

Town of Archer Lodge

AGENDA

Work Session Meeting & Public Hearing on an Ordinance Amending the Code of Ordinances, Town of Archer Lodge, NC for:

Regulating Firearms Within the Town Limits

**Monday, November 18, 2019 @ 6:30 PM
Jeffrey D. Barnes Council Chambers**



Page

1. WELCOME/CALL TO ORDER:

2. PUBLIC HEARING:

(Maximum of 30 minutes allowed, 3 minutes per person)

2 - 4

- 2.a. Proposed Ordinance Regulating Firearms within the Town of Archer Lodge

[DRAFT ORDINANCE - REGULATING FIREARMS WITHIN THE TOWN OF ARCHER LODGE](#)

3. OLD BUSINESS:

5 - 132

- 3.a. Bicycle and Pedestrian Plan - DRAFT V1 Review

[Archer Lodge Bike Ped Plan DRAFT V1 10.17.19 from AECOM](#)

4. NEW BUSINESS:

133 - 135

- 4.a. Interim Financial Reports for Month ending October 31, 2019

[OCTOBER 2019 - ALL FUNDS](#)

[OCTOBER 2019 - YTD COMP](#)

136 - 139

- 4.b. Newly Elected Officials & Current Elected Officials Information

[Essentials of Municipal Government - UNC School of Government](#)

[Ethics for Elected Officials Webinar - UNC School of Government](#)

5. ADJOURNMENT:

AN ORDINANCE REGULATING FIREARMS WITHIN THE TOWN OF ARCHER LODGE

Council Direction
Requested:

Question: To allow or not
allow legal concealed
handguns in Town buildings
and/or property?

Changes/modifications to
Johnston County's Code of
Ordinance on subject matter
in Chapter 16, Secs. 16-2
through 16-3 highlighted in
yellow.

Section 1. Pursuant to authority granted by N.C. Gen. Stat. § 160A-189, the Town of Archer Lodge hereby amends the Code of Ordinances, Town of Archer Lodge, North Carolina, Chapter 3, as follows:

Add to Chapter 3, Sections 3-50 and 3-51 as written below:

Sec. 3-50. - Carrying concealed handgun in town-owned buildings

No person shall carry a concealed handgun on or within any town-owned building. An appropriate notice of such prohibition shall be posted in a conspicuous place in each town-owned building notifying persons of the prohibition against carrying a concealed handgun in town-owned buildings. This section shall not apply to law enforcement or other government personnel acting within the scope of their employment.

State law reference—Authority to post concealed weapons signs, G.S. 14-415.23.

Sec. 3-51. - Discharge of firearms.

- (a) **Application** The provisions of this section shall apply to all properties located within the corporate limits of the Town of Archer Lodge.
- (b) **Definition.** For purposes of this section, firearm is defined as a handgun, shotgun, rifle or any device which expels a projectile by action of an explosion.
- (c) **Violations.** It shall be unlawful for any person to:
 - (1) Discharge a firearm in the town carelessly and heedlessly, so as to endanger any person or property.
 - (2) Discharge a firearm that results in a projectile crossing the property line of another person without the permission of the owner, or
 - (3) Discharge a firearm while under the influence of alcohol or a controlled substance (under the influence: determination by the investigating officer that the person is intoxicated by alcohol or a narcotic to the point where physical and mental faculties are appreciably diminished).
- (d) **Discharge on Public Streets, Highways.** It shall be unlawful for any person to discharge any firearm on, from, or across the traveled portion of any public street, or highway.
- (e) **Prohibited times of discharge.** The discharge of firearms from two hours after sunset to one hour before sunrise is prohibited. ~~by Article II, Subsection 12-32(6) of the Johnston County Code of Ordinances.~~
- (f) **Miscellaneous Exceptions.** The following exceptions are permissible under this section:

Concept Draft Ordinance #1

- (1) Law enforcement officers or members of the armed forces acting in the line of duty;
- (2) The shooting or killing of any dangerous or destructive animal or reptile when necessary to protect life or property;
- (3) All legal hunting activities pursuant to the North Carolina Department of Agriculture, the North Carolina Wildlife Commission and G.S. Chapter 113, subchapter IV, as it is from time to time amended or pursuant to lawfully issued state or federal hunting or wildlife removal permits;
- (4) The use of firearms for defense of persons or property as allowed under state law;
- (5) Nonprofit special events such as turkey shoots conducted with a valid local town permit issued by the town administrator or their designee;
- (6) Indoor firing/shooting ranges with an applicable zoning permit(s) issued by the town; and
- (7) A bonafide training facility acting in the course of providing firearms proficiency training and certification to law enforcement agencies, private security agencies, employers of armored-car personnel (e.g. Brinks, Loomis, and similar companies), and similar legitimate businesses that require such certification. A "bonafide training facility" is one that is: (a) properly authorized to provide such training and certification to North Carolina or federal law enforcement agencies, and (b) obtains an applicable zoning permit(s) issued by the town.
- (g) **Penalties.** A violation of this article [section] by any person is a misdemeanor and shall subject the offender to a fine of \$100.00 and/or imprisonment for up to 30 days. A second or subsequent violation by the same person within one year shall subject such person to a fine of up to \$300.00 but not less than \$100.00 and/or imprisonment for up to 30 days.

State law reference—Authority to regulate, discharge, or prohibit the discharge of firearms, G.S. 160A-189.

Section 2. This ordinance shall become effective upon adoption.

DULY ADOPTED, THIS ____ DAY OF _____, 2019.

TOWN OF ARCHER LODGE

(SEAL)

Matthew B. Mulhollem
Mayor

ATTEST:

Kim P. Batten
Town Clerk

CONCEPT DRAFT



Table, figure, and map numbers may be out of order and are subject to change. The cover and project renderings will be included in the final version.

Acknowledgements

Thank you to the Steering Committee and local residents of the Town of Archer Lodge for their involvement and support in this planning process and commitment to bicycle and pedestrian planning. The *Town of Archer Lodge Bicycle and Pedestrian Plan (plan)* was funded through the North Carolina Department of Transportation Bicycle and Pedestrian Planning Grant Initiative.

Key Partners

The Town of Archer Lodge
The North Carolina Department of Transportation (NCDOT)
NCDOT Division of Bicycle and Pedestrian Transportation (BPTD)

Town of Archer Lodge Mayor and Town Council

Matt Mulhollem, Mayor
Clyde Castleberry, Council Member/Mayor Pro-Tem
Teresa Bruton, Council Member
Mark Jackson, Council Member
Hearbert Locklear, Council Member
Mark Wilson, Council Member

Bicycle and Pedestrian Plan Steering Committee

Kim Batten, Town of Archer Lodge
Terry Barnes, Town of Archer Lodge
Teresa Bruton, Town of Archer Lodge
Bob Clark, Town of Archer Lodge
Bob Davis, Town of Archer Lodge
Mike Gordon, Town of Archer Lodge
Mark Jackson, Town of Archer Lodge
Joyce Lawhorn, Town of Archer Lodge
Julie Maybee, Town of Archer Lodge
John Oglesby, Town of Archer Lodge
Andy Thomas, Town of Archer Lodge
Dene Castleberry, Archer Lodge Community Center
Samantha Wullenwaber, Town of Clayton
Braston Newton, Johnston County Planning Department

Charles Ferrell, Johnston County Public Schools
Sarah Campbell, Johnston County Sports Council
Donna Bailey-Taylor, Johnston County Visator's Bureau
Kenneth Withrow, North Carolina Capital Area Metropolitan Planning Organization
John Goldman, Fat Johnny's Bike Repair
Pam Smith, Resident

NCDOT

Bryan Lopez, NCDOT BPTD

Consultant Team

AECOM of North Carolina



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Executive Summary

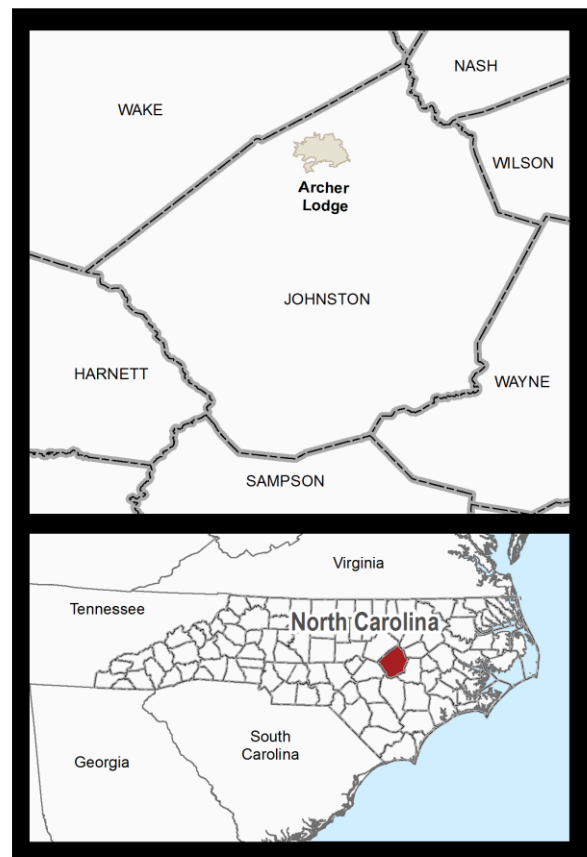
Brief History and Overview of the Community

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 led by NCDOT's Division of Bicycle and Pedestrian Transportation, AECOM as the project consultant, and the locally appointed Steering Committee.

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 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, and the Archer Lodge Community Center. The rural pattern of land use combined with numerous streams in the town has resulted in a lack of street connectivity and promoted high speed vehicular traffic. 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 *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) will be used to acquire additional funding for phase one of the park's development.

The *2030 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 making decisions about 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 NCDOT Division of Bicycle and Pedestrian Transportation 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 NCDOT Division of Bicycle and Pedestrian Transportation, 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.

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. 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 further in 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, a town council member 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 regularly (as determined by the town council), and report to the town council. It will 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 provided to the town council detailing the progress made on implementing the *plan* as well as the BPAC's goals and objectives for the coming year.



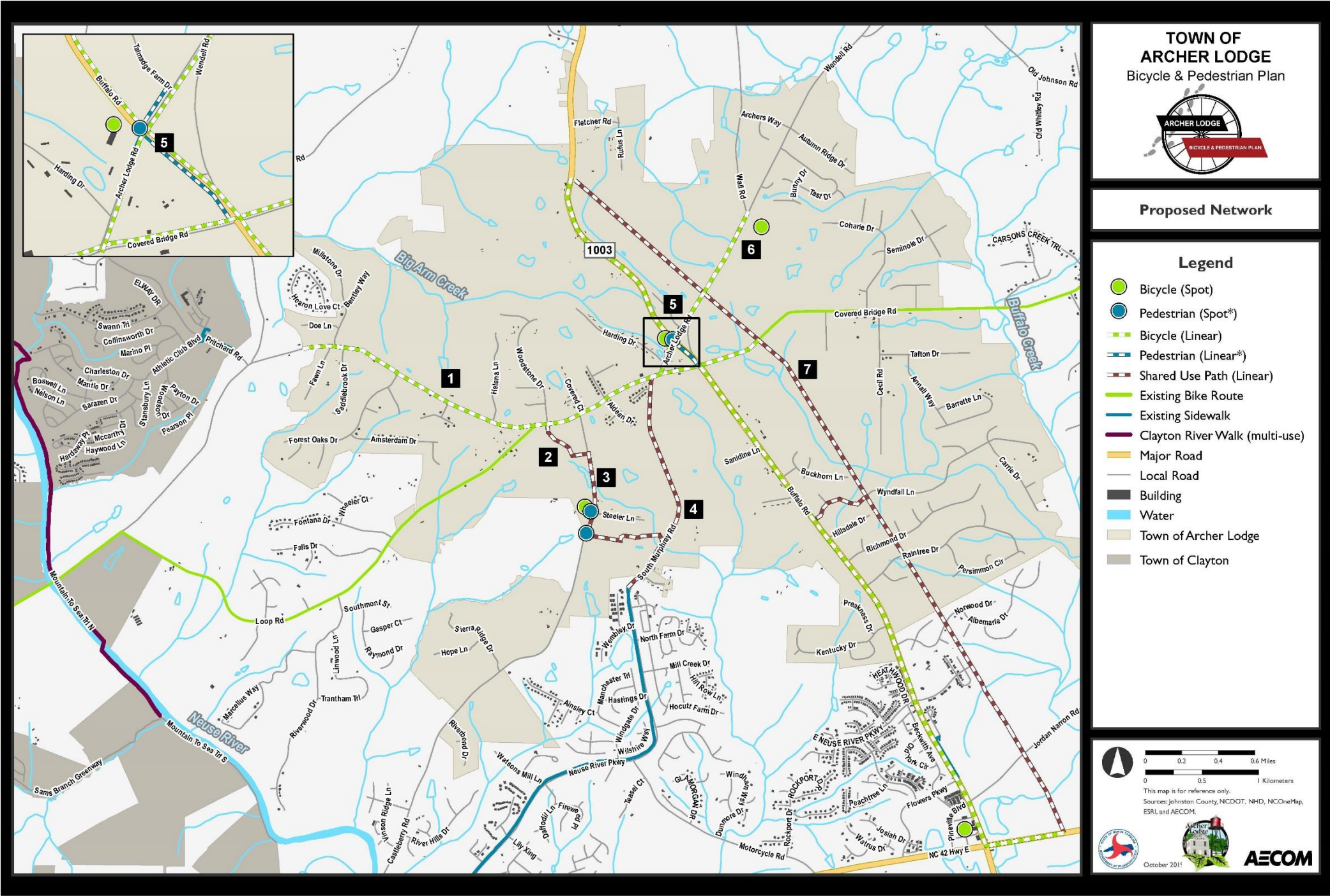
Key Action Steps

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 Foothills 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.

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



Map ES-1: 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 NCDOT Division of Bicycle and Pedestrian Transportation (DPBT) 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 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 just over 14,000 residents and is committed to improving its main roads, Covered Bridge Road and Buffalo Road. Archer Lodge is comprised of many small businesses and schools, single family residences, a church, grocery stores, a fire department, community center, town hall, and a new veteran's memorial.



Archer Lodge Water Tower
(Archer Lodge, 2019)

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 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

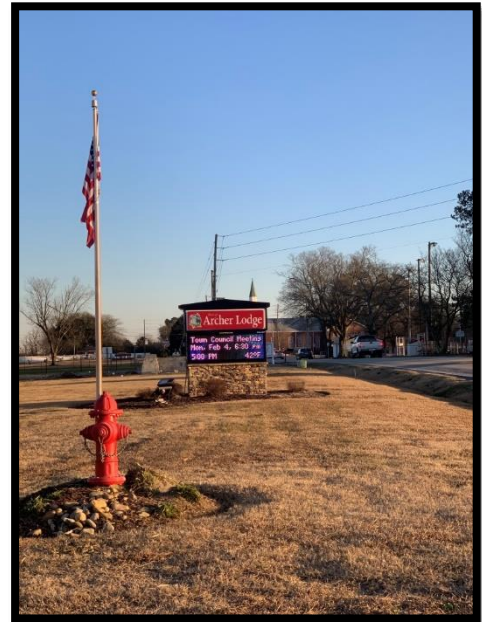


I.3 Goals and Objectives

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 *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 goals and objectives developed during the first Steering committee meeting are listed below in Table 1-1. The following goals were developed:

- Improve mobility through bicycle and pedestrian networks
- Provide bicycle and pedestrian education
- Promote Environmental, Public Health, and Safety Benefits of Biking and Walking
- Encourage Economic Benefits of Biking and Walking
- Connect Cultural Sites and Natural Resources



Archer Lodge Town Hall
(AECOM, 2019)



Table I-I: Goals and Objectives

<i>Improve Mobility through Bicycle and Pedestrian Networks</i> 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.
<i>Provide Bicycle and Pedestrian Education</i> Educate the community as to the benefits of bicycle and pedestrian activity, applicable rules, and regulations.
<i>Promote Environmental, Public Health, and Safety Benefits of Biking and Walking</i> 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.
<i>Encourage Economic Benefits of Biking and Walking</i> 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.
<i>Connect Cultural Sites and Natural Resources</i> 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 this *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 Bicycle and Pedestrian Transportation Division (BPTD),



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

1.5 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. 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 NC 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 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

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

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



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 a close proximity of one another, providing pedestrian and bicycle facilities can reduce the number of short motor vehicle trips.



Stewardship/Environmental

Transportation is responsible for nearly 80 percent of carbon monoxide and 55 percent of nitrogen oxide emissions in the US.^{4,4} 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 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 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 vehicle trips is an important environmental goal⁴.

^{4,4} Pedestrian and Bicycle Information Center. (2015). Environmental Benefits of Bicycling and Walking. Retrieved from: http://www.pedbikeinfo.org/data/factsheet_environmental.cfm



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

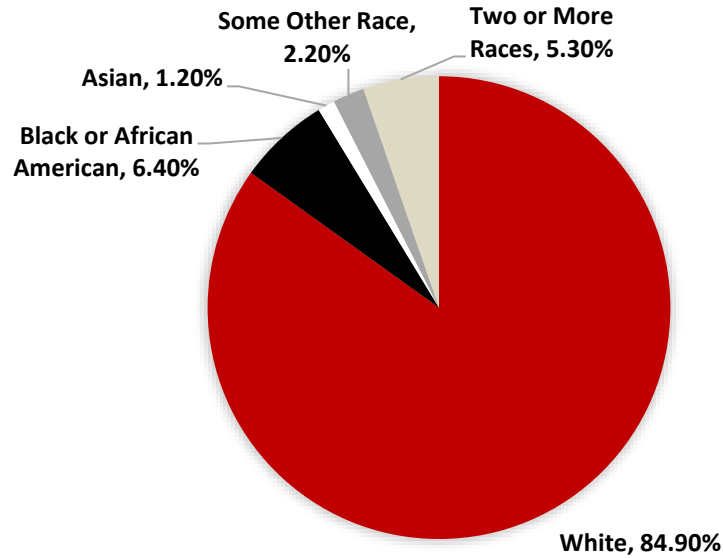
The minority population⁵ in Archer Lodge is approximately 19.9 percent of the total population (933 people). The minority population for Johnston County is slightly higher at 31.3 percent (58,363 people).

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 to 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.

⁵ Calculated by subtracting White, Non-Hispanic population totals from the Total Population based on 2012-2016 ACS data.



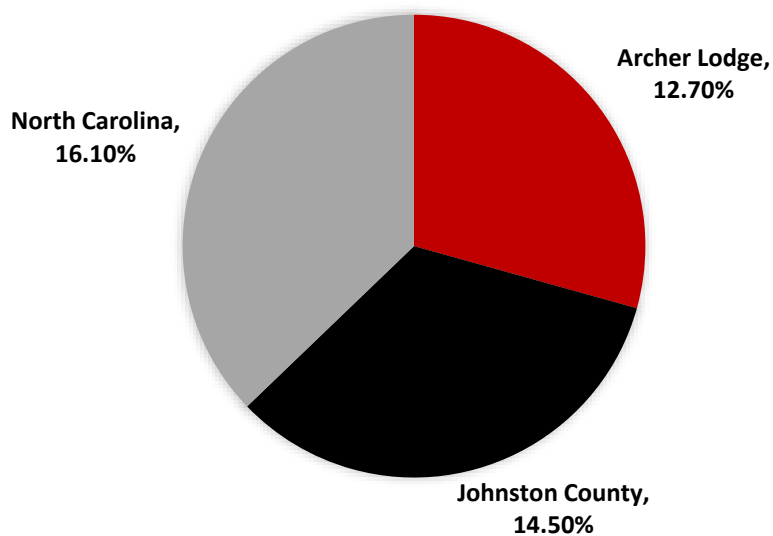
RACIAL COMPOSITION OF ARCHER LODGE



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



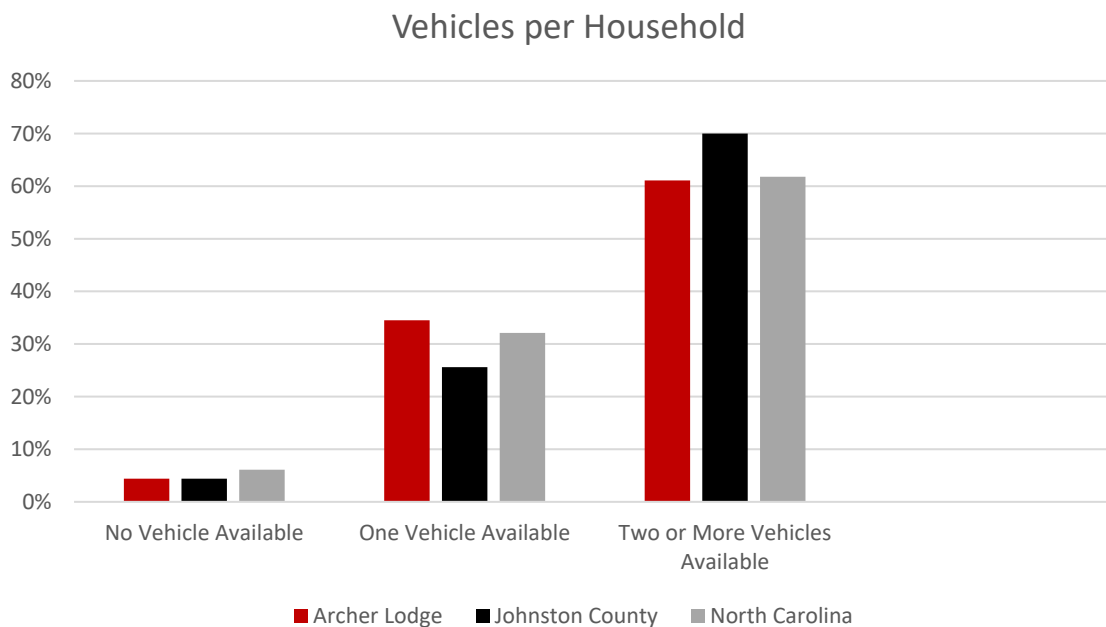


Limited English Proficiency (LEP)

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).

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.



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.

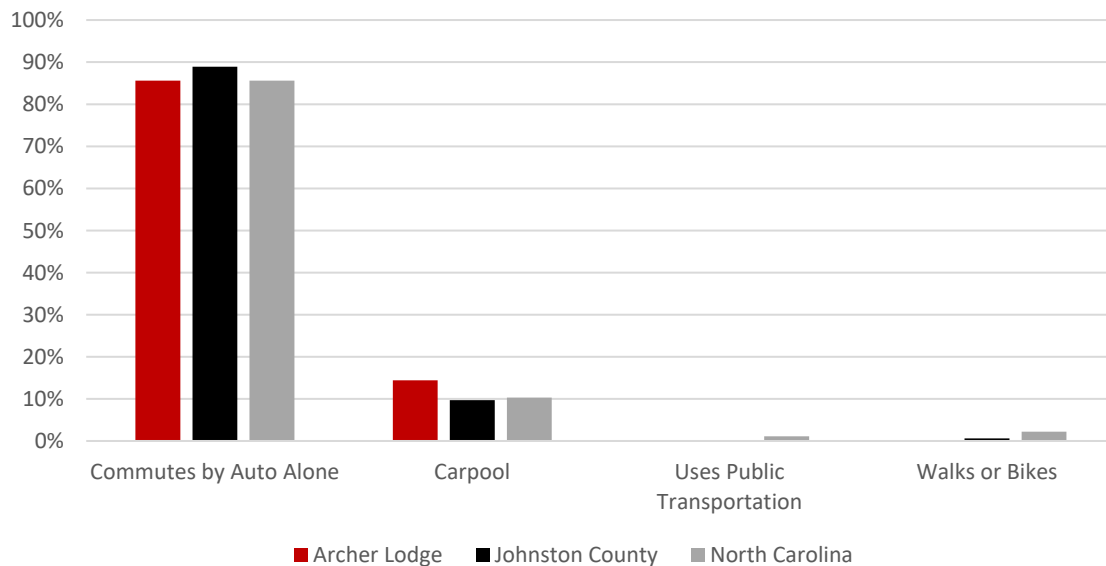


These figures are comparable to Johnston County and the state of North Carolina, where 88.9 percent and 85.6 percent commute alone by auto, respectively. In Johnston County, a total of 9.7 percent of workers carpool, while 10.0 percent of the state uses a similar mode of transportation. In the county, 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**.”*

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



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. Archer Lodge anticipates single family residential neighborhoods to be the primary future land use in the town, and these new residences will be located primarily on Covered Bridge Road and Buffalo Road. 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 Map 2-1 for future land uses around Archer Lodge.

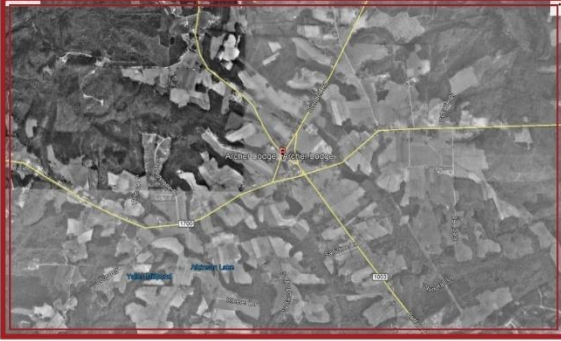
*“The **infrastructure** in Archer Lodge has not kept up with the **growth** of the town.”*

The fragmented nature of 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:

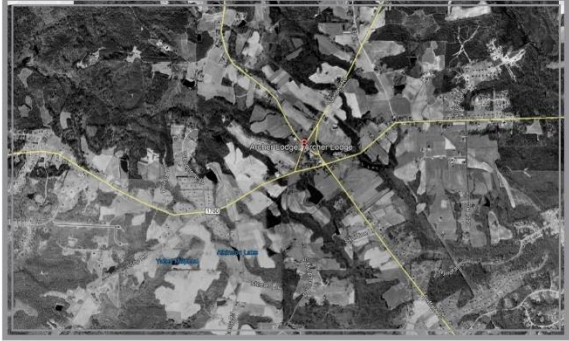
- Walkable and bikeable site and infrastructure design
- Promotion of pedestrian friendly development
- Sidewalk standards and requirements
- Encouragement of traffic calming
- Encouragement of trails and walkable areas in large developments
- Pedestrian and mobility linkages between adjacent development



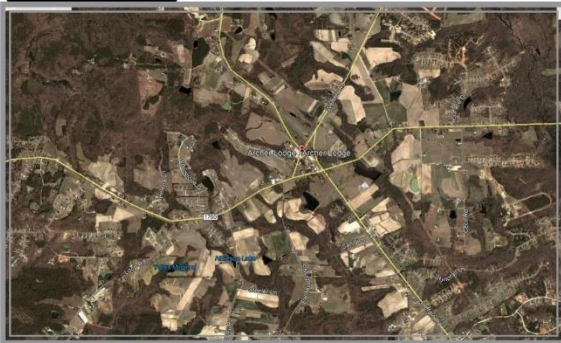
1993



1999



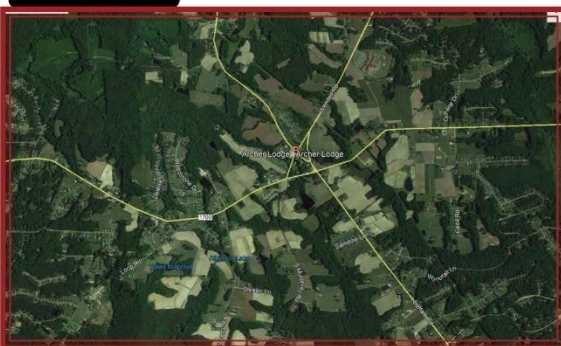
2004



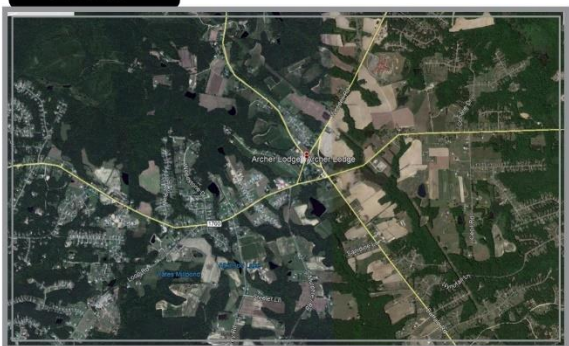
2009



2015



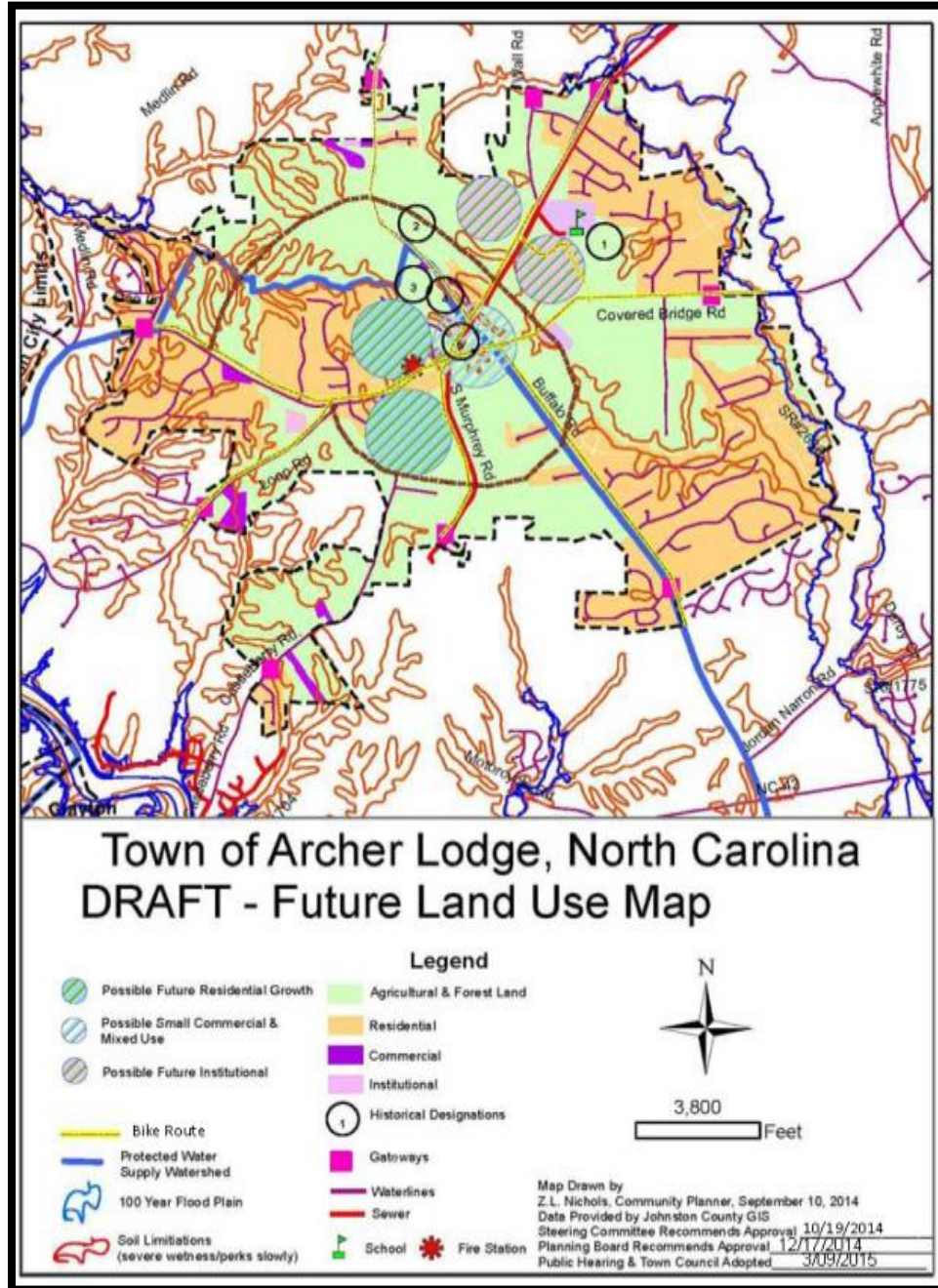
2018



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



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



Source: Archer Lodge 2030 Comprehensive Land Use Plan, 2015



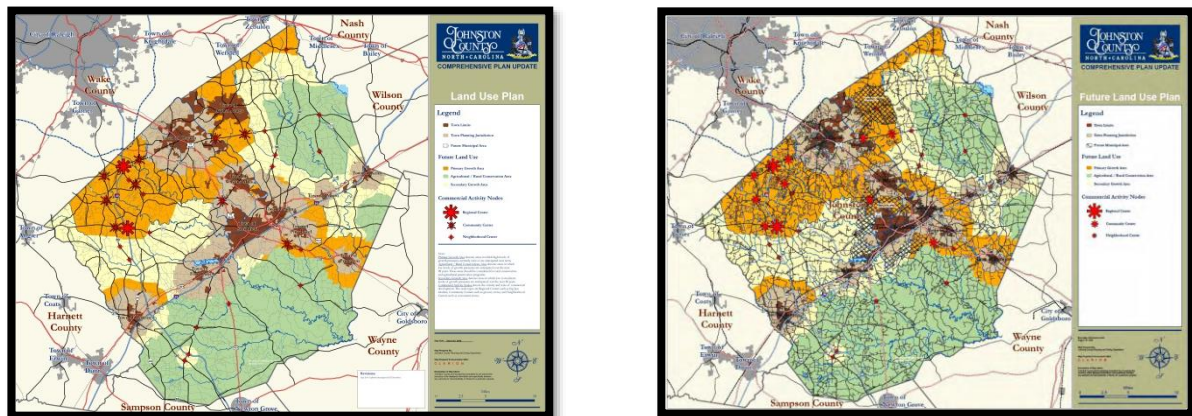
Johnston County Land Use Plan

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

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 (Error! Not a valid bookmark self-reference.).

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



Source: *Johnston County 2030 Comprehensive Plan*, 2009

2.4 Existing Plans and Programmed Projects

The *Town of Archer Lodge Comprehensive Parks and Recreation Master Plan* and (2015) and the *Johnston County Comprehensive Transportation Plan* 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

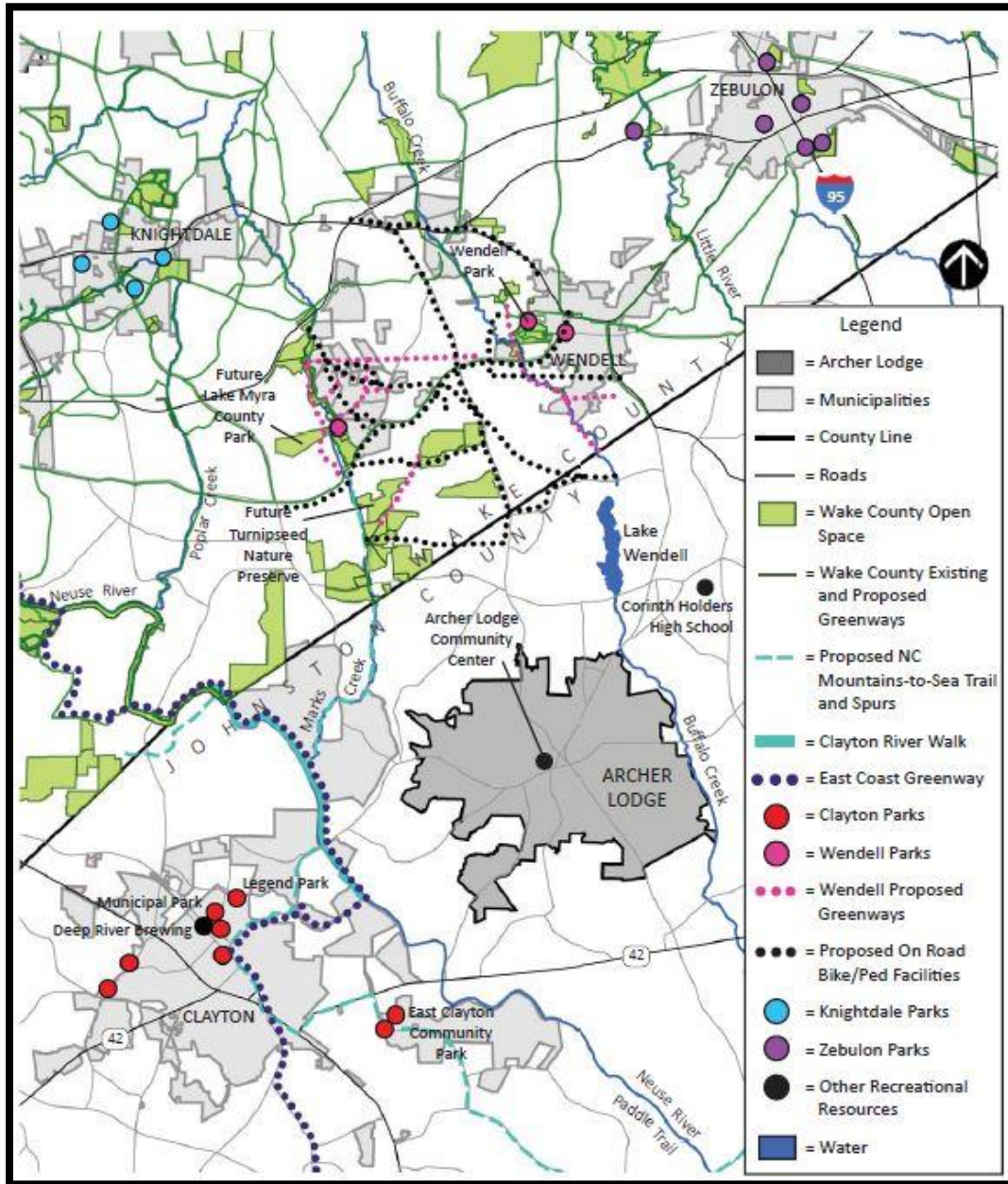


with a village motif, and enhance the workforce by creating and retaining jobs. The emphasis of the mixed-use community vision for Archer Lodge will support shorter-length trips, thereby increasing the need for pedestrian and bicycle infrastructure throughout the town. According to the Regional Connections Map displayed in this plan, 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 Master Plan* for the Mountains-to-Sea Trail. See Map 2-3 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.



Map 2-3: Regional Connections Map



Source: Archer Lodge Comprehensive Parks and Recreation Master Plan, 2015



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 Map 2-1. 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)

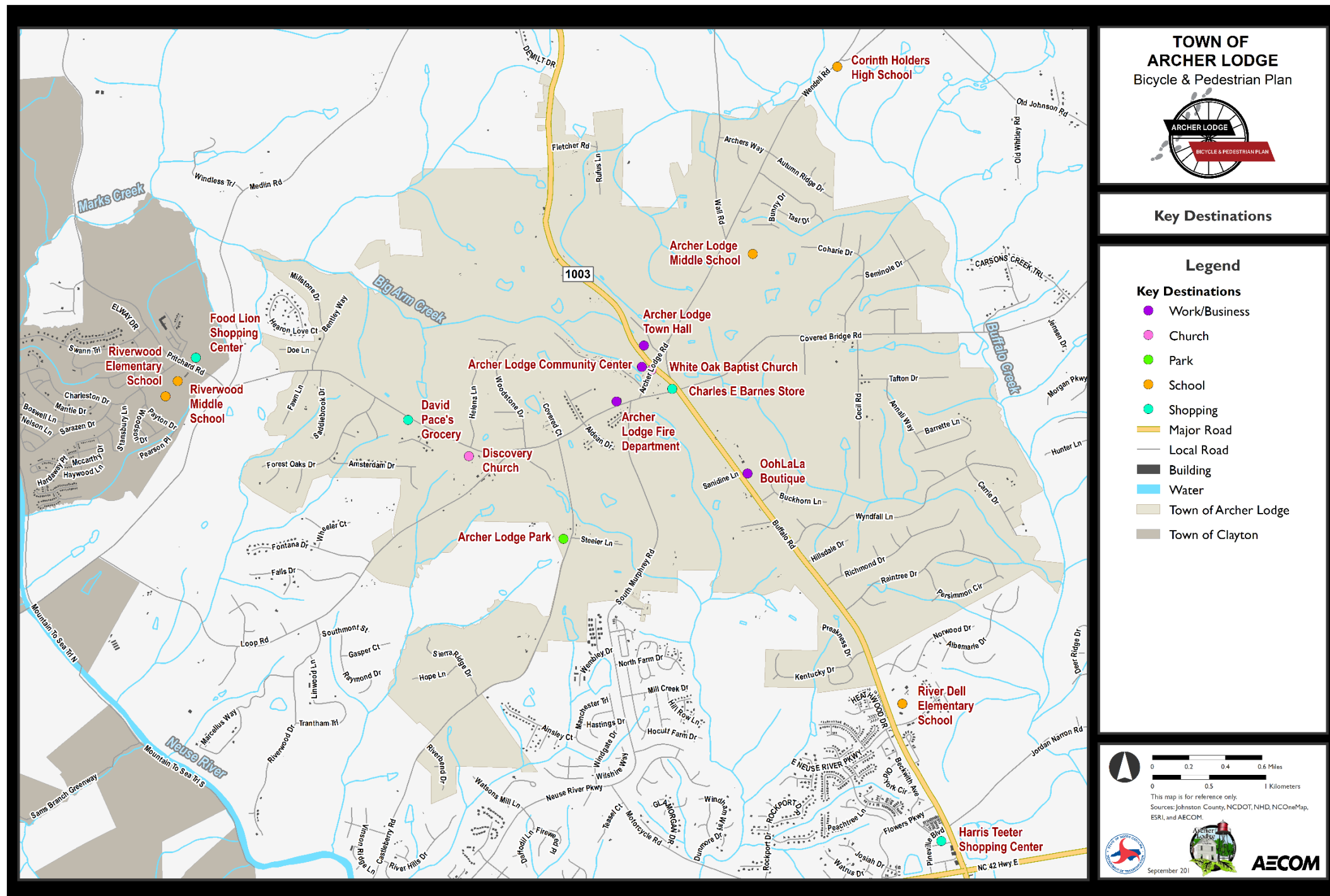


Table 2-1: Key Community Destinations

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
Arche Lodge Fire Department	Civic
Archer Lodge Community Center	Civic
Archer Lodge Town Hall and Veteran's Memorial	Civic
Archer Lodge Park	Recreational
*Food Lion Shopping Center	Business
Harris Teeter Shopping Center (Flowers Crossroads)	Business
David Pace's Grocery	Business
Charles E. Barnes Store	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. Please see Map 2-1 for locations.	



Map 2-1: Key Community Features





2.6 Infrastructure

Roads

The suburban and rural-like nature of Archer Lodge has led to disjointed and fragments roadway structure. New residential development with one access point has prevented connectivity within the town and will contribute to long-term traffic problems. 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 in several turn lanes and realign South Murphrey Road to meet Archer Lodge Road. New traffic lights will be added at the intersection of Covered Bridge Road at Castlebury Road and at South Murphrey 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 lanes with approximately 10 to 12-foot travel lanes. 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. 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
(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 Dr	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 Dr	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 Rd	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 Dr	NCDOT	0.43	25	n/a	50	20	No	No	Dead end
Barrette Ln	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 Ln	NCDOT	0.40	35	n/a	50	20	No	No	Cul-de-sac
Buffalo Rd	NCDOT	3.75	35-45	9,000	0	22	No	No	Ditches
Callie Ct	NCDOT	0.11	35	n/a	50	20	No	No	Cul-de-sac
Castleberry Rd	NCDOT	2.54	35-55	2,400	0	20	No	No	Ditches
Cecil Rd	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 Ct	NCDOT	0.09	35	n/a	50	19	No	No	Cul-de-sac
Chesney Ct	NCDOT	0.12	35	n/a	50	20	No	No	Cul-de-sac
Covered Bridge Rd	NCDOT	4.42	35-45	3,900-6,400	0	20	No	No	Ditches
Deep Forest Ln	NCDOT	0.14	35	n/a	50	17	No	No	Cul-de-sac
Deerfield Trl	NCDOT	0.10	35	n/a	60	20	No	No	n/a
Doe Ln	NCDOT	0.21	35	n/a	60	19	No	No	Cul-de-sac
Fawn Ln	NCDOT	0.32	35	n/a	60	20	No	No	Cul-de-sac
Fletcher Rd	NCDOT	0.26	35	n/a	60	20	No	No	Ditches
Forest Oaks Dr	NCDOT	0.82	25-35	n/a	50	20	No	No	Cul-de-sac
Glen Ct	NCDOT	0.16	35	n/a	50	19	No	No	Cul-de-sac
Heart Wood Ct	NCDOT	0.16	35	n/a	50	17	No	No	Cul-de-sac
Helena Ln	NCDOT	0.51	35	n/a	50	20	No	No	Cul-de-sac and light poles
Hillsdale Dr	NCDOT	0.26	35	n/a	50	19	No	No	Cul-de-sac
Kentucky Dr	NCDOT	0.66	35	n/a	60	19	At neighborhood entrance	No	Cul-de-sac
Kirkland Ct	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 Rd	NCDOT	1.06	35	1,200	n/a	24	No	Signed bicycle route	Ditches
Millstone Dr	NCDOT	0.63	35	n/a	50-60	18	No	No	Cul-de-sac
Nashville Dr	NCDOT	0.21	35	n/a	50	20	No	No	Cul-de-sac
Paisley Ct	NCDOT	0.14	35	n/a	50	21	No	No	Cul-de-sac
Post Oak Ct	NCDOT	0.16	35	n/a	50	18	No	No	Cul-de-sac
Preakness Dr	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 Dr	NCDOT	0.87	35	n/a	50	20	No	No	Cul-de-sac
Riverbend Dr	NCDOT	0.28	35	n/a	60	20	No	No	Cul-de-sac
S Woodstone Dr	NCDOT	0.24	35	n/a	50	21	No	No	Cul-de-sac
South Murphrey Rd	NCDOT	1.18	35	n/a	60	19	No	No	Ditch
Tafton Dr	NCDOT	0.49	35	n/a	50	21	No	No	Cul-de-sac
Triple Crown Cir	NCDOT	0.29	25	n/a	50	20	No	No	n/a
Wall Rd	NCDOT	1.49	35-55	n/a	n/a	19	No	No	Ditches
Wendell Rd	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 Dr	NCDOT	0.68	35-35	n/a	60	23	No	No	Dead end
Wyndfall Ln	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 5:00 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. Moving 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

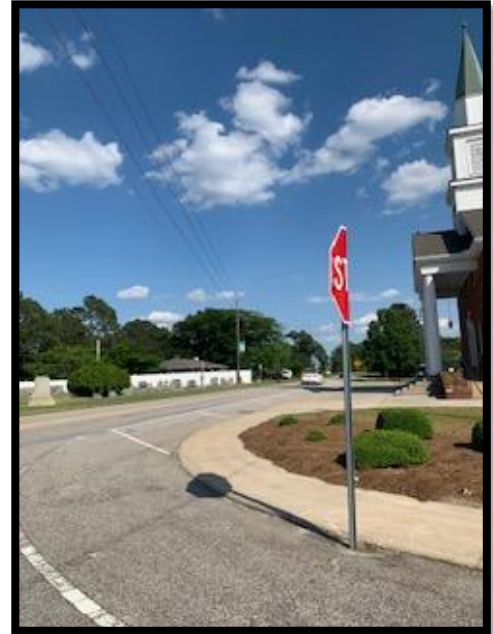
Sidewalks

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 2-4 and mapped on Map 2-2. Overall, the sidewalk network in Archer Lodge is poor, with facilities present on high-traffic streets like Buffalo Road and Pritchard Road. 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-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.



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 E. Neuse River Parkway in front of River Dell Elementary School and another crosswalk that runs parallel with Buffalo Road at the River Dell Elementary School, summarized in Table 2-5.

Table 2-5: Existing Crosswalks

Location	Type	Visibility	Pedestrian Signals
Buffalo Rd	Four-way crossing at intersection	Visible striped pavement markings	No. 4-way stop signs present.
River Dell Elm. 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 6-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. The counts are listed in for the most recent year available, 2017. 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 in on Covered Bridge Road at 3,900 to 6,400 counts and on Castleberry Road at 2,400 counts. The 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 NCDOT Division of Bicycle and Pedestrian Transportation in collaboration with local law enforcement departments developed a dataset for all reported bicycle and pedestrian crashes⁶ 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.

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

⁶ North Carolina Pedestrian and Bicycle Crash Data Tool



- 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 allocates an annual amount of \$50,000 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.

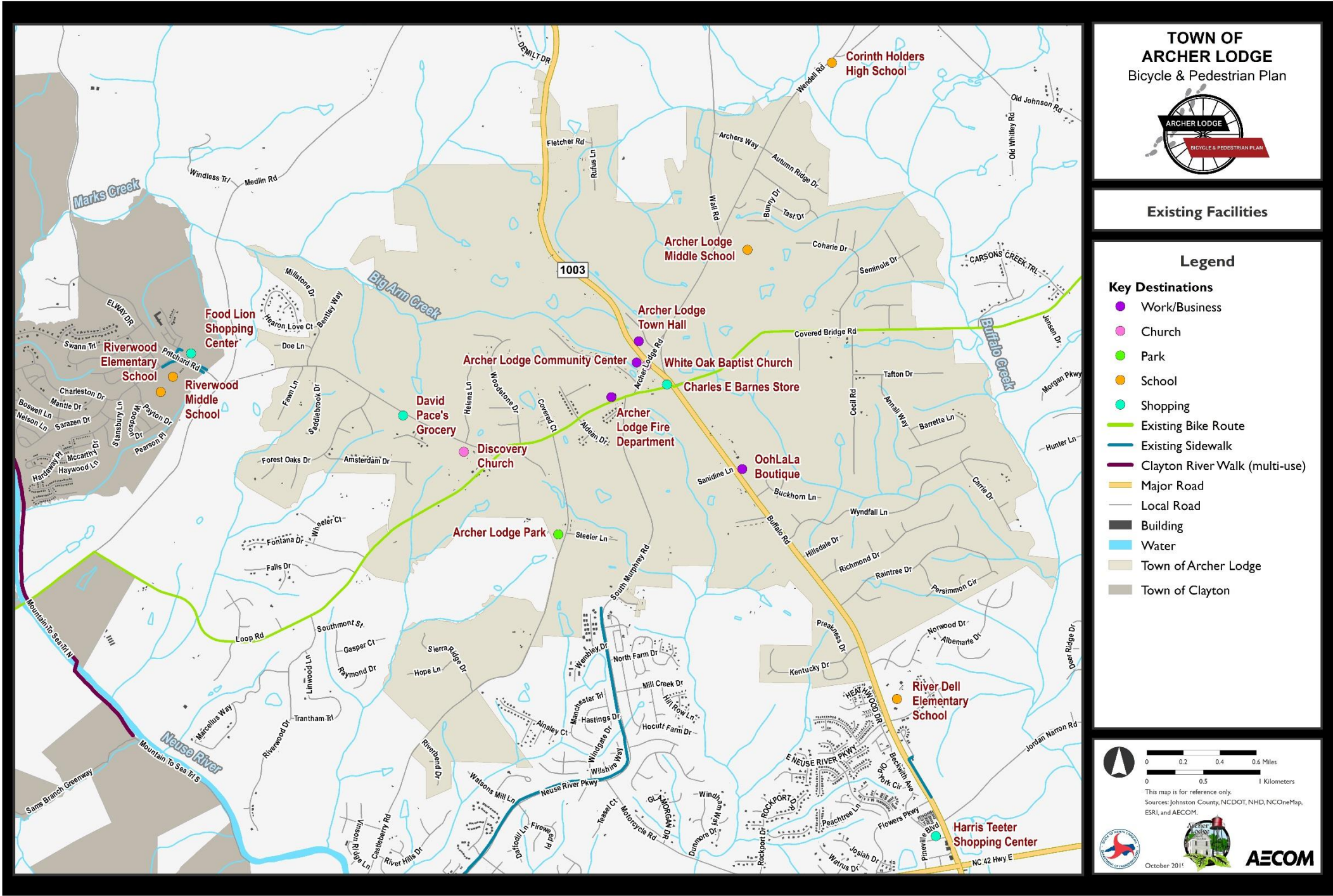
Riverwood Elementary staff and students met at a local coffeehouse to participate in National Walk to School Day. The walk to school day coincides with the *International Walk to School Week* which typically falls on the



first week of October. Further participation in this event may encourage students to walk to school more frequently.



Map 2-2: Existing Facilities





2.10 Opportunities and Constraints

In partnership with the Steering Committee, opportunities for improving bicycle and pedestrian mobility and safety were identified as well as potential constraints to overcome in 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. Several roadways with ample availability of rights-of-way are noted in section 2.6.
4. Lack of existing town policies that require sidewalk and bicycle infrastructure to be constructed as part of development.
5. Terrain, streams, and ditches, and right-of-way challenges may increase engineering and construction costs of pedestrian infrastructure.
6. Current development patterns have resulted in a lack of connectivity between neighborhoods and key community destinations.
7. Difficulties in coordinating improvements for 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	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	Samantha Wullenwaber

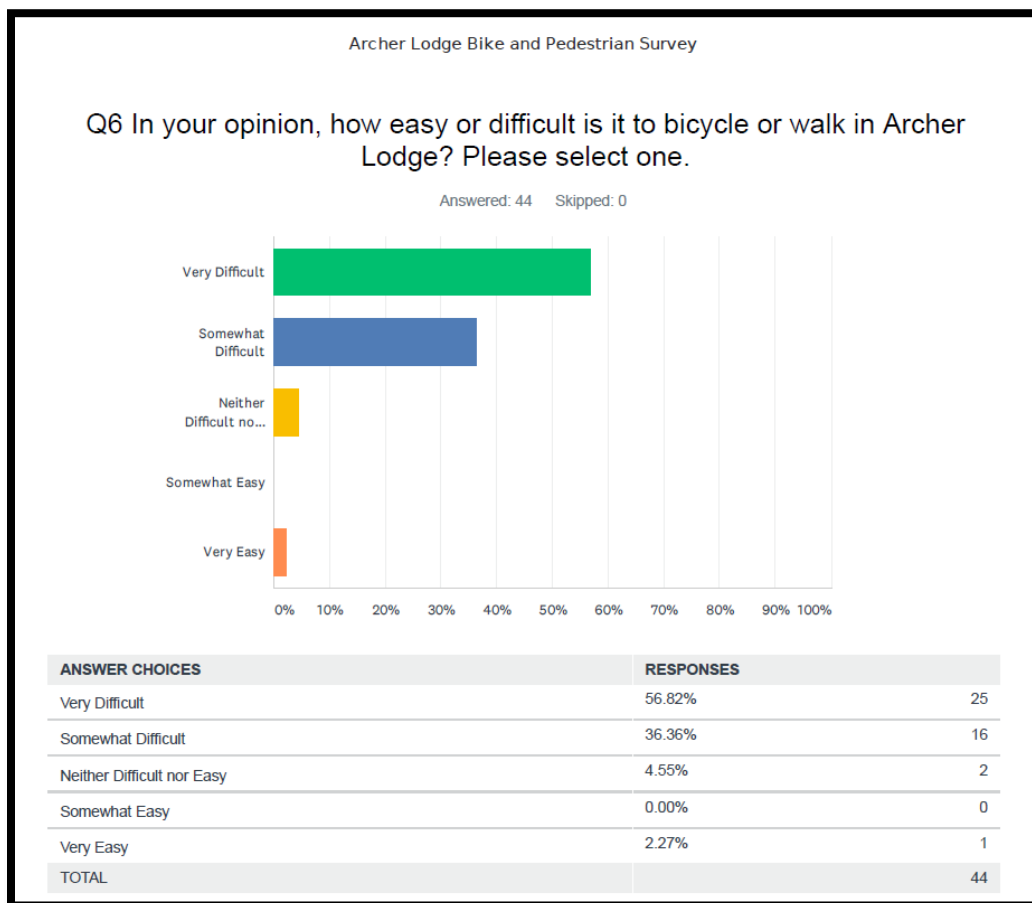
3.2 Public Meetings

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 were 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 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."*

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:

5. **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.
6. **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.
7. **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.
8. **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. Multiuse 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 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 for 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, road diet, 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.

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.⁷ 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.

⁷ NCDOT Complete Street Planning and Design Guidelines at <http://completestreetsnc.org/>



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.

Equestrian Considerations: Trail corridors with paved and unpaved trends 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. A rail trail, built within the right-of-way of a former railroad, is considered a type of shared use path.

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

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, the team identified two corridors for specific infrastructure improvement recommendations. The corridors and corresponding projects are shown in Map 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



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

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 reference to these maps.



Table 4-2: Map Identification

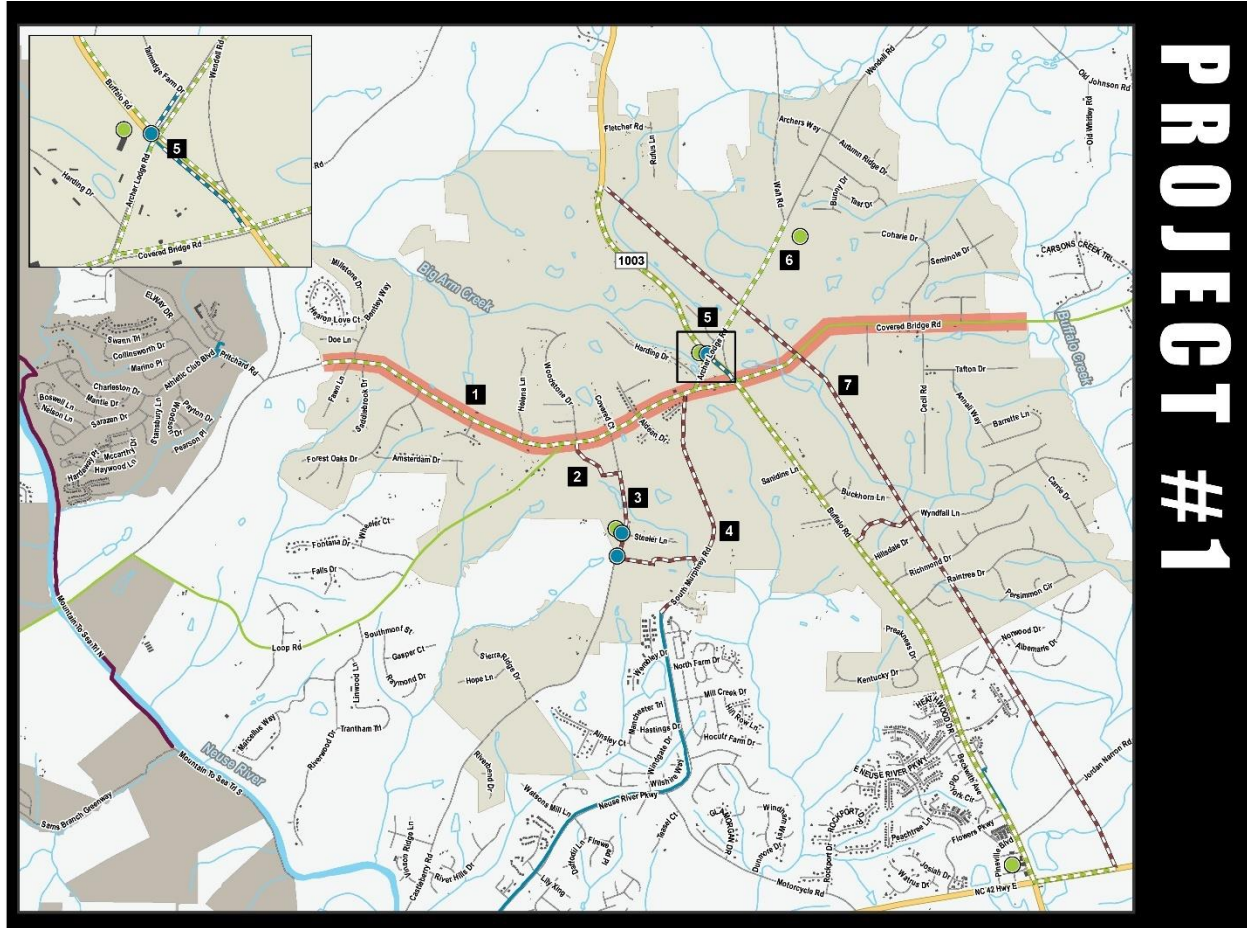
Project	Project Type	Map ID
Covered Bridge Road	Bicycle and pedestrian improvements	1
South Woodstone	Shared-use improvements	2
Castleberry Road	Bicycle and pedestrian improvements	3
South Murphrey Road	Shared-use improvements	4
Buffalo Road	Bicycle and pedestrian improvements	5
Archer Lodge/Wendell Road	Bicycle improvements	6
Duke Energy Easement Greenway	Shared-use improvements	7

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.



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 map above). The bike 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 between Loop Road and continues east 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, and south of the C.E. Barnes Store.



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

Opportunities and Recommended Improvements

Prioritization Rank: 1 (tie)

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, the extension of the signed bike route between the western town limits and proposed greenway could help 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.

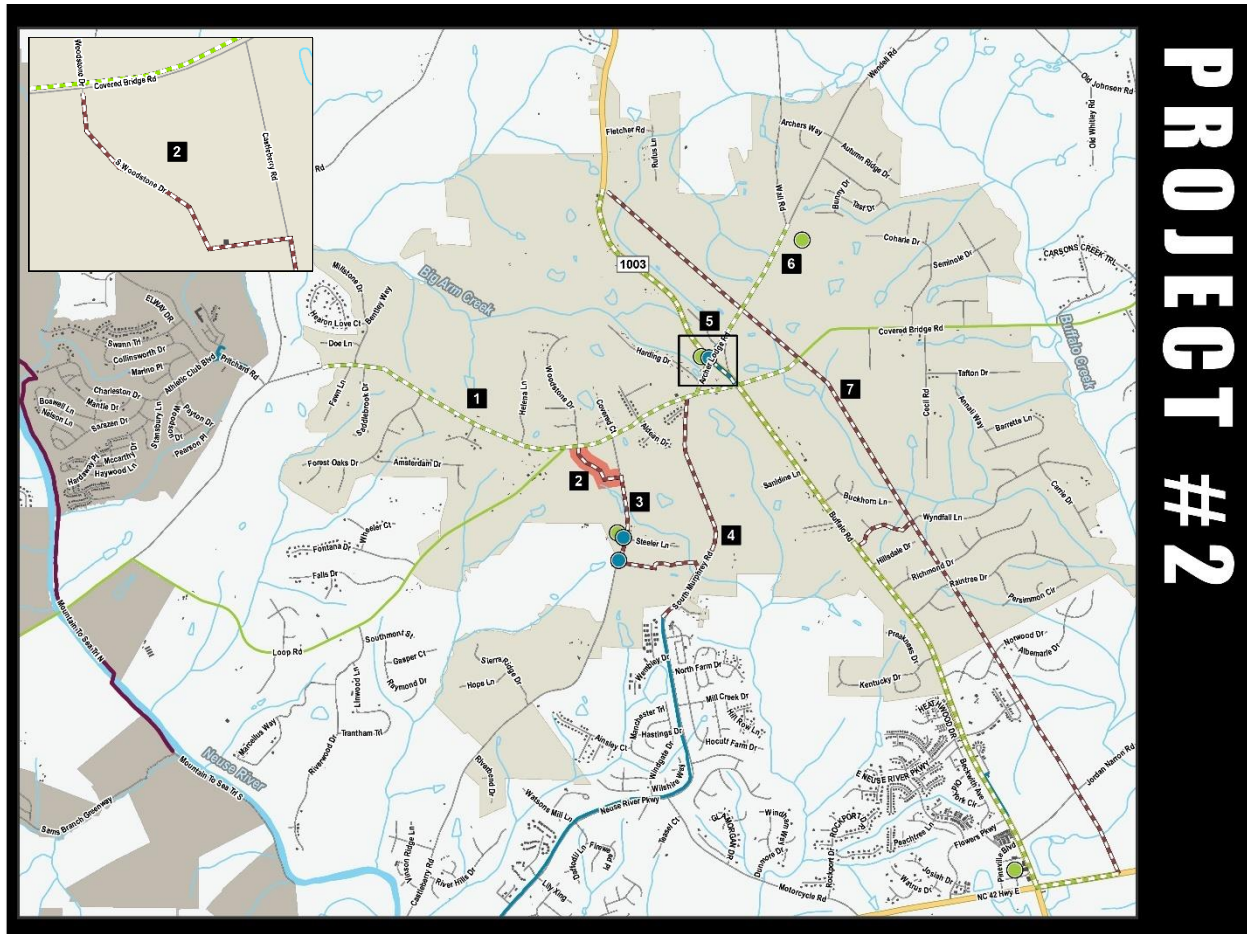
Table 4-4: Covered Bridge Road Corridor Improvements

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 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

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



PROJECT 2: South Woodstone Drive Shared-use Improvements



Background

This project was a recommendation made by the consultant team to create a loop around the new 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 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)



Opportunity to Continue the Proposed Shared-use Path on South Woodstone Drive. Trail Would Connect to Proposed Shared-use Path on Castleberry Road (Project # 3).
(AECOM, 2019)

Opportunities and Recommended Improvements

Prioritization Rank: 6

A shared-use path running along the western side of South Woodstone Drive would end at the cul-de-sac and transition into a greenway that would link to the proposed shared-use path on Castleberry Road. An easement may be required to obtain land for the trail. Costs estimates are based on a 10ft 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.



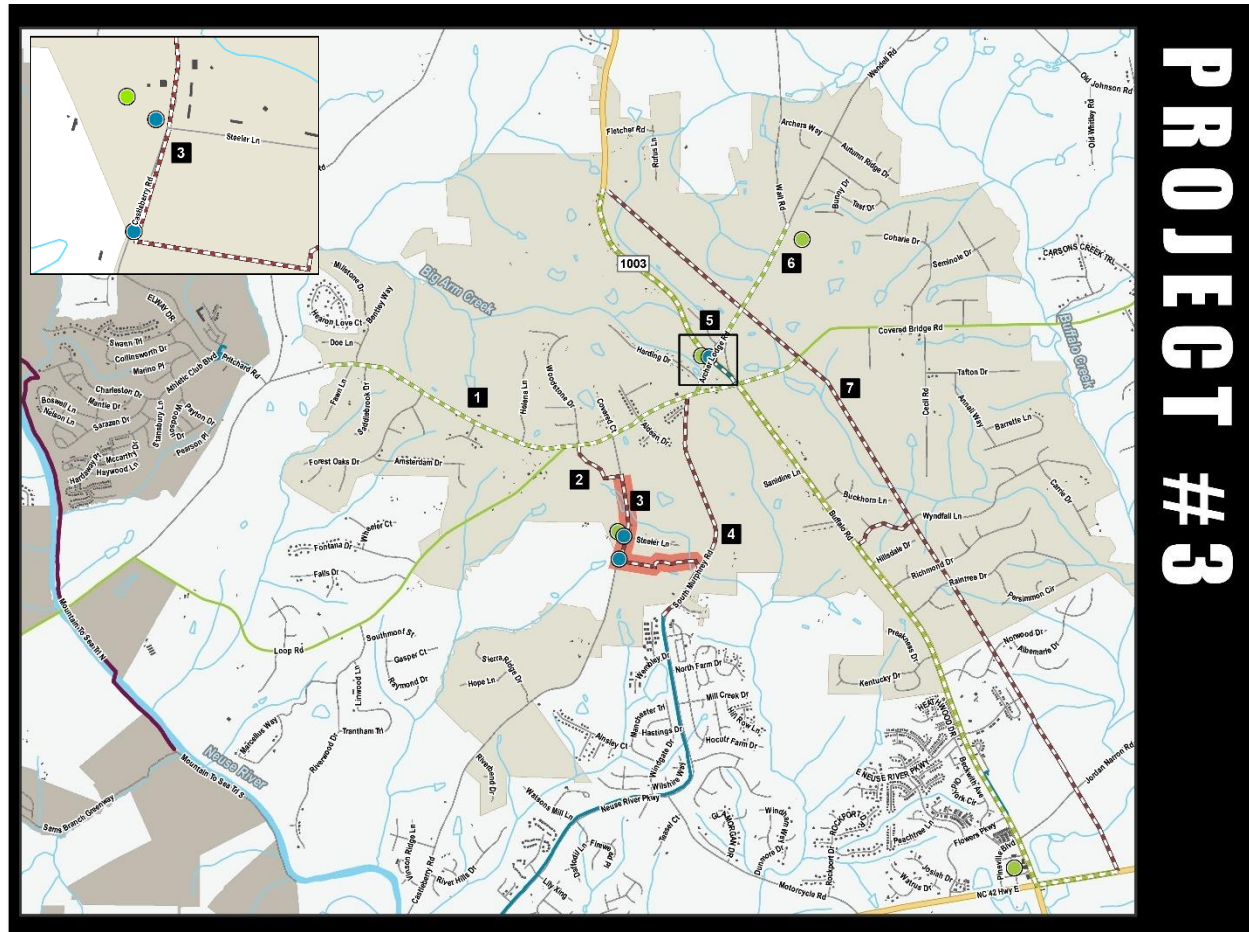
Table 4-5: South Woodstone Drive Shared-use Improvements

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 3: Castleberry Road Shared-use Improvements



PROJECT #3

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 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 Park on Castleberry Road Across from Darcy Drive and Shared-use Path Westbound of Castleberry Road

Opportunities and Recommended Improvements

Prioritization Rank: 4

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 park (south of Steeler Lane). Several spot projects have been proposed on this road that will help residents access the new 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 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.



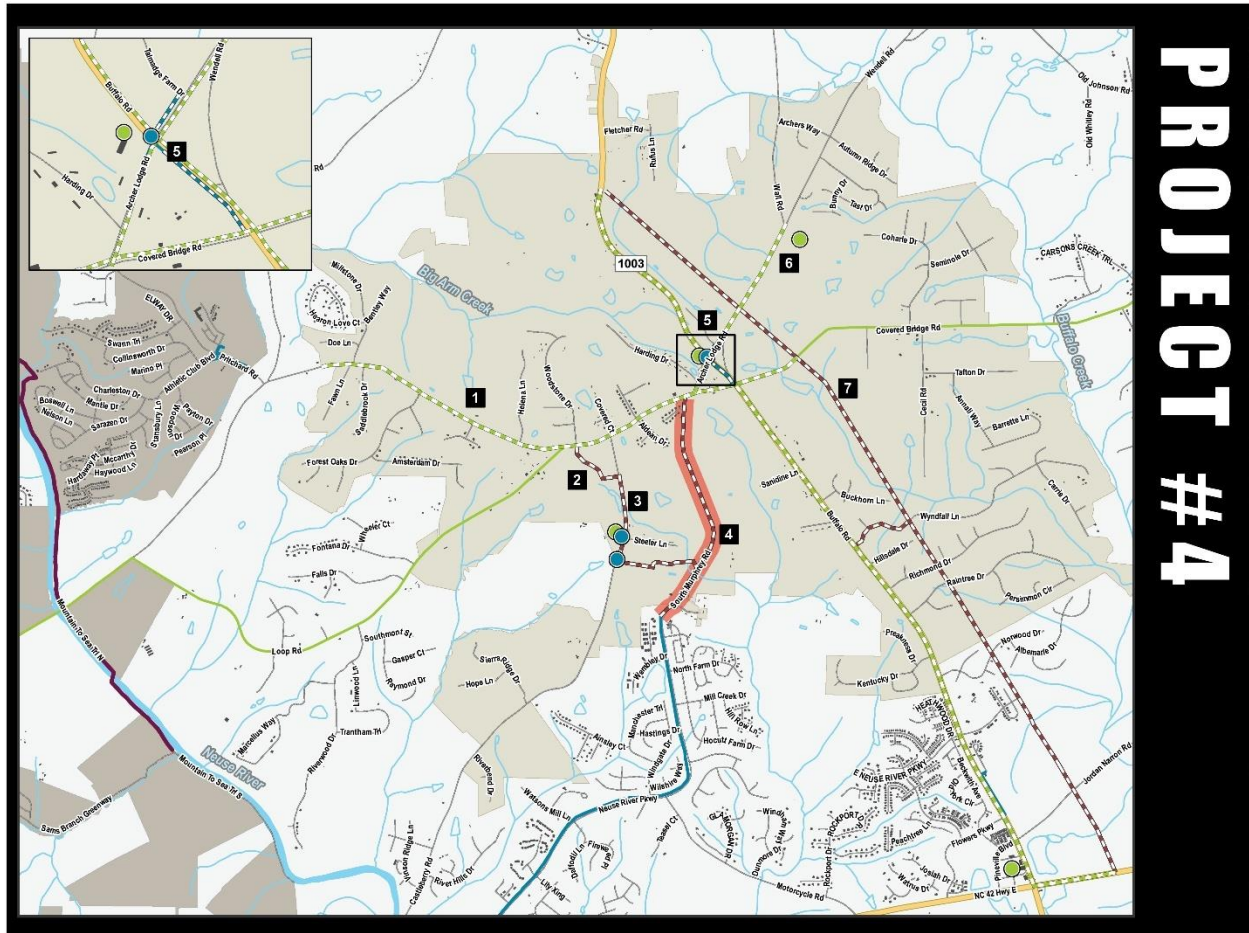
Table 4-6: Castleberry Road Shared-use Improvements

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.*



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 also 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 was identified as a prime pedestrian destination. The continuation of this shared-path north towards Covered Bridge Road would encourage further pedestrian linkages between South Murphrey Road and the downtown area.

Existing Conditions

The Lakeside Townes neighborhood is located west off of 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 S 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

Prioritization Rank: 3

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 this 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.



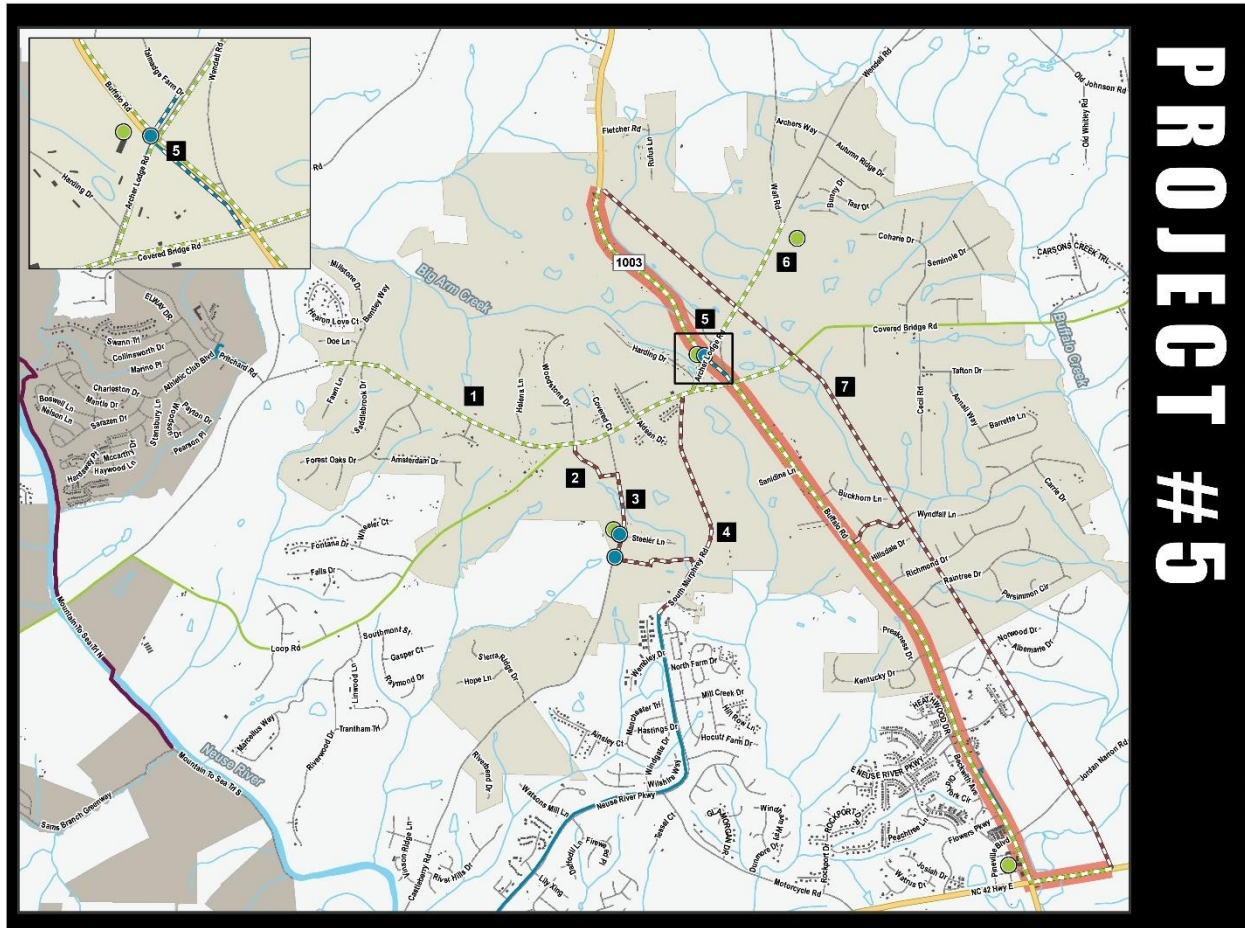
Table 4-7: South Murphrey Road Shared-use Improvements

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.*



PROJECT 5: Buffalo Road Corridor Improvements



Note: See inset for Project #5.

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. This 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 45 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 ft 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)



Opportunity for a Bicycle Rack at the Flowers Crossroads
Shopping Center (Harris Teeter)
(AECOM, 2019)

Opportunities and Recommended Improvements

Prioritization Rank: 1 (tie)

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 Harris Teeter Shopping Center (Flowers Crossroads), and the installation of a pedestrian crosswalk and pedestrian 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.

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 the Archer Lodge Road towards Talmadge Farm Road would provide safe access to and from the downtown from resident on Talmadge Farm Road. Cost estimates for the shared-use path are based on the assumption 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 from 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 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.



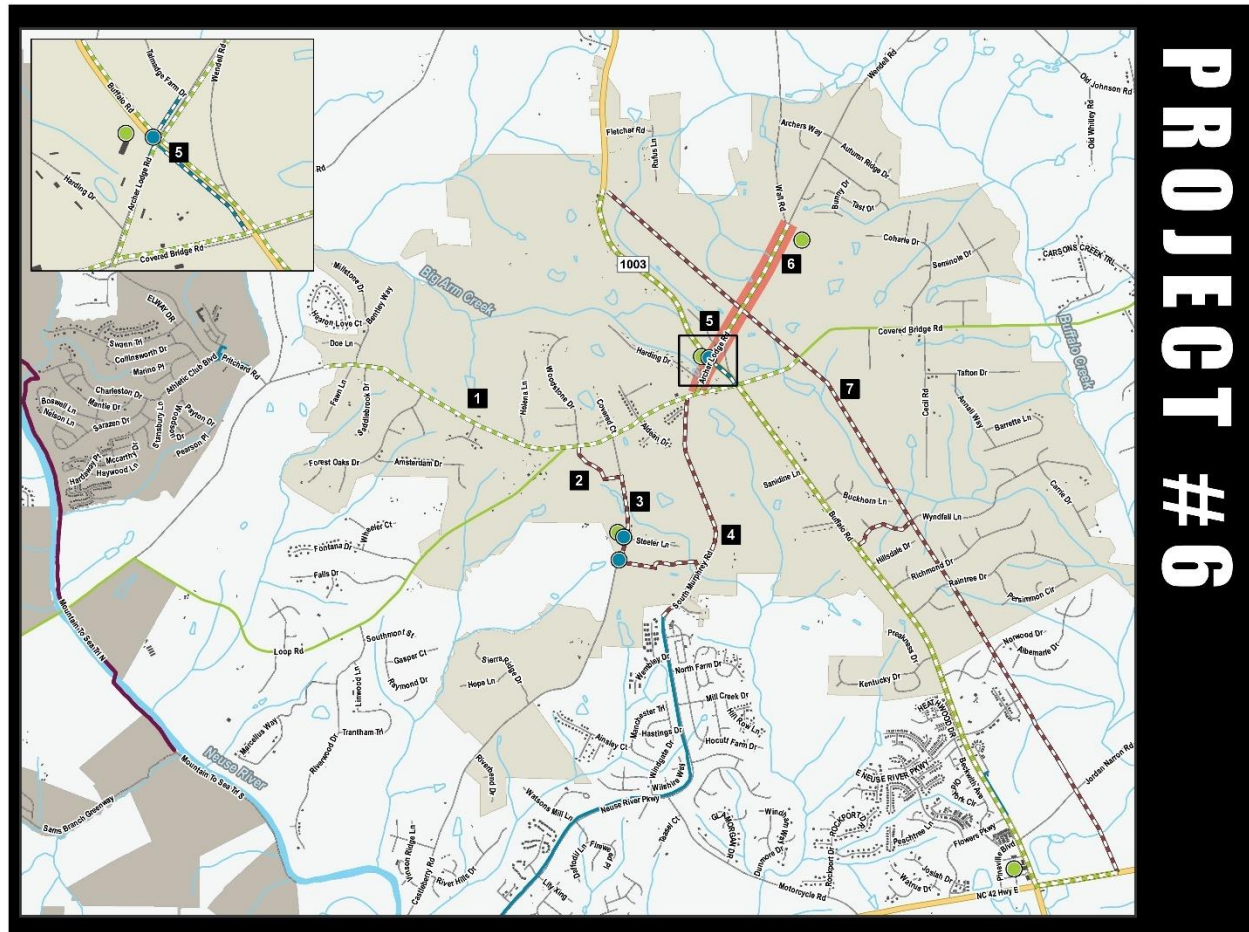
Table 4-8: Buffalo Road Corridor Improvements

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 and at the Harris Teeter Shopping Center.	Archer Lodge Community Center and Harris Teeter Shopping Center (Flowers Crossroads)	\$1,320
Bicycle	Spot	Conduct a speed/traffic study along the corridor to identify potential additional speed control measures.	Buffalo Road	<i>A cost will be provided in the final draft.</i>
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	\$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 proposed 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.

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



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 as it moves south towards 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

Prioritization Rank: 5

Archer Lodge Road serves as a cut through town 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.

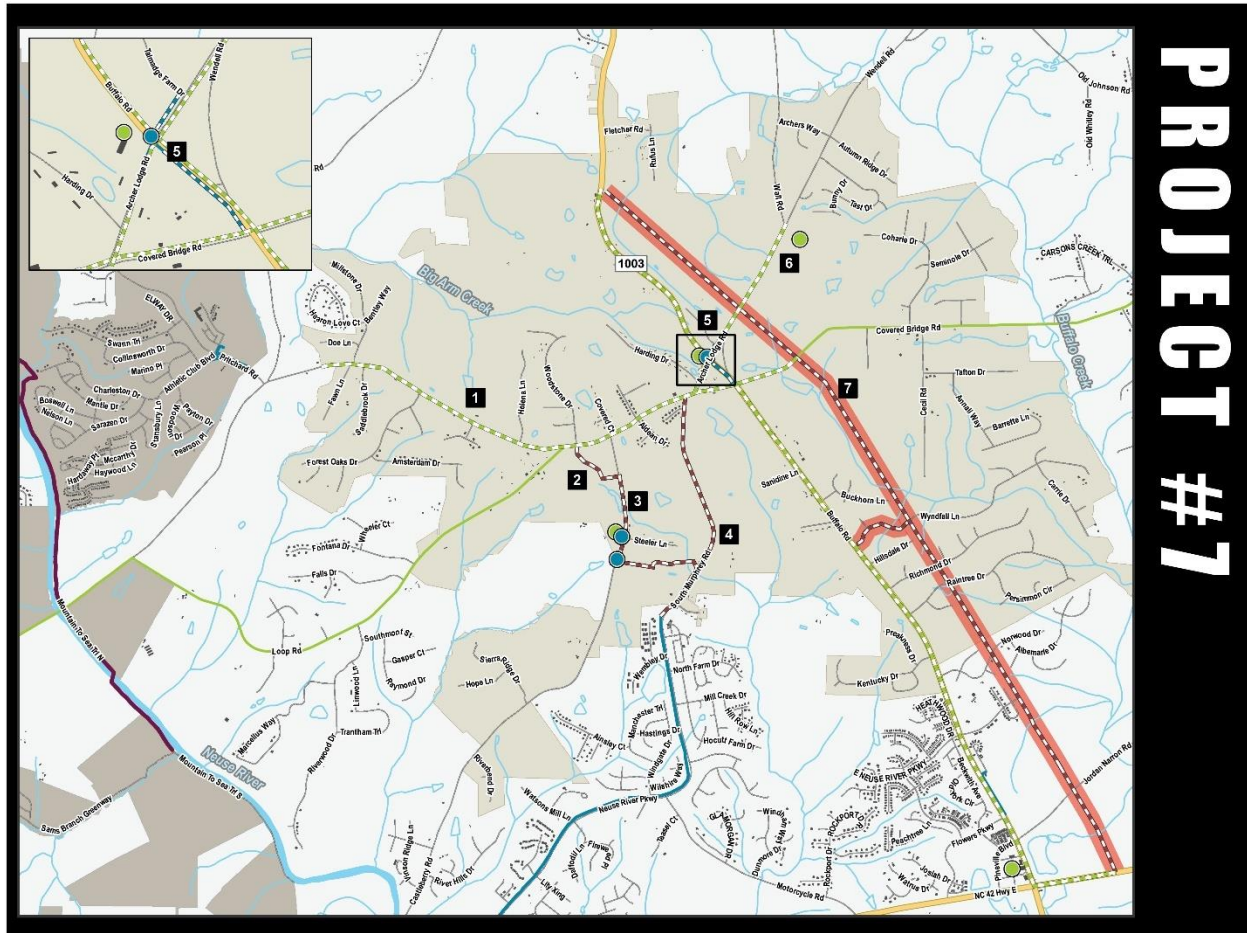
Table 4-9: Archer Lodge/Wendell Road Bicycle Improvements

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.*



PROJECT 7: Duke Energy Easement Greenway



Background

A Duke Energy Easement runs parallel with Buffalo Road eastbound 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 park.

Existing Conditions

The easement is currently unpaved and located in a forested area, surrounded by single family residential homes. The Easements 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

Prioritization Rank: 2

According to the Carolina Thread Trail Plan, many of Duke Energy's ROWs are 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 landowner, Duke may agree to allowing a trail easement within the transmission ROW. The trail owner will be held responsible for safety, liability, and maintenance. Infrastructure, such as signs, benches, and exercise equipment are not allowed on the property. Vegetation planted on the trail must adhere to Duke guidelines. Further coordination and research will be required to determine feasibility of this project.

Table 4-10: Duke Energy Easement 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.*



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
- 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. In order 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 your 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.

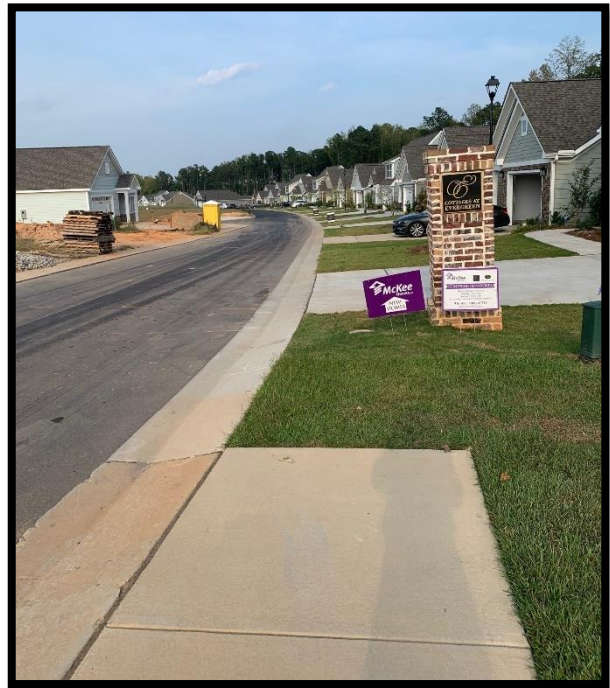
The tool includes assumptions based on past market conditions and is not designed to accurately predict future market values. The estimates provided are intended to serve as a relative guide for a rough order of cost magnitude. Estimated costs for bicycle and pedestrian infrastructure projects are included 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 map 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 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 Community Business District. Sidewalks shall be 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 special uses; objectives and purpose.	5(e) The location and arrangement of the use on the site, screening, buffering, landscaping, and pedestrian ways, and bicycle facilities harmonize with adjoining	Utilize NCDOT's <i>Complete Streets Planning and Design Guidelines</i> (http://completestreetsnc.org) as a basis for street design guidelines. This document can be adopted by reference in development regulations.



Code of Ordinances Section	Current Policy	Recommended Changes and Comments
	properties and the general area and minimize adverse impact.	
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.
New Section – Dedication of open space.	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	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,



Code of Ordinances Section	Current Policy	Recommended Changes and Comments
	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: (1) Park and recreational uses; (2) Conservation of land and other natural resources; or (3) Historic or scenic purposes. This area shall be dedicated to public use.	and bicycle facilities.



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 based on 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 UDO 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 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 police 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 recommendation 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 City of Asheville, 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 Bayj, 2012)



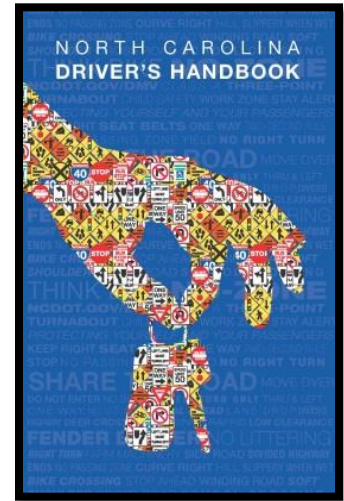
Enforcing existing driving laws and speed limits

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.



Table 5-1: Key Actions

Action	Description	Stakeholder	Timeline
Adopt the <i>Town of Archer Lodge Bicycle and Pedestrian Plan</i>	Present the <i>plan</i> to the Archer Lodge Town Council for adoption.	Town council and town staff	December 2019
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 2019
Strengthen partnerships with Johnston County and the 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 the CAMPO	Winter 2019 / 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 road 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 2019 / 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/appointee, and representatives from the bicycle organizations	Winter 2019
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 2019



Action	Description	Stakeholder	Timeline
Establish a sidewalk maintenance program	Develop a sidewalk maintenance program through the town's Public Works Department.	Town council and town staff	Winter 2019
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 2019 / 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 2019 / ongoing
Town budget planning	Identify potential funding sources for bicycle and pedestrian programs, projects and maintenance in the town's budget such as Powell Bill funds. Begin to accumulate funds that can be used for the local match required for most projects.	BPAC/appointee, town council and town staff	Winter 2019
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 2020
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 2020 / 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	Spring 2020



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.

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

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 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)
- Powell Bill
- Recreational Trails Program
- Strategic Mobility Formula

Local Funding Sources

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

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 (Table 5-2) 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 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 or establish partnerships to promote and develop encouragement of recreational bicycle and pedestrian activities	Number of programs or partnerships annually



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Appendix A: Public Involvement

Materials will be added before final submittal.

This appendix will be completed with 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



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)	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. 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).
Title VI of the Civil Rights Act of 1964 and Executive Order 12898 (1964, 1998)	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 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.



Policy	Applicability to Bicycle and Pedestrian Planning
United States Department of Transportation Mission Statement (2010)	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. 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.
State Policies	
NCDOT Bicycle Policy	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. http://www.ncdot.gov/bikeped/download/bikeped_laws_Bicycle_Policy.pdf
NCDOT Board of Transportation Resolution for Bicycling and Walking	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. http://www.ncdot.gov/bikeped/download/bikeped_laws_BOT_Mainstreaming_Resolution.pdf
NCDOT Bridge Policy	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. https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Bridge%20Policy.pdf
NCDOT Complete Streets	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. http://www.completestreetsnc.org/



Policy	Applicability to Bicycle and Pedestrian Planning
NCDOT Division of Bicycle and Pedestrian Transportation	The NCDOT Division of Bicycle and Pedestrian Transportation 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	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. 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
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	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. http://www.ncdot.gov/bikeped/download/bikeped_Ped_Policy.pdf
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%20t



		o%20MUTCD.pdf
<i>National Association of City Transportation Officials (NACTO)</i>		
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/
<i>Safe Routes to School (SRTS) Non-Infrastructure</i>		
National Center for Safe Routes to School		http://www.saferoutesinfo.org/
National Partnership for Safe Routes to School		http://www.saferoutespartnership.org/
<i>US Access Board</i>		
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
<i>North Carolina Department of Transportation (NCDOT)</i>		
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 and Requirements
<i>Federal Funding Sources</i>		
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	• Projects to improve air quality and reduce traffic congestion • Projects must be in STIP • Technical assistance	• 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	• Typically requires 10% match • \$2 billion authorized in FY 2013
State and Community Highway Safety Grant Program (Section 402)	Education, enforcement, and research programs designed to reduce traffic crashes, deaths, injuries, and property damage	• Administered by the Governor's Representative for Highway Safety • \$235 million authorized in FY 2013
Surface Transportation Program (STP)	• Projects on federal-aid highway • Safety brochure or book • Technical assistance	• Typically requires 20% match • \$10 billion authorized in FY 2013
Transportation Alternatives Program (TAP)	• Bicycle and pedestrian facilities • Recreational trails • Safe Routes to School projects • Technical assistance • Programmed through the Strategic Transportation Investments – Strategic Mobility Formula process	• Typically requires 20% match • Can be received directly by local governments • \$808 million authorized in FY 2013
Urbanized Area Formula Program (UZA)	• Public transportation projects • In urbanized areas of more than 200,000 at least 1% of funds must be used for bicycle and pedestrian facilities	• Typically requires 20% match • \$2 billion authorized in FY 2013
<i>State Funding Sources</i>		



Source	Eligible Projects	Characteristics and Requirements
Clean Water Management Trust Fund (CWMTF)	• Projects that enhance or restore degraded waters, acquire land with ecological, cultural, and historic significance • Greenway (shared use path) projects are eligible	• Requires matching funds • Annual grant cycle
Land and Water Conservation Fund (LWCF)	• 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	• 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	• Requires 50% match • Administered by the Division of Parks and Recreation
Powell Bill	“Maintaining, repairing, constructing, reconstructing or widening of any street or public thoroughfare within the municipal limits or for planning, construction, and maintenance of bikeways, greenways or sidewalks.”	• Annual allocation from the State to qualifying municipalities • \$135,878.20 awarded to Archer Lodge in FY 2016
Recreational Trails Program	• Trail construction • Trail facilities and amenities • Programs that promote safety and environmental protection as they relate to recreational trail projects	• Maximum grant award \$200,000 • Requires 25% match • Federal funds managed by the Division of Parks and Recreation
Strategic Mobility Formula	• 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	• State funds may not be used for a local match (except for Powell Bill funds) • MPOs/RPOs may submit up to 20 bicycle/pedestrian projects • Right-of-way is not an eligible expense
Safe Routes to School (SRTS)	• Infrastructure projects within 2 miles of a K-8 school • Project must be within the public	• No match required • Currently funding with leftover SRTS funds, once expended TAP funds will be used and programmed



Source	Eligible Projects	Characteristics and Requirements
	right-of-way	through the Strategic Transportation Investments – Strategic Mobility Formula process
Local Funding Sources		
Capital Reserve Fund	May be used to fund bicycle and pedestrian infrastructure projects	• 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	• Town residents make monetary contributions through online platforms such as Citizinvestor • Town would pay a nominal fee
Fees	• 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	• 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	• 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.



TOWN OF ARCHER LODGE FINANCIAL SUMMARY REPORT FOR MONTH ENDING OCTOBER 31, 2019

GENERAL FUND 10				
<i>REVENUES</i>	ADOPTED BUDGET	MONTH ACTIVITY	ACTUAL TO DATE	Y-T-D % COLLECTED
AD-VALOREM & MOTOR VEHICLE TAXES	812,800.00	32,645.05	99,840.54	12.28%
SALES TAXES	181,010.00	17,669.17	36,316.87	20.06%
FRANCHISE TAXES	158,000.00	0.00	(457.71)	-0.29%
ALCOHOL BEV TAXES/JO CO ABC DIST	46,000.00	4,338.25	8,676.50	18.86%
PERMITS AND FEES	6,140.00	575.00	2,720.00	44.30%
FEE IN LIEU OF RECREATION	45,000.00	0.00	0.00	0.00%
PEG CHANNEL SUPPORT	53,000.00	0.00	0.00	0.00%
MISCELLANEOUS REVENUES	50.00	(0.01)	6,695.04	13390.08%
INVESTMENT EARNINGS	24,000.00	1,352.41	6,039.01	25.16%
TRANSFER IN FROM CAP RES FUND	0.00	0.00	0.00	#DIV/0!
TRANSFER IN FROM PARK RES FUND	66,000.00	0.00	66,000.00	100.00%
TRANSFER IN FROM PUBLIC SAFE RES FUND	0.00	0.00	0.00	#DIV/0!
TRANSFER IN FROM TOWN HALL EXP FUND	0.00	0.00	1,919.11	#DIV/0!
FUND BALANCE APPROPRIATION	0.00	0.00	0.00	#DIV/0!
TOTALS	1,392,000.00	56,579.87	227,749.36	16.36%
<i>EXPENDITURES</i>	ADOPTED BUDGET	MONTH ACTIVITY	ACTUAL TO DATE	Y-T-D % SPENT
GOVERNING BODY	56,300.00	476.24	20,813.46	36.97%
ADMINISTRATION	253,853.00	22,034.76	80,522.05	31.72%
JO CO TAX COLLECTION FEES	23,000.00	875.95	2,783.58	12.10%
LEGAL	13,000.00	1,897.50	3,960.00	30.46%
PROPERTY TAXES	100.00	0.00	54.50	54.50%
PUBLIC BUILDINGS	49,550.00	4,633.55	15,750.73	31.79%
PEG MEDIA PARTNERS	53,000.00	0.00	0.00	0.00%
PUBLIC SAFETY	331,500.00	13,095.92	36,760.06	11.09%
TRANSPORTATION-PUBLIC WORKS	87,500.00	5,272.93	12,600.50	14.40%
PLANNING & ZONING	123,860.00	14,199.28	45,067.32	36.39%
CULTURAL & RECREATION	45,000.00	10,000.00	20,000.00	44.44%
DEBT SERVICES	145,337.00	0.00	102,817.60	70.74%
TRANSFER TO CAP RESERVE	25,000.00	0.00	25,000.00	100.00%
TRANSFER TO PARK RESERVE	160,000.00	4,333.31	13,238.58	8.27%
TRANSFER TO PUBLIC SAFETY RESERVE	25,000.00	0.00	25,000.00	100.00%
TOTALS	1,392,000.00	76,819.44	404,368.38	29.05%
Y-T-D GENERAL FUND INCREASE (DECREASE)		(20,239.57)	(176,619.02)	

CAPITAL RESERVE FUND 30				
<i>REVENUES</i>	ADOPTED BUDGET	MONTH ACTIVITY	ACTUAL TO DATE	Y-T-D % COLLECTED
INVESTMENT EARNINGS	10,000.00	757.19	3,311.67	33.12%
TRANSFER FROM GEN FUND 10	25,000.00	0.00	25,000.00	100.00%
FUND BALANCE APPROPRIATED	0.00	0.00	0.00	#DIV/0!
TOTALS	35,000.00	757.19	28,311.67	80.89%
<i>EXPENDITURES</i>	ADOPTED BUDGET	MONTH ACTIVITY	ACTUAL TO DATE	Y-T-D % SPENT
TRANSFER TO GEN FUND 10	35,000.00	0.00	0.00	0.00%
TOTALS	35,000.00	0.00	0.00	0.00%
Y-T-D CAP RESERVE FUND INCREASE (DECREASE)		757.19	28,311.67	

PARK RESERVE FUND 31				
<i>REVENUES</i>	ADOPTED BUDGET	MONTH ACTIVITY	ACTUAL TO DATE	Y-T-D % COLLECTED
INVESTMENT EARNINGS	5,000.00	326.32	1,498.56	29.97%
TRANSFER FROM GEN FUND 10	160,000.00	4,333.31	13,235.58	8.27%
FUND BALANCE APPROPRIATED	0.00	0.00	0.00	#DIV/0!
TOTALS	165,000.00	4,659.63	14,734.14	8.93%
<i>EXPENDITURES</i>	ADOPTED BUDGET	MONTH ACTIVITY	ACTUAL TO DATE	Y-T-D % SPENT
RECREATION DEVELOPMENT	99,000.00	0.00	0.00	0.00%
TRANSFER TO GEN FUND 10	66,000.00	0.00	66,000.00	100.00%
TOTALS	165,000.00	0.00	66,000.00	40.00%
Y-T-D PARK RESERVE FUND INCREASE (DECREASE)		4,659.63	(51,265.86)	

PUBLIC SAFETY RESERVE FUND 32				
<i>REVENUES</i>	ADOPTED BUDGET	MONTH ACTIVITY	ACTUAL TO DATE	Y-T-D % COLLECTED
INVESTMENT EARNINGS	6,500.00	491.20	2,148.32	33.05%
TRANSFER FROM GEN FUND 10	25,000.00	0.00	25,000.00	100.00%
FUND BALANCE APPROPRIATED	0.00	0.00	0.00	#DIV/0!
TOTALS	31,500.00	491.20	27,148.32	86.19%
<i>EXPENDITURES</i>	ADOPTED BUDGET	MONTH ACTIVITY	ACTUAL TO DATE	Y-T-D % SPENT
PUBLIC SAFETY DEVELOPMENT	31,500.00	0.00	0.00	0.00%
TRANSFER TO GEN FUND 10	0.00	0.00	0.00	#DIV/0!
TOTALS	31,500.00	0.00	0.00	0.00%
Y-T-D PUB SAFE RES FUND INCREASE (DECREASE)		491.20	27,148.32	



TOWN OF ARCHER LODGE
FINANCIAL SUMMARY REPORT
FISCAL YEAR COMPARISON FOR
PERIOD ENDING OCTOBER 31

GENERAL FUND				
REVENUES		Oct-19	Oct-18	DIFFERENCE
	AD-VAL & MOTOR VEHICLE TAXES	99,840.54	77,204.44	22,636.10
	SALES TAXES	36,316.87	32,159.10	4,157.77
	FRANCHISE TAXES	(457.71)	0.00	(457.71)
	ALCOHOL BEV TAXES/JO CO ABC DIST	8,676.50	6,507.37	2,169.13
	PERMITS AND FEES	2,720.00	975.00	1,745.00
	FEE IN LIEU OF RECREATION	0.00	0.00	0.00
	PEG CHANNEL SUPPORT	0.00	0.00	0.00
	MISCELLANEOUS REVENUES	6,695.04	15.01	6,680.03
	INVESTMENT EARNINGS	6,039.01	7,091.13	(1,052.12)
	PARK LAND GRANTS-NCDNCR		0.00	0.00
	TRANSFER IN FROM CAPITAL RESERVE	0.00	0.00	0.00
	TRANSFER IN FROM PARK RESERVE	66,000.00	202,049.00	(136,049.00)
	TRANSFER IN FROM PUBLIC SAFETY RESERVE	0.00	0.00	0.00
	TRANSFER IN FROM TOWN HALL EXP FUND	1,919.11	0.00	1,919.11
	FUND BALANCE APPROPRIATED	0.00	0.00	0.00
		227,749.36	326,001.05	(98,251.69)
EXPENDITURES		Oct-19	Oct-18	DIFFERENCE
	GOVERNING BODY	20,813.46	15,735.64	5,077.82
	ADMINISTRATION	80,522.05	72,914.33	7,607.72
	JO CO TAX COLLECTION FEES	2,783.58	2,102.07	681.51
	LEGAL	3,960.00	2,928.75	1,031.25
	PROPERTY TAXES	54.50	0.00	54.50
	PUBLIC BUILDINGS	15,750.73	21,823.66	(6,072.93)
	PEG MEDIA PARTNERS	0.00	0.00	0.00
	PUBLIC SAFETY	36,760.06	27,273.07	9,486.99
	TRANSPORTATION-PUBLIC WORKS	12,600.50	11,597.70	1,002.80
	PLANNING & ZONING	45,067.32	30,068.92	14,998.40
	CULTURAL & RECREATION	20,000.00	241,250.00	(221,250.00)
	DEBT SERVICES	102,817.60	5,122.40	97,695.20
	TRANSFER TO CAP RESERVE	25,000.00	0.00	25,000.00
	TRANSFER TO PARK RESERVE	13,238.58	9,505.70	3,732.88
	TRANSFER TO PUBLIC SAFETY RESERVE	25,000.00	0.00	25,000.00
	TRANSFER TO TOWN HALL EXPANSION		0.00	0.00
		404,368.38	440,322.24	(35,953.86)
Y-T-D INCREASE (DECREASE)		(176,619.02)	(114,321.19)	(62,297.83)

Kim P. Batten

FINANCE OFFICER

 Add to Calendar

Boone, NC

Dates

December 7

Location

Appalachian State University
.Reich College of Education Building
151 College St
Boone, NC 28608

 [View Scholarship Information](#)

Pre-Register - Details on the pre-registration process can be found at the bottom of the page [HERE](#).

 Register

If you are a returning customer, please note that we have a new course registration system that we hope will be easier for you to use. If you encounter any registration issues, please explore our list of [frequently asked questions](#) or contact us at registration@sog.unc.edu or 919.966.4414.

 Add to Calendar

Rocky Mount, NC

Dates

December 13

Location

Rocky Mount Event Center
285 NE Main Street
Rocky Mount, NC 27801

 [View Scholarship Information](#)

Pre-Register - Details on the pre-registration process can be found at the bottom of the page [HERE](#).

 Register

If you are a returning customer, please note that we have a new course registration system that we hope will be

Fayetteville, NC 28312

 [View Scholarship Information](#)

Pre-Register - Details on the pre-registration process can be found at the bottom of the page [HERE](#).

 [Register](#)

If you are a returning customer, please note that we have a new course registration system that we hope will be easier for you to use. If you encounter any registration issues, please explore our list of [frequently asked questions](#) or contact us at registration@sog.unc.edu or 919.966.4414.

 [Add to Calendar](#)

Durham, NC

Dates

January 23

Location

Sheraton Imperial Hotel Raleigh-Durham Airport at Research Triangle Park
4700 Emperor Blvd
Durham, NC 27703

 [View Scholarship Information](#)

Pre-Register - Details on the pre-registration process can be found at the bottom of the page [HERE](#).

 [Register](#)

If you are a returning customer, please note that we have a new course registration system that we hope will be easier for you to use. If you encounter any registration issues, please explore our list of [frequently asked questions](#) or contact us at registration@sog.unc.edu or 919.966.4414.

 [Add to Calendar](#)

Wilmington, NC

Dates

January 30

Ethics for Elected Officials Webinar

- Click here to register for this course offering

December 10, 2019



Overview



Register



Materials



Contact

Register now for the Live Webinar for Ethics training for local elected city and county governing board members. This webinar will satisfy the 2 clock hours of local ethics training required by state law for elected and appointed members of city councils and county boards of commissioners. This training **MUST** be completed within 12 months of election day and is required every time they are elected, re-elected or appointed and reappointed to a local office.

LIVE WEBINAR: **The LIVE webinar is scheduled for December 10, 2019 10am-12pm**, and is \$150 for your entire board. When you purchase the Live Webinar, you will also receive the **On-Demand Webinar at no additional charge**. See further instructions below and in the Preparation Checklist.

- Is your board attorney or a member of your board who is an attorney watching the webinar? The NC State Bar requires attorneys who wish to claim CLE (Continuing Legal Education) credit to purchase the webinar separately in their name. The attorney must self-report to the State Bar for CLE credit.

What you need to know before you purchase:

A. Webinars are non-refundable once purchased so purchase carefully.

B. Who this training does NOT cover:

Individuals serving on state boards subject to the State Government Ethics Act (SGEA): Local elected officials who also serve on a state board that is subject to the State Government Ethics Act (SGEA), including local community college boards, are required to take ethics training that is offered through the State Ethics Commission. The SOG ethics-training program for local elected officials does NOT satisfy the state ethics training, and the state ethics training does NOT satisfy the local elected official ethics-training which is offered through this page. Consequently, local elected officials who also serve on a state board subject to the SGEA, must take both the state and the local ethics training programs. Officials who need to complete state ethics training should:

- Contact their board's ethics liaison for training, or

- Complete the online training available on State Board of Elections and Ethics Enforcement (formerly the State Ethics Commission) website: ethics.ncsbe.gov/education/eduOnline

Local ABC Boards: For individuals who serve on a local ABC board, separate training is required. The SOG ethics training program for local elected officials does *NOT* satisfy the local ABC Board training, and the local ABC Board training does *NOT* satisfy the local elected officials ethic training. Here is the link to the webinar page for local ABC Boards.

School Boards: Please contact the NC School Boards Association for further information.

C. Board notice of a public meeting:

Boards are advised to give public notice of a special meeting for ethics training sessions if a majority of the board might be in attendance at the event. This is in keeping with the spirit of the ethics law, and out of an abundance of caution concerning the legal requirements for board meetings.

Purchasing the Webinar

A. Who should purchase from your unit:

- The person coordinating the webinar should be the one to purchase it in his/her name. This person will be responsible for receiving the access link which is sent to the email address used to purchase the webinars.
- Is your board attorney or a member of your board who is an attorney watching the webinar? The NC State Bar requires attorneys who wish to claim CLE (Continuing Legal Education) credit to purchase the webinar separately in their name, and to self-report to the State Bar for CLE credit.
- Do you have to purchase the webinars for each person watching from your board? No. Purchase the webinar one time for your unit (except for attorneys noted above). Our shopping cart indicates you should purchase a course separately for each person attending. This does not apply to these webinars.
- Adding no-reply@sog.unc.edu and thampton@sog.unc.edu to your contacts will increase the chance of the email getting through.

If you need a receipt, make sure you print the confirmation page at the end of the purchase process. Our registration department can also provide a receipt/invoice if you need one.

Issues with purchasing? Simply email our registration department directly at registration@sog.unc.edu for issues with the registration/purchase process, passwords, or logging in. Provide your phone number and brief summary of your issue and someone from that department will contact you shortly. This is the fastest way to get assistance as there are multiple people in that department who can respond to you quickly.

Additional information

10:00 AM - 12:00 PM