



Acknowledgements

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Executive Summary

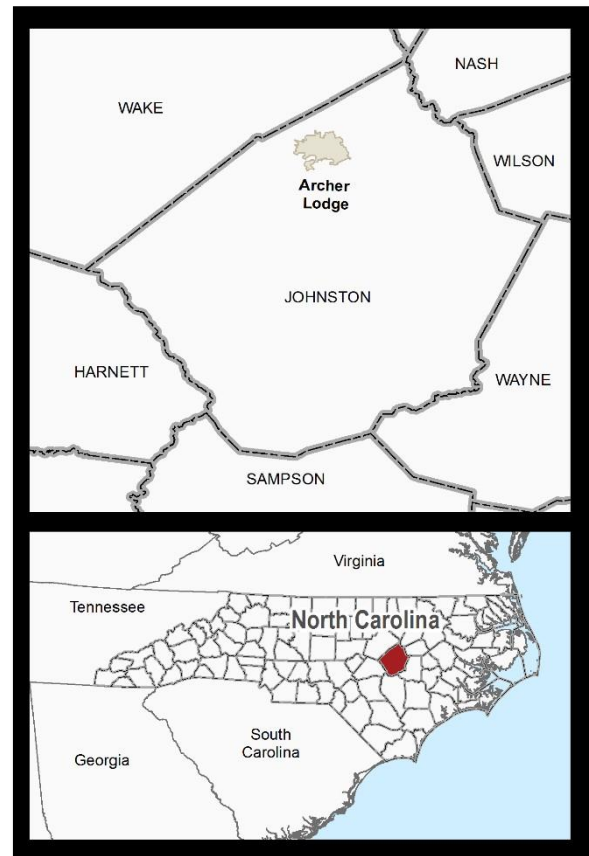
Brief History and Overview of the Community

The *Town of Archer Lodge Bicycle and Pedestrian Plan* is the culmination of a planning process to improve bicycle and pedestrian safety, connectivity, and health and well-being through infrastructure projects, community policies, and programs. This effort was facilitated by NCDOT's Integrated Mobility Division, AECOM as the project consultant, Town Council, Planning Board, the locally appointed Steering Committee and staff.

The Town of Archer Lodge is in northwestern Johnston County, North Carolina, approximately 25 miles east of the City of Raleigh. Archer Lodge formed over 150 years ago as a rural crossroads community; and is the newest incorporated town, on November 3, 2009, in North Carolina.

At the heart of the town, one may find the C.E. Barnes Store, old Masonic Lodge, White Oak Baptist Church, Archer Lodge Town Hall, Cousin's Antiques, and the Archer Lodge Community Center. The rural existing land use pattern, accompanied by rapid suburban development, combined with numerous streams in the town has resulted in a lack of street connectivity and promoted high speed vehicular traffic on NCDOT roads. The lack of sidewalks and bicycle facilities impedes non-motorized travel within the town and makes it both challenging and dangerous.

Since incorporation, the residents of Archer Lodge have demonstrated their commitment to comprehensive long-term planning, growth management, and a willingness to invest in the town's future.



Archer Lodge, North Carolina
(AECOM, 2019)

Past Planning Efforts

In January 2015, the Town of Archer Lodge completed its [Parks and Recreation Master Plan](#). This plan identified the need for new park facilities and programs. Following the completion and adoption of the *Parks and Recreation Master Plan*, the town purchased 30.5 acres of land for their first municipal park. This purchase was made possible through a reimbursable state funding allocation of \$100,000. The parcel where the park will be constructed is divided into two sections by Castleberry Road. The town is currently taking steps to plan,



prioritize, and budget for future recreational facility development within the community. The Parks and Recreation Trust Fund (PARTF) has been obtained to fund phase one of the park's development.

The [2030 Comprehensive Land Use Plan for the Town of Archer Lodge](#) was adopted on March 9, 2015. The plan serves as a guide for the local officials and community members in decision making regarding future growth and development in a way that upholds the values and vision of Archer Lodge. The plan outlines future needs for the town through a series of goals, strategies, and action steps in achieving the Town's vision for the next ten to twenty years.

With a strong dedication to improving bicycle and pedestrian safety and connectivity, the Town of Archer Lodge applied for a planning grant from the Division of Integrated Mobility to develop a bicycle and pedestrian plan. The purpose of the grant is to help municipalities and counties enhance mobility, improve safety measures, and promote economic and health benefits. The grant was awarded to the Town in 2018.

Purpose and Process of This Plan

The *Town of Archer Lodge Bicycle and Pedestrian Plan* evaluates existing bicycle and pedestrian conditions in order to recommend strategic projects, policies, and programs to improve or expand safety, connectivity, and quality of life in the town. The Division of Integrated Mobility, AECOM as the project consultant, and a Steering Committee worked collaboratively to develop this *plan*.

The Steering Committee (Committee) was formed by the town and comprised of local officials, representatives from local organizations, and community members. Through the planning and development of this *plan*, the Committee approved goals and objectives that guided the set of recommendations for infrastructure projects, policies, and programs. Public meetings and an online survey were also conducted for town residents to provide input on planning efforts. The *Plan* was also presented and reviewed to the Planning Board as well.

Key Findings and Recommendations

According to input from three Steering Committee meetings and two public workshops, the *plan* confirmed that the community views bicycle and pedestrian facilities as very important to improving the safety and well-being of the community. In addition, stakeholders at these meetings provided widespread support for implementing infrastructure projects, as well as policies, ordinances, and programs. Members of the Steering Committee and public emphasized safe connections to parks and trails, churches, small businesses, and schools, along with adopting local ordinances that promote bicycling and pedestrian mobility.

An online survey was conducted to gather additional public input. This survey found that most bicycling and walking trips occur along the Clayton River Walk Trail, Archer Lodge Road, Buffalo Road, South Murphrey Road, and traveling to key destinations such as the Archer Lodge Community Center and C.E. Barnes Store. The following four points summarize opportunities that the community provided to support bicycling and walking improvements throughout the town:

1. Connecting neighborhoods, parks, and trails



2. Bicycling and walking safely around downtown and schools
3. Promoting bicycle and pedestrian safety education
4. Promoting expansion of bicycle and pedestrian amenities on existing roadways through local ordinances

Infrastructure Projects

Proposed infrastructure projects were divided into two improvement categories: Spot improvements and linear facilities. Spot improvements are infrastructure projects at specific locations to improve bicycle and pedestrian conditions, while linear facilities are projects along roadways or trails such as bicycle lanes, sidewalks, streetscape improvements, or multiuse paths or greenways. Spot improvements and linear facilities are described in further detail in Section 4.2.

Projects were organized based on locations that were identified by public input. The corridors were prioritized according to stakeholder and public input, constraints, safety, existing conditions, demand, connectivity, and equity. Both the Steering Committee and residents during the public meetings provided direct input that contributed to the overall development of corridors. The following are the seven proposed corridors that are further detailed in the *plan*:

- | | |
|---------------------------------|-------------------------------------|
| • Covered Bridge Road | Corridor Improvements |
| • South Woodstone Drive | Shared-use Improvements |
| • Castleberry Road | Bicycle and Pedestrian Improvements |
| • South Murphrey Road | Shared-use Improvements |
| • Buffalo Road | Corridor Improvements |
| • Archer Lodge/Wendell Road | Bicycle Improvements |
| • Duke Energy Easement Greenway | Shared-use Improvements |

Spot Improvements

Spot improvements are recommended at intersections and mid-block crossings to improve safety. Recommendations include: marked crosswalks, high-visibility crosswalks, pedestrian signals, street lighting, and bicycle route signage. Locations of these intersection and crossing improvements include downtown Archer Lodge, Archer Lodge Park, and community gathering spaces like schools.

Linear Facilities

Bicycle and pedestrian linear facilities were also evaluated for Archer Lodge. Projects include shared lane markings, wide paved shoulders, and sidewalks (both new construction and repair). Linear facility recommendations emphasized connections between downtown Archer Lodge outward to locations like the Clayton River Walk Trail and surrounding schools.



Policies, Ordinances, and Programs

Critical to a successful bicycle and pedestrian plan are policies, ordinances, and programs to complement infrastructure projects. Not only is safety dependent upon such physical elements as shared lane markings, sidewalks, and spot improvements, it is also dependent upon education, reducing speed limits, enforcement of laws, and ordinances created to encourage bicycle and pedestrian-friendly development. This *plan* makes several programmatic recommendations to improve safety and encourage physical activity. Whereas infrastructure projects can be expensive to construct, programs are comparatively inexpensive to implement and can provide a tremendous benefit to the community. Recommended policies include adopting or modifying local ordinances to facilitate multi-modal transportation options making existing roadways safe and accessible to pedestrians, bicyclists, and vehicles. To lead these efforts promoting bicycling and pedestrianism, a Bicycle and Pedestrian Advisory Committee (BPAC) was encouraged.

Key Action Steps

The success of this *plan* depends on its implementation. A Bicycle and Pedestrian Advisory Committee (BPAC) should be formed, [i.e., a town council member, advisory board, or interested citizen appointed to continue advocating for bicycle and pedestrian facilities that will improve safety and connectivity in Archer Lodge]. Once the committee is formed, it will meet, and report to the Town Council. It should be comprised of members from the Steering Committee, as well as additional residents who reflect the demographics of Archer Lodge.

A primary responsibility of the BPAC will be to prepare an annual report for the town council that details the progress made on implementing the *plan* as well as the BPAC's goals and objectives for the coming year.



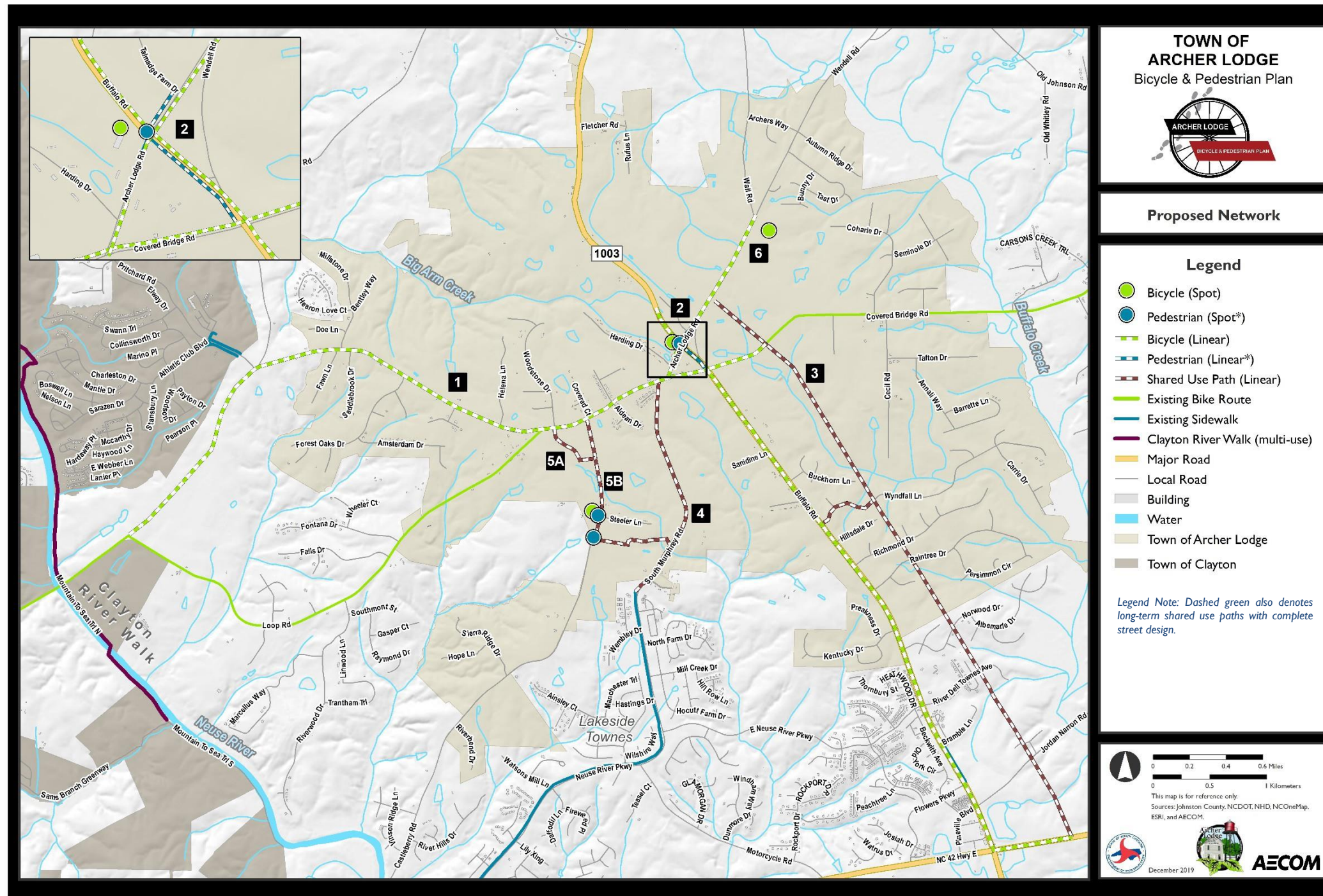
Key Action Steps

1. Adopt the *Town of Archer Lodge Bicycle and Pedestrian Plan*.
2. Establish a Bicycle and Pedestrian Advisory Committee or appoint a town identified council member or interested citizen who will be responsible for overseeing the implementation of the *plan*.
3. Strengthen partnerships with Johnston County and its municipalities.
4. Coordinate with NCDOT Division 4 to incorporate projects on a regional scale.
5. Coordinate with the NC Capital Area Metropolitan Planning Organization (CAMPO) to include infrastructure projects in the metropolitan planning process.
6. Include bicycle and pedestrian facilities in town ordinances.
7. Adopt key zoning amendments including a sidewalk overlay district.
8. Apply for grants and explore other funding sources and develop local funding for match requirements for the *plan's* projects and programs.
9. Coordinate projects and programs with the Triangle Conservancy of North Carolina.
10. Partner with NC Department of Commerce and others to promote ecotourism.
11. Carry out programs that educate residents on the health benefits of bicycle and walking.
12. Program local funds for bicycle and pedestrian projects.
13. Coordinate with Region 7 Active Routes to School Coordinator.
14. Develop a wayfinding program.
15. Apply and participate in NCDOT's Watch for Me NC campaign to raise awareness and provide educational details.
16. Prepare the first Archer Lodge Bicycle and Pedestrian Annual Report.
17. Work with adjoining communities whenever possible.

Further details on these Key Action Steps are found in Section 5 of this *plan*.



Figure ES-I: Town of Archer Lodge





I.0 Introduction and Project Overview

I.1 Background

The Town of Archer Lodge has a strong commitment to improving its bicycle and pedestrian planning efforts and has identified these goals in the *Town's Parks and Recreation Comprehensive Plan* and its application for the NCDOT Bicycle and Pedestrian Planning Grant. *The Town of Archer Lodge Bicycle and Pedestrian Plan* is the town's latest effort to promote multi-modal mobility and will help guide these efforts for the town, the NCDOT, and associated local and regional partners. The focus of the development of this *Bicycle and Pedestrian Plan* is to define the *plan* vision and goals, outline recommendations, and identify programs and policies for implementing bicycle and pedestrian infrastructure and amenities to increase active lifestyles and quality of life elements.

The *Archer Lodge Bicycle and Pedestrian Plan* has been funded through a matching grant from the Division of Integrated Mobility (IMD) with the Town of Archer Lodge providing the matching funds. The grant provides funding for local governments to develop comprehensive bicycle and pedestrian plans.

The Town of Archer Lodge is located in northwestern Johnston County, North Carolina, approximately 25 miles east of the City of Raleigh. Archer Lodge's name originated from the old Masonic Lodge which was



Archer Lodge Water Tower
(Archer Lodge, 2019)

established in 1854. The Town of Archer Lodge has seen rapid population growth since its formal incorporation in 2009.

Today the town is home to over 5,000 residents and is committed to improving its roads, including but not limited to, Covered Bridge Road and Buffalo Road. Archer Lodge is comprised of businesses (commercial and agricultural), single family residences, churches, convenience stores, antique store, fire department, community center, educational facilities, town municipal buildings, new veteran's memorial and Archer Lodge Park (under development).

I.2 Community Vision

During the first Steering Committee meeting, a community vision was developed through an exercise in which committee members provided their response to the question "What does Archer Lodge mean to you?" on notecards. These cards were completed anonymously and used in drafting the word cloud and vision statement, below. The word cloud, illustrated below, was formed using the most common words from the notecard-response exercise.



During the first Steering Committee meeting, the following vision was developed. The vision applies to this *plan* and the desired outcome for its implementation of bicycle and pedestrian projects, policies, and programs in the Town of Archer Lodge.

“The Town of Archer Lodge will be a place where people of all ages and diverse backgrounds have access to bicycle and pedestrian facilities and programs. These programs and facilities will promote exercise and wellbeing, with safe and connected infrastructure that allows residents to celebrate and discover Archer Lodge’s rich culture and history. The need for vehicular traffic connectivity will provide a great opportunity to incorporate bicycle- and pedestrian-friendly corridors in Archer Lodge.”



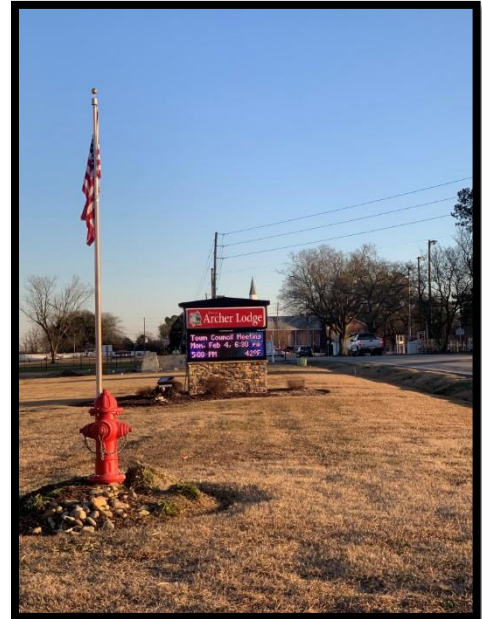
I.3 Goals and Objectives

A series of goals were developed during the first Steering Committee meeting and adopted during the second Steering Committee meeting. These goals form both the foundation of objectives and strategies that guide the creation and implementation of the *Archer Lodge Bicycle and Pedestrian Plan*, and the strategic framework for developing and improving bicycle and pedestrian mobility in the Town of Archer Lodge. In alignment with the North Carolina Statewide Bicycle and Pedestrian Plan, *WalkBikeNC*, these goals, objectives, and strategies were developed to further encourage consistency among the plans and are indicative of both the state and local desire for safe and abundant bicycle and pedestrian facilities.

The following goals were developed during the first steering committee:

- Improve mobility through bicycle and pedestrian networks
- Provide bicycle and pedestrian education
- Promote environmental, public health, and safety benefits of bicycling and walking
- Encourage economic benefits of bicycling and walking
- Connect cultural sites and natural resources

The goals are defined in further detail in Table 1-1 below:



Archer Lodge Town Hall
(AECOM, 2019)



Table I-I: Goals and Objectives

Improve Mobility through Bicycle and Pedestrian Networks

Improve mobility by creating and providing safe bicycle and pedestrian networks, removing barriers and enhancing connections between residential neighborhoods and destinations such as schools, stores, houses of worship, and other institutions. Provide active transportation (bicycle and pedestrian) options to the residents of Archer Lodge.

Provide Bicycle and Pedestrian Education

Educate the community as to the benefits of bicycle and pedestrian activity, applicable rules, and regulations.

Promote Environmental, Public Health, and Safety Benefits of Biking and Walking

Emphasize a safe and attractive environment through programs, policies, and partnerships: Recognize the environmental and public health benefits of biking and walking by providing active living environments with safe, connected, accessible facilities along with programs that encourage bicycling and walking.

Encourage Economic Benefits of Biking and Walking

Educate the community as to the economic benefits that improved bicycle and pedestrian infrastructure can have on surrounding businesses and residences. Recognize the secondary benefits resulting from bicycle and pedestrian infrastructure including household savings from alternative transportation modes, tourism, development goals, and property values.

Connect Cultural Sites and Natural Resources

Develop facilities and programs that enhance the connection between local and regional cultural sites and natural resources through bicycle and pedestrian facilities such as greenways or trails.



I.4 Purpose and Scope of the Plan

The purpose of the *Archer Lodge Bicycle and Pedestrian Plan*, (hereafter referred to as the “*plan*”), is to evaluate the existing bicycle and pedestrian conditions within the Town of Archer Lodge and recommend programmatic and infrastructure projects to improve safety, connectivity, and well-being. This effort was led by NCDOT’s Division of Integrated Mobility (IMD), AECOM as the project consultant, and the locally appointed Steering Committee. Public meetings were also conducted for town residents to provide input on planning efforts and potential projects. Engineering studies and construction are not included in the scope of this planning effort.

The scope of the *plan* included the following tasks:

- Analysis of existing conditions and demographics
- Review of existing plans and policies
- Policy and program recommendations
- Infrastructure improvements and cost estimates
- Identification of possible funding sources
- Public input through a Steering Committee and meetings
- Implementation strategies

I.5 Benefits of a Bicycle-Friendly and Walkable Community

There are many benefits of bicycle and pedestrian planning and the resulting programs and infrastructure projects. By working to develop bicycle-friendly and walkable communities, municipalities enhance the sense of community through the promotion of improved health, economic resources and activity, sustainable transportation alternatives, and environment awareness. In addition, the planning and development of bicycle and pedestrian facilities creates a valuable resource for future generations to use and further develop.

WalkBikeNC, the statewide bicycle and pedestrian plan, established a vision for North Carolina centered around five key benefits: health, economic competitiveness, safety, mobility, and stewardship. Additionally, the *plan* suggests that integration of bicycle and pedestrian accommodations promotes the following community benefits:

- Promotes physical, mental and social well-being by providing opportunities for outdoor recreation and community gathering spaces
- Provides easy walking or bicycling connections between neighborhoods, schools, parks, and trails
- Increases property values, promotes tourism, and supports local businesses by encouraging foot traffic
- Improves overall quality of life

The statistics and benefits discussed in this section were compiled from several sources: the *WalkBikeNC* plan, the Pedestrian and Bicycle Information Center based at the University of North Carolina Highway Safety



Research Center, the National Complete Streets Coalition, the NC Bicycle and Pedestrian Safety Summit 2011, and the 2014 *Benchmarking Report* by the Alliance for Biking and Walking.



Health

Infrastructure such as sidewalks, bicycle lanes, and trails promote active living and improve health by providing residents with opportunities to exercise and integrate physical activity into their daily lives, while programs such as Active Routes to School provide education and encouragement for more physical activity. Regular exercise through walking and bicycling can promote health benefits for people of all ages, such as reduced risk for diseases, stronger hearts, and better mental health. Improving health is of critical importance in North Carolina as 65 percent of adults are either overweight or obese. The state is ranked as the 5th worst in the nation for childhood obesity.¹



Economic Competitiveness

Investing in bicycle and pedestrian infrastructure returns economic benefits to communities through increased property values, patronage of local businesses, and tourism. Improving transportation choices in a community encourages better connectivity between people and places and is tied strongly to public health, access to jobs and resources, and business opportunities. As mobility options, bicycling and walking reduce transportation costs and give households more disposable income to spend in the local economy.



Safety

The need to improve safety for pedestrians and bicyclists is urgent. Each year in North Carolina more than 2,000 pedestrians and 1,000 bicyclists are involved in police-reported crashes with motor vehicles. Between 150 and 200 pedestrians are killed, and an additional 200 to 300 are seriously injured. On average, approximately 20 bicyclists are killed and an additional 60 are seriously injured annually.² According to the National Complete

¹ NCDOT. (2013). *WalkBikeNC*: North Carolina Statewide Pedestrian and Bicycle Plan Summary Document, page 12.

² NCDOT. (2015). North Carolina Pedestrian and Bicycle Crash Data Tool.

http://www.pedbikeinfo.org/pbcat_nc/index.cfm



Streets Coalition, more pedestrian deaths are occurring because we are continuing to design streets that prioritize high speeds for cars over safety for people.³



Mobility/Transportation Efficiency and Connectivity

Mobility/Transportation efficiency describes the effectiveness of the transportation system, which includes roads, rail, public transit, and bicycle or bicycle facilities, to move people and goods safely and quickly. As roads become increasingly congested, one way that communities can improve transportation efficiency is by offering bicycle and pedestrian alternatives to automobiles and designing complete streets that accommodate all modes.

Providing the most appropriate types of transportation facilities can also improve transportation efficiency. In areas with multiple resources within close proximity of one another, providing pedestrian and bicycle facilities can reduce the number of short motor vehicle trips.



Stewardship/Environmental

Motorized transportation is responsible for nearly 80 percent of carbon monoxide and 55 percent of nitrogen oxide emissions in the US.⁴ Bicycle and pedestrian infrastructure encourages stewardship of our natural resources by providing residents with a fossil fuel-free alternative mode of transportation. Greenways and trails help connect residents with the outdoors, foster an appreciation for nature, and protect natural resources. Reducing motorized vehicle miles traveled by providing safe and efficient bicycle and walking conditions can help reduce fuel consumption and vehicle emissions, improve the environment including the quality of water and wildlife habitat, and encourage overall energy conservation and independence.

In general, reducing motorized vehicle miles travelled yields environmental benefits; shorter trips are more polluting than long trips on a per-mile basis. This is due to the high levels of emissions caused by “cold starts” and the first few minutes of travel before pollution control devices work effectively. Therefore, consolidating the number of motorized vehicle trips is an important environmental goal⁴.

³ Smart Growth America. (2019). Dangerous by Design 2019. Retrieved from: <https://smartgrowthamerica.org/dangerous-by-design/>

⁴ Pedestrian and Bicycle Information Center. (2015). Environmental Benefits of Bicycling and Walking. Retrieved from: <http://www.pedbikeinfo.org>



Quality of Life Benefits

Quality of life is influenced by factors that include, but are not limited to; commute options, access to recreation including parks and trails, safety, and economic competitiveness. Pedestrian amenities positively contribute to the overall quality of life of a community as such amenities encourage residents and visitors to be active, social, and more in control of their travel choices.



2.0 Existing Conditions

2.1 Overview

Assessing existing conditions in the Town of Archer Lodge is important to understand the broader scope of those living in the area, where transportation planning plays a key role in connecting community resources and planning for future development and growth. This can enable more efficient and sustainable movement to and from resources and key destinations within the town. The following information on existing conditions is used to formulate and prioritize the policies and programs recommended in this *plan*.

2.2 Demographic Analysis

Demographic characteristics were investigated to gain a better understanding of the population living in Archer Lodge, the community's transportation needs, and any vulnerable populations for compliance with federal policy. Vulnerable populations are those citizens of the community who are disadvantaged by ethnicity or race, age, gender, socio-economic status, or other distinguishing factors that disproportionately impact access to resources.

Title VI of the Civil Rights Act of 1964 requires that each federal agency ensure that no person is excluded, denied, or discriminated based on race, color, national origin, age, sex, disability. Executive Order 12898 signed by President Bill Clinton in 1994 requires that each federal agency shall make achieving environmental justice part of its mission. This is relevant to Archer Lodge in that the town would coordinate with federal agencies and apply for federal funds in order to implement the programs and projects recommended by this *plan*.

Datasets studied include population, age, race characteristics, Hispanic/Latino and minority populations, poverty rates, limited English proficiency (LEP) populations, and zero car households. The demographic analysis was based on 2000 and 2010 U.S. Decennial Census data and 2013-2017 American Community Survey (ACS) 5-Year estimate data analyzed at the place, county, and state levels.

Population and Age

The Town of Archer Lodge is in Johnston County and has an area of approximately 9.1 square miles. Since the town was incorporated in 2009, a demographic study area was used to analyze demographic changes. This study area contains the following block groups: Census Tract 402.03: Block Group 1, Census Tract 402.03: Block Group 2, and Census Tract 402.03: Block Group 3. Census Tract 402.02: Block Group 2 was not included in the analysis as only a small subsection is included in the municipal boundary.

According to the U.S. Census Bureau, the population within the demographic study area was 5,446 people in 2000 and grew to 14,249 people in 2010. Johnston County's population was 121,971 in 2000 and 168,878 people in 2010. The demographic study area has seen tremendous growth at 161.6 percent growth from 2000 to 2010. Johnston County has also seen growth over this timeframe that outpaces the growth rate of North Carolina as a whole. During the same time frame, the statewide population growth was 18.5 percent.



Increasing population for the town and county suggests a need for continual dedication to quality of life benefits, such as bicycle and pedestrian infrastructure, to attract both people and business to the area. In recent years, the town has supported many efforts toward these types of improvements, including the neighboring Clayton River Walk.

Based on 2012-2016 ACS data, the median age was 37.0 in Archer Lodge, which is similar to the median age of Johnston County at 37.9. Archer Lodge and Johnston County are both comparable to the state median age of 38.4. While the median age of Archer Lodge is only slightly lower than that of North Carolina, the percentage of the population that is under 18 years in Archer Lodge is nine percentage points higher than the percentage of the population under 18 in North Carolina (31.9 percent and 22.8 percent respectively).

Improved bicycle and pedestrian infrastructure can help to retain or attract younger populations while also serving current age groups in Archer Lodge interested in different modes of transportation. Those populations living in the community currently and those aging in place can gain health benefits from bicycle and pedestrian facilities while also benefitting from a greater quality of life.

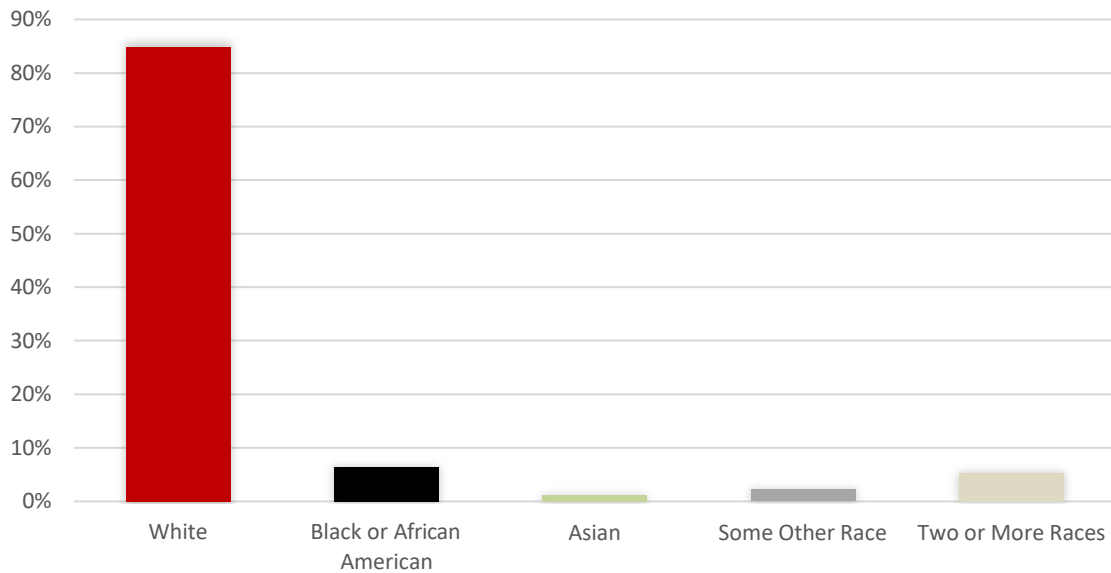
Minority and Race

Minority population is calculated by the Census by subtracting White, Non-Hispanic population totals from the Total Population of an area. The minority population in Archer Lodge is approximately 17.1 percent of the total population (933 people). Comparatively, the minority population for Johnston County is slightly higher at 31.3 percent (58,363 people).

Race is broken into several categories by the Census including categories for White, Black or African American, Asian, Some Other Race, and Two or More Races. The Town of Archer Lodge is predominantly white (84.9 percent), with a small percentage of African-American (6.4 percent), Asian (1.2 percent), some other race (2.2 percent), and two or more races (5.3 percent). The Hispanic/Latino population comprises approximately 8.4 percent of Archer Lodge. Johnston County has a slightly lower composition of predominantly white (77.8 percent) and higher African-American (15.4 percent) populations, with the remainder of its population defined as American Indian/Alaska Native (0.7 percent), Asian (0.7 percent), some other race (3.1 percent), and two or more races (2.4 percent). The Hispanic/Latino population comprises approximately 13.3 percent of Johnston County which is higher than that of the Town of Archer Lodge. In the state of North Carolina, the white (69.0 percent) and African-American (21.5 percent) populations define the majority with the remainder of the population defined as American Indian (1.2 percent), Asian (2.7 percent), Hawaiian/Pacific Islander (0.1 percent), some other race (3.1 percent), or two or more races (2.5 percent). The Hispanic/Latino population represents 9.1 percent of the population in the state. Such minority and racial compositions indicate a minimally diverse composition of people living in both Archer Lodge and Johnston County.



RACIAL COMPOSITION OF ARCHER LODGE



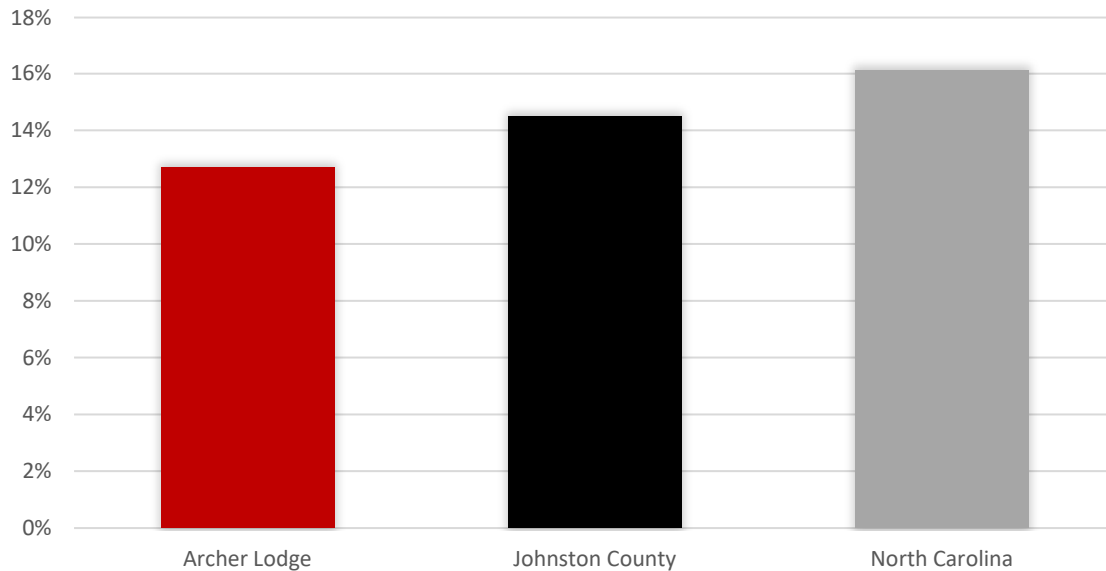
Source: US Census Bureau, American Community Survey 5-year Estimates (2013-2017), Table B02001, "Race."

Regional Poverty Rates

Individuals living below the poverty line in Archer Lodge comprise approximately 12.7 percent of the population. This is lower than the county rate at 14.5 percent, and lower than the North Carolina poverty rate of 16.1 percent living below the poverty line.



POVERTY RATE



Source: US Census Bureau, American Community Survey 5-year Estimates (2013-2017), Table C17002, "Ratio of Income to Poverty Level in the Past 12 Months."

Limited English Proficiency (LEP)

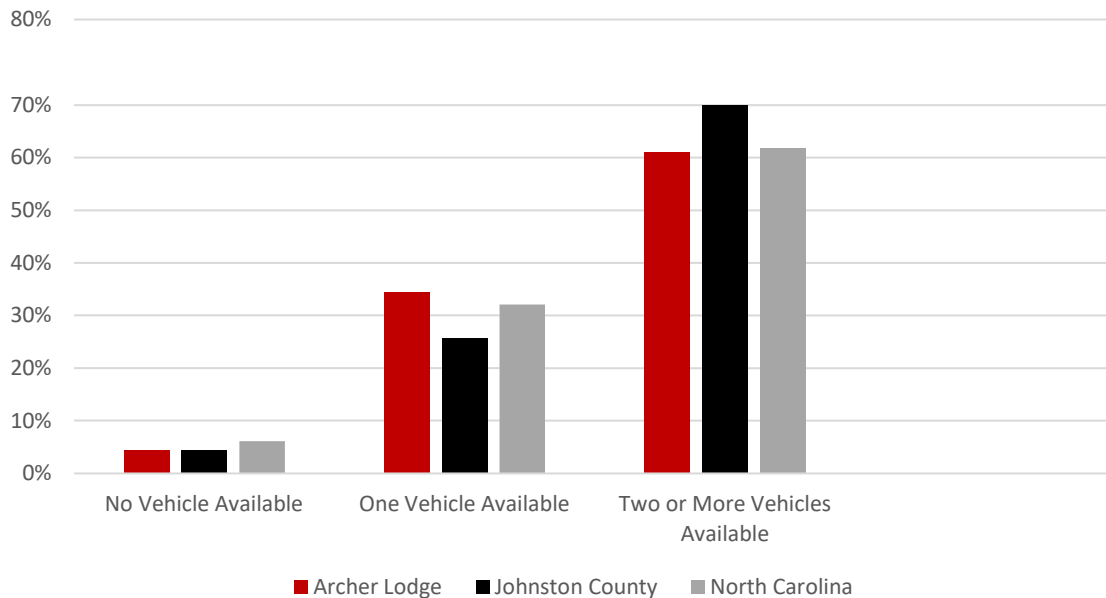
The populations in Archer Lodge that speak English “less than very well” comprise approximately 2.6 percent of adult individuals age 18 and older. In Archer Lodge, the primary language of those who speak English less than very well is Spanish. In Johnston County, LEP populations are approximately 5.9 percent. Of those that speak English “less than very well,” Spanish is the predominant language (5.6 percent of the adult population over 18 years of age; Source: US Census Bureau, American Community Survey 5-year Estimates (2013-2017), Table B16004, "Age by Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over.").

Vehicles per Household

In Archer Lodge, 4.4 percent of households have no vehicle available, 34.5 percent of households have one vehicle available, and 61.1 percent of households have two or more vehicles available. In Johnston County, 4.4 percent of households have no vehicle available, 25.6 percent of households have one vehicle available and, 70.0 percent of households have two more vehicles available. Statewide, 6.1 percent of households have no vehicle available, 32.1 percent of households have one vehicle available, and 61.8 percent of households have two more vehicles available. Bicycle and pedestrian infrastructure projects would particularly benefit residents that do not have access to vehicles or share vehicles within a household.



VEHICLES PER HOUSEHOLD



Source: US Census Bureau, American Community Survey 5-year Estimates (2013-2017), Table B25044, "Tenure by Vehicles Available."

Means of Transportation to Work

An overwhelming majority of Archer Lodge's residents commute alone to work using a car at 85.6 percent. 14.4 percent of residents' commute by carpool, while zero percent of the population of Archer Lodge walks, bicycles, or uses a form of public transportation to travel to work.

These figures are comparable to Johnston County and the state of North Carolina, where 88.9 percent and 85.6 percent commute alone by auto, respectively. In Johnston County, a total of 9.7 percent of workers carpool, while 10.0 percent of the state uses a similar mode of transportation. In the county, 0.2 percent use public transportation and 0.6 percent walks to work. Statewide 1.1 percent use public transportation and 2.2 percent walks or bicycles to work.

*"I do not have a **car** and would love to have the opportunity to get a job at a destination that I could get to on **bike**, but the roads have almost **no shoulders**."*

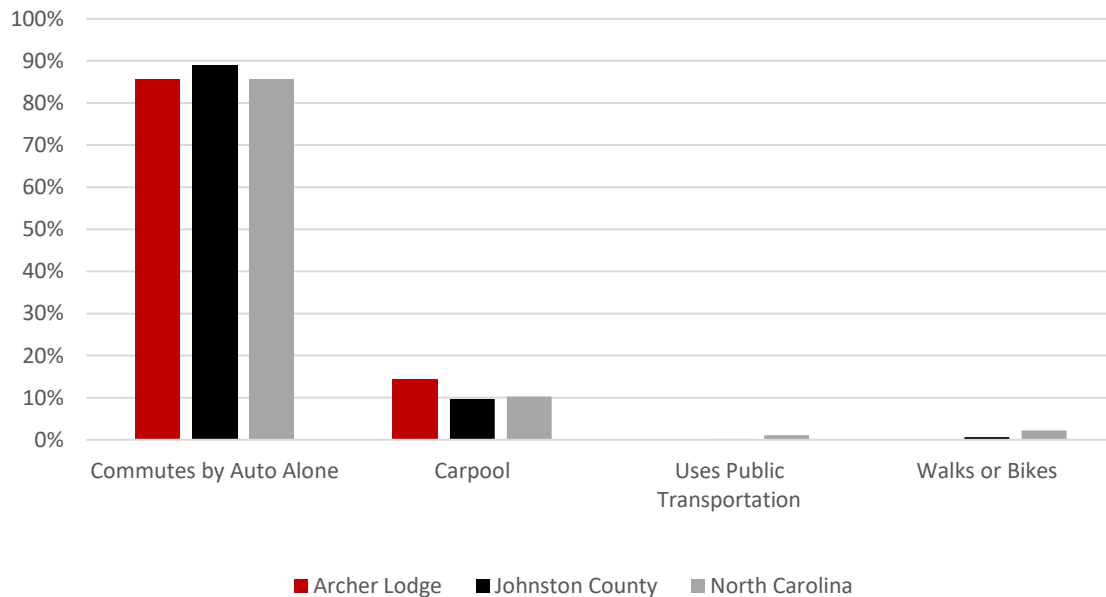
-Town of Archer Lodge Bicycle and Pedestrian Plan Survey Respondent

These statistics show a higher dependency on vehicle usage in Archer Lodge as compared to both county and statewide figures. Supporting the development and use of transportation networks for active modes (bicycle



and pedestrian travel) may provide an opportunity for a more diverse selection of commuting options to work, as well as enabling workforce participation by people with reduced access to vehicles.

MEANS OF TRANSPORTATION TO WORK



Source: US Census Bureau, American Community Survey 5-year Estimates (2013-2017). Medians reported as an average of the medians of the block groups comprising the DSA.

2.3 Land Use and Development

The *Town of Archer Lodge 2030 Comprehensive Land Use Plan* (2015) identifies key areas for land use and growth management, it makes recommendations relating to community image, small economic development and skill training, business and farming relationships, public services and infrastructure, parks and recreation, as well as environmental protection and historic preservation. According to the plan, Archer Lodge is located within the Research Triangle Economic Development region designated by the State. Archer Lodge is described as a sub-rural community that combines the town's agricultural and suburban lifestyles. Given the influx of families moving to the town, the plan acknowledges the likelihood of change in the community. The Town of Archer Lodge anticipates continued agricultural uses, single-family residential developments, and business development to be the future land uses in the town. Agricultural, residential, forest land, and single-family residential uses that are intersected by numerous streams currently make up most of the land area in Archer Lodge. See Figure 2-1 for future land uses around Archer Lodge (Source: Archer Lodge 2030 Comprehensive Land Use Plan, 2015). Figure 2-2 displays Archer Lodge's current land uses in a county-wide map.

*"The **infrastructure** in Archer Lodge has not kept up with the **growth** of the town."*

-Town of Archer Lodge Bicycle and Pedestrian Plan Survey Respondent



Existing development patterns in the town have led to decreased levels of connectivity, which make it difficult to promote active modes of transportation, such as walking and bicycling. Incremental and adjacent land use changes that promote a more bicycle and pedestrian infrastructure will lead to safer, connected communities. The following development standards are listed in the *plan* and will help promote a bicycle and pedestrian-friendly community for Archer Lodge:

- Walkable and bikeable site and infrastructure design
- Promotion of pedestrian friendly development
- Sidewalk standards and requirements
- Encouragement of traffic calming
- Encouragement of trails and walkable areas in large developments
- Pedestrian and mobility linkages between adjacent development

The following excerpts from the adopted *Archer Lodge Comprehensive Land Use Plan* support the *plan*:

- An infrastructure objective, “Encourage active and passive open space connectivity,” contains an action item to “Partner with public and private organizations to plan, map, design, build and connect trails and recreation facilities (Page 90).”
- An infrastructure objective, “Focus on complete streets design concepts incorporating multi-modal forms of transportation that incorporate bicycle, pedestrian and public transportation,” contains the action item, “Develop an “Infrastructure Statement” to submit to NCDOT (sidewalk and crosswalk requirements) and Plan for pedestrian and bicycle safety through the “Watch for Me NC” plan (Page 92).
- “Neighborhood/community business and office areas should complement the character of the surrounding development. Internal design of neighborhood/community business retail and office parks should be pedestrian friendly (Page 97).”
- According to development standards set forth in the plan, there should be pedestrian linkages between adjacent development (Page 98).”
- One policy for the downtown is to “Study and implement traffic calming methods (Page 100).”
- Development Standards (Page 103-105)
- Residential: “*Walkable and bikeable site design*”
- The following are promoted to support future suburban density:
 - Promote pedestrian friendly development
 - Sidewalks
 - Encourage traffic calming
 - Encourage trails and walkable areas in large developments

According to the plan, gateway corridors serve as major entranceways into the Town of Archer Lodge. They serve as the Town’s front door and their design influences visitor perception. The following two corridors have been designated as gateways for Archer Lodge (Page 105): Covered Bridge and Buffalo

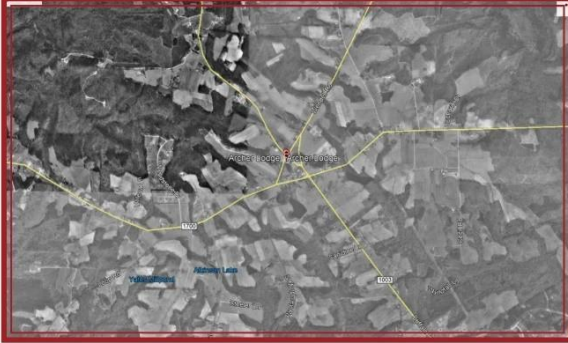


Roads: The Covered Bridge Road and Buffalo Road corridors to the Town of Archer Lodge limits is recommended for enhancements in accordance with the NCDOT Complete Streets Planning and Design

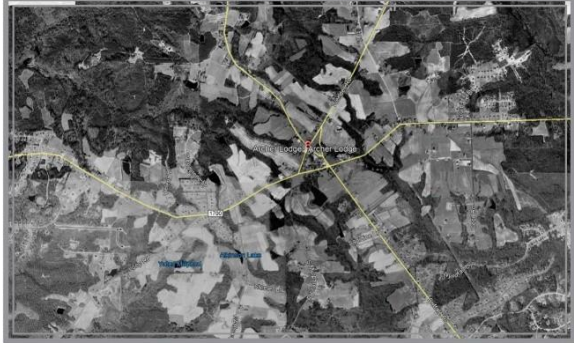
Guidelines (http://www.completestreetsnc.org/wp-content/themes/CompleteStreets_Custom/pdfs/NCDOT-Complete-Streets-Planning-Design-Guidelines.pdf)



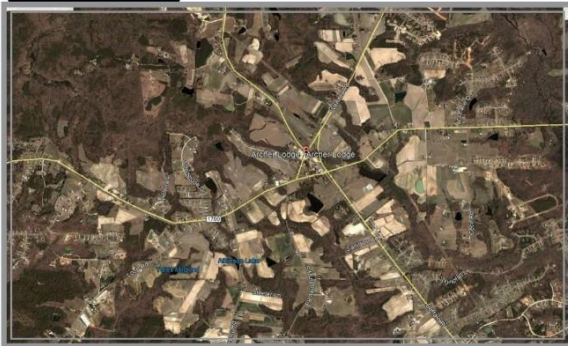
1993



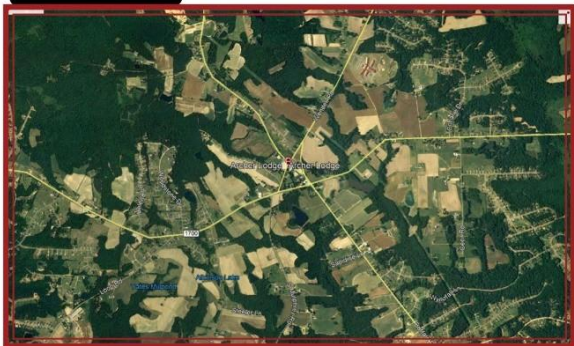
1999



2004



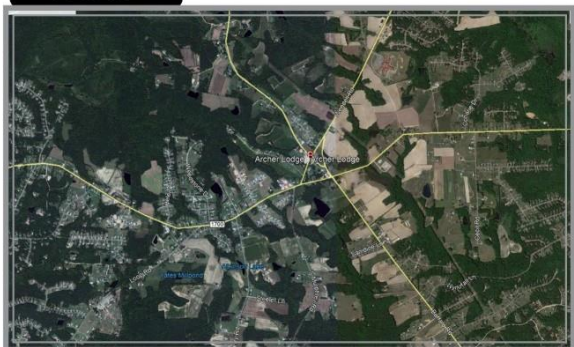
2009



2015



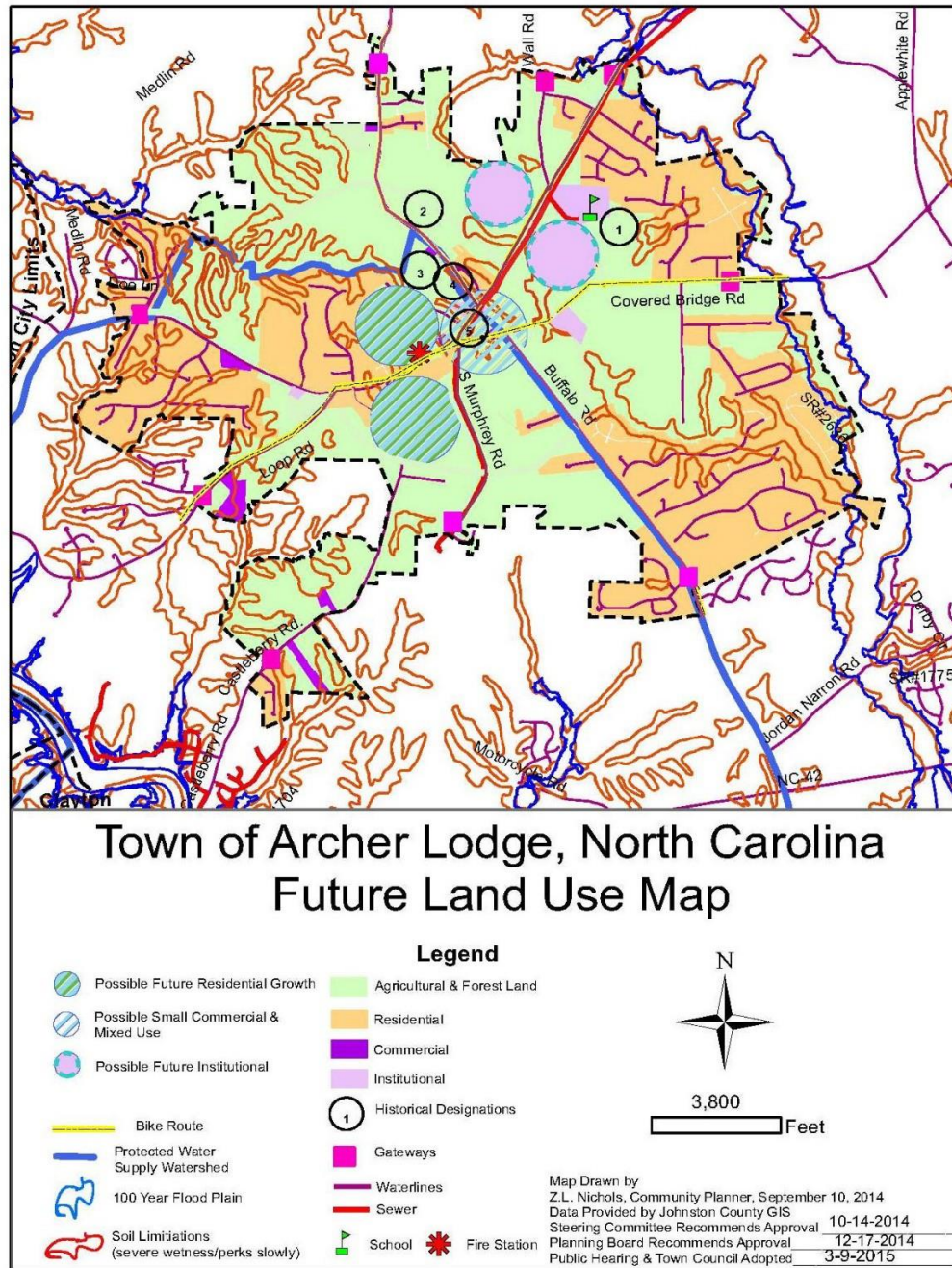
2018



Town of Archer Lodge Land Patterns 1993-2018
(Google Earth)



Figure 2-1: Future Land Use in the Town of Archer Lodge





Johnston County Land Use Plan

The [*Johnston County 2030 Comprehensive Plan*](#) was developed by Johnston County and adopted on March 2, 2009. The plan was built on discussions and initiatives that have taken place previously and was intended to address the following questions:

- Where are we today?
- Where do want to be in the future?
- How do we get there?

Currently, Archer Lodge is primarily composed mostly of residential areas and some agricultural and forested land (Figure 2-2). The Town of Archer Lodge is in the primary growth area land use designation in the county with a commercial activity node ranking of “Neighborhood Center”. The future land use continues to support the development in the town and its neighboring towns. Growth is likely occurring due to transportation access, proximity to Wake County and the Research triangle Park, and proximity to the County’s municipalities (Figure 2-3).



Figure 2-2: Existing and Future Land Use in Johnston County

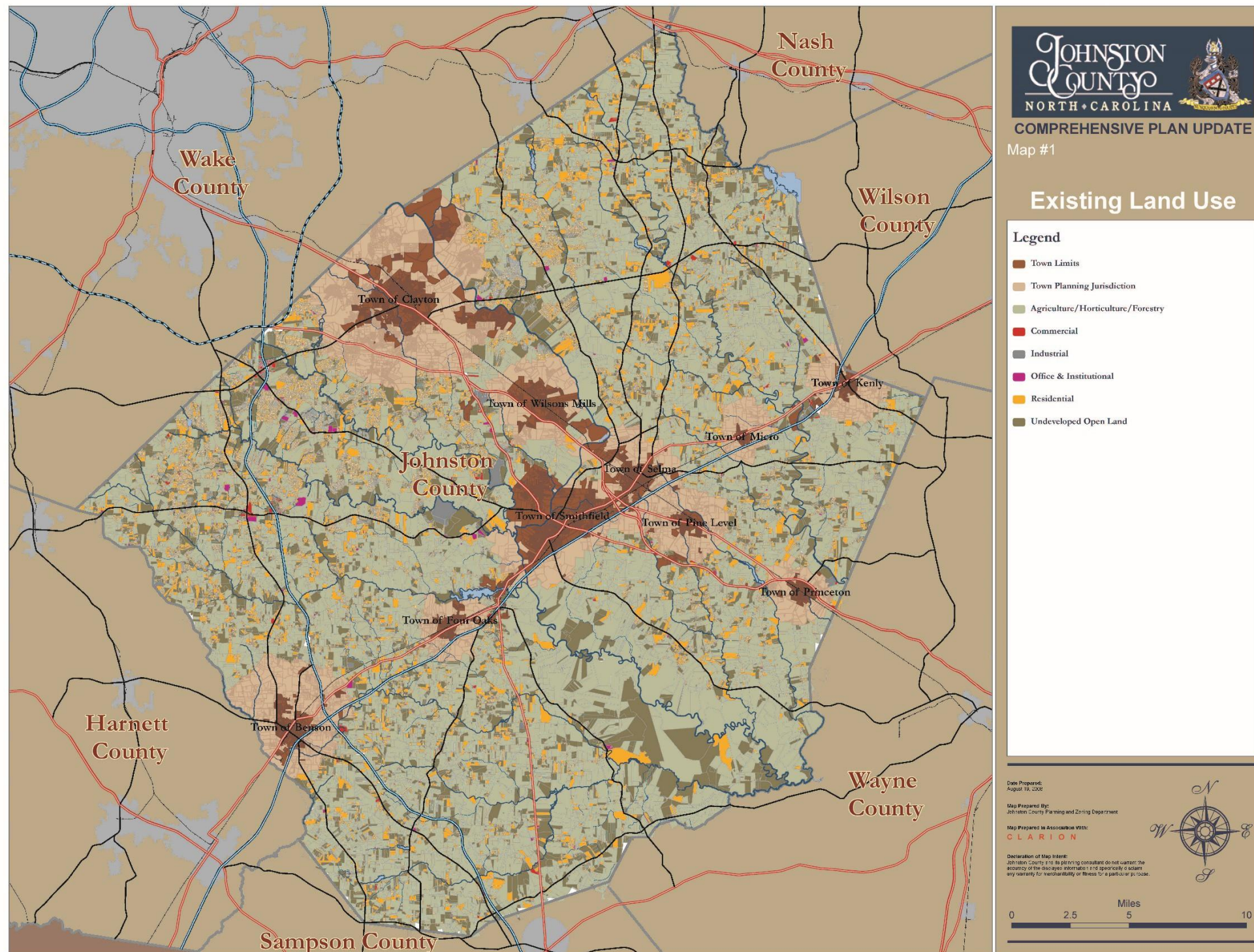
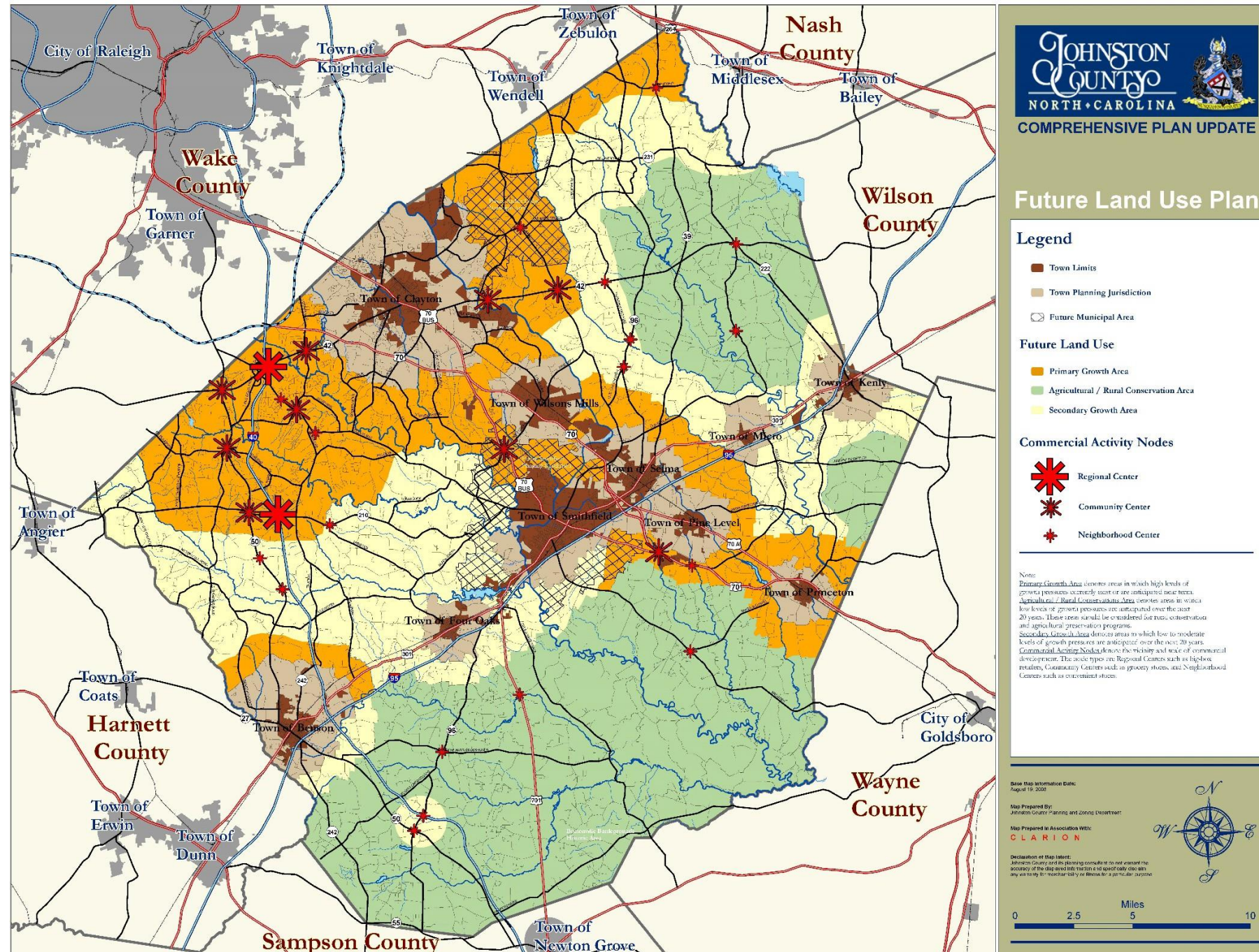




Figure 2-3: Future Land Uses in Johnston County





2.4 Existing Plans and Programmed Projects

The [*Town of Archer Lodge Comprehensive Parks and Recreation Master Plan*](#) (2015) and the [*Johnston County Comprehensive Transportation Plan*](#) (2014) are the primary guiding plans for the town's development of multimodal transportation recommendations.

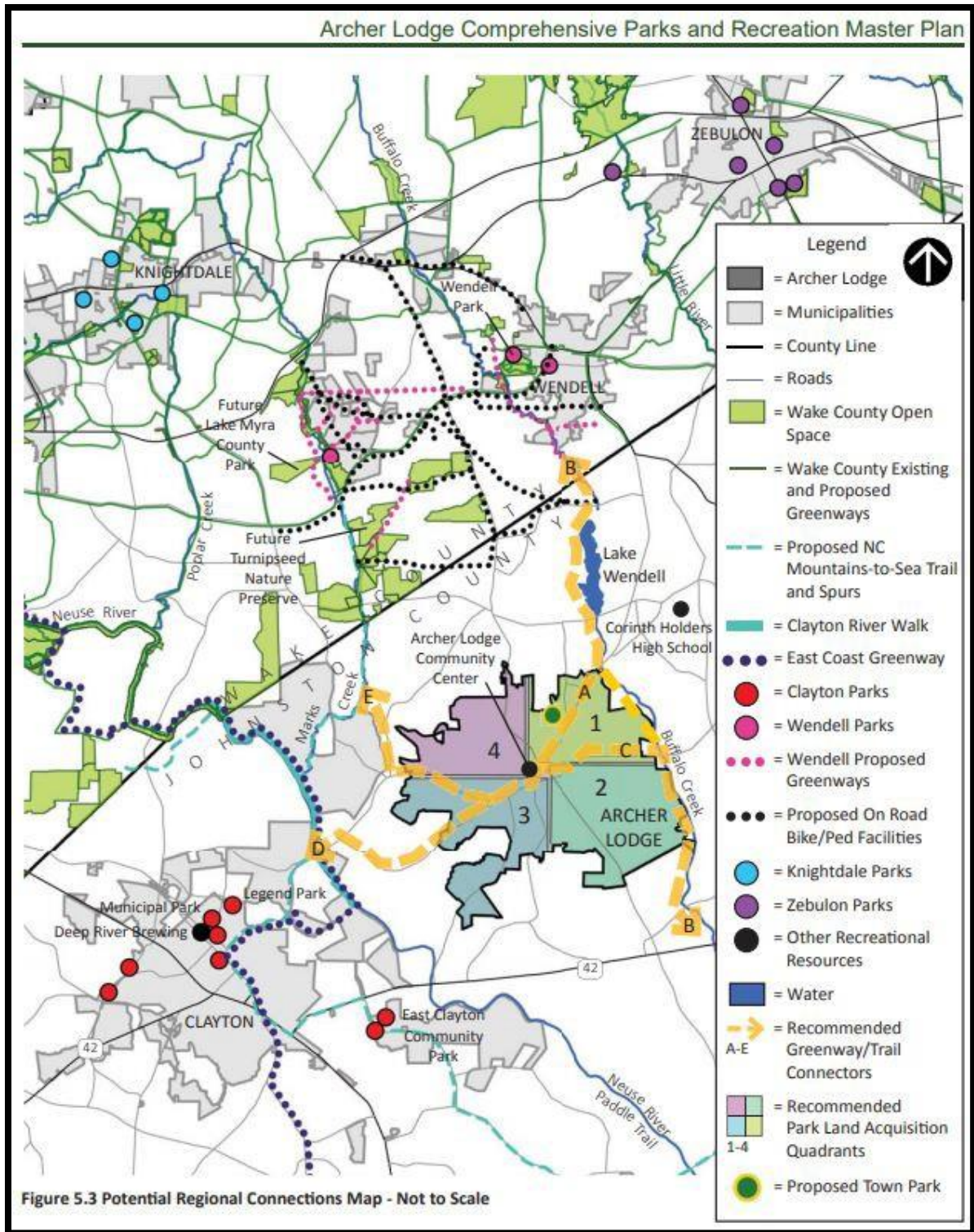
Archer Lodge Comprehensive Parks and Recreation Master Plan

The primary goal of the *Archer Lodge Comprehensive Parks and Recreation Master Plan* (2015) is to encourage mixed-use development that is compatible with the small-town character of Archer Lodge. To accomplish this goal, the town aims to provide recreational facilities, services, and programs, support a vibrant downtown with a village motif, and enhance the workforce by creating and retaining jobs. The emphasis of the mixed-use community vision for Archer Lodge will support shorter-length trips, thereby increasing the need for pedestrian and bicycle infrastructure throughout the town. According to the Regional Connections Map displayed in this plan (see Figure 2-4), there are no major recreational facilities located within Archer Lodge's municipal limits.

The *Archer Lodge Comprehensive Parks and Recreation Master Plan* recommends establishing regional connections from Archer Lodge to the following locations: The Town of Clayton, the national East Coast Greenway (an existing segment that incorporates the Neuse River Greenway and Mountains-to-Sea Trail), the Town of Wendell (via a greenway along Buffalo Creek), and Wake County's open space and trails network (via a greenway along Marks Creek). These recommendations both support and enhance [*Johnston County's Parks and Recreation Master Plan*](#) for the Mountains-to-Sea Trail. See Figure 2-4 for regional connections in and around Archer Lodge. The addition of bicycle and pedestrian facilities in Archer Lodge will encourage recreation in the community, and in return, this will promote healthy living and a higher quality of life for individuals living in the town.



Figure 2-4: Regional Connections Map





Johnston County Comprehensive Transportation Plan

The *Johnston County Comprehensive Transportation Plan* (CTP) was prepared in 2014 (revised in 2015) by the NCDOT Transportation Planning Branch in cooperation with Johnston County, the Town of Archer Lodge, the Town of Benson, the Town of Clayton, the Town of Four Oaks, the Town of Kenly, the Town of Micro, the Town of Selma, the Town of Smithfield, the Town of Wilson's Mills, the Upper Coastal Plain rural Planning Organization and the Capital Area Metropolitan Planning Organization. The CTP is a long-range multi-modal transportation plan that identifies major transportation improvement needs and develops recommendations through the year 2035. The plan includes at a minimum: population statistics, economic conditions, traffic patterns, existing and future land use, and highway, public transportation, rail, and bicycle conditions and projected needs.

The CTP addresses bicycle safety and connectivity needs in Archer Lodge. The following road projects are listed for bicycle improvements:

- Local ID JOHN0046-B: NC 42 from Mountains-to-Sea Trail (NC Bicycle Route 2/ JOHN0001-M) to Buffalo Road (SR 1003).
- Local ID JOHN0045-B: Archer Lodge Road (SR 1702) from Covered Bridge Road (SR 1700) to Wendell Road (SR 1701).
- Local ID JOHN0013-B: Buffalo Road (SR 1003) from Wake County to NC 42.
- Local ID JOHN0042-B: Wendell Road (SR 1701) from Buffalo Road (SR 1003) to Lake Wendell Road (SR 1716).

No pedestrian or multi-use projects are recommended for Archer Lodge in the CTP. As Archer Lodge's population continues to grow, it will need to reconsider the town's current street design in order to safely accommodate pedestrians and bicyclists.

Johnston County Community Health Assessment

The [*Johnston County Community Health Assessment*](#) (2006-2010) was prepared by the Johnston County Public Health Department. One of the primary health problems listed as having the largest impact on the community is being overweight or obese. A lack of exercise was listed towards the top of a ranking of unhealthy behaviors having the greatest impact on the Johnston County community. According to the American Lung Association, Johnston County's Ozone grade is "F", meaning that nine days over the standard, the county is in the orange ozone category and one or more days in the red, purple, or maroon categories. Unhealthy air quality may affect individuals who are sensitive to pollution and may experience chronic respiratory symptoms.

Bicycle and pedestrian accommodations can help improve public health by promoting healthy behaviors like regular exercise. Those who exercise regularly will likely choose to travel while using of active modes of transportation. In return, this will reduce dependence on automobiles and help improve local air quality.



2.5 Community Features

Archer Lodge has several community features that provide important services and enrich the quality of life for its residents. These features serve as potential pedestrian and bicycle origins and destinations. The Steering Committee reported current pedestrian and bicyclist activity at some of these places. For example, pedestrians have been seen crossing Buffalo Road to access the Community Center and the ballfield. These community features provide recreational opportunities for residents and are located at the heart of the town. By improving connectivity between these locations and Archer Lodge's neighborhoods, residents would be more likely to walk or ride a bicycle. These features are listed in Table 2-1 and mapped on Figure 2-5. An infrastructure project's ability to provide connectivity to these origins and destinations was one variable used to prioritize projects and is discussed further in Section 4.4.



Town of Archer Lodge Banner
(AECOM, 2019)

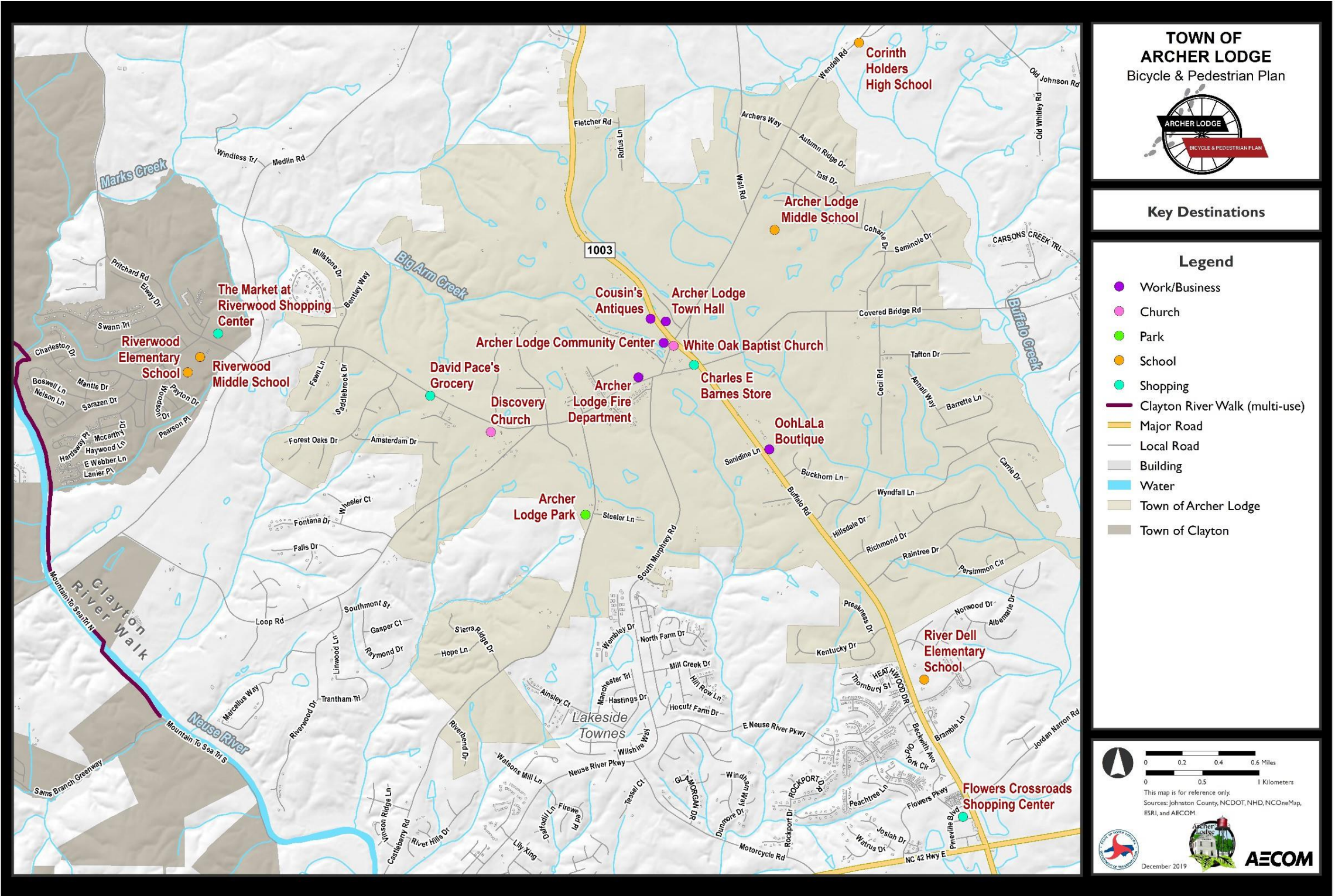


Table 2-1: Key Community Destinations

Name	Type
*Riverwood Elementary School	Education
*Riverwood Middle School	Education
Archer Lodge Middle School	Education
*River Dell Elementary School	Education
*Corinth Holders High School	Education
Archer Lodge Fire Department	Civic
Archer Lodge Community Center	Civic
Archer Lodge Town Hall and Veteran's Memorial	Civic
Archer Lodge Park	Recreational
*The Market at Riverwood Shopping Center	Business
*Flowers Crossroads Shopping Center	Business
David Pace's Grocery	Business
Charles E. Barnes Store	Business
Cousin's Antiques	Business
OohLaLa Boutique	Business
White Oak Baptist Church	Place of Worship
Discovery Church	Place of Worship
*Community facilities outside of Archer Lodge's town limits, but in close proximity. These are identified as potential bicycle and pedestrian destinations.	



Figure 2-5: Key Community Destinations





2.6 Infrastructure

Roads

The sudden increase in suburban development and rural nature of Archer Lodge has led to an inadequate and fragmented roadway system. Residential developments with one access point have prevented connectivity within the town and will contribute to long-term traffic problems if not addressed. The town has a variable topography and ditches line many of the main roads. Covered Bridge Road and Buffalo Road intersect to form the core of the town. Several of the roads leading into neighborhoods are private roads and, while still allowing bicycle and pedestrian access, they limit the types of bicycle and pedestrian facilities that are provided.

There is currently one NCDOT STIP project in Archer Lodge: W-5704E, which plans to widen Covered Bridge Road to three lanes from just west of Helena Lane to east of Buffalo Road. This project will add several turn lanes and realign South Murphrey Road to meet Archer Lodge Road. New traffic lights will be added at the intersections of Covered Bridge Road at Castleberry Road and at South Murphrey Road and Archer Lodge Roads. The design currently includes a sidewalk between Buffalo Road and Archer Lodge Road with curb and gutter. There is a second NCDOT project along Buffalo Road, contingency project 80094, that will install sidewalks on both sides of the road between the Archer Lodge Community Center and the Archer Lodge Town Hall. Both projects provide opportunities to expand pedestrian infrastructure within the town's center.

Characteristics of the road network in Archer Lodge including ownership, surface type, length, speed limits, traffic, right-of-way, resurfacing schedule, and barriers and limitations for bicycle and pedestrian infrastructure are summarized in Table 2-2. Most of Archer Lodge's main roads are two travel lanes that are approximately 10 to 12-foot wide. Most roads do not have sidewalks or curb and gutter sections, and instead, have grassed shoulders and drainage ditches. The pavement width ranges between 17 feet and 33 feet. The pavement widths in Table 2-2 do not include gutter pans. Existing sidewalks are discussed in Section 2.7 Existing Bicycle and Pedestrian Facilities. The speed limits vary between 35 mph in the downtown area and 55 mph on the main roads. Speed limits on residential streets vary between 20 and 35 mph (see Table 2-2).



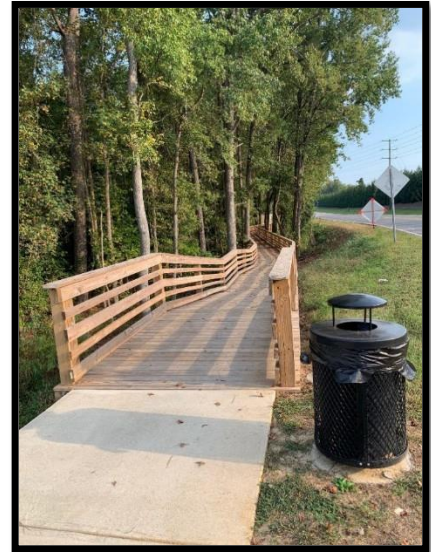
Intersection at Covered
Bridge Road and Buffalo Road
(AECOM, 2019)

Rights-of-way were estimated using aerial photography and NCDOT roadway data. Rights-of-way in the town vary between 50 and 60 feet. Streets with larger rights-of-way would more easily accommodate future infrastructure. The estimates for proposed projects would need to be verified during the feasibility and engineering phases of future projects.



Bridges

There are four bridges located just outside of Archer Lodge's municipal boundary. Three of the four bridges are classified by NCDOT as functionally obsolete. Bridge ID #500169 crosses the Neuse River on Covered Bridge Road next to the Clayton River Walk. This bridge contains walkable shoulders. Bridge ID #500175 is on Medlin Road and crosses over Big Arm Creek. The narrow shoulders on the bridge are unsuitable for pedestrian use. Bridge ID #500169 contains walkable shoulders and is located on Wendell Road and crosses Buffalo Creek. Bridge ID #500173 is on Covered Bridge Road and crosses Buffalo Creek; it contains wide paved shoulders. Wall Road contains a large culvert. There is one pedestrian bridge along Buffalo Road that runs between Bramble Lane and Jordan Narron Road.



Sidewalk and Pedestrian Bridge on
Buffalo Road, Flowers Plantation
(Out of town limits)
(AECOM, 2019)



Table 2-2: Archer Lodge Bicycle/Pedestrian Facilities Inventory by Street

Street	Ownership	Length (miles)	Speed Limit (mph)*	Traffic (2017 AADT)	Right-of-Way (feet)	Pavement Width (without gutter pan) (feet)	Curb/ Gutter	Existing Bicycle/Pedestrian Facilities	Constraints
Aldean Drive	NCDOT	0.2	35	n/a	50	19	No	No	Cul-de-sac
Allison Way	NCDOT	0.15	35	n/a	50	19	No	No	Cul-de-sac
Amsterdam Drive	NCDOT	0.49	25-35	n/a	50	19	No	No	Cul-de-sac
Annali Way	NCDOT	0.46	35	n/a	50	20	No	No	n/a
Archer Lodge Road	NCDOT	0.37	35	n/a	n/a	23	No	Short sidewalk next to White Oak Baptist Church	Ditch and trees
Archers Way	NCDOT	0.29	35	n/a	50	20	No	No	n/a
Autumn Ridge Drive	NCDOT	0.43	25	n/a	50	20	No	No	Dead end
Barrette Lane	NCDOT	0.63	35	n/a	50	20	No	No	n/a
Bentley Way	NCDOT	0.23	35	n/a	50	19	No	No	Cul-de-sac
Buckhorn Lane	NCDOT	0.40	35	n/a	50	20	No	No	Cul-de-sac
Buffalo Road	NCDOT	3.75	35-45	9,000	0	22	No	No	Ditches
Callie Court	NCDOT	0.11	35	n/a	50	20	No	No	Cul-de-sac
Castleberry Road	NCDOT	2.54	35-55	2,400	0	20	No	No	Ditches
Cecil Road	NCDOT	0.79	35	n/a	60	13	No	No	Dead end



Street	Ownership	Length (miles)	Speed Limit (mph)*	Traffic (2017 AADT)	Right-of-Way (feet)	Pavement Width (without gutter pan) (feet)	Curb/ Gutter	Existing Bicycle/Pedestrian Facilities	Constraints
Chatham Court	NCDOT	0.09	35	n/a	50	19	No	No	Cul-de-sac
Chesney Court	NCDOT	0.12	35	n/a	50	20	No	No	Cul-de-sac
Covered Bridge Road	NCDOT	4.42	35-45	3,900-6,400	0	20	No	No	Ditches
Deep Forest Lane	NCDOT	0.14	35	n/a	50	17	No	No	Cul-de-sac
Deerfield Trail	NCDOT	0.10	35	n/a	60	20	No	No	n/a
Doe Lane	NCDOT	0.21	35	n/a	60	19	No	No	Cul-de-sac
Fawn Lane	NCDOT	0.32	35	n/a	60	20	No	No	Cul-de-sac
Fletcher Road	NCDOT	0.26	35	n/a	60	20	No	No	Ditches
Forest Oaks Drive	NCDOT	0.82	25-35	n/a	50	20	No	No	Cul-de-sac
Glen Court	NCDOT	0.16	35	n/a	50	19	No	No	Cul-de-sac
Heart Wood Court	NCDOT	0.16	35	n/a	50	17	No	No	Cul-de-sac
Helena Lane	NCDOT	0.51	35	n/a	50	20	No	No	Cul-de-sac and light poles
Hillsdale Drive	NCDOT	0.26	35	n/a	50	19	No	No	Cul-de-sac
Kentucky Drive	NCDOT	0.66	35	n/a	60	19	Neighborhood entrance	No	Cul-de-sac
Kirkland Court	NCDOT	0.11	35	n/a	50	19	No	No	Cul-de-sac



Street	Ownership	Length (miles)	Speed Limit (mph)*	Traffic (2017 AADT)	Right-of-Way (feet)	Pavement Width (without gutter pan) (feet)	Curb/ Gutter	Existing Bicycle/Pedestrian Facilities	Constraints
Loop Road	NCDOT	1.06	35	1,200	n/a	24	No	Signed bicycle route	Ditches
Millstone Drive	NCDOT	0.63	35	n/a	50-60	18	No	No	Cul-de-sac
Nashville Drive	NCDOT	0.21	35	n/a	50	20	No	No	Cul-de-sac
Paisley Court	NCDOT	0.14	35	n/a	50	21	No	No	Cul-de-sac
Post Oak Court	NCDOT	0.16	35	n/a	50	18	No	No	Cul-de-sac
Preakness Drive	NCDOT	0.28	25	n/a	50	20	No	No	Cul-de-sac and ditch
Raintree Drive	NCDOT	1.01	n/a	n/a	n/a	26	No	No	n/a
Richmond Drive	NCDOT	0.87	35	n/a	50	20	No	No	Cul-de-sac
Riverbend Drive	NCDOT	0.28	35	n/a	60	20	No	No	Cul-de-sac
South Woodstone Drive	NCDOT	0.24	35	n/a	50	21	No	No	Cul-de-sac
South Murphrey Road	NCDOT	1.18	35	n/a	60	19	No	No	Ditch
Tafton Drive	NCDOT	0.49	35	n/a	50	21	No	No	Cul-de-sac
Triple Crown Circle	NCDOT	0.29	25	n/a	50	20	No	No	n/a
Wall Road	NCDOT	1.49	35-55	n/a	n/a	19	No	No	Ditches
Wendell Road	NCDOT	1.91	35-55	n/a	n/a	33	No	No	Ditches



Street	Ownership	Length (miles)	Speed Limit (mph)*	Traffic (2017 AADT)	Right-of-Way (feet)	Pavement Width (without gutter pan) (feet)	Curb/ Gutter	Existing Bicycle/Pedestrian Facilities	Constraints
Woodstone Drive	NCDOT	0.68	35-35	n/a	60	23	No	No	Dead end
Wyndfall Lane	NCDOT	1.46	25	n/a	50	22	No	No	n/a



Railroad

There are currently no operational railways in Archer Lodge. The closest railroad is the Norfolk Southern Railway located in Clayton.

Public Transportation

Johnston County Area Transit System (JCAT) provides demand response transit services to Johnston County residents. JCAT operates over 30 ADA compliant buses and vans. Johnston County Transit offers transportation for both the general public and through contracting human service agencies. Buses and vans operate Monday through Friday, 4:30 AM to 9:00 PM and on Saturdays between 4:30 AM and 5:00 PM. The fare is \$5.00 per ride in the county and \$15.00 per ride out of the county. JCAT provides medical trips in and out of the county, trips to workplace and job training, as well as senior centers, child care centers, social services, public hearings, and dental care. The buses can accommodate riders in wheelchairs. In addition, JCATS strives to provide Rural General Public (RGP) transportation to school, work, and appointments, at a reduced cost to riders. RGP services are provided between 6:00 AM and 5:00 PM, Monday through Friday.

Although public transportation services are limited, they depend on a bicycle and pedestrian network for transit riders to safely access transit stops. Furthermore, the proposed bicycle and pedestrian network links transit stops to community destinations, residences, and businesses. A connected bicycle and pedestrian network would support future expansion in public transportation by providing safer access to transit stops on streets and sidewalks.

Utilities

Utilities are an important consideration for bicycle and pedestrian planning. Relocating or replacing existing utilities to make room for new bicycle and pedestrian infrastructure can be costly and, in some cases, cost-prohibitive. Table 2-3 lists where above-ground utilities become barriers to bicycle and pedestrian improvements. Often, sidewalks and multiuse paths are located on the side of the road where utilities are not present. The exact location of utilities would need to be surveyed during the feasibility/engineering phase of each project. Coordination would need to occur with utility providers during design and before construction. General information about utilities in Archer Lodge is noted in Table 2-3 below.

Table 2-3: Utilities

Utility	Provider	Location
Electricity	Duke Progress Energy	Above ground
Telephone	AT&T, CenturyLink, Spectrum	Above ground
TV/Internet	CenturyLink, Spectrum	Above and below ground
Natural Gas	None	Not available
Water	Johnston County	Below ground
Sewer	None	Not available



2.7 Existing Bicycle and Pedestrian Facilities

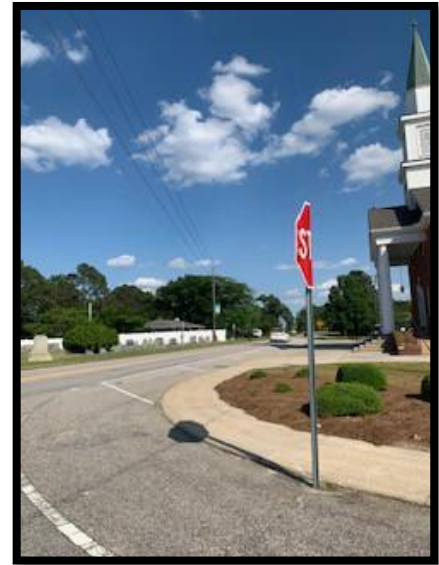
Pedestrian

Sidewalks

Archer Lodge has one existing sidewalk within its municipal boundaries. This sidewalk runs along the corner of Archer Lodge Road and Buffalo Road next to the White Oak Baptist Church. It is in good condition and has lighting above it.

Existing sidewalk facilities are listed in Table 2-4 and are mapped on Figure 2-6. Overall, the sidewalk network in Archer Lodge is poor. All neighborhood streets and streets in downtown Archer Lodge lack continuous sidewalk facilities. Sidewalks are needed to improve safety and expand the connectivity between key destinations within the community.

The sidewalk in downtown Archer Lodge between Buffalo Road and Archer Lodge Road is four to five feet-wide. This sidewalk primarily serves the White Oak Baptist Church and does not connect the church to nearby destinations within the town. Pedestrian traffic in this area is heavier than in the rest of the town and the current sidewalk lacks connectivity with nearby destinations like the C.E. Barnes Store and Archer Lodge Community Center. A continuous sidewalk would allow for easier pedestrian travel and safer walking conditions in this busy area of town.



Sidewalk at White Oak Baptist Church
(AECOM, 2019)

Table 2-4: Existing Sidewalk Facilities

Street	From	To	Sidewalk Width (ft.)*	Condition	Street Lighting
Archer Lodge Rd.	Archer Lodge Rd.	Buffalo Rd	4	Good: cracked portions	One corner street light
Buffalo Rd.	Buffalo Rd.	Archer Lodge Rd	4	Good: cracked portions	One corner street light
**South Murphrey Road	Lakeside Townes	Lakeside Townes	6	Good	Two lights next to the neighborhood entrance

*Current NCDOT standards require a 5-foot sidewalk width, and 5.5 feet on bridges. Greater widths are recommended in areas with high pedestrian activity.

** Sidewalk facilities outside of Archer Lodge town limits but within close proximity.



In addition to the street lighting noted above, overhead streetlights are located intermittently throughout the town. Duke Energy Progress installed a total of 27 street lights throughout the center of the town in March 2012. These lights were installed to illuminate dark intersections.

Crossing Facilities

In addition to sidewalks, there is one four-way crossing at the intersection of Buffalo Road and East Neuse River Parkway in front of River Dell Elementary School. A second crosswalk runs parallel with Buffalo Road at the River Dell Elementary School, summarized in Table 2-5. Both crossing facilities are outside of Archer Lodge Town Limits.

Table 2-5: Existing Crosswalks

Location	Type	Visibility	Pedestrian Signals
Buffalo Road	Four-way crossing at intersection	Visible striped pavement markings	No. 4-way stop signs present.
River Dell Elementary Entrance	Crossing	Visible striped pavement markings	No. 4-way traffic signal present.

The two existing crosswalks along Buffalo Road and in front of River Dell Elementary School benefit from bold, visible striped pavement markings on which pedestrians can cross the street. Although these pavement markings are visible to motorists, pedestrians would benefit from increased signage and pedestrian crossing signals to increase safety.

Bicycle Facilities and Multi-Use Trails

Archer Lodge does not have marked bicycle lanes or wide paved shoulders within its border. The town collaborates with county and other local municipal and governmental entities, as well as other local stakeholder organizations, in maintaining nearby recreational bicycle trails and bicycle routes throughout the area. There is one signed bicycle route along Loop Road. The Clayton, Archer Lodge, Wilson's Mill Loop bicycle trail runs along the nearby Clayton River Walk Greenway which is part of the Mountains-to-Sea Trail and is located off Covered Bridge Road where it crosses the Neuse River. The surface of the trail is paved with asphalt and is 10 feet wide.

2.8 Bicycle, Pedestrian, and Vehicular Traffic Counts and Crash Data

Bicycle and Pedestrian Activity

Although actual bicycle and pedestrian counts were not available for this *plan*, the Steering Committee and public meeting participants noted bicycle and pedestrian activity along Loop Road, at the Archer Lodge Community Center, along the existing multi-use path on South Murphrey Road, and the nearby Clayton River Walk Trail. The Trail is four miles long and has become a popular nearby attraction for Archer Lodge's community. The Steering Committee and public meeting participants also noted pedestrian activity and



pedestrian safety concerns around Pritchard Road and the Archer Lodge Community Center located off Buffalo Road.

NCDOT Annual Average Daily Traffic Counts

NCDOT prepares Annual Average Daily Traffic (AADT) counts for state roads, which represent the daily traffic average over the year at specific points. These counts, in conjunction with field visits and discussions with residents, help identify high traffic areas that may pose safety concerns for pedestrians and bicyclists.

Several roads within Archer Lodge have traffic counts available. Buffalo Road which runs through the center of the town, had the highest traffic count in 2017 at 9,000 total counts. Traffic was also heavy on Covered Bridge Road at 3,900 to 6,400 counts and on Castleberry Road at 2,400 counts. The 2017 AADT counts for Archer Lodge are listed in Table 2-6.

Table 2-6: Annual Average Daily Traffic (AADT) Counts

Street	Location	AADT (2017)
Buffalo Road	Runs perpendicular to Covered Bridge Road	9,000
Covered Bridge Road	Runs perpendicular to Buffalo Road	3,900-6,400
Castleberry Road	Connects to Covered Bridge from the south, east of South Woodstone Drive	2,400
Loop Road	Creates a loop with Covered Bridge Road and links to Covered Bridge Road near the Neuse River and west of South Woodstone Drive	1,200

Crash Data

The Division of Integrated Mobility in collaboration with local law enforcement departments developed a dataset for all reported bicycle and pedestrian crashes⁵ within the state between the years of 1997 and 2016. According to this dataset, between a five-year period from 2012 to 2016, 51 bicycle crashes and 185 pedestrian crashes were reported in Johnston County. Six of the bicycle crashes occurred due to undetected bicyclists by the motorists. Of the pedestrian crashes, 31 occurred when the pedestrian was hit from behind while walking along the roadway with traffic. Pavement markings or signage may promote driver awareness that bicycle users will be sharing the road. Construction of sidewalks along roads will deter the public from walking in the streets and help create a safer space between sidewalk users and cars.

⁵ North Carolina Pedestrian and Bicycle Crash Data Tool



General safety concerns cited by the Steering Committee include the following:

- Crosswalks are needed for bicycle and pedestrian access to trails and important downtown destinations
- Connected sidewalk networks are needed
- Limited lighting
- Overall lack of bicycle facilities
- Overall lack of sidewalk facilities

2.9 Existing Bicycle and Pedestrian Programs

Archer Lodge is currently working to offer programs that specifically support bicycle or pedestrian education, encouragement, or enforcement. The town recognizes the importance of promoting physical activity that encourages healthier living and plans to assist with the expansion of Community Center programs, such as the development of a walking/running club, bicycling classes, and other pedestrian and bicycle programs.

Currently, the town has an active and popular recreation program through the Archer Lodge Community Center. The Archer Lodge Community Center is a non-profit entity which operates several highly popular youth sports, fitness, and recreation programs, and is located at the heart of the town center. It is also considered a high-use pedestrian area. The Archer Lodge Community Center includes a 0.33-mile walking trail that is frequently used by nearby residents. The Community Center also partners with the National Down Syndrome Society to raise money for family support and encourages exercise at the same time.

To support Archer Lodge's commitment to healthy lifestyles, the Archer Lodge Governing Body has allocated funds annually and may continue to allocate funding to the Archer Lodge Community Center for facilities and programs that promote active living. The *Bicycle and Pedestrian Plan* will allow the town to provide bicycle and pedestrian

facilities that enhance and complement the Archer Lodge Community Center facilities developed through this allocation.



Archer Lodge Community
Center Buddy Walk
(AECOM, 2019)

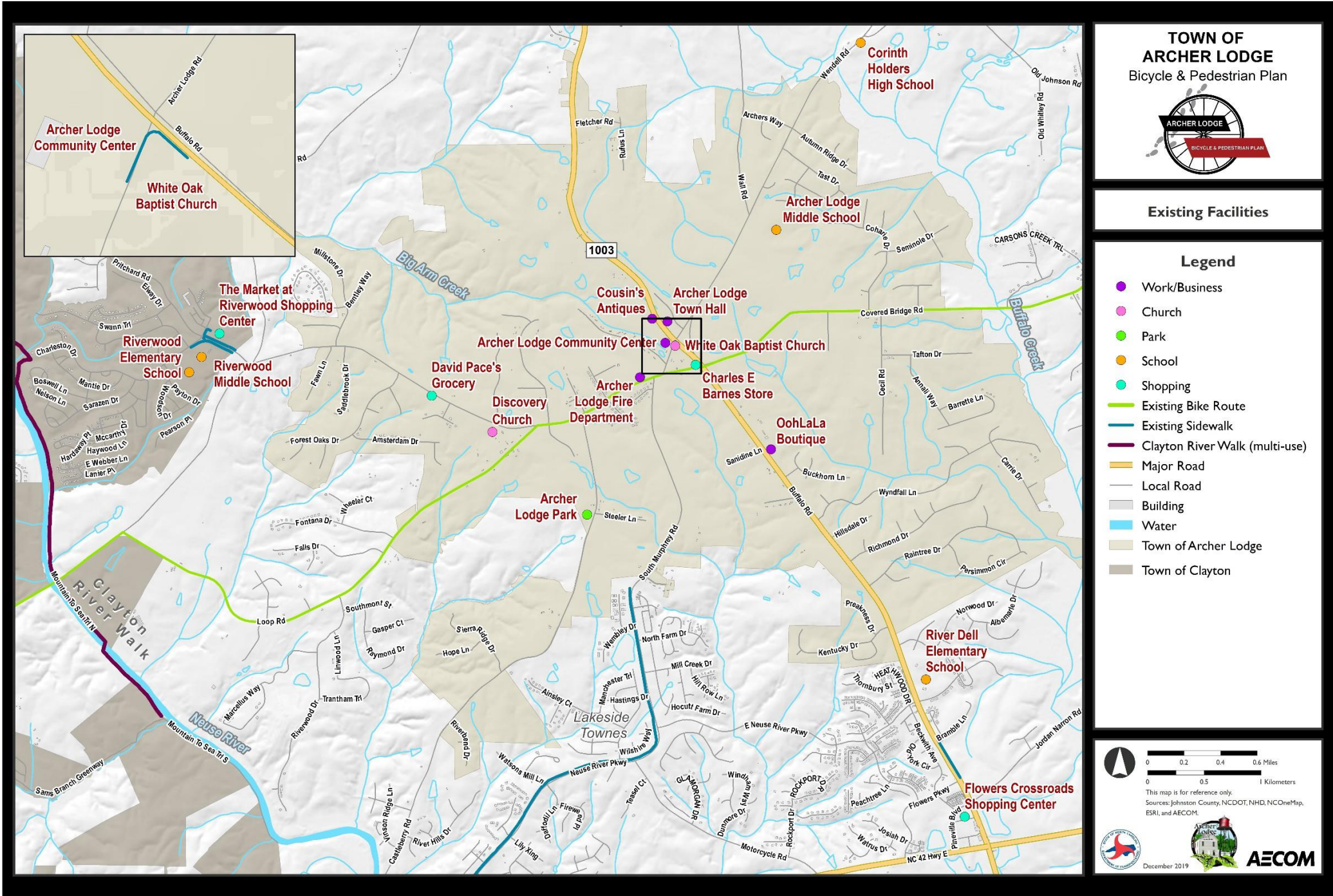
The town has recently acquired land and plans to develop a town park within the next few years. This park will be a central node and destination for bicycle and pedestrian facilities that navigate through the town and connect to regional networks.



Riverwood Elementary staff and students met at a local coffeehouse to participate in National Walk to School Day. The walk to school day coincides with the *International Walk to School Week* which typically falls on the first week of October. Further participation in this event may encourage students to walk to school more frequently.



Figure 2-6: Existing Facilities





2.10 Opportunities and Constraints

Opportunities for improving bicycle and pedestrian mobility and safety were identified as well as potential constraints to overcome achieving the community's vision for multimodal access and safety. Archer Lodge's location in the Neuse River watershed creates bicycle and pedestrian opportunities, as well as challenges to the implementation of associated infrastructure. Connecting to existing bicycle and pedestrian infrastructure will allow users to explore the natural setting in and around the town, as well as add to the small-town charm of the community while also providing economic benefits to local businesses.

Opportunities

1. Key destinations located near one another provide an opportunity for sidewalk and bicycle network growth.
2. Economic growth and investments that result from visitors using bicycle and pedestrian facilities including nature trails. The town and the surrounding area are popular amongst bicyclists drawn to the rural character that the town provides. Recreational riders in the town commonly access the several Clayton bicycling routes and trails by connecting from downtown Archer Lodge to the surrounding area.
3. Natural resources, topography, and attractive rural landscapes that draw local and regional visitors.
4. Future development will provide opportunities for new bicycle and pedestrian infrastructure.
5. Coordination with bicycle and pedestrian organizations/clubs like Safe Routes to School to help develop local activities and events, such as a bicycle rodeo or providing bicycle helmets to children.

Constraints

1. Existing sidewalks do not form a connected network.
2. Unsafe intersections for accessing trails and important destinations.
3. Roadways with limited rights-of-way for sidewalks or bicycle lanes that need retrofitting.
4. Existing Town policies and ordinances that require sidewalk and bicycle infrastructure to be constructed as part of development need re-evaluated due to changing conditions.
5. Terrain, streams, and ditches, and right-of-way challenges increase engineering and construction costs of pedestrian infrastructure and subdivision connectivity.
6. Existing and new development patterns have resulted in a lack of connectivity between neighborhoods and key community destinations.
7. Difficulties in coordinating/funding improvements for local/regional greenways and trails that involve multiple stakeholders.



3.0 Public Input

3.1 Steering Committee

The Steering Committee that guided this *plan* was formed as a dedicated group of local officials, staff, stakeholders, and citizens to incorporate a diverse range of community perspectives. The committee met three times throughout the planning process to help shape the *Bicycle and Pedestrian Plan* by identifying goals and objectives, identifying pedestrian constraints and opportunities, and prioritizing proposed projects.

At the first Steering Committee meeting on January 31, 2019, the group chose a vision statement for the *plan* and discussed issues the community is facing with regards to bicycle and pedestrian infrastructure. Members focused on developing a vision and set of goals for the *plan*. The committee broke into groups during a working session to define bicycle and pedestrian origins, destinations, activity, and areas of concern. These areas of concern were used to start thinking about potential projects, policies, or programs. The committee discussed focusing on connectivity, safety, and implementable projects.



First Steering Committee Meeting
(AECOM, 2019)



Second Steering Committee Meeting
(AECOM, 2019)

The second Steering Committee meeting was held on May 8, 2019. Sample projects, policies, and programs were presented to the committee in preparation for a working session. The working session captured committee input on bicycle and pedestrian infrastructure projects as well as relevant policies or programs. Specifically, focus was placed on linear facilities and spot improvements, connections and gaps in bicycle and pedestrian infrastructure, and amenities. The feedback gathered during this meeting was used to develop preliminary recommendations.



The third Steering Committee meeting was held on October 2, 2019, at the Archer Lodge Community Center. During this meeting the Steering Committee was asked to help prioritize a list of recommended projects by scoring the projects based on various criteria including connectivity, demand, equity, and safety. The selected criteria were based on Steering Committee preference gleaned during the second meeting in May, as well as consultant recommendation. The Steering Committee was also asked to help identify which types of policy and programmatic recommendations would be made in the plan. The feedback from this meeting, as well as the second public meeting discussed below, was used to refine the recommendations made in the plan.



Third Steering Committee Meeting
(AECOM, 2019)

Table 3-1: Steering Committee

Steering Committee Members	
Donna Bailey-Taylor	Mike Gordon
Kim Batten	Mark Jackson
Terry Barnes, Alternate	Joyce Lawhorn
Teresa Bruton	Julie Maybee
Sarah Campbell	Braston Newton
Dene Castleberry	John Oglesby
Bob Clark	Pam Smith
Robert Davis	Andrew Thomas
Charles Ferrell	Kenneth Withrow
John Goldman	Haley Hogg

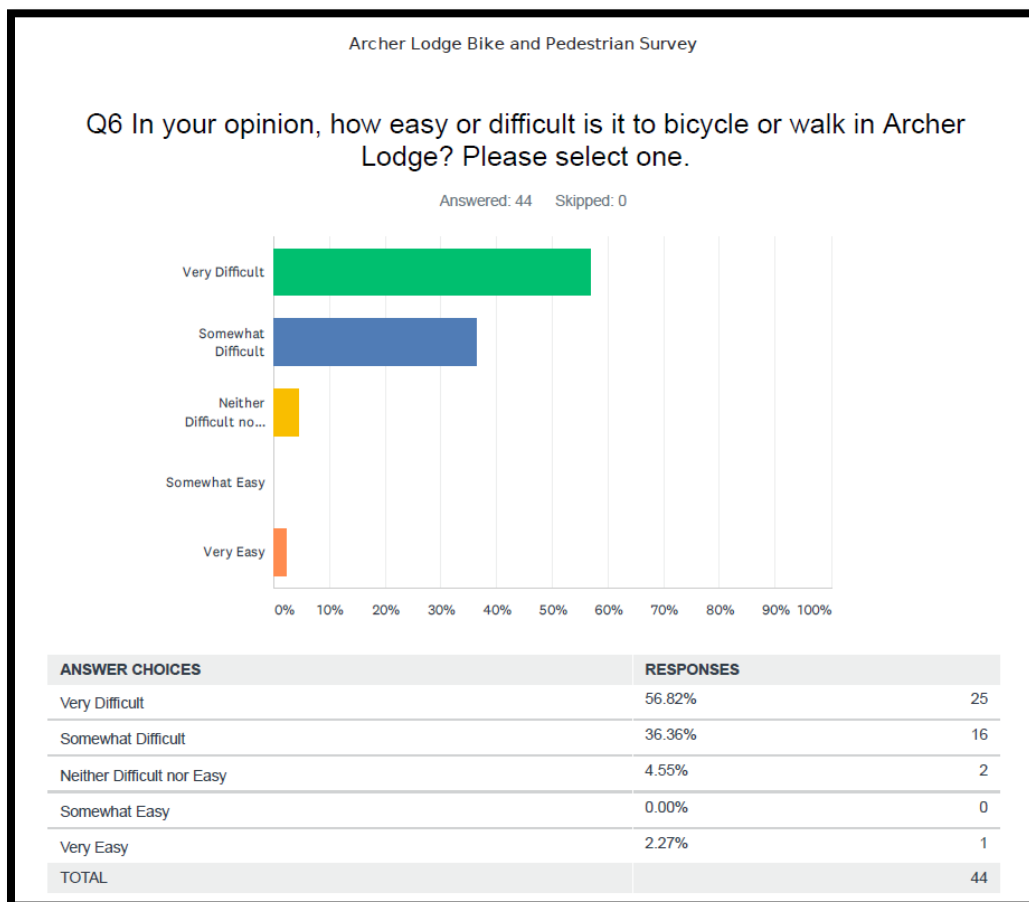
3.2 Public Meetings

The first public meeting was held on May 8, 2019, immediately following the second Steering Committee Meeting. The second public meeting was held on October 2, 2019, immediately following the third Steering Committee Meeting. The purpose of these meetings was to provide a brief presentation about the planning process and present highlights from the plan. Maps displaying the recommended projects were provided during these meetings. A copy of all meeting materials is provided in Appendix A: Public Involvement.



3.3 Community Survey Results

An online survey was made available to Archer Lodge’s residents from March to July 2019 to gather local information about current travel behaviors, priorities, and opportunities for bicycling and walking in Archer Lodge. Information from the survey has been included in this *plan’s* recommendations. The following sections summarize the key themes from the forty-four survey responses received. An example of a survey question is provided below. Complete survey responses can be found in Appendix A.



Sample Question from the Online Survey

(AECOM, 2019)

Themes

The most frequently reported purposes of bicycling and walking trips in Archer Lodge during a typical week involve trips along the Clayton River Walk Trail, Archer Lodge Road, Buffalo Road, South Murphrey Road, and traveling to key destinations such as the Archer Lodge Community Center and C.E. Barnes Store. Access to parks and trails emerges as a central theme in which residents either express their desire to use parks and trails and note the existing roadway or sidewalk facilities are limited by lack of connectivity or barriers that limit



access. Although physical activity is a priority amongst residents, almost 57 percent of survey respondents said bicycling or walking in Archer Lodge is very difficult. Specifically, bicycling is difficult because of the limited availability of bicycling facilities, and safety concerns due to heavy two-way vehicle traffic, and speeds. Walking is difficult because of the poor condition of pedestrian facilities and lack of a complete sidewalk network linking pedestrians to desired destinations.

*“I am an **avid walker** and would love to walk to the **C.E. Barnes General Store** or the newly planned **park** in the future.”*

-Town of Archer Lodge Bicycle and Pedestrian Plan Survey Respondent

Priorities to Improve Bicycling and Walking

To address the current challenges in bicycling and walking to parks, trails, and downtown, survey respondents’ primary priority is infrastructure: particularly improving and adding new bicycling and pedestrian facilities, providing more and safer connections to the future park location, and maintaining these facilities over time. In addition, respondent’s highlighted ordinances and policies as ways to help the town enhance bicycle and pedestrian activities within the community. Coordination with neighboring jurisdictions to expand the regional network of bicycle routes was also listed as a priority in the online survey.

Archer Lodge residents had opportunities in the survey to provide recommendations with specific locations in need of attention, and the following four points summarize these responses:

1. **Connecting neighborhoods, parks, and trails:** Many respondents requested complete bicycling and pedestrian networks that do not require users to drive and park at a park or trail entrance.
2. **Bicycling and walking safely around downtown and schools:** Several streets were identified as unsafe because of a lack of sidewalk infrastructure, a lack of bicycle lanes, and limited vehicle speed regulation. Buffalo Road, Covered Bridge Road, South Murphrey Road, and Pritchard Road were listed as roads with safety concerns.
3. **Promoting bicycle and pedestrian safety education:** Training may take place at the Archer Lodge Community Center, Archer Lodge Fire Department, or other community building. Educational programs may cover topics like bicycle helmet training and safety on trails.
4. **Promoting expansion of bicycle and pedestrian amenities on existing roadways through local ordinances:** Respondents suggested that Archer Lodge officials utilize local ordinances to maintain, protect, and expand bicycling and pedestrian facilities as improvements and developments are built.



Archer Lodge Town Hall Bicycle and Pedestrian Meeting Notice
(AECOM, 2019)



4.0 Recommendations

4.1 Overview

Active transportation, such as bicycle and pedestrian travel, offers many benefits including improved health, reduced environmental impacts, and fewer financial commitments from decreased dependency on the automobile. This section describes the infrastructure improvements that are recommended to provide the Town of Archer Lodge with a safe, accessible, and connected bicycle and pedestrian network.

Recommended improvements in this *plan* include improving on-road bicycle facilities, sidewalk upgrades, and crossing improvements. Multi-use facilities (shared use paths, also known as greenways) are recommended near the Archer Lodge Park and along the Duke Energy Conservation Easement.

All proposed projects are intended to provide safe connections between origins and destinations within the town while promoting exercise and mobility. The projects were developed through collaboration with the Steering Committee, field analysis, and public input. All bicycle and pedestrian facility recommendations along NCDOT maintained roadways will require coordination with NCDOT Highway Division 4 as part of implementation.

4.2 Facility Types

Spot Improvements

Spot Improvements address bicycle and pedestrian problems at specific locations such as intersections, short lengths of a roadway, or single destinations. These types of improvements are generally low cost and provide enhancements through surface improvements, signing, access enhancements, or functional upgrades.

Spot Bicycle Facilities

Bicycle Parking: A rack or object provided specifically for the purpose of supporting and enabling a bicycle to be secured when not in use. A bicycle corral is a type of bicycle parking used in high-demand areas for the parking of multiple bicycles.

Bicycle Signal: A traffic control device that assigns right-of-way to bicyclists and controls bicycle movements in mixed traffic to reduce conflict with motor vehicles and/or pedestrians.

Bicycle Zone: An area in the public right-of-way reserved for bicycling facilities.

Signage: Sign categories include warning (e.g., turn signs), regulatory (e.g. stop signs), guide (e.g., bicycle route signs), school (e.g., school speed limit signs), and emergency signs (e.g., area closed signs).



Spot Pedestrian Facilities

Crosswalk: The portion of the roadway intended for pedestrians to use in crossing the street. It may be distinctly indicated for pedestrian crossing by lines or other markings on the surface. At intersections with sidewalk present, the crosswalk is the marked or unmarked part of the roadway where the lateral boundary lines of the sidewalk would extend across.

Crossing Island / Mid-Block Crossing: A raised island at intersection or mid-block crossing location that helps to protect crossing pedestrians from motor vehicles and provides a place of refuge.

Curb Extension: An extension of sidewalk, landscaped area, or curb line into the roadway that reduces the crossing distance and enhances visibility for pedestrians and may reduce traffic speed.

Curb Ramp: A combined ramp and landing to accomplish a change in level at a curb between the sidewalk and the street. This element provides a transitional access between elevations for pedestrians using wheelchairs, strollers or other devices with wheels, and must comply with [Americans with Disabilities Act \(ADA\)](#) standards.

High Visibility Crosswalks: A crosswalk marked with diagonal or longitudinal lines parallel to traffic flow, such as the ladder, continental or bar pair marking pattern.

Lighting: Illumination provided to enhance the safety and comfort of pedestrians and bicyclists. High quality and well-placed lighting, including supplementing pedestrian-scale lighting at night-time crossing areas, increases safety and security for non-motorized users.

Pedestrian Hybrid Beacon: A pedestrian-activated device used to warn and control traffic at an unsignalized location to assist pedestrians in crossing at a marked Crosswalk.

Spot Multiuse Facilities

Paving Treatment: Paving treatments can send a visual cue to motorists about the function of a street. They can also create an aesthetic enhancement of a street and be used to delineate separate space for pedestrians or bicyclists. Some examples include colored concrete, brick, and cobblestone.

Trailhead: A trailhead is the primary access point to a shared use path. It may have parking and other amenities at the terminus.

Wayfinding: Comprehensive signage and/or markings to guide travelers to their destinations along preferred routes by providing information such as distances or times to reach key destinations or areas.

Linear Improvements

Linear Improvements are specific to linear project needs for bicycle and pedestrian problems such as enhancement or new construction of bicycle lanes, sidewalks, or improvements to streetscapes. These types of improvements are generally larger infrastructure projects with higher costs and longer implementation timeframes and together form a network of safe transportation choices for the community.



The following are suggested linear bicycle and pedestrian facilities that could be feasible in the Town of Archer Lodge based on planning-level analysis and local stakeholder preference. This is not an exhaustive list and are terms defined by NCDOT.

Linear Bicycle Facilities

A successful bicycle network consists of bicycle facilities which allow for the safe and efficient movements of cyclists within and throughout a given area.

Buffer: A strip of land that separates the sidewalk, or other facilities, from the street to improve the active traveler's level of comfort. A buffer can be comprised of one or multiple zones including the green zone, bicycle zone, parking/transit stop zone or a combination thereof. Typical elements that contribute to creating a buffer include landscaping strips, parked cars and/or bicycle lanes.

Bicycle Route: A segment of road identified as a path of travel for bicyclists between destinations which may have directional and informational signage and markings. While these routes are identified for use by bicyclists, they are not necessarily exclusive to bicycle transportation. Routes may exist at the national, state, county and local level.

Markings: Provide information, guidance, regulation, or warnings to road users. As a proposed implementation method, marking means striping or painting facilities such as shared lane markings or bicycle lanes without any need for additional improvements or adjustments to the roadway.

Paved Shoulder: The portion of the roadway contiguous with the travel lanes that accommodates stopped vehicles, emergency vehicles, and reduces the frequency of pavement maintenance is referred to as a paved shoulder. Shoulders, where paved and of sufficient width, may be used by bicyclists. Bicycle lane pavement markings may be used to designate the shoulder as a bicycle lane. In rural areas, paved shoulders are also used by pedestrians where a sidewalk is not present.

Reallocation: A technique to modify the number or width of travel lanes to achieve systemic improvements such as adding a bicycle lane to an existing roadway with confined right-of-way. Variants of reallocation include 4-to-3-lane conversion, lane reduction, or reconfiguration.

Repave: Proposed implementation method to improve a facility for bicyclists by capitalizing on the routine paving or resurfacing maintenance schedule.

Restripe: Adjustment in the lateral placement of existing travel lanes to reallocate roadway space for bicyclists or create a greater buffer width between motor vehicle lanes and existing or proposed pedestrian facilities. This adjustment does not remove or add any travel lanes for motor vehicles.

Separated Bicycle Lane: A bicycle lane that is physically separated from motor vehicle lanes, exclusively for bicycle traffic, and is on or adjacent to the roadway. Also known as a cycle track or protected bicycling lane.



Shared Lane: A lane that is open to both bicycle and motor vehicle travel. Shared lanes can be marked with shared lane markings or designated as bicycle boulevards. A shared lane that is at least 14 feet wide allows space so that bicyclists and motorists may travel side-by-side within the same traffic lane.

Linear Pedestrian Facilities

Providing new infrastructure and making existing facilities safer and more inviting for pedestrians can help to increase the walkability of a community.

Resurfacing Projects: A proposed implementation method to improve a facility for pedestrians to occur the next time the roadway segment is scheduled to be resurfaced. Resurfacing beyond routine maintenance (i.e., repaving) is considered an alteration and therefore requires upgrading curb ramps and crosswalks for ADA compliance.

Sidewalks: The paved portion of a street or highway right-of-way (typically 5-feet wide), beyond the curb or edge of roadway pavement, which is intended for use by pedestrians. As the primary element of the pedestrian environment, sidewalks are generally constructed of concrete, pavers, or another hard surface. In urban areas, sidewalks are typically located adjacent to the road with a curb to protect users from vehicular traffic. In suburban areas, sidewalks or wide paved shoulders along the roadway may be used for pedestrian use. In rural areas, wide shoulders may be the only pedestrian facility, and in many cases, there are no specific improvements to accommodate pedestrian users. Sidewalks adjacent to a curb are the recommended section (Note: NCDOT will only construct sidewalk with curb and gutter).

Linear Multiuse Facilities

NCDOT adopted a “Complete Streets” policy (CS) in 2009, that has been updated in 2019. Complete streets consider and incorporate all modes of transportation when building new projects or making improvements to existing infrastructure. Complete Streets are designed to be safe and comfortable for all users, including pedestrians, bicyclists, transit riders, motorists, and individuals of all ages and capabilities.⁶ NCDOT has developed the P6.0 Complete Streets Project Sheet, which will require project submitters to note multimodal elements that are to be evaluated as a part of the proposed project. If no multimodal facilities are to be evaluated with the proposed project, the sheet requires the project submitter to document why they are not to be evaluated.

Part of designing with CS principles in mind includes the impact of street patterns on trip length, connectivity between resources, intersection use, and the overall experience of the user. Both cyclists and pedestrians can benefit from a street that has been designed with the CS policy including improvements for children and individuals with accessibility needs, health advantages, improved public transportation services, economic revitalization, safety enhancements, roadway equity, and a more livable community.

⁶NCDOT Complete Street Planning and Design Guidelines at <http://completestreetsnc.org/>



Equestrian Considerations: Trail corridors with paved and unpaved treads can accommodate multiple users, such as riders with horses, bicycles and pedestrians. Vegetation and distance help separate users and minimize conflicts.

Grade-Separated Crossing: A facility, such as an overpass, underpass, skywalk, or tunnel that allows pedestrians, bicyclists, and motor vehicles to cross each other at different levels to avoid conflicts and improve free flow of each mode. These are structures that cross under or above a roadway, barrier, or natural feature.

Shared Use Path: Also known as a “multiuse trail” or “greenway”, a shared use path is a facility designed to meet ADA standards, which may be used by bicyclists, pedestrians, and other non-motorized users. The shared use path is separated from the roadway by an open space or a physical barrier or within an independent-right-of-way and should be located beyond the roadway clear zone. A rail trail, built within the right-of-way of a former railroad, is considered a type of shared use path.

Side paths: A specific type of shared use path facility that is physically separated from the road but located within the roadway right-of-way that is designed to meet ADA standards. Side paths should be located beyond the roadway clear zone.

Unimproved Trail: An unpaved/unimproved off-road facility, open for bicyclist and/or pedestrian use, which is not required to meet ADA standards.

Widening: Increasing the width of the paved portion of the roadway to specifically improve the roadway segment for a bicycling or pedestrian facility.

4.3 Project Corridors

Bicycle and pedestrian improvements proposed in this *plan* were developed based on the corridors, locations, and issues identified through the public engagement process. As described in Section 3, Steering Committee members and the public were asked to identify community features, origins and destinations, opportunities for pedestrian connections, and constraints to bicycle and pedestrian mobility. Based on that input and the data collection in Section 3.0, the team identified two corridors for specific infrastructure improvement recommendations as well as other bicycle and pedestrian improvements. The corridors and corresponding projects are shown in Figure ES-1, and include the following:

- | | |
|---------------------------------|-------------------------------------|
| • Covered Bridge Road | Corridor Improvements |
| • South Woodstone Drive | Shared-use Improvements |
| • Castleberry Road | Bicycle and Pedestrian Improvements |
| • South Murphrey Road | Shared-use Improvements |
| • Buffalo Road | Corridor Improvements |
| • Archer Lodge/Wendell Road | Bicycle Improvements |
| • Duke Energy Easement Greenway | Shared-use Improvements |



The corridors and projects were presented to both the Steering Committee in the third meeting and the public in the second public meeting. Both groups were asked to prioritize and provide input on the specific projects.

4.4 Prioritization

The results from the prioritization process are provided in Prioritization results are meant to serve as a general guide. There may likely be opportunities to implement these projects in an order different from the order in which they were prioritized. The prioritization in this plan should generally be followed as it directly reflects Steering Committee input and community feedback captured during public meetings and an online survey. This should not, however, prevent the town from taking advantage of bicycle or pedestrian improvements as opportunities present themselves. It is beneficial to implement bicycle and pedestrian projects on the same road segment simultaneously in order to realize cost savings and minimize disruptions due to construction.

Prioritization Results

The results of the prioritization process for all proposed projects are in Table 4-1 below. The projects are organized by highest to lowest prioritization score. This prioritization informs the organization of the recommendations in the following section, 4.5.



Table 4-1: Prioritization Results

Project Number	Project	Prioritization Score	Prioritization Rank
1	Covered Bridge Road	11	1 (tie)
2	Buffalo Road	11	1 (tie)
3	Duke Energy Easement Greenway	8	2
4	South Murphrey Road	7	3
5	South Woodstone Drive/Castleberry Drive/ Castleberry Road	6	4
6	Archer Lodge/Wendell Road	4	5

4.5 Recommended Bicycle and Pedestrian Projects

Infrastructure projects were recommended to provide overall improvements to the existing system while offering a robust bicycle and pedestrian network that connects Archer Lodge facilities and destinations. Policies and programs are also proposed and outlined in Section 4.7 and 4.8. These are intended to work in tandem with the recommended spot and linear improvements, which are often constructed concurrently.

Project recommendations are shown in the maps in the following pages of this section. Table 4-2 below may be used as a reference to these maps.



Table 4-2: Map Identification

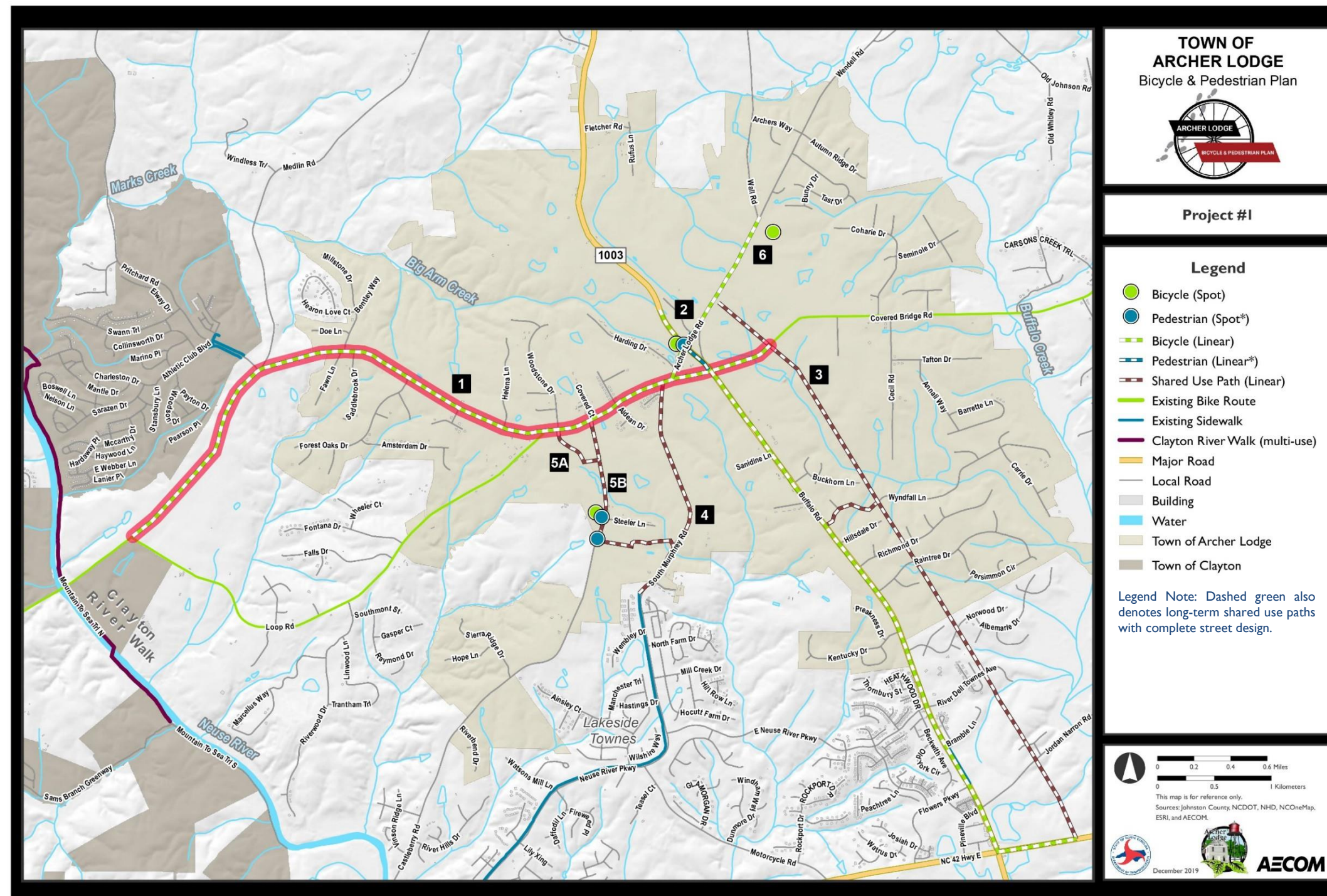
Project Number	Project	Project Type	Map ID
1	Covered Bridge Road	Shared-use improvements/ Bicycle and pedestrian improvements	1
2	Buffalo Road	Shared-use improvements/ Bicycle and pedestrian improvements	2
3	Duke Energy Easement Greenway	Shared-use improvements	3
4	South Murphrey Road	Shared-use improvements	4
5	South Woodstone Drive/Castleberry Drive/Castleberry Road	Shared-use improvements/ Bicycle and pedestrian improvements	5A/5B
6	Archer Lodge/Wendell Road	Bicycle improvements	6

Priority Projects 1 through 5

Projects receiving the highest priority rankings (1 through 5) are on the following pages as cutsheets 1-5. A background, existing conditions, opportunities, and a location map are provided for each project. Each project is numbered and highlighted in red on the maps. Renderings are provided for the top five ranked projects, where appropriate.



Figure 4-1: Project #1 Covered Bridge Road Corridor Improvements





PROJECT 1: Covered Bridge Road Corridor Improvements

Background

The Steering Committee identified this corridor for improvements since it contains a section of the only signed bicycle route throughout the town (displayed as the solid green line on the figure above). The bicycle route is known as the Clayton, Archer Lodge, Wilson's Mill Loop and is a popular destination for cyclists in Johnston County. The section on Covered Bridge Road is located along Loop Road and continues east on Castleberry Road towards Buffalo Creek. As one of the primary roads in Archer Lodge, Covered Bridge Road lacks pedestrian and bicycle infrastructure and forces residents to be car dependent through the center of the town. Improvements to this road would provide additional access for residents travelling between Clayton and Archer Lodge.

Existing Conditions

Covered Bridge Road is two-lane paved road that extends horizontally through the municipal boundary between the Mountains to Sea Trail and Buffalo Creek. As mentioned above, the road contains a signed bike route between the Mountains to Sea Trail, onto Loop Road, and along Covered Bridge Road across Buffalo Creek. There are no sidewalks, the road is lined on both sides with ditches, and the speed limit ranges between 35 and 45 mph.

NCDOT STIP Project W-5704E proposes the addition of a sidewalk along the northern side of Covered Bridge Road, between Archer Lodge Road and Buffalo Road, south of the C.E. Barnes Store.



Opportunity for Additional Bike Route Signage on Buffalo Road
(AECOM, 2019)

Opportunities and Recommended Improvements

Following the completion of STIP project W-5704E, the Town will have the opportunity to bridge the gap between the proposed sidewalk and other destinations along Covered Bridge Road. For example, long-term improvements could be made to extend the sidewalk west towards Pritchard Road to supply walking accommodations for residents travelling between Clayton and Archer Lodge. Ideally, these improvements could be constructed on the north side of Covered Bridge Road to extend the planned sidewalk associated with W-5704E to the western edge of town, and potentially beyond. This sidewalk extension would connect to existing sidewalks on Pritchard Road that end before the traffic signal at Pritchard Road and Covered Bridge Road. Both of these improvements are considered long-term and will require coordination with the Town of Clayton and may be contingent on future NCDOT improvements on Covered Bridge Road due to costs associated with both right-of-way and construction. In addition, signage of the existing bike route between the western town limits and proposed greenway could help in the short term provide connections to the eastern side of town. Recommended signage is assumed to be located one sign per every half mile. Challenges to project completion include potential right-of-way costs and multi-jurisdiction coordination.



A shared use path in concert with a complete street design is a desired longer-term project along Covered Bridge Road from the proposed Duke Energy Greenway to Clayton's Riverwalk.

Barriers and Obstacles

Funding may be a limitation to the proposed projects.

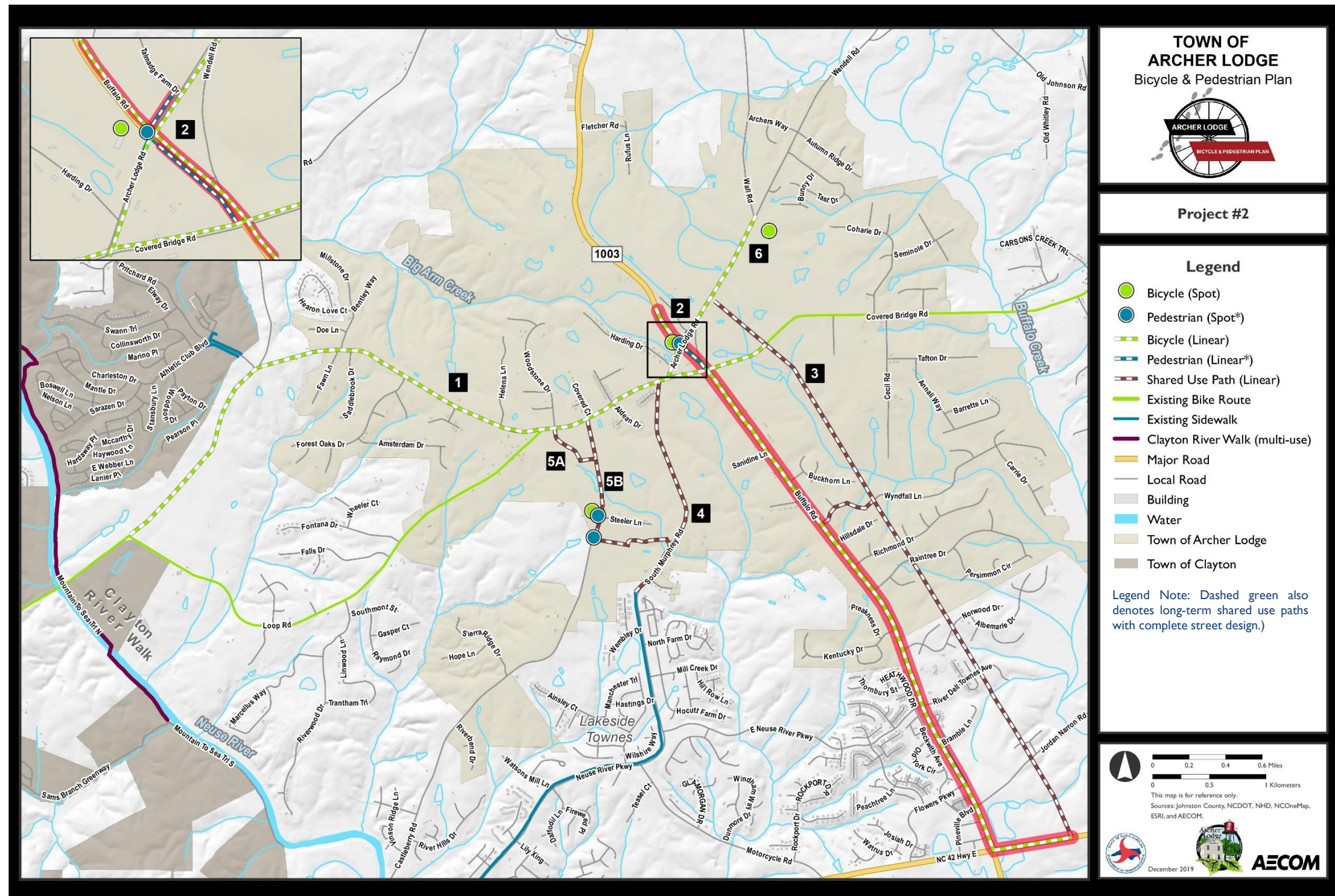
Table 4-4: Covered Bridge Road Corridor Improvements

Mode	Type	Description	Location/Extent	Cost*
Short Term Recommendations				
Bicycle	Linear	Signed bike route along Covered Bridge Road	Along Covered Bridge Road between the western town limits and the proposed greenway	\$20,000
Long Term Recommendations				
Pedestrian	Linear	Continue pedestrian and bicycle improvements associated with STIP project W-5704E from project end west to town limits. This is a long-term improvement that is contingent on future NCDOT improvements to the road due to costs	From western sidewalk limits on Covered Bridge Road to western town limits near Pritchard Road	\$2,405,000 Requires further NCDOT analysis
Pedestrian	Linear	Coordinate with the Town of Clayton to provide future pedestrian connections to destinations on Pritchard Road	From western sidewalk limits on Covered Bridge Road to western town limits near Pritchard Road	Requires further NCDOT analysis
Shared Use	Linear	Add a shared-use path with future complete street profile.	From the future Duke Energy Greenway to Clayton Riverwalk	Requires further NCDOT analysis and coordination with the Town of Clayton

*Note: Please see Section 4.6 for a description of cost estimate sources.



Figure 4-2: Project #2 Buffalo Road Corridor Improvements





PROJECT 2: Buffalo Road Corridor Improvements

Note: See inset for Project #2.

Background

Buffalo Road intersects with Covered Bridge Road and runs north south within the town's boundary. The Archer Lodge Community Center, Town Hall, C.E. Barnes Store, and White Oak Baptist Church are located along this road. Covered Bridge Road also serves River Dell Elementary School and the Harris Teeter Shopping Center (Flowers Crossroads) near NC Highway 42, south of town. The corridor is heavily used by vehicles, and speeds can make walking and biking uncomfortable. The Steering Committee noted that on-road bicycle use north of Town Hall is dangerous. Improvements would provide additional safe access in the downtown, as well as provide connections to River Dell Elementary School and the Flowers Crossroads Shopping Center (Harris Teeter).

Existing Conditions

Buffalo Road is a two-lane paved road with speeds ranging between 35 and 55 mph. This road contains a corner sidewalk next to the White Oak Baptist Church and outside of town boundaries north of Jordan Narron Road. Pedestrians have been observed crossing Buffalo Road to access sports fields, however, there currently are no pavement markings or pedestrian signal heads for a pedestrian crossing. The pavement width without a gutter pan is approximately 22 feet wide. There is an existing trail behind the Archer Lodge Community Center.



Opportunity for a Bicycle Rack at the Archer Lodge Community Center
(AECOM, 2019)



Opportunity for a Sidewalk Extension from the White Oak Baptist Church to the
C.E. Barnes Store on Buffalo Road

(AECOM, 2019)



Opportunity for Sidewalk Extension on Buffalo Road to Talmadge Farm Road
(AECOM, 2019)

Opportunities and Recommended Improvements

There are several opportunities to improve the Buffalo Road Corridor. The following spot improvements were prioritized during the meeting: a bike rack located at the Archer Lodge Community Center and the installation of a pedestrian crosswalk and pedestrian crosswalk and beacon between the ballfield and soccer field at the intersection of Archer Lodge Road and Buffalo Road. The steering committee identified this intersection as a priority for a new pedestrian crosswalk because there are currently no facilities available. The Town of Archer Lodge should extend fencing toward Archer Lodge Road to encourage pedestrians to cross at the marked intersection.

NCDOT contingency project 80094 would install sidewalks on both sides of Buffalo Road between the ball field and Town Hall. Continuation of the future sidewalk located at the corner of Buffalo Road and Archer Lodge Road towards Talmadge Farm Road would provide safe access to and from the downtown for residents on Talmadge Farm Road. Cost estimates for the shared-use path assume that the curb ramp will be installed to meet sidewalks installed as part of NCDOT project 80094. In addition, it is recommended that sidewalks associated with NCDOT STIP project W-5704E on Covered Bridge Road continue around the corner next to



the C.E. Barnes Store and link to the existing sidewalk in front of the White Oak Baptist Church. Costs for pedestrian improvements associated with this project may be contingent on future NCDOT improvements to the road due to costs.

The addition of a signed bike route on Buffalo Road north of Town Hall and south until it meets NC Highway 42 (not recommended without roadway improvement) will promote bicycle flow towards the southern portion of Archer Lodge. Signed bike routes are recommended for roads with limited right-of-way and drainage ditches. Cost estimates assume that one sign will be placed every half mile.

A speed/traffic study is recommended along the corridor to identify potential speed control measures on Buffalo Road. Further speed controls may need to be considered north and south of the proposed pedestrian crossing on Buffalo road next to the Archer Lodge Community Center. The Town should coordinate with NCDOT to conduct a speed study along Buffalo Road to identify potential additional speed control measures.

A shared use path in concert with a complete street design is a desired longer-term project along Buffalo Road from Covered Bridge Road to NC Highway 42 and to the proposed greenway.

Barriers and Obstacles

Pedestrian access between the Archer Lodge Community Center and soccer fields across Buffalo Road is limited due to a lack of sidewalks and pedestrian crosswalks. Currently, Buffalo Road lacks any form of pedestrian safety measures. The steering committee identified the intersection of Buffalo Road and Archer Lodge Road as a priority for a new pedestrian crosswalk because there are currently no facilities available.



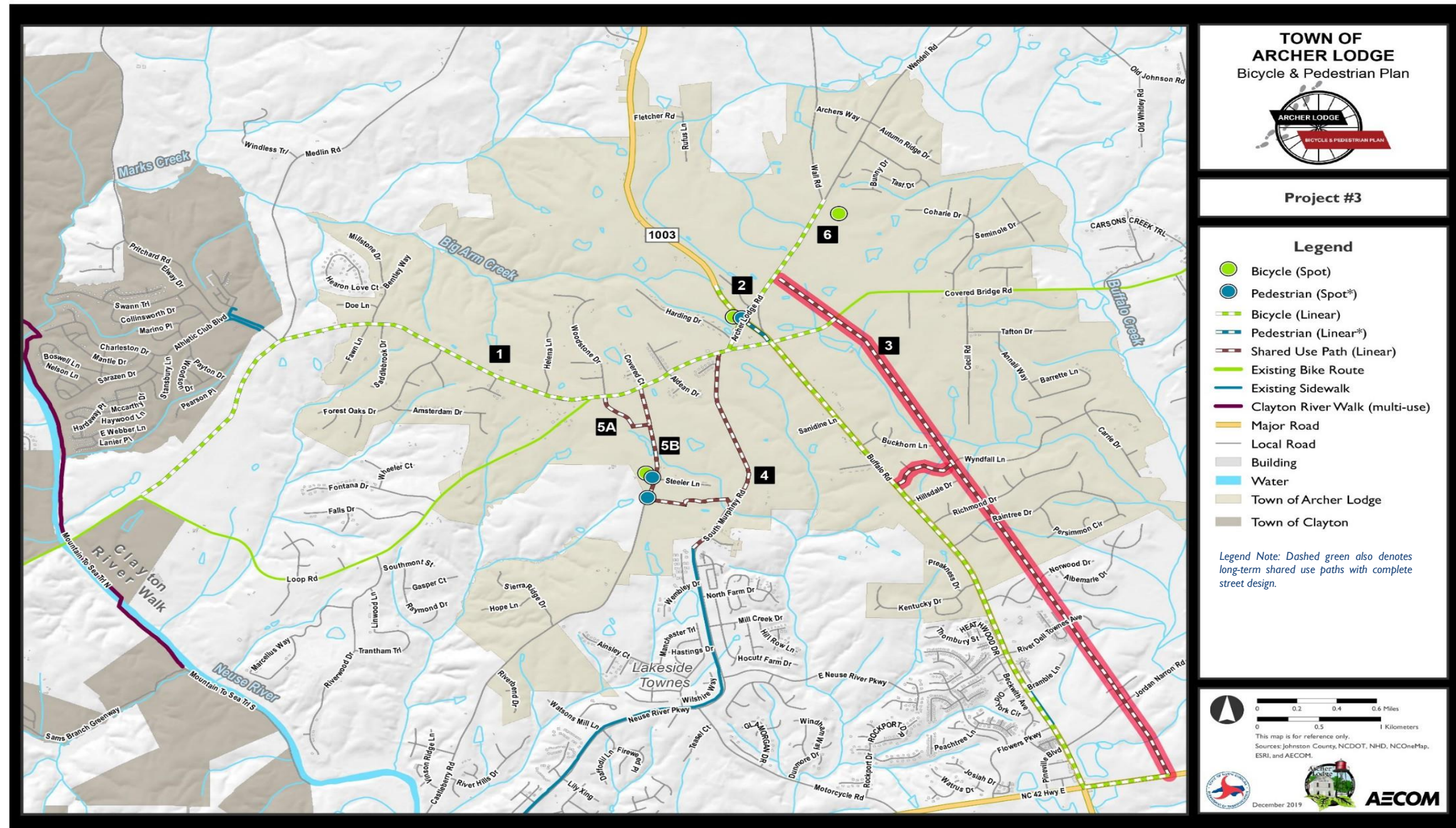
Table 4-8: Buffalo Road Corridor Improvements

Mode	Type	Description	Location/Extent	Cost*
Short Term Recommendations				
Pedestrian	Linear	Install a sidewalk on the eastern side of Buffalo Road across from the Archer Lodge Community Center. The sidewalk would extend from the proposed sidewalk in contingency project 80094 at the soccer field to Talmadge Farm Road.	Buffalo Road to Talmadge Farm Road	\$130,000
Pedestrian	Spot	Install a pedestrian crosswalk and a pedestrian hybrid beacon (HAWK) at the intersection of Buffalo Road and Archer Lodge Road. This will allow field users to travel between the ball field and soccer field on Buffalo Road.	Intersection of Buffalo Road and Archer Lodge Road	\$120,000
Bicycle	Spot	Install a bike rack at the Archer Lodge Community Center ball field.	Archer Lodge Community Center	\$660
Bicycle	Linear	Add a signed bike route along Buffalo Road south of Fletcher Road until it meets NC Highway 42 and connects to the proposed greenway.	Buffalo Road south of Fletcher Road until it meets NC Highway 42 and touches the proposed greenway	\$20,000
Long Term Recommendations				
Pedestrian	Linear	Continue pedestrian improvements associated with STIP project W-5704E to link to existing sidewalks in front of the White Oak Baptist Church and sidewalks as a part of Project 80094 along Buffalo Road.	Buffalo Road to Covered Bridge Road	Contingent on future NCDOT improvements to the road due to costs.
Shared Use	Linear	Add a shared-use path with future complete street profile.	Buffalo Road from Covered Bridge Road to NC Highway 42 and touches the proposed greenway	Requires further NCDOT analysis and future NCDOT improvements to costs

*Note: Please see Section 4.6 for a description of cost estimate sources.



Figure 4-3: Project #3 Duke Energy Greenway (Legend Note: Dashed green also denotes long-term shared use paths with complete street design.)





PROJECT 3: Duke Energy Greenway

Background

A Duke Energy Easement runs parallel with Buffalo Road from its intersection with Buffalo Road to NC Highway 42. The greenway highlighted above in the map is approximately 4.50 miles long and would help connect several neighborhoods located in eastern Archer Lodge and provide recreational opportunities for residents who are located further away from the new Town park.

Existing Conditions

The easement is currently unpaved and located in a forested area, surrounded by single family residential homes. The transmission easement can be seen from Google Earth and shows cleared areas where the transmission lines run. The width of the cleared area is approximately 95 feet wide.

Opportunities and Recommended Improvements

According to the [Carolina Thread Trail Organization](#), many of Duke Energy's transmission lines are located on easements and are not owned by the company. Access to the land is controlled in the deed and may not allow uses beyond those needed for electrical transmission and maintenance. If access for the purpose of trails can be secured from the landowners, Duke may agree to allowing a trail within the transmission easement. If allowed, the trail owner would be held responsible for safety, liability, and maintenance. Infrastructure, such as signs, benches, and exercise equipment would not be allowed within the easement. Vegetation planted along the trail must adhere to Duke guidelines. The costs shown below in Table 4-10 reflect a formal, paved greenway, but the Town could save money by partnering with a local trail association (i.e. the Carolina Thread Trail Organization) to construct an Unimproved Trail along the easement. Further coordination and research would be required to determine feasibility of this project.

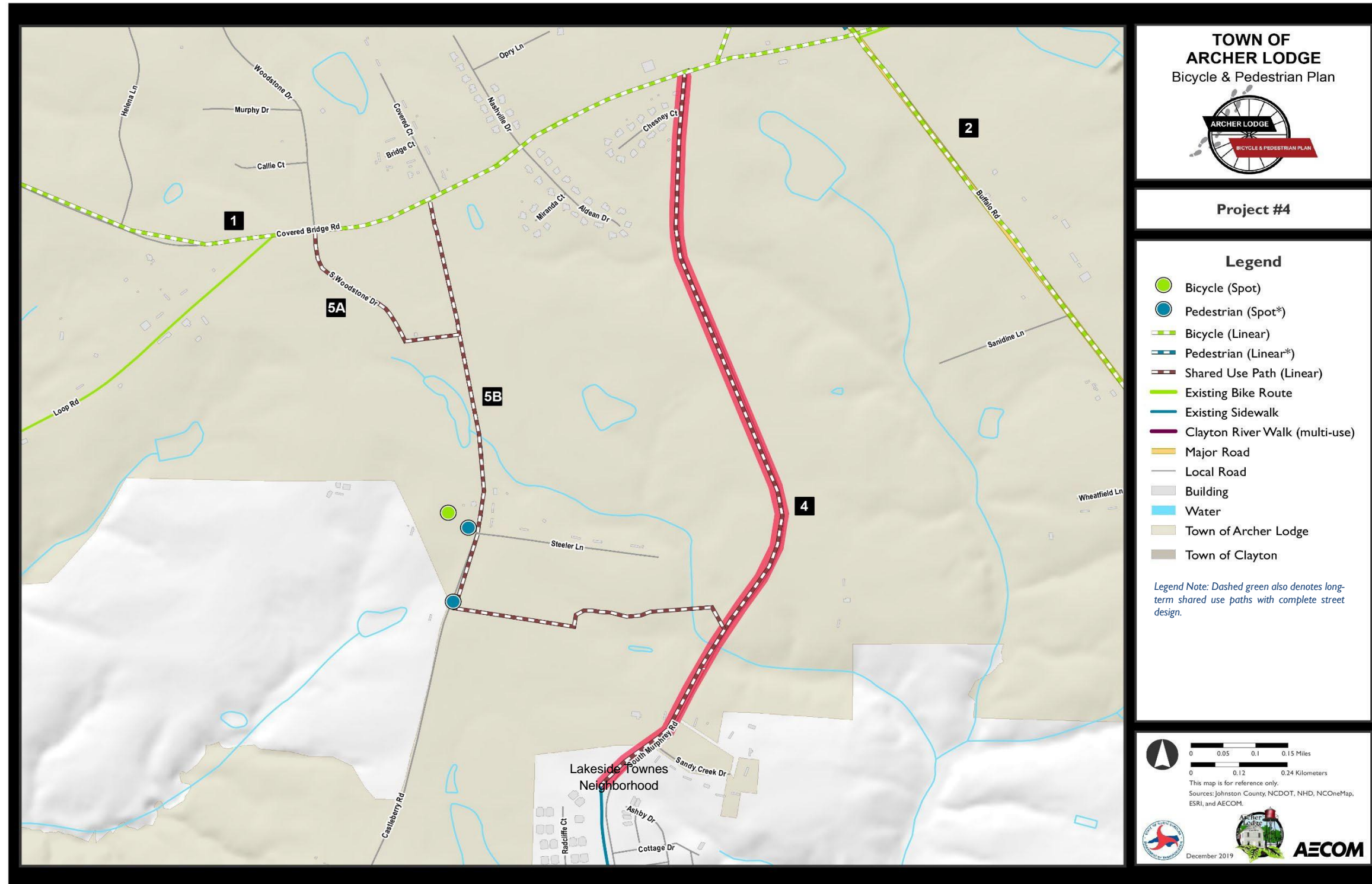
Table 4-10: Duke Energy Greenway

Mode	Type	Description	Location/Extent	Cost*
Short Term Recommendations				
Shared-use	Linear	Construct a greenway along the Duke Energy Easement that runs parallel with Buffalo Road.	South of Fletcher Road and end at NC Highway 42	\$11,155,000
Shared-use	Linear	Add a shared-use path connection between the proposed greenway and Buffalo Road along Wyndfall Lane. This will provide connections to existing neighborhoods.	Wyndfall Lane between Buffalo Road and Proposed greenway	\$780,000

*Note: Please see Section 4.6 for a description of cost estimate sources.



Figure 4-4: Project #4 South Murphrey Road Shared-use Improvements





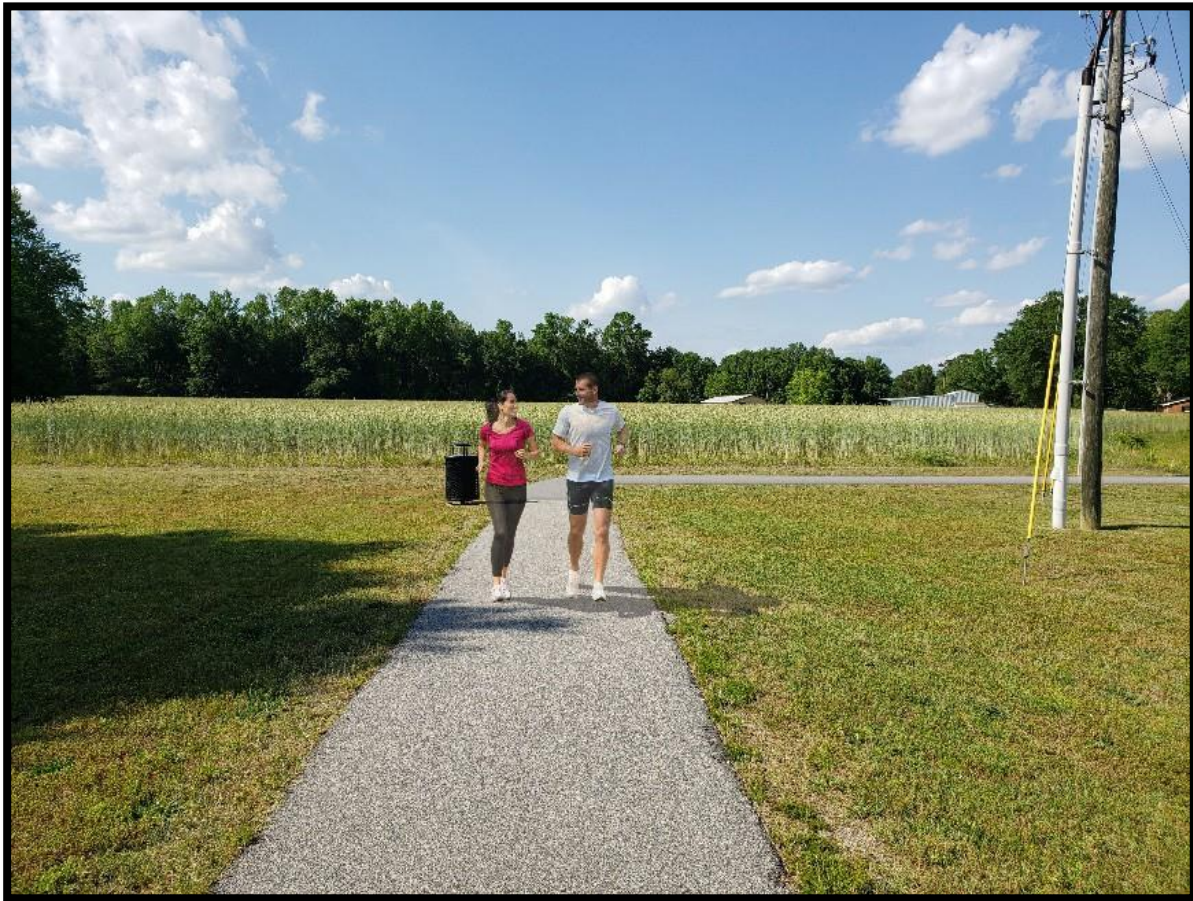
PROJECT 4: South Murphrey Road Shared-use Improvements

Background

South Murphrey Road is a north-south oriented road located to the east of Castleberry Drive and connects Covered Bridge Road to NC Highway 42 south of town. South Murphrey Road changes names to Neuse River Parkway as it moves south towards NC Highway 42. The road primarily links residential neighborhoods in southern Archer Lodge to the center of the town. The existing shared-use path on this road is located outside the Archer Lodge town limits and north towards Covered Bridge Road would encourage further pedestrian linkages between South Murphrey Road and the downtown area.

Existing Conditions

Outside the Archer Lodge town limits, the Lakeside Townes neighborhood is located west off South Murphrey Road and contains an unfinished shared-use path that runs south towards NC Highway 42. The path currently dead ends at the north end of the neighborhood. Land use along South Murphrey Road between the current terminus of the path and Covered Bridge Road is farmland and undeveloped/forested with one residential neighborhood near the intersection of Covered Bridge Road.



Opportunity for Shared-use Path Extension on South Murphrey Road
(AECOM, 2019)

Opportunities and Recommended Improvements

Extending the existing shared-use path north towards Covered Bridge Road will provide a safe route for residents. An on-road bicycle lane is unsuitable for South Murphrey Road, given the sharp bends and poor sight distance. While costs associated with the construction of the shared-use path are high, the town could potentially rely on future development along the corridor to help pay for its extension (See Section 4.7). Challenges to project completion include potential right-of-way costs and coordination with the adjacent parcel owner who is using the land for farming.

Barriers and Obstacles

The curvature of South Murphrey Road may affect how much of the crop field is removed in the adjacent property where the shared-use path is proposed.



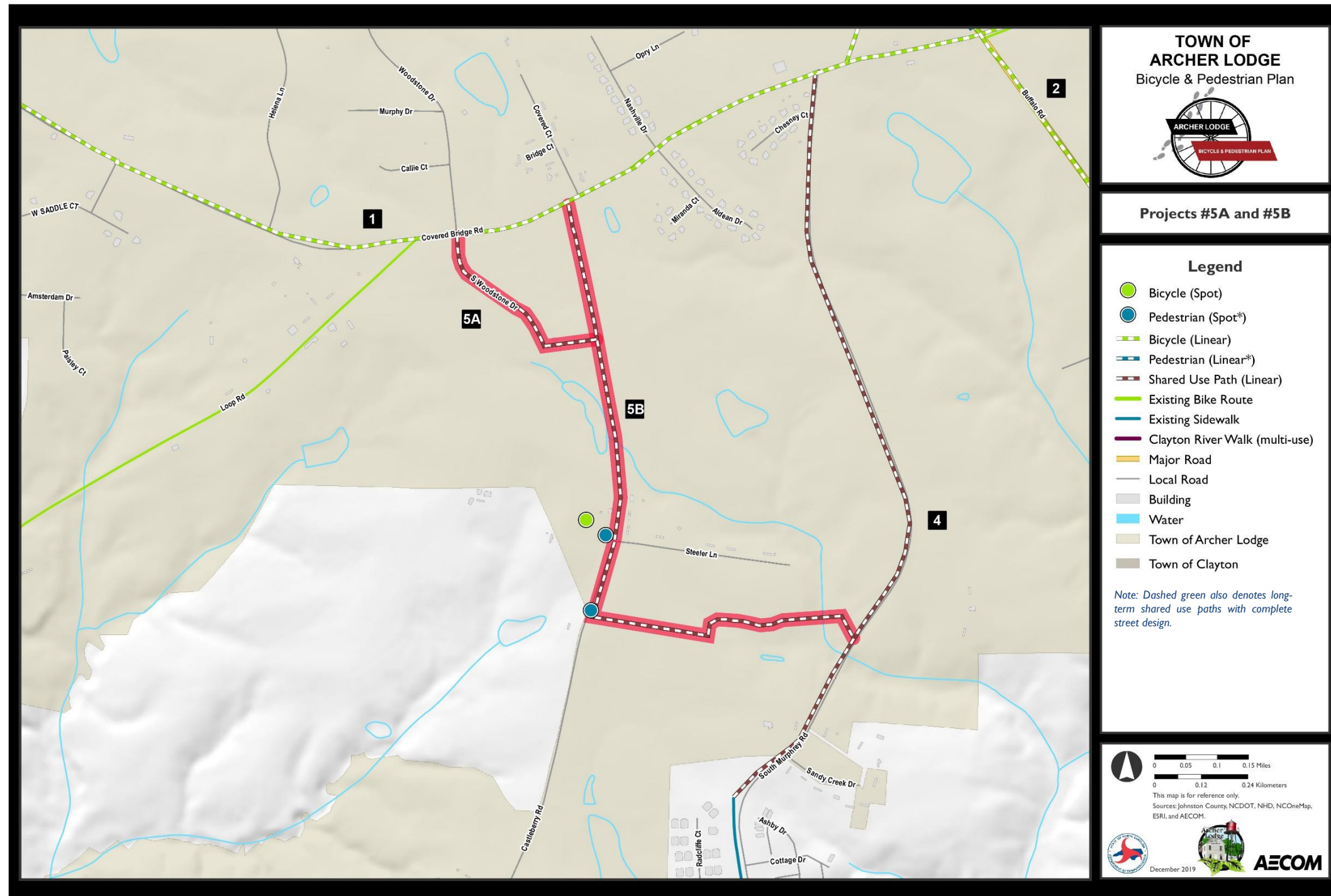
Table 4-7: South Murphrey Road Shared-use Improvements

Mode	Type	Description	Location/Extent	Cost*
Short Term Recommendations				
Shared-use	Linear	Extend the existing shared-use path on South Murphrey north to Covered Bridge Road	South Murphrey Road	\$1,895,000

*Note: Please see Section 4.6 for a description of cost estimate sources.



Figure 4-5: Project #5 South Woodstone and Castleberry Road





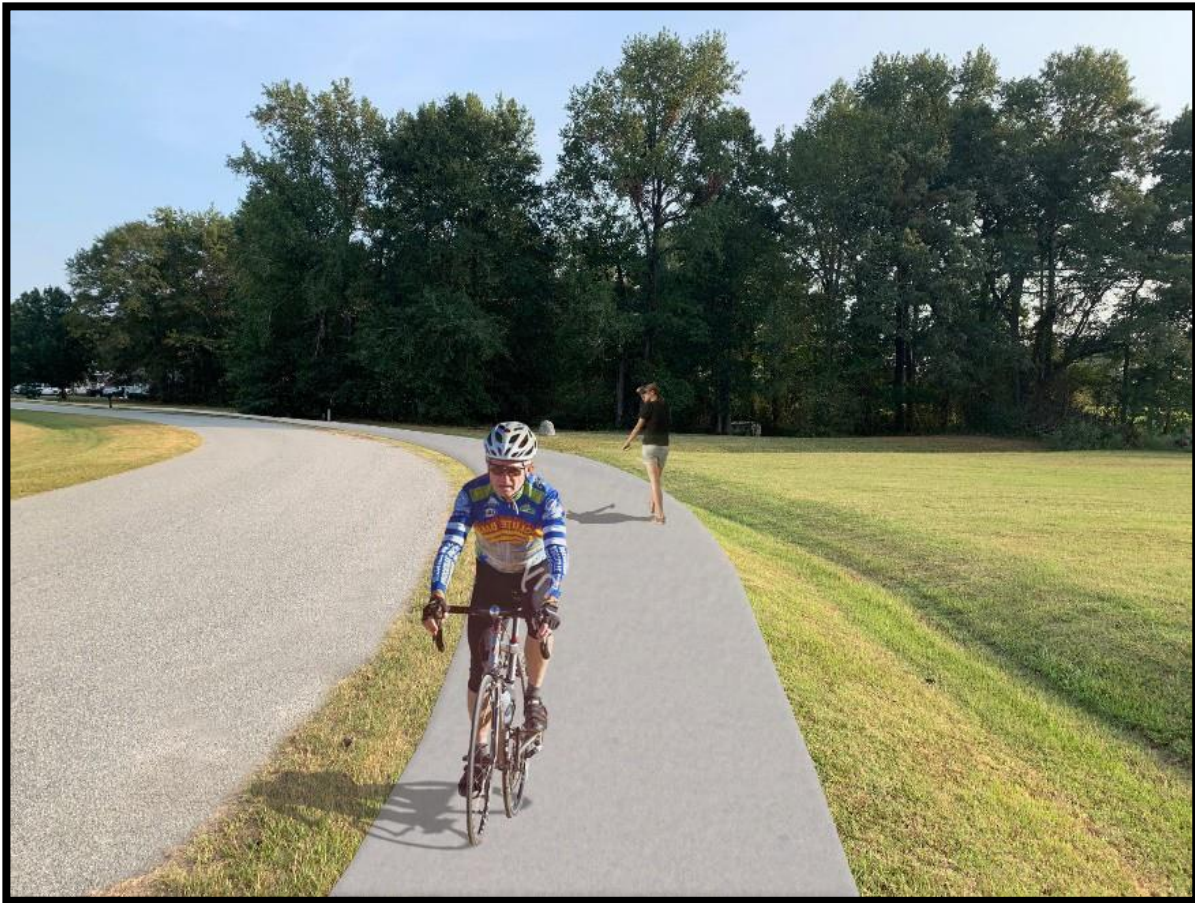
PROJECT #5A: South Woodstone Drive Shared-use Improvements

Background

This project was a recommendation made by the consultant team to create a loop around the new Town park. The loop would connect projects 1, 2, 3, and 4. South Woodstone Drive Shared-use Improvements would provide additional bicycle and pedestrian access to the proposed Town park on Castleberry Road from Covered Bridge Road along South Woodstone Drive. South Woodstone Drive is a cul-de-sac in the Archers Pointe neighborhood that is accessed by Covered Bridge Road. The improvements would also include a new greenway that would connect South Woodstone Drive to Castleberry Road near Darcy Drive.

Existing Conditions

South Woodstone Drive is a residential street that is approximately 19 feet wide and provides access to 14 houses. At the end of the road is Atkinson Lake tucked behind a small forested area.



Opportunity for a Shared-use Path on South Woodstone Drive
(AECOM, 2019)

Opportunities and Recommended Improvements

A shared-use path running along the western side of South Woodstone Drive would end at the cul-de-sac and transition into an off-road connection that would link to the proposed shared-use path on Castleberry Road. An easement will be required to obtain land for the off-road connection. Costs estimates are based on a 10-ft wide and 1,225 ft long shared-use path. Shared-use paths offer protection for both bicyclists and pedestrians and are considered more attractive to a wider spectrum of the public. Challenges to project completion include potential right-of-way costs and coordination with property owners to acquire an easement for the greenway construction.



Table 4-5: South Woodstone Drive Shared-use Improvements

Mode	Type	Description	Location/Extent	Cost*
Short Term Recommendations				
Shared-use	Linear	Construct a multi-use path from South Woodstone Drive to Castleberry Road	South Woodstone Drive to Castleberry Road	\$325,000

*Note: Please see Section 4.6 for a description of cost estimate sources.



PROJECT 5B: Castleberry Road Shared-use Improvements

Background

Castleberry Road runs north to south from Covered Bridge Road in the vicinity of Covered Court in the north to NC Highway 42 (outside of the town's municipal boundary) to the south. A connection to the new Archer Lodge Park was discussed numerous times in public meetings and was frequently identified as needing bicycle and pedestrian improvements. There are numerous homes surrounding the new park's location, especially around South Murphrey Road, Steeler Lane, and Castleberry Road. The total length between Castleberry Road and South Murphrey Road is roughly 2,500 feet long. Improvements would provide additional safe access from nearby neighborhoods to the new Town park.

Existing Conditions

Castleberry Road is a paved two-lane road with a speed limit ranging between 35 and 55 mph. Higher speeds may pose a safety concern for on-road cyclists. Separation from motor vehicles can offer higher levels of security for cyclists if a shared-use path is installed.



Opportunity for Wayfinding Signage to the Town Park on Castleberry Road and
a Shared-use Path Westbound of Castleberry Road

(AECOM, 2019)

Opportunities and Recommended Improvements

The proposed shared-use path project will travel south on Castleberry Road, connecting the proposed South Woodstone Trail to a future greenway within the new Town park (south of Steeler Lane). Several spot projects have been proposed on this road that will help residents access the new Town park. The first spot improvement is to provide wayfinding signs on the proposed shared-use path to direct users to the park that will be located on both sides of Castleberry Road. Signage information is necessary to alert park users of access points. The new Town park will contain two parking areas, so a bike rack is proposed for one of these locations. In addition, a pedestrian crosswalk and pedestrian hybrid beacon signal should be placed between the two park entrances, south of Steeler Lane. The shared-use path will continue from the pedestrian crossing to the parcel south of Steeler Lane until it connects to South Murphrey Road. Challenges to project completion include potential right-of-way costs and obtaining additional funding for the bike rack and signs.



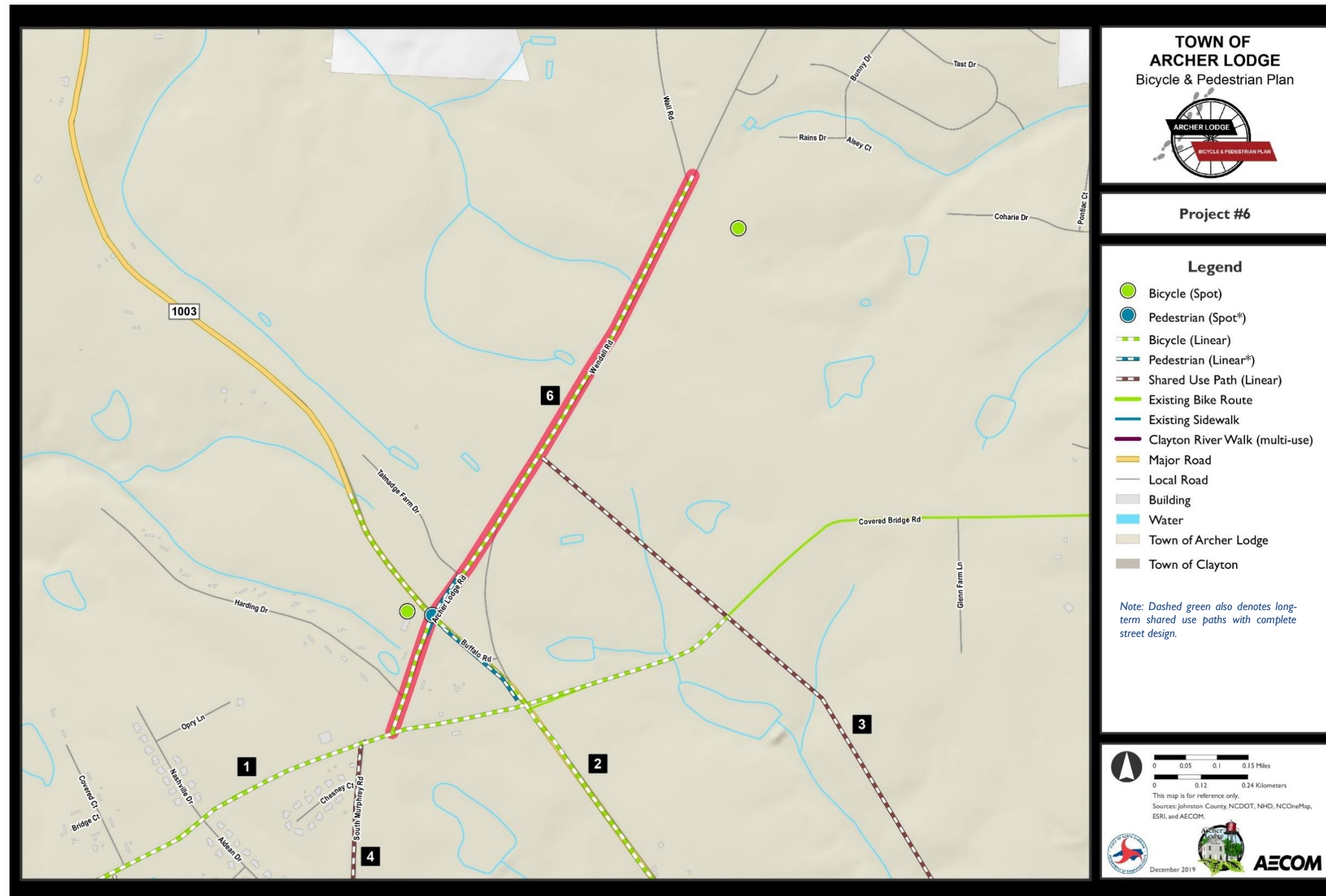
Table 4-6: Castleberry Road Shared-use Improvements

Mode	Type	Description	Location/Extent	Cost*
Short Term Recommendations				
Bicycle	Spot	Install a bike rack at the park.	Archer Lodge Park	\$660
Shared-use	Linear	Provide a multi-use connection path along Castleberry Road from Darcy Drive to Archer Lodge Park, including wayfinding signage.	Along Castleberry Road between the South Woodstone Trail connection and the new park entrance south of Steeler Lane	\$610,000
Long Term Recommendations				
Pedestrian	Spot	Install pedestrian crosswalk and a pedestrian hybrid beacon on Castleberry Road between the two future park entrances.	Castleberry Road between future park entrances	\$150,000
Shared-use	Linear	Continue future park greenway to link to proposed shared-use path on South Murphrey Road.	Eastern parcel of the new park	Further coordination after park completion will be required

*Note: Please see Section 4.6 for a description of cost estimate sources.



Figure 4-6: Project #6 Archer Lodge/Wendell Road Bicycle Improvements





PROJECT 6: Archer Lodge/Wendell Road Bicycle Improvements

Background

This project is a recommendation made by the consultants to connect the existing signed bike route on Covered Bridge Road to Archer Lodge Road, and further to Wendell Road. Archer Lodge Road runs northeast from Covered Bridge Road to connect to Wendell Road in Archer Lodge. The White Oak Baptist Church and Archer Lodge Community Center are located at the corners of Archer Lodge Road and Buffalo Road. Archer Lodge Middle School is located on Wendell Road about 0.83 miles from the church and Archer Lodge Community Center.

Existing Conditions

Wendell Road currently lacks both pedestrian and bicycle accommodations. Wendell Road takes a sharp turn south of Buffalo Road, posing a safety threat to on-road cyclists and has been excluded from consideration for a signed bike route. Archer Lodge Road is approximately 0.20 miles long, and both Archer Lodge Road and Wendell Road are paved with two-lanes.



Opportunity for a Signed Bicycle Route on Wendell Road
towards Archer Lodge Middle School

(AECOM, 2019)



Opportunity for a Bicycle Rack at Archer Lodge Middle School
(AECOM, 2019)

Opportunities and Recommended Improvements

Archer Lodge Road serves as a cut through for those who do not wish to sit at the Covered Bridge Road and Buffalo Road traffic light. Linear and spot improvements for bicycles are recommended on these roads. The addition of a signed bike route running between Archer Lodge Road and Wendell Road will provide cycling opportunities to Archer Lodge Middle School. Cost estimates assume that four signs will be placed on this road. The placement of a bike rack at the school will also encourage bicycling to and from school. Challenges to project completion include obtaining funding for signs and a bike rack, as well as obtaining approval from the school to place a bicycle rack on the property.

Table 4-9: Archer Lodge/Wendell Road Bicycle Improvements

Mode	Type	Description	Location/Extent	Cost*
Short Term Recommendations				
Bicycle	Spot	Install bike racks at Archer Lodge Middle School.	Archer Lodge Middle School	\$660
Bicycle	Linear	Add a signed bike route between Archer Road and Wendell Road, ending at Archer Lodge Middle. School.	Archer Lodge Road to Wendell Road, ending at Archer Lodge Middle School	\$20,000

*Note: Please see Section 4.6 for a description of cost estimate sources.



4.6 Estimates for Recommended Bicycle and Pedestrian Facilities

How Estimates Were Derived

Costs for bicycle and pedestrian infrastructure projects were estimated primarily using the Prioritization 6.0 2019 Bicycle and Pedestrian Cost Estimate Tool (BPCE Tool). This tool was prepared by AECOM for NCDOT. The purpose of the tool is to provide Prioritization 6.0 submitters (Metropolitan Planning Organizations, Rural Planning Organizations, and NCDOT Divisions) a quick and easy tool to develop reasonable and comparable bicycle and pedestrian project cost estimates for submittal through the Prioritization 6.0 process. The following are goals of the tool:

- Be intuitive for submitters to use
- Be able to accommodate those who are unfamiliar with the project design and construction processes
- Be transparent in the calculations it runs
- Produce estimates broken into components to match the inputs needed for SPOT Online, NC Department of Transportation's online project prioritization evaluation system
- Produce estimates in a format appropriate for easy explanation to elected and appointed officials
- Be easy to maintain by NCDOT personnel

The BPCE Tool represents a combination of computational technology and cost estimation philosophy. To leverage these two areas of expertise, the tool was developed by simultaneously coordinating the technical development of an advanced Microsoft Excel-based tool and the transportation project (theory-based) development of bicycle and pedestrian project cost estimation formulas. Critical in the development of the tool was the desire to take complex computations and simplify them using assumptions based on a minimized number and complexity of user inputs in a format that matched the business needs of the Prioritization 6.0 process.

Bicycle rack costs were obtained from [pedbikeinfo.org](http://www.pedbikeinfo.org) on October 10, 2019. According to this site, the average cost for a bicycle rack is \$660. Further information may be found at:

http://www.pedbikeinfo.org/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf

Assumptions and Disclaimers

This tool is intended for use as an aid to estimating project costs for bicycle and pedestrian projects associated with P6.0). This tool should not be used to estimate projects of other modes (roadways or other). The tool contains estimations for design services, utilities, ROW, and construction with contingencies based on limited project knowledge and inputs. Due to the conceptual nature of project descriptors, the accuracy of cost estimates will be limited. More accurate cost estimates would result from an engineered feasibility study for each project.

Estimated cost outputs are designed to assume federal transportation funding is used in compliance with all federal transportation regulations and FHWA-approved NCDOT Local Programs Management Office



oversight requirements in place as of the date of this tool's publication. All costs are based on 2019 prices and cost components are rounded to the nearest \$5,000.

This tool assumes established ecoregion typologies, construction market regions, and average land values specific to North Carolina. They are determined within the tool based on user inputs for project location. This location-based information is used in right-of-way, construction, and environmental mitigation calculations. This tool assumes a project impact area for right-of-way and environmental mitigation calculations based on chosen specific improvement type, project type, project length, and project facility width. This tool does not estimate costs associated with the purchase or taking of buildings within its right-of-way estimate calculations. It is assumed that projects would require land requisition only.

The tool includes assumptions based on past market conditions and is not designed to accurately predict future market values. The estimates provided are intended to serve as a relative guide for a rough order of cost magnitude. Estimated costs for bicycle and pedestrian infrastructure projects are included in cutsheets 1-5 for highly prioritized projects.

4.7 Recommended Policies and Programs

The Town of Archer Lodge's Zoning and Subdivision Ordinance (ZSO) was reviewed in order to understand how they influence the planning of pedestrian and bicycle enhancements. The ZSO describes specific requirements for development. One of the most cost-effective strategies for implementing this *plan* is to establish regulations and street design policies that promote walkable and bikeable new development and capital projects.

The consultant team reviewed regulatory and policy language from other communities in North Carolina and the United States for policies that have been successful in implementing land use and transportation integration, transportation system connectivity, Complete Streets, and bicycle parking. The purpose of this review is to enable the Town of Archer Lodge to maximize bicycle and pedestrian improvements in conjunction with new development, redevelopment, and corridor improvement projects. If a change in existing policy is necessary to improve pedestrian and bicycle access, then a modified policy was recommended as part of this review.



Bramble Lane Development
(AECOM, 2019)



Table 4-10: Code of Ordinance Review and Recommendations

Code of Ordinances Section	Current Policy	Recommended Changes and Comments
Sec. 30-29. – Establishment of a zoning vested right (e).	The establishment of a zoning vested right shall not preclude the application of any overlay zoning that imposes additional requirements but does not affect the allowable type or density of use, or ordinances or regulations that are general in nature and are applicable to all property subject to land use regulation by the town, including, but not limited to, building, fire, plumbing, electrical and mechanical codes.	Create a Bicycle and Pedestrian Overlay Zoning District along corridors within the town that are mapped in this <i>plan</i> and have proposed bicycle and pedestrian facilities (refer to Figure ES-1). This regulation is intended to create a safe, comfortable, pleasant, and pedestrian-friendly multi-modal travel environment.
Sec. 30-98. - Community Business District (CB).	The Community Business District (CB) is intended to provide for the development of commercial and service areas that serve the daily convenience and personal service needs of a surrounding area.	Amend this section to add Civic and Business uses and require that sidewalks shall be located on at least one side of each street within the Community Business District. Sidewalks shall be a minimum of five feet in width located fronting arterial, collector, local and private streets.
Sec. 30-97. - Neighborhood Business District (NB).	The Neighborhood Business District (NB) is intended to provide for the development of commercial and service centers that serve the daily commercial needs, are accessible by residents from the immediate neighborhood, and are of such a nature so as to minimize conflicts with surrounding residential areas.	Amend this section to require sidewalks shall be located on at least one side of each street within the Neighborhood Business District. Sidewalks shall be a minimum of five feet in width located fronting arterial, collector, local and private streets. Consider using NCDOT's <i>Complete Streets Planning and Design Guidelines</i> (http://completestreetsnc.org) as a basis for street and intersection design guidelines. This document can be adopted by reference in development regulations.
Sec. 30-90. – Conditional and	The location and arrangement of the use on the site, screening,	Utilize NCDOT's <i>Complete Streets Planning and Design Guidelines</i> (http://completestreetsnc.org)



Code of Ordinances Section	Current Policy	Recommended Changes and Comments
special uses; objectives and purpose.	buffering, landscaping, and pedestrian ways, and bicycle facilities harmonize with adjoining properties and the general area and minimize adverse impact.	as a basis for street design guidelines. This document can be adopted by reference in development regulations.
Single-Family Residential District (SFR-1, 2 and 3).	Three Single-Family Residential Districts (SFR-1, 2 and 3) are intended to encourage that single-family residential development will occur at lower and medium densities to provide for a range of housing opportunities throughout the town.	Amend this ordinance to address sidewalks and bicycle accommodations. Chapter 4 of NCDOT's <i>Complete Streets Planning and Design Guidelines</i> (http://completestreetsnc.org) can be used for guidance.
Single-Family Residential District (SFR-1, 2 and 3) Dedication of Open Space for Density Bonus.	Before tracts of land are developed for residential uses, the owner of the tract, with the concurrence of the town may dedicate to the town that portion of the tract so designated; Then, when the remainder of the tract is developed for residential purposes, the permissible density at which the remainder may be developed shall be calculated in accordance with the density bonuses established for this section.	Amend the ZSO to add a density bonus policy. Developers are provided a density bonus to apportion land adjacent to roadways for bicycle and pedestrian facilities, such as sidewalks. This policy would be used to maintain bicycle and pedestrian connectivity between existing facilities and add to the network as new residences and subdivisions are developed in Archer Lodge. Chapter 4 of NCDOT's <i>Complete Streets Planning and Design Guidelines</i> (http://completestreetsnc.org) provides specific sidewalk design guidance and recommendations.
Single-Family Residential District (SFR-1, 2 and 3) dedication of Open Space Usable open space.	Except as provided in subsection Density Bonus, every residential development shall be developed so that at least five percent of the total area of the development remains permanently as usable open space.	Amend the ZSO to include requirements similar to those in the section on density bonuses. Specific recommendations for including greenways, shared use paths, sidewalks, and/or bicycle facilities should be listed.



Code of Ordinances Section	Current Policy	Recommended Changes and Comments
New Section – Dedication of open space.	<p>Open space is defined in the current ordinances as any portion of any lot proposed for Open space, common open space or recreation area means any space or area characterized by great natural scenic beauty or whose openness, natural condition, or present state of use, if retained, would enhance the present or potential value of abutting or surrounding development, or would maintain or enhance the conservation of natural or scenic resources; or any undeveloped or predominately undeveloped land that has value for one or more of the following purposes:</p> <ul style="list-style-type: none"> (1) Park and recreational uses; (2) Conservation of land and other natural resources; or (3) Historic or scenic purposes. <p>This area shall be dedicated to public use.</p>	<p>Chapter 4 of NCDOT’s <i>Complete Streets Planning and Design Guidelines</i> (http://completestreetsnc.org) provides specific design guidance and recommendations for building greenways, shared use paths, sidewalks, and bicycle facilities.</p>

4.8 Recommended Programs

In addition to recommended infrastructure and policy improvements, the planning team looked at programs that, if implemented, could encourage non-motorized transportation activity in the town and improve safety conditions for bicyclists and pedestrians. While specific programs identified by the Steering Committee and public feedback are recommended below, an overarching recommendation is to develop a Bicycle and Pedestrian Advisory Committee (BPAC). This recommendation is being made outside of the public involvement process but is being made to help implement some of the other policy and program recommendations, as well as some of the other recommendations being made in this *plan*.

The Steering Committee and public were asked to identify and prioritize the types of programs they would like to see recommended in the *plan*. Overall, updating town ordinances – including the subdivision and the zoning ordinance – to include bicycle and pedestrian specific facilities and adopting complete street considerations scored the highest. Recommendations from this program are reflected in Section 4.7 of this *plan*.



The top scoring programs and policies identified by the Steering Committee and the public were as follows:

- Update subdivision ordinances and/or zoning to include bicycle and/or pedestrian specific facilities including Complete Streets.
- Enhance safe access to schools.
- Raise the visibility of walking and bicycling with events/festivals.
- Partner with the Sheriff's Department and Highway Patrol on enforcement of existing driving laws and speed limits.
- Start open streets events after a recommend project is constructed. An example may include a festival at Town Hall, a park, or greenway to promote a new project.
- Demonstrate improvements through pop-up projects.

Programs specific to these categories are discussed below. A full list of the ranked programs is included in Appendix A.

Bicycle and Pedestrian Advisory Committee

The development of a BPAC includes having the Archer Lodge Town Council appoint a council member, citizen liaison, or advocate, who will form a BPAC to continue bicycle and pedestrian planning efforts and program implementation in Archer Lodge. Based on a town the size of Archer Lodge, a committee is recommended (rather than an appointed individual).

The BPAC should include some existing Steering Committee members, Planning Board members, and residents concerned about bicycle and pedestrian issues and needs in the community. Membership of the BPAC should reflect the demographic makeup of the town in terms of age, race, and socioeconomic status. Representatives from community groups, schools, and businesses should be included. The BPAC would be charged with the principal objective of advocating for bicycle and pedestrian safety and mobility through education, encouragement, and enforcement campaigns and infrastructure projects.

The BPAC would research funding opportunities, assist with submission of grant applications, and play a role in selecting and monitoring the work of consultants and contractors designing and constructing bicycle and pedestrian infrastructure. It would also serve to form partnerships between schools, businesses, and neighboring municipalities. The BPAC or an appointee should meet regularly and provide updates to the Archer Lodge Town Council. In addition to helping implement proposed projects the town council should promote education, safety, encouragement, enforcement and evaluation, events, and beautification programs. More specifically, the BPAC should work and coordinate with organizations that will help promote bicycle and pedestrian-related activities and events throughout the community. An example would be to coordinate with the Safe Routes to School Region 7 Coordinator to encourage children in Archer Lodge to walk or bike to school. Examples of other programs that are available are described in further detail below.



Safety Campaigns to Educate Bicyclists, Pedestrians, and Drivers

The public comment form for this *plan* indicated “promote good road user behavior” as one of the top scoring programmatic goals for this *plan*. It was noted several times during the planning process that roads are unsafe for bicyclists and pedestrians not only because of the lack of facilities for those users, but because of vehicular driver behavior.



Watch for Me NC is a comprehensive campaign aimed at reducing the number of bicyclists and pedestrians hit and injured in crashes with vehicles. The campaign consists of educational messages on traffic laws and safety, and an enforcement effort by area police. With more than 2,400 pedestrians and 960 bicyclists hit by vehicles each year in North Carolina, NCDOT in collaboration with municipalities and universities has launched the *Watch for Me NC* campaign to reduce crashes through education and enforcement. Education materials in the form of a website, public service announcements, pamphlets, bus wraps, billboards, and bumper stickers have been developed and distributed to

increase awareness of pedestrians and bicyclists and applicable laws. Many of the materials can be distributed at local festivals and other events, at local bicycle shops and other businesses, and in renters’ information packets and property owners’ guest information books. The campaign also provides increased training to law enforcement. Archer Lodge may coordinate with the Town of Clayton, which has participated in the *Watch for Me NC* campaign.

Many of these resources are downloadable from *Watch for Me NC* at: www.watchformenc.org/.

Enhance safe access to schools

Safe Routes to School (SRTS) is a program that enables and encourages children to walk and bicycle to school. The program helps make walking and bicycling to school a safe and more appealing method of transportation for children. SRTS facilitates the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.



An annual walk to school day is typically held in October and is coordinated by the Region 7 Active Routes to School Coordinator. To improve both safety and access to schools, the town should work with its Region 7 and NCDOT to develop an SRTS plan for Johnston County Schools. An SRTS plan would identify barriers to walking and bicycling to school and identify solutions using a combination of education, encouragement, engineering, and enforcement strategies.



Active Routes to School (ARTS) is the North Carolina SRTS project that is supported by a partnership between NCDOT and the Division of Public Health. The goal of the project is to increase the number of North Carolinians that meet the physical activity recommendations by increasing the number of elementary and middle school students who safely walk and bicycle to or at school.

More information on SRTS can be found at <https://www.ncdot.gov/bikeped/safetyeducation/safeRoutesToSchools/>.



In addition to the SRTS, the town could facilitate Archer Lodge Elementary School's participation in the NCDOT program Let's GoNC! - Pedestrian and Bicycle Safety Curriculum. Aimed to instruct children between grades k-5, the program focuses on walking and biking safety and skills. As a way to promote healthy and active lifestyles, a curriculum was developed that includes aspects of the SRTS program, and classroom, video, and exercise materials.

More information can be found at: www.connect.ncdot.gov/projects/BikePed/Pages/LetsGoNC.aspx.

Open Street Events

Once some of the recommended projects are constructed, it would create a perfect opportunity for regular special events. A festival could be set up at the Town Hall or new park spurring a new experience that may draw more interest in pedestrian facilities.

An international trend is to turn major town roads into "Sunday Parkways." This concept takes long strips of roadways (linear or in a looping pattern) and converts one or both directions of traffic to pedestrian malls or for bicycle rides during a portion of every Sunday and holiday. This encourages people to get out and walk or bicycle, increases the amount of public space, and motivates people to walk more often throughout the rest of the week. This concept is included in the statewide *WalkBikeNC Plan*. In planning any Open Street event, merchants and other business owners should be consulted to accommodate potential impacts on access and sales.



*Open Street Bicycle Event
(Flickr Creative Commons,
Umberto Bayi, 2012)*

Enforcing existing driving laws and speed limits

Education is essential for teaching and reminding drivers of all ages the applicable laws and responsibilities of motorists as they pertain to safely sharing the road with bicyclists and pedestrians. This also includes educating police officers on bicycle and pedestrian laws.

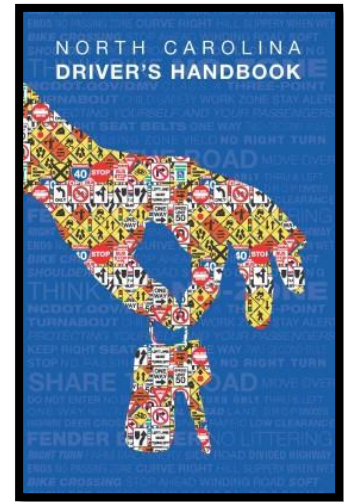
Although children aged 5 to 15 years are not yet old enough to drive, it can be expected that the majority will become automobile users. Educating elementary and middle school students (the future driving population) about bicycle and pedestrian safety provides excellent opportunities to make a difference in a two-fold manner.



Pedestrian safety, as well as how to safely maneuver an automobile while in the presence of pedestrians and bicycles can be an instrumental part of any driver's education program in Archer Lodge. This training will allow new generations to be more aware of the simple fact that motorized vehicles do not have sole right to the transportation network, and it is everyone's responsibility to be careful when in the roadways.

More information can be found at: www.ncdot.gov/dmv.

The NC Bicycle and Pedestrian laws can be found at:
<https://www.ncdot.gov/divisions/bike-ped/Pages/bike-ped-laws.aspx>.





5.0 Implementation Strategy

5.1 Overview

Achieving the vision, goals, and objectives of this *plan* will require the commitment of town officials and staff, BPAC or appointee(s), the CAMPO, and NCDOT, and the support and leadership from the community and other partner organizations. Guided by the goals, objectives, and strategies, the town will continue working to improve bicycle and pedestrian safety and connectivity.

The implementation strategy for this *plan* includes several components to assist with translating this document into implemented programs and constructed bicycle and pedestrian facilities:

- Key Action Steps: *Describing actions to help the town implement the recommendations of this plan and improve overall bicycling and pedestrian facilities*
- Project Development Strategies: *Utilizing key action steps to implement specific projects*
- Funding Process and Sources: *Identifying and mobilizing funding for projects*
- Performance Evaluation Measures: *Evaluating the effectiveness of projects*

5.2 Key Action Steps

The BPAC is entrusted with overseeing the implementation of the *plan* with assistance from town staff and participation by the stakeholders. The BPAC would be responsible for meeting regularly to receive updates and guide progress on the action steps. It would also author an annual progress report on bicycle and pedestrian conditions in Archer Lodge.

In addition, all bicycle and pedestrian facility recommendations along NCDOT-maintained roadways would require review and approval by NCDOT Highway Division 4 prior to implementation. The key actions are listed in Table 5-1.



Adopt the Town of Archer Lodge Bicycle and Pedestrian Plan	Present the <i>plan</i> to the Archer Lodge Town Council for adoption	Town council and town staff	Spring 2020
Establish a Bicycle and Pedestrian Advisory Committee	Form an advisory committee or appoint an individual who will be responsible for overseeing the implementation of the <i>plan</i> .	Town council and town staff	Winter 2021
Strengthen partnerships with Johnston County and CAMPO	Hold an initial meeting with the stakeholders to provide an overview of the <i>plan's</i> recommendations and identify opportunities for collaboration.	Johnston County and CAMPO	Winter 2020/ongoing
Coordinate with NCDOT Division 4	Hold an initial meeting with NCDOT Division 4 to discuss how the <i>plan's</i> bicycle and pedestrian projects may be incorporated in upcoming transportation projects,, including roadway resurfacing projects. Additional coordination is recommended via the BPAC to coordinate with the NCDOT Division 4 3=year resurfacing schedule (including any short-term changes) to accomplish the projects that require pavement markings.	NCDOT Division 4 and town staff	Ongoing
Coordinate with CAMPO to include infrastructure projects in the regional planning process	Hold an initial meeting with CAMPO to review the <i>plan's</i> infrastructure projects to include where appropriate in regional plans including any future updates to the <i>Johnston County Comprehensive Transportation Plan</i> .	Town staff and CAMPO	Winter 2020/ongoing
Coordinate with local bicycle organizations and clubs	Hold an initial meeting with representatives from the organizations to review the <i>plan's</i> goals and objectives and to discuss potential opportunities for collaboration with items such as the establishment of a Regional Bicycle Network, programs, and policies	Town staff, BPAC/appointees and representatives from the bicycle organizations	Winter 2021
Include requirements for bicycle & pedestrian facilities in town ordinances and policies	Draft amendments to town ordinances and policies following the recommendations of this <i>plan</i> for bicycle and pedestrian infrastructure in existing and new development.	Town council and town staff	Winter 2021
Coordinate with local municipalities, including Clayton and Wendell, and Flowers Plantation, a PUD, for an integrated bicycle & pedestrian network plan	Staff to contact representatives from each entity and discuss integrated bicycle and pedestrian network plans.	Town council, town staff, and those entities participating.	Winter 2021



Table 5-1: Key Actions



Action	Description	Stakeholder	Timeline
Establish a sidewalk maintenance program	Develop a sidewalk maintenance program.	Town council and town staff	Winter 2021
Apply for alternative funding sources for the <i>plan's</i> projects and programs	Refer to the funding sources identified in this <i>plan</i> in Appendix D; apply for funds in addition to the STIP process to implement programs and projects. Establish a fund to use for local match requirements.	BPAC/appointee and town staff	Ongoing
Partner with NC Department of Commerce	Develop and partnership with the NC Department of Commerce that will serve to promote ecotourism in the town.	Town staff, NC Department of Commerce	Winter 2020/ongoing
Carry out programs that educate residents on the health benefits of walking and biking	Partner with the Johnston County Health Department, local schools, and other community organizations to implement encouragement and educational programs identified in Appendix B of this <i>plan</i> .	BPAC/appointee, and town staff	Winter 2021/ongoing
Town budget planning	Identify potential funding sources for bicycle and pedestrian programs, projects and maintenance in the town's budget. Begin to accumulate funds that can be used for the local match required for most projects.	BPAC/appointee, town council and town staff	Winter 2022
Coordinate with Region 7 Active Routes to School Coordinator	Begin meeting with the Region 7 Active Routes to School Coordinator to establish and develop policy for implementation and/or training or programs for Archer Lodge.	BPAC/appointee, town staff, NCDOT, NC Division of Public Health	Spring 2020
Wayfinding Study	Identify locations for wayfinding signage and develop a system of unique and branded signs, possibly using a local artist.	BPAC/appointee, town Council, town staff	Spring 2022
Watch for Me NC	Apply to participate in NCDOT's Watch for Me NC campaign to raise awareness and provide educational resources to promote bicycle and pedestrian safety to residents, drivers, and law enforcement.	BPAC/appointee, and town staff	Spring 2021/ongoing
Archer Lodge Bicycle and Pedestrian Annual Report/Memo	Prepare the first Archer Lodge Bicycle and Pedestrian Annual Report assessing progress made over the past year using the performance and evaluation measures included in this <i>plan</i> .	BPAC/appointee and town staff	Winter 2023



5.3 Project Development Strategy

The development process to prepare for a project's construction involves six key components described below. This strategy can be used to implement infrastructure projects proposed in this *plan*. When applicable, each component of the strategy will incorporate action steps described in Table 5-1 demonstrating how town officials can implement the project practically.

- Identification of funding source(s)
- Public involvement
- Feasibility Study (right-of-way availability and needs)
- Engineering and design
- Analysis of affected property owners
- Design-level cost estimates

The project development process will vary depending on whether the project is on-road or off-road on a new location. Wide paved shoulders and bicycle lane markings are on-road facilities because they are typically constructed within the road right-of-way. However, adding sidewalks where applicable may involve obtaining additional right-of-way and/or easements from adjacent property owners. Shared use paths are typically an example of off-road facilities because they would require new location rather than being built within an existing right-of-way, unless (for example) an existing utility easement is used (would require an easement if not in right-of-way).

Identification of Funding Sources

Funding for bicycle and pedestrian infrastructure projects needs to be identified early in project development. Many funding options are presented in Section 5.4 of this *plan*. Relevant action steps include the following:

- Collaborate with the Town of Clayton
- Coordinate with CAMPO to include infrastructure projects in the regional planning process
- Apply for alternative funding sources for the *plan's* projects and programs
- Partner with North Carolina Department of Commerce
- Town budget planning

Public Involvement

This is a critical component for soliciting community input on the location, design, and function of the proposed facility. In addition, public involvement is critical in forming partnerships with local advocacy organizations and educating the community about the overall benefits of bicycling and walking. Public involvement should be included in all phases of project development. Practical action steps include the following:

- Establish a Bicycle and Pedestrian Advisory Committee



- Coordinate with local bicycle organizations and clubs
- Carry out programs that educate residents on the health benefits of walking and biking
- Wayfinding study
- Watch for Me NC

Feasibility Study (Right-of-Way Availability and Needs)

Regardless of whether the proposed facility is on-road or off-road, the project will require a feasibility study. A feasibility study would likely be done for each proposed project, or a small group of inter-related projects. The study will examine the utility and right-of-way issues associated with a proposed facility and provide concept plans, profiles, and high-level cost estimates. The study will determine utility constraints, and if right-of-way acquisition is necessary for the project. The study should be conducted in consultation with NCDOT where occurring within an NCDOT right-of-way. The Town of Archer Lodge may need to fund or provide a local contribution toward these studies.

Some of the bicycle and pedestrian projects proposed in this *plan* would be on-road facilities within NCDOT rights-of-way that require coordination with NCDOT. On NCDOT roads in town, bicycle lanes or sharrows have the potential to be accomplished cost-effectively through division's resurfacing projects. As identified in the key action steps table, coordination with NCDOT Division 4 should be initiated following the adoption of this *plan*. There may be opportunities to include the on-road bicycle and pedestrian facilities proposed by this *plan* in road repaving and widening projects. An important role for the BPAC would be to monitor the NCDOT Division 4 resurfacing schedule. This could be accomplished through arranging quarterly check-ins with the Division Operations and Maintenance personnel to determine upcoming resurfacing plans. Although NCDOT communicates with local municipalities concerning upcoming resurfacing plans, coordination with NCDOT is recommended to ensure projects in this *plan* can be implemented through resurfacing.

Feasibility studies could require coordination at multiple levels from the town to NCDOT. The following actions would assist in coordinating and conducting feasibility studies:

- Adopt the *Town of Archer Lodge Bicycle and Pedestrian Plan*
- Strengthen partnerships with Johnston County and CAMPO
- Coordinate with NCDOT Division 4
- Coordinate with CAMPO to include infrastructure projects in the metropolitan planning process
- Town budget planning

Engineering and Design (Environmental document (NEPA) may be required prior to design)

In the engineering and design phase, concepts developed in the feasibility study will be developed and advanced using more in-depth engineering to develop a preliminary design. During this phase additional, more specific information on right-of-way and utility constraints will be developed. As with the feasibility study, the planning and design phase should be conducted in consultation with NCDOT where occurring within an NCDOT right-



of-way. The Town of Archer Lodge may need to fund or provide a local contribution toward these studies. Because engineering and design follow feasibility studies and environmental documents closely, many applicable action steps are the same:

- Coordinate with NCDOT Division 4
- Coordinate with CAMPO to include infrastructure projects in the metropolitan planning process
- Town budgeting and planning

Analysis of Affected Property Owners

It is best to develop projects within existing town or NCDOT right-of-way to minimize right-of-way acquisition and costs. Typically, bicycling and pedestrian infrastructure projects, including those in this plan, utilize existing roadways, sidewalks, and rights-of-way. However, if a project requires the acquisition of additional rights-of-way, the feasibility study, engineering, and design identify property owners who could be impacted by a project's alignment and construction. Once those property owners are identified, town officials should coordinate with NCDOT on the process to initiate contact with impacted property owners and acquire right-of-way.

Bicycling and pedestrian projects that could require the acquisition of rights-of-way typically include those that are not utilizing existing roadways or sidewalks. A shared use path, such as the South Murphrey Road shared-use path, is an example. This information is provided for future reference, as applicable.

Shared-use paths are considered off-road facilities that require different strategies for project development. Off-road facilities are constructed outside of the road right-of-way. Private land or an easement would need to be acquired to accommodate the shared-use path. Archer Lodge may partner with Johnston County, as well as conservation and land trust organizations, to secure needed easements or acquire land for the shared use projects.

For facilities that are planned adjacent to streams and waterbodies, it is important to consider buffer regulations and applicable watershed protection regulations. Archer Lodge is in the Neuse River watershed. During the engineering phase, coordination should be undertaken with the Johnston County Soil and Water Conservation District and the North Carolina Department of Environment and Natural Resources (NCDENR) in order to ensure that facilities are engineered to avoid buffer zones and/or ecologically sensitive areas. These facilities may be designed in conjunction with enhancing or constructing vegetated stream buffers to improve water quality. Such projects may be eligible for funding from the Clean Water Management Trust Fund.

Design-level Cost Estimates

A critical component of a project's engineering and design is developing the design-level cost estimates for proposed project alternatives. Detailed cost estimates allow the town council to evaluate alternatives, present options to the public, receive public input, and ultimately decide on the alternative that best fits the town's goals and budget. Design-level cost estimates are generated by the project engineers tasked with designing the project alternatives. Cost estimates include the following details:

- Roadway/path/sidewalk construction



- Utility construction or relocation
- Right-of-way acquisition
- Contingencies that could arise in the course of project construction

5.4 Funding Sources

Funding for bicycle and pedestrian projects will likely not come from a single source, and instead will need to be combined with several funding sources that can be used for a variety of activities, including: programs, planning, design, implementation, and maintenance. Although funding is available from outside sources, it is highly recommended that the town establish a source of local matching funds for potential grants. Even small amounts of local funding are essential for matching and leveraging outside sources. Local matching funds can be achieved through allocations to a reserve fund from the capital budget. In addition, many grants allow in-kind matching (e.g., local staff time).

This section discusses the state funding process and other potential funding sources. There are two main sources of funding, NCDOT STIP funding, and NCDOT Division 4.

State Funding Process for Transportation Improvements

In June 2013 the North Carolina General Assembly overhauled the process for funding state transportation projects with the Strategic Transportation Investments law (House Bill 817). This law establishes the Strategic Mobility Formula to allocate funds based on quantitative criteria and local input. The formula is intended: “to maximize North Carolina’s existing transportation funding to enhance the state’s infrastructure and support economic growth, job creation and high quality of life.”

The formula funds projects according to the three following categories:

- Division Needs (30 percent)
- Regional Impact (30 percent)
- Statewide Mobility (40 percent)

The NCDOT Division 4 and metropolitan or rural planning organization (M/RPO) provide MPO or RPO input in the Division Needs Category.

Bicycle and pedestrian projects (separate from facilities included as part of a roadway project) may be funded through (NCDOT’s Division 4) Division Needs category with certain restrictions.

Other Funding Sources

Archer Lodge should consider alternate funding sources to augment state funds for bicycle and pedestrian projects, which are limited and competitive. The programs listed below may be used to fund entire projects or be directed towards covering the cost of spot improvements like crosswalks or amenities such as benches and



signage. Additional and more detailed information concerning what these funds can be used for, the required local match, and other characteristics is included in Appendix D: Funding Sources.

Federal Funding Sources

- Fixing America's Surface Transportation (FAST ACT)
- Congestion Mitigation and Air Quality Improvement (CMAQ)
- Highway Safety Improvement Program (HSIP)
- State and Community Highway Safety Grant Program (Section 402)
- Surface Transportation Program (STP)
- Transportation Alternatives Program (TA or TAP)
- Urbanized Area Formula Program (UZA)
- Safe Routes to School

State Funding Sources

- Clean Water Management Trust Fund
- Land and Water Conservation Fund
- Parks and Recreation Trust Fund (PARTF)
- Recreational Trails Program
- Strategic Mobility Formula

Local Funding Sources

- Capital Reserve Fund
- Community Crowdfunding
- Fees
- General Obligation Bonds
- Special Tax District
- County Open Space

Private/Nonprofit Funding Sources

- Blue Cross Blue Shield of North Carolina Foundation
- Alliance for Biking and Walking Advocacy Grants
- Duke Energy Foundation
- Corporate Donations
- Fundraising/Campaign Drives
- Volunteer work



Local “Crowdfunding”

In the last several years the internet has revolutionized fundraising. This new form of fundraising, called crowdfunding enables people all over the world to start a fundraising effort and provides an easy mechanism for others to make donations. Platforms such as Citizeninvestor and Indiegogo are online communities that act as funding platforms for a diverse range of projects. Individuals or organizations post projects for a nominal fee and individuals make contributions via credit card. Costs include a 4 percent fee charged by the crowdfunding platform (e.g., Indiegogo) and a 3 to 5 percent fee charged by the credit card company.

This type of fundraising is likely to be a minor source, but might be useful for funding spot improvements, such as crosswalk markings or benches.

Citizeninvestor: Projects are formed from “cities or official town partners” that focus on micro-projects (4 to 5 years). <http://www.citizeninvestor.com/>.

Indiegogo: Similar to the successful crowdfunding platform, Kickstarter, Indiegogo is more locally oriented and trends toward civic-based projects. <http://www.indiegogo.com/>.

5.5 Performance and Evaluation Measures for Plan Implementation

In order to evaluate the progress and effectiveness of the *Town of Archer Lodge Bicycle and Pedestrian Plan*, the following table (**Error! Reference source not found.**) lists evaluation criteria and examples of achieved progress that the BPAC and town council can use. These criteria and milestones are based on the goals and objectives of this *plan*. The table is intended to serve as a general guide – the BPAC should tailor these evaluation criteria to the community by adopting more specific, locally applicable quantitative metrics.

The evaluation of the *plan* should occur annually and be published in the form of a memo or report made available to the residents of Archer Lodge. The report should detail the progress made to date and the priorities for the coming year. This annual report will help to demonstrate the benefits of pedestrian infrastructure and programs as well as generate further support for the ongoing work of the BPAC or appointment of a single council member, citizen liaison, or advocate for bicycle and pedestrian activities.



Table 5-2: Performance and Evaluation Measures for Plan Implementation

Plan Goal	Plan Objective	Performance Evaluation	Examples of Progress Achieved
Goal and Objective 1: Improve Mobility through Bicycle and Pedestrian Networks			
Improve mobility through provision of options for active transportation	Create and provide safe bicycle and pedestrian networks, remove barriers, and enhance connections between residential neighborhoods and destinations.	Miles of bicycle and pedestrian facilities constructed; Number of spot improvements (e.g., crossing facilities) completed.	Miles of bicycle and pedestrian facilities constructed in a specific period of time (e.g., 3 miles within 5 years)
Goal and Objective 2: Provide Bicycle, Pedestrian and Driver Education			
Educate the community as to the benefits of pedestrian activity and applicable rules and regulations	Implement policies and programs to improve pedestrian and cyclist safety and educate the community	Number of safety education campaigns or events annually in the community	Participation in the Watch for Me NC program annually or bi-annually
		Number of bicycle and pedestrian-related crashes	Reduction in existing speed limits to increase safety and prevent potential incidents annually
Goal and Objective 3: Promote Environmental, Public Health, and Safety Benefits of Biking and Walking			
Achieve safe and attractive environment through programs and policies	Capture the environmental and public health benefits of biking and walking by providing active living environments with safe, connected, accessible facilities along with programs that encourage bicycling and walking	Number of partnerships established with schools, community groups, the county health department, environmental groups, and town government to plan and hold “X” number of events	Number of events held, counts, or number of miles bicycled or walked annually
Goal and Objective 4: Encourage Economic Benefits of Biking and Walking			
Educate the community as to the economic benefits that improved bicycle and pedestrian infrastructure can have on surrounding businesses and residences	Enhance and improve the secondary benefits resulting from bicycle and pedestrian infrastructure	Develop education and incentive programs that promote household savings from alternative transportation modes, tourism, development goals, and property value	Household spending on motor vehicle costs is less burdensome when alternatives are available
			Increase in tourism spending, development, or property value over a five-ten-year period; businesses gain



Plan Goal	Plan Objective	Performance Evaluation	Examples of Progress Achieved
			customers from additional trail users
Goal and Objective 5: Connect Cultural Sites and Natural Resources			
Develop facilities and programs that enhance the connection between local and regional cultural sites and natural resources through bicycle and pedestrian facilities such as trails	Create walking and bicycling information and wayfinding to tie Archer Lodge’s historic downtown, its cultural and historic sites, and surrounding natural resources	Implemented infrastructure projects that connect cultural sites and natural resources annually	Miles/feet of bicycle and pedestrian facilities constructed that connect cultural sites and natural resources annually
		Interpretive signage and maps on bicycle and pedestrian facilities that describe the cultural and natural context of the area	Way finding signs and access points added to bicycle and pedestrian facilities
Goal and Objective 6: Foster Public Health and Environmental Benefits of Walking and Biking			
Encourage higher levels of physical exercise for improved public health and environmental awareness	Incentivize conditions, programs, and partnerships to achieve a more bikeable and walkable community	Construct new/upgraded bicycle and pedestrian facilities expanding recreational opportunities	Number of newly constructed or upgraded facilities annually
		Implement programs/establish partnerships to promote and develop encouragement of recreational bicycle and pedestrian activities	Number of programs or partnerships annually



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US Census Bureau (2013-2017). *Sex by Age*. American Community Survey 5-year Estimates (2013-2017), Table B01001.

US Census Bureau (2013-2017). *Tenure by Vehicles Available*. American Community Survey 5-year Estimates (2013-2017), Table B25044.



Appendix A: Public Involvement

This appendix contains the following documents:

- First Steering Committee Meeting Agenda
- First Steering Committee Meeting Sign-In Sheet
- First Steering Committee Meeting Minutes
- First Steering Committee Meeting Presentation and Map
- Second Steering Committee Meeting and Public Meeting Agenda
- Second Steering Committee Meeting and Public Meeting Sign-In Sheet
- Second Steering Committee Meeting and Public Meeting Minutes
- Second Steering Committee Meeting and Public Meeting Presentation and Handouts
- Third Steering Committee Meeting and Public Meeting Agenda
- Third Steering Committee Meeting and Public Meeting Sign-In Sheet
- Third Steering Committee Meeting and Public Meeting Presentation and Handouts



First Steering Committee Meeting Agenda

Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
First Steering Committee Meeting

Agenda – Steering Committee Kick-off Meeting and Working Session
Town Hall
January 31, 2019 6:30 PM

6:30 PM INTRODUCTIONS

A) Introductions

Town Staff, Steering Committee, NCDOT, and AECOM Team

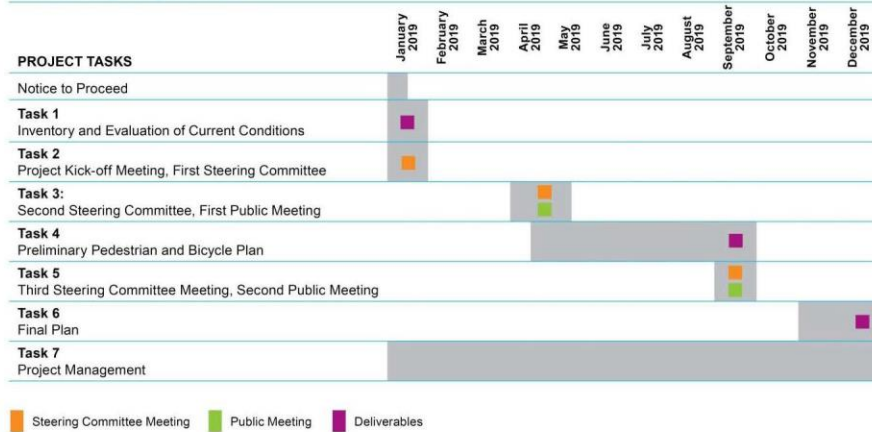
B) Discuss the role of the Steering Committee

6:40 PM PROJECT OVERVIEW

Review the Purpose, Tasks, and Project Schedule

Project Schedule

Schedule beginning January 2019





Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
First Steering Committee Meeting

6:50 PM VISION, GOALS, AND OBJECTIVES

Introduce and review the vision, goals, and objectives of the Archer Lodge Bicycle and Pedestrian Plan. (Refer to Attachment A)

7:10 PM WORKING SESSION

The steering committee will be asked to participate in two mapping exercises intended to lay the groundwork for developing projects that will be presented in the plan.

Mapping exercise 1: Identify bicycle and pedestrian origins and destinations and constraints and opportunities mapping exercise, based on the findings of the walking tour, as well as Steering Committee input. The Committee will also help identify community features that the Town would benefit by having additional bicycle and pedestrian connections.

Mapping exercise 2: Based on the results of the first exercise, the Committee will begin to identify bicycle and pedestrian infrastructure projects. As part of this exercise, the AECOM team will discuss the criteria that will be used for project prioritization.

8:00 PM NEXT STEPS

8:05 PM ADJOURN



Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
First Steering Committee Meeting

Attachment A
Vision, Goals, and Objectives

Vision of the Plan

The Town of Archer Lodge will be a place where people of all ages and diverse backgrounds have access to bicycle and pedestrian facilities and programs that promote: exercise and wellbeing, safety, connectivity, and other goals added at meeting.

Goals of the Plan

- Improve on-road bicycling and pedestrian safety, with an emphasis on heavily used routes.
- Create a network of multi-use pathways for off-road transportation and opportunities for active and passive recreation that will enhance connections between community origins and destinations such as schools, stores, and churches.
- Organize and support programs to become a walkable and bicycle friendly community.
- Provide a hierarchy of recommended infrastructure projects and programmatic support services.
- Have clear policies and development guidelines in our zoning and subdivision regulations consistent with the bicycle and pedestrian master plan.
- Educate the community as to the benefits of pedestrian activity and applicable rules and regulations.

Objectives of the Plan

- Implement policies and programs to improve pedestrian and cyclist safety and educate the community.
- Identify and develop bicycle and pedestrian accommodations along Archer Lodge's roadways.
- Partner with schools, community groups, the county health department, environmental groups, other stakeholders, and city government to plan and hold events that recognize and promote the health and environmental benefits of walking and biking and promote active living.
- Survey the Archer Lodge community in order to craft a bicycle and pedestrian plan representative of the community.
- Implement policies and programs to improve pedestrian and cyclist safety and educate the community. Build on the open space requirements for all major subdivision residential developments which can be found in the Town's Subdivision Ordinance (Archer Lodge Comprehensive Parks and Recreation Plan, 2015).
- Improve links between existing pedestrian infrastructure, organize and support programs and events on the benefits of pedestrian activity, and create incentives to encourage walking.



Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
First Steering Committee Meeting

Attachment B

FIELD VISIT – DRIVING TOUR – 4:30 PM, prior to start of Steering Committee Meeting

Please let us know of any concerns prior to the meeting by contacting Andy Thomas, Senior Planner at andy.thomas@townofarcherlodge.com or 919-359-9727, or Cindy Camacho, Project Manager at cindy.camacho@aecom.com or 919-461-1100.



First Steering Committee Meeting Sign-In Sheet



Steering Committee Meeting #1 Town of Archer Lodge Bicycle & Pedestrian Plan



Steering Committee Member Name	Address	Phone Number	Email
Samantha Wullenwaber	PO Box 8791 Clayton, NC	919-553-5002	swullenwaber@townofclaytonnc.com
Halcy Hoxby	" "	" "	HHoxby@townofclaytonnc.com
Teresa Babin	14254 Buffalo Rd. Clayton, NC 27021	919-550-2845	teresa.babin@townofarcherlodge.com
Bob Davis	111 Carrie Dr Archer Lodge, NC	919-946-2463	lesliebabin@live.com
Nicole Westley	Health Department	919-989-5202	nicole.westley@johnsonnc.com
John Goldman	7016 Main Street #104 Clayton	919-815-1111	jgoldman001@icloud.com
Bob Clark, Ph.D. / Director		919-559-9727	bob.clark@townofarcherlodge.com



Steering Committee Meeting #1 Town of Archer Lodge Bicycle & Pedestrian Plan



Steering Committee Member Name	Address	Phone Number	Email
Terry Barnes	14236 Buffalo Rd	919-553-4026	TBARNES725@gmail.com
John F. Oglesby	535 Barrette Lane	(919) 624-0997	john@csd-engineering.com
J. Mark Jackson	101 Bristol Circle	919-631-5259	dc04325a1r@gmail.com
Joyce Lawhorn	14094 Buffalo Rd.	919-359-9727	joyce.lawhorn@townofarcherlodge.com
Kim Batten	14094 Buffalo Rd.	919-359-9727	Kim.BATTEN@TOWNOFARCHERLODGE.COM
Bryan Lopez		919 707 2806	blopez@ncdot.gov



First Steering Committee Meeting Summary

Summary – Steering Committee Kick-off Meeting and Working Session
January 31, 2019 6:30 PM – 8:30 PM

ATTENDEES

- Bob Clark, Town Planner/Director
- Andy Thomas, Town Planner/Director
- Kim Batten, Town of Archer Lodge
- Joyce Lawhorn, Town of Archer Lodge
- Teresa Bruton, Town of Archer Lodge
- Samantha Wullenwaber, Town of Clayton
- Haley Hogg, Town of Clayton
- Nicole Westley, Johnston County
- Brian Lopez, NCDOT representative
- Cindy Camacho, Project Consultant
- Haley Lloyd, Project Consultant
- John Goldman
- Terry Barnes
- John F. Oglesby
- J. Mark Jackson
- Bob Davis

SUMMARY

The Steering Committee for the Town of Archer Lodge Bicycle & Pedestrian Plan met on Thursday, January 31, 2019 at Archer Lodge Town Hall. Project consultants Cindy Camacho and Haley Lloyd from AECOM were present, as well as NCDOT Bicycle and Pedestrian Division Planner Brian Lopez. The sign-in sheet, agenda, and a copy of the slides are included as **Attachment A**.

Introductions

The kick-off meeting began with introductions by the project consultants followed by the committee. Members were asked to introduce themselves and state why they are interested in improved bicycle and pedestrian facilities in their community. Responses include:

- Working with the County-wide trail plan to connect with/expand rail-to-trails.
- Providing connectivity between Archer Lodge and neighboring towns (Clayton) and the County, as well as representation within the State.
- Connecting all elements related to bicycle and pedestrian planning including the bringing together of property owners, outdoor recreation, and local and neighboring citizens.
- Improving walkability throughout Archer Lodge.
- Expanding outdoor recreation and healthy lifestyle activities.
- Improving bicycle and pedestrian safety.
- Improving and expanding citizen commitment to bicycle and pedestrian planning through the improvement multi-modal infrastructure and amenities.
- Bicycle and pedestrian planning efforts that can make way for potential future funding opportunities of multi-modal infrastructure and amenities.



Project Overview

Cindy Camacho gave an overview of the project including the purpose of developing a plan and the importance of defining a vision. She described how the plan would include recommended projects, programs, and policies that can be used to request funding for implementation. It was described that engineering and construction are not a part of the plan/scope of the NCDOT grant.

Cindy Camacho then reviewed the role of the Steering Committee, which is to:

- Attend and actively participate at steering committee meetings
- Provide feedback and recommendations on each task
- Assist with public outreach by inviting friends and neighbors to participate as well as serving as facilitators at the public workshop
- Following the adoption of the Plan, assist with the formation of the Bicycle and Pedestrian Advisory Committee.

Tasks and Project Schedule

The project tasks and schedule were reviewed. The preliminary plan is expected to be presented to the committee for comment in September with the next committee meeting occurring sometime between April and May (official date to be decided). The next committee meeting will coincide with a public workshop to solicit public input on the plan.

Vision and Goals

Cindy Camacho presented a sample vision to the committee and explained that a vision statement provides direction throughout the planning process. Notecards given to each committee member were used in an exercise where Cindy Camacho asked each member write his or her response to the following question: "What does Archer Lodge mean to you?" These notecards were collected anonymously and will be used in drafting the vision statement for the Plan. The consultants also asked the Steering Committee to list words that represent the Town of Archer Lodge (listed below).

The following vision statement is the result of the notecard exercise:

The Town of Archer Lodge will be a place where people of all ages and diverse backgrounds have access to bicycle and pedestrian facilities and programs. These programs and facilities will promote exercise and wellbeing in a safe and connective infrastructure that allows residents to celebrate and discover Archer Lodge's rich culture and history. The need for vehicular traffic connectivity will provide a great opportunity to incorporate bicycle- and pedestrian-friendly corridors in Archer Lodge.



Word cloud for Archer Lodge:



Cindy Camacho presented sample goals and opened the floor to discuss what goals the committee wants in the Town of Archer Lodge Bicycle and Pedestrian Plan. The committee agreed that the sample goals provided a good start and agreed that they could be tailored to Archer Lodge.

Key themes identified during discussion of goals included: active living, safety, infrastructure, mobility, and education. The committee discussed the sample goals and requested additions/edits and/or inclusion of specific sample goals. This includes:

- Improve on-road bicycling and pedestrian safety, with an emphasis on heavily used routes.
- Create a network of multi-use pathways for off-road transportation and opportunities for active and passive recreation that will enhance connections between community origins and destinations such as schools, stores, and churches.
- Organize and support programs to become a walkable and bicycle friendly community.
- Provide a hierarchy of recommended infrastructure projects and programmatic support services.
- Have clear policies and development guidelines in our zoning and subdivision regulations consistent with the bicycle and pedestrian master plan.
- Educate the community as to the benefits of pedestrian activity and applicable rules and regulations.

See **Attachment B**.

Working Session

The committee broke into two groups and gathered around a large map of the Town for a working session. Haley Lloyd and Cindy Camacho annotated the maps, while the committee discussed pedestrian and bicyclist origins and destinations, activity, and areas of concern. The following were noted as areas of concern:

- There are no existing facilities such as bike lanes and sidewalks (unless attached to a subdivision)
- Pedestrian and bicycle activity occurs on residential streets and nearby detached greenways



- There is traffic congestion on Covered Bridge Road and road widening is expected to occur soon between Chesney Court and Aldean Drive.
- The speed limit on Buffalo Road is high and unsafe for pedestrians and bicyclists. Trucks are often seen speeding here.
- The Town contains dirt roads which are not suitable for new sidewalks and bicycle paths.

After identifying pedestrian and bicycle activity and areas of concern, the committee then discussed opportunities for pedestrian and bicycle facilities. These include:

- Common opens space areas within subdivisions promote connectivity and will be areas where new sidewalk and bicycle infrastructure can be constructed.
- New subdivisions offer opportunities for trail connectivity.
- Opportunities for new trails and sidewalks exist around shopping centers, churches, parks, and schools within and surrounding the town.
- The existing Clayton River Walk on The Neuse (Covered Bridge Road) connects Archer Lodge to the Riverwood Athletic Club Subdivision and the Neuse River, as well promoting a connection between Johnston County and Wake County.

Next Steps

Cindy Camacho then discussed the next steps in the planning effort, which includes:

- The project team will begin developing a survey and a project information sheet to post on the town website.
- The project team will begin data collection, project identification and the draft plan
- The second steering committee meeting and the first public meeting will occur sometime between April and May (official date to be decided).
 - A brief discussion was had regarding location of the public meeting and ways to disseminate notice of the meeting. It was suggested that each committee member invite 5-10 people to ensure a large turnout.
 - It was suggested we use the Town website and social media to get the word out to the community.
- The third steering committee meeting and second public meeting is scheduled to occur in September.

Final Remarks

Cindy Camacho opened the floor for closing remarks. The following includes final points of discussion:

- Proposed Widening of Covered Bridge Road (S.R. 1700) STIP Project No. W-5704E should be included in the plan recommendations.
- It was suggested that the project team create a project info sheet to place on the Town's website.

The meeting was adjourned at 8:05 pm.



First Steering Committee Meeting Presentation and Map

Town of Archer Lodge

NCDOT BICYCLE & PEDESTRIAN PLAN

STEERING COMMITTEE MEETING #1

October 20, 2016

Purpose of Today's Meeting

- Provide an Overview of the Project
 - Review Tasks and project schedule
- Develop Vision and Goals for the plan
- Work Session
 - Identify issues and constraints
 - Identify origins and destinations
- Next Steps
- Optional Tour

Steering Committee Meeting #1

Project Overview | Project Purpose

Walking and bicycling are two popular and universal forms of activity, yet there is a lack of access to safe places for these activities.

Planning for walking and bicycling – whether for recreation, exercise or transportation – helps to create a safer, more efficient network everyone can use.

Steering Committee Meeting #1

Project Overview | Key Tasks & Schedule

Schedule beginning January 2016

Task	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Project Kick-Off												
Review Tasks and project schedule												
Develop Vision and Goals for the plan												
Work Session												
Identify issues and constraints												
Identify origins and destinations												
Next Steps												
Optional Tour												

Steering Committee Meeting #1

Project Overview | Role of the Steering Committee

- Attend Project Kick-Off
 - Provide input on the vision, goals, & objectives
 - Identify needs, opportunities, & constraints
- Review the preliminary plan
- Attend two additional steering committee meetings and comment on the plan
- Serve as champions of the final plan

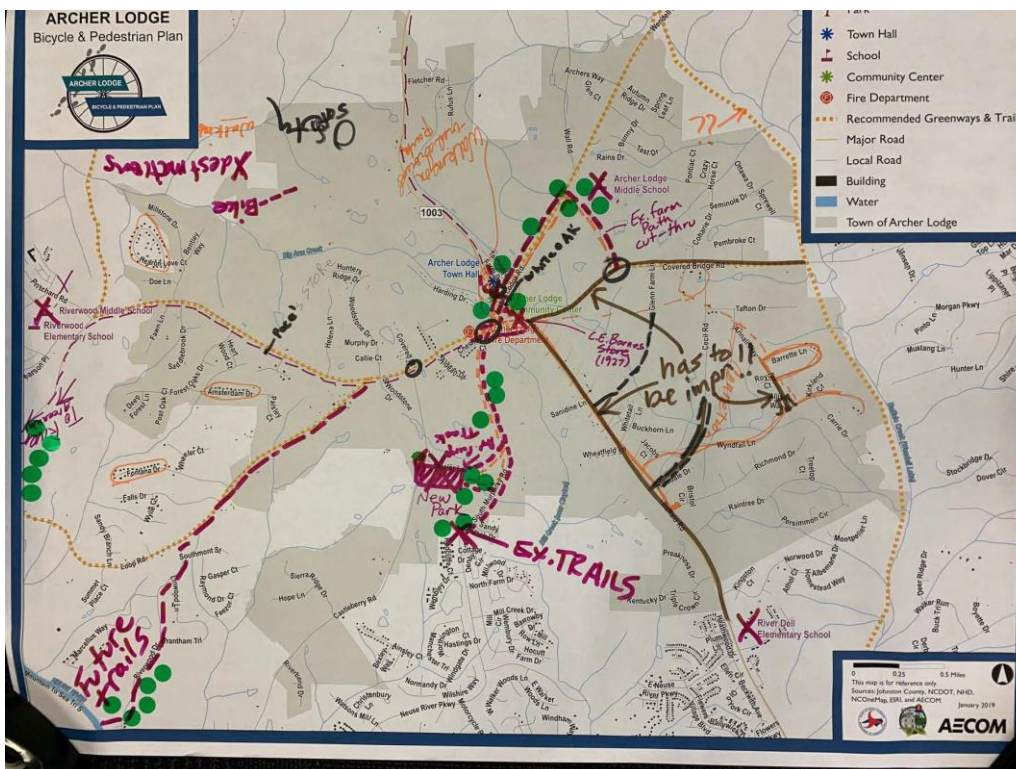
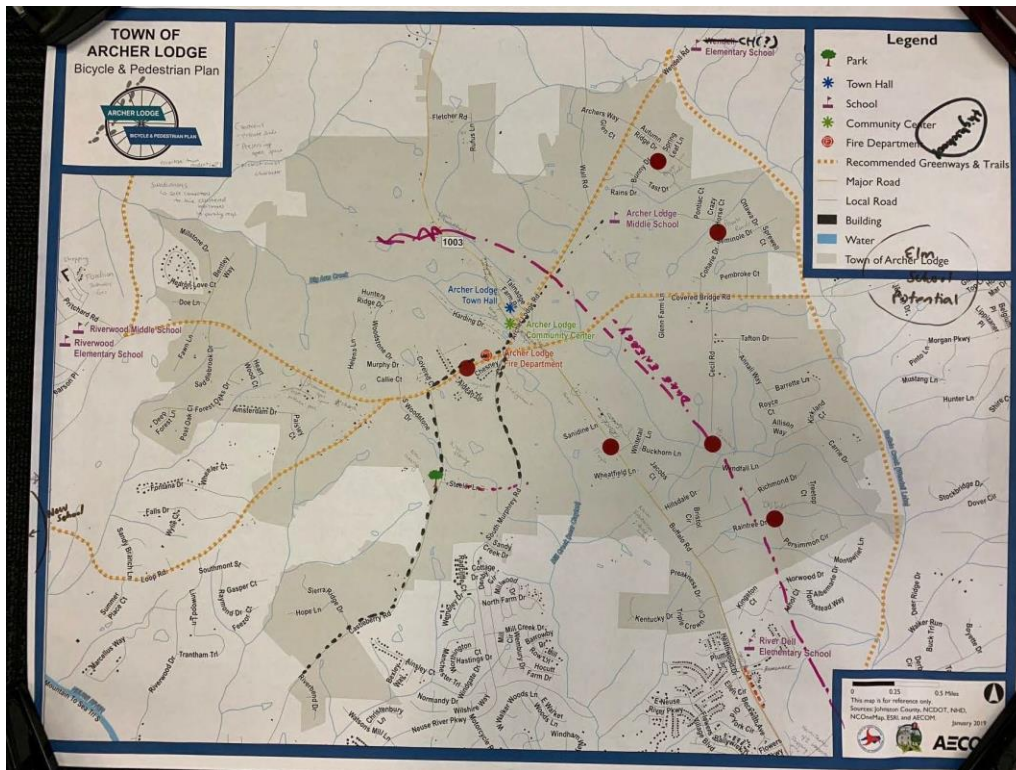
Steering Committee Meeting #1

Sample Vision of the Plan

The Town of Archer Lodge will be a place where people of all ages and diverse backgrounds have access to bicycle and pedestrian facilities and programs that promote: alternative transportation modes, exercise and wellbeing, safety, connectivity, and celebration and discovery of Archer Lodge's rich culture and history.

Steering Committee Meeting #1







Second Steering Committee Meeting and Public Meeting Agenda

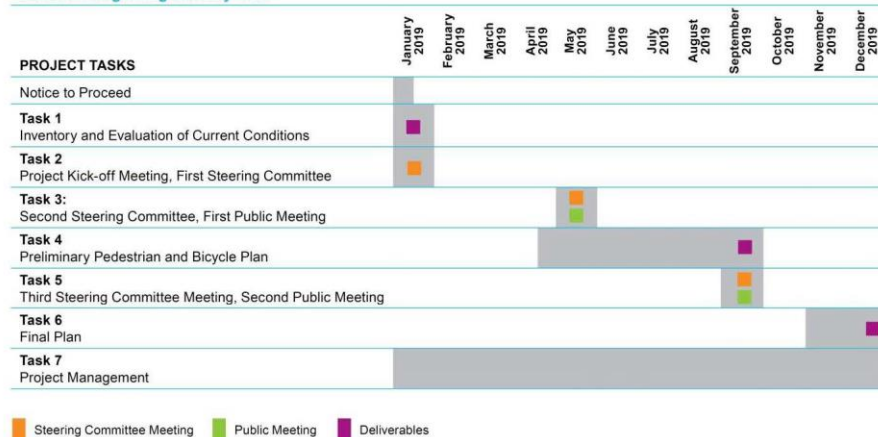
Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
Second Steering Committee Meeting

Agenda – Second Steering Committee Meeting May 8th, 2019 5:30 – 6:15 PM

- 5:30 PM INTRODUCTIONS**
- A) Introduction**
Town Staff, Steering Committee, NCDOT, AECOM Team
 - B) Purpose of Today's Meeting**
Complete a work session to begin to identify bicycle and pedestrian projects, and programs and plan policies
- 5:35 PM PROJECT SCHEDULE**
Discuss the steering committee's role in the planning process.

Project Schedule

Schedule beginning January 2019





Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
Second Steering Committee Meeting

5:40 PM

WORK SESSION

The steering committee will be asked to participate in two working sessions intended to lay the ground work for developing projects that will be presented in the plan.

Mapping exercise: Identify potential bicycle and pedestrian infrastructure projects as a group, as well as individually on maps.

Group exercise: Discuss non-infrastructure improvements that you would like to see made in the Town. These improvements can be policy recommendations, programmatic recommendations, or partnership opportunities with local businesses and non-profit organizations.

6:00 PM

PUBLIC MEETING PREPARATION EXERCISE

The steering committee will be split into teams consisting of two members, a facilitator and a recorder. Each team will be assigned a table with a map, note paper, pens and markers. These teams will work with the public to record the results of the facilitated exercise that the public will participate in. The public meeting will consist of the following exercises:

- Meeting attendees will be asked to complete the Mapping Exercise in the handout in a group setting. The steering committee facilitator will use markers to draw on roll maps of the town to identify projects from the public, and another steering committee meeting member will record the discussion.
- Following the completion of the exercises one member of the public will present the ideas developed at their table.

6:15 PM

ADJOURN THE STEERING COMMITTEE MEETING



Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
Public Meeting

Agenda – Public Meeting
May 8th, 2019 6:30 – 8:00 PM

6:30 PM	SIGN-IN
6:40 PM	INTRODUCTIONS Welcome – Mayor Matt Mulhollem
6:50 PM	GROUP EXERCISE AECOM consultants will introduce the exercise. Meeting attendees will be asked to sit at a table along with two steering committee members who will help facilitate and record the discussion at each table. These teams will work to record the results of the facilitated exercise that the public will participate in. The group will conduct the following exercise: Meeting attendees will be asked to complete the Mapping Exercise in the handout in a group setting. The steering committee facilitator will guide participants using the questions on the handout. The facilitator/or participants can use markers to draw on roll maps of the town to identify projects, and another steering committee meeting member will record the discussion.
7:30 PM	PRESENTATION OF GROUP RESULTS Following the exercise, one member representing each small group will be elected to present the ideas developed at their table.
7:45 PM	INDIVIDUAL COMMENT FORM COMPLETION Participants will be asked to complete and turn in comment forms. The participants will be thanked for their participation and invited to the second public meeting to review the plan.



Second Steering Committee Meeting and Public Meeting Sign-In Sheet

Town of Archer Lodge Bicycle and Pedestrian Plan | May 8th, 2019 Steering Committee Meeting Sign-In Sheet

Name	Address	Phone Number	Email Address
Haley Hogg	Town of Clayton	919-359-2102	Whogg@townofclaytonnc.org
Julie Maybee			julieanne.maybee@paulrun
Terry Barnes	14236 Buffalo Rd	919-810-8320	
Pam Smith	324 Albemarle Br.	919-413-6607	Pam@KristoffKw.com
Andy Thomas, Jr.	Town of Archer Lodge	919-359-9777	andy.thomas@archerlodgenc.gov
Bob Clark	" " " "	919-359-9727	bob.clark@archerlodgenc.gov
John Oglesby	" " " "	919 624-0997	john@csd-engineering.com
Jim Purvis	" " " "	919 631 2028	JPurvis111@nc.com
Teresa Gordon	" "	" "	TGordon@archerlodgenc.gov
Bryan Lopez	NC DOT	919 707 2606	blopez@ncdot.gov
Kim Batten	Town of Archer Lodge	919-359-9727	Kim.BATTEN@ARCHERLODGENC.GOV
MIKE GORDON	TOWN OF ARCHER LODGE	919-359-9727	mike.gordon@ARCHERLODGENC.GOV



Second Steering Committee Meeting and Public Meeting Minutes

Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan

Second Steering Committee Meeting Summary Archer Lodge Community Center May 8th, 2019 5:30 – 6:15 PM

Steering Committee members were asked to identify bicycle and pedestrian projects, and programs and plan policies. The following items were mentioned during the working session.

Add the following key destinations to maps:

- Cousins Antiques
- Archer Lodge Veterans Memorial

New/revised connections:

- Archer Lodge, Wilsons Mills, and Clayton Loop (Johnston County Route): Loop Road (signed)→ Covered Bridge Road → Thanksgiving Fire Road
- Add an off-road route or trail between Loop Road and the new park on Castleberry Road
- Remove Harding Drive Route
- Add off-road route or trail above the pond from Castleberry to South Murphrey
- Move the route above Doe Lane south to intersect the existing open space area
- Connect Loop Road to the existing Mountains-to-Sea Trail in Clayton
- Add an off-road route or trail to get to River Dell Elementary

The following concerns were noted during the meetings:

- Clean Water Act - Developers are avoiding areas with water in order to avoid permitting requirements
- Private Roads: Steeler Lane, Harding Drive (gravel), Coharie Drive, Cecil Road (1/2 public & 1/2 private)
- Pedestrian safety is needed between the ball park and soccer field on Buffalo Road

Other information:

- Duke Energy Easement
- NCDOT STIP Project W-5704E on Covered Bridge Road (in ROW Acquisition)
- NCDOT contingency project 80094 on Buffalo Road (construction Fall 2019)
- Consideration of a connections for new school near the park
- Franklin County requires sidewalks when mail kiosks are placed at the front of neighborhoods issue for zoning?
- Review Southeast Area Study for Archer Lodge hot spot
- Johnston County approved the development in Archer Lodge with approval from NCDOT prior to Archer Lodge incorporating into a municipality. Archer Lodge originally adopted Johnston County's zoning ordinances when it was formally incorporated in 2009.



Second Steering Committee Meeting and Public Meeting Presentation and Handouts

Town of Archer Lodge

NCDOT BICYCLE & PEDESTRIAN PLAN

STEERING COMMITTEE MEETING #2

May 8, 2019

Purpose of Today's Meeting

- **Provide an Update of the Project**
 - Review tasks and project schedule
- **Work Session**
 - Identify and develop bicycle and pedestrian infrastructure improvements
 - Identify potential network connections
 - Discuss non-infrastructure improvements
- **Discuss Public Meeting Format**
- **Next Steps**

Steering Committee Meeting #2

Project Overview | Key Tasks & Schedule

Schedule beginning January 2019

PROJECT TASKS	January	February	March	April	May	June	July	August	September	October	November	December
Task 1: Notice to Proceed												
Task 2: Inventory and Evaluation of Current Conditions												
Task 3: Project Kick-off Meeting, First Steering Committee												
Task 4: Second Steering Committee, First Public Meeting												
Task 5: Preliminary Pedestrian and Bicycle Plan												
Task 6: Third Steering Committee Meeting, Second Public Meeting												
Task 7: Final Plan												
Task 8: Project Management												

Steering Committee Meeting #2

Working Session

- **Exercise 1:**
 - Identify and develop bicycle and pedestrian infrastructure improvements
 - Identify potential connections for a bicycle and pedestrian network
- **Exercise 2:**
 - Identify non-infrastructure improvements

Steering Committee Meeting #2

Example Project Types

Project Overview | Role of the Steering Committee

- **Attend and participate in meetings**
 - Identify needs, opportunities, & constraints
 - Help develop recommendations
- **Review the preliminary plan**
- **Attend steering committee and public meetings and comment on the plan**
- **Serve as champions of the final plan**

Steering Committee Meeting #2



Public Meeting Exercise

- Teams of one consultant with town planning staff/NCDOT will be assigned to a table
 - Bicycle and pedestrian project map will be provided as an overview
 - The public will then participate in a development exercise on a blank map
 - Include a discussion of gaps in the network
 - Presentation of results



Steering Committee Meeting #2

Next Steps

- Project team will continue developing the draft plan, and refine recommendations.
- Third steering committee meeting/second public meeting (September)
 - Review the draft plan
 - Refine and prioritize project recommendations
- Prepare the final plan



Steering Committee Meeting #2

Thank You

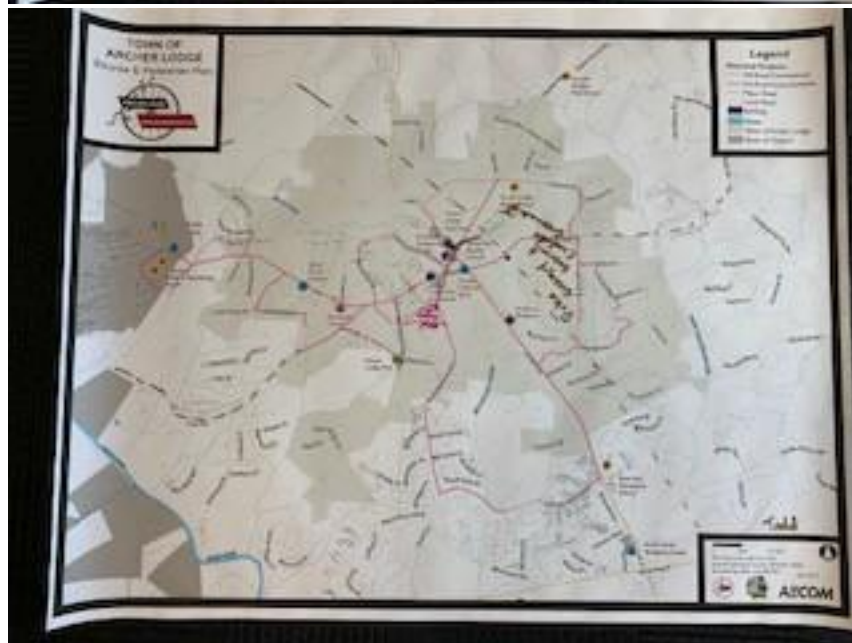
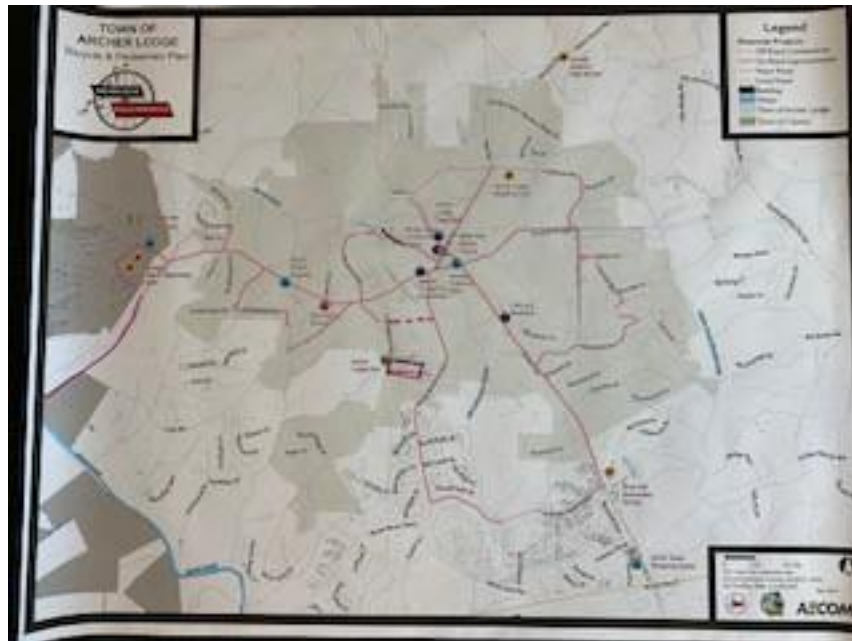
Cindy Camacho
cindy.camacho@aecom.com

Todd McAulliffe
Todd.mcaulliffe@aecom.com

Haley Lloyd
Haley.lloyd@aecom.com



Steering Committee Meeting #2







Potential Bicycle and Pedestrian-Friendly Features for Archer Lodge

Water Fountains



School Signage



Pedestrian Crossing



Crosswalks



Maintenance Stations



Bike Co-ops



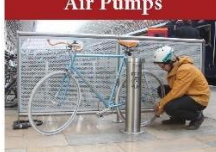
Wayfinding



Bike Racks



Air Pumps





Bicycle and Pedestrian-Friendly Features



BICYCLE LANE
A marked travel lane along a portion of the roadway that has been designated for preferential or exclusive use for bicyclists via pavement markings.



SHARED LANE
A lane that is open to both bicycle and motor vehicle travel. Shared lanes can be marked with shared lane markings or designated as bicycle boulevards. A shared lane that is at least 14 feet wide allows space so that bicyclists and motorists may travel side-by-side within the same traffic lane.



BICYCLE PARKING
A rack or object provided specifically for the purpose of supporting and enabling a bicycle to be secured when not in use.



BICYCLE MAINTENANCE
A stand, kiosk or repair station provided to the public for self-service bicycle maintenance.



BICYCLE SIGNAL
A traffic control device that assigns right-of-way to bicyclists and controls bicycle movements in mixed traffic to reduce conflict with motor vehicles and/or pedestrians.



ACCESSIBLE PEDESTRIAN SIGNAL
Devices that communicate information about the "walk" and "don't walk" intervals at signalized intersections in non-visual formats to pedestrians who are blind or have low vision.



HIGH-VISIBILITY CROSSWALK
A crosswalk marked with diagonal or longitudinal lines parallel to traffic flow, such as the ladder, continental or bar pair marking pattern.



LIGHTING
High quality and well-placed lighting, including supplementing pedestrian-scale lighting at night-time crossing areas, increases safety and security for non-motorized users.



PEDESTRIAN SIGNAGE
Illumination provided to enhance the safety and comfort of pedestrians and bicyclists. High quality and well-placed lighting increases safety and security for non-motorized users.



SIDEWALKS
The portion of a street or highway right of way, beyond the curb or edge of roadway pavement, which is intended for use by pedestrians.



EQUESTRIAN CONSIDERATION
Trail corridors with paved and unpaved tread can accommodate multiple users, such as riders with horses, bicycles and pedestrians. Vegetation and distance help separate users and minimize conflicts.



SIDEPATH
A specific type of shared use path facility that is physically separated from the road but located within the roadway right of way.



SHARED USE PATH
A facility which may be used by bicyclists, pedestrians and other non-motorized users. They are separated from the roadway by an open space or a physical barrier or within an independent right-of-way. Also known as a "multi-use trail" or "greenway".



TRAILHEAD
A trailhead is the primary access point to a shared use path or trail. It may have parking and other amenities at the terminus.



PAVED SHOULDER
The portion of the roadway contiguous with the travel lanes. Shoulders, where paved and of sufficient width, may be used by bicyclists. Bicycle lane pavement markings may be used and in rural areas, paved shoulders are also used by pedestrians where sidewalk is not present.



COMPLETE STREETS
A policy and infrastructure initiative that mandates streets are designed and operated by all users to enable safe, convenient, and comfortable travel and access for all modes of transportation.



EDUCATION PROGRAMS
Education campaigns can help inform and bring awareness to the skills needed to be safe pedestrians and bicyclists and for motorists to be reminded of applicable laws. Examples include programs such as Watch for Me! NC or local courses offered at schools or libraries.



POLICY ACTION
Policy actions that can additionally encourage bicycle and pedestrian planning include changes to zoning or other local ordinances or regional cooperative agreements.



ROAD REALLOCATION
A technique to modify the number or width of travel lanes to achieve systemic improvements. Variants of reallocation include 4 to 3 lane conversion, reduction, road diet, or reconfiguration to improve safety, mobility, and access for all road users.



SAFETY TRAINING
Training the local police enforcement and residents can reduce bicycle and pedestrian related accidents. Examples include safety patrol programs or a bicycle helmet initiatives.



Third Steering Committee Meeting and Public Meeting Agenda

Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
Third Steering Committee Meeting

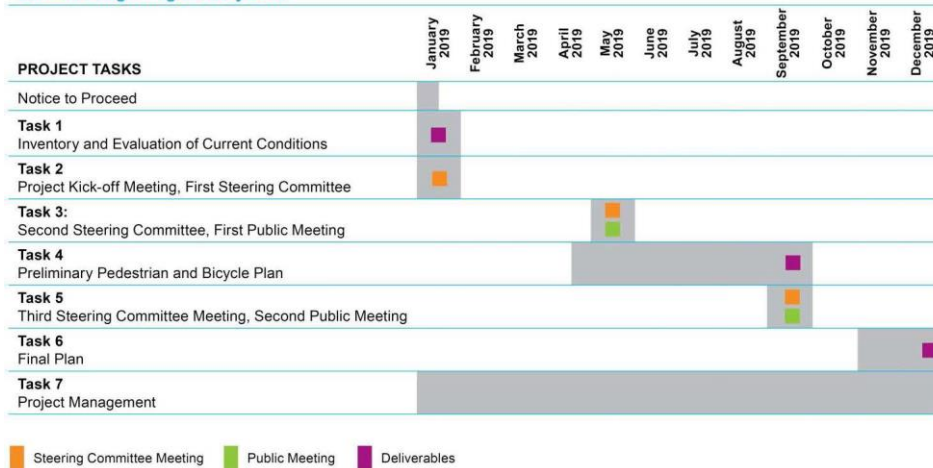
Agenda – Second Steering Committee Meeting

Archer Lodge Community Center
October 2, 2019 6:30 – 7:30 PM

- 6:30 PM INTRODUCTIONS**
A) Introduction
 Town Staff, Steering Committee, NCDOT, AECOM Team
- B) Purpose of Today's Meeting**
 Complete a work session to prioritize bicycle and pedestrian projects, programs, and plan policies
- 6:35 PM PROJECT SCHEDULE**
 Discuss next steps and steering committee involvement.

Project Schedule

Schedule beginning January 2019





Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
Third Steering Committee Meeting

- 6:40 PM PRESENTATION**
The AECOM consulting team will present the results from the community-wide survey conducted in the spring/summer. The team will also present the proposed projects and policy/programs based on results from the second steering committee meeting and the first public meeting.
- 6:50 PM PROJECT AND POLICY/PROGRAM GROUP EXERCISE**
The steering committee will participate in a group exercise focused on prioritizing infrastructure projects. This will help form a prioritized list of bicycle and pedestrian improvement projects in Archer Lodge.

Group exercise: The steering committee will break into small groups of equal size and review the "Prioritization Factors for Infrastructure Projects." Each group will discuss the prioritization factors of connectivity, demand, equity, and safety. Each participant will discuss and provide a ranking for each project and the associated prioritization factor.
- 7:10 PM PRESENTATION OF GROUP RESULTS**
Following the exercise, one member representing each small group will be elected to present the ideas developed at their table to the Steering Committee.
- 7:15 PM PROJECT RANKING EXERCISE**
The steering committee members will work individually to complete the "Project Ranking" exercise and the "Policy/Program Ranking" sheets. See exercise sheets for directions.
- 7:30 PM ADJOURN THE STEERING COMMITTEE MEETING**
We ask that the steering committee members please attend the public meeting where they will be asked to moderate breakout sessions.



Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan
Second Public Meeting

Agenda – Public Meeting
Archer Lodge Community Center
October 2nd, 2019 7:30 PM – 8:00 PM

7:30 PM	SIGN-IN
7:35 PM	INTRODUCTIONS Town Staff, Steering Committee, NCDOT, AECOM Team
7:38 PM	PRESENTATION The AECOM consulting team will give a brief presentation covering an overview of the proposed projects and policy/programs and results from the community-wide survey.
7:45 PM	PROJECT AND POLICY/PROGRAM GROUP EXERCISE Cindy Camacho will introduce the exercise. Meeting attendees will be asked to sit at a table along with two steering committee members who will help facilitate and record the discussion at each table. These teams will work to record the results of the facilitated exercise that the public will participate in. The group will conduct the following exercise: <ul style="list-style-type: none">• As a group, review the “Prioritization Factors for Infrastructure Projects.”• Discuss the prioritization factors of connectivity, demand, equity, and safety.• As a group, discuss and provide a ranking for each project and the associated prioritization factor. See exercise sheets for directions.
7:50 PM	PRESENTATION OF GROUP RESULTS Following the exercise, one member representing each small group will be elected to present the ideas developed at their table.
7:55 PM	INDIVIDUAL RANKING FORM COMPLETION Participants will work individually to complete the “Project Ranking” exercise and the “Policy/Program Ranking” sheets. See exercise sheets for directions. The steering committee members will be available to answer questions.
8:00 PM	ADJOURN THE PUBLIC MEETING The participants will be thanked for their participation.



Third Steering Committee Meeting and Public Meeting Presentation and Handouts

**Town of Archer Lodge
NCDOT Bicycle & Pedestrian Plan**

Steering Committee Meeting #3
and Public Meeting #2

October 2, 2019

Purpose of Today's Meeting

- Provide an update of the project
- Review schedule, survey results, and tasks
- Presentation of corridor improvements
- Group Exercise
 - Rank corridors
 - Rank policies and programs
 - Present results
- Next Steps

October 2, 2019

Project Overview – Key Tasks & Schedule

Schedule beginning January 2019

October 2, 2019

Community Survey: Priorities Summary

- 1. Connectivity:** Connect neighborhoods to parks, trails, and existing businesses.
- 2. Safety:** Need for safe walking routes to schools, the park, and retail businesses.
- 3. Education:** Educational programs may cover topics like bicycle helmet training and safety on trails.
- 4. Promoting expansion of bike/ped amenities on roadways through local ordinances:** Utilize local ordinances to maintain, protect, and expand bicycling and pedestrian facilities as requirements when developments are built.

October 2, 2019

Community Survey: Popular Bicycling + Walking Destinations

- 80.49% of respondents have never walked or bicycled to school.
- 17% of respondents walk or bicycle socially at least once a year.
- 34.15% of respondents walk or bike to family outings at least once a month.
- 52.27% of respondents regularly exercise at least once a week.

October 2, 2019

Community Survey: Planning Efforts that Should be Required of the Government and Private Developers

October 2, 2019



Proposed Projects

- The following slides represent the proposed bicycle and pedestrian projects that will be discussed and prioritized during today's meeting.
- These projects will be refined if needed.
- Now is the opportunity to include additional projects if any were overlooked.

October 2, 2019



Map Symbolology

Legend

- Bicycle (Spot)
- Pedestrian (Spot)
- Bicycle (Linear)
- Pedestrian (Linear)
- Shared Use Path (Linear)
- Existing Bike Route
- Existing Sidewalk
- Clayton River Walk (multi-use)

October 2, 2019



1. Covered Bridge Road Corridor Improvements

Continue pedestrian improvements associated with STIP project W-5704E from project end west to town limits. This is a long-term improvement that is contingent on future NCDOT improvements to the road due to costs. Coordinate with Town of Clayton to provide future pedestrian connections to destinations on Pritchard Road.



October 2, 2019



2. South Woodstone Multi-use Path

Construct a multi-use path from South Woodstone Drive to Castleberry Road.



October 2, 2019



3. Castleberry Road

Install pedestrian crosswalk and a pedestrian hybrid beacon (HAWK) at Castleberry Road and Darcy Drive.
Install a bike rack at the park.
Provide wayfinding signs to the park.
Provide a multi-use path along Castleberry Road from Steeler Lane to Archer Lodge Park.



October 2, 2019



4. South Murphrey Side Path Extension

Extend the existing shared-use path on South Murphrey north to Covered Bridge Road.



October 2, 2019





5. Buffalo Road Corridor Improvements

Add a signed bike route along Buffalo Road south of Fletcher Road and east onto Jordan Naron Road until it meets the proposed greenway.

Conduct a speed/traffic study along the corridor to identify potential additional speed control measures.

Install bike racks at Harris Teeter Shopping Center on Buffalo Road.

October 2, 2019

5. Buffalo Road Corridor Improvements

Install bike racks at the Archer Lodge Community Center ball field.

Install a pedestrian crosswalk and a pedestrian hybrid beacon (PHAB) between ball field and soccer field over Buffalo Road.

Continue pedestrian improvements associated with STIP project W-5704E to link to existing sidewalks in front of the White Oak Baptist Church and proposed sidewalks as a part of Project 80094 along Buffalo Road. This is a long-term improvement that is contingent on future NCDOT improvements to the road due to costs.

Install a sidewalk on the eastern side of Buffalo Road across from the Archer Lodge Community Center. The sidewalk would extend from the proposed sidewalk in project 80094 at the soccer field to Talmadge Farm Road.

October 2, 2019

6. Archer Lodge Road/Wendell Bike Improvements

Install bike racks at Archer Lodge Middle School.

Add a signed bike route between Archer Road and Wendell Road, ending at Archer Lodge Middle School.

October 2, 2019

7. Duke Energy Easement Greenway

Construct a greenway along the Duke Energy Easement that runs parallel with Buffalo Road. It would start south of Fletcher Road and end at Jordan Naron Road.

Add a shared-use path connection between the proposed greenway and Buffalo Road along Wyndfall Lane. This will provide connections to existing neighborhoods.

October 2, 2019

8. Bentley Way Multi-use Path

Add a shared-use path on Bentley Way to improve neighborhood access to the community mailboxes and designated open space area.

October 2, 2019

Program Policy/Program Ranking

Update ordinances and/or the zoning to include bicycle and/or pedestrian specific facilities including Complete Streets.	Demonstrate improvements through pop-up projects.
Promote good road user behavior programs.	Provide bike skills education (inflating tires and hand turn signals).
Partner with the police on enforcement of existing driving laws and speed limits.	Encourage a bike to work/commute challenge.
Provide agency staff training of bicycle laws for police officers, drivers education programs, or other safety related programs.	Host bike and transit education and training.
Start open streets events after a recommended project is constructed. An example may include a festival at Town Hall, a park, or greenway to promote a new project.	Raise the visibility of walking and bicycling with events/festivals.
Enhance Safe Routes to School.	Reward bicycling and walking with employer incentives.
	Develop a bike parking program.
	Offer bicycle and/or pedestrian legal training.

October 2, 2019




Working Session

Group Exercise:


- Review and discuss "Prioritization Factors for Infrastructure Projects" worksheet
- Participants will discuss and provide rankings for each project and associated prioritization factor

Project Ranking Exercise:

- Work individually to complete the "Project Ranking" exercise and the "Policy/Program Ranking" sheets



October 1, 2019



Example Project types




October 1, 2019



Next Steps

- Project team will refine and finalize prioritized project recommendations
- Distribute draft plan to the Steering Committee and NCDOT
- Prepare the final plan



October 2, 2019





PRIORITIZATION EXERCISE

For each project below, prioritize on a scale from **1-5** for the given factor.

1=Highest; 2=High; 3=Medium; 4=Low; 5=Lowest

For example, giving a project ranking of **"1"** would denote the following: the project would encourage the highest level of connectivity, has the highest demand (or need), provide the highest level of equity, and/or offer the highest level of safety.





Connectivity: Accounts for the degree to which a project allows bicyclists or pedestrians to travel comfortably and continuously throughout your community. A project with a high connectivity prioritization (a 1, 2, or 3) may be when a project fills gaps in the bicycle and pedestrian facility network.

Demand: Represents existing or potential bicycle and pedestrian activity levels. A project with a high demand prioritization (a 1, 2, or 3) may encourage new and/or upgraded facilities where they will be used most (e.g., improved sidewalk connectivity to a school may have a high demand prioritization).

Equity: Represents the degree to which opportunities for safe and convenient bicycle and pedestrian travel are distributed evenly to all groups within the community. A project with a high equity prioritization (a 1, 2, or 3) may ensure that bicycle and pedestrian travel serve the needs of all transportation system users. This factor should consider socioeconomic characteristics such as age, income, automobile ownership, race/ethnicity, and health or disability status. For example, good bicycle and pedestrian facilities may be especially important in neighborhoods where driving is less common due to low levels of car ownership.

Safety: The risk of bicycles or pedestrians being involved in a traffic collision (or crash). A project with a high safety prioritization (a 1, 2, or 3) may help reduce or prevent accidents.



MAP ID	CORRIDOR NAME	CORRIDOR TYPE	DESCRIPTION	PRIORITIZATION FACTOR			
				 Connectivity	 Demand	 Equity	 Safety
Covered Bridge Road Corridor Improvements							
1	Covered Bridge Road	Linear Improvements	<ul style="list-style-type: none">Continue pedestrian improvements associated with STIP project W-5704E from project end west to town limits. This is a long-term improvement that is contingent on future NCDOT improvements to the road due to costs.Coordinate with Town of Clayton to provide future pedestrian connections to destinations on Pritchard Road.				
		Bicycle Improvement	<ul style="list-style-type: none">Signed bike route along Covered Bridge Road between the western town limits and the proposed greenway.				
Archer Lodge Park Access							
2	South Woodstone	Shared-use Improvement	<ul style="list-style-type: none">Construct a multi-use path from South Woodstone Drive to Castleberry Road.				
3	Castleberry Road	Spot Improvements	<ul style="list-style-type: none">Install pedestrian crosswalk and a pedestrian hybrid beacon (HAWK) at Castleberry Road and Darcy Drive.Install a bike rack at the park.Provide wayfinding signs to the park.				
		Shared-use Improvements	<ul style="list-style-type: none">Provide a multi-use connection path along Castleberry Road from Darcy Drive to Archer Lodge Park.				



South Murphrey Side Path Extension							
4	South Murphrey Road	Shared-use Improvements	<ul style="list-style-type: none"> Extend the existing shared-use path on South Murphrey north to Covered Bridge Road. 				
Buffalo Road Corridor Improvements							
5	Buffalo Road	Spot Improvements	<ul style="list-style-type: none"> Install bike racks at the following locations: <ul style="list-style-type: none"> Archer Lodge Community Center ball field Harris Teeter Shopping Center Install a pedestrian crosswalk and a pedestrian hybrid beacon (HAWK) between ball field and soccer field over Buffalo Road. 				
		Pedestrian Improvements	<ul style="list-style-type: none"> Continue pedestrian improvements associated with STIP project W-5704E to link to existing sidewalks in front of the White Oak Baptist Church and proposed sidewalks as a part of Project 80094 along Buffalo Road. This is a long-term improvement that is contingent on future NCDOT improvements to the road due to costs. Install a sidewalk on the eastern side of Buffalo Road across from the Archer Lodge Community Center. The sidewalk would extend from the proposed sidewalk in project 80094 at the soccer field to Talmadge Farm Road. 				
		Bicycle Improvements	<ul style="list-style-type: none"> Add a signed bike route along Buffalo Road south of Fletcher Road and east onto Jordan Narron Road until it meets the proposed greenway. Conduct a speed/traffic study along the corridor 				
			to identify potential additional speed control measures.				
6	Archer Lodge Road/Wendell Road	Spot Improvements	<ul style="list-style-type: none"> Install bike racks at Archer Lodge Middle School. 				
		Bicycle Improvements	<ul style="list-style-type: none"> Add a signed bike route between Archer Road and Wendell Road, ending at Archer Lodge Middle School. 				
7	Duke Energy Easement Greenway	Shared-use Improvements	<ul style="list-style-type: none"> Construct a greenway along the Duke Energy Easement that runs parallel with Buffalo Road. It would start south of Fletcher Road and end at Jordan Narron Road. Add a shared-use path connection between the proposed greenway and Buffalo Road along Wyndfall Lane. This will provide connections to existing neighborhoods. 				
8	Bentley Way	Shared-use Improvements	<ul style="list-style-type: none"> Add a shared-use path on Bentley Way to improve neighborhood access to the community mailboxes and designated open space area. 				



POLICY/PROGRAM RANKING

Please choose your top **5 POLICY/PROGRAM INITIATIVES** by placing an **X** in the far-right column.

DESCRIPTION	RANK
Update ordinances and/or zoning to include bicycle and/or pedestrian specific facilities including Complete Streets	
Promote good road user behavior programs	
Partner with the police on enforcement of existing driving laws and speed limits	
Provide agency staff training of bicycle laws for police officers, drivers education programs, or other safety related programs	
Start open streets events after a recommend project is constructed. An example may include a festival at Town Hall, a park, or greenway to promote a new project	
Enhance Safe Routes to School	
Demonstrate improvements through pop-up projects	
Provide bike skills education (inflating tires and hand turn signals)	
Encourage a bike to work/commute challenge	
Host bike and transit education and training	
Raise the visibility of walking and bicycling with events/festivals	
Reward bicycling and walking with employer incentives	
Develop a bike parking program	
Offer bicycle and/or pedestrian legal training	



PROJECT RANKING

Please choose your top **5 PROJECTS** by placing an X in the far-right column.

Proposed Bicycle, Pedestrian, and Shared Use Facilities

MAP ID	CORRIDOR NAME	CORRIDOR TYPE	IMPROVEMENT	RANK
Covered Bridge Road Corridor Improvements				
1	Covered Bridge Road	Linear Improvements	<ul style="list-style-type: none">Continue pedestrian improvements associated with STIP project W-5704E from project end west to town limits. This is a long-term improvement that is contingent on future NCDOT improvements to the road due to costs.Coordinate with the Town of Clayton to provide future pedestrian connections to destinations on Pritchard Road.	
		Bicycle Improvement	<ul style="list-style-type: none">Signed bike route along Covered Bridge Road between the western town limits and the proposed greenway.	
Archer Lodge Park Access				
2	South Woodstone	Shared-use Improvement	<ul style="list-style-type: none">Construct a multi-use path from South Woodstone Drive to Castleberry Road.	
3	Castleberry Road	Spot Improvements	<ul style="list-style-type: none">Install pedestrian crosswalk and a pedestrian hybrid beacon (HAWK) at Castleberry Road and Darcy Drive.Install a bike rack at the park.Provide wayfinding signs to the park.	



		Shared-use Improvements	<ul style="list-style-type: none"> Provide a multi-use connection path along Castleberry Road from Darcy Drive to Archer Lodge Park. 	
South Murphrey Side Path Extension				
4	South Murphrey Road	Shared-use Improvements	<ul style="list-style-type: none"> Extend the existing shared-use path on South Murphrey north to Covered Bridge Road. 	
Buffalo Road Corridor Improvements				
5	Buffalo Road	Spot Improvements	<ul style="list-style-type: none"> Install bike racks at the following locations: <ul style="list-style-type: none"> Archer Lodge Community Center ball field Harris Teeter Shopping Center Install a pedestrian crosswalk and a pedestrian hybrid beacon (HAWK) between ball field and soccer field over Buffalo Road. 	
		Pedestrian Improvements	<ul style="list-style-type: none"> Continue pedestrian improvements associated with STIP project W-5704E to link to existing sidewalks in front of the White Oak Baptist Church and proposed sidewalks as a part of Project 80094 along Buffalo Road. This is a long-term improvement that is contingent on future NCDOT improvements to the road due to costs. Install a sidewalk on the eastern side of Buffalo Road across from the Archer Lodge Community Center. The sidewalk would extend from the proposed sidewalk in project 80094 at the soccer field to Talmadge Farm Road. 	
		Bicycle Improvements	<ul style="list-style-type: none"> Add a signed bike route along Buffalo Road south of Fletcher Road and east onto Jordan Narron Road until it meets the proposed <u>greenway</u>. 	
			<ul style="list-style-type: none"> Conduct a speed/traffic study along the corridor to identify potential additional speed control measures. 	
6	Archer Lodge Road/Wendell Road	Spot Improvements	<ul style="list-style-type: none"> Install bike racks at Archer Lodge Middle School. 	
		Bicycle Improvements	<ul style="list-style-type: none"> Add a signed bike route between Archer Road and Wendell Road, ending at Archer Lodge Middle School. 	
7	Duke Energy Easement Greenway	Shared-use Improvements	<ul style="list-style-type: none"> Construct a greenway along the Duke Energy Easement that runs parallel with Buffalo Road. It would start south of Fletcher Road and end at Jordan Narron Road. Add a shared-use path connection between the proposed greenway and Buffalo Road along Wyndfall Lane. This will provide connections to existing neighborhoods. 	
8	Bentley Way	Shared-use Improvements	<ul style="list-style-type: none"> Add a shared-use path on Bentley Way to improve neighborhood access to the community mailboxes and designated open space area. 	



Appendix B: State and Federal Policies

Applicable state and federal policies pertaining to bicycle and pedestrian programs and facilities are summarized in Table B-1 below.

Table B-1: State and Federal Policies

Policy	Applicability to Bicycle and Pedestrian Planning
<i>Federal Policies</i>	
Americans with Disabilities Act (ADA) (1990)	Ratified in 1990, ADA prohibits discrimination on the basis of disability. Title III pertains to public accommodations including transportation. Federally funded bicycle and pedestrian projects must comply with the Americans with Disabilities Act.
American Association of State Highway & Transportation Officials (AASHTO)	AASHTO publishes design standards for transportation facilities including bicycle and pedestrian projects. These standards are often adopted by state departments of transportation, helping in the design of safe and efficient bicycle and pedestrian facilities.
Manual on Uniform Traffic Control Devices (MUTCD) (2009)	The MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public travel. The MUTCD is published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F.
Moving Ahead for Progress in the 21st Century (MAP-21) (2012)	<p>MAP-21 funds surface transportation programs and creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. MAP-21 reorganizes many of the dedicated bicycle and pedestrian funding programs into other functions.</p> <p>Applicable programs under MAP-21 for bicycle and pedestrian projects include: Transportation Alternatives Program (TAP), Congestion Mitigation and Air Quality Improvement (CMAQ), and Surface Transportation Program (STP).</p>
Title VI of the Civil Rights Act of 1964 and Executive Order 12898 (1964, 1998)	<p>Title VI of the Civil Rights Act of 1964 requires that each federal agency ensure that no person is excluded, denied, or discriminated based on race, color, national origin, age, sex, disability.</p> <p>Executive Order 12898 signed by President Bill Clinton in 1994 requires that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.</p>



Policy	Applicability to Bicycle and Pedestrian Planning
United States Department of Transportation Mission Statement (2010)	<p>The USDOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including (US) DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems.</p> <p>Because of the numerous individual and community benefits that walking, and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.</p>
<i>State Policies</i>	
NCDOT Bicycle Policy	<p>The NCDOT Bicycle Policy states that bicycling is a “bona fide” highway purpose subject to the same rights and responsibility and eligible for the same considerations as other highway purposes. It also designates bicycle facility planning be included in the state thoroughfare and project planning process.</p> <p>http://www.ncdot.gov/bikeped/download/bikeped_laws_Bicycle_Policy.pdf</p>
NCDOT Board of Transportation Resolution for Bicycling and Walking	<p>The resolution states that the North Carolina Board of Transportation strongly reaffirms its commitment to improving conditions for bicycling and walking, and recognizes non-motorized modes of transportation as critical elements of the local, regional, and national transportation system. It also acknowledges the benefits that bicycling and walking offer: cleaner air, reduced congestion, more livable communities, more efficient use of road space and resources and healthier people.</p> <p>http://www.ncdot.gov/bikeped/download/bikeped_laws_BOT_Mainstreaming_Resolution.pdf</p>
NCDOT Bridge Policy	<p>The NCDOT Bridge Policy states that sidewalks should be included on new bridges with curb and gutter approaches that are not controlled access facilities. Sidewalks may be on one or both sides of the bridge. The sidewalk should be a minimum of 5 to 6 feet wide.</p> <p>https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Bridge%20Policy.pdf</p>
NCDOT Complete Streets	<p>Adopted in July 2009, the Complete Streets policy is to accommodate all modes of transportation wherever safe and appropriate; increases connectivity between neighborhoods, streets, and transit systems; and improves safety for pedestrian, cyclists, and motorists.</p> <p>http://www.completestreetsnc.org/</p>



Policy	Applicability to Bicycle and Pedestrian Planning
Division of Integrated Mobility	The Division of Integrated Mobility assists communities across the state improve bicycle and pedestrian safety and mobility. The Division provides technical assistance, funding for research and planning, and resources such as the Watch for Me NC campaign.
NCDOT Greenway Policy	<p>In 1994, NCDOT adopted guidelines to consider greenways and greenway crossings during the highway planning process. This policy was incorporated so that critical corridors which have been adopted by localities for future greenways will not be severed by highway construction.</p> <p>http://www.ncdot.gov/_templates/download/external.html?pdf=http%3A//www.ncdot.gov/bikeped/download/bikeped_laws_Greenway_Admin_Action.pdf AND http://www.ncdot.gov/bikeped/download/GuidelinesForGreenwayAccommodations.pdf</p>
NCDOT Mission Statement	NCDOT's mission is: "Connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health and well-being of North Carolina." Bicycle and pedestrian facilities help to accomplish this mission by improving safety, encouraging physical activity, and providing environmentally friendly alternatives to motorized transportation.
NCDOT Pedestrian Policy Guidelines	<p>The NCDOT Pedestrian Policy states that the Department of Transportation will replace existing sidewalks disturbed as a result of a highway improvement. The Department is authorized to construct new sidewalks adjacent to State highway improvement projects at the request of the municipality provided the municipality agrees to reimburse for the construction cost of the sidewalks. Maintenance of sidewalks will be the responsibility of the municipality.</p> <p>http://www.ncdot.gov/bikeped/download/bikeped_Ped_Policy.pdf</p>
Strategic Mobility Formula	The Strategic Transportation Investments (STI) law signed June 2013 establishes the Strategic Mobility Formula for funding transportation projects in North Carolina. The formula divides bicycle and pedestrian projects into incidental and independent projects. Incidental projects are included in larger transportation projects while independent projects are standalone such as adding a sidewalk to an existing road. Independent projects are capped at 20 projects per M/RPO annually.

Sources: Advocacy Advance, American Association of State Highway and Transportation Officials, Federal Highway Administration, North Carolina Department of Transportation, United States Department of Transportation



Appendix C: Design Guidelines

General design guidelines for bicycle and pedestrian facilities are linked below and can provide general bicycle and pedestrian planning and design guidelines, as well as typical cross-sections and bicycle and pedestrian design considerations. NCDOT adheres to these guidelines and the state Complete Streets guidelines in its design of bicycle and pedestrian facilities. NCDOT has made these guidelines and resources available here: <https://connect.ncdot.gov/projects/BikePed/pages/guidance.aspx>. The following table is a summary of these resources along with links. At the end of Appendix C, specific examples of wayfinding signage are provided.

NCDOT Design Guidelines and Resources		
Document		Link
<i>American Association of State Highway and Transportation Officials (AASHTO)</i>		
Guide for the Development of Bicycle Facilities	Bicycling and pedestrian facilities on state roads	https://bookstore.transportation.org/Item_details.aspx?id=1943
Guide for the Planning, Design, and Operations of Pedestrian Facilities		https://bookstore.transportation.org/item_details.aspx?id=119
<i>Federal Highway Administration (FHWA)</i>		
Accessibility Guidance		https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/index.cfm
Design Guidance		
Facility Guidance		https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/index.cfm
Facility Operations		
<i>Manual on Uniform Traffic Control Devices (MUTCD)</i>		
Part 4E: Pedestrian Control Features	State roads	https://mutcd.fhwa.dot.gov/htm/2003r1r2/part4/part4e.htm
Part 7: Traffic Controls for School Areas		https://mutcd.fhwa.dot.gov/htm/2003r1r2/part7/part7-toc.htm
Part 9: Traffic Controls for Bicycle Facilities		https://mutcd.fhwa.dot.gov/htm/2003r1r2/part9/part9-toc.htm
2009 NC Supplement to MUTCD		https://connect.ncdot.gov/resources/safety/TrafficSafetyResources/2009%20NC%20Supplement%20to%20MUTCD.pdf



National Association of City Transportation Officials (NACTO)		
Urban Bikeway Design Guide	Locally maintained streets and shared use paths	https://nacto.org/publication/urban-bikeway-design-guide/
Urban Street Design Guide		https://nacto.org/publication/urban-street-design-guide/
Safe Routes to School (SRTS) Non-Infrastructure		
National Center for Safe Routes to School		http://www.saferoutesinfo.org/
National Partnership for Safe Routes to School		http://www.saferoutespartnership.org/
US Access Board		
ABA Accessibility Standards	Locally maintained streets and shared use paths	https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-aba-standards/guide-to-the-aba-standards/single-file-version
ADA Accessibility Guidelines		https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/background/ada-aba-accessibility-guidelines-2004
ADA Accessibility Standards		https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards
Public Rights-of-Way, Streets & Sidewalks, and Shared Use Paths		https://www.access-board.gov/guidelines-and-standards/streets-sidewalks
North Carolina Department of Transportation (NCDOT)		
Statewide Pedestrian and Bicycle Plan	State Roads	https://www.ncdot.gov/bikeped/walkbikenc/#toolbox
Glossary of North Carolina Terminology for Active Transportation		https://connect.ncdot.gov/projects/BikePed/Documents/NC%20Terminology%20for%20Active%20Travel.pdf
NCDOT Complete Streets		http://www.completestreetsnc.org/
Evaluating Temporary Accommodations for Pedestrians		https://connect.ncdot.gov/projects/wztc/Documents/AccomPedinWZProc.pdf



NC Local Programs Handbook		https://connect.ncdot.gov/municipalities/Funding/Pages/LPM%20Handbook.aspx/
Traditional Neighborhood Development Guidelines		https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Traditional%20Neighborhood%20Development%20Manual.pdf



Appendix D: Funding Sources

Table D-1 below provides a list of funding sources, eligible projects, potential award amounts, and match requirements for bicycle and pedestrian infrastructure projects and programs in Archer Lodge.

Table D-1: Funding Sources

Source	Eligible Projects	Characteristics & Requirements
<i>Federal Funding Sources</i>		
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	<ul style="list-style-type: none"> • Projects to improve air quality and reduce traffic congestion • Projects must be in STIP • Technical assistance 	<ul style="list-style-type: none"> • Typically requires 20% match • \$2 billion authorized in FY 2013
Highway Safety Improvement Program (HSIP)	Bicycle or pedestrian projects on any public road, bicycle path, or trail	<ul style="list-style-type: none"> • Typically requires 10% match • \$2.4 billion authorized in FY 2020
State and Community Highway Safety Grant Program (Section 402)	Education, enforcement, and research programs designed to reduce traffic crashes, deaths, injuries, and property damage	<ul style="list-style-type: none"> • Administered by the Governor's Representative for Highway Safety • \$235 million authorized in FY 2013
Surface Transportation Program (STP)	<ul style="list-style-type: none"> • Projects on federal-aid highway • Safety brochure or book • Technical assistance 	<ul style="list-style-type: none"> • Typically requires 20% match • \$10 billion authorized in FY 2013
Transportation Alternatives Program (TAP)	<ul style="list-style-type: none"> • Bicycle and pedestrian facilities • Recreational trails • Safe Routes to School projects • Technical assistance • Programmed through the Strategic Transportation Investments – Strategic Mobility Formula process 	<ul style="list-style-type: none"> • Typically requires 20% match • Can be received directly by local governments • \$808 million authorized in FY 2013
Urbanized Area Formula Program (UZA)	<ul style="list-style-type: none"> • Public transportation projects • In urbanized areas of more than 200,000 at least 1% of funds must be used for bicycle and pedestrian facilities 	<ul style="list-style-type: none"> • Typically requires 20% match • \$2 billion authorized in FY 2013



Source	Eligible Projects	Characteristics & Requirements
<i>State Funding Sources</i>		
Clean Water Management Trust Fund (CWMTF)	<ul style="list-style-type: none"> • Projects that enhance or restore degraded waters, acquire land with ecological, cultural, and historic significance • Greenway (shared use path) projects are eligible 	<ul style="list-style-type: none"> • Requires matching funds • Annual grant cycle
Land and Water Conservation Fund (LWCF)	<ul style="list-style-type: none"> • Land acquisition and/or development projects for public outdoor recreation and/or to protect outstanding natural or scenic resources • Projects must be on a single site 	<ul style="list-style-type: none"> • Requires 50% match • Administered by the Division of Parks and Recreation
Parks and Recreation Trust Fund (PARTF)	Acquisition and/or development of park and recreational projects	<ul style="list-style-type: none"> • Requires 50% match • Administered by the Division of Parks and Recreation
Recreational Trails Program	<ul style="list-style-type: none"> • Trail construction • Trail facilities and amenities • Programs that promote safety and environmental protection as they relate to recreational trail projects 	<ul style="list-style-type: none"> • Maximum grant award \$200,000 • Requires 25% match • Federal funds managed by the Division of Parks and Recreation
Strategic Mobility Formula	<ul style="list-style-type: none"> • Limited funding for bicycle and pedestrian projects that are at least \$100,000 and included in a locally adopted plan • Programmed through the Strategic Transportation Investments – Strategic Mobility Formula process 	<ul style="list-style-type: none"> • State funds may not be used for a local match • MPOs/RPOs may submit up to 20 bicycle/pedestrian projects • Right-of-way is not an eligible expense
Safe Routes to School (SRTS)	<ul style="list-style-type: none"> • Infrastructure projects within 2 miles of a K-8 school • Project must be within the public right-of-way 	<ul style="list-style-type: none"> • No match required • Currently funding with leftover SRTS funds, once expended TAP funds will be used and programmed through the Strategic Transportation Investments – Strategic Mobility Formula process



Source	Eligible Projects	Characteristics & Requirements
<i>Local Funding Sources</i>		
Capital Reserve Fund	May be used to fund bicycle and pedestrian infrastructure projects	<ul style="list-style-type: none"> • The town council would establish the fund through an ordinance • May be financed through town budget allocations, grants, and donations
Community Crowdfunding	Unrestricted source of funds would apply to bicycle and pedestrian linear facilities and spot improvements	<ul style="list-style-type: none"> • Town residents make monetary contributions through online platforms such as Citizeninvestor • Town would pay a nominal fee
Fees	<ul style="list-style-type: none"> • The fee ordinance would establish which projects are eligible • Shared use path projects may be eligible for funds generated by stormwater fees as these projects could mitigate the effects of runoff 	<ul style="list-style-type: none"> • Would require adoption by the town council • Fee types may include stormwater fees assessed per area of impervious surface or streetscape fees assessed per length of street frontage
General Obligation Bonds	May be used to fund bicycle and pedestrian infrastructure projects	<ul style="list-style-type: none"> • Would require adoption by the town council • Would require approval by town residents
Special Tax District	May be levied by the municipality to raise funds to provide services or fund projects such as bicycle and pedestrian infrastructure projects	Would require adoption by the town council
Tax Increment Financing	Bicycle and pedestrian infrastructure improvements, land acquisition, utilities, and other improvements	Increased property values resulting from the constructed facility are used to pay the debt borrowed to build the facility

Sources: Advocacy Advance, MAP-21 Find It, Fund It!; NCDOT, Strategic Transportation Investments; NC Clean Water Management Trust Fund; NC Division of Parks and Recreation.