocks. This type of accident is typically associated with a pedestrian *darting* across the road. Prior to establishing a marked mid-block crossing, proper evaluation should be done to ensure the safety of the public.

These two noted types of pedestrian accidents represent over 65% of pedestrian fatalities in the nation. Over the past several years, countermeasures have been developed to mitigate pedestrian accidents. Countermeasures are generally “site-specific” improvements, which hopefully provide immediate solutions. The most effective countermeasures include roadway design, intersection design, traffic calming, traffic management, signals, signage, and pedestrian facility design.



Chicanes are a set of 2 or 3 bulb-outs or curves that alternate from one side of the street to the other. They are designed to slow the speed of drivers – in this case, by creating a narrower lane.

Another useful countermeasure is to provide pedestrian refuge in areas where pedestrian and vehicular traffic may conflict. One such pedestrian refuge area is the sidewalk system in Downtown and more specifically in the traffic circle around the old courthouse building. Preferred downtown sidewalks typically accommodate three zones for different functions. These functions include: the storefront zone (merchandise display and outdoor gathering/dining), the passage zone to accommodate lateral travel and the curbside/utility zone (mailboxes, bike racks, street trees and curbside parking access). By defining these zones within Downtown Carthage pedestrian safety could be improved and the sense of place of Downtown could be bolstered.

The planning and engineering methods previously mentioned can be instrumental in reducing pedestrian accidents in Carthage. Education and enforcement are also countermeasures that must be implemented in the prevention of pedestrian accidents. The following are examples of countermeasures that are related to pedestrian safety in the Town.

Roadway Design

Roadway Narrowing
Lane Reduction
Driveway Improvements
Raised Medians
Curb Radius Reduction

Intersection Design

Modified T-Intersections
Intersection Median Barriers

Traffic Calming

Curb Extensions
Chokers
Crossing Islands
Raised Intersections
Raised Pedestrian Crossings
Landscaping
Specific Paving Treatments

Signals and Signage

Traffic Signals
Pedestrian Signals
Traffic Signal Enhancements
Right-Turn-on-Red Restrictions

Advanced Stop Lines
Signing

Pedestrian Facility Design

Sidewalks and Walkways
Curb Ramps
Marked Crosswalks and Enhancements
Roadway Lighting Improvements
Street Furniture/Walking Environment

Bicycle Facility Design

Proper Signage
Correct Markings for Type of Facility
Bicycle Lanes
Paved
Shoulders

Education and Enforcement

Neighborhood Identity
Speed-Monitoring Trailer
On-Street Parking Enhancements



Speed-Monitoring Trailer

There are numerous resources to guide and direct the planning, design, and implementation of these countermeasures. They include, but are not limited to the following:

- NCDOT Walk Bike NC (<https://www.ncdot.gov/bikeped/walkbikenc/default.aspx>)
- NACTO Urban Bikeway Design Guide (<https://nacto.org/publication/urban-bikeway-design-guide/>)
- FHWA Bike/Ped Program
(https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/index.cfm)
- FHWA Designing Sidewalks and Trails for Access
(https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/)
- FHWA PEDSAFE Pedestrian safety Guide and Countermeasure Selection System
(<http://www.pedbikesafe.org/PEDSAFE/>)
- FHWA BIKESAFE Bicycle Countermeasure Selection System
(<http://www.pedbikesafe.org/bikesafe/>)
- AASHTO Guide for the Development of Bicycle Facilities, 4th Edition
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, 1st Edition
- MUTCD Pedestrian Control Features
(<https://mutcd.fhwa.dot.gov/html/2003r1r2/part4/part4e.htm>)
- Proposed Public Rights-of-Way Accessibility Guidelines (<https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines>)

5.2 POLICY RECOMMENDATIONS

The design and planning of bicycle and pedestrian facilities are important components of roadway design. Fundamentally, both modes of transportation (pedestrian and vehicular) should acknowledge each other in matters of safety, accommodation, and relationship. Pedestrian movement has become an important focus for the Town of Carthage. The public needs connectivity, safer routes, and more walking opportunities. Although public meetings do not capture a *complete* synopsis of the Town's pedestrian needs, they do identify concerns and issues. Based on information from the general public, there is a perceived need for an expanded pedestrian network in the Town of Carthage.

Town staff and the Steering Committee also recognize other important issues. Connectivity and safety are of utmost importance to the Town of Carthage. Many areas within the Town were acknowledged as safety concerns that need to be addressed with regard to reducing potential bicycle and pedestrian accidents. Increasing public safety (with devices such as pedestrian signals, signage, and the removal of existing barriers) will create a user-friendly pedestrian network and thereby, increase the number of pedestrians. The Steering Committee also recognizes the importance of providing equal pedestrian system access to those that are physically or economically disadvantaged. Special attention is needed to bring the network up to ADA standards for physical access. Developing the network into economically-challenged areas will assure equitable access for all citizens.

Land Use

Land-use policies and regulations have a strong influence on promoting both biking and walkable communities. If bicycle and pedestrian facilities are not *required*, developers may be discouraged from incorporating these facilities in future projects. The Town of Carthage should study its zoning and subdivision ordinances regularly – to ensure that developers adhere to policies and regulations, which create more bicycle and friendly environments for both bicyclists and pedestrians.



Developers should incorporate sidewalks in all future plans.

As part of the Town of Carthage Comprehensive Bicycle and Pedestrian Plan, the Town should continue to promote bicycle and pedestrian facilities, particularly within new developments - both residential and commercial. Sidewalks should always be required for new streets, improved streets, or street extensions. Although developers may argue that this requirement increases

development costs, this requirement will continually enhance and promote the bicycle and pedestrian network established by the Town.

This bicycle and pedestrian plan also recommends regulations that require sidewalk facilities for any renovations and/or additions to existing structures. As urban commercial infill properties re-develop, sidewalks should be constructed with these projects. In some instances, these sidewalks may still be disconnected, but over time, as these developmental projects continue, they will enhance bicycle and pedestrian connectivity and reduce costs for the Town.

This allows the Town to have control over current and future construction and maintenance of the bicycle and pedestrian facilities. It also allows the Town to develop facilities in a continuous and efficient way, preventing the bicycle and pedestrian facilities from being removed by the developer. The requirement of sidewalk construction “fee in lieu of construction” should be included in development regulations and the subdivision code.

Although the Town of Carthage should be flexible with development opportunities, the Town must require the developer to provide right-of-ways or easements for bicycle and pedestrian facilities, including proposed greenway trails. All development approved by the Town must include the accommodation of bicyclists and pedestrians by the developer(s).

5.3 FACILITY RECOMMENDATIONS AND ACTION ITEMS

Bicycle and Pedestrian Network

The following recommendations are intended to help create and maintain a bicycle and pedestrian route network that strengthens the local communities of the Town by connecting to existing and future parks, shopping centers, government offices, and businesses.



Coordinate efforts with Moore County School System

Recommendation #1 - *It is recommended that Carthage enforce the Town’s land development ordinance requiring sidewalks. Exceptions may be considered on a case-by-case basis due to such considerations as difficult terrain, inadequate width, or exponential costs.*

Recommendation #2 - *Town ordinances and existing plans should be updated or corrected to reflect bicycle and pedestrian plan recommendations and proposals.*

Recommendation #3 – The Town should work with the Moore County School System to ensure that future schools in the Town have a strong emphasis on non-vehicular transportation, such as bicycling, walking, skating, etc. In choosing locations for future schools, emphasis should be placed on orienting the main entrance toward residential neighborhoods rather than at major thoroughfares. School programs should promote non-motorized means for transportation for students, when applicable.

Recommendation #4 - Provide bicycle and pedestrian connectivity along existing thoroughfares such as US 15-501 and Monroe Street.

Recommendation #5 - Develop a system of way finding signage for bicycle and pedestrian facilities and greenways that are as well as consistent with the Town standards.

Recommendation #6 - New commercial and residential development should be oriented to the pedestrian and include internal pedestrian walkways connecting the development to the external sidewalk network in the public right-of-way as well as future development. If a planned residential or commercial development is located on a planned pedestrian project, an easement must be dedicated for the future shared-use.

Recommendation #7 - Construct bicycle and pedestrian facilities as identified on the Proposed Bicycle and Pedestrian Facilities Map and according to the prescribed guidelines. Alignment for facilities may require adjustment in order to meet necessary requirements

Recommendation #8- Maintain and repair existing sidewalks to current standards - ensuring that facilities are safe and free of obstacles and debris.

Recommendation #9 - Repair all noncompliant bicycle and pedestrian facilities and ensure all new facilities should provide ADA accessibility.

Recommendation #10 – All maintenance should follow NCDOT standards, including the removal of unused or non-conforming driveway cuts.

Recommendation #11 - Coordinate planning efforts with county and nearby jurisdictions to provide regional facility connectivity.



Install marked crosswalks

Recommendation #12 – Work closely with the local RPO to ensure sidewalk projects are included in all NCDOT roadway projects.

Recommendation #13 - Require developers to provide bicycle and pedestrian connectivity to adjacent developments and destination areas.

Safety and Health

Create, implement, and maintain safe bicycle and pedestrian facilities which allow for a “bikeable and “walkable” community.

Recommendation #14 - Continue to partner with the Moore County School System in the initiation and implementation of school safety programs for school children.

Recommendation #15 - Install and/or replace all damaged and noncompliant bicycle and pedestrian facilities as noted in the network recommendations, Items 6 and 7.



Fill in sidewalk gaps

Recommendation #16 - Prioritize sidewalk implementation where gaps are located and where there is a high volume of pedestrian activity.

Recommendation #17 - Ensure that all sidewalks are extended across driveways at safe and usable cross slopes.

Recommendation #18 - Create a maintenance program which monitors existing sidewalks for damage and fills in gaps in the pedestrian system that meets current standards.

Recommendation #19 – Establish regular reviews for the annual budget for sidewalk repair and expansion to obtain connectivity goals.

Recommendation #20 – Encourage schools to develop walking programs to promote healthy exercise amongst their pupils.

Crossing Safety

Improve and construct all pedestrian crossings in areas where there is a high volume of pedestrian activity or where safety is an issue.

Recommendation #21 - Install marked crosswalks at all major intersections.

Recommendation #22 - Evaluate traffic intersections for possible design elements such as extended curbs and refuge islands for pedestrian safety.



Recommendation #23 - Update local traffic intersection guidelines to meet current state and federal requirements.

Recommendation #24 - Continue to implement and enforce the lower speed limit of 25 M.P.H. that was recently implemented for all Town roads. Make sure that all speed reductions are clearly marked and enforced. Roads within the Town Center area should be designated as 20 mph or less. It is recommended that residential areas in the Town be studied further for traffic calming and speed reduction.

Recommendation #25 - Ensure that traffic intersections with bicycle and pedestrian facilities are well lit.

Recommendation #26 - Evaluate bicycle and pedestrian facilities annually for safety issues and implement solutions.



Enforce speed limits

Traffic Signals

Implement traffic signals at unsafe and dangerous intersections which improve pedestrian conditions

Recommendation #27 - Install pedestrian signals at all major intersections.

Recommendation #28 - Seek funding opportunities which help with design assistance and implementation of traffic and pedestrian signals.



Typical countdown signal.

Recommendation #29 - Review the signal timing to ensure that pedestrians have adequate crossing times at intersections.

Recommendation #30 - Consider audible pedestrian signals near senior centers and other high-volume pedestrian attractors.

Recommendation #31 - Consider using “countdown” pedestrian signals near high pedestrian volume locations.

Community Strengthening

Provide amenities and elements that enhance the bicycle and pedestrian environments and create a desirable place to live and work.

Recommendation #32 - Develop environmental education and interpretive facilities, particularly along greenway corridors.

Recommendation #33 - Provide a planting strip between sidewalks and roadways for street trees and low plantings, where possible.



Utility placements should be coordinated with the Town.

Recommendation #34 – Develop design standards for the placement of utilities (power poles, telephone poles, sewer inlets, etc.) so that they do not impede pedestrian traffic. This should be a part of the Town’s Code of Ordinances.

Recommendation #35 – The Town should coordinate the placement of all traffic and pedestrian signs with Moore County and the NCDOT. Such coordination should include the replacement and/or repair of damaged or aged signs.

Recommendation #36 – The Town should consider undertaking a streetscape redesign project for Downtown. Special attention should be considered for the courthouse circle and to traffic delineation as a way to identify and reallocate potential pedestrian refuge areas.

5.4 PROGRAM RECOMMENDATIONS

Education, encouragement, and enforcement programs should be in place to teach and promote safety and ensure the success of the Town’s bicycle and pedestrian network for the future. The recommended programs will be successful in serving the Town’s need to support bicycle and pedestrian activity.

Safety Education Programs

School-based programs that stress safety should be implemented regularly, particularly for young children. The promotion of ‘walking to school initiatives’ will raise public awareness of child safety and instruct children in the proper usage of sidewalk and other pedestrian facilities, whether walking to school or to the school bus stop. The local police departments typically provide such programs as this. Police officials go to the schools and educate children on the proper use of sidewalks and street crossings. In particular, young pedestrians need instruction on how to cross streets safely and how to interact properly with vehicle traffic.



*Safety education via
classroom engagement.*

Traffic Safety

The National Highway Traffic Safety Administration (NHTSA) has a web resource for promoting traffic safety, including pedestrian safety. The site provides research and information on these related topics:

- preventing pedestrian casualties
- a walkability checklist
- child safety
- walking to school
- other topics that are of use in developing a safety education program.

<http://www.nhtsa.gov/portal/site/nhtsa/menuitem.dfedd570f698cabbbf30811060008a0c/> is the website for NHTSA.

Pedestrian Safety Action Plan

The Pedestrian and Bicycle Information Center (PBIC) has materials to help communities and organizations develop Pedestrian Safety Action Plans (PSAP). There are several safety training courses available on their website. These courses are designed to help communities develop and implement safe bicycle and pedestrian networks. The website is <http://www.walkinginfo.org/training/pdps/>.

Safe Routes to School

Safe Routes to School (SRTS) is a program meant to encourage students to bike or walk to school safely. Information can be found at NCDOT’s website and at the National Center for Safe Routes to School website. According to the website, ‘the program is designed to “improve safety and reduce traffic, fuel



consumption, and air pollution in the vicinity of schools.” The NCDOT grant program provides federal funds for the construction of infrastructure, such as sidewalks and bike lanes, within two (2) miles of a school. The program also provides for the education and encouragement of communities in the planning and construction of pedestrian facilities for their neighborhoods. For additional information visit the SRTS website at <http://www.saferoutesinfo.org/>.

Safe Kids Walk this Way

A program sponsored by Safe Kids, USA, Safe Kids Walk this Way strives to teach safe behavior to both motorists and children; and to promote safe, walkable communities. The program promotes safe walking events for children, provides research, participates in the International Walk to School Day (IWSD) in October each year, and promotes school-based pedestrian safety committees. Go to <http://www.usa.safekids.org/wtw/>.



Watch For Me NC!

NCDOT runs the Watch For Me NC program in partnership with local communities. Their goal is to reduce the number of pedestrians and cyclists that are struck and injured by motor vehicles. It involves two key elements. They are safety and educational messages for drivers, pedestrians, and cyclists and high visibility enforcement by area police to reduce traffic safety violations. For more information go to <http://www.watchformenc.org/about/>.

Other Education Resources:

- Turner-Fairbank Highway Research Center – Pedestrian and Bicycle Safety: Articles, facts, issues, publications, research, resources, and links to other sites. <http://www.tfhrcc.gov/safety/pedbike/index.htm>
- Federal Highway Administration (FHWA) Pedestrian and Bicycle Safety. Materials, research, facts, and information on a variety of topics dealing with pedestrian safety. http://safety.fhwa.dot.gov/ped_bike/
- PedNet: Pedestrian advocacy group in Missouri. Their website is a useful tool for creating other groups like them at <http://www.pednet.org/>.
- The National Center for Bicycling and Walking (NCBW): Publications for promoting bicycling and walking as a healthy lifestyle at <http://www.bikewalk.org/>.

- The Active Living Resource Center has a website to encourage the development of active neighborhoods by increasing the walkability of the community. The website, <http://www.activelivingresources.org/index.php>, has information on community involvement in developing active, pedestrian facilities.

Encouragement and Promotion

There are many initiatives that can be implemented by the Town of Carthage to promote bicycle and pedestrian activity. Likewise, health-based organizations, employers, and civic organizations should offer incentive programs to encourage biking, walking and physical fitness in general. Programs such as ‘walk to school days’, “bike rodeos” and ‘visiting area walking facilities’ can not only encourage biking and walking, but also allow residents to use areas they may not know are available. A Bicycle & Pedestrian Advisory Committee should be organized to lead in the implementation of recommendations. They should also remain aware of any new possible projects, training, or programs that can be offered throughout the Town so as to strengthen the Town’s desire to become a more pedestrian and bicyclist friendly community.

Other means to encourage and promote the Town as a bikeable and walkable community include:

- Publish and distribute a Town biking and walking guide brochure that covers the area’s highlights, safety tips, suggested biking and walking routes, and bicyclist and pedestrian rights and responsibilities.
- Promote neighborhood walks and nature walks.
- Promote walk-for-health programs with local churches, businesses, and recreation centers.
- Organize walk-to-work/school days and/or weeks.
- Promote the various walking tours in the Town by providing historical and/or directional maps.
- Highlight biking routes already in place like the Pottery Loop Route.

Eat Smart Move More North Carolina

The Eat Smart Move More (ESMM) North Carolina program is a statewide promotion to encourage healthier lifestyles for North Carolinians. Encouraging residents to walk more is just one part of this multi-disciplinary program, which some residents of the Town have participated in. However, the Town should continue to encourage residents to take part in this program. Healthy biking and walking programs such as this can be put in place by a wide variety of organizations, including the health department, local hospitals, senior centers, local businesses, schools, churches, and recreation departments.



Walk to School Initiative

The National Center for Safe Routes to School and the NCDOT Safe Routes to School encourage “walk to school” events every October. These events are seen as a preliminary step in changing the attitude of people towards increased pedestrian activity. The *International I Walk to School in the USA* website has suggestions for events and classroom lesson plans for promoting the walk to school initiative. Visit <http://www.walktoschool.org/eventideas/index.cfm>.

Mature Adults: Be Healthy, Walk Safely

A resource for mature adults by the National Highway Traffic Safety Administration (NHTSA), this web brochure provides tips for developing a personal walking exercise program and safety guidelines for dealing with traffic at <http://www.nhtsa.dot.gov/people/injury/olddrive/steppingout/index.html>.

Enforcement Programs

A prominent issue that is faced with vehicular versus pedestrian traffic is with regard to enforcement. For decades, the law has stated that **pedestrians have the right-of-way**; but many drivers ignore this law. To ensure safety, this law must to be enforced; as well as the enforcement of speed limits. It is also recommended that local law enforcement organizations ensure that all officers are fully knowledgeable on pedestrian laws. Studies have proven that motorists’ speeds are directly proportional to the number of pedestrian deaths that occur. Reduced speeds give pedestrians more time to see and react in a timely manner. Pedestrians feel unsafe and will opt not to use sidewalks in areas where traffic laws are not enforced.

As the bicycle and pedestrian network expands to include the schools within the Town, it will be necessary to ensure safety oversight as school crossings and within the school zones. Crossing guards should be present at all official school crossings, along with approved school crossing signage and signals. The crossing guards should be trained using NCDOT’s Crossing Guard Training Program. The police department needs to provide a regular schedule of oversight of traffic during school hours in school zones. Any infractions within the school zone must be penalized to discourage future infractions and help to ensure the safety of the children.



Crossing guard at O’Neal School

5.5 FUNDING

Implementation requires taking advantage of federal, state, local, and private funding opportunities. As a municipality in a metropolitan planning organization area in North Carolina, the Town of Carthage can use federal and state funding that has been allocated to NCDOT Division 8 or to Triangle Area Rural Planning Organization (TARPO). The Town's capital improvement program and private entities are other sources that can be used to implement the recommendations of the Bicycle Plan. Examples of some typical funding sources are summarized in the sections below.

Capital Improvement Program

The Town of Carthage's annual budget includes about \$325,000 for the streets. Planning for increased spending on Town sidewalk/pedestrian amenities is recommended to keep pace with implementation of proposed improvements and future maintenance.

State Programs

NCDOT Strategic Mobility Formula

NCDOT receives and allocates federal funding using their Strategic Mobility Formula, established by the Strategic Transportation Investments¹⁸ law passed in 2013. The Strategic Mobility Formula is a data-driven and performance-based process of prioritizing projects for federal and state funding, and it updates NCDOT's 10-Year State Transportation Improvement Program (STIP) every two years. Projects in the first five years of the STIP have been committed for funding and construction, while projects in the last five years of the STIP are reevaluated every two years using the Strategic Mobility Formula. In the Strategic Mobility Formula, transportation projects are grouped into three separate funding categories: division needs, regional impact, and statewide mobility. All bicycle projects are considered division needs and are only eligible for funding that has been allocated for division needs projects. The Town of Carthage can coordinate with TARPO to submit bicycle facility projects for prioritization for funding. Projects identified in this Bicycle Plan should be eligible for Strategic Mobility Formula funding.

Powell Bill Funds

North Carolina's State street-aid program, also known as the Powell Bill program, provides funding allocations for eligible municipalities based on population and mileage of locally-maintained roadways. The primary function of the Powell Bill program is to assist municipalities in funding resurfacing local streets, but the funds may also be used for planning, constructing, and maintaining bikeways, greenways, and sidewalks. Powell Bill funds could be pursued as a match for future updates to this Plan.

Transportation Bonds

Transportation bonds generate revenue from a tax increase on property values. In North Carolina, bond referendums must be approved by the local governing board/council and then included on the ballot to be voted on by residents. Transportation bonds can include roadway, bicycle facility, and sidewalk projects.

North Carolina Department of Environment and Natural Resources

Land and Water Conservation Fund – North Carolina (LWCF)

A federally-funded program, LWCF was established for local and state governments in 1965 as a funding source for outdoor recreation development and land acquisition. LWCF monies are derived from the sale or lease of nonrenewable resources, primarily offshore oil/gas leases and surplus federal land sales. Acquisition and development grants may be used for a wide variety of outdoor projects such as bike trails, Town parks, tennis courts, outdoor swimming pools, and support facilities (roads, water supply, etc.). Facility design must be basic in nature (as opposed to elaborate) and must remain accessible to the general public. No more than 50% of the project cost may be federally funded by LWCF, although all or part of the project sponsor's matching share may be obtained from certain other federal assistance programs. <https://www.ncdcr.gov/land-and-water-conservation-fund>



North Carolina Ecosystem Enhancement Program

The NC Ecosystem Enhancement Program (EEP) combines a wetlands-restoration initiative by the N.C. Department of Environment and Natural Resources with ongoing environmental efforts by the Department of Transportation to restore, enhance, and protect its wetlands and waterways. EEP provides:

- High-quality, cost-effective projects for watershed improvement and protection
- Compensation for simply unavoidable environmental impacts associated with transportation, infrastructure, and the area's economic development
- Detailed watershed-planning and project-implementation efforts within North Carolina's threatened or degraded watersheds



https://files.nc.gov/ncdeq/PublicFolder/Work%20With/Watershed%20Planners/06_EP_Fact_Sheet_Series.pdf

North Carolina Division of State Parks

Recreational Trails Program (RTP)

The Recreation Trails Program (RTP) is an assistance program of the Department of Transportation's Federal Highway Administration (FHWA). RTP makes recreation funds available for state allocation – in the development and maintenance of recreation trails and trail-related facilities for both non-motorized and motorized recreation trail users. RTP funds are distributed to states by a legislative formula: half of the funds are distributed equally among all states and half are distributed in proportion to the estimated amount of non-highway recreational fuel used in each state. *Non-highway recreational fuel is the type that is typically used by snowmobiles, all-terrain vehicles, off-road motorcycles, and off-road light trucks.*

Parks and Recreation Trust Fund (PARTF)

The Parks and Recreation Trust Fund (PARTF) provides dollar-for-dollar matching grants to local governments for the acquisition and/or development of park and recreational projects to serve the public. A local government can request a maximum of \$500,000 with each application. Some portions of bike and pedestrian project may be eligible for PARTF if they meet the necessary requirements of the application such as having a minimum number (typically three) of recreation amenities, having at least ¼ mile of path, meeting accessibility requirements, etc.

A PARTF grant can also be used to acquire land for recreation, protect the natural and scenic resources or renovate older park facilities. A project must be located on a single site. Carthage would be required to match the grant award dollar-for-dollar, 50% of the total cost of the project, and may contribute more than 50%. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match.

The Recreational Resources Service should be contacted for additional information at (919) 515-7118. www.ncparks.gov/About/grants/partf_main.php

North Carolina Division of Forest Resources

Urban and Community Forestry Grant Program

This program is designed to assist local governments in preserving existing tree cover in communities and to effectively and efficiently manage urban and community forests. Tree planting projects need to be part of a larger project aimed at promoting and enhancing the existing tree cover in a community. Projects with pedestrian network elements include:

- Development of a pocket park
- Greenway development
- Tree planting in low-income neighborhoods
- Master Tree Plans

- Neighborhoods

http://ncforestservice.gov/Urban/urban_grant_overview.htm

North Carolina Division of Water Resources

Water Resources Development Grant Program

This grant is designed to provide cost-share grants and technical assistance on projects related to water resources. There are seven (7) different project categories. The category which describes *the establishment of a greenway in close proximity to a body of water* is eligible for the Land Acquisition and Facility Development for Water-Based Recreation grant. <https://deq.nc.gov/about/divisions/water-resources/water-resources-grants/financial-assistance>

North Carolina Division of Commerce

Community Revitalization Grants

The purpose of the Community Revitalization Grant is to revitalize low or moderate income residential areas through improvements, preservation, or development. Eligible activities include housing, street improvements, public water service, public sewer service, community centers, and recreation facilities. Other activities may be eligible with pre-approval. Maximum grants are one million dollars.

<http://www.nccommerce.com/en/CommunityServices/CommunityDevelopmentGrants/CommunityDevelopmentBlockGrants/>

Miscellaneous State Funding Organizations

North Carolina's Clean Water Management Trust Fund (CWMTF)

Created in 1996 by the North Carolina General Assembly, the Clean Water Management Trust Fund (CWMTF) grants monies to local governments, state agencies, and not-for-profit conservation groups to help finance projects that specifically address water pollution issues. CWMTF will fund projects that contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits. There is no match required from local municipalities for CWMTF funds; however, the "suggestion" of a match is highly recommended.

<https://cwmtf.nc.gov/>



North Carolina Health and Wellness Trust Fund (HWTF)

The NC Health and Wellness Trust Fund was created by the General Assembly as one of three (3) entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement (MSA). HWTF receives one-fourth of the state's tobacco settlement funds, which are paid in annual installments over a 25-year period.

The Fit Community Program was designed to address the growing obesity problem in North Carolina. In 2004, HWTF partnered with Blue Cross and Blue Shield of North Carolina to launch a statewide campaign designed to raise awareness of the danger of being overweight and provide communities and individuals with the information and tools they need to address this problem.

Fit Community Grants are funded for two (2) years, for a maximum of \$60,000. Applicants must first submit a Fit Community designation application and then apply for a Fit Community grant. Funding is for policy changes that will influence the public by promoting physical activity and changes to the physical environment; and, that encourage more physical activity. <http://www.hwtfc.org/>



Federal Agencies

Community Development Block Grant Program (HUD-CDBG)

The CDBG is an extremely flexible grant program that provides communities with funding resources to address a wide range of unique development needs in the community. The program is now administered through the United States Department of Housing and Urban Development (HUD). Formed in 1974, the CDBG program is one of the oldest continuing HUD programs in existence. The CDBG program provides annual grants for facility and infrastructure related improvements to assist in revitalization and job retention within communities.



**Community
Development
Block
Grant**

https://www.hud.gov/program_offices/comm_planning/communitydevelopment/programs

Fixing America's Surface Transportation

The most recent surface transportation legislation, Fixing America's Surface Transportation (FAST Act), was passed in December 2015. It restructured several of the funding programs that were active in the previous legislation, Moving Ahead for Progress in the 21st Century (MAP-21). For the programs described below, the Town of Carthage would apply to the TARPO for funding and provide a 20% local match. Surface Transportation Block Grant Program MAP-21's Surface Transportation Program-Direct Attributable (STPDA) was changed to the Surface Transportation Block Grant Program I5 (STBG) in the FAST Act. Municipalities within rural planning organization (RPO) study areas, e.g., the TARPO area, can submit projects for STBG funding through the RPO.

Eligible projects include roadways, transit (operations excluded), bike facilities, pedestrian facilities, truck parking areas, and intelligent transportation systems (ITS) improvements. Transportation Alternatives What was once the Transportation Alternatives Program (TAP) is now a set-aside under STBG called Transportation Alternatives I6 (TA). Eligible projects include pedestrian and bicycle facilities, recreational trails, and Safe Routes to School projects. Municipalities can apply for TA funding in the same way they would apply for STBG funding. Metropolitan Planning the FAST Act maintains MAP-21's metropolitan planning funding program.¹⁷ Jurisdictions that are members of an RPO can apply for this funding for planning studies. Localities must provide a 20% local match and can only use the funding on planning studies. This funding mechanism has successfully been used to fund past Rail-Trail Studies.

Rivers, Trails, and Conservation Assistance Program (RTCA)

The National Park Service (NPS) provides this program of advisory services and counseling. The NPS works with community groups and local and state governments to conserve rivers, preserve open space, and develop trails/greenways. No fixed amount is established for these services. Candidates must demonstrate a commitment for cost-sharing, which may include donations of time, cash, and services. RTCA has played a major role in community conservation/recreation through citizen-led partnership approaches to river protection, trail development, and land conservation. <https://www.nps.gov/orgs/rtca/index.htm>

Public Works and Economic Development Program

This program is administered by the Economic Development Administration for the US Department of Commerce. Public Works and Economic Development investments help support the construction or rehabilitation of essential public infrastructure and facilities necessary to generate or retain private sector jobs and investments, attract private sector capital, and promote regional competitiveness.

This includes investments that expand and upgrade infrastructure to attract new industry, support technology-led development, redevelop brownfield sites, and provide Eco-industrial development.

<https://www.grants.gov/web/grants/view-opportunity.html?oppld=306735>

Contributions

The solicitation of *contributions* is an acceptable method of fund-raising for pedestrian improvements. These donations - typically in the form of land, cash, labor, or materials - can be solicited to assist the Town of Carthage with the enhancement of its pedestrian system. Corporations, civic organizations, individuals, and other groups generally donate to a specific pedestrian project; however, donations may also be solicited for multiple project improvements or additions. Private, nonprofit, tax-exempt foundations, such as

the North Carolina Community Foundation (NCCF), are often used as a means of accepting and administering *private* gifts to a *public* entity.

Foundations

Foundations are another source of financing that allows direct contributions to be made within communities, states, or the nation. These types of funds are usually described as special program foundations, general-purpose foundations, or corporate foundations. Foundations generally have very few restrictions or limitations and are typically received from local entities.

Blue Cross Blue Shield Foundation

The Blue Cross Blue Shield partners with its grantees to make a difference in the health of its constituents. The foundation supports polices and programs across the state and nation to better the lives of citizens – wherever they live, work, and play. It connects the community with experienced leaders, who provide financial and program support for active lifestyles for all North Carolinians.

Robert Wood Johnson Foundations

As the world's largest philanthropic organization devoted to public health, the Robert Wood Johnson Foundation works to improve the health and health care of all Americans. The foundation is dedicated to building a Culture of Health that enables this diverse society to lead healthier lives – now and for generations to come. It focuses on:

- Child and Family Well-Being
- Childhood Obesity
- Health Insurance Coverage
- Healthy Communities
- Health Leadership and Workforce
- Health System Improvement



<https://www.rwjf.org/en/how-we-work/grants-explorer/funding-opportunities.html>

Partnerships

To implement the recommendations contained in the comprehensive pedestrian plan, Carthage will most certainly have to expand their partnership agreements with other public agencies and private-sector organizations. There are many different types of partnerships that can be formed to achieve the goals established by the Town. In fact, many local governments throughout the nation are utilizing partnerships with public and private-sector interests to accomplish community goals.

Listed below are the various types of partnerships that the Town should consider in its efforts for the improvement of pedestrian facilities:

- Programming partnerships to co-sponsor events and facilities or to allow qualified outside agencies to conduct activities on properties, which are municipally-owned.
- Operational partnerships to share the responsibility for providing public access and use of facilities.
- Development partnerships to purchase land and/or build facilities.
- Management partnerships to maintain properties and/or facilities.
- Elected officials should become advocates for pedestrian facilities and promote the development of future improvements.

The Town of Carthage is currently “partnered” with several entities in other Town-related endeavors/functions and should evaluate forming additional partnerships, which address the needs of the pedestrian system.

NCDOT will be a very important partner as more facilities are developed in the area. Proposed improvements often involve NCDOT. It will be imperative that this partnership has good communication and coordination for the efficient implementation of projects. Direct requests should be made to potential partners, asking them to meet to evaluate the possible benefits of partnering. This step should be made to generate interest and agreement *prior* to solidifying any responsibilities for each participating party.

Private Developments

The Town’s subdivision ordinance currently has language requiring developers included sidewalk infrastructure. However, updating the Town’s zoning and subdivision ordinances to require private developers to include bicycle infrastructure in their site plans will help the Town build out the Bicycle Plan’s facility recommendations. Bicycle infrastructure requirements can include on-street and off-street facilities as well as bicycle parking. Non-Profit Organizations Non-profit organizations, such as the Blue Ridge Bicycle Club and *PeopleForBikes*, are potential sources of funding for bicycle facilities. For example, the Blue Ridge Bicycle Club partnered with the City of Hendersonville to install two bike repair stations, one in Patton Park and one in Berkeley Mills Park. The Blue Ridge Bicycle Club also worked with Hendersonville to install shared lane markings and wayfinding signage as well. *PeopleForBikes* awards grants through their Community Grant Program. Grant amounts can be up to \$10,000 per project, can’t be more than 50% of the project cost, and can be awarded to local governments or non-profit organizations.

- END OF SECTION -

APPENDIX

A

SECTION #: HEALTH IMPACTS OF BICYCLING & WALKING

In order to encourage healthy living through bicycling and walking, a community must create an environment where people feel safe enjoying those modes for recreation and transportation. A current health assessment was conducted by Moore County as part of the Carthage Comprehensive Bicycle and Pedestrian Plan to examine the potential health related benefits of increasing bicycling and walking activity within the community.

By community awareness and increased investment of a pedestrian and bicycle transportation facilities in Carthage the overall impact will provide and improve the community with a healthier alternative of transportation to its residents.

#.1 HEALTH CONDITIONS

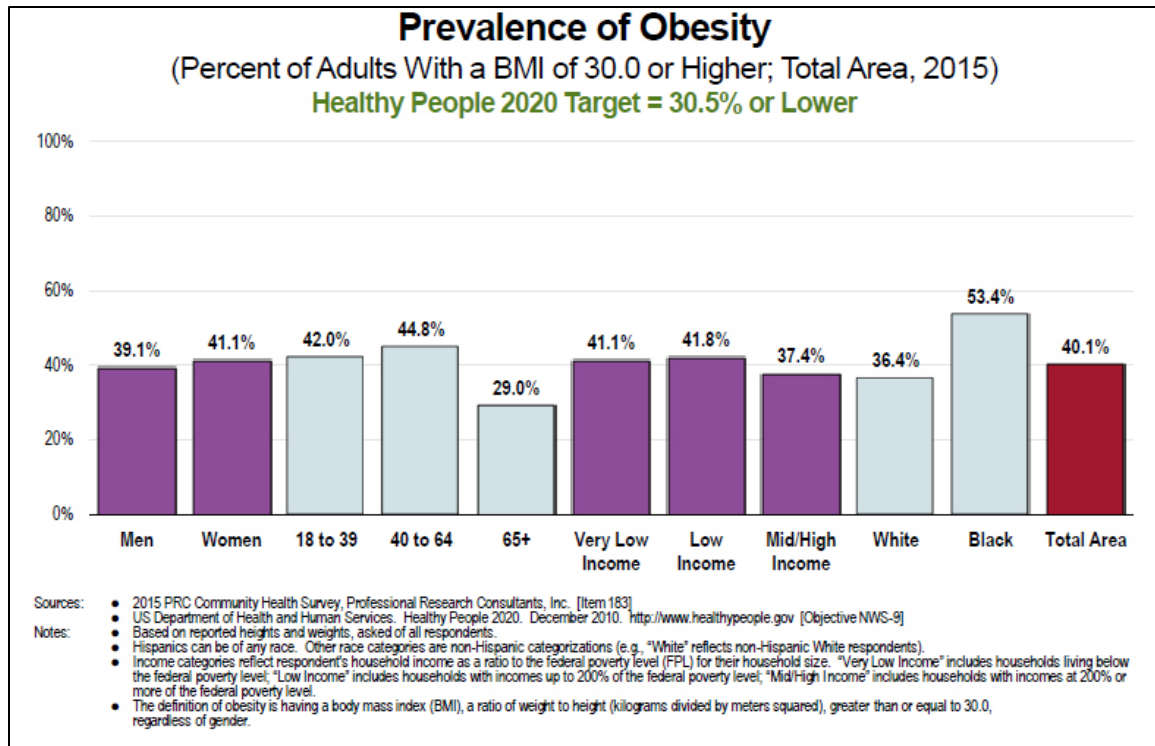
Limited health specific data is available to evaluate the Carthage community since most of the analysis on local health conditions is based on countywide surveys led by Moore County Health Department. The Health Department has generated a Community Health Assessment (2016) and State of the County Health Report (2016) that summarizes health conditions among Moore County's population and recommends focal points of intervention to address these findings.

Emerging issues in Moore County related to the potential for increased biking and walking include:

1. Cancer, heart disease and Alzheimer's disease are the 3 leading causes of death for the years 2011 through 2015.
2. Only 10.2% of CHA respondents feel that they have access/utilize recreation or fitness centers.
3. 52.5% of respondents lead sedentary lifestyles, receiving less than 30 minutes of physical activity a day.
4. An increased rising in obesity and a reduced rate in physical inactivity.

A clear focal point for area stakeholders is the link between physical activity (ie. walking and bicycling) and the role activity plays in maintaining a healthy weight. Maintaining a healthy weight and lifestyle has direct and indirect consequences on chronic diseases that are also of acute interest in the community.

Figure #-I: Prevalence of Obesity
(Moore County, CHA 2013)



Source: 2015 Professional Research Consultants Survey

Moore County is not alone in its quest to improve healthy weight rates among its population. Counties throughout North Carolina are attempting to intervene where possible to turn the tide of unhealthy weights. Though the County ranks near the top quartile for percentage of "overweight", it is near the bottom third in percentage of "obese".

Figure #-2: Moore County Comparison for Rates of Overweight & Obese (Moore County, CHA 2015)

North Carolina BMI for Age Status in Children 2 through 4 years of age by Health Department Agency			
County/State	Healthy Weight ≥5th to < 85th percentile	Overweight ≥85th to < 95th percentile	Obese ≥95th percentile
Moore	65.8%	18.0%	14.0%
Carteret	68.2%	16.9%	12.7%
Haywood	68.5%	13.4%	15.7%
Stanly	70.6%	12.1%	13.7%
North Carolina	66.1%	15.5%	14.2%

Source: North Carolina-Pediatric Nutrition Epidemiology Surveillance System (NC-PedNESS) , 2014 (Data Unavailable for Chatham)

While Carthage's specific information is not available, by using demographic factors related to "social determinants of health," we can identify themes that indicate where the health impacts of bicycling and walking could be most beneficial to Carthage's population. According to the Centers for Disease Control and Prevention (CDC), the social determinants of health are "the circumstances in which people are born, grow up, live, work, and age, as well as the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics."

From a social determinants of health perspective, the following demographic details compiled via the 2010 US Census for Carthage point to potential vulnerable populations when compared to findings from the Moore County Community Health Assessment:

- The Non-White population total is 32.61 % (719 of Carthage's approximately 2,205 residents);
- 22.04% of Carthage's population is over the age of 65, a percentage slightly lower than 22.6% of Moore County's population;
- 57.88% of Carthage residents did not report owning their own home.
- 83.24% of Carthage's population have not obtained a Bachelor's (or higher) degree.

Persons who are part of these social groups are those most likely to experience negative impacts to their health as a result of these attributes. Conditions that exist today however, can be improved to try and mitigate negative impacts on particular groups through infrastructure investment. Infrastructure in the form of pedestrian and bicycle facilities has afforded people legitimate transportation options, improve roadway safety for all users

and increase the efficiency of the overall network. By making such investments, rates for active transportation rise through increased participation; this participation impacts health. Increased bicycling and walking is shown to increase several aspects of a person's life, as shown in Figure #-4 below.

Figure #-3: Health Outcomes of Increased Walking and Bicycling

Health Outcome/Determinant	Direction and Extent	Likelihood	Distribution	Quality of Evidence
Stress reduction	▲ ▲	Likely	Effect linked to green/natural spaces	***
Exposure to nature	▲ ▲	Likely	Residents within 1.5 miles of greenways/trails	*
Fewer cars on local roads	▲ ▲	Likely	Bicycle commuters	
Housing values	▲ ▲ ▲	Likely	Homes within 3200 ft. of trails	***
Business attraction	▲ ▲	Likely	Depends on industry	***
Retail access	▲ ▲	Likely	Related industry (i.e. bike shops)	**
Physical Activity	▲ ▲ ▲	Likely	Residents living in local neighborhoods with complete and extensive sidewalk network/bicycle facilities	***
Physical activity with increased street and pedestrian connectivity	▲ ▲ ▲	Likely	Not specified	***

In Carthage, projects aimed at increasing walking and bicycling fall under three principal categories: Pedestrian Facilities, Bicycle Facilities, and Greenways. To provide insight into what each recommendation is and to describe the positive and possible negative health consequences of constructing them, the following table is provided:

Figure #-4: Health Benefits of Walking and Bicycling Investments

Facility Type:	Description	Broad Health Benefits
Pedestrian		
New Sidewalks	Constructing new sidewalks compliant with ADA standards where they currently do not exist is a cornerstone of a walkable and active community. New sidewalk will vary in width where pedestrian use is higher and should be built with adequate roadway buffer space where warranted.	<ul style="list-style-type: none"> ↑ Provides stable and predictable walking surface ↑ Heightens profile and presence of pedestrians to motorists ↑ Can be usable space for providing street furniture, signage, vegetation ↑ Is not prone to flooding, roadway debris, or rutting like gravel or dirt surfaces ↓ Initial construction can generate noise, dust, and potential stress
Crosswalks	Providing a designated space for pedestrians to cross a street either at an intersection or mid-block is the intended use for crosswalks. Crosswalk design can range from simple paint schemes, to more complex design including the use of pedestrian or traffic signals, pedestrian countdown signals, auditory devices and refuge islands.	<ul style="list-style-type: none"> ↑ Fosters pedestrian movement at predictable locations ↑ Allow accessibility to particular land uses ↑ Heightens awareness for pedestrian presence to drivers ↑ If used with an elevated platform, can calm traffic and reduce severity of possible crash ↓ Without maintenance, crosswalks can lose both reflective properties and visual prominence ↓ Crosswalks generally put pedestrians in direct line with motorists. Use is principally dependent on driver compliance.

Facility Type:	Description	Broad Health Benefits
Bicycle		
Shared Lane Markings/Shared lane arrows (Sharrow)	Shared lane markings or “sharrows” are painted stencils placed on streets at regular intervals to align bicyclists in the appropriate location and to heighten the awareness of motorists as to the high probability of bicyclists presence. Shared lane markings are generally used on medium volume streets, with on-street parking, or when bicycle lanes cannot be adequately used due to space limitations.	<ul style="list-style-type: none"> ↑ Help to increase bicyclist profile on a street segment ↑ Promote bicyclists alignment away from “door zone” ↑ Gives some assurance to bicyclists that they are welcome to use street space ↓ Do not provide true separation from vehicles ↓ If not maintained, can fade eliminating effectiveness
Bike Lanes	Bicycle lanes are painted lanes placed on streets to define a dedicated area for bicyclists to ride. Bike lanes are often used on heavier volume streets or on streets with heavier traffic volumes.	<ul style="list-style-type: none"> ↑ Provide a dedicated on-street space for bicyclists ↑ Can help “calm” traffic by narrowing through way ↑ Accommodates multiple bicycle types ↓ Do not provide a true separation from vehicles ↓ If street widths vary and bike lane width not maintained to a safe width, use can be diminished ↓ If not maintained, can fade eliminating effectiveness

Facility Type	Description	Broad Health Benefits
Multi-use		
Complete Streets	A “complete street” is one designed, considerate, and given appropriate space for all users including motorists, bicyclists and pedestrians. In addition, a street is deemed “Complete” if it adequately considers and optimizes adjacent land uses, is designed for a context sensitive travel speed, and provides ample buffer space between uses.	<ul style="list-style-type: none"> ↑ Gives ample space for pedestrians and bicyclists, fostering and promoting active modes. ↑ An attractive and vibrant street can attract more use and users ↑ Buffer space and design limits high vehicle speeds, conflicts with defenseless users ↓ All elements of the street need to be maintained to ensure continued intentions
Separated Pathway	Greenway routes are constructed to ADA standards, are generally outside of roadway right of ways and span through open space, riverways, or through designated easements. Greenways are free of vehicle traffic, but can intersect roads and accommodate all user types both pedestrian and bicyclists.	<ul style="list-style-type: none"> ↑ Removes user from roadways ↑ Dedicated pedestrian/bicyclist space ↑ Connects land uses other than by roadway ↑ Provides stable walking surface ↓ If isolated, perception of danger heightened ↓ User type variability could lead to bike/pedestrian, or bike/bike crashes ↓ If outside of peripheral vision of motorists, crashes rates at intersection increased
Natural path	A natural path is one that is without a paved or artificial surface and can be used by pedestrians and bicyclists. Natural paths are generally built with minimal enhancements, and can be near roads or streets or in natural landscape settings like hills, or river or lake shorelines	<ul style="list-style-type: none"> ↑ Removes users from roadways ↑ Dedicated pedestrian/bicyclist space ↑ Immerses users in a natural setting ↑ Lower cost to construct ↓ Surface can become unpredictable or unstable without normal maintenance ↓ Can be limited due to weather events such as flooding or soiling

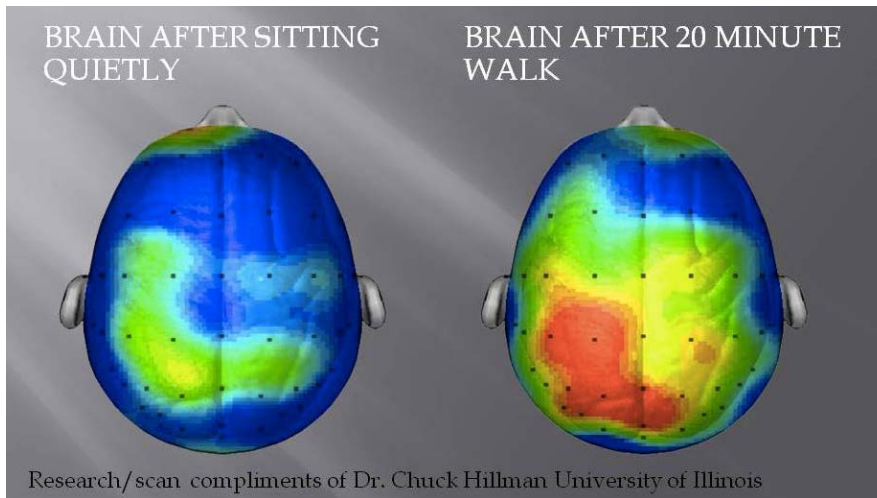
#.2 THE 7 DIMENSIONS OF HEALTH AND WELLNESS

When we think about *health*, whether individual or public, we often limit our associations with the term to general topics such as healthcare, physical activity, and nutrition. We think about the common mantras from our peers and healthcare professionals - *Don’t forget your annual checkup. Run this many miles per day. Eat this, not that.* We often forget, or perhaps never even realize, that true and complete health is about so much more.

According to the World Health Organization, health is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” Meaning that achieving complete health entails much more than merely reaching optimal physical health.

In other words, health is holistic. It is made up of many interconnected components that must all be achieved individually in order to obtain overall health. These components can be easily organized into what is known as *The Seven Dimensions of Health*: physical; social; economic and occupational; environmental; spiritual; emotional; and intellectual. These dimensions are interrelated and each has the ability to strongly influence the others. Further, walking and bicycling have impacts that extend beyond the physical dimension of health, as illustrated in this section.

Figure #5: Impacts of Walking on Brain Activity



The implementation of active transportation methods, specifically walking and biking, has been proven to help both individuals and communities thrive in each of these seven dimensions and ultimately achieve total health. During the study of health impacts for the Comprehensive Bicycle and Pedestrian Plan, several existing destinations within or in close proximity to Carthage residents were identified that promote healthy living through the lens of the 7 Dimensions. **Figure #-#** includes the results of this study along with definitions of the dimensions of health and the implication of bicycling and walking on health.

Figure #-6: Dimensions of Health & Wellness and Implications for Bicycling & Walking in Carthage

Dimension of Health & Wellness /	Definition	Implications of Bicycling & Walking
<i>Carthage Destinations by Dimension</i>		
Physical <i>Nancy Kiser Park</i> <i>Hillcrest Park</i> <i>Lake Luke Marion</i> <i>Local neighborhoods</i> <i>Sandhills CC</i> <i>Central Carolina CC</i> <i>Moore Wellness Works</i> <i>Greenways in neighboring communities</i>	<p>The ability to maintain a healthy quality of life that allows us to get through our daily activities without undue fatigue or physical stress. The ability to recognize that our behaviors have a significant impact on our wellness and adopting healthful habits (routine checkups, a balanced diet, exercise, etc.) while avoiding destructive habits (tobacco, drugs, alcohol, etc.) will lead to optimal Physical Health and Wellness.</p>	<ul style="list-style-type: none"> • Low-impact and easy way to improve physical health that can be enjoyed by people of all ages. • Gives your heart, blood vessels and lungs a good workout, as well as increased cardiovascular fitness; increased strength and flexibility; improved joint mobility; improved posture and coordination; and decreased body fat. • One of the best ways to reduce the risk of health problems such as stroke, heart disease, some cancers, diabetes and arthritis. • 30 minutes of moderate walking per day five days a week can help ensure a longer, healthier and happier life. • One hour of walking may increase your life expectancy by two hours.
Social <i>Nancy Kiser Park</i> <i>Hillcrest Park</i> <i>Lake Luke Marion</i> <i>Local neighborhoods</i> <i>Sandhills CC</i> <i>Central Carolina CC</i> <i>Carthage Elementary School</i> <i>Greenways in neighboring communities</i> <i>Moore County Senior Enrichment Center</i>	<p>The ability to relate to and connect with other people in our world. Our ability to establish and maintain positive relationships with family, friends and co-workers contributes to our Social Health and Wellness.</p>	<ul style="list-style-type: none"> • Creates shared sense of community by making an activity that is also transportation a social event. • Provides mobility to members of a community who may not have access to a private vehicle. • People who live in walkable areas with less traffic statistically have more friends than those who live in areas with heavy traffic. • Every few members of a community are excluded from its benefits.
Economic/ Occupational <i>Moore Wellness Works</i> <i>Lake Luke Marion</i>	<p>The ability to get fulfillment from our jobs or career fields while still maintaining balance in our lives. Our desire to contribute in our careers to make a positive impact on the organizations we work in and to society as a whole.</p>	<ul style="list-style-type: none"> • Physically active people save an average of \$500 per year on healthcare costs. • Walkable and bikable communities are becoming more valuable and stimulating economies through increased property values, job creation, local spending, and tourist spending. • Improves an employee's attitude and work ethic and increases motivation and productivity.

Dimension of Health & Wellness / <i>Carthage Destinations by Dimension</i>	Definition	Implications of Bicycling & Walking
Sandhills CC Central Carolina CC Area Shopping Centers		<ul style="list-style-type: none"> • People who walk or bike regularly are overall mentally and physically healthier, and therefore enjoy their jobs more and work more efficiently, contributing to an overall increase in occupational health.
Environmental Nancy Kiser Park Hillcrest Park Lake Luke Marion Sandhills CC Central Carolina CC Greenways in neighboring communities	<p>The ability to recognize our own responsibility for the quality of the air, the water and the land that surrounds us. The ability to make a positive impact on the quality of our environment, be it our homes, our communities or our planet.</p>	<ul style="list-style-type: none"> • Pollution-free modes of transportation with reduction of carbon emissions, noise pollution and water pollution. • Walking and bicycling facilities are an efficient use of space. Over 20 times as many people can travel in the same space when walking as compared to in a car. • Significantly reduces an individuals' ecological footprint • Leads to greater appreciation for being in contact with nature and recognizing personal effects on the quality of the environment.
Emotional Nancy Kiser Park Hillcrest Park Moore Wellness Works Greenways in neighboring communities Sandhills CC Central Carolina CC	<p>The ability to understand ourselves and cope with the challenges life can bring. The ability to acknowledge and share feelings of anger, fear, sadness or stress; hope, love, joy and happiness in a productive manner.</p>	<ul style="list-style-type: none"> • Physical activity has also been proven to benefit the emotional and mental well-being of individuals. • Americans identify "relaxation and peace" (stress reduction) as the 2nd most prevalent benefit they experience from physical exercise. • Walking specifically has been shown to reduce the decline of cognitive performance among the elderly • Promotes a good night's sleep – an essential element of maintaining good emotional health – more effectively than many other popular physical activities
Intellectual Sandhills CC Central Carolina CC Carthage Elementary School Moore County Library	<p>The ability to open our minds to new ideas and experiences that can be applied to personal decisions, group interaction and community betterment. The desire to learn new concepts, improve skills and seek challenges in pursuit of lifelong learning.</p>	<ul style="list-style-type: none"> • Associated with better cognitive performance by children in school. • Gives people a chance to slow down and step away from their stress, their to-do lists, and their TVs and clear their mind so they can think about other things in life. • Linked to improving the cognitive functions of adults, and decreasing the rate of cognitive decline among the elderly. • Improves intellectual health simply through the challenge of making it a part of their regular daily activity.

Dimension of Health & Wellness /	Definition	Implications of Bicycling & Walking
<i>Carthage Destinations by Dimension</i>		
Spiritual <i>Nancy Kiser Park</i> <i>Area churches</i> <i>Sandhills CC</i> <i>Central Carolina CC</i>	<p>The ability to establish peace and harmony in our lives. The ability to develop congruency between values and actions and to realize a common purpose that binds creation together.</p>	<ul style="list-style-type: none"> • Relaxing recreational activities are linked to spiritual wellness. • Natural environments have a great spiritual meaning and represent a strong sense of place, typically associated with memories of special times spent outdoors. • Can strengthen a person's identity and help them define who they are by allowing them to be themselves and express their personality – a very important aspect of spiritual health

- END OF SECTION -

APPENDIX

B



TOWN OF CARTHAGE COMPREHENSIVE BICYCLE & PEDESTRIAN MASTER PLAN

The Town of Carthage is undertaking a comprehensive bicycle & pedestrian planning process to help make Carthage a more livable place that is safer for pedestrians and bicyclists. This project is funded in part through a grant from the North Carolina Department of Transportation's Bicycle and Pedestrian Division. The Town invites you to share your thoughts and opinions about how the pedestrian and bicycle environment in Carthage may be enhanced to improve safety, create a more enjoyable community experience, and provide more connectivity to walking and biking destinations within the Town and surrounding areas.

The results of this survey and additional information about the Comprehensive Bicycle and Pedestrian Plan will be announced at future public meetings and through available media outlets.

Survey responses will be accepted by the Carthage Planning Department until **July 23, 2017**. The survey may be deposited in the payment drop-box at Town Hall, or mailed to the following address:

Bicycling and Pedestrian Planning Survey
Attn: Planning Department
4396 Hwy 15/501
Carthage, NC 28327

The surveys are also available in an electronic format at the following link:

<https://www.surveymonkey.com/r/CarthageNC>

1. Where do you bike or walk in Carthage? (check all that apply)

- | | |
|--|--------------------------------------|
| <input type="checkbox"/> Schools | <input type="checkbox"/> Parks |
| <input type="checkbox"/> Stores | <input type="checkbox"/> Work |
| <input type="checkbox"/> Neighborhoods | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Church | |

2. What park, greenway, sidewalk path or public open space do you use to walk or bike on?

3. Why do you walk or bike in Carthage? (check all that apply)

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> For Pleasure | <input type="checkbox"/> No Driver's License |
| <input type="checkbox"/> No Car | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> For Exercise | |

Turn Over

4. Problems experienced while walking or biking in Carthage are... *(check all that apply)*

- | | |
|--|---|
| <input type="checkbox"/> Gaps in sidewalk (missing segments) | <input type="checkbox"/> Stray dogs |
| <input type="checkbox"/> Uneven or broken surfaces | <input type="checkbox"/> No handicap ramps |
| <input type="checkbox"/> Vehicles are too close | <input type="checkbox"/> Walkway too steep |
| <input type="checkbox"/> Insufficient lighting | <input type="checkbox"/> Lack of designated bike lanes |
| <input type="checkbox"/> Absence of marked crosswalks | <input type="checkbox"/> Lack of off-road biking facilities |
| <input type="checkbox"/> Destinations too far apart | <input type="checkbox"/> Narrow sidewalks |
| <input type="checkbox"/> Tree branches, trash cans or other obstructions | <input type="checkbox"/> Other _____ |

5. If you have children, is there a sidewalk or greenway for your children to walk or bike to school?

- ☐ Yes ☐ No ☐ N/A

6. If No -- if there was a sidewalk or greenway, would you let your children walk or bike to school?

- ☐ Yes ☐ No

7. Would you walk or bike to work if there was a sidewalk or greenway available?

- ☐ Yes ☐ No ☐ Maybe If No -- why not? _____

8. Areas I feel most unsafe/uncomfortable while walking and biking include...

9. Areas I feel safest/most comfortable while walking and biking include...

10. I would walk and bike more places in Carthage if...

11. Bike connections need to be added/improved here... *(give street names or nearest destinations)*

12. Pedestrian connections need to be added/improved here... *(give street names or nearest destinations)*

13. Getting around Carthage on foot is easy and safe.

- ☐ Agree ☐ Disagree ☐ No Opinion

14. Carthage needs to promote and improve bike & pedestrian facilities (trails/greenways, sidewalks, multi-use trails etc.)?

- ☐ Agree ☐ Disagree ☐ No Opinion

15. New and future development in and around Carthage should be incorporated into the Town's public bike & pedestrian system.

- ☐ Agree ☐ Disagree ☐ No Opinion

16. Would you support a tax increase to expand and maintain sidewalks, bike lanes and street crossing improvements in Carthage?

In Carthage?

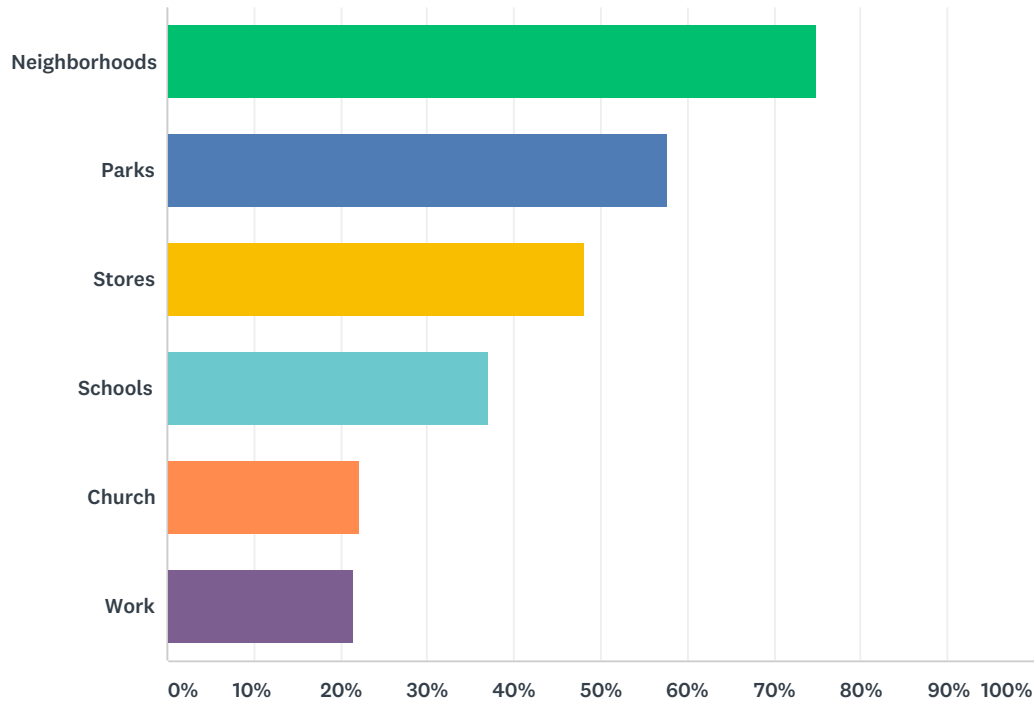
- ☐ Yes ☐ No ☐ Maybe

Additional Comments:

Thanks for your help improving Carthage!!!

Q1 Where do you bike or walk in Carthage? (check all that apply)

Answered: 135 Skipped: 18



ANSWER CHOICES	RESPONSES	
Neighborhoods	74.81%	101
Parks	57.78%	78
Stores	48.15%	65
Schools	37.04%	50
Church	22.22%	30
Work	21.48%	29
Total Respondents: 135		

#	OTHER (PLEASE SPECIFY)	DATE
1	All main roads and highways	9/28/2017 9:02 PM
2	Pinecrest St and McReynolds St	9/16/2017 9:40 AM
3	none because it is unsafe to do so. No walking or biking space that is not traveled by motor vehicle.	9/6/2017 10:49 AM
4	Trails	8/8/2017 2:35 PM
5	Town sidewalks	7/23/2017 9:18 PM
6	Union Church Rd, 24/27, Joel Road, Monroe Street	6/27/2017 10:58 AM
7	None	6/21/2017 12:02 AM
8	street	6/20/2017 11:56 PM
9	I would bike if there were a safe path from the airport to town.	6/20/2017 11:51 PM

Carthage Bike Pedestrian Plan

10	Pinehurst	6/20/2017 11:40 PM
11	N/A	6/20/2017 5:40 PM
12	highway	6/20/2017 5:37 PM
13	Restaurant	6/20/2017 5:34 PM
14	gym	6/20/2017 5:32 PM
15	Ag Center, Health Center	6/20/2017 5:16 PM
16	library, post office	6/14/2017 3:08 PM
17	Post office	6/13/2017 8:02 PM
18	Roads/Streets/highways	6/12/2017 10:44 AM
19	greenway, bike trails	6/10/2017 2:19 PM
20	Roads and Streets	6/10/2017 9:11 AM
21	Library	6/8/2017 8:29 PM
22	Sidewalks downtown	6/6/2017 10:11 PM
23	Nowhere because there isn't anywhere to walk unless you are in downtown Carthage.	6/6/2017 6:06 PM
24	roads	6/5/2017 2:56 PM
25	I run for exercise.	6/3/2017 9:52 AM
26	Everywhere	6/1/2017 6:23 PM
27	Post Office; town streets in general for exercise purposes	6/1/2017 2:58 PM
28	Post office	5/31/2017 8:25 PM
29	Walk - All around the up town area.	5/30/2017 3:30 PM
30	Post Office	5/30/2017 3:25 PM
31	work in courthouse-walk at lunch for exercise or to go to a store or restaurant	5/19/2017 4:53 PM
32	I have been a Carthage resident my whole life. I live a little past Berryfield. I walk that area all the way through town on a very regular basis as do many other families.	5/18/2017 5:32 PM
33	street are not safe for bicycles, not enough room	5/17/2017 4:39 PM
34	restaurants at lunch break	5/17/2017 2:08 PM
35	Need more sidewalks	5/17/2017 11:17 AM
36	On own private property.	5/17/2017 10:43 AM
37	Town sidewalks	5/17/2017 10:27 AM
38	Streets around courthouse	5/17/2017 10:16 AM
39	I don't - that's the problem. There is no place to walk/bike.	5/14/2017 6:07 PM

Q2 What park, greenway, sidewalk path or public open space do you use to walk or bike on?

Answered: 130 Skipped: 23

#	RESPONSES	DATE
1	All main roads and highways	9/28/2017 9:02 PM
2	Now bicycling is the roadway but some funny folks do steer into the bicylists on occasion as a laugh and that is scary. Also, the parking spaces curbside in town are excellent for bicycling; however, they are for cars.	9/28/2017 2:47 PM
3	McReynolds St and the traffic circle.	9/16/2017 9:40 AM
4	see answer to questions number 1	9/6/2017 10:49 AM
5	Side walks	9/3/2017 2:59 PM
6	Hillcrest	8/8/2017 2:35 PM
7	Carthage elementary school and the older kids are walking and or biking along union church road for school and to visit friends.	7/31/2017 6:58 PM
8	Schools, sidewalks	7/23/2017 9:37 PM
9	McReynolds Street	7/23/2017 9:25 PM
10	The sidewalk and shoulder along S McNeill St	7/21/2017 11:32 AM
11	McReynolds/Monroe Sidewalk & Road	7/13/2017 11:39 AM
12	Street	7/5/2017 3:15 PM
13	Sidewalk down Monroe Street and around courthouse	7/4/2017 11:11 AM
14	McReynold's/Monroe Street, Niagara-Carthage Road, all around Carthage	6/30/2017 10:03 AM
15	THROUGH TOWN DOWN PAST SCHOOL AND UP AROUND HWY 22. ALSO UP TO FOOD LION AND OTHER STORES.	6/27/2017 2:35 PM
16	Cycle on Union Church Rd, 24/27, Joel Road, Monroe Street, Glendon/Carthage, and surrounding roads.	6/27/2017 10:58 AM
17	Old river rd. Union pines HS and Carthage elementary	6/27/2017 10:17 AM
18	walk all sidewalks	6/21/2017 12:03 AM
19	None	6/21/2017 12:02 AM
20	parks	6/21/2017 12:00 AM
21	All of the streets/sidewalks around downtown	6/20/2017 11:59 PM
22	Pinecrest Avenue	6/20/2017 11:56 PM
23	All	6/20/2017 11:52 PM
24	I can't use the road. Trucks want to brush pedestrians and bikes. Trucks let of exhaust purposely to offend bikes.	6/20/2017 11:51 PM
25	from Tyson Woods to school. Freds. Buggy Town Coffee. Park. Susa Sushi.	6/20/2017 11:46 PM
26	Hillcrest Park. Park by Agricultural buildings and stores around courthouse	6/20/2017 11:41 PM
27	Carthage Elementary, church	6/20/2017 11:39 PM
28	town	6/20/2017 11:38 PM
29	Hillcrest, near Red Branch Church	6/20/2017 11:36 PM
30	Moore County greenways	6/20/2017 11:34 PM

Carthage Bike Pedestrian Plan

31	have none	6/20/2017 11:33 PM
32	Carthage Park	6/20/2017 11:30 PM
33	Sanford Greenway and Kiwanis Park	6/20/2017 5:53 PM
34	Nick's Creek/Reservoir Park	6/20/2017 5:51 PM
35	path at sandhills community college	6/20/2017 5:49 PM
36	Nancy Kiser Park	6/20/2017 5:46 PM
37	side of road or on grass	6/20/2017 5:43 PM
38	Nick's Creek (Southern Pines)	6/20/2017 5:39 PM
39	bike on highway	6/20/2017 5:37 PM
40	streets	6/20/2017 5:36 PM
41	McNeill St.	6/20/2017 5:34 PM
42	Southern Pines area	6/20/2017 5:32 PM
43	Lake Marion (ag center)	6/20/2017 5:30 PM
44	All, sincerely. Also roadsides when necessary.	6/20/2017 5:28 PM
45	Carthage Park	6/20/2017 5:22 PM
46	Southern Pines Park	6/20/2017 5:20 PM
47	to old courthouse and deeds building. Post Office. Library	6/20/2017 5:16 PM
48	Barrett, Monroe, Saunders, McNeill***	6/20/2017 5:13 PM
49	Nancy Kiser Park	6/20/2017 5:09 PM
50	Carthage Elementary, courthouse	6/20/2017 5:07 PM
51	Carthage Elementary	6/20/2017 5:05 PM
52	All around Carthage, library, stores, school, everywhere	6/20/2017 5:01 PM
53	Hillcrest Park, downtown Carthage	6/19/2017 12:43 PM
54	None. They are not necessary. There is plenty of room to walk or bike on the sidewalk or the side of the road.	6/15/2017 5:21 PM
55	We walk from Tyson Woods to coffee shop, library, Susa Habachi, Fred's, post office, and school	6/14/2017 3:08 PM
56	Sunset dr up McNeill and down Sanders	6/13/2017 8:02 PM
57	Kizer Park	6/13/2017 5:03 PM
58	Saunders, Reynolds, and McNeil... I'd walk others if there were decent sidewalks.	6/13/2017 3:22 PM
59	Park by Carthage Elementary but it is very short	6/12/2017 10:44 AM
60	Sidewalks in town, I walk in the street in our neighborhood because we have no sidewalks there	6/10/2017 5:25 PM
61	Nicks Creek, others in Southern Pines	6/10/2017 2:19 PM
62	Hwy 15-501. Need a safe way to walk/bike from Savannah Garden neighborhood to town of Carthage.	6/10/2017 9:11 AM
63	Niagara Carthage Rd	6/9/2017 2:33 PM
64	Straight up Martin Street. The circle is a nightmare for pedestrians. Especially for my epileptic wife pushing my 19 month old in a stroller because she isnt able to drive.	6/8/2017 8:29 PM
65	McReynolds Street	6/7/2017 5:11 PM
66	Whispering Pines	6/7/2017 1:24 PM
67	The park next to Carthage Elementary and the sidewalks downtown.	6/6/2017 10:11 PM
68	Reservoir	6/6/2017 6:06 PM
69	Around downtown Carthage	6/6/2017 5:16 PM

Carthage Bike Pedestrian Plan

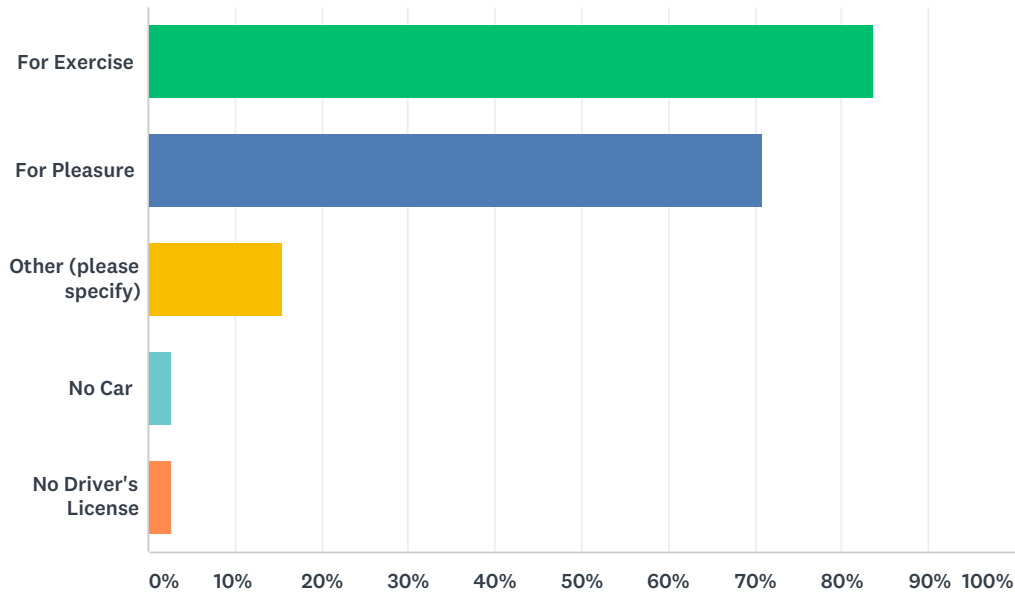
70	Highway 24/27, downtown, carthage elementary and McDonald's areas	6/5/2017 6:14 PM
71	Nicks Creek	6/5/2017 2:56 PM
72	Mostly sidewalks in downtown Carthage and walk the trail at Lake Luke Marion. Sometimes in the Nancy Kiser Park.	6/4/2017 10:09 PM
73	Reservoir park and Aberdeen lake	6/4/2017 1:05 PM
74	Courthouse Square	6/4/2017 7:50 AM
75	Side roads and main roads	6/3/2017 8:13 PM
76	Nancy Kiser	6/3/2017 11:51 AM
77	Sidewalks/roads in town.	6/3/2017 9:52 AM
78	Streets	6/2/2017 3:31 PM
79	Historic district, residential around that area	6/2/2017 8:35 AM
80	Carthage elementary	6/1/2017 8:46 PM
81	Everywhere, like parks and near the roadways too. Sometime to the store and to go to work. Sidewalks would be a great safe addition to our area.	6/1/2017 6:23 PM
82	green way to new century and union pines. wish we had a side walk.	6/1/2017 5:36 PM
83	Reservoir Park, Forest Ridge Subdivision	6/1/2017 3:53 PM
84	McNeill, McReynolds, Monroe, Saunders streets	6/1/2017 2:58 PM
85	Nick's Creek, Reservoir Park and Governors Creek are the only safe options. I use the sidewalks and the side of the road to get around Carthage, but this is less than ideal.	5/31/2017 9:16 PM
86	Sunset drive	5/31/2017 8:25 PM
87	Around carthage elementary	5/31/2017 6:34 PM
88	Nick's Creek Greenway	5/31/2017 4:26 PM
89	Reservoir Rassi Wicker park	5/31/2017 3:02 PM
90	Downtown	5/31/2017 10:48 AM
91	Saunders St and Monroe St	5/30/2017 10:24 PM
92	McReynolds St	5/30/2017 8:59 PM
93	McReynolds St. Lakr Marion	5/30/2017 3:55 PM
94	Walk - All the sidewalks in town, and the park beside the school.	5/30/2017 3:30 PM
95	None	5/30/2017 3:25 PM
96	all	5/30/2017 1:46 PM
97	None	5/23/2017 4:14 PM
98	Along McNeill, Ray, Saunders, Monroe, and Barrett Streets	5/19/2017 4:53 PM
99	I use all of the sidewalks that are in city limits on a regular basis including the one on the main strip stretching around the courthouse up to McDonalds. (I'm sad that it stops short before getting to McDonalds - I wish it was extended)	5/18/2017 5:32 PM
100	Bike only on streets and walk on both sidewalks and streets.	5/18/2017 1:56 PM
101	the one beside the elementary school	5/18/2017 10:44 AM
102	Lake Luke Marion, sidewalks on main road in town	5/18/2017 10:41 AM
103	Downtown area near Historic Courthouse and along Saunders St.	5/18/2017 10:38 AM
104	Nick's Greenway Whispering Pines and the reservoir in Whispering Pines	5/17/2017 4:39 PM
105	Courthouse Sq	5/17/2017 4:26 PM
106	NC Hwy 24-27	5/17/2017 2:08 PM

Carthage Bike Pedestrian Plan

107	Dowd, Monroe, Summer Hill, Martin, Old River, Glendon-Carthage, Underwood to name a few	5/17/2017 12:43 PM
108	McNeill St.	5/17/2017 11:39 AM
109	Pond in front of Agriculture Building	5/17/2017 11:17 AM
110	Nancy Kiser park & around town	5/17/2017 11:05 AM
111	I run along the sidewalks around downtown. I start and finish at Rick Rhyne Building	5/17/2017 10:52 AM
112	main street	5/17/2017 10:49 AM
113	On own private property.	5/17/2017 10:43 AM
114	Not aware of any	5/17/2017 10:34 AM
115	Throughout the town of Carthage - Walk	5/17/2017 10:30 AM
116	McNeill St to Monroe St to get to the Chuck Wagon for lunch.	5/17/2017 10:29 AM
117	Saunders Street, Nancy Kiser park	5/17/2017 10:27 AM
118	NEAR CARTHAGE ELEMENTARY SCHOOL AND THRU THE TOWN	5/17/2017 10:27 AM
119	sidewalks Saunders street, Pinehurst ave	5/17/2017 10:24 AM
120	Baseball Park Streets around courthouse Park by Ag Center	5/17/2017 10:16 AM
121	park near health department	5/17/2017 10:15 AM
122	sidewalks, roads	5/17/2017 8:23 AM
123	mostly on roads since they don't have enough trails	5/16/2017 3:34 PM
124	Lake Luke Marion	5/15/2017 7:57 PM
125	The park beside the elementary school and around Saunders.	5/15/2017 5:47 PM
126	Monroe ST and Saunders st	5/15/2017 12:58 PM
127	I walk the sidewalks downtown Carthage	5/15/2017 10:47 AM
128	Nick's Creek; Pinehurst Greenway; Reservoir Park; Phillips Memorial	5/14/2017 6:07 PM
129	Resivor park Southern Pines	5/13/2017 2:09 PM
130	Dirt roads	5/11/2017 11:24 AM

Q3 Why do you walk or bike in Carthage? (check all that apply)

Answered: 148 Skipped: 5



ANSWER CHOICES	RESPONSES	
For Exercise	83.78%	124
For Pleasure	70.95%	105
Other (please specify)	15.54%	23
No Car	2.70%	4
No Driver's License	2.70%	4
Total Respondents: 148		

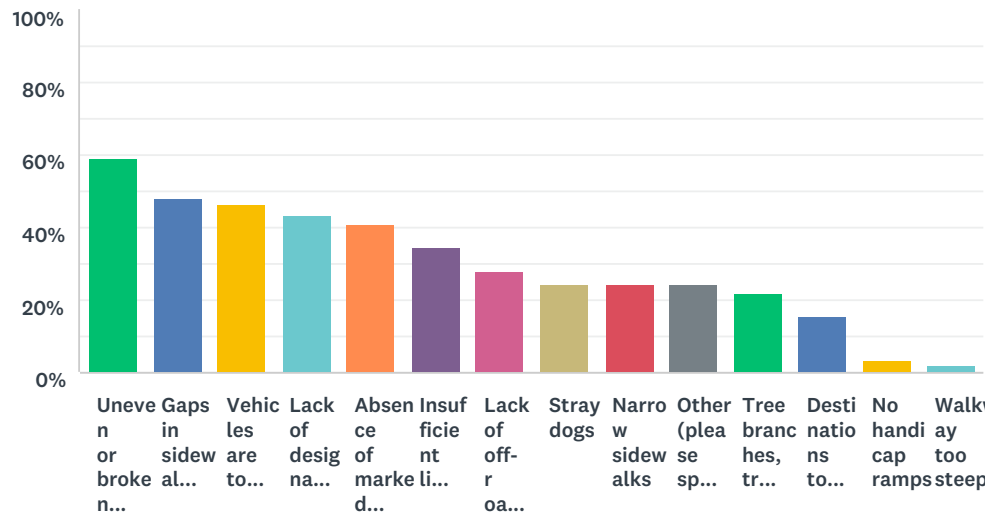
#	OTHER (PLEASE SPECIFY)	DATE
1	shopping	9/16/2017 9:40 AM
2	see answer to question number 1	9/6/2017 10:49 AM
3	My two dogs love to be outside.	8/8/2017 2:35 PM
4	teen kids travel	7/31/2017 6:58 PM
5	Better for the environment	7/13/2017 11:39 AM
6	None	6/21/2017 12:02 AM
7	Enjoy our town	6/20/2017 11:46 PM
8	Very small town of just over 2000 and I live downtown.	6/15/2017 5:21 PM
9	Activity for my children - who have plenty of energy!	6/14/2017 3:08 PM
10	More eco-friendly than driving a car	6/6/2017 5:16 PM
11	Work around courthouse	6/4/2017 7:50 AM
12	Cause	6/1/2017 6:23 PM
13	school	6/1/2017 5:36 PM

Carthage Bike Pedestrian Plan

14	You see more details of places and things.	6/1/2017 2:58 PM
15	Walking the dog.	5/31/2017 9:16 PM
16	I love walking with my family! It's the beauty of this small town. Beautiful afternoon walks.	5/18/2017 5:32 PM
17	I go to Whispering Pines because I do not know of anywhere in Carthage	5/17/2017 4:39 PM
18	work	5/17/2017 4:26 PM
19	On own private property to keep out trespassers including drug sellers, drug users & thieves.	5/17/2017 10:43 AM
20	I would walk to save money by not using my car	5/17/2017 10:34 AM
21	Pick up trash and aluminum cans	5/15/2017 7:57 PM
22	See #1; I WOULD walk for pleasure and exercise if there was a greenway path.	5/14/2017 6:07 PM
23	My rollerblades are lost	5/11/2017 11:24 AM

Q4 Problems experienced while walking or biking in Carthage are... (check all that apply)

Answered: 142 Skipped: 11



ANSWER CHOICES	RESPONSES	
Uneven or broken surfaces	59.15%	84
Gaps in sidewalk (missing segments)	47.89%	68
Vehicles are too close	46.48%	66
Lack of designated bike lanes	43.66%	62
Absence of marked crosswalks	40.85%	58
Insufficient lighting	34.51%	49
Lack of off-road biking facilities	28.17%	40
Stray dogs	24.65%	35
Narrow sidewalks	24.65%	35
Other (please specify)	24.65%	35
Tree branches, trash cans or other obstructions	21.83%	31
Destinations too far apart	15.49%	22
No handicap ramps	3.52%	5
Walkway too steep	2.11%	3
Total Respondents: 142		

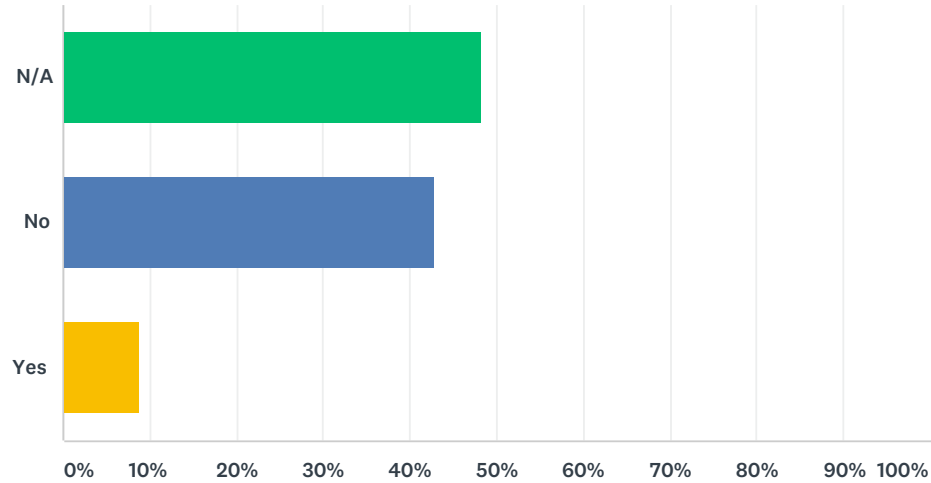
#	OTHER (PLEASE SPECIFY)	DATE
1	see answer to question number 1	9/6/2017 10:49 AM
2	Several neighbors do not control their dogs in the neighborhood.	8/8/2017 2:35 PM
3	NOT NEARLY ENOUGH SIDEWALKS	6/27/2017 2:35 PM
4	cars going too fast in neighborhoods	6/21/2017 12:03 AM

Carthage Bike Pedestrian Plan

5	vehicle exhaust	6/20/2017 11:51 PM
6	Saunders Street between McNeill and Rockingham not maintained	6/20/2017 11:46 PM
7	lack of trash cans for doggie poop. Mile markers.	6/20/2017 11:40 PM
8	connectivity	6/20/2017 5:49 PM
9	none	6/20/2017 5:34 PM
10	Npt enough good sidewalks near old courthouse	6/20/2017 5:16 PM
11	No problems experienced whatsoever, with the exception of a hostile dog now and then.	6/15/2017 5:21 PM
12	fire aunt hills - afraid my children are going to step in them they are mounding onto the sidewalks	6/14/2017 3:08 PM
13	No sidewalks.	6/13/2017 3:22 PM
14	Many roads without sidewalks have narrow shoulders	6/12/2017 10:44 AM
15	No sidewalks in neighborhood	6/10/2017 5:25 PM
16	Narrow side lanes, lots of trash and cigarette butts on the side of streets	6/10/2017 9:11 AM
17	Lack of sidewalks in general	6/6/2017 10:11 PM
18	Vehicles traveling not willing to yield	6/4/2017 7:50 AM
19	No sidewalks to walk on	6/1/2017 6:23 PM
20	no sidewalk	6/1/2017 5:36 PM
21	No sidewalks in some places.	6/1/2017 2:58 PM
22	there aren't any sidewalks in certain places	5/31/2017 6:34 PM
23	Rude and obnoxious people riding bicycles	5/30/2017 1:46 PM
24	walk during lunch time in the parking lot of job no clear areas for trail or to sit outside for lunch	5/23/2017 4:14 PM
25	I wish we had sidewalks towards the Berryfield area. There are a lot of families down that way and it's a blind spot coming from the courthouse around that curve. I also wish the sidewalk extended after the Gospel Chapel Church sign going towards McDonald's. I see a LOT of people walking that I think walk due to lack of car as well. It gets dangerous as the traffic is way too close when big trucks come by.	5/18/2017 5:32 PM
26	lack of sidewalks	5/17/2017 11:30 AM
27	Crosswalks are not clearly marked	5/17/2017 11:29 AM
28	Limited sidewalks in neighborhoods in city limits	5/17/2017 11:17 AM
29	I ran past a dead cat on the sidewalk for 4 weeks across from Chuckwagon. GROSS!	5/17/2017 10:52 AM
30	Drug sellers, drug users & thieves.	5/17/2017 10:43 AM
31	No sidewalk past Saunders Rockingham street intersection	5/17/2017 10:27 AM
32	Suspect people walking streets deters my wife from walking alone	5/17/2017 8:23 AM
33	Not always clear of debris	5/15/2017 12:58 PM
34	See #1 again; there is no place to walk in Carthage! Only option is from one business to another. Not scenic.	5/14/2017 6:07 PM
35	Deer	5/11/2017 11:24 AM

Q5 If you have children, is there a sidewalk or greenway for your children to walk or bike to school?

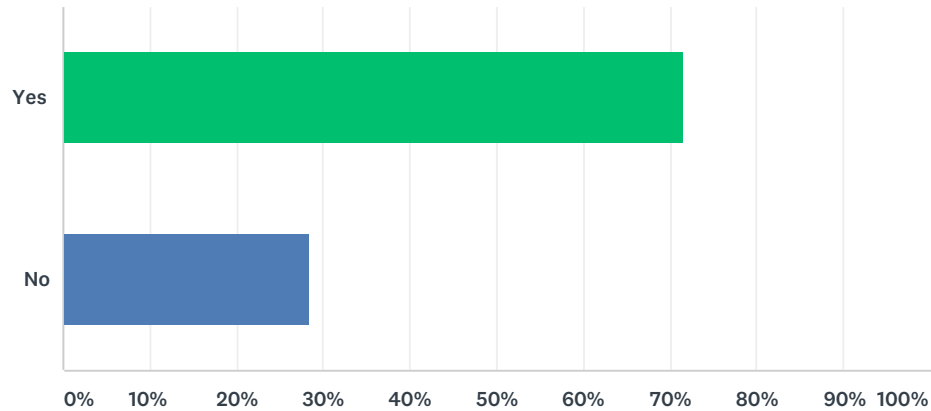
Answered: 147 Skipped: 6



ANSWER CHOICES	RESPONSES	
N/A	48.30%	71
No	42.86%	63
Yes	8.84%	13
TOTAL		147

Q6 If No - if there was a sidewalk or greenway, would you let your children walk or bike to school?

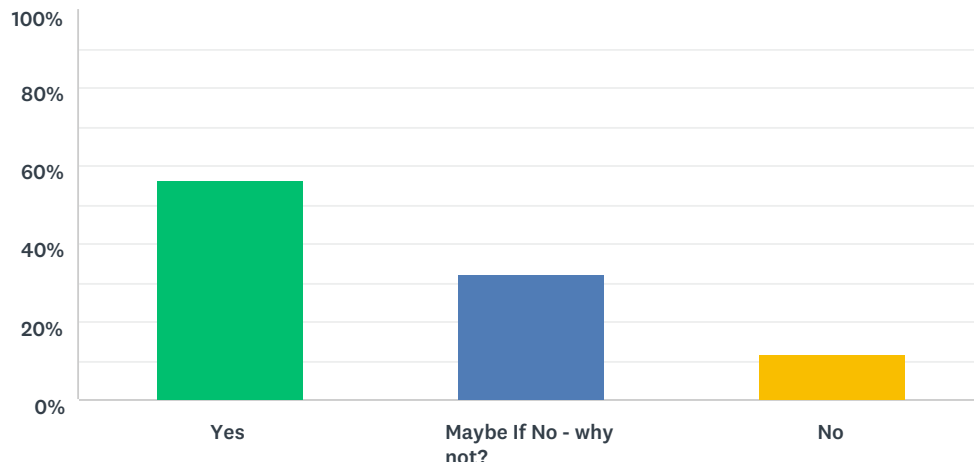
Answered: 81 Skipped: 72



ANSWER CHOICES		RESPONSES	
Yes		71.60%	58
No		28.40%	23
TOTAL			81

Q7 Would you walk or bike to work if there was a sidewalk or greenway available?

Answered: 140 Skipped: 13



ANSWER CHOICES	RESPONSES
Yes	56.43% 79
Maybe If No - why not?	32.14% 45
No	11.43% 16
TOTAL	140

#	MAYBE IF NO - WHY NOT?	DATE
1	I work in Raleigh	9/28/2017 9:02 PM
2	Depending on situation and weather	7/23/2017 9:25 PM
3	Retired	7/23/2017 9:18 PM
4	depending on weather	7/5/2017 3:15 PM
5	Don't work in Carthage	6/30/2017 10:03 AM
6	WORK IN SOUTHERN PINES	6/27/2017 2:35 PM
7	Depart for work when it is dark. Distance is too great, would need to shower after ride and take a change of clothes.	6/27/2017 10:58 AM
8	None	6/21/2017 12:02 AM
9	too far from my home	6/20/2017 11:59 PM
10	work out of town	6/20/2017 11:56 PM
11	we do not work in town	6/20/2017 11:46 PM
12	None	6/20/2017 11:41 PM
13	too far	6/20/2017 11:33 PM
14	None	6/20/2017 5:39 PM
15	None	6/20/2017 5:32 PM
16	retired	6/20/2017 5:30 PM
17	big truck traffic	6/20/2017 5:16 PM
18	N/A	6/20/2017 5:09 PM

Carthage Bike Pedestrian Plan

19	I would walk around Carthage for exercise after work, but I live too far away to walk to work.	6/19/2017 12:43 PM
20	I don't want to support an unnecessary program. Waste of money. Many more important things to use money for than this.	6/15/2017 5:21 PM
21	We do not work in Carthage	6/14/2017 3:08 PM
22	Retired	6/13/2017 8:02 PM
23	To far away.	6/7/2017 5:11 PM
24	Do not work in Carthage.	6/6/2017 10:11 PM
25	It is too far	6/6/2017 6:06 PM
26	Work outside the Carthage town limits	6/4/2017 10:09 PM
27	Wish this was a broader question - I don't work in Carthage but I would use a sidewalk or greenway to get to stores	6/2/2017 8:35 AM
28	Too far	6/1/2017 3:53 PM
29	I don't work in Carthage; if I did, yes, I'd love to walk or bike to work!	6/1/2017 2:58 PM
30	i live too far away but would after work	5/31/2017 3:02 PM
31	Retired	5/30/2017 3:25 PM
32	Number 5 question is N/A A student cannot ride a bicycle or walk to Carthage Elementary	5/30/2017 1:46 PM
33	I don't have much time during work days	5/17/2017 4:26 PM
34	I live 20+ miles away from work.	5/17/2017 11:30 AM
35	Do not reside in Carthage, only work here	5/17/2017 11:29 AM
36	I don't live in Carthage, I work in Carthage so this is not applicable	5/17/2017 10:52 AM
37	I live outside of town. If I lived in town, yes I would.	5/17/2017 10:34 AM
38	don't live close enough	5/17/2017 10:30 AM
39	too far	5/17/2017 10:15 AM
40	Both my wife and I work at Ft. Bragg	5/17/2017 8:23 AM
41	I work out of town	5/15/2017 7:57 PM
42	It is a bit of a distance and I hate to get there all sweaty	5/15/2017 5:47 PM
43	Don't work; but would bicycle for fun and exercise if there was a path.	5/14/2017 6:07 PM
44	Retired	5/13/2017 2:09 PM
45	If I had a job I would probably rollerblade there	5/11/2017 11:24 AM

Q8 Areas I feel most unsafe/uncomfortable while walking and biking include...

Answered: 99 Skipped: 54

#	RESPONSES	DATE
1	On main roads and highways speeds are 55 mph	9/28/2017 9:02 PM
2	15-501	9/28/2017 2:47 PM
3	Everywhere there is vehicular traffic and not designated space for walking or biking.	9/6/2017 10:49 AM
4	Sanford st and Barrett st	9/3/2017 2:59 PM
5	...crossing over Vass-Carthage Rd.	8/8/2017 2:35 PM
6	union church road as it is a 55 mile/hr road that connects us to the main part of Carthage.	7/31/2017 6:58 PM
7	Roads	7/23/2017 9:37 PM
8	Pinecrest Lane	7/23/2017 9:25 PM
9	I wish that there was a crosswalk at the intersection of McNeill and Monroe.	7/21/2017 11:32 AM
10	McReynolds when the speed limit drops from 55 to 35 and nobody seems to notice. Also the roundabout people go to fast and don't look for pedestrians when coming around the circle.	7/13/2017 11:39 AM
11	N/A	7/5/2017 3:15 PM
12	Courthouse circle area late afternoon,dusk	7/4/2017 11:11 AM
13	Niagara-Carthage Rd, Pinehurst Ave	6/30/2017 10:03 AM
14	FROM STEVES PIZZA TO FOOD LION	6/27/2017 2:35 PM
15	Union Church Road - no shoulder for road bikes.	6/27/2017 10:58 AM
16	Poorly lit or roads with curves and no sidewalk	6/27/2017 10:17 AM
17	Saunders Street	6/21/2017 12:05 AM
18	neighborhood people go way too fast	6/21/2017 12:03 AM
19	Main Streets	6/21/2017 12:02 AM
20	road	6/21/2017 12:00 AM
21	Vass-Carthage Rd and Dowd and Sunset Dr.	6/20/2017 11:59 PM
22	Dogs. Dowd Rd to the airport is terrifying. Trucks are mean.	6/20/2017 11:51 PM
23	Not in our paths. We always feel safe.	6/20/2017 11:46 PM
24	NA	6/20/2017 11:41 PM
25	areas in Needmore Community	6/20/2017 11:38 PM
26	in town	6/20/2017 11:34 PM
27	roadway	6/20/2017 11:33 PM
28	15/501, downtown Carthage	6/20/2017 11:30 PM
29	24/27 in front of CUMC. Around courthouse. people speeding.	6/20/2017 5:56 PM
30	NA	6/20/2017 5:51 PM
31	every connecting road has inadequate ? space	6/20/2017 5:49 PM
32	around stores	6/20/2017 5:46 PM
33	poor lighting	6/20/2017 5:43 PM

Carthage Bike Pedestrian Plan

34	streets	6/20/2017 5:39 PM
35	well lit areas	6/20/2017 5:30 PM
36	Summit Street	6/20/2017 5:28 PM
37	closer to major highways	6/20/2017 5:22 PM
38	Cars being too close	6/20/2017 5:20 PM
39	unlit roads	6/20/2017 5:16 PM
40	In center of Carthage (traffic) and McNeill St.	6/20/2017 5:13 PM
41	courthouse, by the elementary school	6/20/2017 5:07 PM
42	At courthouse and near McDonalds	6/20/2017 5:05 PM
43	In front of Green Tree Apartments and 24/27 to Dollar General	6/20/2017 5:01 PM
44	Hillcrest doesn't have a good path delineated and downtown Carthage sometimes doesn't feel very safe.	6/19/2017 12:43 PM
45	Where there are hostile dogs.	6/15/2017 5:21 PM
46	as soon as sidewalks end, feel unsafe	6/14/2017 3:08 PM
47	Any road/ street not on main roads. Not enough lighting or walkways.	6/13/2017 3:22 PM
48	High traffic areas, crossing the Hwy 15-501 in main town. Traffic Circle	6/12/2017 10:44 AM
49	My neighborhood because there are no sidewalks	6/10/2017 5:25 PM
50	Highways 22/24/27 towards Robbins and towards 15/501	6/9/2017 2:33 PM
51	main street	6/9/2017 1:11 PM
52	The circle	6/8/2017 8:29 PM
53	Areas without sidewalks or sidewalks that are obstructed. Often times the shoulders of the road are too uneven to walk on.	6/6/2017 10:11 PM
54	On roads	6/6/2017 6:06 PM
55	Downtown Carthage is in dire need of crosswalks and bike lanes	6/6/2017 5:16 PM
56	around town/park	6/6/2017 3:21 PM
57	Across the street from Fry Prickett on Saunders Street. McNeill where there are no sidewalks.	6/4/2017 10:09 PM
58	Vass Cathage road. No sidewalk and traffic goes way over the speed limit. Would like all roads in city limits 35mph	6/4/2017 1:05 PM
59	Courthouse Square	6/4/2017 7:50 AM
60	Vass-carthage rd, Monroe St., Glendon-Carthage Rd., McNeill St.	6/3/2017 8:13 PM
61	15-501	6/3/2017 11:51 AM
62	Near McDonalds. Saunders from Rockingham East.	6/3/2017 9:52 AM
63	Barrett Street - dog Pinecrest Street - dog	6/2/2017 8:35 AM
64	Everywhere where their is no sidewalk.	6/1/2017 6:23 PM
65	union church road	6/1/2017 5:36 PM
66	Going from "downtown" area (after Vass-Carthage Rd) toward shopping center where Food Lion is. No sidewalks, iffy "paths" and heavy traffic.	6/1/2017 2:58 PM
67	Everywhere outside of Rockingham St, South McNeill St, Saunders/West Saunders St, and Monroe Street. The limited sidewalks Carthage has are in these areas. Everywhere else in the town is not very safe or conducive to walking, and completely dangerous for biking.	5/31/2017 9:16 PM
68	Sunset drive does not have enough lighting. Need more side walks by shopping because of lack of transportation i.e. McDonalds, Food Lion.	5/31/2017 8:25 PM
69	On the main road going from the court house to food lion	5/31/2017 6:34 PM

Carthage Bike Pedestrian Plan

70	Saunders St and parts of Rockingham St	5/30/2017 10:24 PM
71	N/A	5/30/2017 1:46 PM
72	The stretch from Gospel Chapel Church sign to McDonalds. We also like to walk towards Franks on 24/27 and the sidewalk stops abruptly there and that feels very unsafe.	5/18/2017 5:32 PM
73	24/27; 22; 15/501	5/18/2017 1:56 PM
74	Some houses have dogs that are not on chains in the city limits.	5/18/2017 10:41 AM
75	Historic courthouse crosswalks. People ignore them. I would suggest crosswalk paddles and signs.	5/18/2017 10:38 AM
76	Martin St	5/17/2017 4:26 PM
77	NC 24-27	5/17/2017 2:08 PM
78	Dowd	5/17/2017 12:43 PM
79	McNeill St. and Dowd St.	5/17/2017 11:39 AM
80	Vass-Carthage Rd	5/17/2017 11:30 AM
81	Around Historic Courthouse	5/17/2017 11:29 AM
82	Pinehurst Ave, Saunders St	5/17/2017 11:17 AM
83	Areas without a sidewalk	5/17/2017 11:05 AM
84	Pinehurst Ave. It has no sidewalks, yet a great trail around the pond. Drivers look at runners and then their cars start to swerve towards the runner, trying to see what the runner is doing or if they know them.	5/17/2017 10:52 AM
85	main street	5/17/2017 10:49 AM
86	All!	5/17/2017 10:43 AM
87	Crossing Monroe St from Chuck Wagon to Hardware Store on foot. And the traffic circle.	5/17/2017 10:29 AM
88	Rockingham and Pinehurst	5/17/2017 10:24 AM
89	Ag center Park Softball Park	5/17/2017 10:16 AM
90	wooded areas of the trail	5/17/2017 10:15 AM
91	Around the new Jail and at the Day reporting (Probation Ofc) always questionable folks hanging around. High traffic areas around McDonalds no side walk.	5/17/2017 8:23 AM
92	Monroe St	5/16/2017 3:34 PM
93	From town center down to John Hall Presbyterian Church along Dowd Rd.	5/15/2017 7:57 PM
94	Dowd Street	5/15/2017 5:47 PM
95	Areas that do not have a sidewalk. It is hard to cross Monroe Street. Some have the roots pushing them up to make it unsafe. And FIRE ANTS!	5/15/2017 10:47 AM
96	I've been to Sanford trails and feel safer in Moore County (any of the trails mentioned in 2 above I feel safe even if I am solo.	5/14/2017 6:07 PM
97	Roadways due to malicious drivers and unrestrained dogs	5/13/2017 2:09 PM
98	In the road	5/11/2017 11:24 AM
99	roads outside of downtown	5/8/2017 2:55 PM

Q9 Areas I feel safest/most comfortable while walking and biking include...

Answered: 104 Skipped: 49

#	RESPONSES	DATE
1	Side streets as they have slower speed limits.	9/28/2017 9:02 PM
2	Monroe Street	9/28/2017 2:47 PM
3	Southern Pines Reservoir and Nicks Creek. But you have to drive to get to those areas.	9/6/2017 10:49 AM
4	In town	9/3/2017 2:59 PM
5	...neighborhood streets and parks.	8/8/2017 2:35 PM
6	downtown Carthage, my own neighborhood of Forest Ridge	7/31/2017 6:58 PM
7	Schools	7/23/2017 9:37 PM
8	Along McNeill and Monroe	7/21/2017 11:32 AM
9	Parks.	7/13/2017 11:39 AM
10	N/A	7/5/2017 3:15 PM
11	Monroe St	7/4/2017 11:11 AM
12	McReynolds	6/30/2017 10:03 AM
13	MY NEIGHBORHOOD - BERRYFIELD	6/27/2017 2:35 PM
14	Less traffic in more rural areas - but then there is always the potential of being chased by a dog near a residence.	6/27/2017 10:58 AM
15	Open, lit, areas with distinct walking paths	6/27/2017 10:17 AM
16	near courthouse	6/21/2017 12:05 AM
17	Monroe Street	6/21/2017 12:03 AM
18	church	6/21/2017 12:02 AM
19	park	6/21/2017 12:00 AM
20	Areas that have sidewalks	6/20/2017 11:59 PM
21	The airport only	6/20/2017 11:51 PM
22	Sidewalks (if we go in neighborhoods we worry about stray dogs)	6/20/2017 11:46 PM
23	parks	6/20/2017 11:41 PM
24	Red Branch Church Road	6/20/2017 11:36 PM
25	side streets	6/20/2017 11:34 PM
26	on sidewalks - side roads with bike path	6/20/2017 11:33 PM
27	areas not available to cars	6/20/2017 11:30 PM
28	When I stay on the same side of the road where I am doing business	6/20/2017 5:56 PM
29	downtown	6/20/2017 5:51 PM
30	greenway	6/20/2017 5:49 PM
31	near park, school, courthouse	6/20/2017 5:46 PM
32	well lit areas	6/20/2017 5:43 PM
33	trails	6/20/2017 5:39 PM

Carthage Bike Pedestrian Plan

34	nonvehicle areas	6/20/2017 5:37 PM
35	in town and back roads	6/20/2017 5:34 PM
36	Southern Pines	6/20/2017 5:32 PM
37	walking trails	6/20/2017 5:30 PM
38	Martin Street	6/20/2017 5:28 PM
39	neighborhood	6/20/2017 5:22 PM
40	Sidewalks with no people	6/20/2017 5:20 PM
41	near courthouse	6/20/2017 5:16 PM
42	While walking - Ag Center	6/20/2017 5:13 PM
43	Park	6/20/2017 5:09 PM
44	By the banks, gas station	6/20/2017 5:07 PM
45	Around banks	6/20/2017 5:05 PM
46	Only around courthouse	6/20/2017 5:01 PM
47	Anywhere in my town.	6/15/2017 5:21 PM
48	I only feel comfortable around the courthouse and one block over and to the school where clear sidewalk paths	6/14/2017 3:08 PM
49	Area described	6/13/2017 8:02 PM
50	My neighborhood, cabin branch.	6/13/2017 5:03 PM
51	From traffic circle to corner of Carthage- Vass and from circle to top of hill toward Robins.	6/13/2017 3:22 PM
52	Neighborhoods with sidewalks and cross walks	6/12/2017 10:44 AM
53	In town around the school	6/10/2017 5:25 PM
54	My own neighborhood	6/10/2017 9:11 AM
55	back roads/ neighborhoods	6/9/2017 1:11 PM
56	home. Cars fly down our little neighborhood street using it as a shortcut. We need speedbumps.	6/8/2017 8:29 PM
57	greenways designed for recreation.	6/7/2017 1:24 PM
58	Carthage Elementary though it could use some improvement.	6/6/2017 10:11 PM
59	Sidewalks and designated paths	6/6/2017 6:06 PM
60	Carthage does not have an adequate network of walking or biking lanes/ crosswalks. It is, in fact, dangerous to travel on foot or by bike throughout Carthage due to the town's lack of well-maintained sidewalks and designated bike lanes.	6/6/2017 5:16 PM
61	My neighborhood	6/6/2017 3:21 PM
62	Bingham and low traffic areas.	6/4/2017 10:09 PM
63	Off main roads	6/4/2017 1:05 PM
64	School	6/4/2017 7:50 AM
65	By Carthage elementary	6/3/2017 11:51 AM
66	Brooklyn/McReynolds/Monroe -- hate the traffic, like the amount of eyes on the road	6/2/2017 8:35 AM
67	Where there are side walks, so basically other towns.	6/1/2017 6:23 PM
68	Forest Ridge	6/1/2017 3:53 PM
69	Downtown area.	6/1/2017 2:58 PM
70	Rockingham St, South McNeill St, Saunders/West Saunders St, and Monroe Street.	5/31/2017 9:16 PM
71	School, post office	5/31/2017 8:25 PM
72	around Buggy town and the jail	5/31/2017 6:34 PM

Carthage Bike Pedestrian Plan

73	savannah garden neighborhood and nick's creek greenway	5/31/2017 4:26 PM
74	downtown	5/31/2017 10:48 AM
75	Monroe St near courthouse.	5/30/2017 10:24 PM
76	N/A	5/30/2017 1:46 PM
77	Around the courthouse areas. Towards Lake Luke Marion - even though no sidewalk, it's not that busy of a road.	5/18/2017 5:32 PM
78	Saunders area	5/18/2017 1:56 PM
79	the parks	5/18/2017 10:44 AM
80	Main part of town around courthouse circle and back streets near Carthage Elementary School. Lake Luke Marion is safe too.	5/18/2017 10:41 AM
81	The park by Carthage Elementary. We go there to play on the equipment	5/17/2017 4:39 PM
82	main streets	5/17/2017 4:26 PM
83	Underwood	5/17/2017 12:43 PM
84	Pinehurst Ave., Bruce and Pete Kelly Roads	5/17/2017 11:39 AM
85	Around pond in front of Ag building	5/17/2017 11:17 AM
86	Walking on a sidewalk	5/17/2017 11:05 AM
87	I feel safe in Carthage.	5/17/2017 10:52 AM
88	local park	5/17/2017 10:49 AM
89	None!	5/17/2017 10:43 AM
90	McReynolds Street	5/17/2017 10:30 AM
91	Streets other than Monroe, as that is the busiest.	5/17/2017 10:29 AM
92	Saunders	5/17/2017 10:24 AM
93	Around Courthouse	5/17/2017 10:16 AM
94	on the sidewalk	5/17/2017 10:15 AM
95	Court House square back roads and neighborhoods	5/17/2017 8:23 AM
96	Needmore Road	5/16/2017 3:34 PM
97	Where sidewalks are in good repair	5/15/2017 7:57 PM
98	Along 24/27	5/15/2017 5:47 PM
99	anywhere there is a sidewalk	5/15/2017 12:58 PM
100	Sidewalks that have a grassy patch gap. (street, grass, sidewalk)	5/15/2017 10:47 AM
101	Pinehurst Greenway, Phillips Memorial, Nick's Creek, Reservoir Park (in order of feeling safest)	5/14/2017 6:07 PM
102	Sidewalks, bike paths and parks	5/13/2017 2:09 PM
103	My house	5/11/2017 11:24 AM
104	downtown	5/8/2017 2:55 PM

Q10 I would walk and bike more places in Carthage if...

Answered: 101 Skipped: 52

#	RESPONSES	DATE
1	If their were bike lanes union	9/28/2017 9:02 PM
2	Had a bike path.	9/28/2017 2:47 PM
3	hedges trimmed so as not to overhang sidewalks to a point that forces us off the curb	9/16/2017 9:40 AM
4	A greenway area for this type of activity was established.	9/6/2017 10:49 AM
5	More side walks and more lighting and more police presence	9/3/2017 2:59 PM
6	...sidewalks and trails were easier to walk to.	8/8/2017 2:35 PM
7	There was at least a bike lane on union church, so that I could bike to food lion etc from home.	7/31/2017 6:58 PM
8	There were designated walk/bike lanes	7/23/2017 9:37 PM
9	Better lighting and more stable and better sidewalks available.	7/23/2017 9:25 PM
10	Had a nice safe walking path	7/23/2017 9:18 PM
11	There were more crosswalks.	7/21/2017 11:32 AM
12	It was safer and especially if the speed limit was enforced better.	7/13/2017 11:39 AM
13	McNeil Street had unbroken sidewalk on both sides	7/4/2017 11:11 AM
14	There were more sidewalks or bike lanes	6/30/2017 10:03 AM
15	IF THERE WERE BETTER AND MORE SIDEWALKS ALONG WITH BETTER LIGHTING.	6/27/2017 2:35 PM
16	More and wider side walks were available	6/27/2017 10:17 AM
17	sidewalks/bike lanes	6/21/2017 12:05 AM
18	you had more walks	6/21/2017 12:02 AM
19	there were more sidewalks	6/20/2017 11:59 PM
20	they were safe	6/20/2017 11:52 PM
21	it were safe	6/20/2017 11:51 PM
22	bike paths were available	6/20/2017 11:46 PM
23	bike and walking paths	6/20/2017 11:38 PM
24	biking/walking areas need improving	6/20/2017 11:34 PM
25	we had bike paths	6/20/2017 11:33 PM
26	more sidewalks were available	6/20/2017 11:30 PM
27	there were more parks	6/20/2017 5:51 PM
28	connectivity to destinations	6/20/2017 5:49 PM
29	had more sidewalks for walking and biking	6/20/2017 5:46 PM
30	more continuous, obvious walkway	6/20/2017 5:43 PM
31	more available	6/20/2017 5:39 PM
32	bike lanes	6/20/2017 5:36 PM
33	if I was closer to town	6/20/2017 5:34 PM
34	there were more trails	6/20/2017 5:30 PM
35	We walk everywhere except Food Lion. Would love to walk there but needs sidewalk.	6/20/2017 5:28 PM

Carthage Bike Pedestrian Plan

36	The bike lanes were more open	6/20/2017 5:22 PM
37	there were more sidewalks	6/20/2017 5:20 PM
38	safe walkways	6/20/2017 5:16 PM
39	Designated bike lane and fully repaired and continuous sidewalks	6/20/2017 5:13 PM
40	Spaces provided	6/20/2017 5:09 PM
41	We had more sidewalks or trails	6/20/2017 5:07 PM
42	There was a biking lane	6/20/2017 5:05 PM
43	There were sidewalks and bike lanes	6/20/2017 5:01 PM
44	There were more established routes with good lighting and I felt safer.	6/19/2017 12:43 PM
45	N/A	6/15/2017 5:21 PM
46	crosswalks, and better paths - don't feel like anything is complete	6/14/2017 3:08 PM
47	There were bike paths	6/13/2017 8:02 PM
48	Adequate trails or sidewalks were put away from main road (Monroe) and a passage was created to make for fun family walks.	6/13/2017 5:03 PM
49	Better and more sidewalks with adequate lighting.	6/13/2017 3:22 PM
50	cross walks, a park that carter to more to walking like Wiker Park in Pinehurst or the trail around the lake reservation in southern pines.	6/12/2017 10:44 AM
51	There were more sidewalks	6/10/2017 5:25 PM
52	If it had something similar to Wicker Park in Pinehurst.	6/10/2017 9:11 AM
53	it felt safer by improving the sidewalks and wider designated walking and biking areas on the main roads	6/9/2017 2:33 PM
54	if there was a greenway	6/9/2017 1:11 PM
55	There were more cross walks	6/7/2017 5:11 PM
56	they were designed for bikes and safe.	6/7/2017 1:24 PM
57	There were more areas with sidewalks and more areas for recreation. I would love to walk multiple laps around a short path if my kids were able to play in a nearby park. However, the current park areas in town are quite rundown and not properly maintained.	6/6/2017 10:11 PM
58	There were sidewalks/paths to safely walk on	6/6/2017 6:06 PM
59	...Carthage had more sidewalks and bike lanes (and maintained them well)	6/6/2017 5:16 PM
60	more sidewalks and safer(people not hanging out around areas) Dogs not roaming.	6/6/2017 3:21 PM
61	Accessible	6/5/2017 6:14 PM
62	Connect the green way to Nicks Creek	6/5/2017 2:56 PM
63	I walk currently.	6/4/2017 10:09 PM
64	Speed limit lowered and sidewalks or bike lanes	6/4/2017 1:05 PM
65	Clearly marked bike/walking lanes, sidewalks that are in good condition	6/3/2017 8:13 PM
66	There was better lighting and sidewalks	6/3/2017 11:51 AM
67	There were consequences for dogs off the leash.	6/2/2017 8:35 AM
68	There were sidewalks.	6/1/2017 6:23 PM
69	There were trails/paths	6/1/2017 3:53 PM
70	There were more sidewalks.	6/1/2017 2:58 PM
71	We had sidewalks that went to the stores and restaurants in town and/or bike lanes or paths.	5/31/2017 9:16 PM
72	There were bike stands to lock your bikes and it were more scenic and not so commercialized.	5/31/2017 8:25 PM

Carthage Bike Pedestrian Plan

73	we had more sidewalks and there were more people who walked	5/31/2017 6:34 PM
74	biking lanes were available	5/31/2017 10:48 AM
75	There were more sidewalks or bike lanes.	5/30/2017 10:24 PM
76	I had a bike	5/30/2017 3:25 PM
77	N/A	5/30/2017 1:46 PM
78	If there were clear designed trails for walking or biking	5/23/2017 4:14 PM
79	I had a sidewalk near my house (Berryfield area); if the sidewalk extended to McDonald's/Food Lion	5/18/2017 5:32 PM
80	There were designated lanes and or paths.	5/18/2017 1:56 PM
81	there were public places to do so. It would be great if there was an area around the DSS building. There are always people walking around the edges of the parking lot b/c there's no where else to go.	5/18/2017 10:44 AM
82	Extended sidewalks on Monroe Street.	5/18/2017 10:41 AM
83	There needs to be more crosswalks around the historic courthouse circle. There are only 2 and they are both on the same side of the circle.	5/18/2017 10:38 AM
84	I knew of a bike path location	5/17/2017 4:39 PM
85	Between the park and downtown	5/17/2017 12:43 PM
86	There were bike/pedestrian lanes	5/17/2017 11:39 AM
87	Better sidewalks	5/17/2017 11:30 AM
88	Extensions to existing sidewalks. Sidewalk additions, and walking and/or bike trails!	5/17/2017 11:17 AM
89	I felt I was in a safe area and if I knew that I could get to the destination without it abruptly ending. If I actually felt like cars respected cyclists.	5/17/2017 10:34 AM
90	Places to lock bike, bike lane or wider shoulder out to Hardees on 15-501.	5/17/2017 10:29 AM
91	more sidewalks	5/17/2017 10:24 AM
92	Had better biking trails designated so bikers do not have to dodge traffic or be at the mercy of drivers.	5/17/2017 10:15 AM
93	More paths trails Police on Bikes	5/17/2017 8:23 AM
94	had more trails that connection to Nick's Creek Greenway trail system.	5/16/2017 3:34 PM
95	If more areas had safe conditions.	5/15/2017 7:57 PM
96	Sidewalks were extended and greenways installed	5/15/2017 5:47 PM
97	There were more sidewalkd	5/15/2017 12:58 PM
98	The sidewalks were available and smoother. Some have the roots pushing them up to make it unsafe.	5/15/2017 10:47 AM
99	There were pedestrian/bike trails!	5/14/2017 6:07 PM
100	There were places for that purpose	5/13/2017 2:09 PM
101	There were no more cars.	5/11/2017 11:24 AM

Q11 Bike connections need to be added/improved here...(give street names or nearest destinations)

Answered: 59 Skipped: 94

#	RESPONSES	DATE
1	Union church rd , 22 and 24/27	9/28/2017 9:02 PM
2	Yes - they do - children could benefit as well as adults.	9/28/2017 2:47 PM
3	Downtown seems too busy to try and add bike lanes with NC-24 running directly through Carthage. The Bypass option should be implemented then bicycle routes could be added in the city to attract bicycles into the main strip of town.	9/16/2017 9:40 AM
4	Monroe Street. Carthage-Vass Rd. Saunders St. McNeill St. Pretty much the whole town could be on your list for this type of improvements.	9/6/2017 10:49 AM
5	n/a	8/8/2017 2:35 PM
6	Union Church Rd.	7/31/2017 6:58 PM
7	McRenolds, McNeill, Monroe, Glendon-Carthage, Ray, Saunders, Pinehurst	7/23/2017 9:37 PM
8	Pinecrest Lane and McReynolds Street	7/23/2017 9:25 PM
9	The crossover at 15/501.	7/13/2017 11:39 AM
10	Vass-Carthage Road, Niagara-Carthage Road, Food Lion/McDonald's/Dollar General	6/30/2017 10:03 AM
11	WOULD LOVE TO SEE A TRAIL CONNECTING TO THE OTHER TRAILS IN THE WHISPERING PINES	6/27/2017 2:35 PM
12	Saunders Street/ 24/27	6/21/2017 12:05 AM
13	Martin Street	6/20/2017 11:52 PM
14	McConnell/Dowd - airport to town, to Southern Pines, to Pinehurst	6/20/2017 11:51 PM
15	Needmore Community	6/20/2017 11:38 PM
16	downtown and by school at high school area	6/20/2017 11:33 PM
17	all of Carthage	6/20/2017 11:30 PM
18	Don't ride bike	6/20/2017 5:56 PM
19	greenways connect to downtown and destinations	6/20/2017 5:49 PM
20	near stores	6/20/2017 5:46 PM
21	yes	6/20/2017 5:32 PM
22	everywhere	6/20/2017 5:30 PM
23	Closer to the school	6/20/2017 5:22 PM
24	attach to other greenways	6/20/2017 5:16 PM
25	McNeill, Saunders, Ray, Monroe, Barrett	6/20/2017 5:13 PM
26	Most roas	6/20/2017 5:07 PM
27	most streets	6/20/2017 5:05 PM
28	Saunders Street and by McDonalds on 24/27	6/20/2017 5:01 PM
29	N/A	6/15/2017 5:21 PM
30	Saunders street the block between museum and coffee shop is NOT maintained - the fire aunt hills are bad there and the kudzu is getting ready to take over one section	6/14/2017 3:08 PM
31	McNeill, Sanders	6/13/2017 8:02 PM

Carthage Bike Pedestrian Plan

32	Connecting the business and people that are separated by the split in 15-501 with the people and business with the main part of town. In addition the traffic circle and the area by the library/post office and school in that area.	6/12/2017 10:44 AM
33	Cabin Branch neighborhood	6/10/2017 5:25 PM
34	Getting between the areas located on Hwy 15-501 to locations on main road through town of Carthage.	6/10/2017 9:11 AM
35	all the above plus Niagara Carthage Road	6/9/2017 2:33 PM
36	Monroe Street, McReynolds Street, Saunders Street	6/6/2017 10:11 PM
37	Along McNeill, Monroe, McReynolds, Summit,	6/6/2017 5:16 PM
38	Connect the green way to Nicks Creek	6/5/2017 2:56 PM
39	?	6/4/2017 10:09 PM
40	Vass Carthage, niagara Carthage, Monroe street	6/4/2017 1:05 PM
41	See no. 8.	6/3/2017 8:13 PM
42	Not sure	6/2/2017 8:35 AM
43	N/a	6/1/2017 6:23 PM
44	At a minimum from the S Ray St. to 15-501.	5/31/2017 9:16 PM
45	Sunset drive, Rockingham St. Pinehurst Ave.	5/31/2017 8:25 PM
46	Saunders St and parts of monroe street	5/30/2017 10:24 PM
47	Let the bike riders ride off the main streets anywhere	5/30/2017 1:46 PM
48	24/27; 22; Square mile area around the detention center; Around Food Lion	5/18/2017 1:56 PM
49	I did not know there were any in Carthage	5/17/2017 4:39 PM
50	McNeil St.	5/17/2017 11:39 AM
51	Pinehurst Ave, Saunders St, McNeill St	5/17/2017 11:17 AM
52	Sidewalks to be added along Pinehurst Ave & E Saunders St to maintain the flow.	5/17/2017 10:52 AM
53	Everywhere. Bike lanes should be added to all new road construction. Too expensive though, so probably along Monroe from Vass Rd to Glendon-Carthage Rd.	5/17/2017 10:29 AM
54	Union Church road-the bike connection just drops off at random	5/17/2017 10:15 AM
55	to downtown square	5/16/2017 3:34 PM
56	Pik N Pig. Airplane Museums. Mural Trail. Needmore Community.	5/15/2017 5:47 PM
57	I would like to see a connection between the Senior Enrichment Center and the Pinehurst Greenway at Spring Lane (LESS THAN 1 MILE!!!). Trails added from Nick's Creek (Hwy 2) to Carthage and Pinehurst Greenway (Spring Lane). Establish some greenway trails in Carthage - it's a MUST!	5/14/2017 6:07 PM
58	Along Dowd Street between the airport and town. And around town itself	5/13/2017 2:09 PM
59	The roundabout, Degraffenreid Rd, Stoneyhill Church Rd.	5/11/2017 11:24 AM

Q12 Pedestrian connections need to be added/improved here...(give street names or nearest destinations)

Answered: 63 Skipped: 90

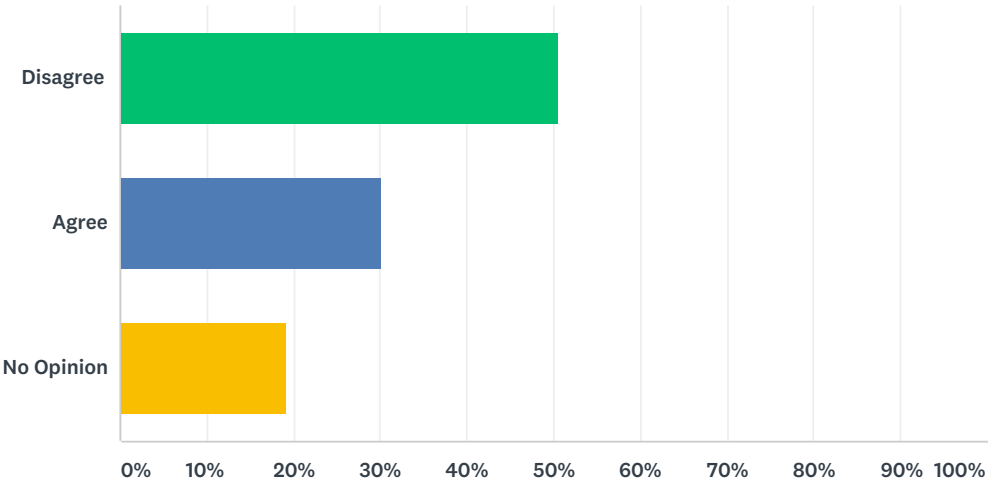
#	RESPONSES	DATE
1	Yes the do. Street sweeping is very much needed. I have been walking and keep finding needles / used syringes, especially behind 101 Monroe and on the way into town from my home at 601 McReynolds Street. I have found used syringes on the side of the road.	9/28/2017 2:47 PM
2	McNeil st and rockingham. And summit and berry field	9/3/2017 2:59 PM
3	...any sidewalk within the city limits at all on Vass-Carthage Rd. would be nice.	8/8/2017 2:35 PM
4	Monroe, Saunders, Glendon-Carthage	7/23/2017 9:37 PM
5	Pinecrest Lane and McReynolds Street	7/23/2017 9:25 PM
6	I wish there were more walking trails.	7/21/2017 11:32 AM
7	McNeil and Monroe, near library and post office	7/4/2017 11:11 AM
8	Vass-Carthage Road, Niagara-Carthage Road, Food Lion/McDonald's/Dollar General	6/30/2017 10:03 AM
9	FROM STEVE'S PIZZA TO FOODLION AREA	6/27/2017 2:35 PM
10	to grocery store - Food Lion	6/21/2017 12:05 AM
11	Martin Street	6/20/2017 11:52 PM
12	See #11	6/20/2017 11:51 PM
13	in town surrounding school	6/20/2017 11:46 PM
14	Needmore Rd. and Leake Street	6/20/2017 11:38 PM
15	schools	6/20/2017 11:33 PM
16	all of Carthage	6/20/2017 11:30 PM
17	just designated cross walks at regular intervals	6/20/2017 5:56 PM
18	not enough sidewalks	6/20/2017 5:49 PM
19	near stores	6/20/2017 5:46 PM
20	around traffic circle	6/20/2017 5:37 PM
21	Carthage City Limits	6/20/2017 5:30 PM
22	walk at light (McNeill and Monroe).sidewalks at Monroe and Food Lion (major safety issue - pedestrians on grass). sidewalks opposite old jail and library need improvement and widening	6/20/2017 5:28 PM
23	Closer to the school	6/20/2017 5:22 PM
24	McNeill, Saunders, Ray Barrett	6/20/2017 5:13 PM
25	Most roads	6/20/2017 5:07 PM
26	most streets	6/20/2017 5:05 PM
27	to Dollar General	6/20/2017 5:01 PM
28	sidewalks on Monroe that connect the downtown with the regular business areas	6/19/2017 12:43 PM
29	N/A	6/15/2017 5:21 PM
30	I don't recall ANY pedestrian crosswalks in Carthage - I would assume the school and the courthouse would be top priority	6/14/2017 3:08 PM
31	Around circle and surrounding neighborhood streets. Including all the way to Hardee's	6/13/2017 3:22 PM

Carthage Bike Pedestrian Plan

32	Traffic Circle and crossing between the busy intersection in town like food lion parking lot and MacDonald parking lot, and hardees parking lot and Bojangles.	6/12/2017 10:44 AM
33	Cabin Branch neighborhood	6/10/2017 5:25 PM
34	Light on Hwy 15-501 at either Vass-Carthage Road exit or Savannah Garden Drive.	6/10/2017 9:11 AM
35	Down town	6/7/2017 5:11 PM
36	Saunders Street, Monroe Street, McReynolds Street,	6/6/2017 10:11 PM
37	Intersections of McNeill and Saunders Streets; McNeill and Monroe Streets; McReynolds and Ray Streets; Saunders and Dowd Streets	6/6/2017 5:16 PM
38	Both sides of Saunders Street and Pinehurst Street.	6/4/2017 10:09 PM
39	Monroe street, sanders street, dowd road	6/4/2017 1:05 PM
40	See no. 8.	6/3/2017 8:13 PM
41	Around hardes and bojangles and food lion	6/3/2017 11:51 AM
42	Not sure ... several years ago it was proposed to do walking trails along the utility easements for water/sewer through the town. Seemed like a good idea to me, am sure this would allow for some connections and at least allow for more opportunities for exercise	6/2/2017 8:35 AM
43	Everywhere in Carthage	6/1/2017 6:23 PM
44	Crosswalk to Union Pines on Grady Rd.	6/1/2017 3:53 PM
45	Monroe Street between Vass-Carthage Rd. and Glendon-Carthage Rd.	6/1/2017 2:58 PM
46	At a minimum from the S Ray St. to 15-501.	5/31/2017 9:16 PM
47	4 way near fidelity bank, barber shop, auto shop and other bank near courthouse. and by library.	5/30/2017 10:24 PM
48	courthouse	5/30/2017 1:46 PM
49	Yes!	5/23/2017 4:14 PM
50	The stretch from Gospel Chapel Church sign to McDonalds. We also like to walk towards Franks on 24/27 and the sidewalk stops abruptly there and that feels very unsafe.	5/18/2017 5:32 PM
51	we usually walk to nearby restaurants and stores but always thru yards or grassy areas in between to avoid traffic.	5/18/2017 10:44 AM
52	Along Dowd st from Monroe st and along S. McNeil St from Monroe St.	5/18/2017 10:38 AM
53	around Courthouse Sq	5/17/2017 4:26 PM
54	Dowd, McNeil and around Carthage. Create walking paths	5/17/2017 11:39 AM
55	Pinehurst Ave, Saunders St, McNeill St	5/17/2017 11:17 AM
56	End of Rockingham past school to hwy 22 and along 24/27 from Vass/Carthage to restaurants & stores at intersection of 15/501 & 24/27	5/17/2017 11:05 AM
57	An overpass pedestrian bridge is needed for NC Highway 24-27 in the area near McDonalds & Food Lion. A left turn lane for vehicles is needed on NC 24-27 for left turns onto Vass-Carthage Road for safety	5/17/2017 10:43 AM
58	There should be increased enforcement for cars who don't yield to those crossing in the pedestrian locations near the traffic circle - that or get those flashing pedestrian yield signs so cars know they need to stop.	5/17/2017 10:34 AM
59	Hillcrest park	5/16/2017 3:34 PM
60	Pik N Pig. Airplane Museums. Needmore Community. Mural Trail. Along Hwy 22 to 15/501.	5/15/2017 5:47 PM
61	New Public Safety Building to old Detention Center on S McNeill St. The other side of S McNeill is unlevel and starting to be unsafe.	5/15/2017 10:47 AM
62	Same at above Question 11.	5/14/2017 6:07 PM
63	The roundabout	5/11/2017 11:24 AM

Q13 Getting around Carthage on foot is easy and safe.

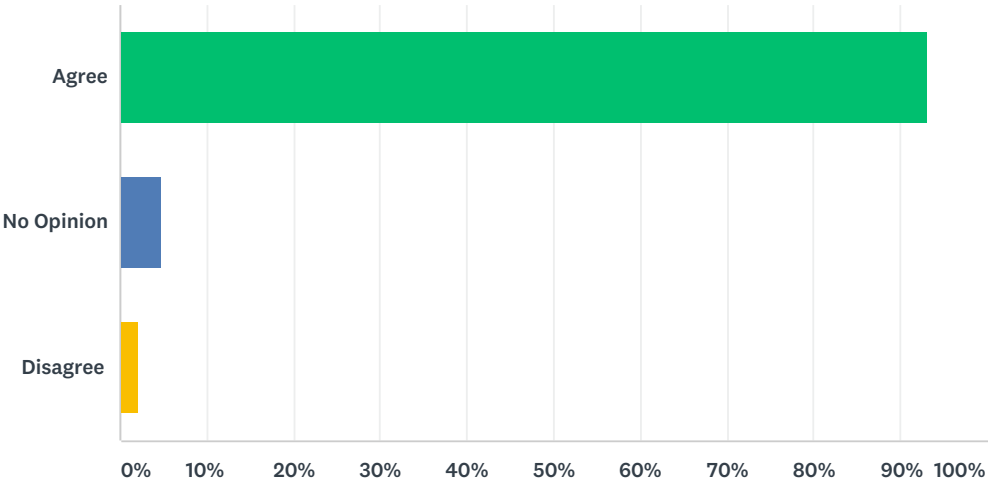
Answered: 146 Skipped: 7



ANSWER CHOICES	RESPONSES	
Disagree	50.68%	74
Agree	30.14%	44
No Opinion	19.18%	28
TOTAL		146

Q14 Carthage needs to promote and improve bike and pedestrian facilities (trails/greenways, sidewalks, multi-use trails, etc.)?

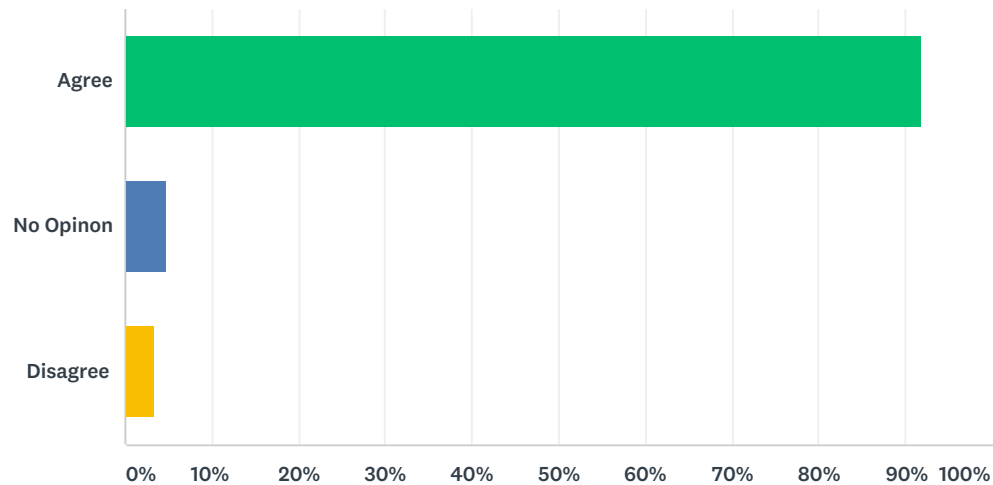
Answered: 144 Skipped: 9



ANSWER CHOICES	RESPONSES	
Agree	93.06%	134
No Opinion	4.86%	7
Disagree	2.08%	3
TOTAL		144

Q15 New and future development in and around Carthage should be incorporated into the Town's public bike and pedestrian system.

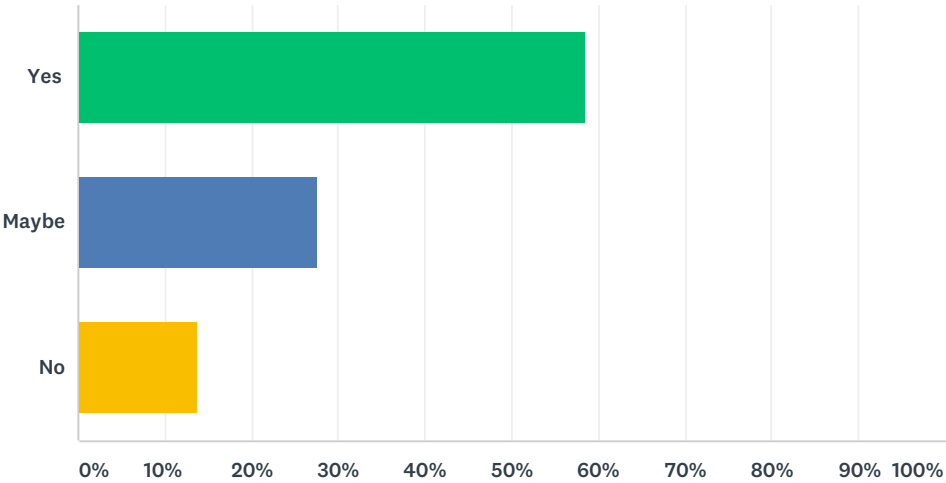
Answered: 147 Skipped: 6



ANSWER CHOICES		RESPONSES	
Agree		91.84%	135
No Opinon		4.76%	7
Disagree		3.40%	5
TOTAL			147

Q16 Would you support a tax increase to expand and maintain sidewalks, bike lanes and street crossing improvements in Carthage?

Answered: 145 Skipped: 8



ANSWER CHOICES		RESPONSES	
Yes		58.62%	85
Maybe		27.59%	40
No		13.79%	20
TOTAL			145

Q17 Additional Comments:

Answered: 41 Skipped: 112

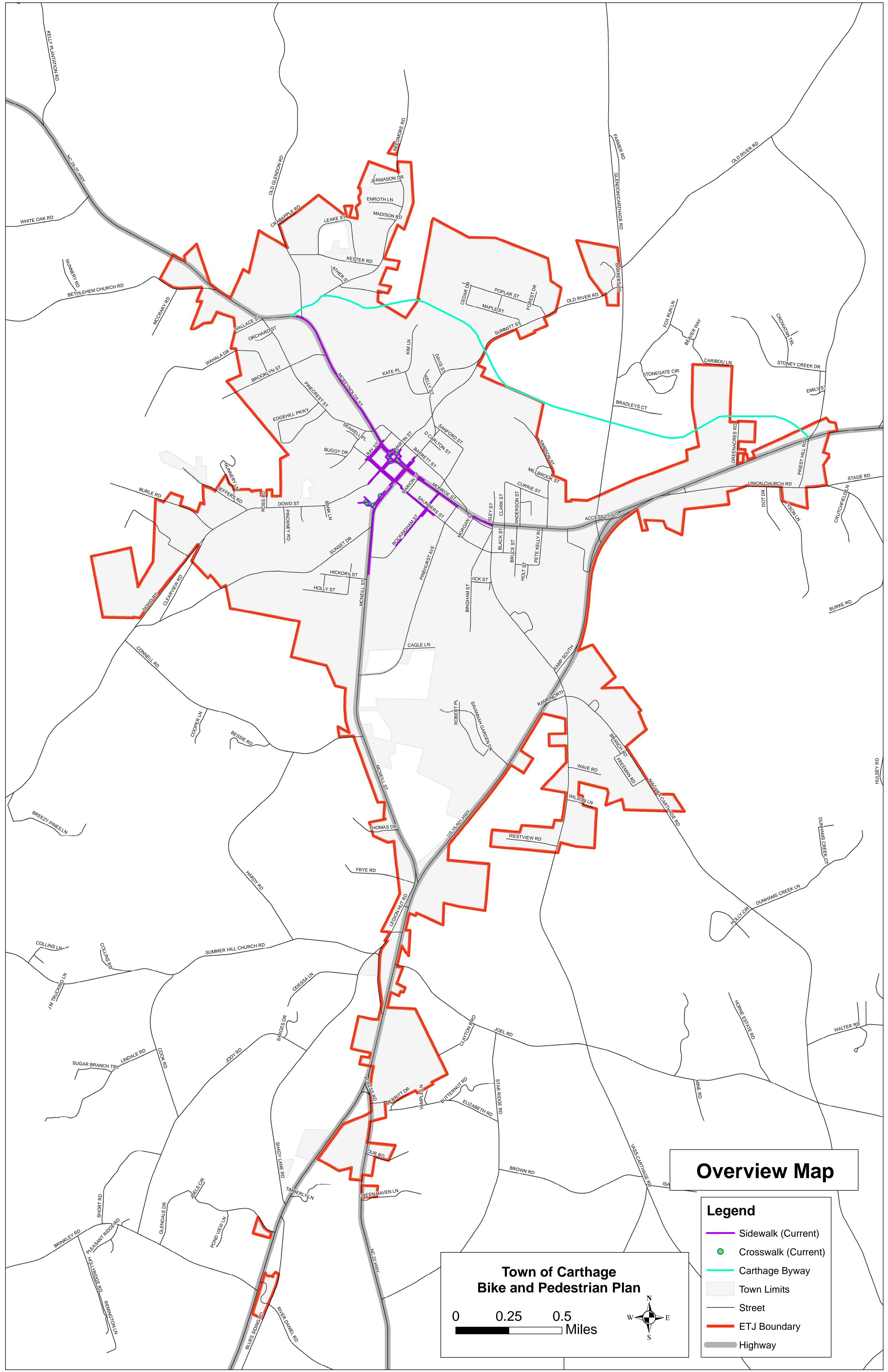
#	RESPONSES	DATE
1	With Carthage being a town just outside of Ft. Bragg, you have many military families that are into physical fitness which would be used by those living in and nearby the town.	9/28/2017 9:02 PM
2	Would love to assist in any way with the invocation of bicyclist paths! Thank you!	9/28/2017 2:47 PM
3	As a Soldier from Fort Bragg, I would love to have a nature trail for my family and I to use. A cursory glance of an overhead view of the town shows several plots of unbuilt upon land that through proper routing could provide up to a mile of un-repeated path near the downtown area. Construction on this could start out as cleared trails with minimal upkeep. If demand warrants it, asphalt could be added at a later time. Keeping this trail located near downtown would expose the town to greater down town business (think tired and thirsty runners) as well as securing future public access the trail or a larger park as the city grows around the land.	9/16/2017 9:40 AM
4	I would need to see a detailed plan for how the improvements would be funded and maintained. The town is linear with business at both ends of the town with varying hours. Lots of congestion in town during the day with little to no parking that is not taken up with county vehicles. This needs a lot of thought to be worth while and useful for tax dollars to be used. It would be nice to have access to a walking and biking green way.	9/6/2017 10:49 AM
5	We could stop living in the past with the town's "hay day" of buggies and stop spending so much time and energy on the past and start looking toward the future. Let's not assume our best days are behind us in buggy-town and start to assume our best days are yet to come.	7/13/2017 11:39 AM
6	Side walks and crossings yes, but I think Greenways are not needed	7/4/2017 11:11 AM
7	we love living in downtown and are excited to raise a family here	6/20/2017 11:59 PM
8	marked absolutely new and future development should be incorporated into the system	6/20/2017 11:51 PM
9	Thank you! We are excited for improvements. Other comments: walk, not bike to school. Would love to have bike path.	6/20/2017 11:46 PM
10	need bike paths	6/20/2017 11:34 PM
11	This could make Carthage a safer place to live also a healthier space to live in.	6/20/2017 11:30 PM
12	I actually live in 7 Lakes but Carthage is my home town and I shop here, go to church here, library, restaurants, so I'm here several times a week	6/20/2017 5:56 PM
13	would be interested in bike groups around Carthage. plantation@centurylink.net	6/20/2017 5:37 PM
14	feel free to contact. Joanna King. Joanna.h.king@gmail.com	6/20/2017 5:28 PM
15	safety should be a priority. bikes and pedestrians first priority in neighborhoods	6/20/2017 5:13 PM
16	Am more interested in cleaning up the water! Also would like to see some clean-up of all the electrical, telephone, and cable lines and put some of them underground.	6/15/2017 5:21 PM
17	Thank you for asking, and look forward to improvements to our Town - Carthage is a neat place and has so much potential.	6/14/2017 3:08 PM
18	If you do this be sure to include the entire town not just downtown. If we are paying taxes in the outskirts of town then we need to be included in these actions. I would rather see biking trails connected to playgrounds and parks rather than a downtown biking sidewalk.	6/13/2017 5:03 PM
19	We should encourage another grocery store to come in. No completion.	6/13/2017 3:22 PM
20	An excellent idea would be to create or modify a park that incorporated a playground, a skate park, a swimming pool, and walking/biking/hiking trail.	6/12/2017 10:44 AM
21	I would rather first improve the School funding to maintain our good schools and put back Music, Drama and Art to attract more families moving in and increase the education of our children.	6/9/2017 2:33 PM

Carthage Bike Pedestrian Plan

22	There is no reason why we should use tax money to pay for this. Our taxes in this county are too high as it is. These projects should be privately funded via fundraisers. Taxation is Theft.	6/8/2017 8:29 PM
23	Please look into reducing speed limits in city limits. We can't even back out of our driveway safely. I would love to walk or bike here but fear of getting hit by a car keeps me inside.	6/4/2017 1:05 PM
24	I would support a tax increase to develop a walking trail system in the town. We have such heavy traffic through town I am unsure of the value of investments along high traffic areas.	6/2/2017 8:35 AM
25	Town should pay for the sidewalks, everyone else shouldn't have to be involved for these expenses. It adds to the town value, not each persons property. Totally against raise in taxes.	6/1/2017 6:23 PM
26	Re: #16 question - I would support a REASONABLE tax increase.	6/1/2017 2:58 PM
27	Carthage proper is not currently a town considered by most people moving to the area. This affects every aspect of the towns property values, business opportunities, and future growth. Those of us that live here know what a great place it is, and many of us see the untapped potential the town has. Unfortunately, we lack many of the important things families look for when choosing where to settle down and raise a family. We need to add to and/or improve the ability to get around the town, especially to our shopping and dining areas. Carthage should not just be the place people have to come because of a jury summons or business at the court house. It is a gem of a town and we need to start making it a destination to live, work, dine, and visit for its history.	5/31/2017 9:16 PM
28	Good luck	5/30/2017 3:25 PM
29	Keeping bicycle riders away from any main street is the safest least confrontational part of any plan!	5/30/2017 1:46 PM
30	There needs to be a more safer way to cross the street (main street) in Carthage (Monroe Street) as well as a park with tables and chairs to go and relax or eat a lunch in summer or fair weather.	5/23/2017 4:14 PM
31	If it is so important to meet the needs of Moore County residents the why can't Eastwood residents get water??? Money is spent on a lot of things that do not effect the direct health and well being of county residents. Eastwood needs water	5/23/2017 10:25 AM
32	I don't live in the city limits but work at the courthouse and walk to other county agencies, stores and restaurants and for exercise.	5/19/2017 4:53 PM
33	Walking this town with my children is important to me. I would ABSOLUTELY be glad to pay more taxes to make this happen!	5/18/2017 5:32 PM
34	City limit taxes are too high as it is, plus Carthage taxes a \$5.00 tag fee and water bill is expensive even with garbage pick up. The town does not offer enough to constitute the high taxes...	5/17/2017 11:17 AM
35	I don't pay taxes in Carthage so this is N/A	5/17/2017 10:52 AM
36	Spend money on increasing the number of police officers and the frequency of their patrols. Carthage has an escalating rural drug problem that is publicly ignored and related theft problems. Carthage is definitely not Mayberry. Tackle the drug problem openly so that people can feel safe in their own homes! Greenways in Carthage would create a new foot route for drug traffic. Go read the recent article in The Pilot regarding the reasons why Whispering Pines residents do not want to connect to the Southern Pines Greenway.	5/17/2017 10:43 AM
37	I work but do not live in Carthage. If I did live in Carthage, I would support the tax increase if it was reasonable.	5/17/2017 10:29 AM
38	If we promoted more Mom & Pop businesses, and less chain stores I think it would draw in more urban professionals to the area and allow for a higher tax basis. We need to make downtown more attractive to small business similar to Southern Pines, but with a Carthage flair. More enforcement of property standards, and especially rental property.	5/17/2017 8:23 AM
39	Tax increase only as an absolute last resort!!!	5/15/2017 7:57 PM
40	Carthage has no pedestrian/bike trail that I know of. This is a sad comment. Greenway trails and open spaces make a community desirable to live and work in. Carthage needs to plan greenway trails and open spaces NOW before growth make it economically impossible. The vision needs to be long term - think connecting Carthage to Pinehurst/Southern Pines and Robbin and Cameron. You never see people walking in Carthage unless they are in distress - we need to change that!	5/14/2017 6:07 PM
41	Rollerblade lanes	5/11/2017 11:24 AM

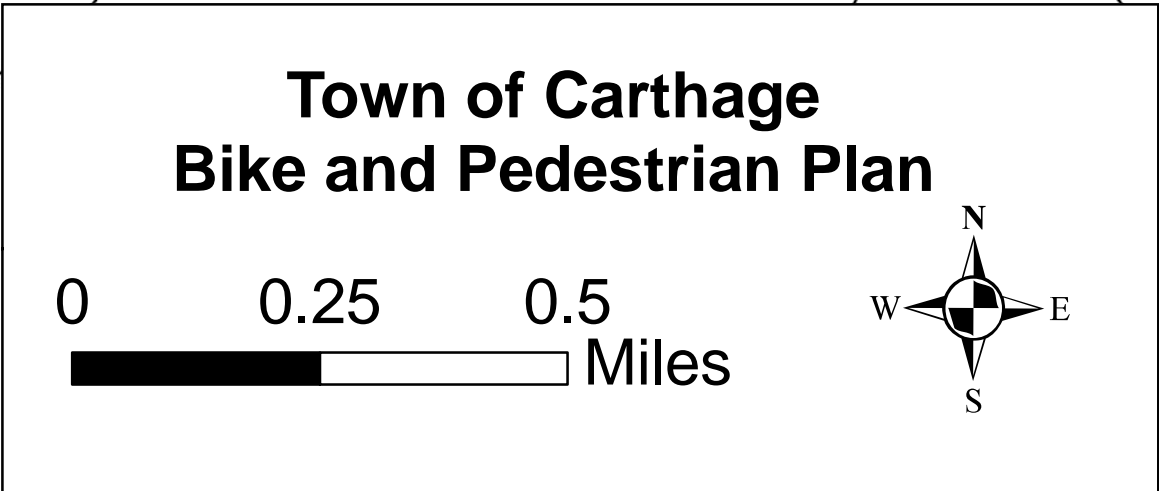
APPENDIX

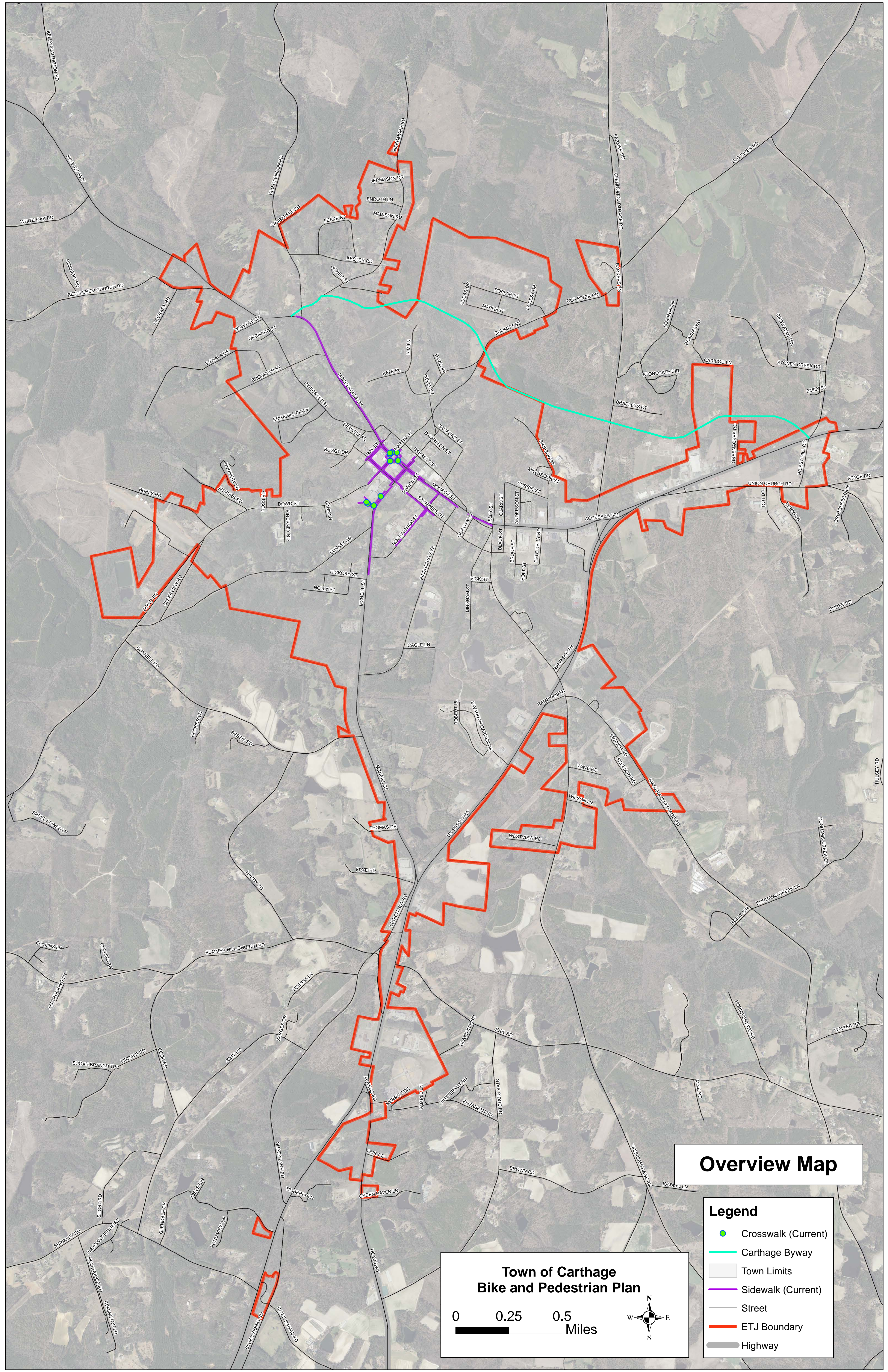
C



Overview Map

- Legend**
- Sidewalk (Current)
 - Crosswalk (Current)
 - Carthage Byway
 - Town Limits
 - Street
 - ETJ Boundary
 - Highway





Overview Map

- Legend
- Crosswalk (Current)
 - Carthage Byway
 - Town Limits
 - Sidewalk (Current)
 - Street
 - ETJ Boundary
 - Highway

Town of Carthage
Bike and Pedestrian Plan

00.250.5

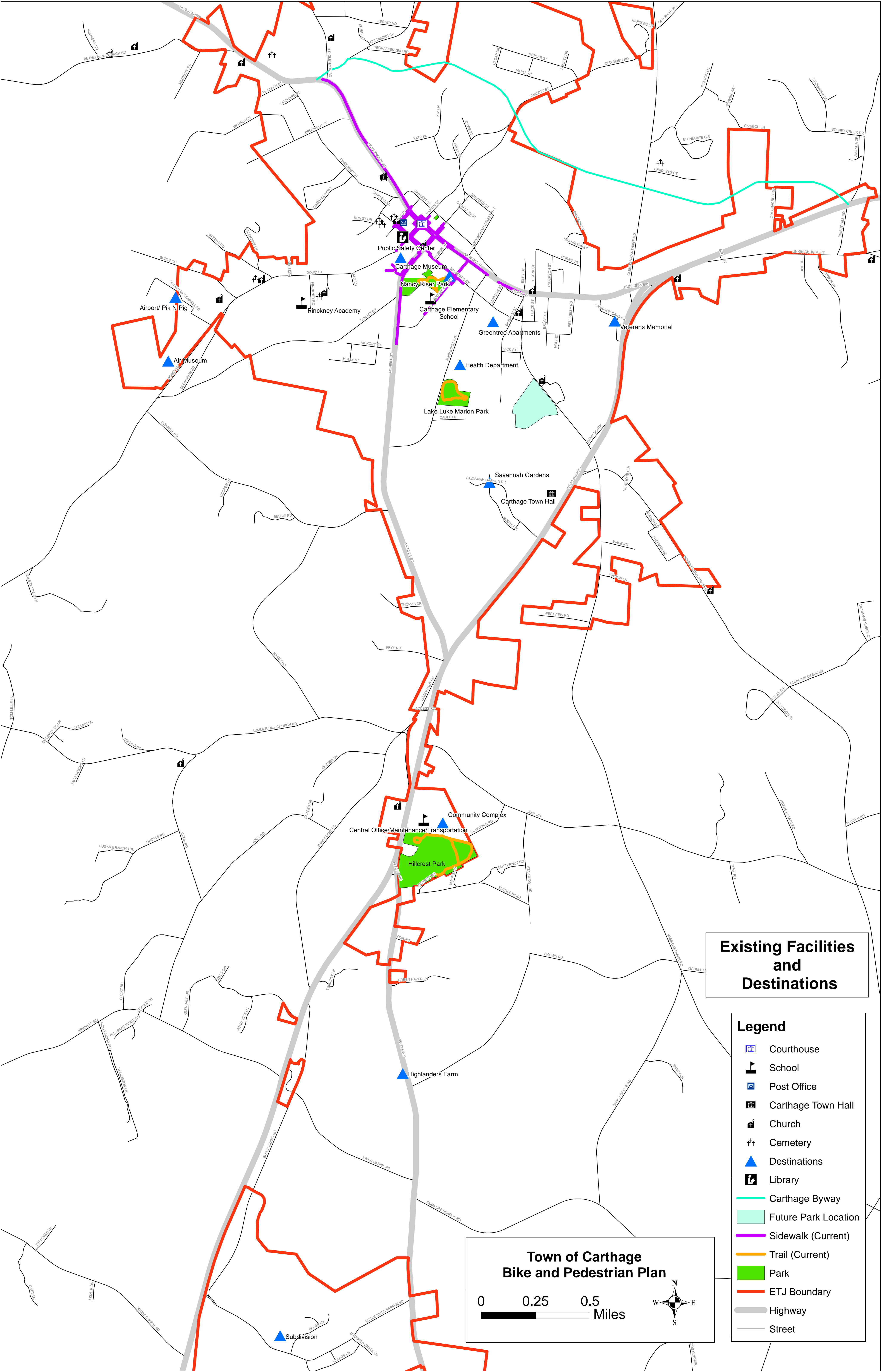
Miles

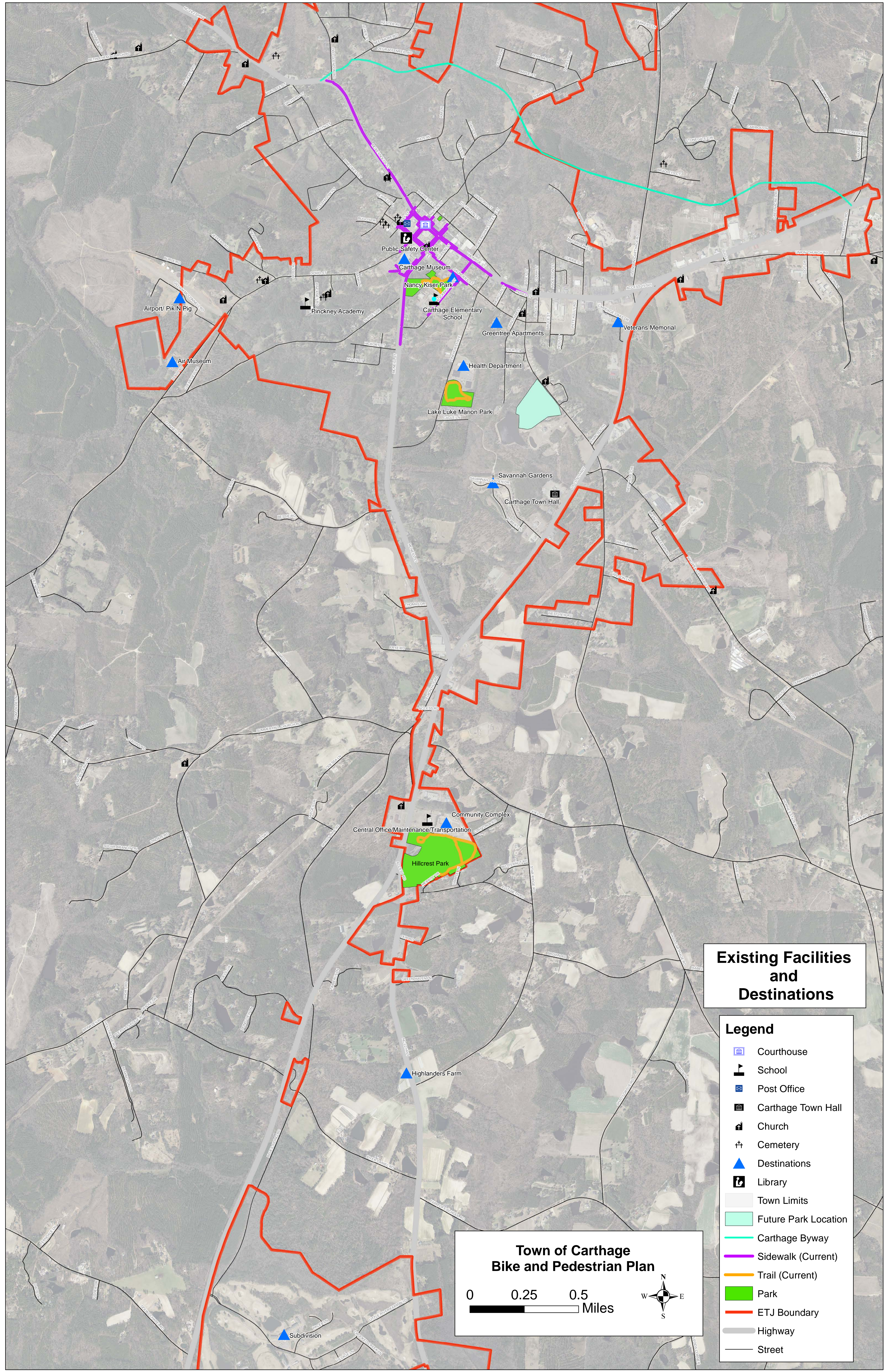
W

N

E

S





Existing Facilities and Destinations

Legend

- Courthouse
- School
- Post Office
- Carthage Town Hall
- Church
- Cemetery
- Destinations
- Library
- Town Limits
- Future Park Location
- Carthage Byway
- Sidewalk (Current)
- Trail (Current)
- Park
- ETJ Boundary
- Highway
- Street

Town of Carthage

Bike and Pedestrian Plan

00.250.5

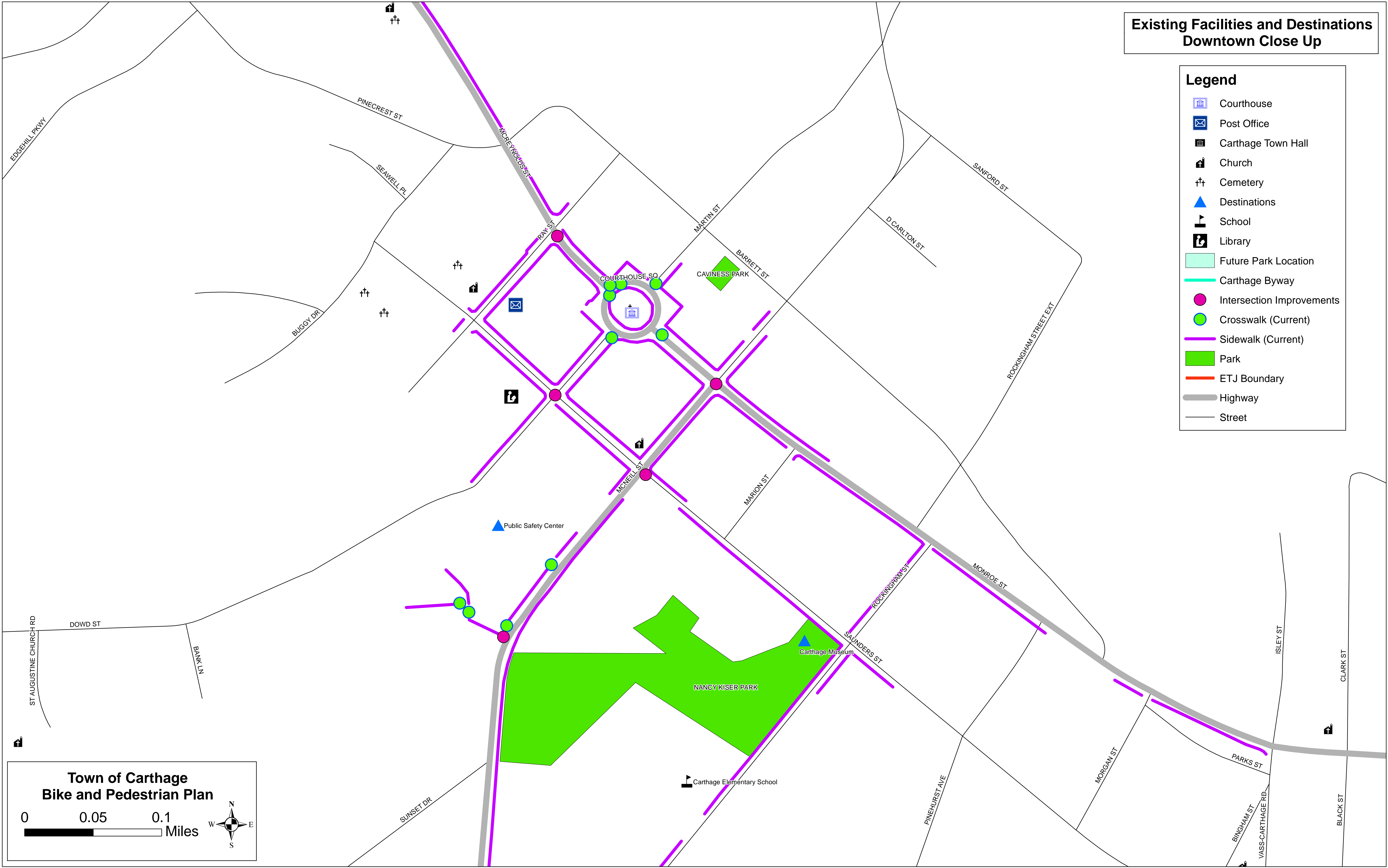
Miles

W

N

E

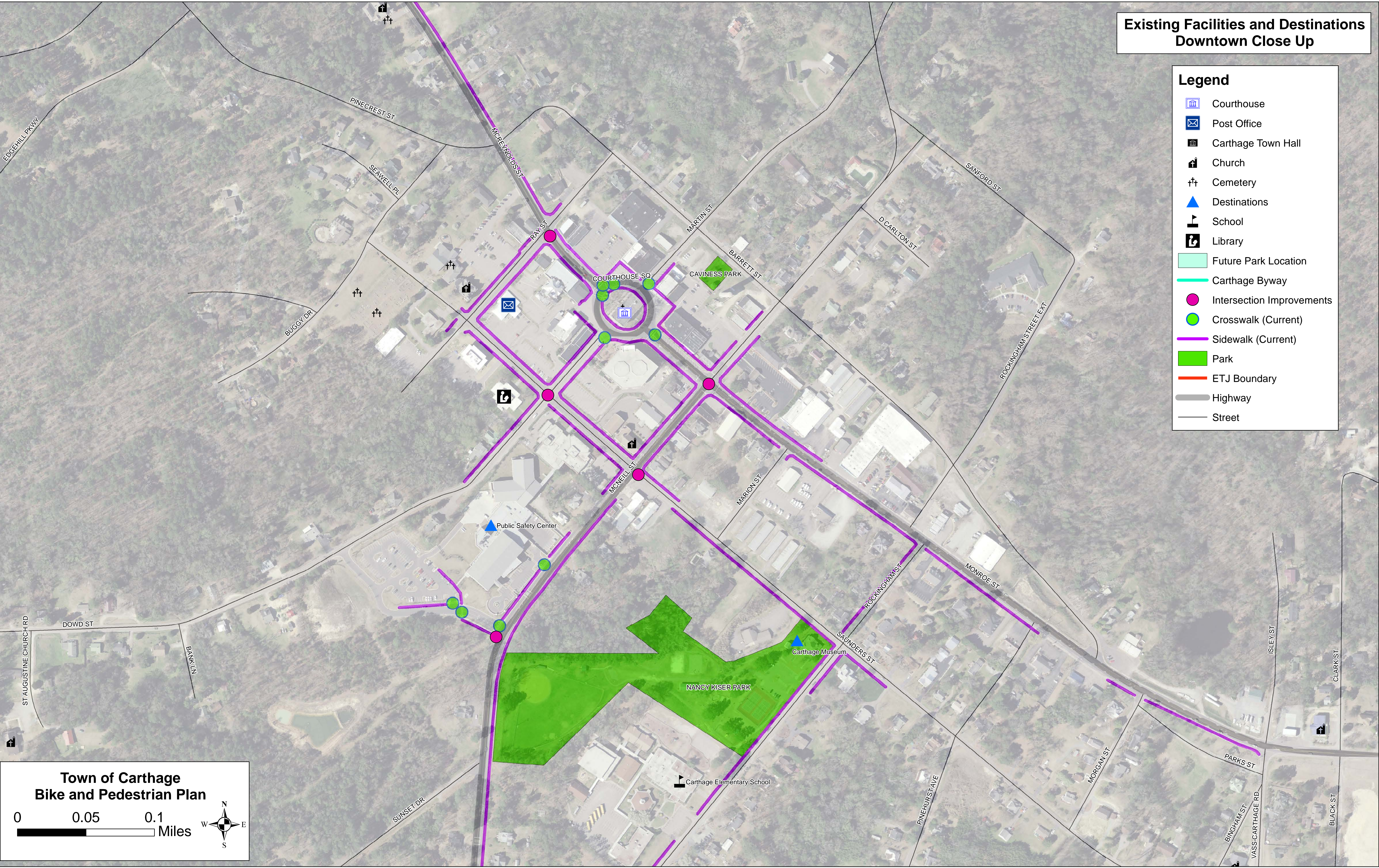
S



Existing Facilities and Destinations
Downtown Close Up

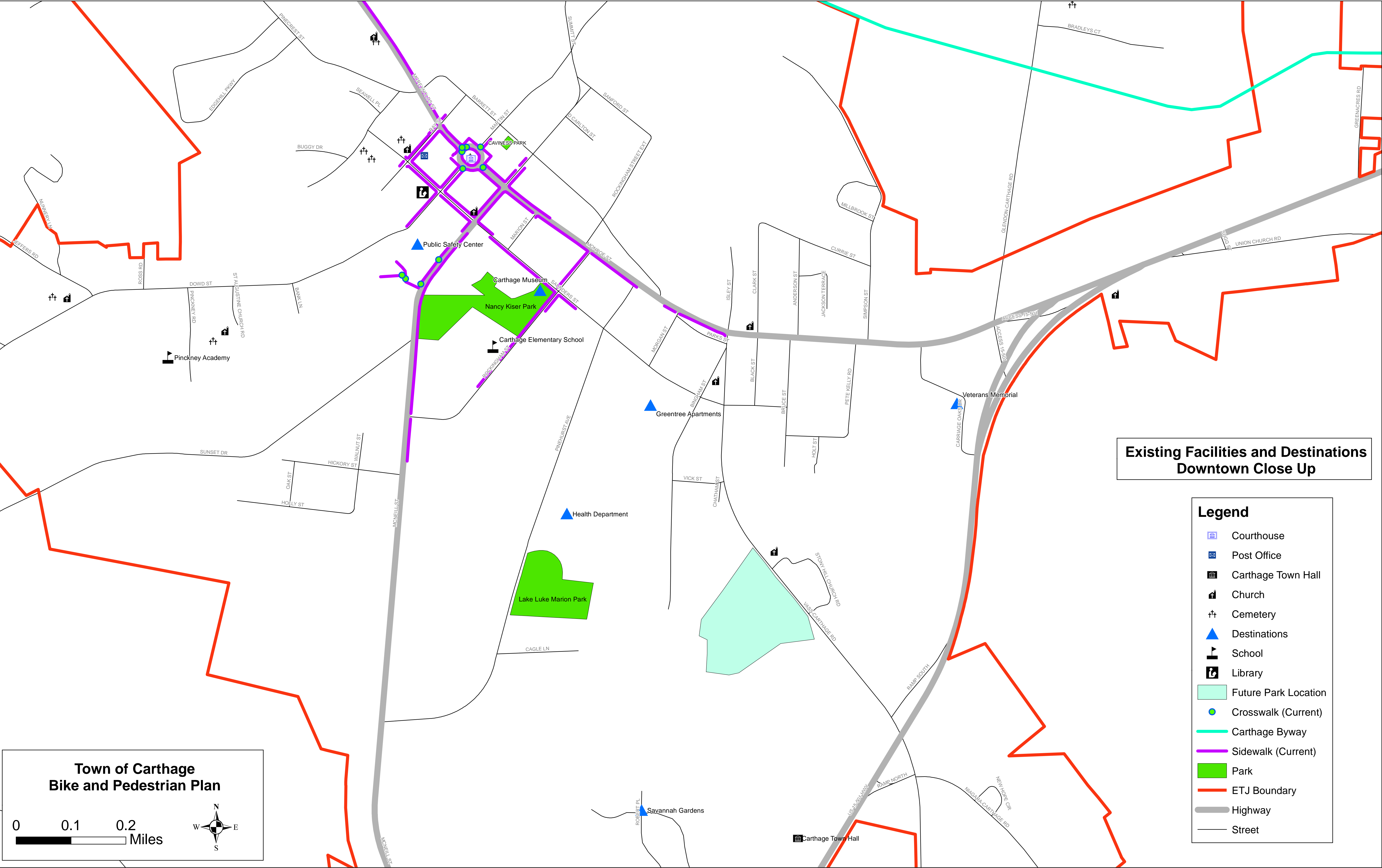
Legend

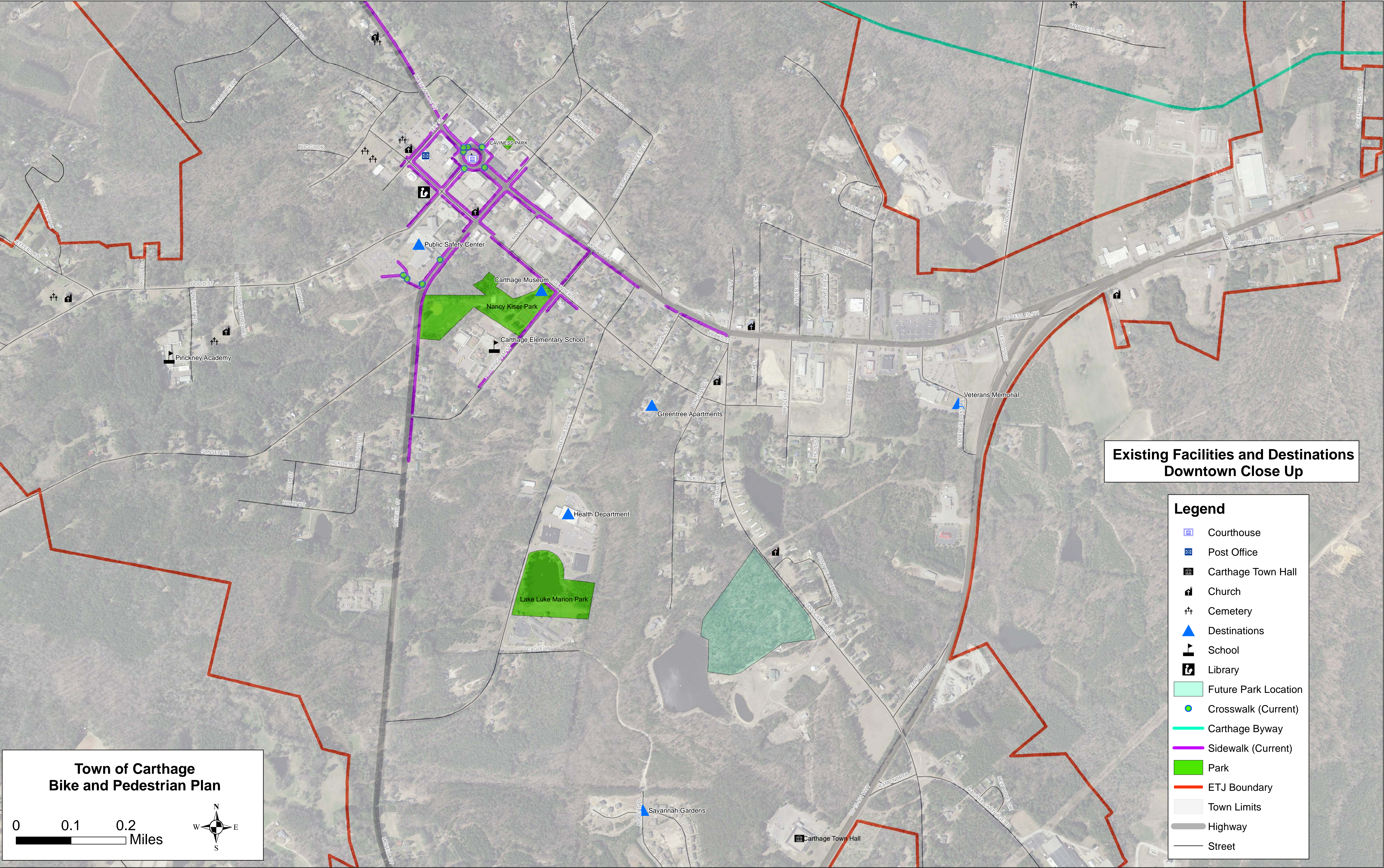
- Courthouse
- Post Office
- Carthage Town Hall
- Church
- Cemetery
- Destinations
- School
- Library
- Future Park Location
- Carthage Byway
- Intersection Improvements
- Crosswalk (Current)
- Sidewalk (Current)
- Park
- ETJ Boundary
- Highway
- Street



**Town of Carthage
Bike and Pedestrian Plan**

0 0.05 0.1 Miles





Union Pines Area Close-Up

Legend



School



Church



Cemetery



Highway



Street



ETJ Boundary



New Century Middle School



Union Pines High School



Town of Carthage

Bike and Pedestrian Plan

00.10.2

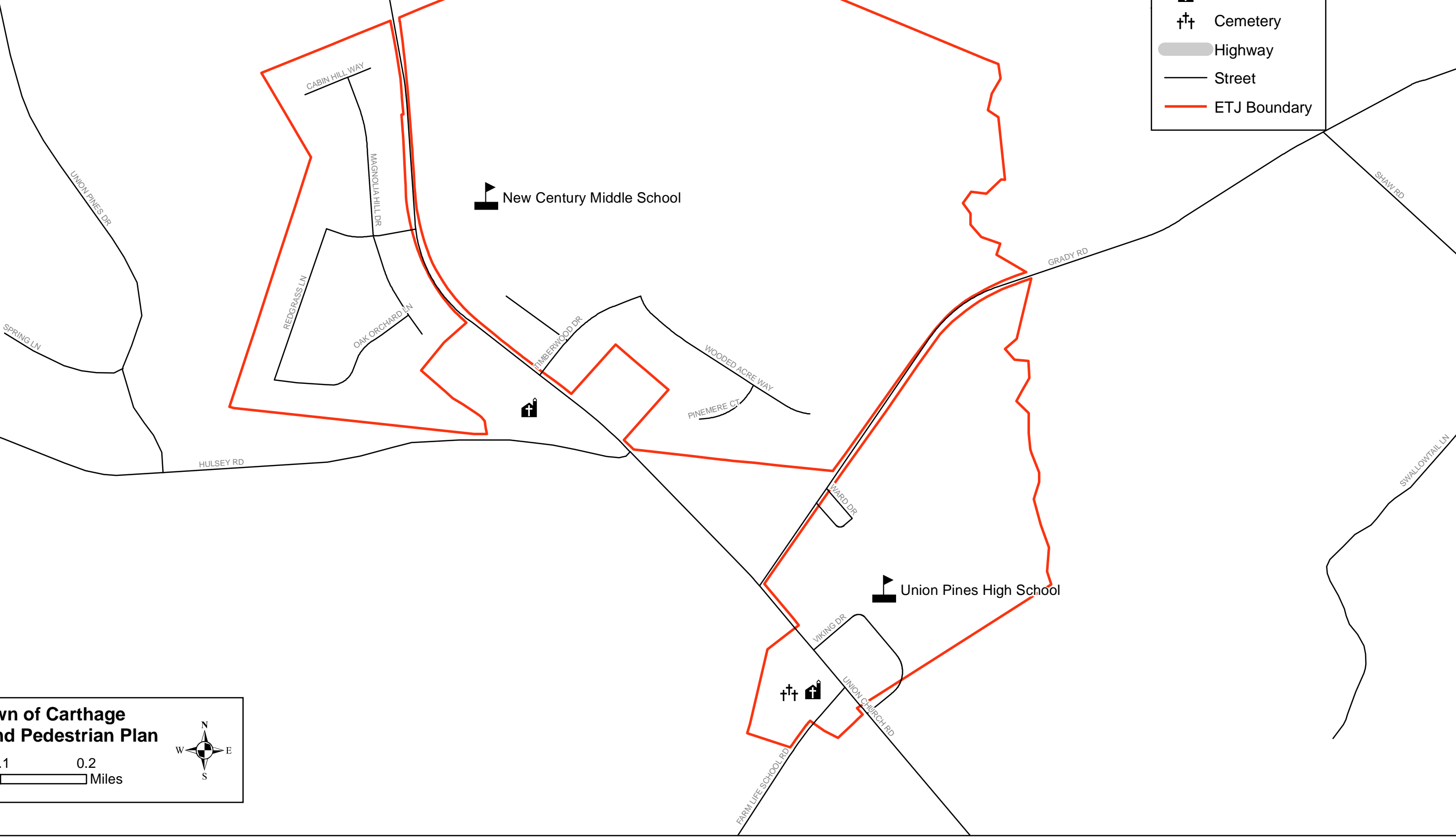
Miles

N

E


S


W





Union Pines Area Close-Up


Legend


 School


 Church

 Cemetery



 Highway

 Street

 ETJ Boundary

 New Century Middle School

 Union Pines High School

Town of Carthage
Bike and Pedestrian Plan

00.10.2

Miles

N

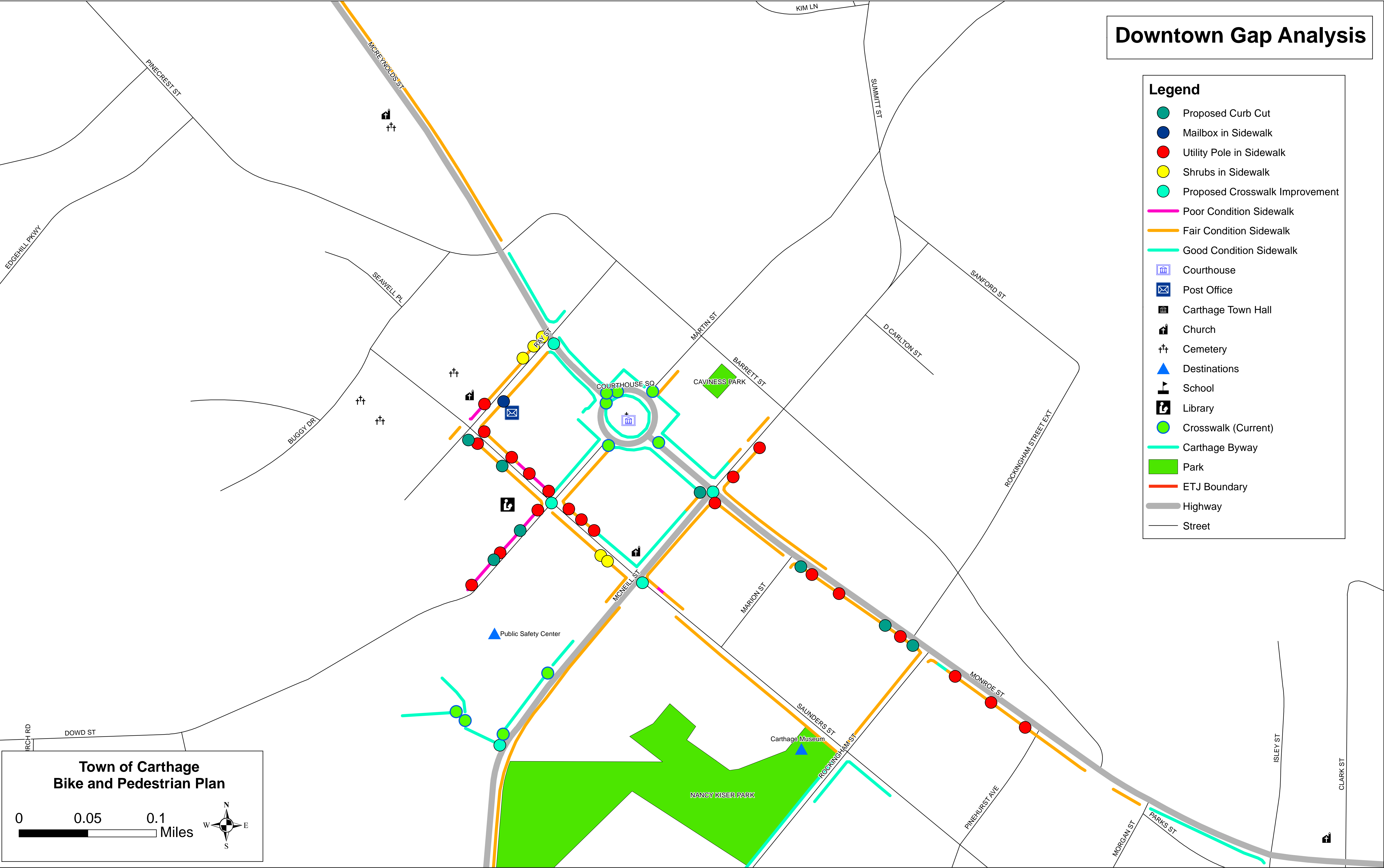
E

S

W

Downtown Gap Analysis

- Legend
- Proposed Curb Cut
 - Mailbox in Sidewalk
 - Utility Pole in Sidewalk
 - Shrubs in Sidewalk
 - Proposed Crosswalk Improvement
 - Poor Condition Sidewalk
 - Fair Condition Sidewalk
 - Good Condition Sidewalk
 - Courthouse
 - Post Office
 - Carthage Town Hall
 - Church
 - Cemetery
 - Destinations
 - School
 - Library
 - Crosswalk (Current)
 - Carthage Byway
 - Park
 - ETJ Boundary
 - Highway
 - Street

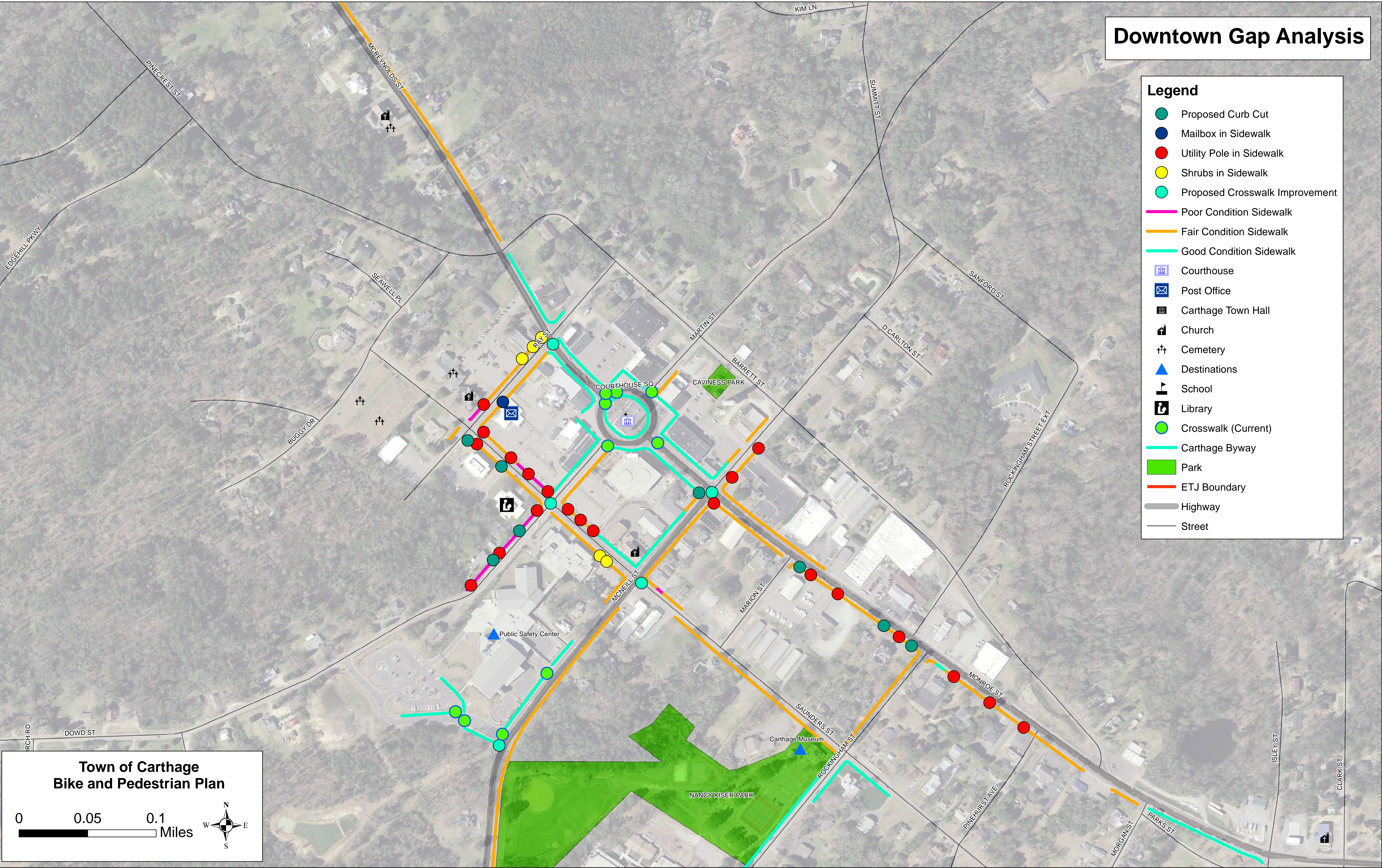


Town of Carthage
Bike and Pedestrian Plan

0 0.05 0.1 Miles

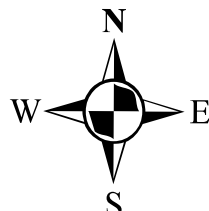
Downtown Gap Analysis

- Legend**
- Proposed Curb Cut
 - Mailbox in Sidewalk
 - Utility Pole in Sidewalk
 - Shrubs in Sidewalk
 - Proposed Crosswalk Improvement
 - Poor Condition Sidewalk
 - Fair Condition Sidewalk
 - Good Condition Sidewalk
 - Courthouse
 - Post Office
 - Carthage Town Hall
 - Church
 - Cemetery
 - Destinations
 - School
 - Library
 - Crosswalk (Current)
 - Carthage Byway
 - Park
 - ETJ Boundary
 - Highway
 - Street



Town of Carthage Bike and Pedestrian Plan

0 0.05 0.1 Miles



Barriers Analysis

- Legend**
- Proposed Curb Cut
 - Mailbox in Sidewalk
 - Utility Pole in Sidewalk
 - Shrubs in Sidewalk
 - Crosswalk (Current)
 - Proposed Crosswalk Improvement
 - Courthouse
 - Post Office
 - Carthage Town Hall
 - Church
 - Cemetery
 - Destinations
 - School
 - Library
 - Fair Condition Sidewalk
 - Good Condition Sidewalk
 - Poor Condition Sidewalk
 - Carthage Byway
 - Park
 - ETJ Boundary
 - Highway
 - Street

Town of Carthage

Bike and Pedestrian Plan

00.050.1

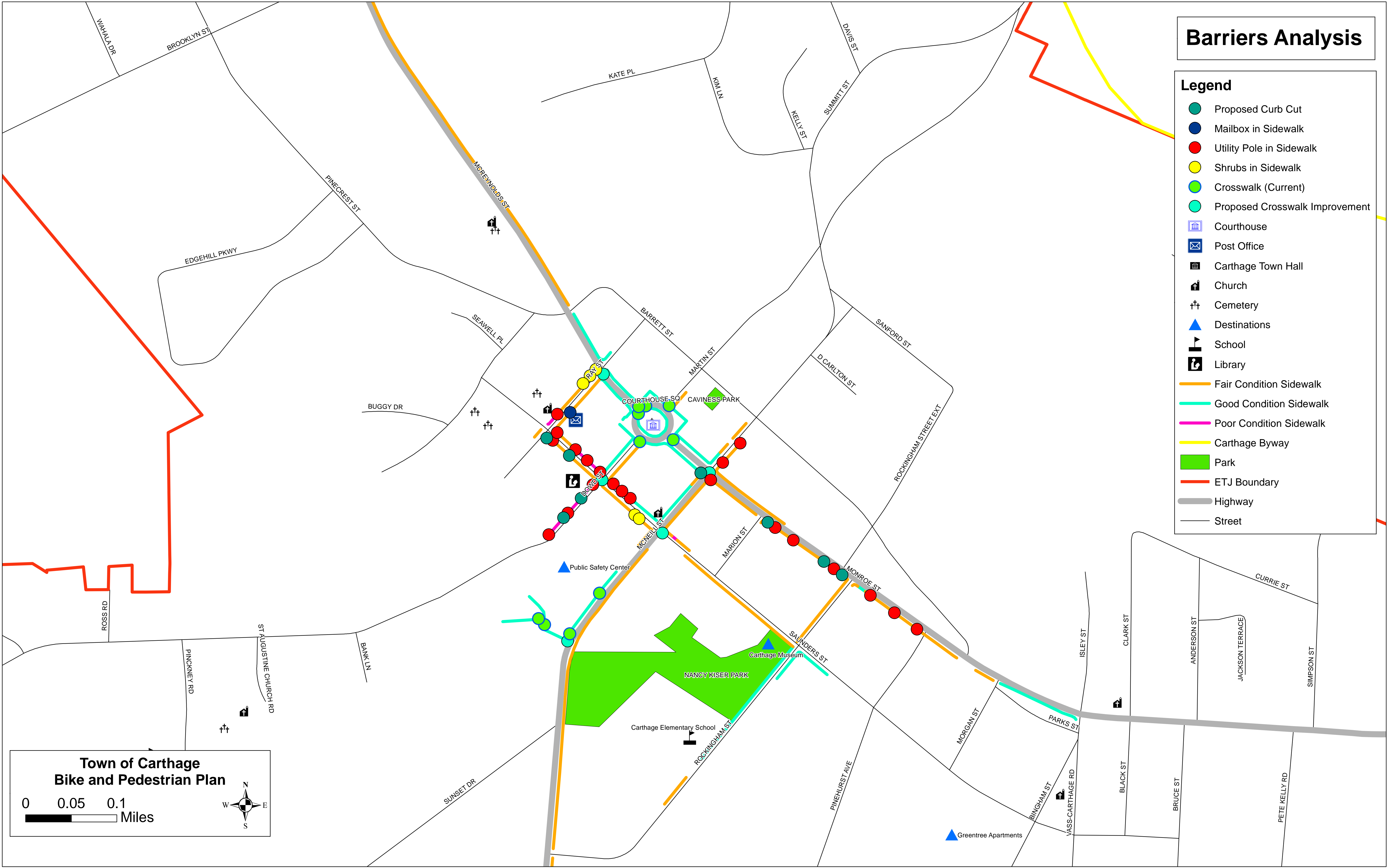
Miles

N

E

S

W



Barriers Analysis

- Legend**
- Proposed Curb Cut
 - Mailbox in Sidewalk
 - Utility Pole in Sidewalk
 - Shrubs in Sidewalk
 - Crosswalk (Current)
 - Proposed Crosswalk Improvement
 - Courthouse
 - Post Office
 - Carthage Town Hall
 - Church
 - Cemetery
 - Destinations
 - School
 - Library
 - Fair Condition Sidewalk
 - Good Condition Sidewalk
 - Poor Condition Sidewalk
 - Carthage Byway
 - Park
 - ETJ Boundary
 - Highway
 - Street

Town of Carthage

Bike and Pedestrian Plan

00.050.1

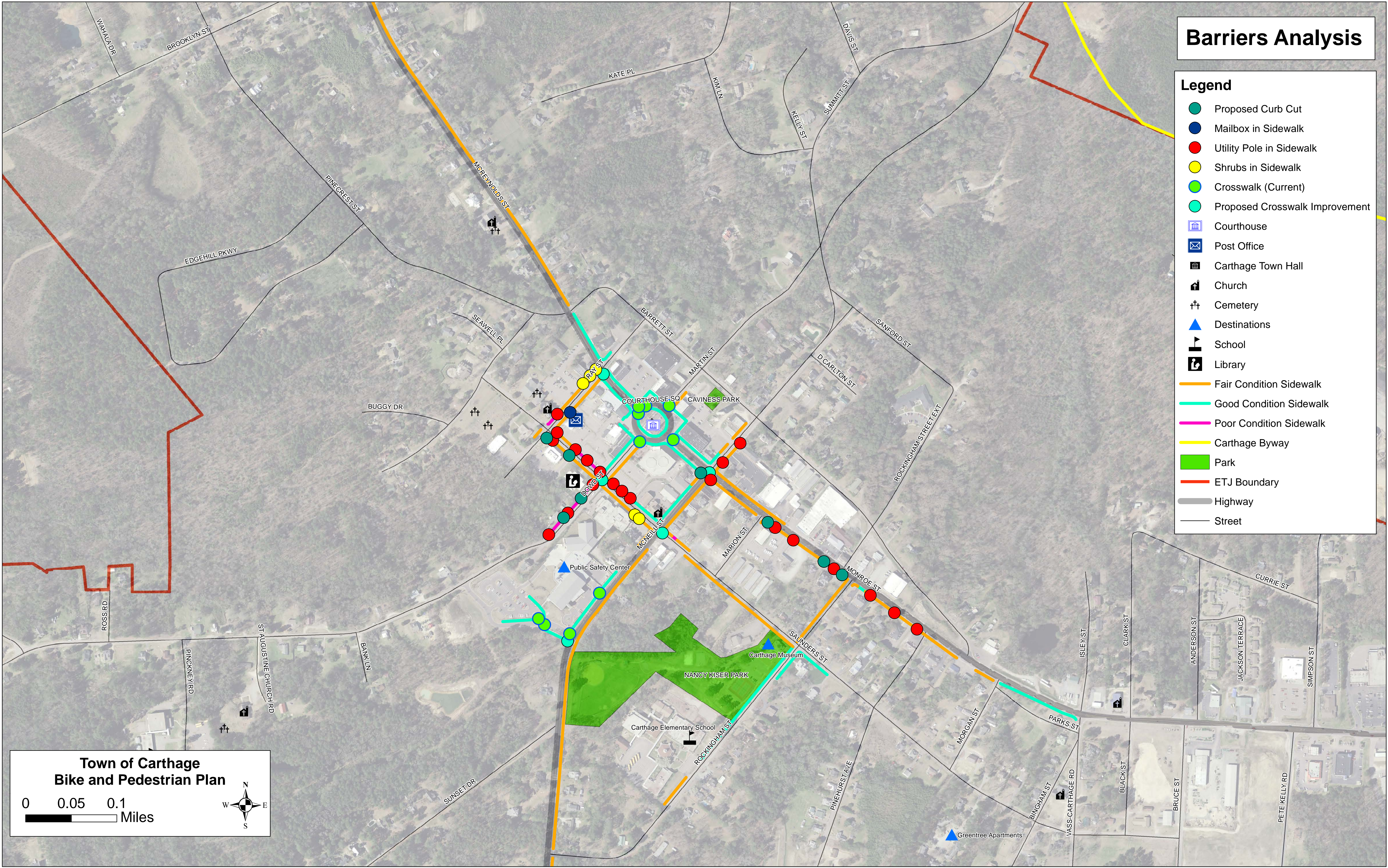
Miles

N

W

S

E

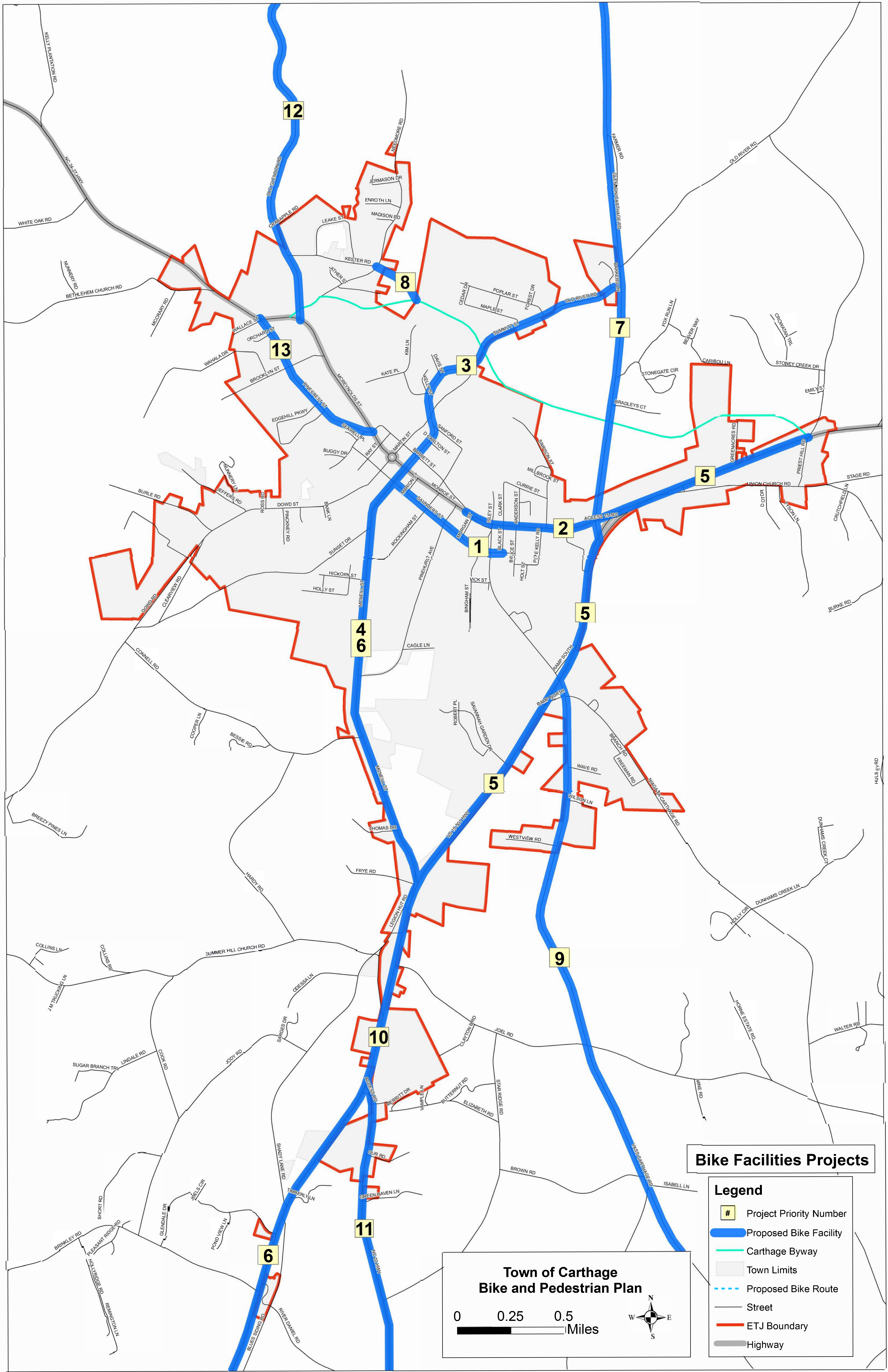


APPENDIX D

Town of Carthage North Carolina
Comprehensive Bicycle and Pedestrian Master Plan 2018

Bike Facility Project Names

Project # Key	Type of Facility	From	To	Linear Foot
1	Bike Signage	Along Saunders	N/A	N/A
2	Paved Shoulder	Barrett Street	Glendon Carthage Road	3,300
3	Paved Shoulder	Barrett from McReynolds	Monroe Street	3,100
4	Paved Shoulder	15 501	Monroe Street	11,000
5	Paved Shoulder	Priest Hill Road	McNeil Street	32,000
6	Paved Shoulder	Saunders	Cagle (on McNeil)	3,235
7	Paved Shoulder	Glendon Carthage Road	Old River Road	6,300
8	Paved Shoulder	Carthage Byway	Needmore Neighborhood	1,900
9	Paved Shoulder	15 501	Niagara Carthage Road	26,500
10	Paved Shoulder	Frye Road & HWY 22	Access Road & Little River	10,200
11	Paved Shoulder	15 501	Little River Subdivision	11,000
12	Paved Shoulder	Old Glendon Road	Glendon Carthage Road	28,000
13	Paved Shoulder	Pinecrest St		



Bike Facilities Projects

- Legend**
- # Project Priority Number
 - Proposed Bike Facility
 - Carthage Byway
 - Town Limits
 - Proposed Bike Route
 - Street
 - ETJ Boundary
 - Highway

**Town of Carthage
Bike and Pedestrian Plan**

0 0.25 0.5 Miles

W N E S

Bicycle Facility Project #4 McNeil Corridor -US15-501 to Monroe Street

Context

15/501 is the main north-south route through East side of Carthage. The two-lane route transitions to a two-lane road at Monroe Street. It is a two-lane road through the east of downtown Carthage. West of downtown, it is a low-speed, but higher volume arterial route.

East of downtown, it is a higher-speed and high-volume route.

The Carthage Bicycle & Pedestrian Plan recommends wide outside lanes along the route.



McNeil Street Corridor Source: Google

Short-Term Recommendations

Adding bikeable shoulders (4 or 5-feet; 5 preferred) north of McNeil Street appears feasible given right-of-way clearance and lack of major constraints in this section.

Cost Estimate: \$704,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Long-Term Recommendations

A more progressive analysis of future volumes along 15/501 in the existing four-lane section would be necessary to determine if four-lanes are needed. Traffic volumes in downtown Carthage have increased by only 1,000 since 2002, so a road diet might be feasible. This would allow designation of the outside lane as a bicycle lane, a combined bike/pedestrian lane or a cycle track. The cost estimate could vary based on the various options.

Influences or Destinations

- Tara Plantation
- Carthage Elementary School
- Moore County Sheriff Department
- Nancy Kiser Park
- First Baptist Church of Carthage

Length: 2.1 miles

Potential Permitting Needs:

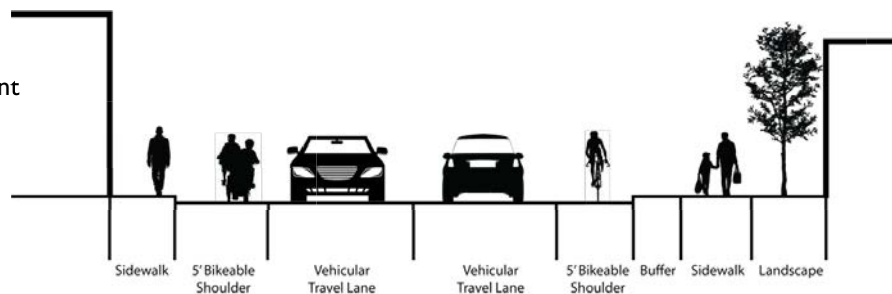
- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2016)

11,000 at Monroe St
4,800 at US 15-501

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



Bicycle Facility Project #5 US 15-501 Corridor - Priest Hill Rd. to McNeil Street

Context

Priest Hill Rd is the main north-south route east of downtown Carthage, skirting the industrial sector. The two-lane route has various right-of-way constraints through the industrial sector. It is a low- volume route near at the northern side but traffic volumes are higher on the southern limits of the road. The route proceeds along US 15-501 the main north-south route south of downtown Carthage to the intersection of McNeil Street. This section has varying right-of-way widths resulting in the need for consistent treatment.



15-501 Corridor Source: Google

Short-Term Recommendations

Adding bikeable shoulders (4 or 5-feet; 5 preferred) north of McNeil Street appears feasible given right-of-way clearance and lack of major constraints in this section.

Cost Estimate: \$2,048,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Long-Term Recommendations

Add bikeable shoulder (5-foot) from the McNeil Street intersection along 15/501 south to the southern Town limits will require more detailed study and investment.

Influences or Destinations

- Moore Count Social Services
- Veterans Memorial
- Town Hall
- Route shops and restaurants

Length: 6.1 miles

Potential Permitting Needs:

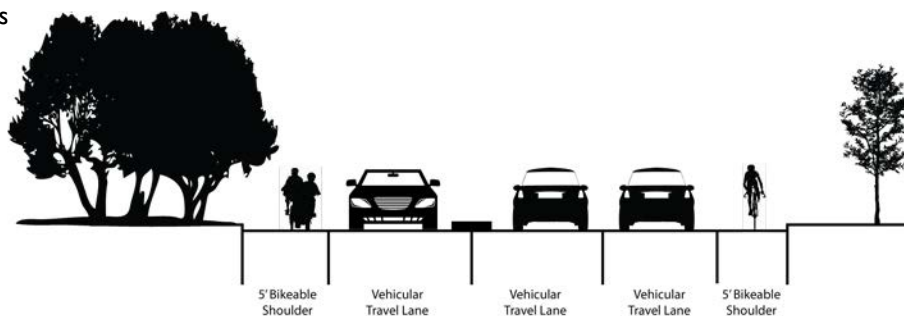
- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2010)

600 at Priest Hill Rd
9800 to 11000 North of McNeil St
11,000+ south of McNeil St (long-term project)

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



Bicycle Facility Project #7-Glendon Carthage Rd to Old River Rd

Context

Glendon Carthage Rd is a recently updated 2-lane route east of downtown Carthage running north and south. The access-controlled corridor is a low-speed, low-volume facility with no major roadway crossings. The route is the terminus of existing and planned greenway routes.

Conditions are not suitable for on-street bicycling along Glendon Carthage Rd, but the west side of the corridor is optimal to be upgraded to include a sidepath instead of a sidewalk.



Glendon Carthage Rd. Source: Google

Short-Term Recommendations

Install new side-paths (may be 8-foot in areas constrained by guardrail) while preserving the existing buffer between the street and sidewalk.

Upgrade curb ramps at locations where the sidepath links to a greenway to include ramps that are the same width as the pathway.

An extension from Old River Road to Carthage Rd to the entrance could be considered as a route to get bicyclists.

Cost Estimate: \$403,200

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Influences or Destinations

- Rural Properties

Length: 1.2 miles

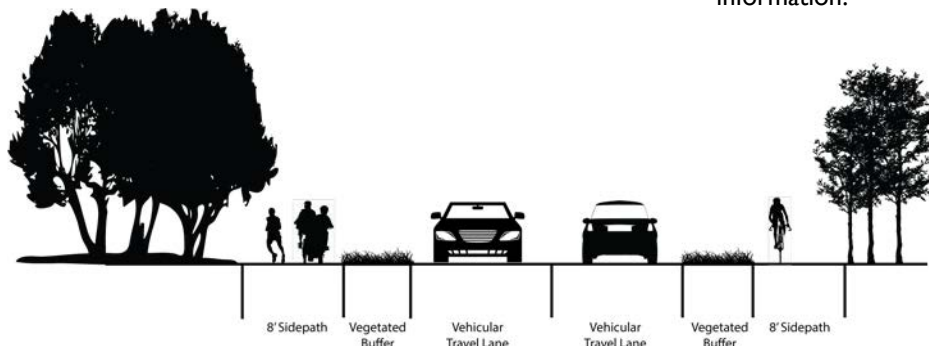
Potential Permitting Needs

- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2016) *
3,300 Glendon Carthage
710 south of Old River Rd

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



TARPO Project – Pottery Loop “Whispering Pines to Carthage

Context

The route leaves Whispering Pines on Niagara-Carthage Rd heading north toward Carthage. The segment is primarily rural with some areas of low density residential development around Whispering Pines. The end of the segment in Carthage becomes urban on Monroe Street.

There are several privately owned man-made lakes and ponds along this segment. The pavement width remains narrow along this stretch of roadway at around 18ft in total width of pavement, although speed limits are reduced to 45 mph.

Vass Rd is also narrow at 18ft in total pavement width. This segment does appear to have publicly owned ROW in hand for paved shoulder widening.

TIP project U-3628 is identified along Monroe St in Carthage, but funding availability for the project is unknown. Monroe St is urban and runs to downtown Carthage. The large paved area is 44ft in width with 3 automobile lanes and on-street parking on one side, providing options on re-designating space for a bicycle lane.



Recommendations

- 4ft paved shoulder on Niagara-Carthage Road
- 4ft paved shoulder on Vass Road
- 4ft paved shoulder on Monroe Street
- Bicycle lane on Monroe Street

Cost Estimate: \$2,600,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Length: 7.4 miles

Potential Permitting Needs:

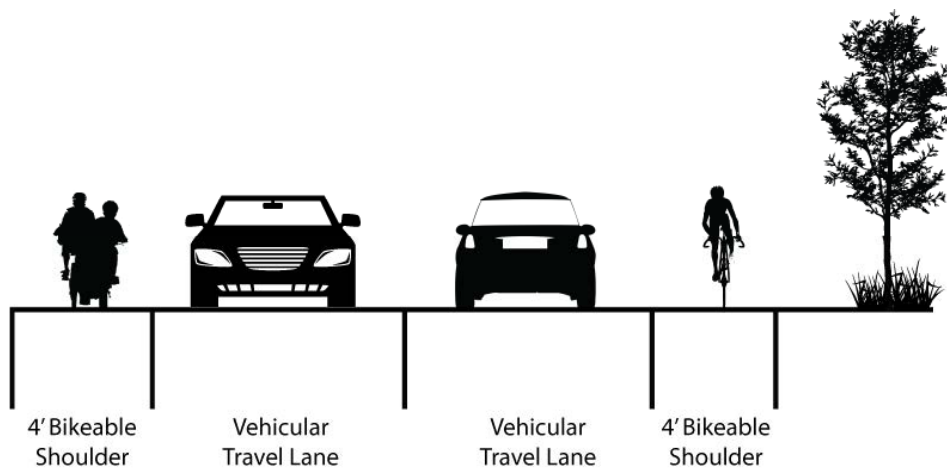
- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2016)

13,000 from Fry Rd. to Access Rd.

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.



TARPO Project – Pottery Loop “Carthage to Robbins”

Context

The route begins in the heart of historic Carthage near the Courthouse Square, the roadway is 40ft in width with two travel lanes and on-street parking on both sides of the roadway leaving the courthouse on McReynolds St. After leaving the historic district on McReynolds St/NC 22, the roadway narrows to 20ft in width with minimal paved shoulder. As the route turns left onto Bethlehem Church Road, the speed increases to 55mph and the roadway narrows to 18ft in width. The route turns onto Mt Carmel Rd, with similar characteristics. Briefly the route runs along NC 24/27, where there is a high traffic area, but with 22ft width pavement, it is easier to share the road. On Flint Hill and Plank Rd, the roadway varies between 18 and 20ft in width and a grass shoulder that varies between 4 and 6ft. On Plank Rd, the speed limit lowers to 35mph on the outskirts of Robbins, but roadway characteristics remain the same. A 60ft public ROW appears to be documented on Monroe, McReynolds and NC 24/27, but nowhere else. NC 24/27 has TIP project R-2528, but no funding.



NC 24/27 Intersection with Flint Hill Church
 Source: Google



McReynolds Street Leaving Courthouse
 Source: Google

Recommendations

- Bicycle lane on Monroe and McReynolds St in Carthage
- 6ft paved shoulder on McReynolds/NC 22 where curb ends NC 24/27, Mt Carmel Rd, Flint Hill, and Bethlehem Church Rd.
- 4ft paved shoulder on Plank Rd and N Moore Rd.

Cost Estimate: \$5,800,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Length: 17.3 miles

Potential Permitting Needs:

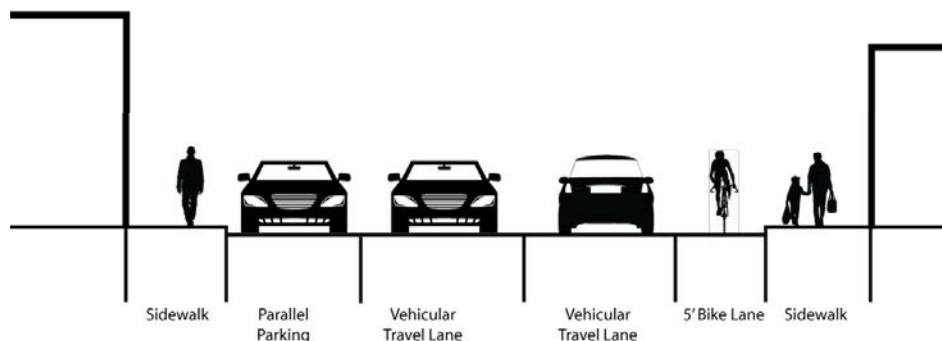
- Moore County/Carthage Land Disturbance Permit
- North Carolina Department of Transportation Encroachment Permit

Traffic Volume (2016)

13,000 from Fry Rd. to Access Rd.

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.

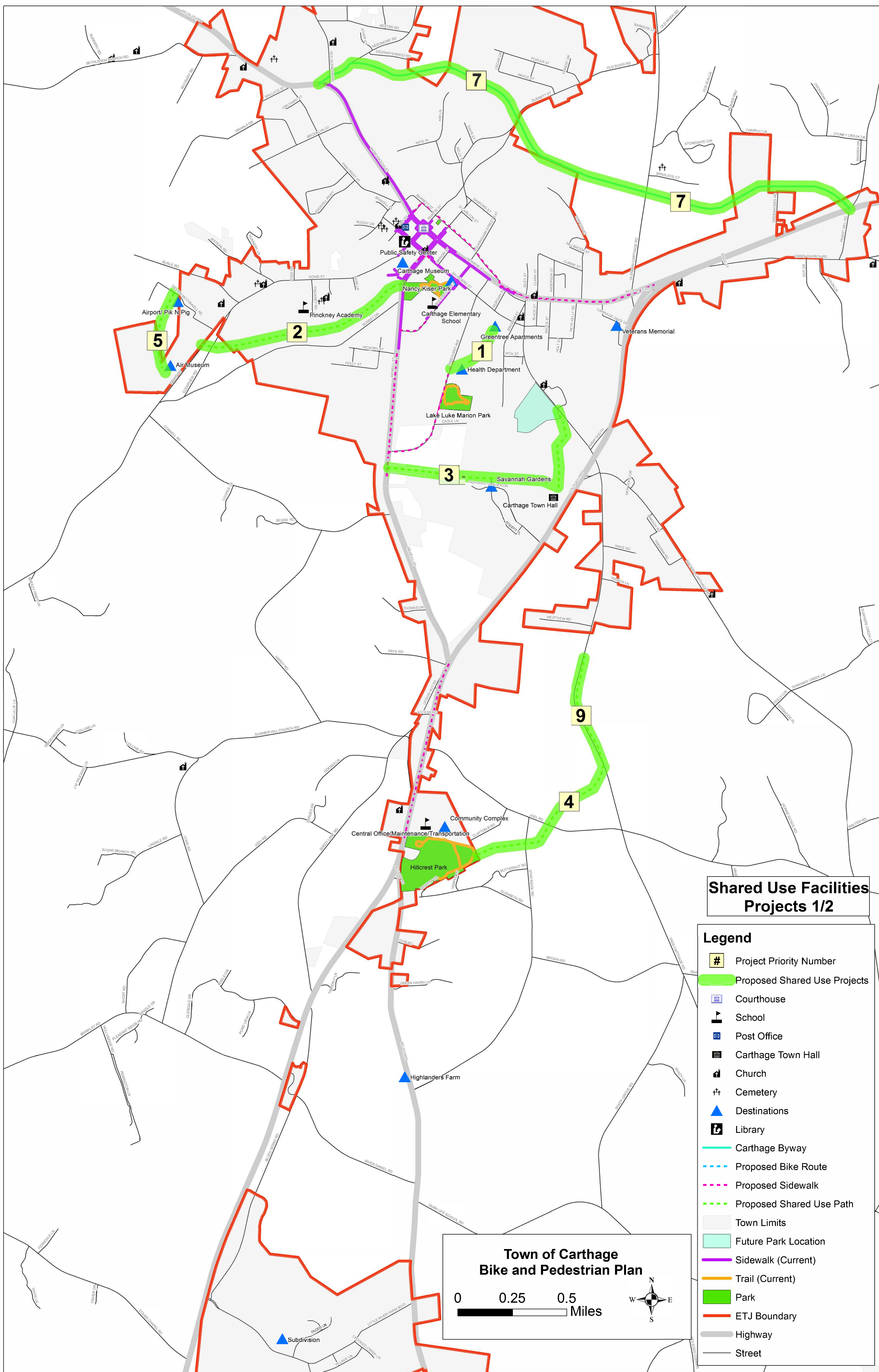


Town of Carthage North Carolina

Comprehensive Bicycle and Pedestrian Master Plan 2018

Shared Use Facility Project Names

Project # Key	Type of Facility	From (nearest road or landmark)	To (nearest road or landmark)	Length of 10' Greenway
1	Shared Use Path	Greentree Trail (Saunders St.)	Greentree Trail (Health Department)	1,500 LF
2	Shared Use Path	Nancy Kiser Park	Airport/Pic-N-Pig	6,500 LF
3	Shared Use Path	McNeill Street	Town Hall	7,000 LF
4	Shared Use Path	Hillcrest Park	Vass-Carthage Road	8,200 LF
5	Shared Use Path	Airport	Air Museum	1,500 LF
6	Shared Use Path	Grady Road	Union Pine High School	1,300 LF
7	Shared Use Path	Along Carthage Byway	NA	17,000 LF
8	Shared Use Path	Connection to Little River in Southern Pines	TBD	TBD
9	Shared Use Path or 6' Sidewalk w/Road Separation	Along Union Church	Martin St, block to Berryfield and Davis	3,111 LF



Shared Use Facilities Projects 2/2

Legend

#

Proposed Shared Use Facility

Proposed Shared Use Projects

Proposed Crosswalk Improvement

Proposed Sidewalk

Proposed Shared Use Path

School

Church

Cemetery

Town Limits

Highway

Street

ETJ Boundary

Town of Carthage

Bike and Pedestrian Plan

00.10.2

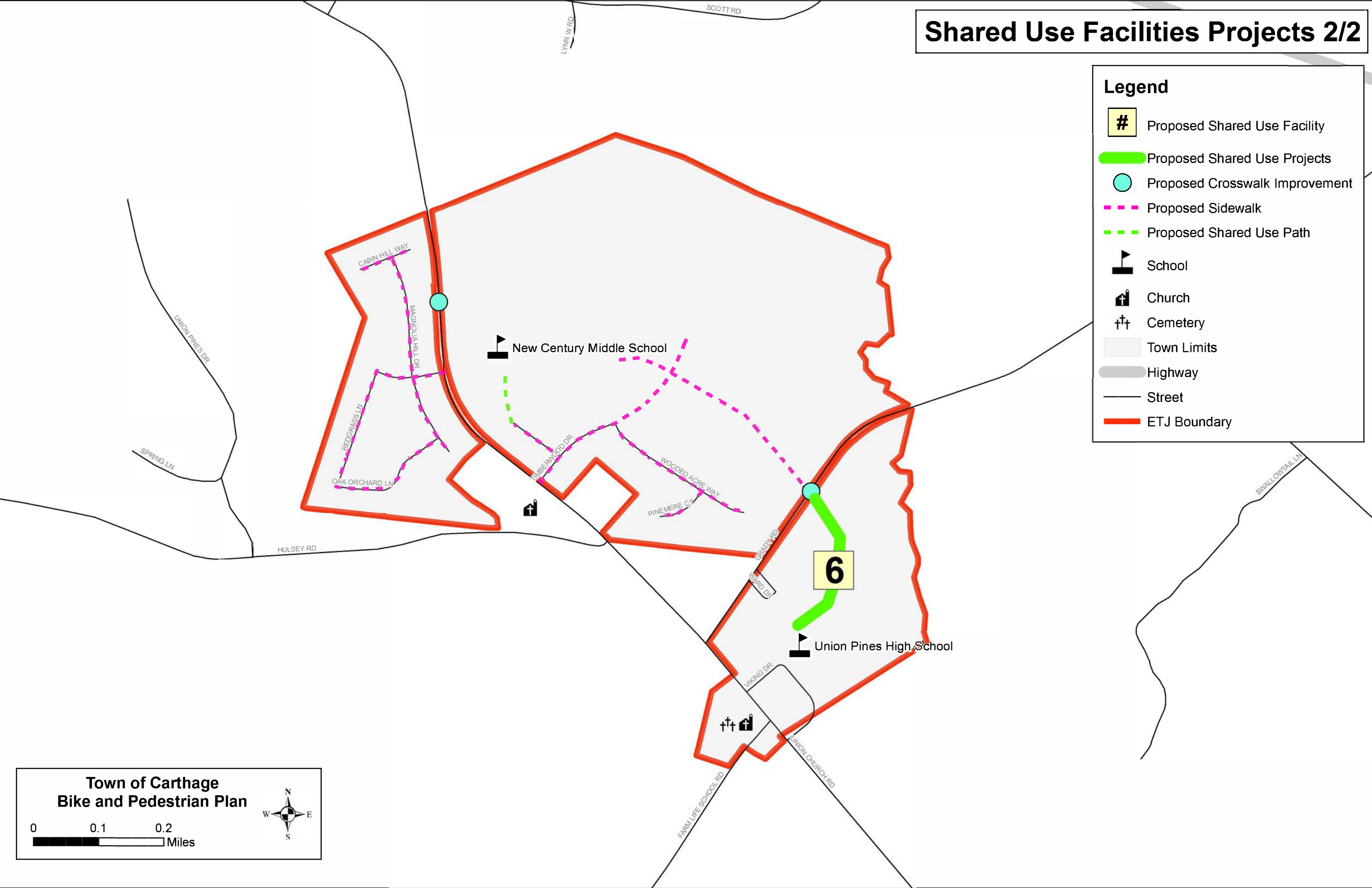
Miles

N

E

S

W



Shared Use Path (greenway) #1 Greentree Trail – Greentree Apartments to Health Department

Context

Shared Use Paths-also referred to as Greenways or Multi-Purpose Trails, provide off-road access to various destinations. **These trails are typically 8 to 10 feet wide** and allow for biking, which is not permitted on downtown sidewalks.

By providing clear and safe routes between different areas of town and connections to neighboring communities a network can be established and create a possible attraction that could increase the number of visitors to the Town.



Short-Term Recommendations

The Carthage Bicycle & Pedestrian Plan recommends construction of a Shared Use Path (greenway) between the Greentree Apartments and the Health Department/Lake Marion. This Shared Use Path would be along an existing sewer easement with wide outside lanes along the route.

Cost Estimate: \$250,000

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Potential Funding Mechanism

- NC Parks and Recreation Trust Fund (PARTF)
- Recreational Trails Program
- Local Donations and Fundraising

Length: 0.3 miles

Potential Permitting Needs:

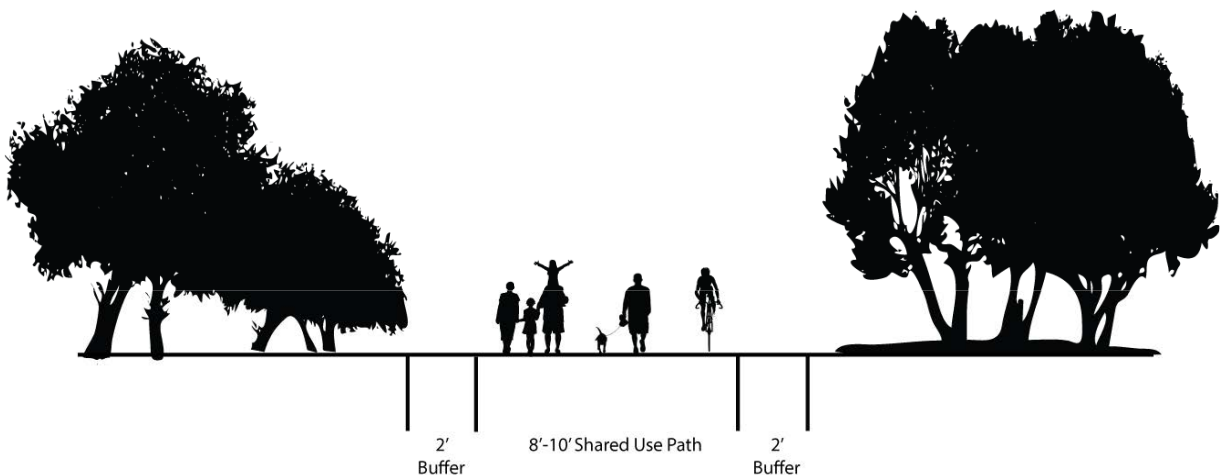
- Carthage Planning Review

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.

Influences or Destinations

- Safe Off-Road Pedestrian Linkage
- Existing Sewer Easement
- Connection to Lake Marion
- Off Road Connection from Saunders Street



Shared Use Path (greenway) #2– Nancy Kiser Park to Airport/Pik-N-Pig

Context

Shared Use Paths-also referred to as Greenways or Multi-Purpose Trails, provide off-road access to various destinations. **These trails are typically 8 to 10 feet wide** and allow for biking, which is not permitted on downtown sidewalks.

By providing clear and safe routes between different areas of town and connections to neighboring communities a network can be established and create a possible attraction that could increase the number of visitors to the Town.



Short-Term Recommendations

Length: 1.3 miles

The Carthage Bicycle & Pedestrian Plan recommends construction of a Shared Use Path (greenway) connecting the Nancy Kiser Park located between McNeil Street and Rockingham Street, to the Airport and Pik-N-Pig restaurant. This Shared Use Path would be located along an existing sewer easement with ample room for the path.

Cost Estimate: \$986,700

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Potential Funding Mechanism

- NC Parks and Recreation Trust Fund (PARTF)
- Recreational Trails Program
- Local Donations and Fundraising

Potential Permitting Needs:

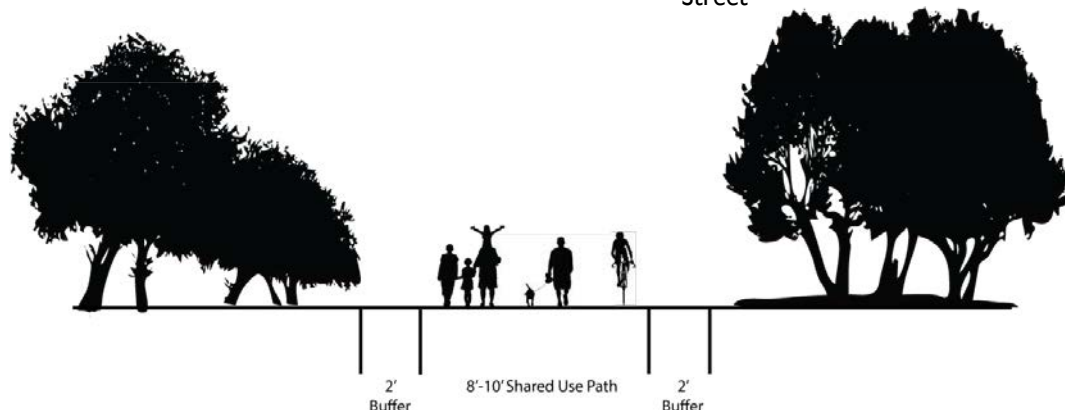
- Moore County/Carthage Land Disturbance Permit
- Carthage Planning Review

Potential Site Constraints

Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.

Influences or Destinations

- Safe Off-Road Pedestrian Linkage
- Existing Sewer Easement
- Possible Spurs or Side Paths to Adjacent Destinations
- Off Road Connection from Saunders Street



Shared Use Path (greenway) #4– Hillcrest Park to Vass-Carthage Road

Context

Shared Use Paths-also referred to as Greenways or Multi-Purpose Trails, provide off-road access to various destinations. **These trails are typically 8 to 10 feet wide** and allow for biking, which is not permitted on downtown sidewalks. By providing clear and safe routes between different areas of town and connections to neighboring communities a network can be established and create a possible attraction that could increase the number of visitors to the Town.



Short-Term Recommendations

The Carthage Bicycle & Pedestrian Plan recommends construction of a Shared Use Path (greenway) connecting Hillcrest Park to Vass-Carthage Road. This Shared Use Path would cross over Star Ridge Road and Joel Road requiring proper signage and crossing treatments.

Length: 1.5 miles

Potential Permitting Needs:

- Moore County/Carthage Land Disturbance Permit
- Carthage Planning Review
- 401-404 Permit

Long-Term Recommendations

The Shared Use Path (greenway) would need advanced planning for where it would connect with Priority Project #9 that is a Shared Use Path or 6' Sidewalk along Union Church Road. Shared Use Paths need to connect destinations together or tie into another type bike pedestrian facility to be useful. Priority Projects #4 and #9 should be coordinated so that the time between construction of each is as minimal as possible.

Potential Funding Mechanism

- NC Parks and Recreation Trust Fund (PARTF)
- Recreational Trails Program
- Local Donations and Fundraising

Potential Site Constraints

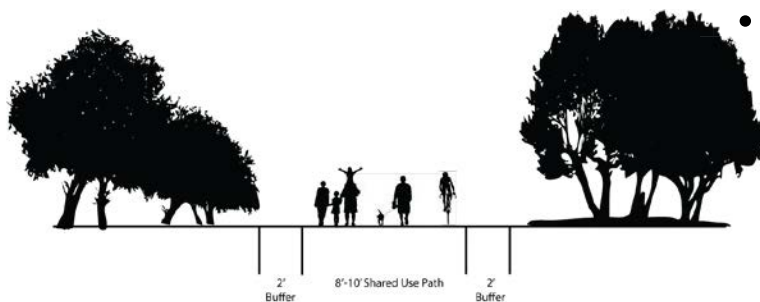
Please refer to Section 4 subsection titled: *Pedestrian Signals, Marked Pedestrian Crossing, and ADA Curb Ramps* within this document for more information.

Cost Estimate: \$1,300,00

Cost estimate based on recent known construction costs at the time of this study (5.24.2018). Project costs should be reevaluated closer to the time of construction.

Influences or Destinations

- Safe Off-Road Pedestrian Linkage
- Existing Sewer Easement
- Possible Spurs or Side Paths to Adjacent Destinations
- Off Road Connection from Saunders Street

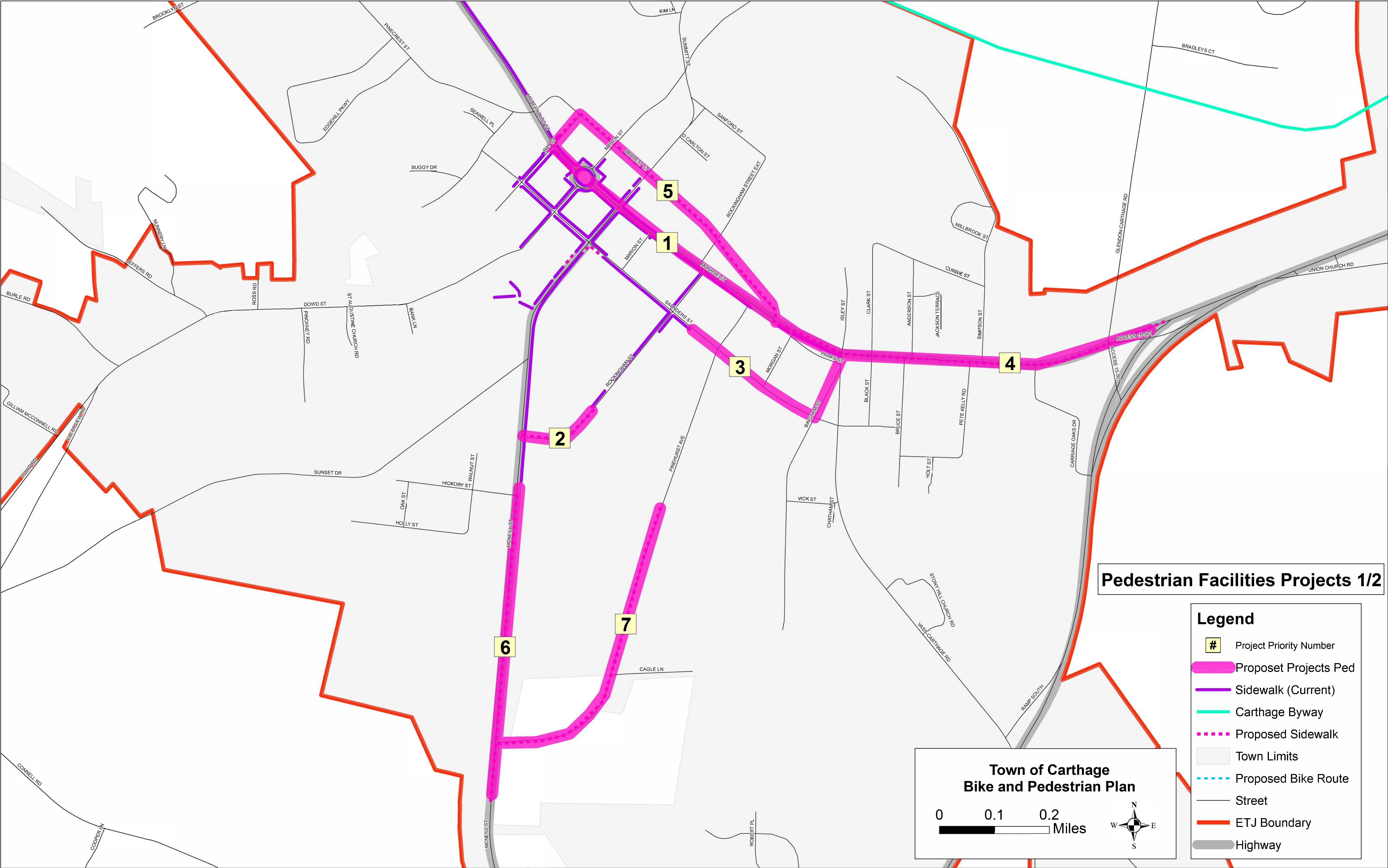


Town of Carthage North Carolina

Comprehensive Bicycle and PedestrianMaster Plan 2018

Sidewalk Facility Project Names

Project # Key	Type of Facility	Primary Pedestrian Corridor	From (nearest road or landmark)	To (nearest road or landmark)	Length of 5' Sidewalk
		Monroe Street			
1	Sidewalk	Monroe Street (DOT closing gaps)	Ray Street	Vass Carthage	NA
	Subtotal Sidewalk Improvements				0
		Saunders Street			
2	Sidewalk	Rockingham Street	S. McNeill Street	Existing Sidewalk @ SW corner of Carthage Elementary School	900
	Subtotal Sidewalk Improvements				900
		Rockingham Street			
3	Sidewalk	Saunders Street, Bingham, Monroe SRTS	Saunders Street, Bingham, Monroe	Saunders Street, Bingham, Monroe	2,569
	Subtotal Sidewalk Improvements				2,569
		Monroe Street			
4	Sidewalk	Monroe Street (NCDOT Project)	Vass Carthage Road	15 - 501	NA
	Subtotal Sidewalk Improvements				0
		Barrett Street			
5	Sidewalk	Barrett Street	Monroe Street	Rockingham Street	950
5	Sidewalk	Barrett Street	Rockingham Street	N. McNeill Street	935
5	Sidewalk	Barrett Street	N. McNeill Street	Martin Street	415
5	Sidewalk	Barrett Street	Martin Street	N. Ray Street	435
5	Sidewalk	Barrett Street	N. Ray Street	McReynolds Street	545
	Subtotal Sidewalk Improvements				3,280
		McNeill Street			
6	Sidewalk	McNeill Street	Hickory Street	Pinehurst Ave.	2,371
6	Sidewalk	McNeill Street	Pinehurst Ave.	Future Savannah Gardens Greenway trailhead	1,129
	Subtotal Sidewalk Improvements				3,500
		Pinehurst Street			
7	Sidewalk	Pinehurst Street	S. McNeill Street	Health Department	3,200
	Subtotal Sidewalk Improvements				3,200
		Union Church Road			
8	6' Sidewalk w/Road Separation or Shared Use Path	Union Church Road Pedestrian Corridor	N/A	N/A	TBD
	Subtotal Sidewalk Improvements				0



Pedestrian Facilities Projects 2/2

Legend

#

Project Priority Number

Proposed Crosswalk Improvement

Proposed Shared Use Path

School

Proposed Sidewalk

Church

††

Cemetery

Highway

Street

ETJ Boundary

Town of Carthage

Bike and Pedestrian Plan

0

0.1

0.2

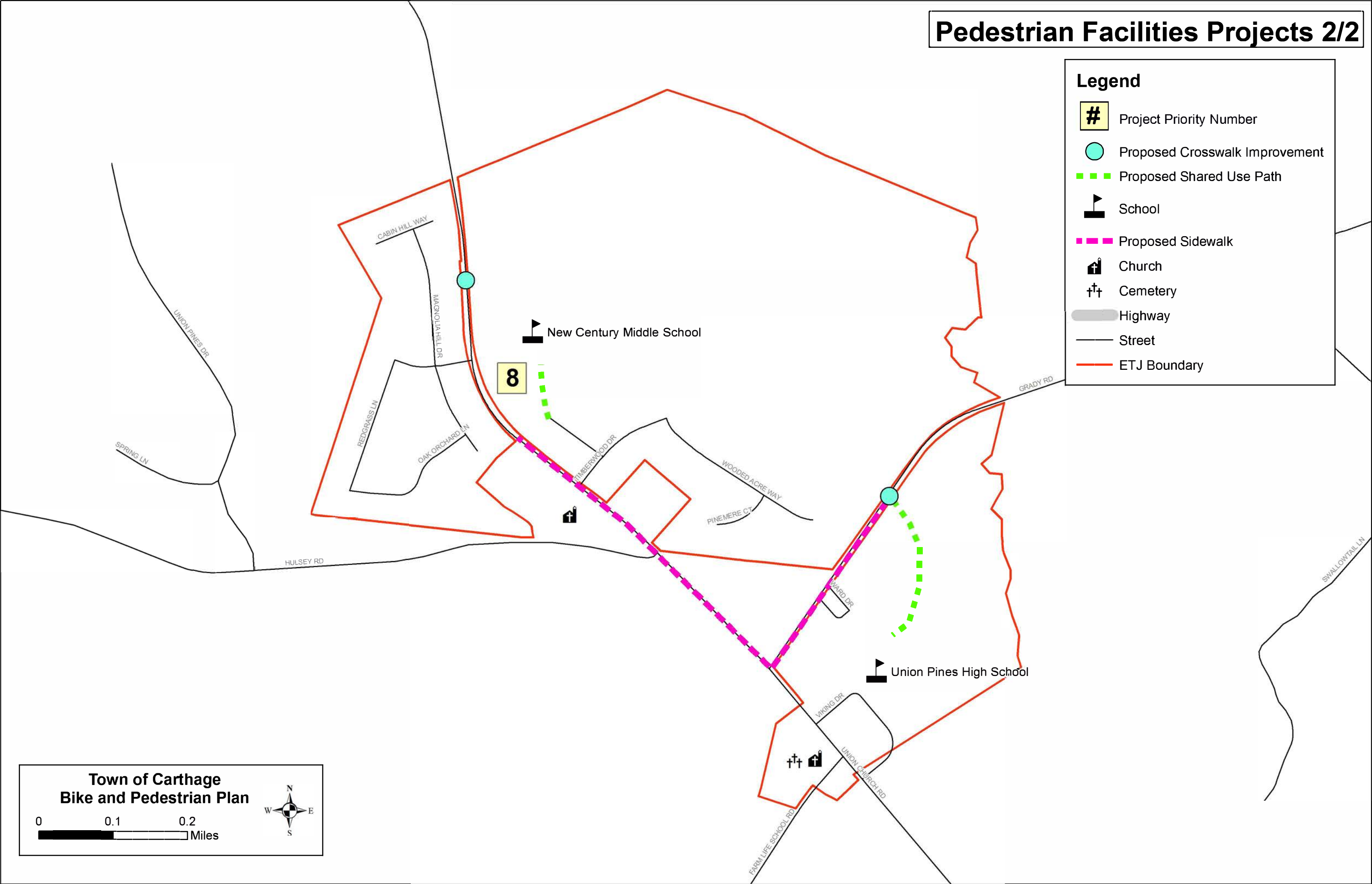
Miles

N

E

S

W



Sidewalk Facility Project #1 Monroe Corridor – Ray Street to Vass Carthage Road



Context

All of the proposed sidewalk improvements for the Carthage Bicycle and Pedestrian Plan consist of either new sidewalks, or accessibility improvements. These are considered to be on-road construction projects. Sidewalk project cost estimates should be revised closer to the time of expected construction and based on a detailed site analysis.

Recommendations

This project connects through the heart of Carthage with improvements to sidewalks on both sides of Monroe Street from Ray Street to Vass-Carthage.

Cost Estimate: \$400,000.00

Sidewalk project cost estimates should be revised closer to the time of expected construction and based on a detailed site analysis. Cost estimate was guided by the NCDOT Bicycle and Pedestrian Facility Cost Tool (5.24.18) <https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>

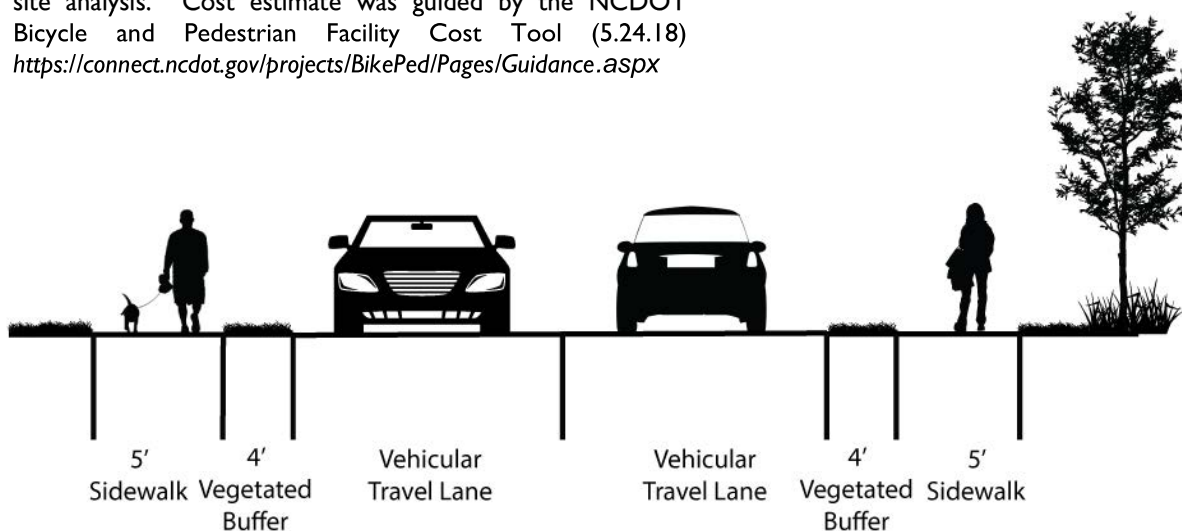
Length: Varies (refer to NCDOT Projects for more details)

Traffic Volume (2016)

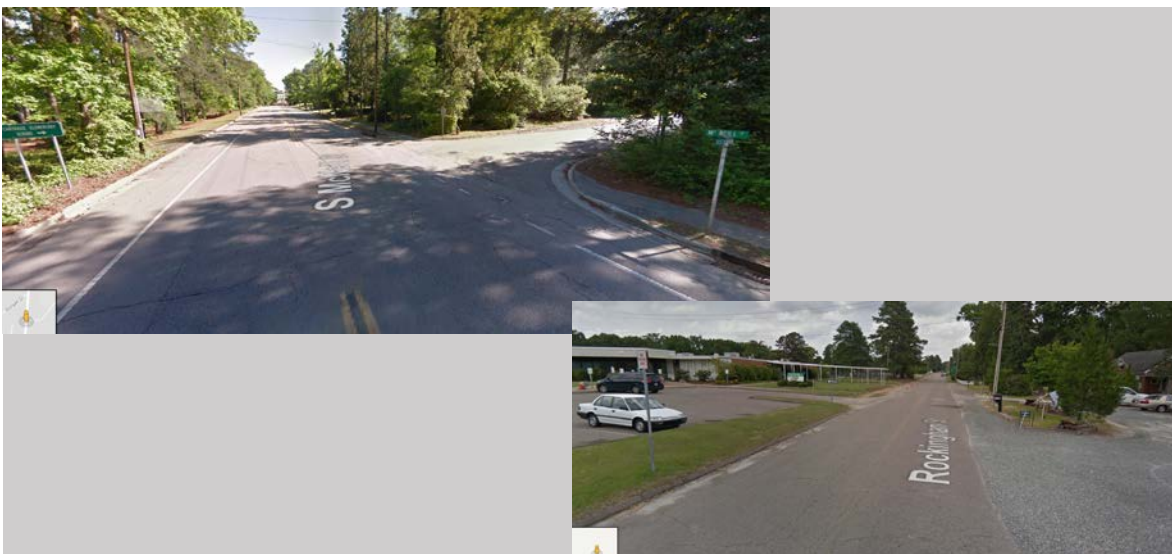
10,000 Monroe Street

Long-Term Recommendations

Coordinate with NCDOT for construction transitions and similar treatments. This NCDOT project is from Vass-Carthage to US 15-501 and once completed will provide a seamless sidewalk connection through downtown Carthage.



Sidewalk Facility Projects #2 Rockingham Corridor – S. McNeil Street to Existing Sidewalk at Carthage Elementary



Context

All of the proposed sidewalk improvements for the Carthage Bicycle and Pedestrian Plan consist of either new sidewalks, or accessibility improvements. These are considered to be on- road construction projects.

Length: 900 Linear Feet

Traffic Volume (2016)

3,700 Rockingham Street

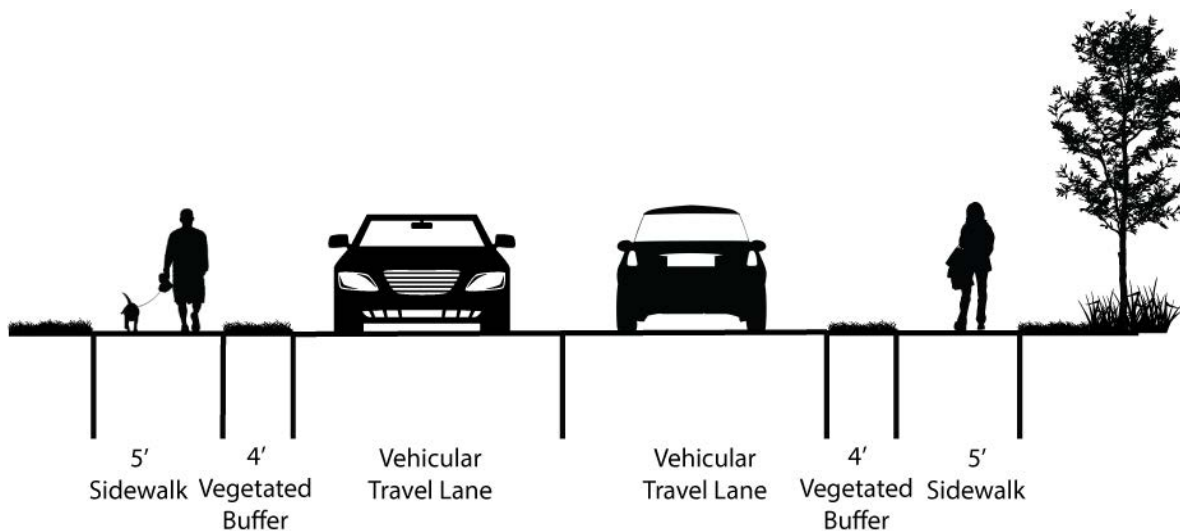
Recommendations

This project provides a safe connection for pedestrians between the existing sidewalk along the east side of McNeil to the existing sidewalk at Carthage Elementary School. Sidewalk and other pedestrian facilities that connect destinations like schools and hospitals should rank high as a Town priority.

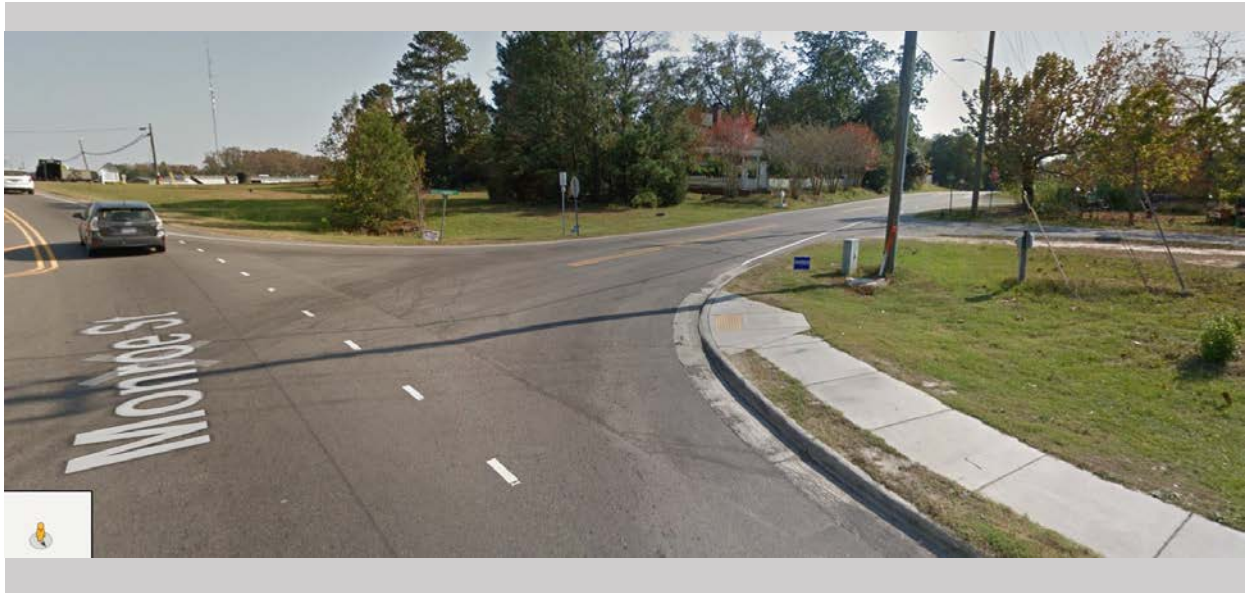
This project will also connect to the existing sidewalk network providing connections to downtown.

Cost Estimate: \$150,000

Sidewalk project cost estimates should be revised closer to the time of expected construction and based on a detailed site analysis. Cost estimate was guided by the NCDOT Bicycle and Pedestrian Facility Cost Tool (5.24.18) <https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>



Sidewalk Facility Project #4 Monroe Corridor – Vass Carthage to US 15-501



Context

All of the proposed sidewalk improvements for the Carthage Bicycle and Pedestrian Plan consist of either new sidewalks, or accessibility improvements. These are considered to be on-road construction projects.

Length: Varies (refer to NCDOT # U 3826 for more details)

Recommendations

This project is along the transition corridor from US 15-501 to downtown Carthage. NCDOT Project # will provide accessible sidewalk facilities along both north and south sides of Monroe Street

Traffic Volume (2016)

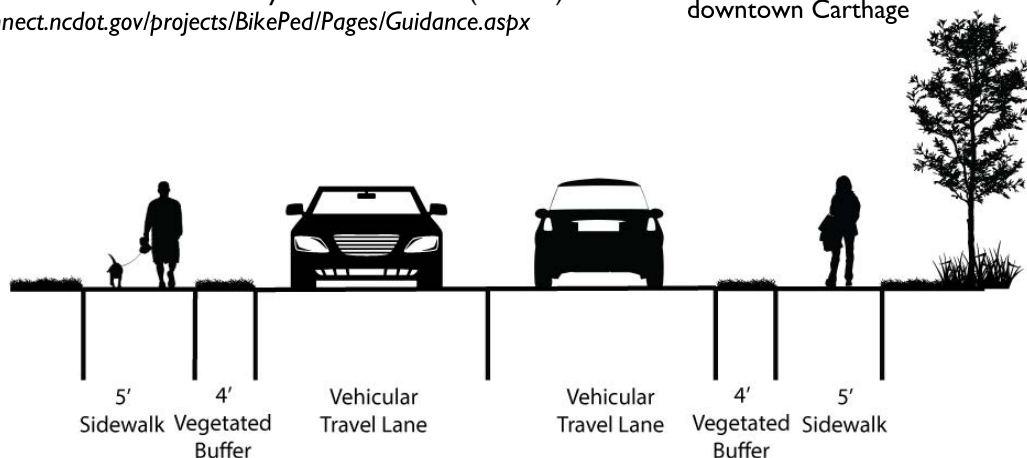
10,000 Monroe Street

Cost Estimate: \$ 320,000

Sidewalk project cost estimates should be revised closer to the time of expected construction and based on a detailed site analysis. Cost estimate was guided by the NCDOT Bicycle and Pedestrian Facility Cost Tool (5.24.18) <https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>

Long-Term Recommendations

Coordinate with NCDOT # U 3826 for construction transitions and similar treatments. NCDOT #U 3826 is from Vass-Carthage to Ray Street and once completed will provide a seamless sidewalk connection through downtown Carthage



APPENDIX

E

ACTION PLAN

Item Summary	Page Reference
Bicycle Facilities	
1. Saunders St. bike signage – McNeil St. to Black St.	45
2. Paved shoulder along Monroe St. from Barrett St. Glendon Carthage Rd.	45
3. Paved shoulder along Summit St. corridor – McReynold to Monroe St.	45
4. Paved shoulder along McNeil St. corridor – US 15-501 to Monroe St.	45
5. Paved shoulder along US 15-501 corridor – Priest Hill Rd. to McNeil St.	45
6. Paved shoulder along McNeil/US 15-501 corridor – Saunders to Castle	45
7. Paved shoulder along Glendon Carthage Rd. corridor – Old River Rd. to Access Rd.	45
8. Paved shoulder along Needmore Corridor – Carthage byway to Needmore neighborhood	45
9. Paved shoulder along Vass-Carthage Rd. corridor – Niagara/Carthage to US 15-501	45
10. Paved shoulder along US 15-501 corridor – Frye Rd to Access Rd NC 22 Hwy	45
11. Paved shoulder along NC 22 Hwy corridor – US 15-501 to Little River subdivision	45
12. Paved shoulder along Old Glendon Rd. corridor – McReynolds St. to Glendon Carthage Rd.	45
13. Paved shoulder along Pinecrest St. corridor – McReynolds St. to Wallace St.	45
Shared Use Facilities	
1. Greentree Shared Use Path – connection from Greentree Apartments to the Health Department	47
2. SUP – Nancy Kiser Park to Airport/Pik-N-Pig	47
3. SUP – McNeil St. to Town Hall	47
4. SUP – Hillcrest Park to Vass-Carthage Rd.	47
5. SUP – Airport to Air Museum	47
6. SUP – Grady Rd. to Union Pine High School	47
7. SUP – along Carthage Byway	47
8. SUP – connection to Little River in Southern Pines	47
9. SUP – Union Church – Martin St. block to Berryfield and Davis	47

Sidewalk Facilities	
1. Monroe St. corridor #1 – Ray St. to Vass-Carthage (Regional Plan ID# M-148)	51
2. Rockingham St. corridor – S. McNeil St. to Carthage Elementary School	51
3. Saunders Loop – Saunders to Bingham to Monroe to Rockingham (existing facility) to Saunders	51
4. Monroe St. corridor #2 – Vass-Carthage to US 15-501 (Region Plan ID# M-147)	51
5. Barrett St. corridor – Monroe St. to Ray St. to McReynolds	51
6. McNeill St. corridor #1 – Hickory St. to Pinehurst Av	51
7. McNeill St. corridor #2 – Pinehurst Ave. to future Savannah Gardens greenway trailhead	51
8. Pinehurst St. corridor – South McNeill St. to Health Department	51
Program and Policy Recommendations	
10. Town staff conduct inspection quarterly on existing facilities	66
11. Evaluate existing system of way-finding signage and make efforts to increase the use of way-finding signage. Ensure that signage style is consistent.	67
12. Annually inventory and inspect areas requiring spot improvements, prioritize these locations, and proceed with the proper implementations.	67
13. Comprehensive assessment of possible bicycle and pedestrian/vehicular conflicts should be conducted for areas near schools, parks, greenways, shopping, eating establishments, residential area, and where areas of future development are known to be sited.	68
14. Consider including facilities for future Moore County Transportation Services stops in and around parks, schools, and medical areas.	69
15. Continue to stay aware of what measures may be used to mitigate bicycle and pedestrian accidents.	69
Facility Recommendations	
1. Enforce the Town's land development ordinance requiring sidewalks	73
2. Town ordinances and existing plans should be updated or corrected to reflect bicycle and pedestrian plan recommendations and proposals.	73
3. Work with Moore County School System to ensure future schools have strong emphasis on non-vehicular transportation.	73
4. Provide bicycle and pedestrian connectivity along existing thoroughfares such as US 15-501 and Monroe St.	74
5. Develop a system of way-finding signage for bicycle and pedestrian facilities and greenways that are consistent with Town standards	74
6. New commercial and residential development should be oriented to the pedestrian and include internal pedestrian walkways connecting development to external sidewalk network in the public right-of-way	74
7. Construct bicycle and pedestrian facilities as identified on Proposed Bicycle and Pedestrian Facilities Map	74
8. Maintain and repair existing sidewalk to current standards	74

9. Repair all noncompliant bicycle and pedestrian facilities and ensure all new facilities provide ADA accessibility	74
10. All maintenance should follow NCDOT standards	74
11. Coordinate planning efforts with county and nearby jurisdictions to provide regional facility connectivity	74
12. Work closely with local RPO to ensure sidewalk projects are included in all NCDOT roadway projects	74
13. Require developers to provide bicycle and pedestrian connectivity to adjacent developments and destination areas	74
14. Existing and future utility easements should be assessed to determine if they can be used for possible bicycle and pedestrian connections	53
Safety and Health	
1. Continue to partner with Moore County School System in initiation and implementation of school safety programs for school children	75
2. Install and/or replace all damaged and noncompliant bicycle and pedestrian facilities as noted in network recommendations, items 6 and 7	75
3. Prioritize sidewalk implementation where gaps are located and where there is a high volume of pedestrian activity	75
4. Ensure all sidewalks are extended across driveways at safe and suitable cross slopes	75
5. Create a maintenance program which monitors existing sidewalks for damage and fills in gaps in pedestrian system that meets current standards	75
6. Establish regular reviews for the annual budget for sidewalk repair and expansion to obtain connectivity goals	75
7. Encourage schools to develop walking programs to promote healthy exercise amongst their pupils	75
Crossing Safety	
1. Install marked crosswalks at all major intersections	76
2. Evaluate traffic intersections for possible design elements that promote pedestrian safety	76
3. Update local traffic intersection guidelines to meet current state and federal requirements	76
4. Continue to implement and enforce the lower speed limit of 25 M.P.H. that was recently implemented for all Town roads	76
5. Ensure traffic intersections with bicycle and pedestrian facilities are well lit	76
6. Evaluate bicycle and pedestrian facilities annually for safety issues and implement solutions.	76
Traffic Signals	
1. Install pedestrian signals at all major intersections	76
2. Seek funding opportunities which help with design assistance and implementation of traffic and pedestrian signals	76
3. Review signal timing to ensure that pedestrians have adequate crossing times at intersections	76
4. Consider audible pedestrian signals near senior centers and other high-volume pedestrian attractors	77

5. Consider using “countdown” pedestrian signals near high pedestrian volume locations	77
Community Strengthening	
1. Develop environmental education and interpretive facilities, particularly along greenway corridors	77
2. Provide planting strip between sidewalks and roadways for street trees and low plantings	77
3. Develop design standards for placement of utilities so they don’t impede pedestrian traffic	77
4. Coordinate placement of all traffic and pedestrian signs with Moore County and NCDOT	77
5. Consider undertaking a streetscape redesign project for Downtown	77
Encouragement and Promotion	
1. Produce various maps and brochures for bike/ped opportunities in Town	80
2. Promote neighborhood walks and nature walks	80
3. Promote walk-for-health programs with local churches, businesses, and recreation centers	80
4. Organize walk-to-school/work days and/or weeks	80
5. Promote various walking tours in the Town by providing historical and/or directional maps	80
6. Highlight biking routes already in place like the Pottery Loop Route	80
7. Informational kiosks downtown	2
8. Organize a Bicycle & Pedestrian Advisory Committee.	80

APPENDIX

F

ESTIMATE OF PROBABLE COSTS
for
(CONCEPTUAL) COURTHOUSE SQUARE PEDESTRIAN IMPROVEMENTS
TOWN OF CARTHAGE, NORTH CAROLINA

OCTOBER 2018

ITEM		QTY.	UNITS	UNIT COST	TOTAL
Demolition					
1	Mobilization (maximum 3%)	1	LS	3.00%	\$ 3,704.40
2	Construction Surveying	1	LS	\$ 2,500.00	\$ 2,500.00
3	Removal of existing concrete, & curb/gutter	156	SY	\$ 20.00	\$ 3,120.00
Street Improvements					
4	Erosion Control	1	LS	\$ 1,500.00	\$ 1,500.00
5	Pavement markings, striping, and crosswalk lines	1	AL	\$ 6,000.00	\$ 6,000.00
6	Install Pedestrian Warning Signs	1	LS	\$ 2,000.00	\$ 2,000.00
7	Misc. Concrete Paving	1	LS	\$ 30,000.00	\$ 30,000.00
8	Install Handicap Curb Ramps	14	EA	\$ 2,500.00	\$ 35,000.00
9	Install Concrete Pavers	150	SF	\$ 20.00	\$ 3,000.00
10	Install 8' Wide Stamped Asphalt Crosswalk	480	SY	\$ 12.00	\$ 5,760.00
11	Landscaping	1	LS	\$ 4,600.00	\$ 4,600.00
Traffic Improvements					
12	Traffic Control During Construction	1	LS	\$ 30,000.00	\$ 30,000.00
TOTAL AMOUNT					\$ 127,184.40

All costs are based on a conceptual sketch. A formal Cost Estimate should be conducted prior to construction and be based on formal construction documents.