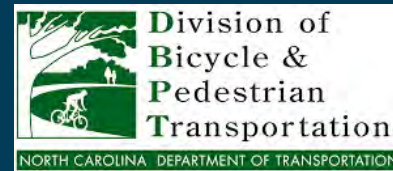


**Adopted MARCH 1, 2021**  
by Davie County Board of  
Commissioners

**DAVIE COUNTY BICYCLE  PEDESTRIAN  GREENWAY MASTER PLAN**



**“USING PLANNING TO FOSTER A SENSE OF  
PLACE AND COMMUNITY.”**

**- Steering Committee Member**

# ACKNOWLEDGMENTS

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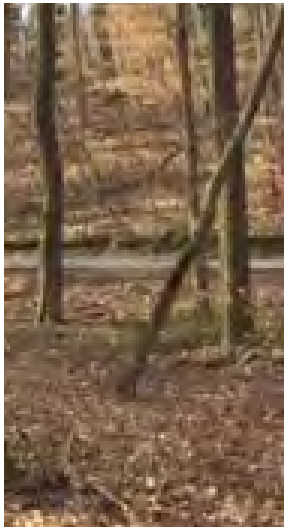


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Summary of the plan's vision, its goals and objectives. Resulting in which projects are prompted and how they will be implemented.

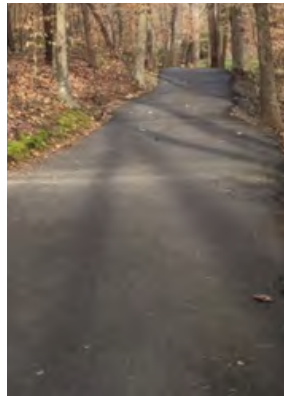
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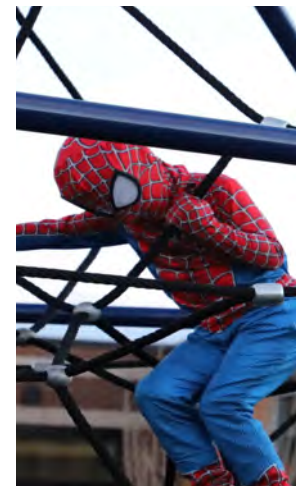
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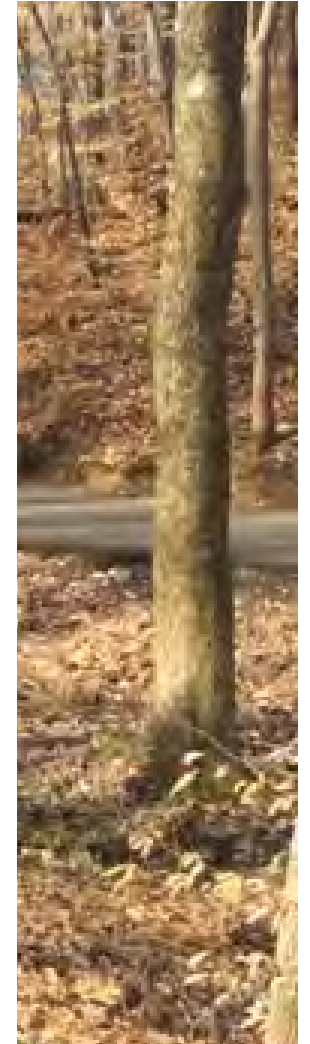
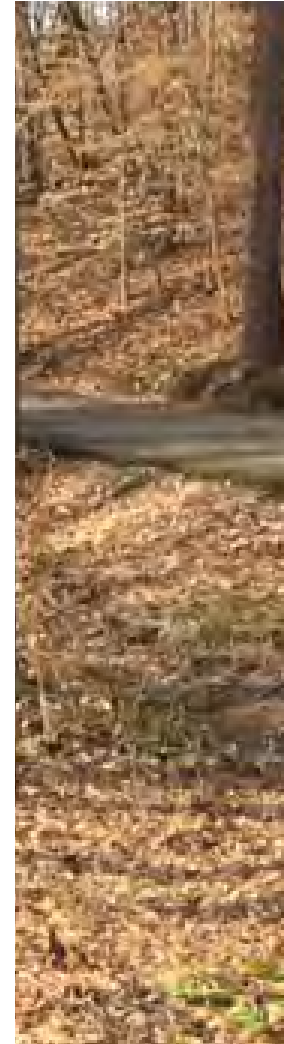
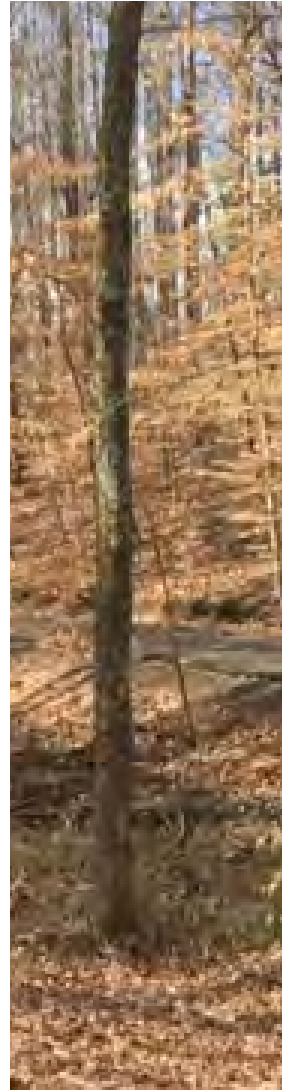
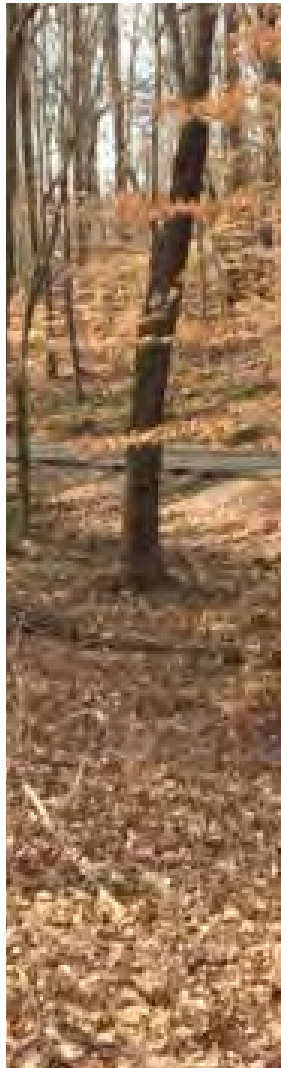
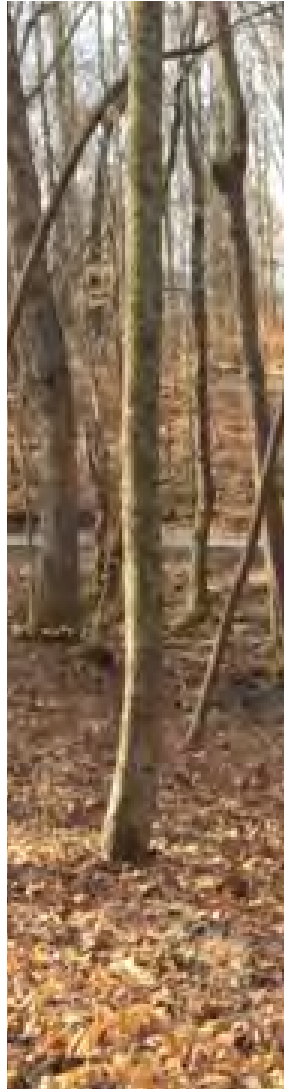
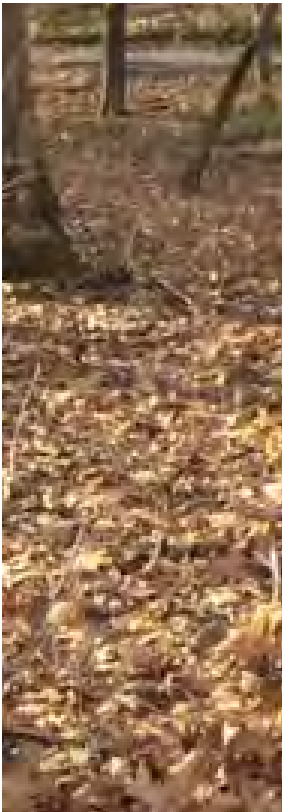
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## APPENDICES

Supporting documents  
and technical reports  
informing plan  
recommendations.

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# 1. EXECUTIVE SUMMARY

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in this Chapter

Plan Vision

Objectives

Goals

Priority Projects

Implementation



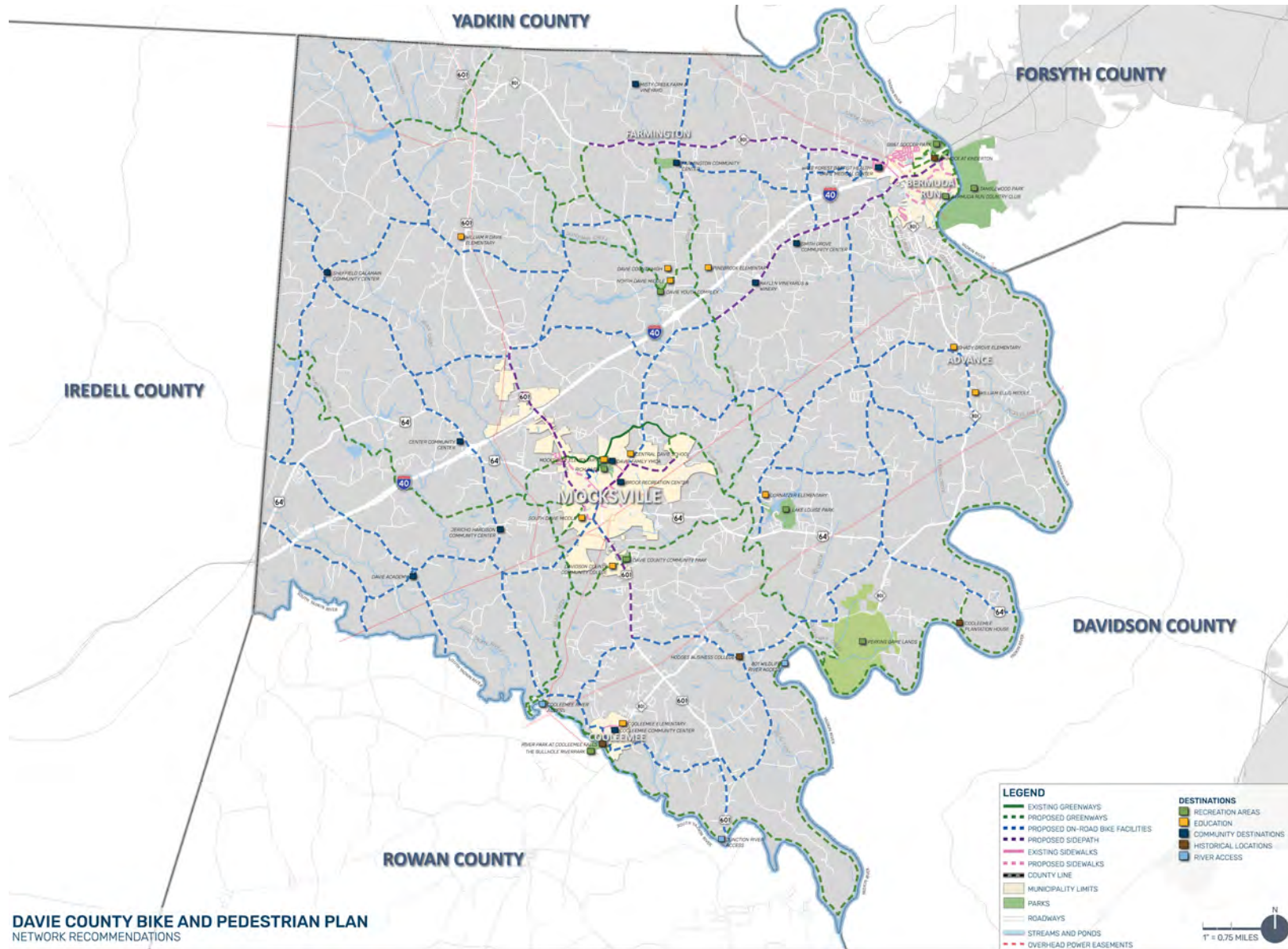




## EXECUTIVE SUMMARY

DAVIE COUNTY WAS AWARDED A MATCHING GRANT FROM THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S (NCDOT) INTEGRATED MOBILITY DIVISION TO COMPLETE A COMPREHENSIVE BICYCLE AND PEDESTRIAN PLAN. DAVIE COUNTY'S DESIRE IS TO MAKE SAFE, ACCESSIBLE WALKING AND BIKING PART OF THE COUNTY'S IDENTITY. THERE IS CONSISTENT SUPPORT ACROSS THE COMMUNITY TO INVEST IN BIKING AND WALKING INFRASTRUCTURE TO CREATE A COUNTY WITH A WELL-CONNECTED GREENWAY TRAILS NETWORK, SIDE PATHS ALONG ROADWAYS, ENHANCED SIDEWALKS AND SAFE ROADWAY CROSSINGS. THE DAVIE COUNTY BICYCLE, PEDESTRIAN AND GREENWAYS MASTER PLAN SERVES AS A GUIDE FOR THE COUNTY, RESIDENTS, DEVELOPERS, NCDOT, AND OTHER REGIONAL PARTNERS TO STRATEGICALLY PLAN AND BUILD A BROADER AND WELL-CONNECTED NETWORK OF BICYCLE AND PEDESTRIAN FACILITIES. A MORE WALKABLE AND BIKEABLE COMMUNITY WILL PROVIDE RESIDENTS AND VISITORS OF DAVIE COUNTY MULTIPLE BENEFITS INCLUDING IMPROVED MOBILITY, SAFETY, HEALTH, ENVIRONMENT, ECONOMIC OPPORTUNITIES, AND QUALITY OF LIFE.







## PLAN VISION

Davie County will have a broad, well-connected network of bicycle and pedestrian facilities to provide greater mobility, access to nature, health benefits, recreational opportunities, and economic development. The plan has identified feasible, constructible bicycle and pedestrian routes along stream corridors, through open spaces and along roads to create a more connected Davie County.

***“Using planning to foster  
a sense of place and  
community.”***

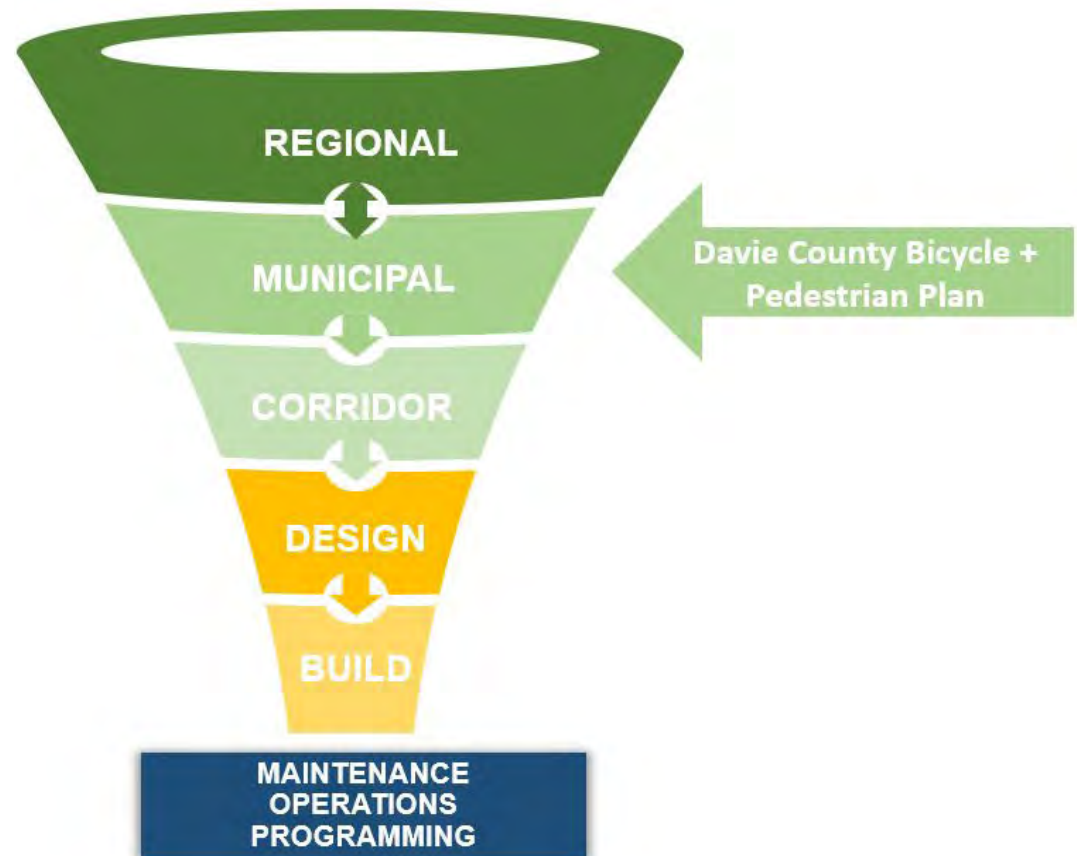
*- Steering Committee  
Member*



# OBJECTIVES

In order to achieve the goals set forth by this connectivity analysis, the design team identified the following objectives:

- › Utilize previous planning efforts and precedent studies to draw inspiration and obtain the history of planning efforts regarding connectivity proposals.
- › Recommend bicycle and pedestrian priority projects.
- › Seek opportunities to create small area trail loops.
- › Identify potential greenway trail opportunities within stream and utility corridors.
- › Create an achievable plan with specific action items.
- › Provide recommendations that support desired infrastructure and economic development as well as environmental needs and requests.
- › Foster a healthy community by providing resources that aid in the development of recreational opportunities and programs for bicycle and pedestrian facilities.





## GOALS

This plan strives to assist and augment the County's vision by:

- ▶ Well-informed guidance to improve bicycle and pedestrian infrastructure decision making.
- ▶ A safe alternative to vehicular only trips by providing connections to desired destinations.
- ▶ A multi-modal transportation system that provides tourists opportunities to explore Davie County.
- ▶ Improved coordination of planning efforts and initiatives across departments and other agencies.
- ▶ Recommendations to promote bicycle and pedestrian infrastructure in Davie County's Development Ordinance as part of future development.



## PRIORITY PROJECTS

The project team completed a demographic analysis using current ESRI (Environmental Systems Research Institute, Inc.).

**1. Downtown to Community Park** – a bike lane and extension of existing sidewalk on South Salisbury St from downtown Mocksville to the new Davie County Community Park.

**2. Mocksville Loop Trail** – a greenway trail that would connect key community destinations (Rich Park, YMCA, schools, Davidson-Davie Community College and Davie County Community Park) and utilize natural stream corridors (Nelson Creek, no name creek, Bear Creek, Leonard Creek and Elisha Creek) and the existing Rich Park Greenway.

**3. Bermuda Run to Mocksville** – a side path along U.S. 158 connecting the tourist destinations of Winmock at Kinderton in Bermuda Run and Raylen Vineyards & Winery, the facility would change at the intersection of Cedar Creek to an on-road bike lane following U.S. 158 or as a greenway way trail

along Cedar Creek into Mocksville (connecting with Mocksville Loop Trail).

**4. Farmington to Mocksville** – a greenway trail along Cedar Creek that would connect to Farmington Community Center, schools, U.S. 158 side path and the Mocksville Loop.

**5. Bermuda Run to Farmington** – a side path along Hwy 801 and/or on-road bike lanes along local roads that provides connections between Truist Sports Park, Davie Medical Center and Farmington Community Center.

**6. Mocksville to Cooleemee** – a greenway trail along Bear Creek providing connections to the Mocksville Loop Trail, the South Yadkin River, Mill Redevelopment site and Bullhorn Riverpark.

**7. Farmington Loop** – a greenway trail that utilizes existing stream corridors (Cedar Creek, Dutchman Creek and Bryant Branch) and proposed side path along Hwy 801 to create a loop that connects Farmington Community Center, schools and Youth Complex).



### **8. Yadkin and South Yadkin Rivers**

**Greenway** – a greenway trail along the Yadkin and South Yadkin Rivers connecting key destinations in Bermuda Run to future mill redevelopment site in Cooleemee and natural destinations (Game lands, river access points and RiverPark at Cooleemee Falls - The Bullhole) along the way. Connections to regional destinations (e.g. Tanglewood Park) is also important.

**9. Advance** – on-road bike lanes and designated routes between Advance and Mocksville and Bermuda Run.

**10. Tourism Trails and Loops** – Tour de Farmington and Raylen Vineyard Loop (see brochure).



# IMPLEMENTATION

The Action Plan below is a more concise version of the same table provided in Chapter 5, which includes greater detail and highlights key stakeholders involved in each step. The timeline represents **Short-term** (1-2 years); **Medium-term** (2-5 years); **Long-term** (5-10 years); and **On-going** priority items.

ACTION	DESCRIPTION	TIMELINE
<i>Advocacy</i>	Establish a Bicycle and Pedestrian Advisory Committee	Short-term
<i>Planning</i>	Adopt the Davie County Bicycle and Pedestrian Master Plan	Short-term
	Update County Comprehensive Transportation Plan to include recommended network from this plan	Short-term
	Conduct feasibility studies along priority corridors and acquire easement/property if necessary	Medium-term
<i>Funding</i>	Apply for eligible funding sources to implement the plan's priority projects	Short-term
	Leverage greater bicycle and pedestrian fundraising dollars through county match and budget planning	Medium-term
<i>Coordination</i>	Strengthen partnership with Piedmont Legacy Trail initiative and update them as facilities are built	Ongoing
	Strengthen partnership with Winston-Salem Forsyth Metropolitan Planning Organization (MPO) and Piedmont Triad Regional Council	Ongoing
	Coordinate with NCDOT Division 9 and planned Strategic Transportation Improvement Plan (STIP) projects to include side paths and/or sidewalks	Ongoing
	Coordinate with regional trail initiatives (e.g., Carolina Thread Trail, Yadkin Valley Bike Plan, and the Great Trails State Plan)	Ongoing
<i>Program/ Policy</i>	Implement educational programs like Watch for Me NC to increase safety awareness	Short-term
	Include requirements for bicycle/pedestrian facilities in county ordinances and policies	Short-term







# 2. INTRODUCTION

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in this Chapter

Vision + Goals

Planning Process

Benefits of Greenways





# INTRODUCTION

## PROJECT OVERVIEW

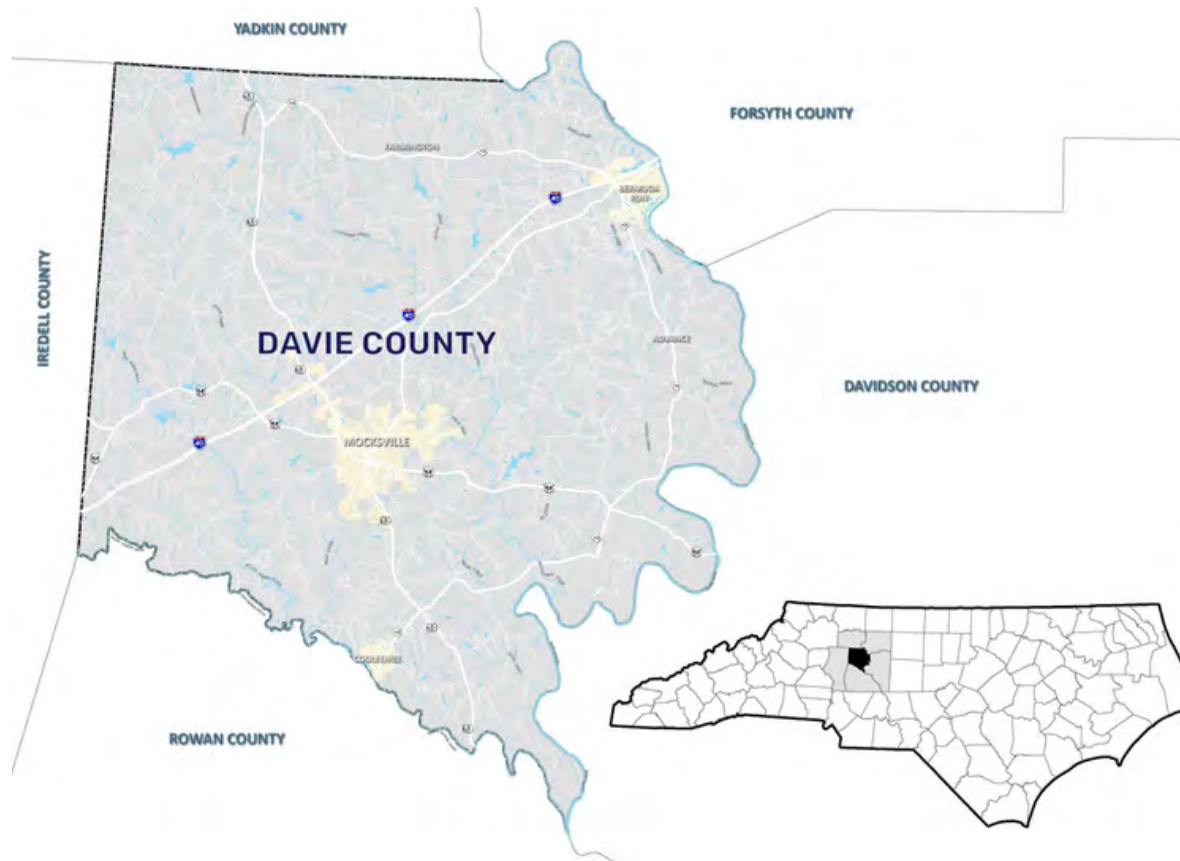
American cities and towns were once planned and designed around a balanced mix of transportation modes – walking, biking, horses and eventually the automobile. Communities that have preserved this balance as they grow are now some of the most desirable places to live, work and visit. The shift to an auto-centric network was defined by separate areas within a community for living, working, commerce and recreation that required a car trip to access each. This shift was characterized by roads whose function was judged on the volume and speed of the cars it carried. Counties like Davie County are committed to moving back to a more balanced transportation network that values connectivity, safety and health as well as serving the needs of businesses and institutions.

This plan is the result of Davie County's desire to make safe, accessible walking and biking part of the County's identity while pursuing Davie County's brand, "You Belong Here!" There is consistent support across the community to invest in biking and walking infrastructure to create a county with a well-connected greenway trails network, side paths along roadways, enhanced sidewalks and safe roadway crossings. This infrastructure will create an intuitive, safe network that is attractive to users of all ages and abilities. Residents from ages eight to eighty will use the Davie County bicycle and pedestrian network as a viable option for short trips, recreation, to connect with nature and commuting. Visitors will select Davie County because of its vibrant bicycle infrastructure network and walkable downtown centers and neighborhoods. New businesses and employers will choose to invest in Davie County because of a high-quality life

and sense of place that attracts a wide variety of potential employees.

## VISION

The Davie County Bicycle, Pedestrian and Greenway Plan aims to identify feasible, constructible bicycle and pedestrian routes along stream corridors, through open spaces and along roads to create a more connected Davie County. The County pursued and ultimately was awarded a matching grant through NCDOT's Bicycle and Pedestrian Planning Grant Initiative. The County then elected to commission a Bicycle and Pedestrian Master Plan, which aims to be a tool that County Staff can use as a guide to approve, plan and ultimately build the facilities needed to connect residents and guests of all ages and abilities to where they live, work, play, and learn in Davie County.



### Goals

This plan strives to assist and augment the County's vision by:

- ▶ Enabling the County to achieve their vision of a connected pedestrian and bicycle transportation network by identifying feasible, constructible routes and presenting information that contributes to well-informed development and infrastructure decision making.
- ▶ Creating an implementation strategy that aims provide an alternative to vehicular only trips by providing desirable bicycle and pedestrian connections to safely move users to desired destinations.
- ▶ Providing recommendations to construct a multi-modal transportation system that augments tourism efforts, giving visitors more opportunity to explore and experience Davie County.
- ▶ Articulating recommendations to aid in communication, coordination, collaboration and prioritization of planning efforts and initiatives that fill the gaps to avoid transportation silos.
- ▶ Developing standard language recommendations to include in Davie County's Development Ordinance that includes bicycle and pedestrian infrastructure as part of future development.
- ▶ Informing development and infrastructure investment decisions that support the County's vision of an integrated and connected multi-modal transportation system.



## Objectives

In order to achieve the goals set forth by this connectivity analysis, the design team identified the following objectives:

- › Improve quality of life and encourage healthier lifestyles by making walking and bicycling accessible, safe by design, convenient, and enjoyable.
- › Utilize previous planning efforts and precedent studies to draw inspiration and obtain the history of planning efforts regarding connectivity proposals.
- › Recommend potential bicycle and pedestrian alignments.
- › Seek opportunities to create small area trail loops.
- › Recommend bicycle facilities and access points.
- › Identify potential greenway trail opportunities within stream and utility corridors.
- › Create an achievable plan with prioritized phasing.

**The master planning process is one of transparency, community engagement and data driven recommendations developed through an analytical need-based approach.**



### listen

- › community vision
- › user experience
- › design aesthetic
- › maintenance
- › budget



### data collection

- › parcels
- › land use
- › easements
- › roadway
- › streams
- › floodplain
- › existing plans
- › topography



### analysis

- › network analysis
- › property acquisition
- › construction costs
- › schedule
- › maintenance costs
- › constructibility
- › stream project coordination



### implementation

- › escalated cost estimates
- › property acquisition strategy
- › permitting strategy
- › funding strategy
- › tourism + operations

## ▲ The Planning Process

- › Provide recommendations that support desired infrastructure and economic development as well as environmental needs and requests.
- › Foster a healthy community by providing resources that aid in the development of recreational opportunities and programs for bicycle and pedestrian facilities.

## PLANNING PROCESS

The master planning process is one of transparency, community engagement and data driven recommendations developed through an analytical need-based approach. From the initial inventory and analysis through the implementation plan, the project team engaged the community, stakeholders, and County leadership, while researching bicycle and pedestrian trends and understanding the County's demographics.

The project team investigated each proposed corridor and special focus areas to determine ideal alignment of bicycle and pedestrian facilities, connectivity of broader network, as well as constraints that will need to be overcome.

The project team, in conjunction with County staff, developed and prioritized recommendations to improve the bicycle and pedestrian facility offerings for a fifteen (15) year planning horizon.

This 2021 Bicycle, Pedestrian and Greenway Master Plan is comprised of several components:



## 2021 BICYCLE, PEDESTRIAN AND GREENWAY MASTER PLAN COMPONENTS:

### Existing Conditions

The project team completed a demographic analysis using current ESRI (Environmental Systems Research Institute, Inc.). In addition, existing bicycle and pedestrian facilities, stream and utility corridors, and land parcels were analyzed. Relevant planning efforts and policies were also reviewed. This analysis helped inform opportunities and constraints present. The project team also reviewed proposed, planned, and funded bicycle and pedestrian projects in the County and region. A network analysis map was developed to illustrate these facilities and to better understand opportunities and constraints. Corridors that were determined to provide opportunities for bicycle and pedestrian facilities were also analyzed. The project team visited key destinations, existing bicycle and pedestrian facilities, and priority corridors.

### Community Input

Prior to and throughout the planning process, the project team engaged with County staff and the Steering Committee for guidance and feedback. The Steering Committee is comprised of a broad group of representatives from various county departments, local jurisdictions, community centers, YMCA, hospital, schools, regional council, chamber, sheriff department,

NCDOT division 9 and local bike shop. The initial visioning session identified goals and objectives, highlighted opportunities and constraints, and helped build consensus around the project vision.

The project team facilitated community input events which gathered input and support from members of the Davie County Recreation and Parks Department, County leadership, Steering Committee, key stakeholders and Davie County residents. The process was designed to be transparent, equitable and engage the widest range of residents from a demographic and interest level. The engagement plan consisted of the following elements:

- › Four steering committee meetings;
- › A community input survey; and
- › A Board of County Commissioners meeting

### Recommendations + Implementation Plan

The recommendations and prioritized implementation plan provide a framework to guide future bicycle and pedestrian infrastructure investments. It is structured to guide decision making for bicycle and pedestrian facilities, programs and policy. A list of priority projects is provided to help guide the key projects to invest in over the next 5-10 years to achieve the greatest positive impact for the County and its residents. Criteria for

recommendation prioritization vary based on existing infrastructure, planned and funded roadway projects, and required land acquisition and financing. The implementation plan concludes with a list of outcome measures to ensure County staff and management are executing on the action items, achieving the goals of this master plan and sharing their successes.



Potential Neighborhood Connection to Rich Park / McAdams >





### WHY INVEST IN BIKE + PEDESTRIAN MASTER PLANNING?

Bicycle and pedestrian facilities allow people to make human powered trips for transportation and recreation and are recognized for their ability to connect people and places, working as a tool for health, transportation, economic development, environmental preservation and leisure activities. They serve an array of user needs and activities including commuting, recreation, daily exercise and connecting with nature. Understanding a facility's purpose and intended use will inform its location, design and place in the larger network.

#### Social Benefits

A network of bicycle and pedestrian facilities promote a healthy, active lifestyle providing a safe and attractive environment for running, jogging, biking, walking and other forms of physical activity. Providing facilities for these activities that are separate from areas of heavy automobile traffic allows users to pursue these activities safely and comfortably.

Health benefits range from short to long-term effects in both physical and mental health. Evidence shows that bicycle and pedestrian facilities provide an opportunity for residents to create long-term health habits and active lifestyles that improve cardiovascular health and reduce chances of cardiovascular, skeletal or other health complications



### Social Benefits

A network of bicycle and pedestrian facilities promote a healthy, active lifestyle providing a safe and attractive environment for running, jogging, biking, walking and other forms of physical activity. Providing facilities for these activities that are separate from areas of heavy automobile traffic allows users to pursue these activities safely and comfortably.

Health benefits range from short to long-term effects in both physical and mental health. Evidence shows that bicycle and pedestrian facilities provide an opportunity for residents to create long-term health habits and active lifestyles that improve cardiovascular health and reduce chances of cardiovascular, skeletal or other health complications

In North Carolina, 32.1 percent of adults and 15 percent of children are obese, with trends projected to increase. In 2017, 11.4 percent, or roughly 820,000 North Carolinians were diabetic. That number is projected to increase

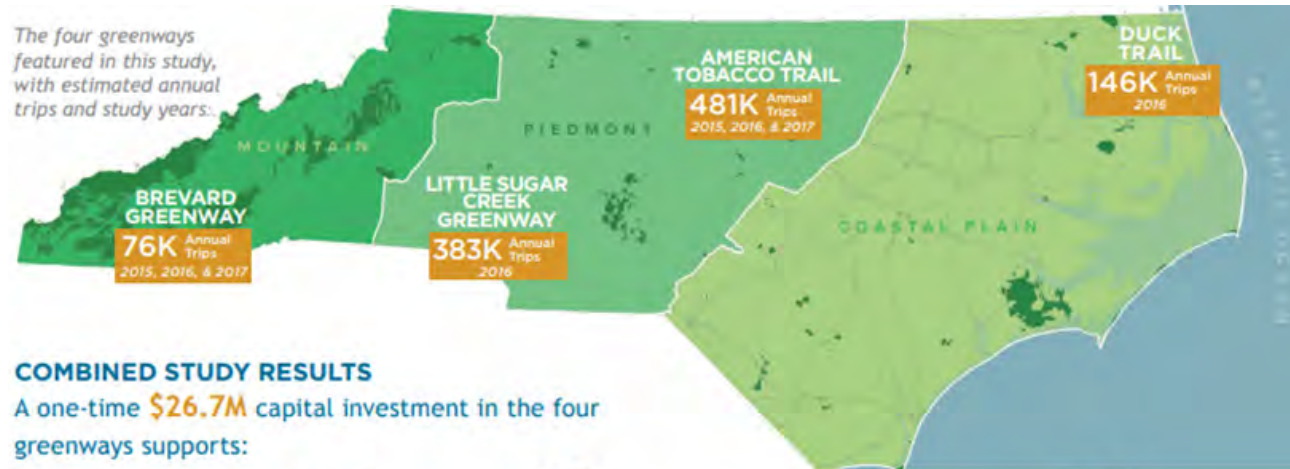
**A recent study on the cost benefit analysis of physical activity on bike and pedestrian trails revealed that for every \$1 in investment in trails for physical activity led to \$2.94 in direct medical benefit, indicating that building trails is cost beneficial from a public health perspective.**

COMMUNITY HEALTH	ENVIRONMENTAL QUALITY	ECONOMIC IMPACT
 <p><b>HEALTH AND WELL-BEING</b> facilitate active living and connecting with nature</p>	 <p><b>ENVIRONMENTAL STEWARDSHIP</b> protect air quality, water quality and wildlife habitat</p>	 <p><b>ECONOMIC IMPACT CATALYST</b> promote tourism and business through public investment</p>
 <p><b>INCREASED MOBILITY OPTIONS</b> expand resident's options for non-vehicular travel and commuting</p>	 <p><b>EDUCATIONAL OPPORTUNITIES</b> connect residents to information about the natural world</p>	 <p><b>WORKFORCE DEVELOPMENT</b> attract new residents and businesses with high quality of life</p>
 <p><b>CULTURAL AWARENESS</b> define community identity through public art</p>	 <p><b>HAZARD MITIGATION</b> buffer hazard-prone areas such as floodplains</p>	 <p><b>HIGHER TAX REVENUE</b> increase tax revenue by increasing property values</p>

Community, environmental and economic sustainability benefits of investing in greenway trails

to over 1.2 million people by 2030. Bicycling and walking as a form of exercise becomes easier, safer and more fun when people can use bicycle and pedestrian facilities that are separated from vehicular traffic. These facilities have low barriers to entry as there is no entry fee and no special equipment is needed. Providing safe biking and walking connections to community destinations also encourages more opportunities for people to engage with their social, cultural and natural environments. An increase in social connectedness among community members has been proven to

reduce stress, diminish depression and promote overall positive health outcomes. Bicycle and pedestrian facilities located in natural environments provide a critical opportunity to connect children with nature. Studies show that regular non-structured play in a natural setting reduces symptoms of ADHD. Connecting with nature allows children and adults to release stress, engage in physical problem solving, and find space for contemplation and reflection.



**COMBINED STUDY RESULTS**

A one-time **\$26.7M** capital investment in the four greenways supports:

				
<b>\$19.4M</b>	<b>\$684K</b>	<b>\$25.7M</b>	<b>\$48.7M</b>	<b>790 JOBS</b>
Estimated annual sales revenue at local businesses along the four greenways	Estimated annual local and state sales tax revenue from businesses along the greenways	Estimated annual savings due to more physical activity, less pollution and congestion, and fewer traffic injuries from use of the greenways	Estimated business revenue from greenway construction	Are supported annually through greenway construction

**Environmental Benefits**

Bicycle and pedestrian facilities encourage recreation and alternative transportation habits that do not rely on automobiles. The avoided car trips add up to reduce the amount of non-point source pollution in the form of fossil fuel exhaust released into the atmosphere. This decreased congestion is ultimately beneficial to the health of the individual users and to the environment. In addition, some facilities, such as greenway trails are often located along stream corridors, utility easements and forested areas. This urban trail infrastructure protects water quality, air quality and wildlife habitat. Greenway trails within natural corridors protect water quality by allowing water to filter out pollution carried in storm water and reducing stormwater velocity to reduce erosion and sedimentation. Greenway trails are frequently forested or vegetated and provide connections between forested areas providing significant areas of wildlife habitat. These connections can prove critical to supporting wildlife populations that need safe routes for local migration, as well as bird species following much longer migration routes.



### Economic Benefits

Bikeable and walkable communities bring new business and economic life to cities, towns and communities. Communities benefit both by creating a bicycle and pedestrian network that provides important local connections, and by extending local connections to larger regional trail networks.

There are countless case studies of greenway trails that have been a catalyst for urban revitalization and restoration of economic vitality in derelict industrial centers. Paired with economic benefits and community identity, greenway trails add and/or protect aesthetically pleasing aspects of a community. Greenway trails benefit the surrounding area on a micro-economic scale by increasing adjacent property values and enticing business transactions near trails. Proximity to a greenway trail is an important consideration for homebuyers and businesses looking to locate in a community. The value of homes and properties adjacent to a trail statistically are higher than comparable properties further away from the trail corridor. The East Coast Greenway is a regional trail project that runs through North Carolina with the goal of creating a continuous greenway connection between Maine and Florida. The Triangle is the most connected metro on the route with 74 miles of trail on the ground from Durham to Clayton. This greenway trail benefits the Triangle area of North Carolina by bringing

in more than \$90 million in related revenue and taxes per year. The greenway trail has also created nearly 800 temporary and permanent jobs.

### Alternative Forms of Transportation

Vehicular traffic congestion is often an issue, particularly in areas experiencing growth. Bicycle and pedestrian facilities can be used as a modest mitigation tool to remove vehicles from the congested roads. Nationally, there were approximately 836,569 bike commuters in 2017 – an increase of 43% since 2000. According to the United States Census Bureau, the average commute to work in 2017 required approximately 50 minutes per day. If this time were spent biking or walking, especially in the presence of the natural environment, the results would not only be revealed on the roads, but also in the overall health and wellness of the community. Trip reduction from biking and walking will come when a bicycle and pedestrian network makes meaningful connections to schools, parks, large shopping districts, and employment centers.

With paved trails requiring design compliance with “American Standard Specifications for making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped,” bicycle and pedestrian facilities can be made accessible for various forms of non-vehicular transportation from walking and running,



to cycling and vehicle “disrupters” such as scooters and e-bikes. Users of all ability levels and distances from destinations have the opportunity to utilize the bicycle and pedestrian facilities in ways that best suit their needs and goals.



### During Covid-19

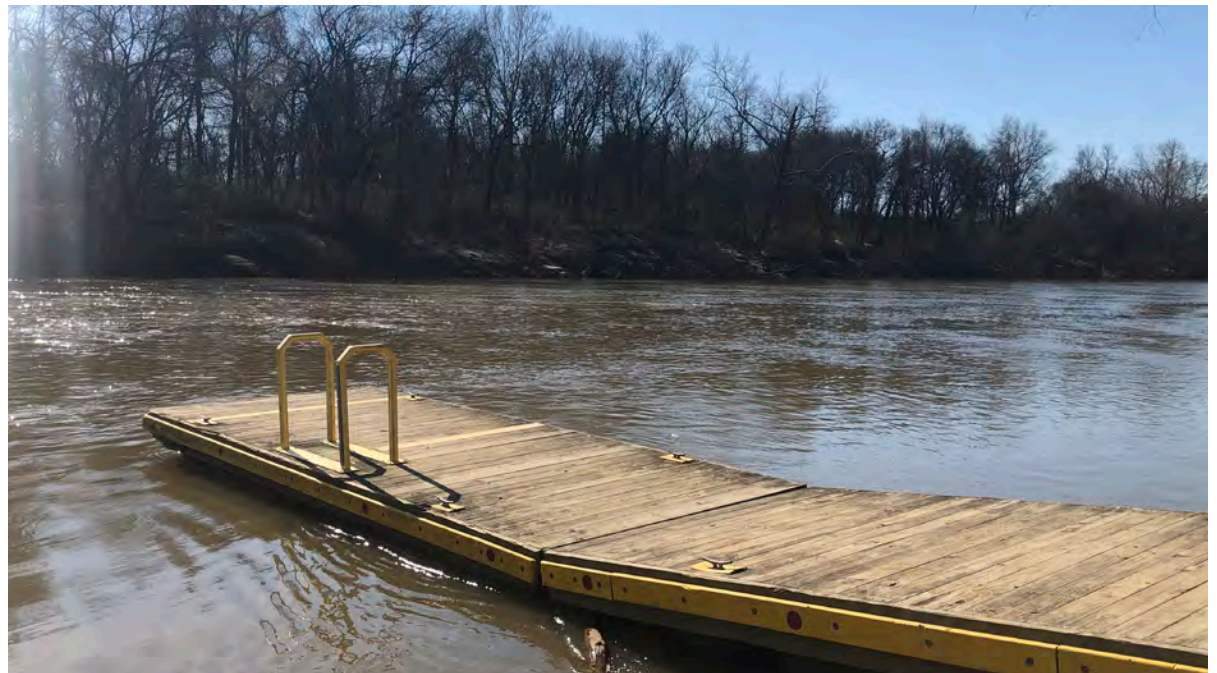
The multiple benefits of bicycle and pedestrian facilities have never been more apparent than during the coronavirus pandemic. With most fitness centers closed and people confined to their homes, parks and trails have become an even more valuable public amenity for physical and mental health. Across the country and world, bicycle and pedestrian facilities have seen a significant uptick in users, requiring municipalities to find creative solutions to maintain social distancing and follow safety protocols. The increased demand on these facilities have led some municipalities to temporarily close streets and designate them for walking, biking, roller blading, and other forms of exercise. Some of these communities are now responding to public desire to keep these spaces carefree.

Bicycle and pedestrian facilities that count bikes and pedestrians are seeing double and triple the volume of usage in comparison to the same period last year. In North Carolina, many of the most popular greenway trails collect data and are seeing a significant increase in bicycle and pedestrian users. For instance, the following trails have experienced nearly double or triple user count: the American Tobacco Trail (179%), Neuse River Greenway (278%), and Black Creek Greenway (277%). Another study looking at Strava data reported that in Houston and Los Angeles, two sprawling metropolises infamous

for driving, there was a significant increase in total volume of cycling trips in May 2020 (138% higher in Houston, 93% higher in Los Angeles).

Our current public health crisis is demonstrating clearly the need more public funding, more support, and more bicycle and pedestrian facilities. There is hope from bicycle advocates, transportation planners and the public that the data being collected during the coronavirus epidemic will provide the evidence needed to generate an increase in government spending and stimulus packages for bicycle and pedestrian facilities. Not only would that help alleviate the pressure on the existing

conditions by creating additional facilities, it could also be a catalyst for economic growth in our communities and regions.





# 3. EXISTING CONDITIONS

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in this Chapter

Overview + History of Community

Relevant Planning Documents + Policies

Key local Destinations

Crash Data



Client Name  
CHAPTER NAME







## EXISTING CONDITIONS

**DAVIE COUNTY IS LOCATED IN NORTH CAROLINA'S PIEDMONT TRIAD REGION AND IS SURROUNDED BY THE COUNTIES OF DAVIDSON, FORSYTH, YADKIN, IREDELL, AND ROWAN. THE COUNTY IS DEFINED BY ITS AGRARIAN HISTORY, RICH NATURAL RESOURCES, COMMUNITY PRIDE, AND MORE RECENTLY, RAPID GROWTH IN THE EASTERN PART OF THE COUNTY NEAR BERMUDA RUN. THIS MASTER PLAN ACKNOWLEDGES THE HISTORY, RESOURCES AND GROWTH PRESSURES AS THEY RELATE TO OPPORTUNITIES FOR IMPROVING THE COUNTY'S BICYCLE AND PEDESTRIAN NETWORK.**

### HISTORY

Davie County was created in 1836, having been carved out of Rowan County and previously part of Anson County. Prior to that official designation it had already experienced human activity first by Native Americans believed to be the Saura tribes that left evidence of campsites (rather than villages) and arrowheads along the Yadkin River and other tributaries like Dutchman Creek. After the land came under the control of the British, it was divided among settlers and many properties still have original land grants from Lord Granville. The county was formed in the Forks of the Yadkin River which has not only bordered it but shaped it politically and historically.

The earliest settlers included the Bryans and

the Boones who came down the Old Wagon Road or Georgia Road from Pennsylvania but stopped here for the fertile land, many waterways and excellent hunting. The most famous resident of the county, Daniel Boone, was attracted by the latter and also his wife, neighbor Rebecca Bryan. While he matured and married here, his wanderlust took him constantly further west and into legend but he left behind his parents Squire and Sarah Boone and some siblings buried at Davie's first cemetery, Joppa.

Shortly after the Revolution when Lord Cornwallis led his troops across a place he named Pudding Ridge, the area was already being referred to as Mocks' Old Field, although Mr. Mock quickly disappeared into history,

leaving only his name behind for the county seat of Mocksville. Many smaller communities around the county grew and then languished with only two other historic towns lasting, Cooleemee and Advance. A 20th century commuter town of Bermuda Run later emerged. As a rural county for much of its history and still today, Davie's population grew slowly as families of various ethnic derivation tamed land and carved out a place for future generations who still bear their names. One such example was the Helper family, whose one son Hinton became a nationally famous abolitionist with his book *The Impending Crisis of the South* at the time of the Civil War. Far more fought to defend their land and freedom of choice during this divisive time. When Stoneman's Raid plunged across the county, the locals stubbornly



resisted, hiding food and animals and slowing down their progress to join Sherman's troops. The town of Cooleemee developed in the same era when the landed gentry family the Hairstons built the antebellum Cooleemee plantation on the Yadkin river that would dominate the local landscape. The nearby community became a milling town by the end of the 19th century that provided work for many locals until its decline in the 1960s. The Twentieth Century saw many new industries building in the county, such as Ashley Furniture and Ingersoll-Rand, a worldwide provider of industrial equipment. Residents participated in every military conflict of their time from the French and Indian Wars to the Revolution to the Civil War and two World Wars. A baby born to a poor farming family in the waning hours of World War I was Tom Ferebee, the bombardier whose hand on the controls of the first atomic bomb over Hiroshima would help end World War II and change the nature of modern warfare.

**Davie County's population has experienced steady growth between 2000 and 2020. Currently, the population is estimated at 45,039.**

...

**Based on 2025 predictions, the County is expected to have 47,057 residents.**



Today Davie County is strongly traditional, conservative, independent, well churched and attached to its identity. Residents of long standing do not give the name of a town when asked where they live but the name of the county. They are independent, loyal and moderately resistant to change. They value education, hard work, family and find much in common with their long, storied history. Culture here is very much rooted to the past in the land its residents love.

#### **DEMOGRAPHICS & GROWTH**

This demographic analysis describes the population within Davie County, North Carolina. This analysis is reflective of the County's total population and its key characteristics such as age segments, income levels, race and ethnicity. Existing demographics and projected growth were analyzed to enable the planning team in understanding the local community

and recommend desired direction for bicycle and pedestrian planning.

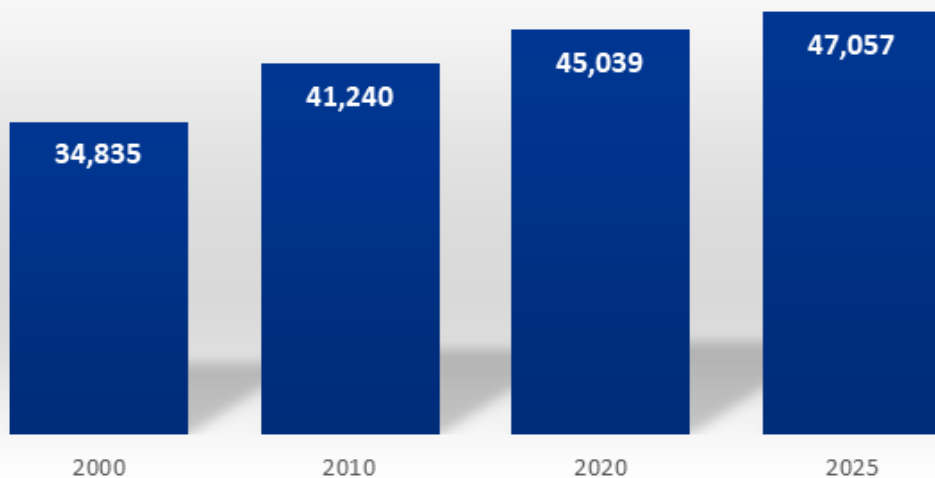
It is important to note that future projections are based on historical patterns and unforeseen circumstances during or after the time of the analysis could have a significant bearing on the validity of projected figures.

#### **Methodology**

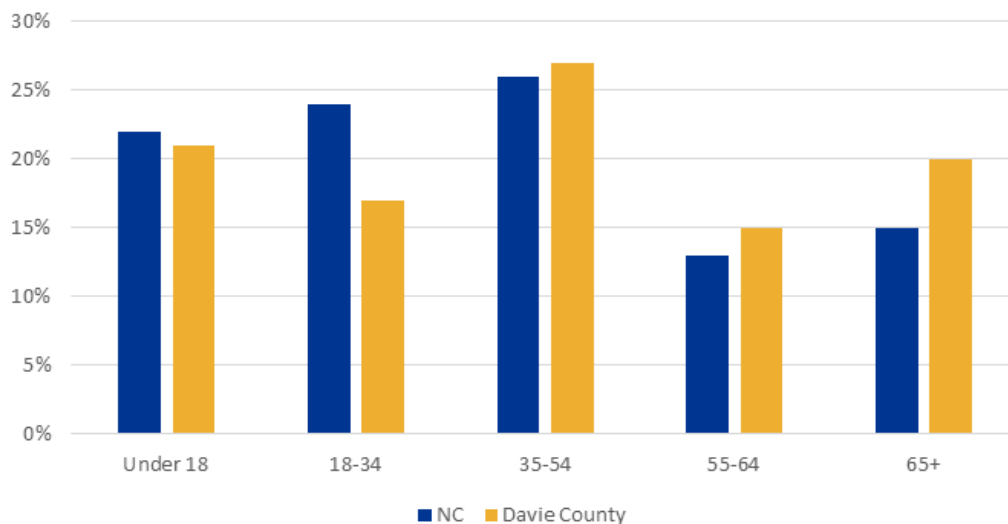
Demographic data used for the analysis was acquired from the Environmental Systems Research Institute, Inc. (ESRI), the largest research and development organization dedicated to Geographical Information Systems (GIS) and specializes in population projections and market trends. All data was acquired in July 2020 and reflects actual numbers as reported in the 2020 Census and estimates for 2025 as obtained by ESRI. US Census data was also used for age segment analysis.



## Population



## Age Segments (2018)



### Total Population

Davie County’s population has experienced steady growth between 2000 and 2020. Currently, the population is estimated at 45,039 people living within 17,642 households. Projecting ahead, the total population and total number of households are both expected to grow. Based on 2025 predictions, the County is expected to have 47,057 residents living within 18,402 households.

### Age Segment

The 2018 age distribution of Davie County indicates that 35-54 is the largest age group and Under 18 is the second largest group. The bulk of the population age segmentation rests under 55 years, which would suggest that most residents are comprised of households with children. However, compared to average age groups in North Carolina, Davie County is an older population with nearly 5% more of the population in the 65+ age group and nearly 5% less in the 18-34 age group.

### Race and Ethnicity Definitions

The minimum categories for data on race and ethnicity for Federal statistics, program administrative reporting and civil rights compliance reporting are defined as below.

- ▶ American Indian – This includes a person having origins in any of the original peoples of



North and South America (including Central America), and who maintains tribal affiliation or community attachment

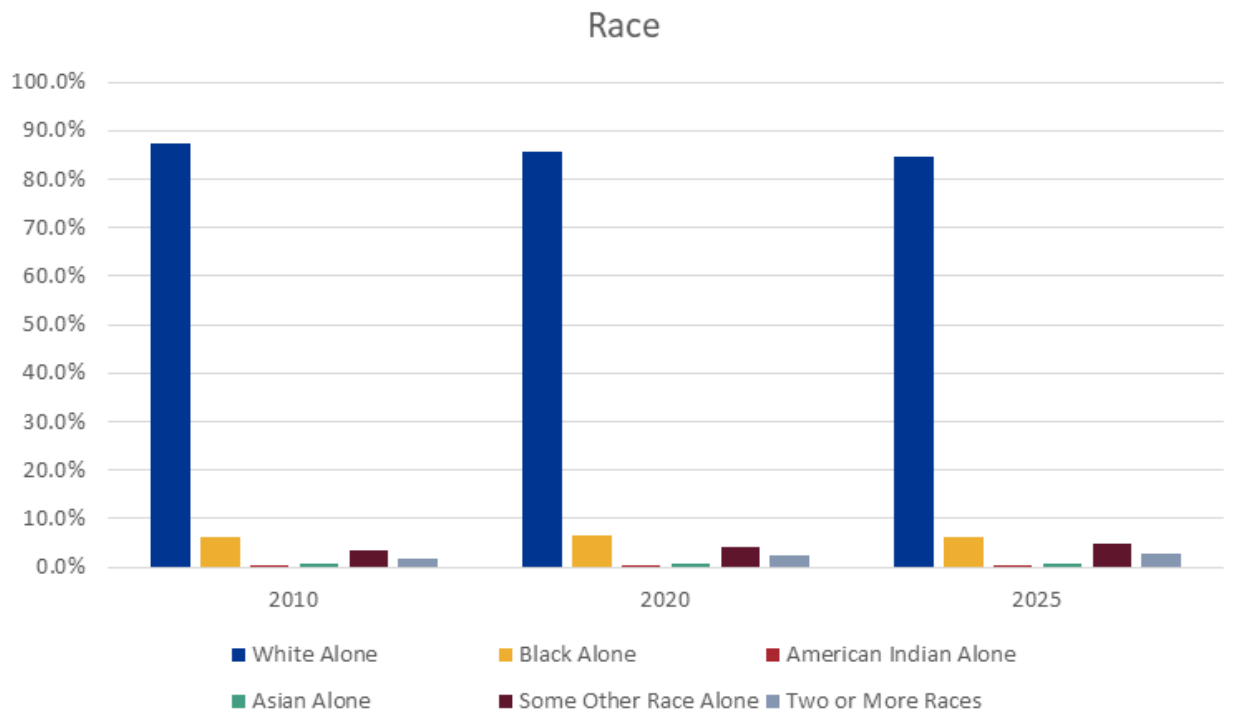
- ▶ Asian – This includes a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand and Vietnam
- ▶ Black – This includes a person having origins in any of the black racial groups of Africa
- ▶ Native Hawaiian or Other Pacific Islander – This includes a person having origins in any of the original peoples of Hawaii, Guam, Samoa or other Pacific Islands
- ▶ White – This includes a person having origins in any of the original peoples of Europe, the Middle East, or North Africa
- ▶ Hispanic or Latino – This is an ethnic distinction, a subset of a race as defined by the Federal Government; this includes a person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race

*/ Latino origin or not. For this reason, the Hispanic / Latino ethnicity is viewed separate from race throughout this demographic analysis.*

### Race

Analyzing race, the County’s current population is not very diverse. The 2020 estimate shows that 86% of the population falls into the White Alone category, while the Black Alone category

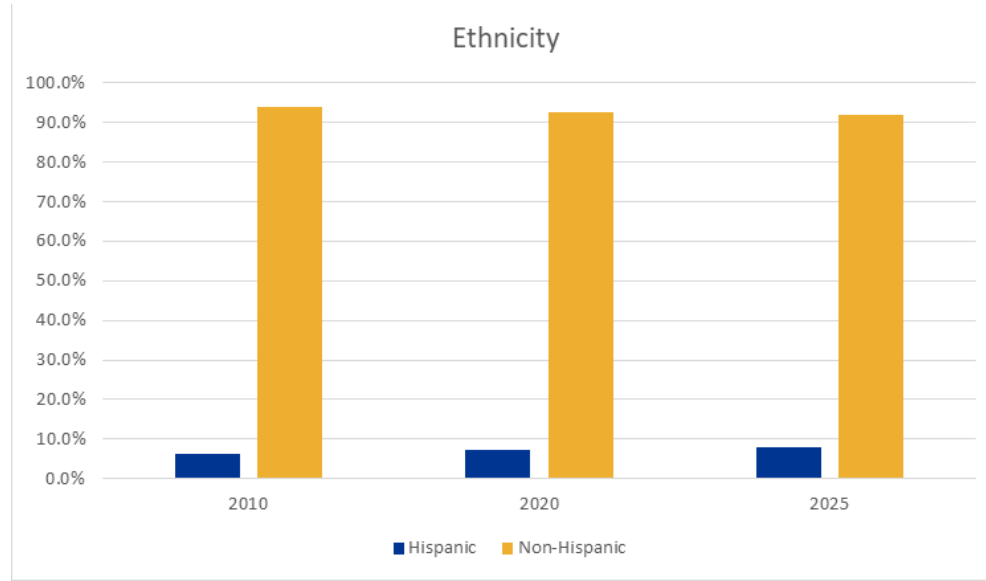
(6%) represents the largest minority. This racial composition has largely remained the same since 2010 and is predicted to not change much in the near future. Compared to the racial composition of the national population, which is approximately 70% White Alone and 12.8% Black Alone, it indicates a pretty homogenous population in Davie County.



*Please Note: The Census Bureau defines race as a person’s self-identification with one or more of the following social groups: White, Black or African American, Asian, American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, some other race, or a combination of these. While ethnicity is defined as whether a person is of Hispanic*

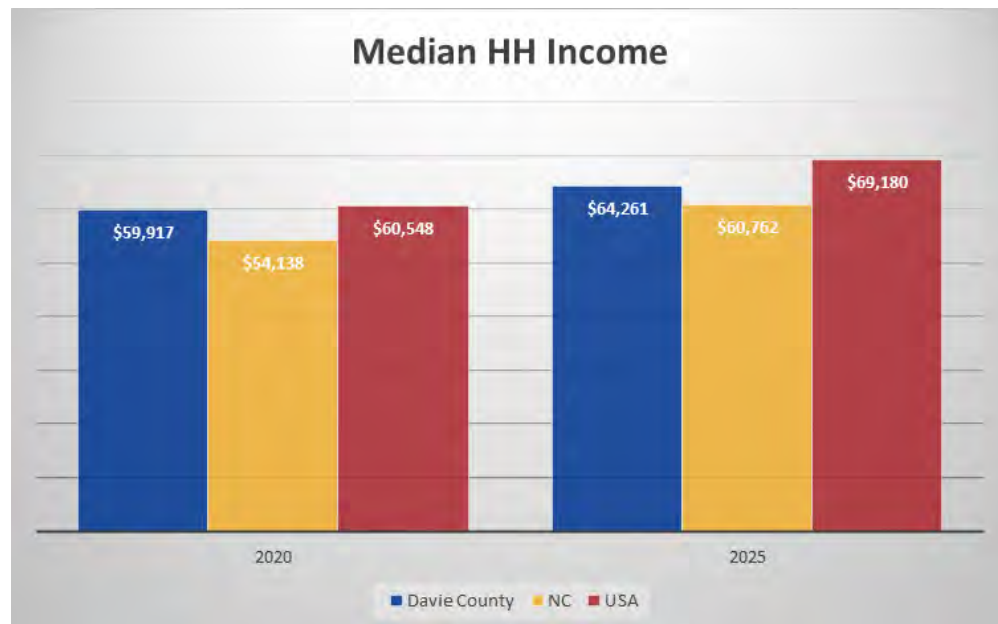
### Ethnicity

The County's population was also assessed based on Hispanic / Latino ethnicity, which by the Census Bureau definition is viewed independently from race. It is important to note that individuals who are Hispanic/Latino in ethnicity can also identify with any of the racial categories from the previous section. Based on the 2010 Census, those of Hispanic/Latino origin represented 6% of the County's population, which was lower than the national average of 16%. Current 2020 estimates show the Hispanic/ Latino population representing 7% of the population, which is also lower than national average (18%). The Hispanic/Latino population is expected to slightly increase through 2025, with an estimated 8% of the County's total population.



### Household Income

The socioeconomic status of Davie County includes assessment of household income. The County's median household income (\$59,917) is currently above the State's average (\$54,138) yet below the national average (\$60,548). Future predictions indicate that a similar trend will continue.





2020 Demographic Comparison		Davie County	North Carolina	U.S.A.
<b>Population</b>	Total	45,039	10.6 M	332.4 M
<b>Households</b>	Total	17,642	4.1 M	125.1 M
<b>Age Segment Distribution (2018)</b>	Ages 0-17	21%	22%	23%
	Ages 18-34	17%	24%	23%
	Ages 35-54	27%	26%	26%
	Ages 55-64	15%	13%	13%
	Ages 65+	20%	15%	15%
<b>Race Distribution</b>	White Alone	85.8%	66.4%	69.9%
	Black Alone	6.4%	21.7%	12.9%
	American Indian	0.4%	1.3%	1%
	Asian	0.8%	3%	5.7%
	Pacific Islander	0%	0.1%	0.2%
	Some other Race	4.3%	4.9%	6.9%
	Two or More Races	2.3%	2.6%	3.4%
<b>Hispanic/Latino Ethnicity</b>	Hispanic / Latino Origin (any race)	7%	10%	18.3%
	All Others	93%	90%	82%
<b>Income</b>	Median Household Income	\$59,917	\$54,138	\$60,548



### Demographic Comparative Summary

The table below summarizes the County's demographic figures. These figures are then compared to North Carolina and the U.S. populations. The highlighted cells represent key takeaways from the comparison between Davie County's demographic makeup and the national population.

### Key Demographic Findings

- ▶ The County is largely rural with a low total population (45,039) and no significant urban center.
- ▶ The County's White Alone race distribution (85.8 percent) is significantly higher than the national rate (69.9 percent) and the state rate (66.4 percent).
- ▶ The County's age distribution is generally older than the national and state levels.

**Over the past decade, a number of local agencies and organizations have undertaken planning studies in Davie County to support the expansion of parks and trails.**



### RELEVANT PLANNING DOCUMENTS

Over the past decade, a number of local agencies and organizations have undertaken planning studies in Davie County to support the expansion of parks and trails. Integral to this master plan is the coordination and integration of all planning efforts and goals related to recreation. The following section summarizes the overarching goals and objectives of these plans and seeks to recognize common planning themes while minimizing redundancies in recommendations which can lead to mismanagement of community resources.

#### DAVIE COUNTY COMPREHENSIVE PLAN (2019)

In 2019, a Comprehensive Plan was adopted to guide the County on future land use development decisions on important issues of housing, economic development, utility, transportation, farmland preservation, natural resources, parks, open space, recreation,

trails and health. Based on community and stakeholder engagement, approved plans, and other analysis, the following key recommendations were made for Parks, Open Space, Recreation & Trails:

- ▶ Implement greenway and trail development to connect key destinations in Davie County.
- ▶ Preserve open space and natural resources.
- ▶ Develop countywide comprehensive bicycle and pedestrian plan.
- ▶ Incorporate more public art into Parks and Recreation programming as well as the physical and usable environment.



### DAVIE COUNTY COMPREHENSIVE PARKS & RECREATION MASTER PLAN (2013)

The purpose of this Plan is to ensure that the County's recreation facilities will continue to meet residents' needs over the next 15 years. This plan is designed to analyze existing and future conditions of parks and recreation supply and demand in Davie County, the operations related to parks and recreation, and to make recommendations for new facilities, programs and improvements. The following recommendations were made:

- ▶ Create a Davie County Parks and Recreation Department.
- ▶ Commission a countywide Greenway/Bikeway Master Plan and once complete, immediately construct one or more sections of trails.
- ▶ Construct an outdoor community pool in the central to southern portion of the county.
- ▶ Develop new park locations and facilities.
- ▶ Provide five additional youth baseball/softball fields.

### DAVIE COUNTY COMPREHENSIVE TRANSPORTATION PLAN (2012)

A Comprehensive Transportation Plan (CTP) is developed to ensure that the progressively developed transportation system will meet the needs of the region for the planning period. The CTP serves as an official guide to providing well-coordinated, efficient and economical



▶ River Park Trail Entrance/ McAdams

transportation system for the future of the region. This document should be utilized by the local officials to ensure that planned transportation facilities reflect the needs of the public, while minimizing the disruption to local residents, businesses and environmental resources. Several bike lanes and sidewalks were proposed throughout the county.

Proposed greenway and multi-use paths are highlighted below:

- ▶ Multi-use path along Valley Rd to Country Ln in Mocksville
- ▶ Multi-use path along Main St to Milling Rd. in Mocksville
- ▶ Multi-use path along Nelson Creek in Mocksville

- ▶ Greenway trail along Elisha Creek in Mocksville
- ▶ Greenway trail from Main St to Erwin St in Cooleemee
- ▶ Greenway trails west of Main St along the South Yadkin River in Cooleemee
- ▶ Multi-use path along US 601, from Fairfield Rd to Deadmon Rd
- ▶ Multi-use path along US 801, from Center St. to Marginal St. in Cooleemee

### DAVIE COUNTY TRANSPORTATION ALTERNATIVES FEASIBILITY STUDY (2016)

The Davie County Transportation Alternatives Feasibility Study is the blueprint for transportation alternative improvements





and the foundation upon which future transportation decision should be measured against. The plan responds to existing challenges, anticipated future needs and prepares the communities in eastern Davie County to accommodate future growth. As its core, this study evaluates the mobility needs of this growing community's connectivity to I-40 and determines interim and long-term strategic approaches to improve mobility in the network.

#### DAVIE COUNTY HIGH SCHOOL RE-PURPOSING PROJECT PUBLIC SURVEY (2017)

A statistically valid survey was administered by ETC to seek input regarding the re-purposing of the previous Davie County High School site. Respondents were given a list of potential indoor and outdoor recreation features and then asked how often members of their household would use each potential feature (several times per week, a few times per month, and at least once per month). Respondents indicated they would most use the following four facilities:

below:

- › Farmer's market (73%)
- › Walking trail and biking trails (73%)
- › Greenway Connection (50%)
- › Nature Center (47%)

This recent survey provides evidence that trails, greenways, and types of bike/ped facilities were top priorities requested by residents and would be most used.

#### DAVIE COUNTY COMMUNITY HEALTH ASSESSMENT (2017)

The Davie County Community Health Assessment (CHA) represents the combined efforts of the Davie County Health Department in partnership with representatives from local government departments, nonprofit agencies and organizations, and major health systems. It is the result of efforts to assess the health needs of Davie County, as required at least every four years by the North Carolina Department of Health & Human Services. The Community Health Assessment helps health officials, community agencies and community at large, understand the current health status and needs of Davie County, along with community strengths, assets and potential resources to address those needs. The chosen priorities for the 2017 CHA were chronic disease mismanagement, drug misuse and abuse prevention and education, and access to affordable care.

#### DAVIE COUNTY LAND DEVELOPMENT PLAN (2000)

In 1998, the Davie County Board of Commissioners requested that a land development plan be prepared for the County. A committee was appointed and began working on this plan alongside staff from Davie County Planning Department and North Carolina Division of Community Assistance. This report highlights the community's mission to prepare

a vision-driven, pro-active plan for the future physical growth and development of Davie County between the years 2000 and 2020. This plan addressed the entire County except for the Town of Mocksville and its extraterritorial jurisdiction (ETJ).

#### DAVIE COUNTY LAND DEVELOPMENT PLAN UPDATE (2005)

The Davie County Land Development Plan (LDP) adopted in 2005 serves as an update to the standing 2000 Davie County LDP. This updated plan responded to growth, development and infrastructure demands that the previous plan did not address. Specifically, most of the changes to policy included residential development, industrial development and development in and around the US-158 and NC-801 corridors. The purpose of this plan was to provide a vision of the physical growth and development of Davie County from 2004 to 2024. This plan also includes all unincorporated areas in the County as well as the Towns of Cooleemee and Bermuda Run.



### CONNECT DAVIE GREENWAY MASTER PLAN (2015)

Connect Davie is an initiative of the Davie County Health Department to improve active living opportunities through the creation of a county-wide system of multi-use greenways. The plan aims to provide meaningful connections to Davie County's treasured assets, including its towns, neighborhoods, schools, recreation facilities, historical and cultural resources, and other areas deemed worthy by local citizens. This Plan helps determine priority areas for implementation, which guides grant agencies where to help fund construction. The key greenway recommendations are as follows:

- ▶ Bermuda Run – Lakeside Greenway will ultimately link to the BB&T Soccer Complex. Conceptual renderings were done for two interstate crossings (I-40 Overpass & I-40 Underpass).
- ▶ Farmington – The proposed trail system utilizes floodplain areas associated with Dutchman Creek, Bryant Creek and Cedar Creek. Assets to connect to: new high school, middle school, youth complex, elementary school, community center and nature park, and rural commercial node located at Farmington Road and Highway 801.
- ▶ Mocksville – system of surrounding creeks and floodplains provide a unique geography that is well suited for multi-use trail development.

- ▶ The proposed Green Ring provides for a complete loop around Mocksville and incorporates floodplain areas associated with five different streams, including Nelson Creek, Elisha Creek, Dutchman Creek, Leonard Creek and Bear Creek. Connections to community assets: elementary school, YMCA, Rich Park, Dave Parks and Recreation, Davie County Park, Davidson-Davie Community College, middle school, downtown and medical center.
- ▶ Cooleemee – proposed greenway network will connect River Park, the Mill Village Museum, Cooleemee Park and elementary school. "Town Greenway" and "Northern Greenway." River Park provides an opportunity for a scenic network of natural surface trails appropriate for walking, hiking and running.

### DAVIE COUNTY GROWTH ENHANCEMENT STRATEGY (2010)

The 2010 Davie County Growth Enhancement Strategy was developed as requested by the Davie County Board of Commissioners in anticipation of future growth and change of pace. The plan serves as a 10-15 year guide for public policy decisions and focuses on the physical growth and development of Davie County but also addresses quality of life issues such as the preservation of our heritage assets in an increasingly fragile rural environment. The objectives of this plan were to encourage

quality and sustainable growth; accommodate net growth while preserving the heritage balance between economic viability and livability by recognizing the direct connection between development and Davie County's quality of life amenities.

### FARMLAND PRESERVATION PLAN (2017)

The Farmland Preservation Plan of 2017 was commissioned by Davie County government in September 2016, with support from the North Carolina Agricultural Development and





Farmland Preservation Trust Fund. This plan is a working guide to understanding the status of farms in the County, threats and opportunities for the continuance of agriculture, and practical options for both policies and strategies that will protect agriculture and preserve it for future generations. This plan highlights that predominant agriculture products in Davie County are livestock (65 percent) and crops (35 percent). Two crops that showed impressive increases in production between 2007 and 2012 were soybean and wheat. Between 2002 to 2012, the number of farms in Davie County declined by 9.2 percent, while land in farms fell 21.9 percent. Based on analysis of demographic and economic trends as well as input from farmers, landowners, service providers and citizens, this plan offers several recommendations to support Davie County agriculture infrastructure.

### TOWN OF BERMUDA RUN COMPREHENSIVE PLAN (2017)

The Town of Bermuda Run Comprehensive Plan is an update to a 2012 plan and was initiated to take inventory of accomplishments, evaluate changes, and take advantage of new opportunities that had surfaced since 2012. Goals of this plan focus on creating a charming, walkable small town; promoting a healthy and diverse economy, preserving natural resources; and providing exemplary municipal services, infrastructure and recreational amenities.



Recommendations specifically related to creating a walkable and bicycle-friendly community include:

- ▶ Develop a Capital Improvements Program to fund priority pedestrian infrastructure projects.
- ▶ Budget funds annually to complete the Blue Heron Trail, including the pedestrian bridge and tunnel across I-40, and other priority sidewalk segments that will connect different areas of Town and recreational amenities.

### MOCKSVILLE COMPREHENSIVE PLAN (2019)

The Town of Mocksville Comprehensive Plan looks closely at past and current conditions, takes inventory of recent accomplishments, evaluates changes and anticipates future needs of the community. The Plan provides a framework for decision-making and the prioritization and allocation of resources related to the long-term development and sustainable prosperity of Mocksville. To achieve

the vision of maintaining Mocksville as a safe, friendly and welcoming place to live, work, play, raise a family, retire and visit, the Plan identifies the goals of economic and community development, growth management, and infrastructure and services.

### YADKIN RIVER GREENWAY FEASIBILITY STUDY (2010)

A study that was done in partnership between Village of Clemmons, Town of Bermuda Run, Town of Lewisville, Forsyth County, Davie County and the Winston-Salem Urban Area Metropolitan Planning Organization to create an integrated network of greenway trails on both sides of the Yadkin River. The proposed section on the Davie County side would connect to existing and proposed bicycle and pedestrian facilities in the Town of Bermuda Run as well as a proposed 10-ft wide side path along the banks of the Yadkin River that would extend north to Clayton Foster Lane.



### YADKIN VALLEY REGIONAL BIKE PLAN (2020)

A regional bike plan for Davie, Yadkin, Surry, Stokes, Forsyth and Northern Iredell Counties that includes a broad analysis of existing plans and studies, conditions for cyclists along major routes, as well as existing, planned and future bicycle infrastructure. The plan celebrates the unique cultural landscape and history of the region, emphasizing opportunities to connect cycling to the broad range of tourism opportunities found here. Priority list for Davie County includes the following:

- ▶ Mocksville North/South Spine: Milling Road to South Davie Middle School
- ▶ Mocksville Greenway: Rich Park to South Davie Middle School
- ▶ Mocksville – Davie County Community Park Link: South Davie Middle School to Davie County Community Park
- ▶ Bermuda Run Circulation: I-40 bike/ped crossings to Davie Medical Center
- ▶ Bermuda Run to Clemmons: Blue Heron Trail to Tanglewood Park

### GREAT TRAILS STATE PLAN (2020)

An effort being led by NCDOT's Integrated Mobility Division that aims to connect every county in North Carolina with a specific focus on connections between North Carolina State Parks and population centers. Preliminary plans for Davie County have been considered and included in the recommended bicycle and pedestrian network. The draft network map

for the Great Trails State Plan in Davie County includes several of the same alignments along stream corridors between Farmington and Mocksville and along the South Yadkin River in Cooleemee.

### PIEDMONT LEGACY TRAILS (2020)

A Piedmont Triad regional trails collective led by the Piedmont Land Conservancy (PLC) and the Piedmont Triad Regional Council (PTRC) that aims to highlight existing trails and natural beauty in the region as well as to advocate for broader connectivity and trail development. Davie County is one of twelve counties included in this effort and the trails highlighted in Davie County include: Davie Medical Center Greenway, Farmington Nature Park Trails, Rich Park Trail and River Park at Cooleemee Falls (The Bull Hole).

### CAROLINA THREAD TRAIL (2020)

A regional network of connected greenways, trails and blueways that is based out of Charlotte and extends across 15 counties and into South Carolina. The vision is to create opportunities for recreation and transportation while also preserving the region's natural areas. Cooleemee's Bullhole Park Trail is included as part of the network.





**RELEVANT POLICY REVIEW**

**STREAM BUFFER AREAS REQUIRED  
(DECEMBER 20, 1993) (151.25B)**

As outlined in the Watershed Protection Ordinance, no new development is allowed in the stream buffer. “Water dependent structures and public projects such as road crossings and greenways may be allowed where no practical alternative exists. These activities should minimize built-upon surface area, direct runoff away from surface waters and maximize the utilization of stormwater best management practices (BMPs).”

**DESIGN STANDARDS FOR STREETS AND PEDESTRIAN AMENITIES (MARCH 10, 2020) (4.4)**

As outlined in the Town of Bermuda Run Zoning Ordinance, “Greenways shall be dedicated to public use and installed by the developer for any new development located along a designated greenway path as shown in the Town of Bermuda Run Comprehensive Plan. The Town may accept the greenway for

**There are a total of 21.4 miles of sidewalks and 5.2 miles of Greenway in Davie County**

COUNTY GREENWAY	MILES	SURFACE	DESCRIPTION
<b>RICH PARK GREENWAY</b>	<b>0.8</b>	<b>ASPHALT</b>	<b>10 -FT WIDE GREENWAY MEANDERING IN THE WOODS THROUGH RICH PARK</b>
<b>DAVIE COUNTY COMMUNITY PARK</b>	<b>2.6</b>	<b>VARIOUS</b>	<b>SEVERAL SMALL LOOPS PROVIDE WALKING OPPORTUNITIES IN THE NEW PARK</b>
<b>DAVIE COUNTY MEDICAL CENTER GREENWAYS</b>	<b>1.8</b>	<b>CONCRETE</b>	<b>SEVERAL SMALL LOOPS (&lt;1 MILE) OF WIDE SIDEWALKS (CONCRETE + ASPHALT) AROUND THE MEDICAL CENTER</b>
<b>TOTAL</b>	<b>5.2</b>		

maintenance upon satisfactory inspection of installation.”

**EXISTING FACILITIES**

**GREENWAYS**

While Davie County aspires to increase their greenway offerings, currently residents and visitors have access to the following greenways:

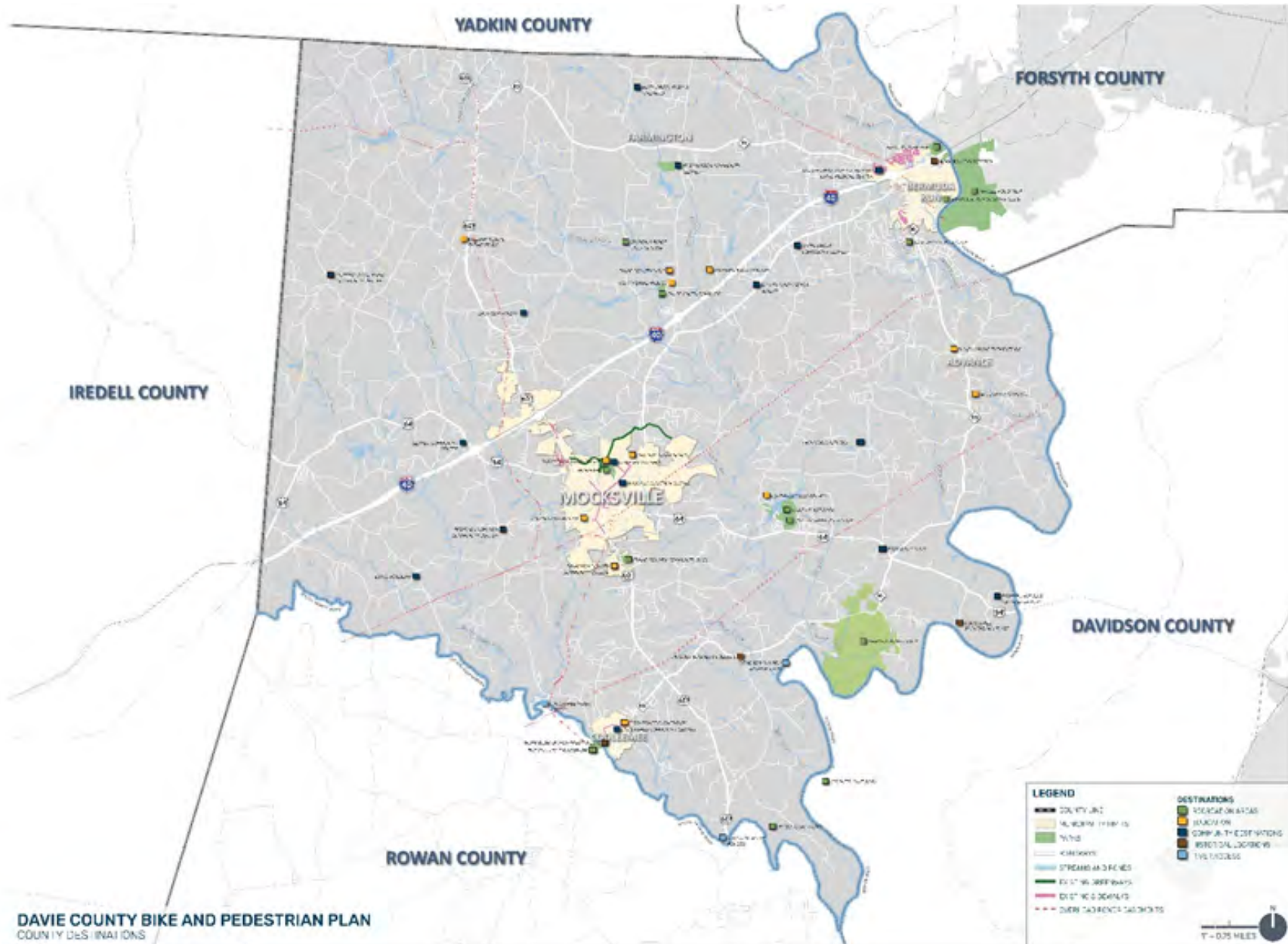
**TRAILS**

Natural Surface Walking Paths are also located within the following Parks:

- › Rich Park
- › RiverPark at Cooleemee Falls
- › Farmington Nature Park
- › Davie County Community Park

**SIDEWALKS**

There are a total of 21.4 miles of sidewalks currently in Davie County, which are almost entirely within the towns of Mocksville, Bermuda Run and Cooleemee.





## DESIRED DESTINATIONS

- › Rich Park
- › Davie Family YMCA
- › Mocksville Elementary School
- › Central Davie School
- › South Davie Middle
- › Brock Recreation Center
- › Davie County Community Park
- › Davidson-Davie Community College
- › Center Community Center
- › Jericho Hardison Community Center
- › Davie Academy
- › Cornatzer Elementary
- › Lake Louise Park
- › Collin Creek Golf Club
- › Fork Civic Club
- › Twin Lakes Airport
- › Forest Lake RV & Camping Resort
- › Cooleemee Plantation House
- › Perkinds Game Lands
- › Hodges Business College
- › Concord Church River Access
- › Alcoa Game Lands
- › Cooleemee Elementary
- › Cooleemee Community Center
- › RiverPark at Cooleemee Falls: "The Bullhole"
- › Cooleemee River Access
- › Sheffield Calahain Community Center
- › William R Davie Elementary
- › Lacy Elm Winery
- › Davie County High
- › North Davie Middle
- › Davie Youth Complex
- › Pinebrook Elementary
- › Raylen Vineyards & Winery
- › Pudding Ridge Golf Course
- › Farmington Community Center & Nature Park
- › Misty Creek Farm & Vineyard
- › Smith Grove Community Center
- › Wake Forest Baptist Health – Davie Medical Center
- › Truist Sports Park
- › Winmock at Kinderton
- › Bermuda Run Country Club
- › Oak Valley Golf Club
- › Shady Grove Elementary
- › William Ellis Middle



↗ RiverPark / Jessica White Huyett via Town of Cooleemee



↗ Rich Park Playground / Town of Mocksville



↗ Cornatzer Elementary / Davie County School District



## BICYCLE, PEDESTRIAN, AND VEHICULAR CRASH DATA

In the last ten years there have been ten (10) bike crashes, fifty (50) pedestrian crashes, of which resulted in a total of four (4) fatalities (1 bike crash and 3 pedestrian crashes). As you can tell from Figure 9, those crashes have occurred mostly near the population centers and along busier and high-speed roadways.

Walking and biking rates in Davie County are currently low due to limited infrastructure and connectivity that creates unsafe conditions. Existing infrastructure is limited to downtown areas, parks, schools and Davie Medical Center, where walking and biking rates are a bit higher.

## OPPORTUNITIES + CONSTRAINTS

### OPPORTUNITIES

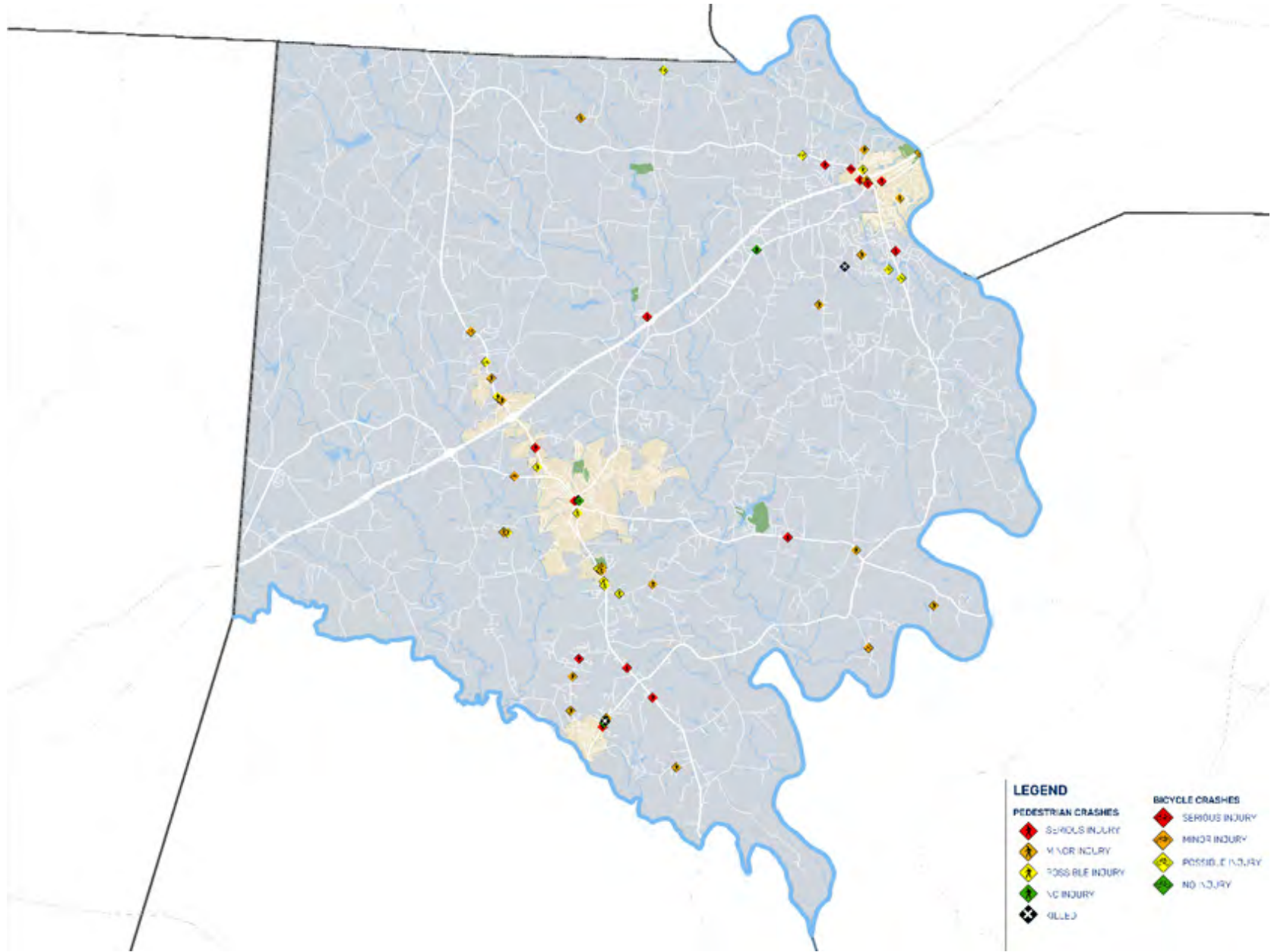
- › Utilize utility and stream corridors to provide off-road connections to population centers
- › Leverage existing and proposed bicycle facilities at Rich Park, Blue Heron Trail, and Davie County Medical Center.
- › Connect to numerous historical and natural destinations to enhance tourism.
- › Yadkin River Greenway and Blueway.
- › Regional efforts to aspire towards: Yadkin Valley Bike Plan and Carolina Thread Trail network.

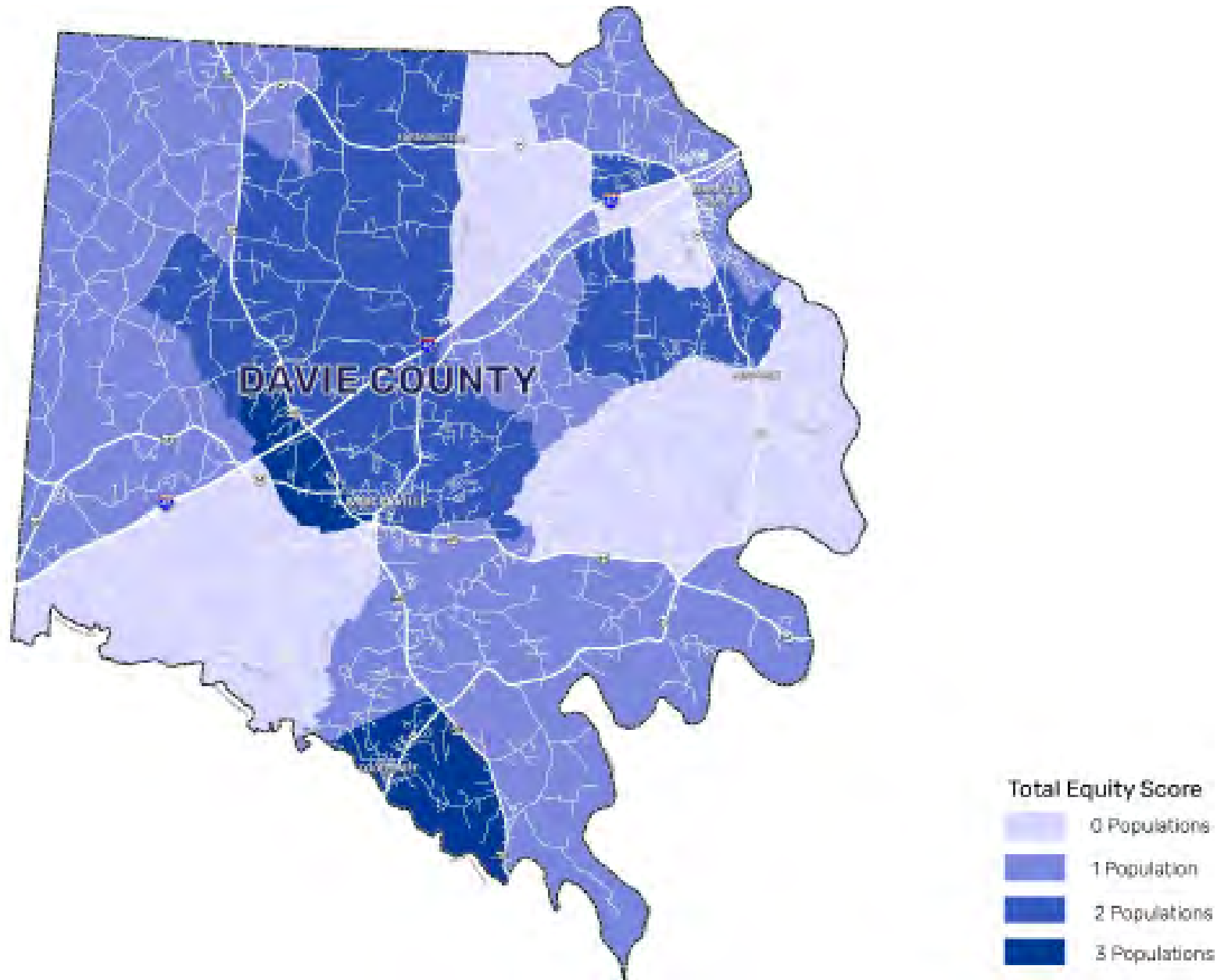
### CONSTRAINTS

- › Limited existing bicycle and pedestrian infrastructure to build network off.
- › Narrow country roads with no shoulder and limited ability to widen (drainage and topography).
- › I-40 poses as a barrier that bisects the entire county with busy arterial roads that are built for cars.
- › Competing funding priorities at the local and county levels.
- › Historically modest local investments in sidewalks, greenways and bicycle infrastructure
- › North Carolina no longer invests in standalone bicycle and pedestrian projects. This limits communities ability to access federal transportation funding.



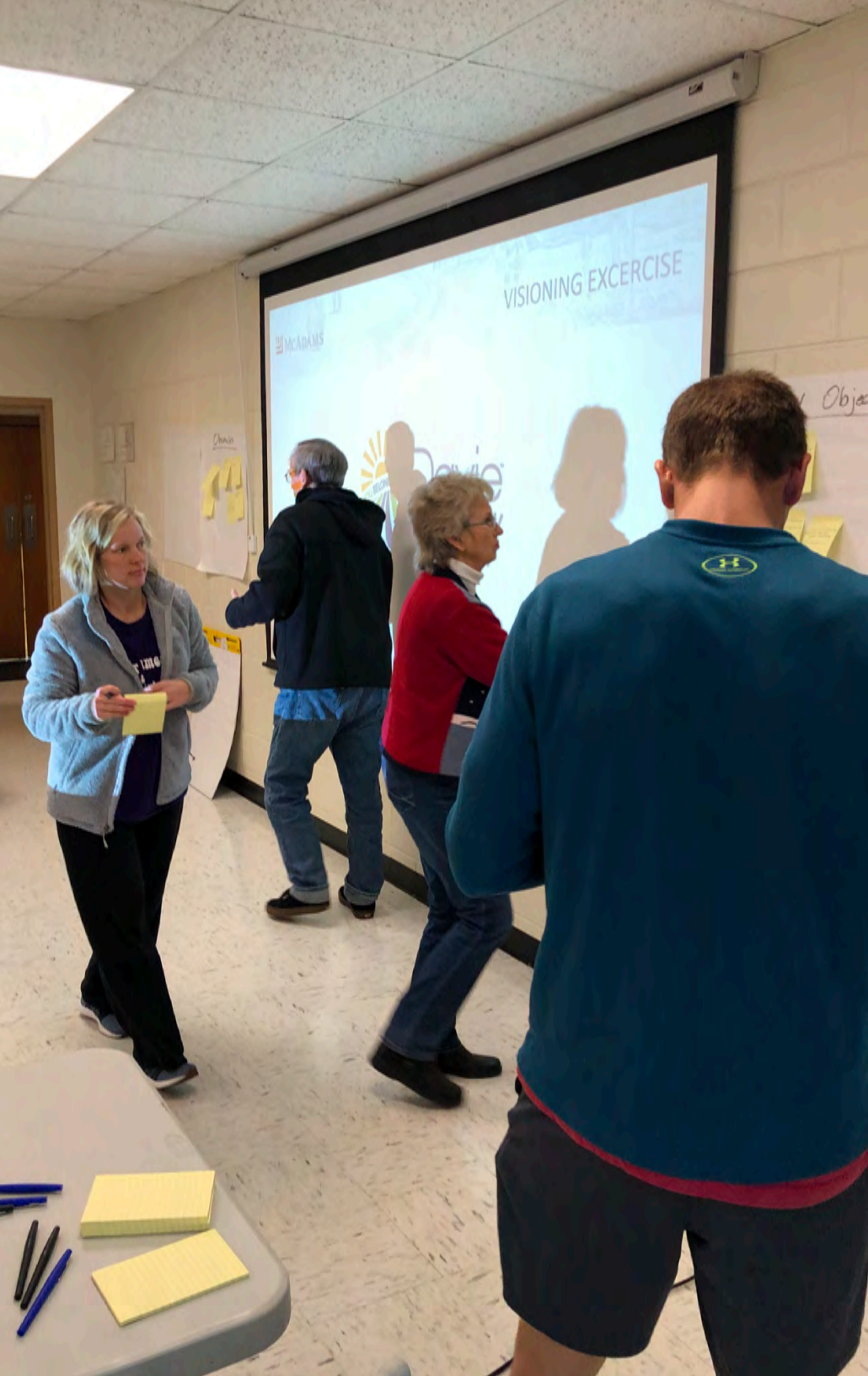








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# 4. COMMUNITY INPUT

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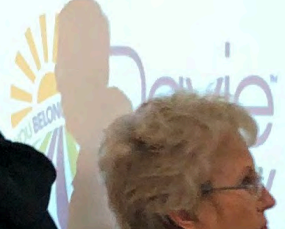
Steering Committee Meetings

Community Input Survey

Board of Commissioner Meetings

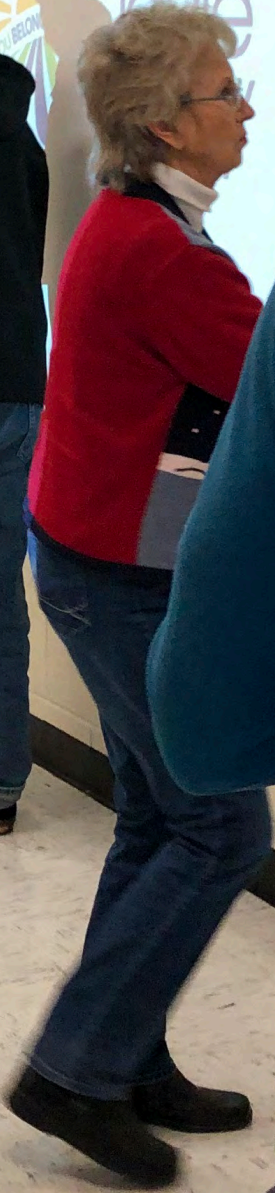
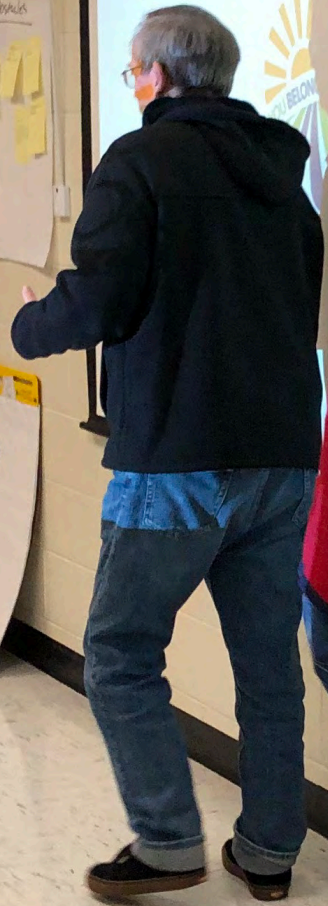
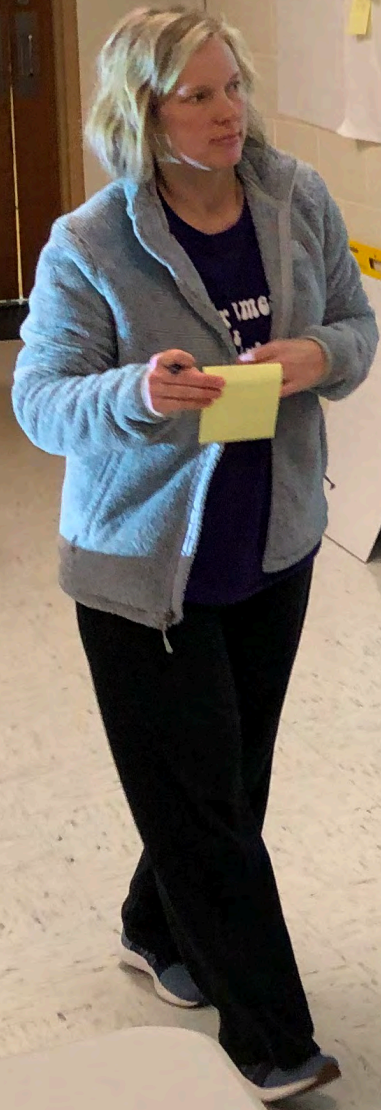
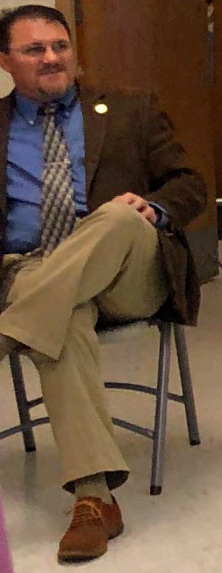
VISIONING EXERCISE

McADAMS



Objectives

Chairs





## COMMUNITY ENGAGEMENT APPROACH

**COMMUNITY INPUT IS AN ESSENTIAL PART OF ANY PLANNING PROCESS. THE MOST EFFECTIVE PLANS ARE FIRMLY ROOTED IN THE REALITIES AND VISIONS OF THE COMMUNITIES THAT CREATED THEM. THIS PLAN USES A COMBINATION OF INPUT FROM COMMUNITY MEMBERS, STEERING COMMITTEE MEMBERS, RECREATION AND PARKS DEPARTMENT STAFF, AND ELECTED OFFICIALS TO INFORM THE COMMUNITY ENGAGEMENT PORTION OF THE INFORMATION-GATHERING PROCESS.**

The Recreation and Parks Department and project team designed the public engagement process to maximize opportunities for input and feedback from community members and the Board of County Commissioners. The process was intended to be equitable and inclusive, offering a variety of input opportunities and methods for all community members to have a comfortable platform for expressing their input. Due to the COVID-19 pandemic that restricted movement of people and public gatherings, the community engagement process had to be adapted to include more virtual engagement. The public engagement process included the following elements:

- › Steering Committee Meetings
- › Community Input Survey
- › Recorded On-line Presentation

- › Board of County Commissioners Individual Meetings

The results of each meeting are included in this summary which includes meeting purposes, number of attendees and content. The online survey polled a representative portion of Davie County's population and provided an opportunity to reach individuals who would not typically attend a meeting or otherwise participate in a public engagement process. In addition, the project team recorded an online presentation that provided project background and was made available to the public via the Parks and Recreation Department's website.

### STEERING COMMITTEE MEETINGS

The Davie County Bike and Pedestrian Plan Community Input process included three Steering Committee Meetings to solicit feedback on the needs and wants of the community. The meetings were held at different stages of the planning process, one at the beginning, one in the middle, and the other towards the end. The project team held the first meeting at Brock Recreation Center at 151 Southwood Dr. in Mocksville. The second meeting was held virtually on August 27, and the third meeting was held virtually on October 20. The two virtual meetings were structured similarly to the first in-person meeting, although different tools and techniques were required. All meetings were well represented and resulted in meaningful discussions and feedback.



### STEERING COMMITTEE MEMBERS

Jeff Allen, Allen Geomatics  
Allyson Sawtelle, Farmington Community Association  
Melanie Cook, Farmington Community Center  
Ali Hartman, Pro-Activity  
Alice Barnette, Seniors  
David Mills, Farmington Community Association  
Landon Lynch, Davie Medical Center  
Lee Rollins, Town of Bermuda Run  
Fredrick Haith, NCDOT Div 9  
Matt Settlemyer, Town of Mocksville  
Luke Harris, Davie YMCA  
Brian Murphy, Davie County Schools  
Jeffrey Jones, Davie County Schools  
Eric Phillips, Skinny Wheels Bike Shop  
Johnny Lambert, Davie County Public Works  
Andrew Meadwell, Davie County Development & Facility Services  
Caroline Moser, Davie County Chamber  
Chuck Taylor, Sage Garden Care Center  
Gary Zickmund, Davie County Sheriff Department  
Paul Moore, Davie County Recreation and Parks  
Adam Barr, Davie County Development  
John Eller, Davie County Government  
Brandi Patti, Davie County Senior Services  
Pat Reagan, Town of Mocksville Police  
Nelson Turrentine, Town of Cooleemee Police  
Steven Corriher, Town of Cooleemee  
John Welborn, Welborn Law  
Carter Spalding, Piedmont Triad Regional Council







### MEETING #1

Location – Date:

- › Mocksville – December 20, 2019

Purpose: To identify critical issues associated with the creation of a county-wide bicycle and pedestrian plan, review and confirm areas of study, review and finalize the public participation approach, set a refined project schedule, and overview various physical factors within the County. Steering Committee Members were asked to identify the biggest challenges and opportunities, and how to define success for this plan.

Total attendees: 22

Big Ideas from the Meeting:

Objectives

- › Greater connectivity + safety
- › Broad community involvement
- › Phased implementation strategy

Challenges

- › Funding
- › Easements/land acquisition
- › Unsafe existing conditions

Opportunities

- › Regional trail initiatives
- › Natural + historic destinations
- › Existing trails and parks

### MEETING #2

Location – Date:

- › Virtual – August 27, 2020

Purpose: To provide steering committee members with an opportunity to comment



on the draft network recommendations of the county-wide bicycle and pedestrian plan. The project team presented the results of the community survey, discussed the guiding principles for developing the recommendations and solicited feedback on those recommendations. Updates on local planning efforts were also provided by representatives of some of the townships in the county.

Total attendees: 15

Big Ideas from the Meeting:

- › More Trails and Greenways!
- › Enthusiasm for loop trails
- › Access to natural settings
- › Safer on-road facilities

### MEETING #3

Location – Date:

- › Virtual – October 20, 2020

Purpose: To present the draft recommended bicycle and pedestrian network and offer steering committee members one last opportunity to provide comments and feedback.

Total attendees: 9

### MEETING #4

Location – Date:

- › Virtual – January 21, 2021

Purpose: To present the draft recommended bicycle and pedestrian network and offer steering committee members one last opportunity to provide comments and feedback.

Total attendees: 10



## COMMUNITY INPUT SURVEY

Dates: Distributed for eight weeks during the summer of 2020.

Purpose: To solicit feedback on the bike and pedestrian facility needs and wants of the community. There was a total of 244 survey responses. Of the respondents that chose to provide optional demographic information, the sample population accurately represents the demographic composition of the county at large.

Big Ideas from the Survey:

High Priority Destinations

- › Rich Park
- › Downtown Mocksville
- › Library
- › Parks
- › Restaurants

Reasons to bike, walk and run

- › Improved physical fitness or health
- › Enjoyment of the outdoors
- › Relaxation
- › Socializing or meeting with people
- › To get from one place to another

Preferred type of bicycling facility (in order)

- › Greenway
- › Bike lane
- › Buffered bike lane
- › Cycle track
- › Shared lane

## SUMMARY

The survey reached a representative sample of Davie County residents and asked questions regarding people's bicycle and pedestrian needs, satisfaction with the current facilities and their desires for the future of biking and walking in Davie County. The survey was available online from June 22 to July 31 and was distributed via the Recreation and Parks Department's Facebook page, Nextdoor, etc. The survey was then reopened for 10 days (between 8/5-8/14) and some hard copies were distributed by hand during that time. In total, 244 people responded to the survey. Frequency of biking, walking, or running in Davie County

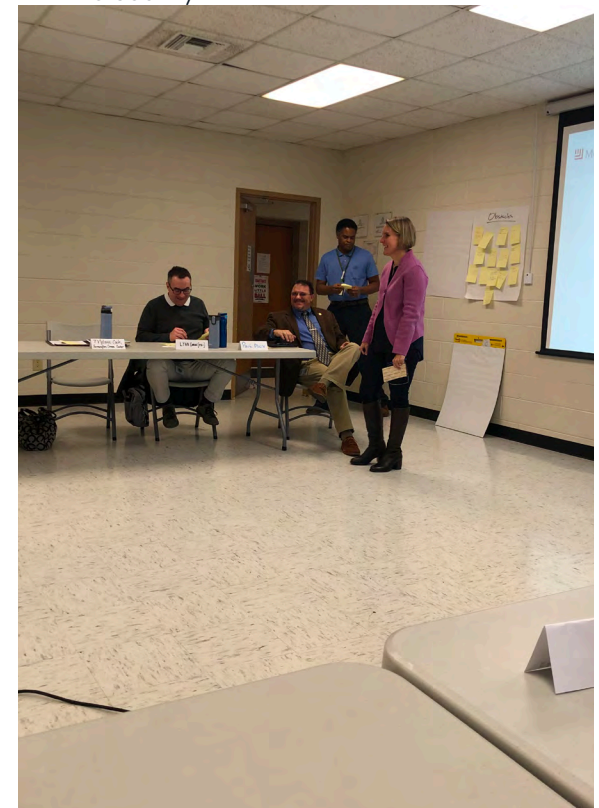
- › 40% of households responded "A few times a week"
- › 34% of households responded "Daily"
- › 15% of households responded "A few times a month"
- › 5% of households responded "A few times a year"
- › 6% of households responded "Never"

Reasons people bike, walk, or run in Davie County

- › 89% of households responded "improved physical fitness or health"
- › 81% of households responded "enjoyment of the outdoors"
- › 62% of households responded "relaxation"
- › 25% of households responded "socializing

or meeting with people"

- › 9% of households responded "to get from one place to another"
- Types of facilities currently used for biking, walking or running in Davie County
- › 66% of households use neighborhood streets
  - › 51% of households use parks
  - › 48% of households use sidewalks
  - › 34% of households use greenways or trails
  - › 21% of households use facilities outside of the county



Gathering Public Input / McAdams >



- › 20% of households use side of main road or highway

Reasons why people are discouraged to bike, walk or run in Davie County

- › 72% of respondents said “safety concerns (vehicular speed, unsafe crossing, etc.)”
- › 68% of respondents said “lack of sidewalks or bike facilities”
- › 41% of respondents said “sidewalks or bike facilities that do not connect to where I want to go”
- › 28% of respondents said “poor conditions of sidewalks or bike facilities”
- › 9% of respondents said “other”

Respondents gave an average rating of 2.3 (out of 5) for the overall conditions of sidewalks and bike facilities in Davie County.

Preferred types of bicycling facilities (in order)

- › Greenway
- › Bike lane
- › Buffered bike lane
- › Cycle Track
- › Shared lane

Destinations that residents would like to access via biking, walking or running (in order)

- › Parks, trails and natural areas
- › Shops and restaurants
- › Libraries or recreation centers
- › Historical destinations
- › School
- › Place of work



### BOARD OF COMMISSIONERS INDIVIDUAL MEETINGS

Dates: held as separate virtual meetings between December 17-22, 2020.

Purpose: To present the draft recommended bicycle and pedestrian network and action plan to the board of commissioners and get feedback prior to finalizing the plan.

Big Ideas from meetings:

Connectivity

- › To destinations outside of the County.
- › To future parks and town center projects within the County.
- › Between Davie Medical Center Trails and Farmington.

Actionable

- › Important for the action plan to pick projects to start with that are easily fundable.
- › Identify grants and projects that can be

leveraged to fund plan’s proposed projects.

- › Plan is a good place to start to begin funding projects in small bites.
- › Executing this plan will be a team effort between municipalities and County.

Land Acquisition

- › Try to use existing easements as a vehicle to create network.
- › We need to focus on providing the bulk of the network with existing right of ways.
- › Acquisition of private land will only involve willing participants.

Quality of Life

- › This plan is about Quality of Life and providing a better one for Davie County.
- › Make sure safety and visibility is addressed on greenway trails.



# 5. RECOMMENDATIONS

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in this Chapter

Bicycle and Pedestrian Network Principles

Facility Types

Priority Projects

Recommended Policies + Programs





## BIKE AND PEDESTRIAN NETWORK GUIDING PRINCIPLES



Proper long-range planning is essential to ensuring that bicycle and pedestrian facilities can be planned, designed and constructed to maximize the full benefits they can provide.

Guiding principles of a bicycle and pedestrian network represent the broad philosophy that guides bicycle and pedestrian facilities planning and design. Consistent across the industry, the following guiding principles were considered when authoring the recommendations contained herein.

### Accessible

Accessible bicycle and pedestrian facilities can be enjoyed by all people of all ages and ability levels. Accessibility is regulated through technical design standards outlined in the Americans with Disabilities Act (ADA), and more communities are recognizing the benefit of Universal Design, which considers accessibility comprehensively, beyond ADA requirements. Universal Design is defined as the “design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability.” Aspects of

the built environment contribute to universal accessibility of bicycle and pedestrian facilities, such as trail width, surface material, and longitudinal and horizontal slopes.

### Equitable

The result of equitable bicycle and pedestrian facilities planning is that all people have access regardless of race, class, location and other factors. Bicycle and pedestrian facilities should support all residents, and equity recognizes that equally providing infrastructure may not adequately meet the needs of neighborhoods and individuals. For example, individuals who use bicycle and pedestrian facilities to achieve fitness goals will have different needs than individuals who use bicycle and pedestrian facilities to commute to a workplace. Investment in bicycle and pedestrian infrastructure should happen in a way that provides more vulnerable populations with equitable infrastructure, access and experiences.

### Experiential

Experience is the sensory feedback an individual receives while engaging in a task or

activity. Sensory feedback forms an experience, one that is positive or negative. Creating bicycle and pedestrian facilities that generate positive experiences includes considering the natural views, a comfortable environment, personal safety, and safety in design. Bicycle and pedestrian facilities should contribute to an overall quality of life and become a regular part of everyday life for short trips, exercise, connecting with nature and socializing.

### Safe

Safety refers to elements of bicycle and pedestrian facilities that minimize the risk of injury, danger and crime. Safe bicycle and pedestrian networks are comfortable for users of all ages and ability levels as a safe means of alternative transportation making it easier to walk or ride a bike. The application of relevant design and construction standards ensures that grades, curves and intersections with roadways and driveways are as safe as possible. Bicycle and pedestrian facilities are as safe as the neighborhoods they traverse through. Communities should develop appropriate policing and volunteer ambassador programs as their network expands.



## METHODOLOGY FOR PRIORITIZATION

### PROJECTS

Just like building infrastructure for public amenities such as roads and parks, there are a lot of important considerations in prioritizing investment in bicycle and pedestrian infrastructure. It is a common goal to build public infrastructure that is financially feasible and serves the greatest good. Some specific criteria that are considered in the prioritizing projects include: existing facilities, relation to other plans, key destinations and connectivity, NCDOT STIP projects, special focus areas, safety considerations (e.g. bicycle and pedestrian crash data), community input and intended purpose of facilities (i.e. commuting, passive vs. active recreation). Some feedback we heard from County staff and the public included: utilize stream and utility corridors to minimize property acquisition challenges, connect to historical destinations, connect townships and special focus areas, connections to natural areas (e.g. rivers, parks and streams), connect to regional trail efforts where possible and provide loop opportunities. All of these factors influenced the decision-making process in determining the priority project list discussed later in this chapter.

### SPECIAL FOCUS AREAS/CORRIDORS

1. Advance
  - a. Cornatzer Road
  - b. US Hwy 801

2. Farmington
  - a. Farmington Road
3. Bermuda Run
  - a. Hwy 158
4. Cooleemee
  - a. Cross Street
  - b. Marginal Street
5. Mocksville
  - a. South Salisbury Street
  - b. Yadkinville Road
  - c. Sanford Avenue
  - d. Sweetgum Drive
  - e. Rich Park Access Points
  - f. Wilkesboro Street
  - g. Martin Luther King Jr. Road

### FACILITY TYPES

When planning and building pedestrian and bicycle facilities, there are several options that a municipality can choose from. There are also many factors that influence that decision, such as available right-of-way, interaction with vehicular traffic, terrain, intersections, roadway conditions, community preferences and comfort levels, etc. Below is a brief description of the most common options available when building pedestrian and bicycle facilities.

### GREENWAY TRAILS

As the most common type, greenway trails can be defined as linear open space areas, often associated with wildlife corridors or valuable vegetative buffers. Most often located



within a dedicated easement or public utility right-of-way, greenway trails usually include a developed (hard) surface to allow ease of usage for bicycles and other wheeled vehicles. Developed surfaces are most commonly asphalt, concrete or crushed stone. The width of the trail can vary from ten to fourteen feet, with ten feet being the most common. Communities around North Carolina including, Raleigh, Charlotte and Wilmington have recently updated their standard width to 12 feet due to the high usage seen on built greenway trails.



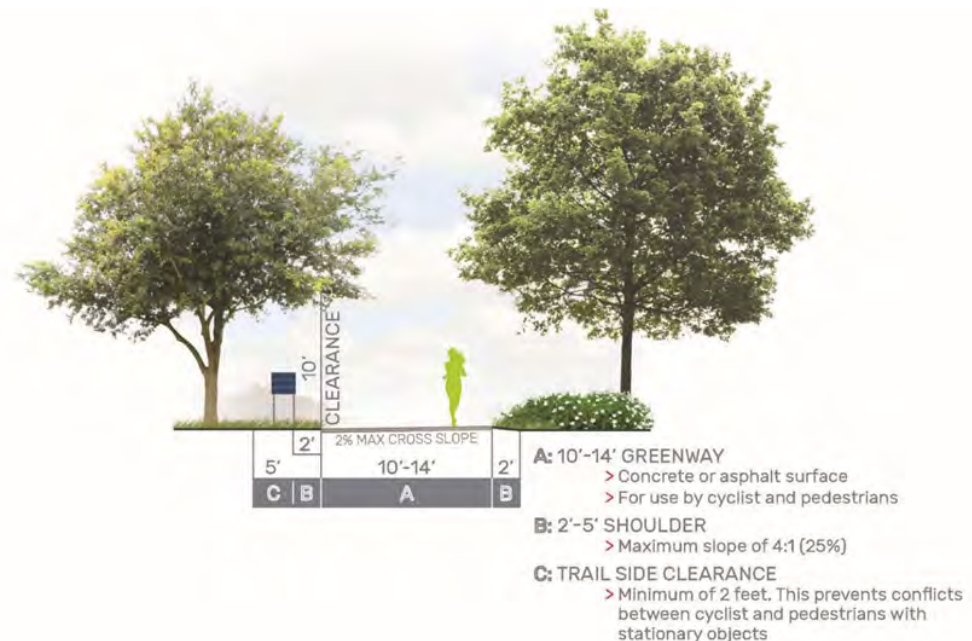


### SIDE PATHS

Usually located immediately adjacent and parallel to a roadway, side paths are 10-14 feet in width for two-way traffic flow and are physically separated from vehicular travel through vegetated landscape strips, rumble strips or site furnishings (streetlights, wayfinding signage or benches). Side paths often share the right-of-way (ROW) with collector and highway roads with higher volumes and moderate-to-high speeds (15 – 55 MPH) . As roadway speed increases so should the separation width between the vehicular path of travel and the side path facility. Specific details regarding path width, separation width, landscape material, maintenance, crossing design or intersection with and connection to other multi-modal facilities should be considered during a detailed corridor study. Side paths should be located with consideration to a safe clear zone. Highway design manuals specify the distance from the edge of roadway to the side path based on the posted speed of the road and average daily trips. This distance can be mitigated by installing curb and gutter or a vertical barrier to protect users from vehicles. The clear zone distance should be considered at the planning stage to determine the adequate right-of-way width required and possible increase in costs for the installation of curb and a closed drainage system. Side paths can offer a more comfortable experience for cyclists as compared to on-road facilities such

as bike lanes or wide outside shoulders located in heavy traffic environments and their inclusion within a network allows for reduced roadway crossing distances. Side paths are designed to be part of a transportation system, providing off-road routes for a variety of users. The primary users of side paths are bicyclists and pedestrians, including pedestrians using mobility devices such as manual or motorized wheelchairs. While they may coincidentally provide a recreational experience, side paths differ from other types of trails with their transportation focus and serving as a supplement to on-road bike lanes, shared roadways, bike boulevards and paved shoulders. They may extend or complement a

roadway network. Side path design is similar to roadway design but on a smaller scale and for lower speeds. Whether located within a highway right-of-way, provided along a riverbank, or established over natural terrain within an independent right-of-way, side paths differ from sidewalks and greenway trails in that they are primarily designed for bicyclists and others for transportation purposes such as commuting to work. For the purpose of this plan, side paths are paved facilities and are parallel to the road, connecting users from residential, civic, social and employment areas to the greenway trail network.





### STREET-SIDE GREENWAY TRAILS

Street-side greenway trails are a hybrid of greenway trails and side paths. They are parallel to the roadway right-of-way yet have an increased buffer between the roadway and trail. They are 10-14 feet in width for two-way traffic flow and are typically asphalt, or some other developed material. They meander slightly, creating a more comfortable and aesthetically pleasing experience for the trail user.

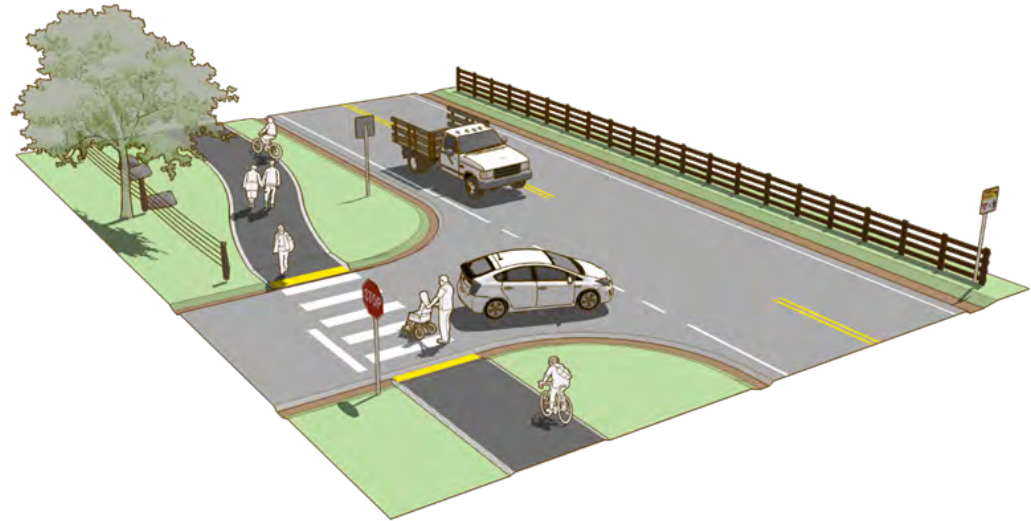
### SIDEWALKS

Sidewalks are dedicated to and designed for use by pedestrians. They should be safe, comfortable and accessible to all. Sidewalks are paved facilities, physically separated from the roadway by either a curb or unpaved road verge or combination of both. Like side paths, sidewalks are typically parallel to a roadway but are designed for pedestrians only, not for bicycles or other recreational purposes.

### STREAM CORRIDOR TRAILS

For purposes of this plan, stream corridor trails are defined as trails adjacent to a stream or river corridors that are typically located within the floodway or floodplain.

It should be noted that there are challenges when including stream corridor trails into the transportation network. Coordination with North Carolina Department of Transportation (NCDOT) is required in order to provide access under the road bridges where the body of water crosses.



Side Path Illustration / U.S. Department of Transportation, Federal Highway Administration



Sidewalk Illustration / U.S. Department of Transportation, Federal Highway Administration



United States Army Corps of Engineers (USACE) and the Federal Emergency Management Agency (FEMA) approvals are required on projects where environmental impact, wetlands impact or floodplain impacts are inevitable. In general, trails located along streams are typically asphalt or concrete. Often, an undisturbed vegetated buffer is located between the stream bank and the trail to help stabilize streambanks, moderate stream flow and filter pollutants. Located within the floodway, the materiality of trail cross sections should be carefully considered to provide an adequate foundation, stabilization and non-slip surface depending on the frequency and velocity of flood events. Greenway trails adjacent to streams pose a variety of design challenges that should be considered during planning and project selection, including:

### Urban Streams

Dense urban conditions restrict trails to the floodway and may require installation of railings and/or retaining walls to stabilize stream banks.

### Regular Flooding

Trail surface within the floodway that are regularly inundated should be carefully selected. Often concrete is the best solution for these areas. While there is a higher construction cost, maintenance savings for repairs quickly balance the initial investment.



Off Street Greenway/ McAdams

### Bench Modifications Beneath Vehicular Bridges

These greenway trails stay at the stream elevation when crossing beneath vehicular bridges. Special design considerations and materials are recommended at these locations. Common materials include concrete trail surfaces, retaining walls (segmental block, cast-in place, pile and panel are often required to protect the trail from erosion) and safety rails. Connections up to the surface street network are desirable at most locations.

### FEMA Regulated Streams

When working within the regulatory floodway, trail design (regardless of surface type) should minimize any change in ground elevation where possible. Any construction or increase in ground



elevation within the floodway triggers detailed hydraulic modeling and required approvals through the Local Floodplain Administrator and possibly Federal Emergency Management Agency (FEMA).

### Isolated Asphalt

Many stream corridors include areas of jurisdictional wetlands. Care should be taken to locate boardwalks that cross these wetlands with future maintenance in mind. Asphalt should be avoided if a trail section is located between boardwalks and cannot be accessed by paving equipment for resurfacing. Concrete is the best surface type in this condition as it provides a longer surface life and can be repaired in batches using the adjacent boardwalks.



## BIKE LANES

Bike lanes allocate an exclusive space for bicyclists with a designated 5-foot striped lane, pavement markings, and signage and enable bicyclists to ride at their chosen speed without interference from traffic. Conventional bike lanes are located directly adjacent to motor vehicle travel lanes and run curbside when no parking is present or adjacent to parked cars on the right side of the street. They typically follow the same direction as motor vehicle traffic and have no physical barriers (bollards, medians, raised curbs, etc.) that restrict vehicular encroachment into the bike lane.

Benefits of conventional bike lanes include:

- Increases use comfort and confidence on busy streets.
- Creates separation between bicyclists and automobiles.
- Increases predictability of bicyclist and motorist movement and interaction.
- Increases streets' carrying capacity.
- A visual reinforcement of the bicyclists' right to the street.

Bike lanes are most conducive on streets with:

- $\geq 3,000$  motor vehicle average daily traffic
- A posted speed  $\geq 25$  mph.
- High transit vehicle volume.





### BUFFERED BIKE LANES

A Buffered Bike Lane is a conventional bike lane paired with additional buffer space to separate the motor vehicle traffic lane and/or parking lane from the bicyclists. Multiple pavement markings are typically used to delineate the edge of the travel way for both motor vehicles and bicyclists.

Benefits of buffered bike lanes include:

- Provides greater shy distance between vehicles and bicyclists.
- Provides space for bicyclists to pass other bicyclists without encroaching into adjacent vehicle traffic.
- Encourages bicyclists to ride outside of the door zone when buffer is located between parked cars and the bike lane.
- Provides a greater space for bicycling, but not so great that the bike lane is mistaken for a travel or parking lane.
- Appeals to a wider cross-section of bicycle users.
- Encourages bicycling by contributing to the perception of safety among bicycle network users.

Buffered bike lanes can be incorporated:

- Anywhere a standard bike lane is being considered.
- On streets with high travel speeds, high travel volumes, and/or high amounts of truck traffic.



- On streets with extra lanes or extra lane width.

### PROTECTED BIKE LANES (CYCLE TRACKS)

A protected bike lane or cycle track is an exclusive bike facility, physically separated from motor traffic and distinct from the sidewalk, that combines the experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks have several different forms, but all provide space that is primarily used for bicycles and are separated from motor vehicle travel lanes, parking lanes and sidewalks. In contrast to bike lanes, where on-street parking exists, cycle tracks are located on the curb-side of the parking lane.

Cycle tracks can be one-way or two-way and can be at street level, sidewalk level, or an

intermediate level. When located at street level, cycle tracks can be separated from motor traffic by raised medians, on-street parking or bollards. When a cycle track is located at sidewalk level, a curb or median separates it from motor traffic, while pavement markings such as color/texture separates the cycle track from the sidewalk. Separating cyclists from motor traffic offers a higher level of safety than other bike lane facilities and are attractive to a wider array of users.

#### One-Way Protected Cycle Track

One-way protected cycle tracks are bikeways at street level and use a variety of methods for physical separation from the motor vehicle travel lane such as a raised curb, planters or a parking buffer.



Benefits of one-way protected cycle tracks include:

- › Dedicates and protects space for bicyclists in order to improve comfort and safety.
- › Eliminates risk and fear of collisions with vehicles.
- › Reduces risk of 'dooring' compared to a bike lane.
- › Eliminates the risk of a doored bicyclist being run over by a motor vehicle.
- › Prevents double-parking, unlike a bike lane.
- › Low implementation cost by making use of existing pavement and drainage and by using the parking lane as a barrier.
- › More attractive for bicyclists of all levels and ages.

One-way protected cycle tracks can be incorporated:

- › On streets with parking lanes.
- › On streets where conventional bike lanes would be stressful to bicyclists due to multiple lanes, high traffic volumes, high speed traffic, high demand for double parking and high parking turnover. While there are no US standards for bicyclist and motor vehicle volumes that warrant the implementation of cycle tracks, several international documents provide basic guidance (refer to the NACTO website for such references).
- › On streets where intersection conflicts can be effectively alleviated using parking



lane setbacks, bicycle markings through the intersection and other signalized intersection treatments.

- › Along streets with high bicycle volumes.
- › Along streets with high motor vehicle volumes and/or speeds.

### Typical Users

Two main user groups utilizing a trail network can be identified – recreational users and commuters. Those who use trails for recreational purposes walk, walk their pet, run and bike for sport / health. Their goals pertain to personal achievement, whether it is exercise or enjoying nature. Commuters use trails to traverse the landscape – they are destination oriented.

### Trends in Bicycle & Pedestrian Planning & Design

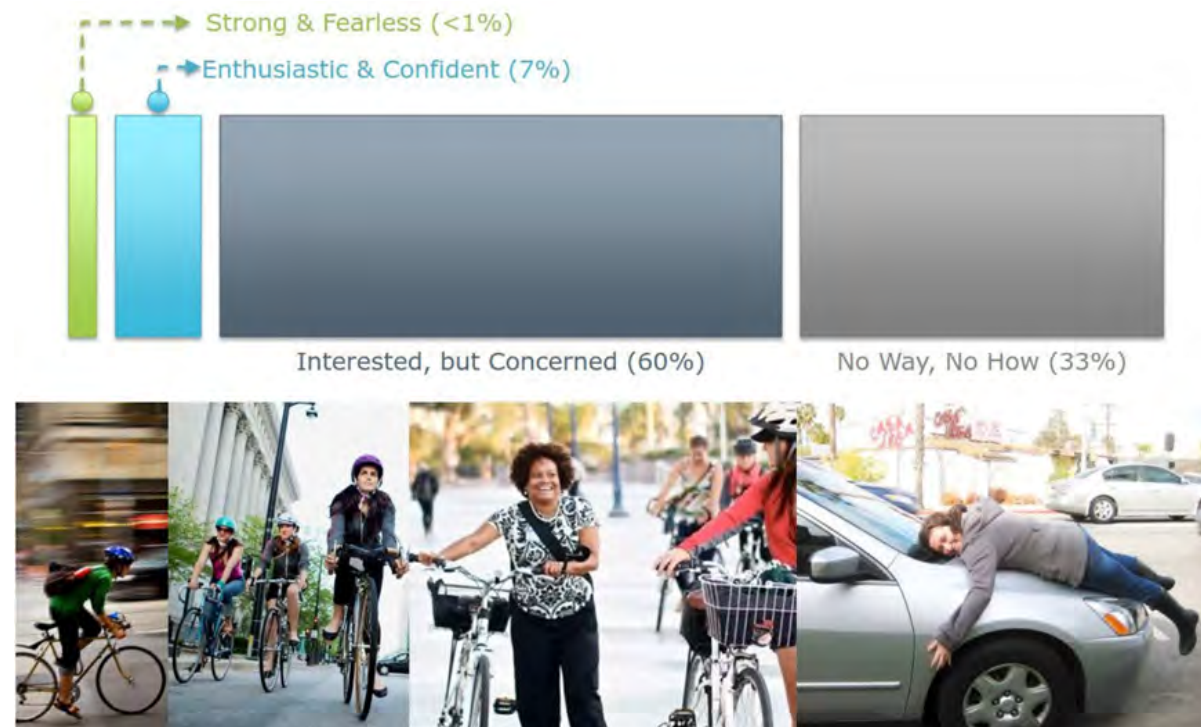
The most significant trend in bicycle and

pedestrian planning is the movement toward separated and protected bikeways vs. conventional bike facilities such as bike lanes. While a conventional bike lane created by a painted line that divides vehicles from cyclists is acceptable, it does not however, provide the safety and comfort of a separated and protected bike facility. Bike facilities removed from traffic by a curb, or row of parked cars, or a row of flexible posts at minimum, are preferred by most user types. The more physical separation a cycling facility provides, the more overall ridership levels grow, particularly among women, children and seniors.

Research on bicycle facilities and ridership over the last several years have focused on the advantages of protected bike lanes, particularly the transformational effects they have on a place. Portland State University conducted a study in 2014 that determined separated



bike paths are both undeniably safer for riders and that they attract new and/or out-of-practice riders to mount a bike. And in a paper published in the American Journal of Public Health, the authors of “Safer Cycling Through Improved Infrastructure,” establish that cities whom have heavily invested in separated and protected bike paths have realized sizable safety improvements and increased ridership numbers. Safety and ridership increases are not derived by merely expanding bicycle infrastructure but rather the type of infrastructure.



### Separated Bikeways

Separated bikeways can be implemented by making use of existing pavement and drainage along the roadway network. Separated bike lanes have also been known to encourage a decrease in vehicle speed, leading to fewer serious/fatal collisions, as driver awareness increases thus, creating safer driver behavior. Separated bikeways are most appropriate on streets with higher speeds and traffic volumes where greater separation is essential. By separating bicyclists from vehicular traffic, physically separated bike lanes can offer a “protected” facility which is attractive to a wider range of users. Dedicated and separated bicycle lanes make an attractive facility for all rider levels and ages and improves perceived safety, attracting new riders. Ten percent of new riders on recently constructed protected lanes switched from other modes.

Barriers can vary depending on whether the installation of the separated bikeway is a retrofit project on an existing roadway or being implemented with a road reconstruction project. Some barrier types for both conditions are listed below.

Barriers applicable for retrofit projects:

- Parked cars
- Flexible delineators or bollards
- Planters
- Parking stops



- Concrete barrier
- Barriers applicable for reconstruction projects:
- Curb separation
  - Landscaped Medians
  - Raised protected bike lane with vertical or mountable curb
  - Pedestrian safety islands

The physical separation measures can range from simple, painted buffers and flexible edges, to more significant efforts like grade separation, raised curbs, parking lanes, and bollards or planters. Factors such as roadway characteristics, available space and cost may determine what type of separation measures are employed. Separated bikeways do require special attention at intersections and approaches. Both must be carefully designed to ensure safety and ease left-turn conflicts for bicyclists to cross the street.

For one-way separated facilities within street sections that experience high bicycle volumes or uphill conditions, it is recommended to provide a minimum 7-foot wide lane to promote safe passing practices. The physical barriers (bollards, curbs, etc.) should be oriented towards the inside edge of the buffer when possible to provide the maximum amount of space for bicycle use.

In areas that experience high bicycle volumes or uphill conditions, it is recommended to



provide a minimum of 12-feet to promote safe passing for a two-way protected bike lane. Two-way lanes on two-way streets are not as desirable as they create challenges for roadway users at intersections and driveways to navigate bicycle expectancy in these locations.

Two-way protected bike lanes are particularly well suited for one-way streets where the

bike lane increases the density of the bicycle network and improves the connectivity and efficiency of routes. They can also provide a trail-like experience when connected to a multi-use path or greenway. Separated bikeway facilities are particularly effective in locations that employ bike-share systems. The bike-share system is likely to encourage less-experienced cyclists to venture into the bicycle network.

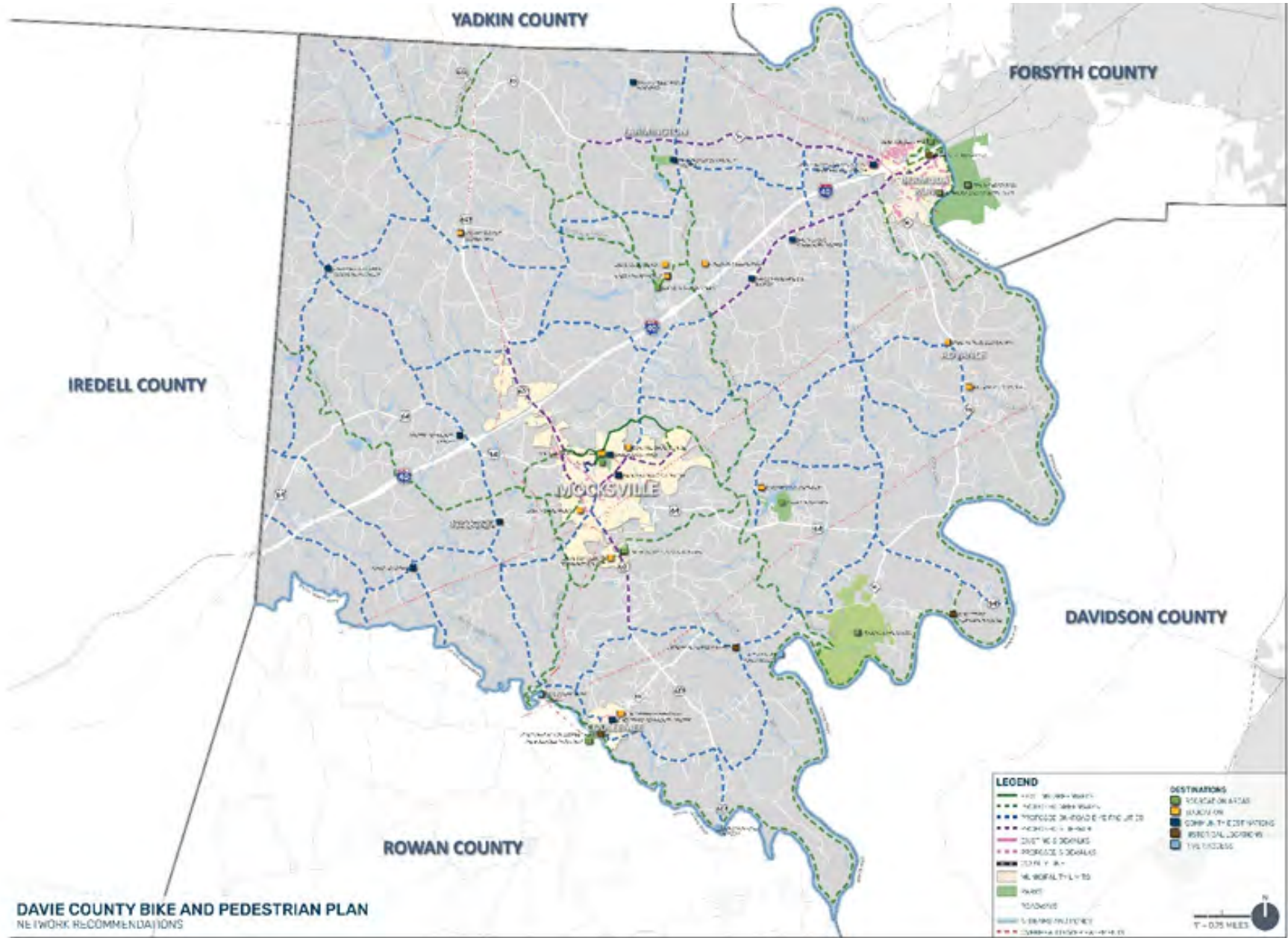




These bikes are heavier, upright, and slower, and are typically being operated by people less experienced. As these riders are typically not as confident, getting them comfortable with riding in the city is where separated bike lanes are desirable. “As cities look to increase the number of people riding bikes, they’re finding that better-designed facilities are the ones that really work.”



📍 Biker Utilizing Existing Greenway Facility / McAdams





## METHODOLOGY FOR PRIORITIZING PROJECTS

The methodology to develop the list of project priorities involves an evaluation of existing conditions, analysis of gaps in bicycle and pedestrian network, review of relevant plans, identification of priority corridors and opportunities and constraints along those corridors, existing public right of way, review of NCDOT STIP projects, and desired destinations and type of use. The methodology also prioritizes feasible and constructable routes that are supported by the public and county staff and elected officials.

### 1. Downtown to Community Park

A bike lane and extension of existing sidewalk on South Salisbury St from downtown Mocksville to the new Davie County Community Park.

### 2. Mocksville Loop Trail

A greenway trail that would connect key community destinations (Rich Park, YMCA, schools, Davidson–Davie Community College, Davie County Early College, and Davie County Community Park) and utilize natural stream corridors (Nelson Creek, no name creek, Bear Creek, Leonard Creek and Elisha Creek) and the existing Rich Park Greenway.

### 3. Bermuda Run to Mocksville

A side path along U.S. 158 connecting the tourist destinations of Winmock at Kinderton in Bermuda Run and Raylen Vineyards & Winery, the facility would change at the intersection of Cedar Creek to an on-road bike lane following U.S. 158 or as a greenway way trail along Cedar Creek into Mocksville (connecting with Mocksville Loop Trail).

### 4. Farmington to Mocksville

A greenway trail along Cedar Creek that would connect to Farmington Community Center, schools, U.S. 158 side path and the Mocksville Loop.

### 5. Bermuda Run to Farmington

A side path along Hwy 801 and/or on-road bike lanes along local roads that provides connections between Truist Sports Park, Davie Medical Center and Farmington Community Center.

### 6. Mocksville to Cooleemee

A greenway trail along Bear Creek providing connections to the Mocksville Loop Trail, the South Yadkin River, Mill Redevelopment site and RiverPark at Cooleemee Falls: “The Bullhole”

### 7. Farmington Loop

A greenway trail that utilizes existing stream corridors (Cedar Creek, Dutchman Creek and Bryant Branch) and proposed side path along Hwy 801 to create a loop that connects Farmington Community Center, schools and Youth Complex).

### 8. Yadkin and South Yadkin Rivers Greenway

A greenway trail along the Yadkin and South Yadkin Rivers connecting key destinations in Bermuda Run to future mill redevelopment site in Cooleemee and natural destinations (Game lands, river access points and RiverPark at Cooleemee Falls: “The Bullhole” along the way. Connections to regional destinations (e.g. Tanglewood Park) is also important.

### 9. Advance

On-road bike lanes and designated routes between Advance and Mocksville and Bermuda Run.

### 10. Tourism Trails and Loops

Tour de Farmington and Raylen Vineyard Loop (see brochure).



### RECOMMENDED POLICIES + PROGRAMS

The Town of Bermuda Run’s Zoning Ordinance includes several references to pedestrian/bike paths in which requirements are made for new development.

#### Section 4.4.2.D

Applicability states that “Greenways shall be required to be dedicated to public use and constructed, in conformance with Section 4.4.8, the Yadkin River Greenway Feasibility Study and the Town of Bermuda Run Comprehensive Plan.”

#### Section 4.4.2.F

Applicability states that “New single-family residential subdivisions shall be required to meet all sidewalk standards set forth herein for any new street constructed and to extend facilities along existing streets abutting the new subdivision whenever such streets intersect the new street(s) and such extensions will connect the new subdivision to an existing or planned sidewalk network.”

#### Section 4.4.5.A

Shared Use Paths states that “Where development is occurring, a shared use path shall be installed along the north side of US Highway 158 and the west side of NC Highway 801, except that sidewalks shall be installed along NC Highway 801 between Yadkin Valley Road and Peachtree Lane and along

US Highway 158 between Medical Drive and Peachtree Lane.”

While having these regulations in the Town of Bermuda Run’s Zoning Ordinance are supportive of bicycle and pedestrian infrastructure development, there is not much specific language in zoning ordinances in other townships nor county-wide. In order for Davie County to realize their vision of creating a bicycle and pedestrian network that provides greater connectivity to neighborhoods, local and regional destinations, and provides the residents of Davie County with increased recreational opportunities and quality of life amenities, a stronger commitment from private developers and companies to this same vision is necessary. In addition to establishing the necessary ordinances, it is important to develop construction standard specifications and details and create standard operating procedures for bicycle and pedestrian infrastructure development.

### PROGRAM RECOMMENDATIONS

#### Watch For Me NC

A comprehensive program, run by NCDOT in partnership with local communities, that aims to reduce the number of bicycle and pedestrian crashes with vehicles. The program involves safety and educational messages as well as greater coordination and enforcement with local police departments.



▲ Watch for me NC Logo / NCDOT

#### Bicycle Rides and Races

In Davie County, a strong bicycle community already exists and has been active in annual bike events like the Tour de Farmington. Leveraging the success of this event, additional bicycle rides and races could be established in other parts of the county and region.

#### Volunteer Funding Program

A volunteer bicycle infrastructure funding pool that is organized by a local non-profit can help support smaller infrastructure projects and/or those projects that require a match.

#### Open Street Events



In Davie County, there are several downtown areas that have some existing bicycle and pedestrian facilities. To celebrate these facilities and to generate support for more, local governments could organize monthly festivals in which roads are temporarily block from vehicular traffic. This encourages people to walk and bicycle, increases the amount of public space, and provides meaningful opportunities for local businesses and merchants to market and sell their products.

### **Speed Limit Reduction and Traffic Calming**

There are many traffic calming techniques (e.g. speed bumps, medians, narrow traffic lanes, etc.) that municipalities can implement to lower speed limits and increase safety for pedestrians, bicyclists and motorists. Lowering speed limits and installing traffic calming techniques are especially important in areas that have a high bike/ped crash rate and areas where there is a greater concentration of people walking and biking (e.g. downtowns and neighborhoods).





# 6. ACTION + IMPLEMENTATION

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in this Chapter

Recommended Actions

Funding Opportunities

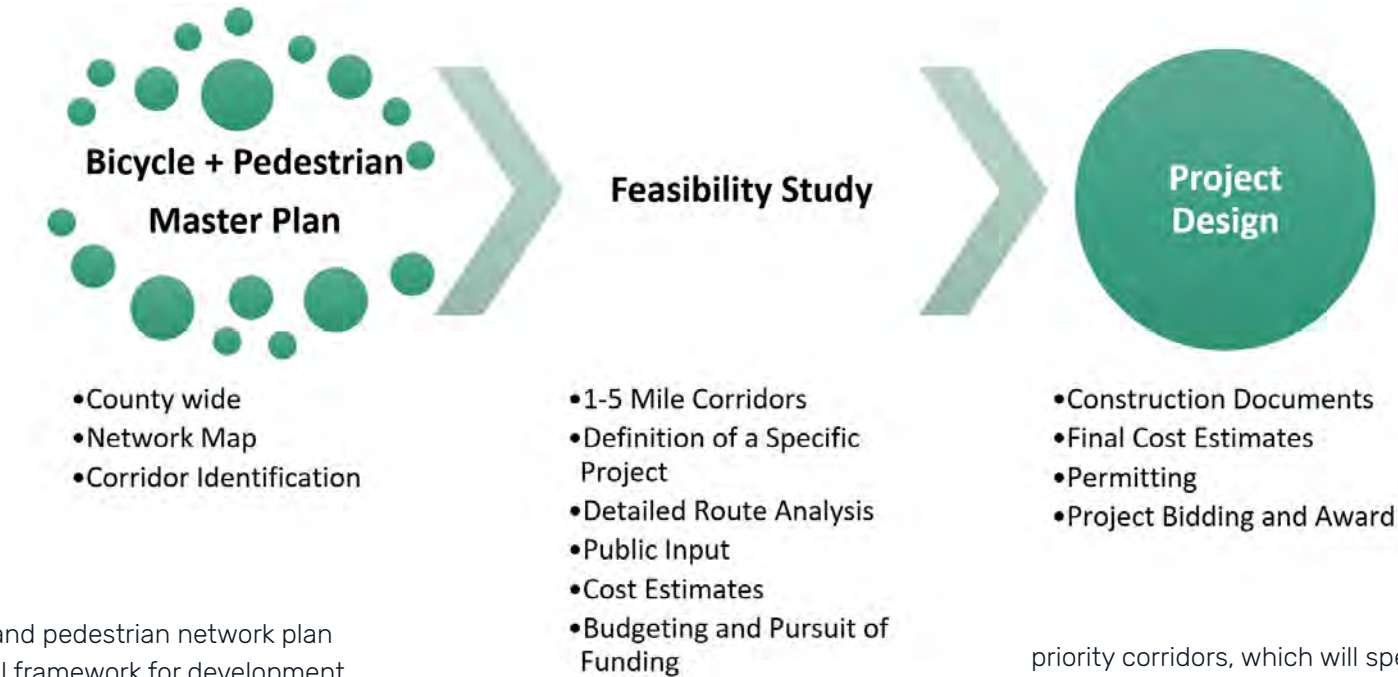
Performance Measures







## ACTION + IMPLEMENTATION



While the bicycle and pedestrian network plan provides an overall framework for development of various types of facilities and the approximate routes, it is only the first step in a larger process. As a living document, the bicycle and pedestrian network plan and priorities may evolve with changing development pressures, funding opportunities and demographic trends. Further, the County will need to undertake more detailed feasibility studies to understand the challenges, cost and timeline of each proposed corridor. This typically includes a detailed evaluation of land / easement acquisition potential, topography, stream or road crossings, grading and drainage patterns, safety, user

experience, long-term maintenance and regulatory requirements. With this more detailed layer of information, design decisions such as trail surface and profile, width, markings, signage, furnishings and crossings can be finalized. Only after this detailed assessment can a final facility alignment be determined. The below diagram illustrates a typical planning, design and construction process for bicycle and pedestrian facilities with key phases and individual tasks. Next steps will be for the County to complete Feasibility Studies on

priority corridors, which will speed the design and construction process.

Successful implementation of the bicycle and pedestrian plan will require a coordinated effort of many parties working together. These agencies include the County, local municipal agencies as well as NCDOT and Federal Affiliations. Private sector organizations may also prove beneficial, as they may have the influence and capacity to garner additional community support for establishment of the bicycle/pedestrian network.



ACTION	DESCRIPTION	STAKEHOLDER	TERM
<b>ADOPT THE DAVIE COUNTY BICYCLE AND PEDESTRIAN MASTER PLAN</b>	Present the plan to the Davie County Board of Commissioners for adoption.	County commissions, local municipalities, and county staff	Short-term
<b>ESTABLISH AN APPOINTED BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE OR COMMISSION</b>	Form an advisory committee or appoint an individual who will be responsible for overseeing the implementation of the plan.	County commissioners and county staff	Short-term
<b>COORDINATE WITH NCDOT DIVISION 9 AND PLANNED STRATEGIC TRANSPORTATION IMPROVEMENT PLAN (STIP) PROJECTS TO INCLUDE SIDE PATHS AND/OR SIDEWALKS</b>	Hold an initial meeting with NCDOT Division 9 to discuss how the plan's bicycle and pedestrian projects may be incorporated in upcoming transportation projects, including roadway resurfacing projects.	NCDOT Division 9 and county staff	Ongoing
<b>UPDATE COUNTY COMPREHENSIVE TRANSPORTATION PLAN TO INCLUDE RECOMMENDED NETWORK FROM THIS PLAN</b>	Ensure that the recommendations from this plan are incorporated into the County Comprehensive Transportation Plan when that is updated again.	County Development & Facilities Services Department	Short-term
<b>STRENGTHEN PARTNERSHIP WITH WINSTON-SALEM FORSYTH METROPOLITAN PLANNING ORGANIZATION (MPO) AND PIEDMONT TRIAD REGIONAL COUNCIL</b>	Meet with MPO and PTRC to provide an overview of the plan's recommendations and identify opportunities for collaboration.	County staff, WSFMPO, and PTRC	Ongoing
<b>STRENGTHEN PARTNERSHIP WITH PIEDMONT LEGACY TRAIL INITIATIVE AND UPDATE THEM AS FACILITIES ARE BUILT</b>	Meet with Piedmont Legacy Trails to provide an overview of the plan's recommendations and ensure completed trails are incorporated into regional trail network maps and branding.	County Parks & Recreation Department and Piedmont Legacy Trails	Ongoing
<b>COORDINATE WITH REGIONAL TRAIL INITIATIVES (E.G. CAROLINA THREAD TRAIL, YADKIN VALLEY BIKE PLAN, AND THE GREAT TRAILS STATE PLAN)</b>	Meet with stakeholders to provide an overview of the plan's recommendations and ensure they are incorporated into regional trail network plans.	County Parks & Recreation, Carolina Thread Trail, Piedmont Triad Regional Council, and NCDOT	Ongoing
<b>LEVERAGE GREATER BICYCLE AND PEDESTRIAN FUNDRAISING DOLLARS THROUGH COUNTY MATCH AND BUDGET PLANNING</b>	Establish a fund to use for local match requirements.	County commissioners and county staff	Medium-term



ACTION	DESCRIPTION	STAKEHOLDER	TERM
<b>INCLUDE REQUIREMENTS FOR BICYCLE/ PEDESTRIAN FACILITIES IN COUNTY ORDINANCES AND POLICIES</b>	Draft amendments to county ordinances and policies following the recommendations of this plan for bicycle and pedestrian infrastructure in existing and new development.	County commissioners and county staff	Short-term
<b>IDENTIFY ELIGIBLE FUNDING SOURCES AND APPLY FOR THE PLAN'S PRIORITY PROJECTS</b>	Refer to the funding sources identified in this chapter; apply for funds in addition to STIP process to implement programs and policies."	County staff	Ongoing
<b>CONDUCT FEASIBILITY STUDIES ALONG PRIORITY CORRIDORS AND ACQUIRE EASEMENT/PROPERTY IF NECESSARY</b>	Identify the recommended projects of highest priority and conduct feasibility studies to determine design and construction details and steps.	County commissioners and county staff	Medium-term
<b>IMPLEMENT EDUCATIONAL PROGRAMS LIKE WATCH FOR ME NC TO INCREASE SAFETY AWARENESS</b>	Develop a safety and educational program in Davie County that follows the guidance and materials of established programs like Watch for Me NC	County staff and NCDOT	Short-term



### KEY PARTNER RESPONSIBILITIES

While Davie County will be the lead agency in many of the above-mentioned key action steps, it is critically important to coordinate with various local, regional and state partners. Key partners include NCDOT, Mocksville, Bermuda Run, Cooleemee, Advance, Farmington, Wake Forest Baptist Health Center, Piedmont Land Conservancy, Piedmont Triad Regional Council, Winston-Salem Forsyth MPO, Carolina Thread Trail, local bicycle advocates and citizens.

### FUNDING OPPORTUNITIES

#### FEDERAL FUNDING SOURCES

- ▶ **Better Utilizing Investments to Leverage Development (BUILD)** Transportation Discretionary Grant Previously known as Transportation Investment Generating Economic Recovery (TIGER), this grant program “invests in rail, transit and port projects that promise to achieve national objectives.”
- ▶ **Infrastructure for Rebuilding American (INFRA)** Discretionary Grant Program provides direct federal funding and “incentivizes local matches on projects that improve major highways, bridges, ports, and railroads across the country for greater connectivity, safety, and economic growth.”
- ▶ **Federal Transit Administration (FTA)** “provides grants to local public transit systems, including buses, subways, light rail, commuter rail, trolleys and ferries.”

- ▶ **Congestion Mitigation and Air Quality Improvement Program (CMAQ)** “provides funds to States for transportation projects designed to reduce traffic congestion and improve air quality, particularly in areas of the country that do not attain national air quality standards.”
- ▶ **Highway Safety Improvement Program (HSIP)** “is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal lands.”
- ▶ **National Highway Performance Program (NHPP)** “provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of Federal-aid funds in highway construction are directed support progress toward the achievement of performance targets established in a State’s asset management plan for the NHS.
- ▶ **Surface Transportation Block Grant (STBG)** “provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance of any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including

intercity bus terminals.”

- ▶ **Transportation Alternatives Set-Aside Program (TA Set-Aside; formally known as Transportation Alternatives Program, or TAP)** provides funding for “projects and activities that were previously eligible under TAP, encompassing a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school

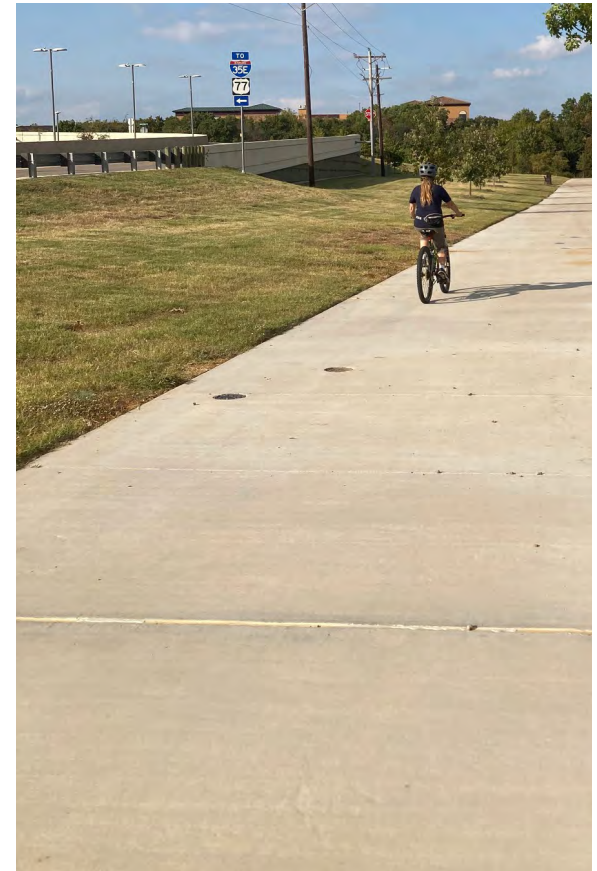


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projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity.”

- › **Recreational Trails Program (RTP)** “is a \$1.5 million grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. This program’s intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan. Grant funding is for trail planning, construction, maintenance, signs and related facilities.”
- › **Safe Routes to School (SRTS)** is “an approach that promotes walking and bicycling to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and bicycling to school. SRTS initiatives improve safety and levels of physical activity for students. SRTS programs can be implemented by a department of transportation, metropolitan planning organization, local government, school district, or even a school.”
- › **State and Community Highway Safety Grant Program (Section 402)** “supports State highway safety programs, designed to reduce traffic crashes and resulting deaths, injuries, and property damage. A State may use these grant funds only for highway



safety purposes; at least 40 percent of these funds are to be used by or for the benefit of political subdivisions of the State to address local traffic safety problems.”

- › **National Park Service: Rivers, Trails, and Conservation Assistance (RTCA)** Program provides technical and planning assistance to community-led natural resource conservation and outdoor recreation projects across the country.
- › **Federal Lands Access Program (FLAP)** “was established to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The Access Program supplements State and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.”
- › **AARP Community Challenge Grants** for “quick-action” projects that “can help communities become more livable for people of all ages. Applications were

accepted for projects to improve housing, transportation, public space, technology (“smart cities”), civic engagement and more – all while keeping communities safe and healthy during the global coronavirus pandemic.”

- › **America Walks: Community Change Grants** “provides \$1,500 in community stipends for projects related to creating healthy, active, and engaged places to live, work, and play.”



## STATE FUNDING SOURCES

- ▶ **North Carolina Land and Water Fund (NCLWF)** “improves water quality, sustains ecological diversity, and protects historic sites and military installations by funding projects to acquire lands, restore the habitat for fish, wildlife, and other species, and enhance the filtering of stormwater runoff to reduce pollutants from entering water supplies.”
- ▶ **Land and Water Conservation Fund (LWCF)** “supports the protection of public lands and waters – including local, state, and national parks and recreation areas. A key feature of the program is that all LWCF assisted areas must be maintained and open, in perpetuity, as public outdoor recreation areas.”
- ▶ **Parks and Recreation Trust Fund (PARTF)** “awards matching grants to local governments for parks, public beach access, and improvements in state parks. The statewide program helps local governments reach their park and public access goals to improve the quality of life in their communities. PARTF has helped build and maintain parks, greenways, trails, playground, water access, and so much more. PARTF grants create opportunities for staying active and enjoying the outdoors, while bolstering our state and local economies and quality of life.”
- ▶ **Main Street Solutions Fund** “supports small



- businesses in designated micropolitans located in Tier 2 and Tier 3 counties and/or designated North Carolinian Main Street communities. The grants are used to assist planning agencies and small businesses with efforts to revitalize downtowns by creating jobs, funding infrastructure improvements and rehabilitating buildings.”
- ▶ **Community Development Block Grants** “provides annual grants on a formula basis to states, cities, and counties to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons.”
- ▶ **Economic Infrastructure Program** “provides funding for the construction of public infrastructure to a site, in order to enable a company to locate and expand. Eligible uses include: construction of publicly owned access roads not owned or funded by NCDOT, construction of public rail spur improvements, etc.”
- ▶ **Strategic Mobility Formula** “allows the NCDOT to more efficiently invest its transportation dollars by using a data-driven scoring process along with local input. The Strategic Mobility Formula funds projects in three categories: Division Needs, Regional Impact and Statewide Mobility.”
- ▶ **NCDOT State Transportation Improvement Program (STIP)** “is a 10-year State and Federal-mandated plan that identifies the construction funding for and scheduling of transportation projects throughout the state.”

## LOCAL FUNDING SOURCES

- ▶ **Blue Cross Blue Shield of North Carolina Foundation** “invests in clearly-defined and results-oriented initiatives that are aligned with our grantmaking priorities and further a shared mission of improving the health and well-being of everyone in North Carolina. Specific areas of support are early



childhood, healthy communities, healthy food, and oral health.”

- ▶ **Advocacy Advance** “is a partnership between the League of American Bicyclists and the Alliance for Biking & Walking that provides targeted trainings, reports, grants and assistance to equip advocates with the specific tools they need to increase biking and walking in their communities.”
- ▶ **Duke Energy Foundation** – “is committed to making strategic investments to build powerful communities where nature and wildlife thrive, students can excel and a talented workforce drives economic prosperity for all. The six giving priorities are K-12 Education, Workforce, Nature, State Strategic Impact, Local Impact, and Community Initiatives.”

## PERFORMANCE MEASURES AND METHODS

### Plan Goal 1: Improve mobility through developing more active transportation options

*Plan Objective:* Create a bicycle and pedestrian network that provides connections between residential neighborhoods and desired destinations (e.g., Davie County Community Park, Rich Park, YMCA, downtowns, schools, community centers, historical, and tourism sites, etc.).

*Performance Evaluation:* (1) Miles of bicycle and pedestrian facilities constructed; (2) Reduce

distance between residents and bicycle and pedestrian facilities.

*Examples of Progress Achieved:* Miles of bicycle and pedestrian facilities constructed in a specific period of time (e.g., 3 miles within 5 years).

### Plan Goal 2: Educate the community about the health benefits of a safe walking and bicycling community

*Plan Objective:* Implement policies and programs to improve pedestrian and cyclist safety and activity.

*Performance Evaluation:* (1) Number of safety education campaigns or events annually in the community; (2) Number of bicycle and pedestrian-related crashes; (3) Number of car-free events in downtowns.

*Examples of Progress Achieved:* (1) Participation in the Watch for Me NC program annually or biannually; (2) Reduction in bicycle and pedestrian-related crashes annually; (3) increase in bicycle and pedestrian rates.

### Plan Goal 3: Educate the community about the economic benefits of an improved bicycle and pedestrian network

*Plan Objective:* Develop education and incentive programs that promote alternative transportation and bicycle and pedestrian-related tourism.

*Performance Evaluation:* (1) Number of alternative transportation campaigns or events annually in the community; (2) Establishment of tourism bicycle routes like vineyard loops; (3) Number of car-free and small business events in downtowns.

*Examples of Progress Achieved:* (1) Increase in bicycle commuting rates; (2) Increase in bicycle-related tourism spending over a five-ten-year period; business gain customers from additional users.



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**Plan Goal 4: Enhance bicycle and pedestrian facilities connection to cultural and natural sites**

*Plan Objective:* Develop walking and bicycling facilities marked with clear wayfinding that connect directly to Davie County’s historic, cultural and natural resources.

*Performance Evaluation:* (1) Implemented infrastructure projects that connect cultural sites and natural resources annually; (2) Wayfinding signage and maps that direct residents and visitors to cultural and natural sites on bicycle and pedestrian facilities.

*Examples of Progress Achieved:* (1) Miles/feet of bicycle and pedestrian facilities constructed that connect to cultural sites and natural resources annually; (2) Wayfinding signs and access points added to bicycle and pedestrian facilities.

**Plan Goal 5: Encourage higher levels of physical activity and environmental stewardship**

*Plan Objective:* Incentivize conditions, programs and partnerships to achieve a more bikeable and walkable community.

*Performance Evaluation:* (1) Construct new/upgraded bicycle and pedestrian facilities that connect directly to parks and schools; (2) Implement programs/establish partnerships to promote recreational bicycle and pedestrian activities and environmental stewardship.

*Examples of Progress Achieved:* (1) Number

of newly constructed or upgraded facilities annually; (2) Number of programs or partnerships annually.

**DAVIE COUNTY EQUITY ANALYSIS**

An equity analysis was completed for the Davie County Bicycle, Pedestrian and Greenways Master Plan to show the areas of the county that are considered to contain vulnerable populations. Demographic statistics from the U.S. Census Bureau were broken down by block group and given points based on percentages of the population. The factors displayed on the map include:

**Households with No Vehicle**

A point was given to block groups that contained greater than or equal to 5% of household did not have access to a vehicle.

**Minority Groups**

A point was given to block groups that contained greater than or equal to 10% of the population was a part of a racial minority.

**Lower Income Households**

A point was given to block groups that contained greater than 50% of households were below the county’s median household income.

**Limited English Proficiency (LEP)**

A point was given to block groups that

contained greater than 5% of the households were of limited english proficiency.

**EQUITY ANALYSIS RESULTS**

On the map to the right, the results of the equity analysis are displayed. No block group contained all four vulnerable populations at the percentage measured, but the block group at the southern central portion of the county and to the west of Mocksville contained three vulnerable populations. These two, as well as the remaining with 2 populations should be handled with care and priority to ensure vulnerable populations throughout the county are properly cared for,





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# APPENDICES

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LEAST SEPARATED

SHARED LANES



Travel Lane | 4' | Sidewalk

PAVED SHOULDER



Travel Lane | 4'-7' | Landscape

BICYCLE LANE



Travel Lane | 5'-7' | Sidewalk

BUFFERED BICYCLE LANE



Travel Lane | 2' | 5'-7' | Sidewalk

SEPARATED BICYCLE LANE



Travel Lane | 3' | 5'-7' | Sidewalk

SHARED-USE PATH: SIDEPATH



Travel Lane | 3'-5' | 10'-12' | Landscape

SHARED-USE PATH: GREENWAY



Landscape | 10'-12'

MOST SEPARATED

## DESIGN STANDARDS

There are several resources available that provide guidance on design standards and specifications for greenway trails. Below is a brief description of those resources and a table that highlights the recommended specifications that the Town of Holly Springs should consider when developing new or modifying existing greenway trails.

### **AASHTO Guide for the Development of Bicycle Facilities, 4<sup>th</sup> Edition**

Published by the American Association of State Highway and Transportation Officials (AASHTO), this guide provides the basis for both planning and designing bicycle facilities. Information covered includes planning, bicycle operation and safety, on-road bicycle facility design, side path design, bicycle parking, and maintenance and operations. The purpose of the guide is to present sound planning and design guidelines by referencing a recommended range of design values and describing alternative design approaches. The guide also allows for the incorporation of pedestrians and motorists along with bicyclists for dynamic designs that are sensitive to local context.

[\(link: Guide for the Development of Bicycle Facilities, 4<sup>th</sup> Edition\)](#)



### **AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities, 1<sup>st</sup> Edition**

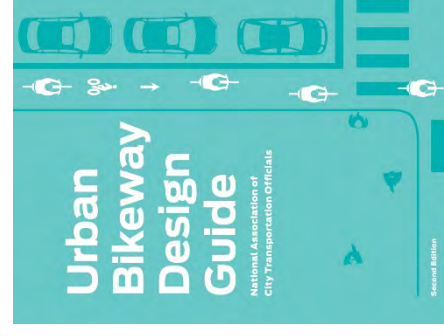
Much like the AASHTO's Guide for the Development of Bicycle Facilities, this guide provides instruction on planning, design and operation of pedestrian facilities along streets and highways, focusing on effective ways to accommodate pedestrians within public rights-of-way. Methods to accommodate pedestrian vary depending on the roadway and facility type, and those practices are described in this guide. It also addresses land use planning and site design, as these topics have a profound effect on pedestrian mobility.

[\(link: Guide for the Planning, Design and Operation of Pedestrian Facilities, 1<sup>st</sup> Edition\)](#)



### **NACTO Urban Bikeway Design Guide**

The NACTO Urban Bikeway Design Guide is based on experience and recommendations from prominent cycling cities from around the world. The target of this guide are cities seeking to improve bicycle transportation where unique challenges like high interaction with traffic, decreased right of way, and increased conflict points are present. These challenged demand innovative solutions and the NACTO guide showcases how other cities have conquered these challenges. The AASHTO Guide is not referenced in most of NACTO design solutions. However, virtually all treatments are permitted under the Manual on Uniform Traffic Control Devices (MUTCD).



[\(link: NACTO Urban Bikeway Design Guide\)](#)

### **Manual on Uniform Traffic Control Devices (MUTCD)**

The Federal Highway Administration's MUTCD is the foremost source for guidance on lane striping requirements, signal warrants, recommended signage, and recommended pavement markings for greenway trails and roadway crossings. If desired design treatments are not covered in the MUTCD manual, they may be offered to FHWA for interpretation and official ruling. The FHWA provides an online database where past official rulings can be found (<https://mutcd.fhwa.dot.gov/orsearch.asp>) which may provide useful when progressing through the design process.

[\(link: Manual on Uniform Traffic Control Devices\)](#)



### **The North Carolina Department of Transportation Complete Streets Planning and Design Guidelines**

This publication, released in 2012, includes detailed information on the processes, street types, and recommendations for designing complete streets in North Carolina. The guidelines are meant to help both NCDOT and municipalities with thinking through planning and designing new streets or improving existing infrastructure that all modes of transportation can use, be they pedestrians, bicyclists, or motor vehicles.



While all design standards referenced are valuable to planning and designing Holly Springs' pedestrian and bicycle network, special attention should be paid to AASHTO, MUTCD, and ADA guidelines.

[\(link: NCDOT Complete Streets Planning and Design Guidelines\)](#)

### **American with Disabilities Act (ADA)**

While elements such as curb ramps, slopes, and railings that are referenced in AASHTO or MUTCD guides, these guides do not explicitly reference compliance with ADA standards. There are several manuals listed below that provide standards for the construction of accessible facilities to comply with the American with Disabilities Act.

- > [2010 ADA Standards for Accessible Design](#)
- > [ABA Accessibility Guidelines for Outdoor Developed Areas](#)
- > Public Rights-of-Way Accessibility Guidelines (PROWAG)
  - o [Proposed guidelines](#) have been developed but are not yet adopted by the Department of Justice
- > [2017 ICC/ANSI A117.1](#) Accessible and Usable Buildings and Facilities
- > US Forest Service Outdoor Recreation Accessibility Guidelines ([FSORAG](#))

Meeting these requirements is important for any bicycle and pedestrian network to do such that the most users can participate.

**Other Valuable Resources**

[U.S. Department of Transportation FHWA – Separated Bike Lane Planning and Design Guide](#)

[10 Techniques for Making Cities More Walkable](#)

[Center for Disease Control and Prevention – Parks and Trails Health Impact Assessment Toolkit](#)

[National Association of City Transportation Officials \(NACTO\) – Design Guide Archives](#)

[Small Town and Rural Design Guide – Facilities for Walking and Biking](#)

[American Trails](#)

[Pedestrian and Bicycle Information Center](#)

[Rails-to-Trails Conservancy](#)

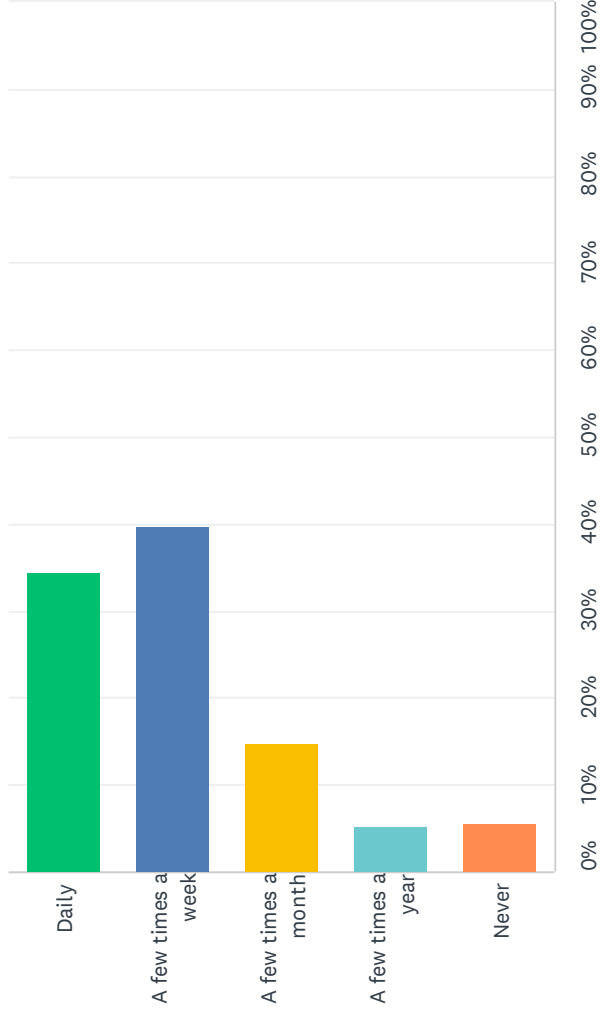
[America Walks – Learning Center](#)

[International Mountain Biking Association](#)

[FHWA Course on Bicycle and Pedestrian Transportation](#)

# Q1 How frequently do you or members of your household bike, walk, or run in Davie County?

Answered: 244 Skipped: 0

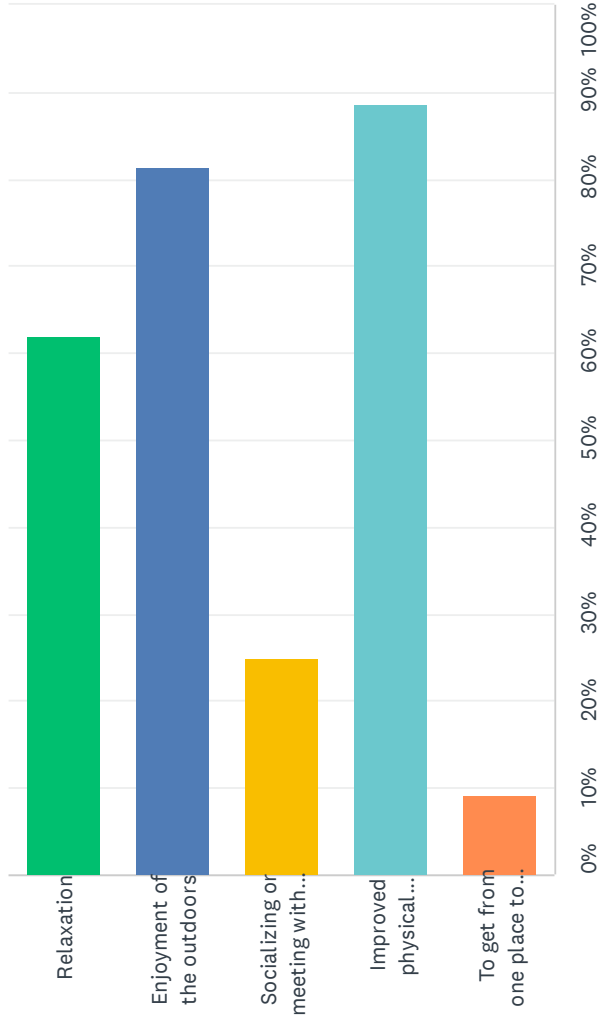


ANSWER CHOICES	RESPONSES
Daily	84 34.43%
A few times a week	97 39.75%
A few times a month	36 14.75%
A few times a year	13 5.33%
Never	14 5.74%
<b>TOTAL</b>	<b>244</b>



## Q2 What are the primary reasons that you or members of your household bike, walk, or run? CHECK ALL that apply

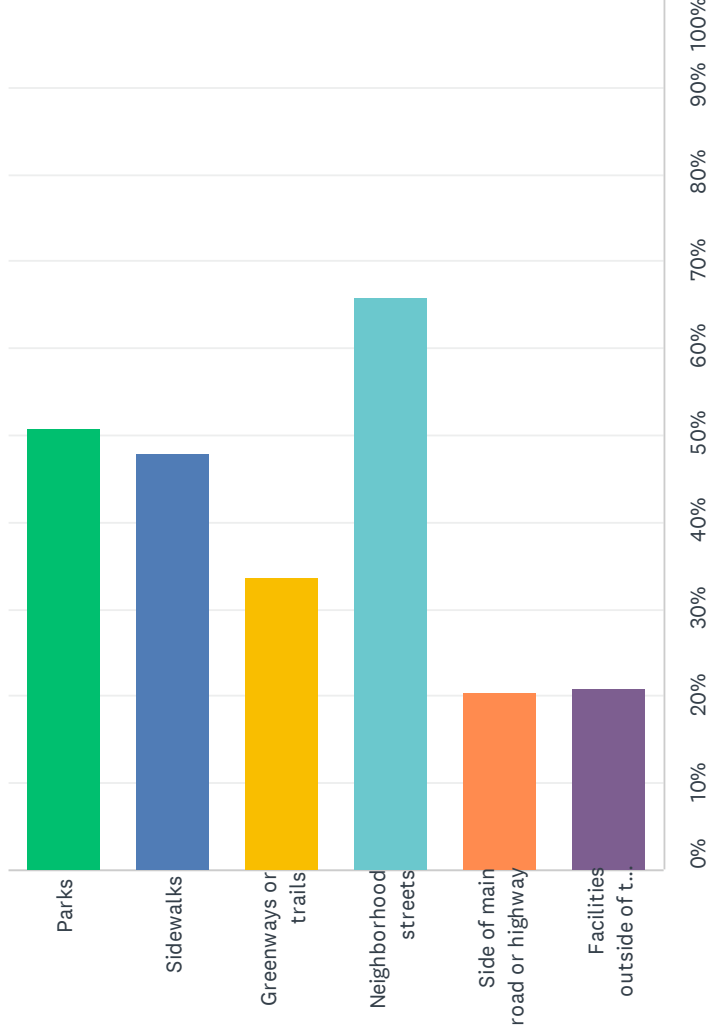
Answered: 241 Skipped: 3



ANSWER CHOICES	RESPONSES
Relaxation	149 61.83%
Enjoyment of the outdoors	196 81.33%
Socializing or meeting with people	60 24.90%
Improved physical fitness of health	214 88.80%
To get from one place to another	22 9.13%
Total Respondents: 241	

### Q3 On what type of facility do you currently bike, walk, or run in Davie County? CHECK ALL that apply

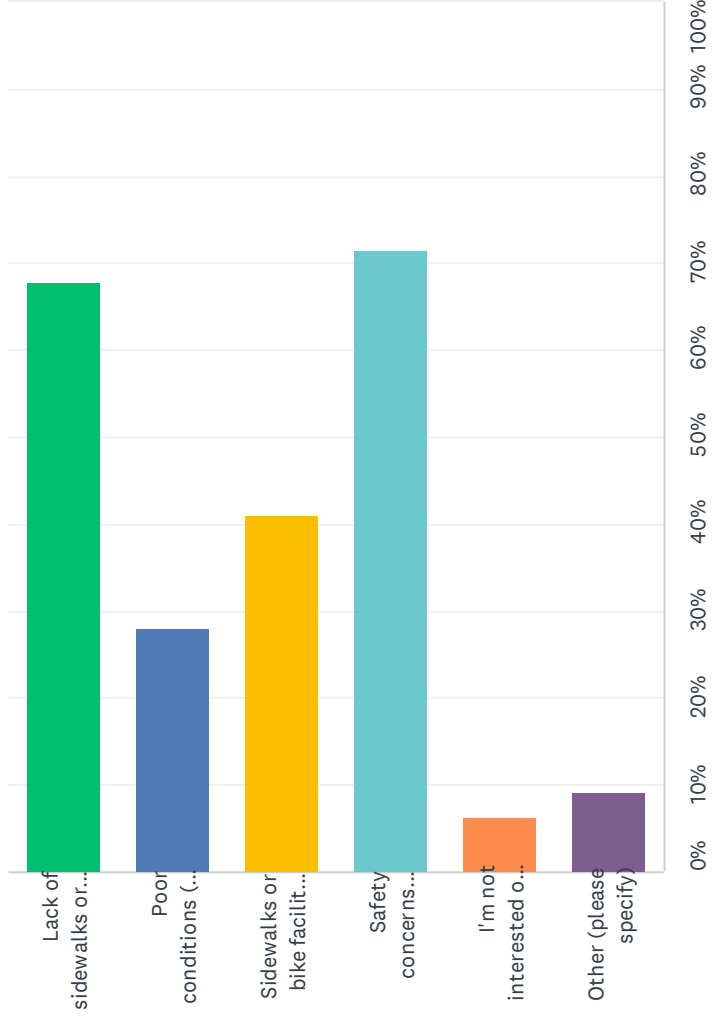
Answered: 240 Skipped: 4



ANSWER CHOICES	RESPONSES
Parks	122 50.83%
Sidewalks	115 47.92%
Greenways or trails	81 33.75%
Neighborhood streets	158 65.83%
Side of main road or highway	49 20.42%
Facilities outside of the County (if none of the above apply within Davie County)	50 20.83%
Total Respondents: 240	

### Q4 Please CHECK ALL of the following reasons that discourage biking, walking, or running in Davie County.

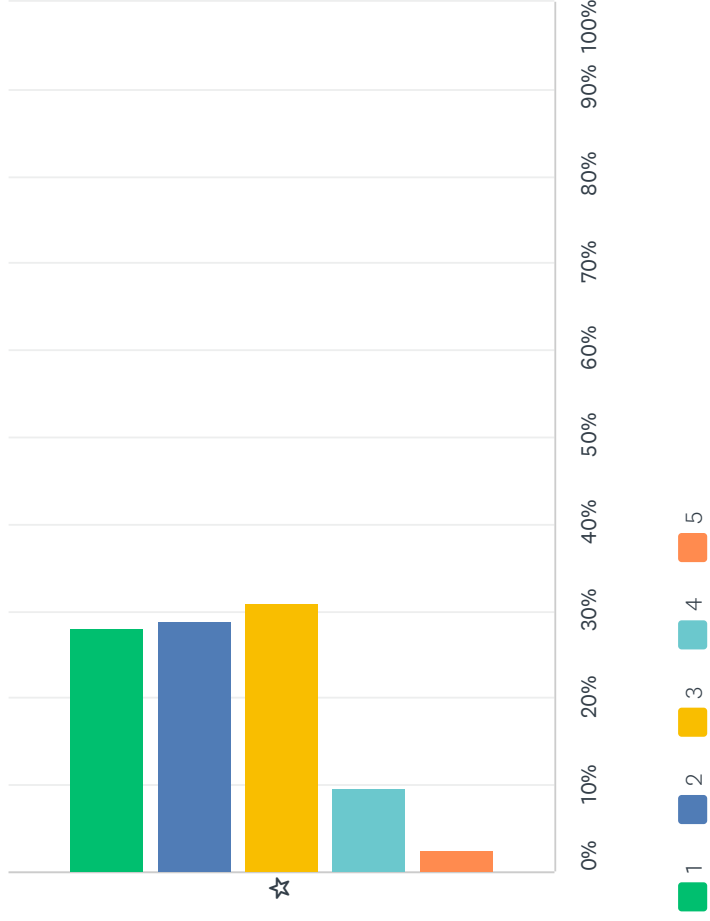
Answered: 239 Skipped: 5



ANSWER CHOICES	RESPONSES
Lack of sidewalks or bike facilities	162 67.78%
Poor conditions (of sidewalks or bike facilities)	67 28.03%
Sidewalks or bike facilities that do not connect to where I want to go	98 41.00%
Safety concerns (vehicular speed, unsafe crossings, etc.)	171 71.55%
I'm not interested or don't have time	15 6.28%
Other (please specify)	22 9.21%
Total Respondents: 239	

# Q5 How would you rate the overall network of sidewalks and bike facilities in Davie County

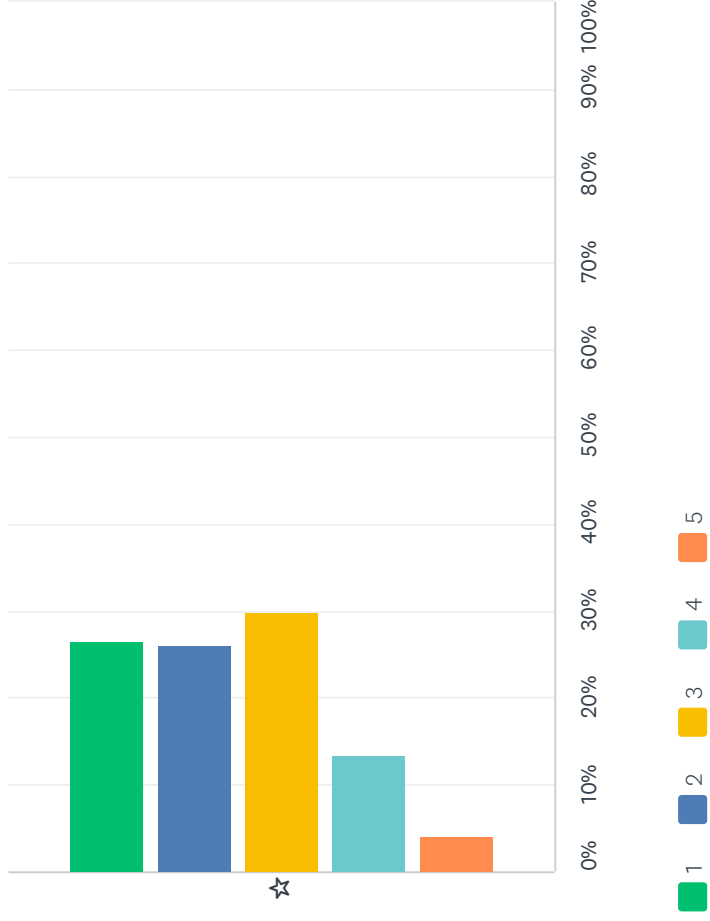
Answered: 239 Skipped: 5



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE					
☆	28.03%	67	28.87%	69	30.96%	74	9.62%	23	2.51%	6	239	2.30

## Q6 How would you rate the overall network of sidewalks and bike facilities in your Town?

Answered: 238 Skipped: 6



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE					
☆	26.47%	63	26.05%	62	29.83%	71	13.45%	32	4.20%	10	238	2.43

Q7 Are there any specific roads or areas of Davie County that you feel unsafe or uncomfortable biking, walking, or running? If so, please name them below.

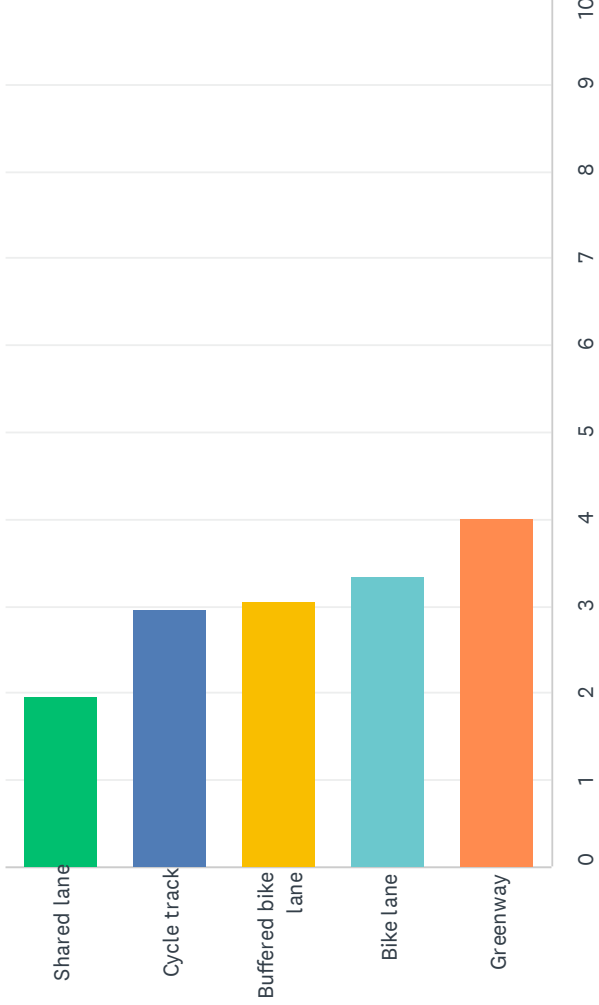
Answered: 151 Skipped: 93

**Q8 Are there any specific roads or areas of Davie County that you feel safe or comfortable biking, walking, or running? If so, please name them below.**

Answered: 159 Skipped: 85

# Q9 Which is your preferred type of bicycling facility? PLEASE RANK THEM

Answered: 221 Skipped: 23

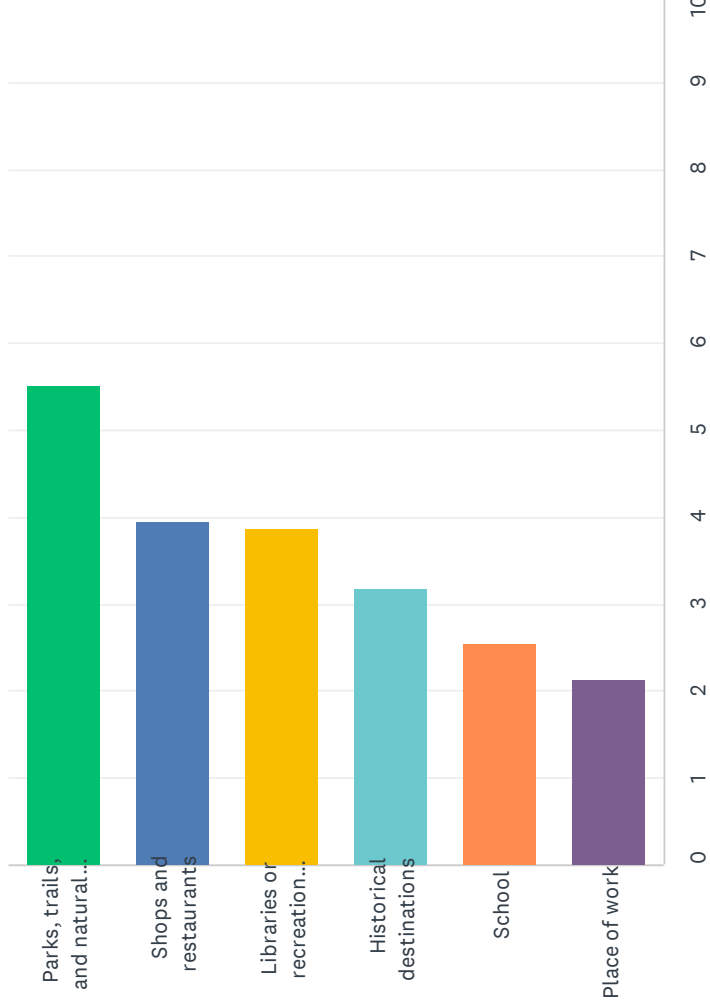


	1	2	3	4	5	TOTAL	SCORE
Shared lane	10.06% 18	8.94% 16	7.82% 14	14.53% 26	58.66% 105	179	1.97
Cycle track	12.71% 23	30.94% 56	14.36% 26	25.41% 46	16.57% 30	181	2.98
Buffered bike lane	7.30% 13	27.53% 49	35.96% 64	22.47% 40	6.74% 12	178	3.06
Bike lane	22.05% 43	20.00% 39	31.79% 62	22.56% 44	3.59% 7	195	3.34
Greenway	58.42% 118	14.85% 30	7.43% 15	8.91% 18	10.40% 21	202	4.02



# Q10 Which of the following destinations would you or members of your household most like to bike, walk, or run to? PLEASE RANK THEM

Answered: 242 Skipped: 2



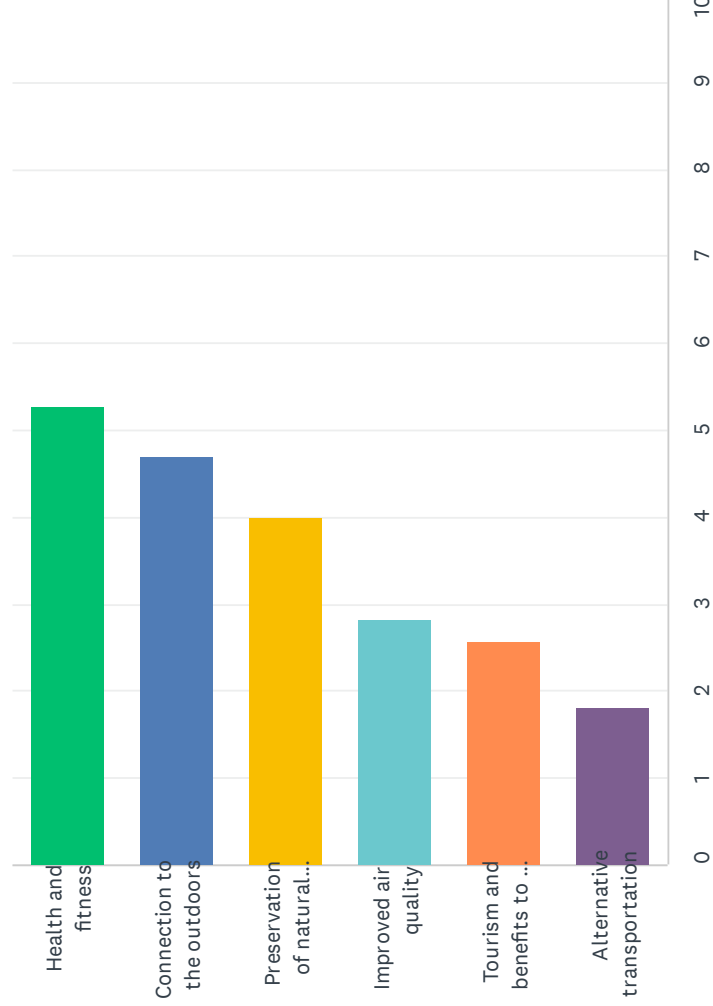
	1	2	3	4	5	6	TOTAL	SCORE
Parks, trails, and natural areas	75.85% 179	10.59% 25	8.05% 19	2.54% 6	0.85% 2	2.12% 5	236	5.52
Shops and restaurants	9.95% 21	30.81% 65	27.49% 58	14.69% 31	9.95% 21	7.11% 15	211	3.95
Libraries or recreation centers	4.31% 9	29.67% 62	26.79% 56	28.71% 60	7.66% 16	2.87% 6	209	3.86
Historical destinations	2.97% 6	18.32% 37	21.29% 43	24.26% 49	18.81% 38	14.36% 29	202	3.19
School	6.15% 12	7.18% 14	10.26% 20	15.90% 31	33.33% 65	27.18% 53	195	2.55
Place of work	4.17% 8	6.25% 12	5.21% 10	11.98% 23	27.60% 53	44.79% 86	192	2.13

Q11 Please list the top three destinations you or members of your household currently enjoy going to in Davie County.

Answered: 188 Skipped: 56

## Q12 Which of the following benefits of bicycle and pedestrian facilities do you believe are the most important to your community? PLEASE RANK THEM.

Answered: 232 Skipped: 12



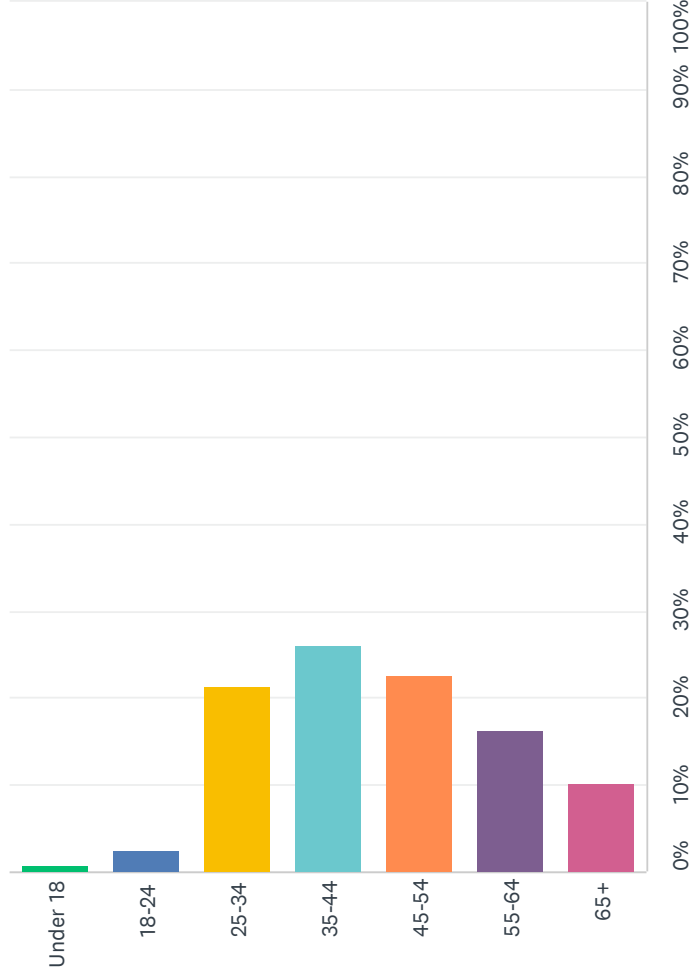
	1	2	3	4	5	6	TOTAL	SCORE
Health and fitness	60.81%	19.82%	11.26%	3.60%	2.25%	2.25%	5	222
Connection to the outdoors	20.36%	46.15%	20.81%	9.05%	2.71%	0.90%	2	4.70
Preservation of natural areas	14.76%	17.62%	35.71%	20.00%	8.10%	3.81%	8	210
Improved air quality	1.48%	6.40%	14.78%	39.90%	24.63%	12.81%	26	203
Tourism and benefits to the local economy	5.34%	6.80%	10.19%	14.08%	45.63%	17.96%	37	206
Alternative transportation	1.98%	3.96%	5.94%	12.38%	13.86%	61.88%	125	202

**Q13 Please list the town or unincorporated area you live in.**

Answered: 226 Skipped: 18

### Q14 What is your age range? (optional)

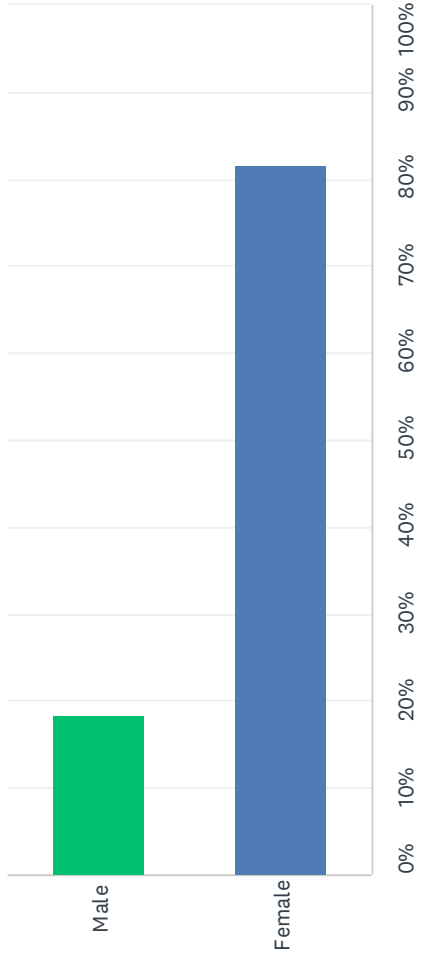
Answered: 234 Skipped: 10



ANSWER CHOICES	RESPONSES
Under 18	2 0.85%
18-24	6 2.56%
25-34	50 21.37%
35-44	61 26.07%
45-54	53 22.65%
55-64	38 16.24%
65+	24 10.26%
<b>TOTAL</b>	<b>234</b>

### Q15 What is your sex? (optional)

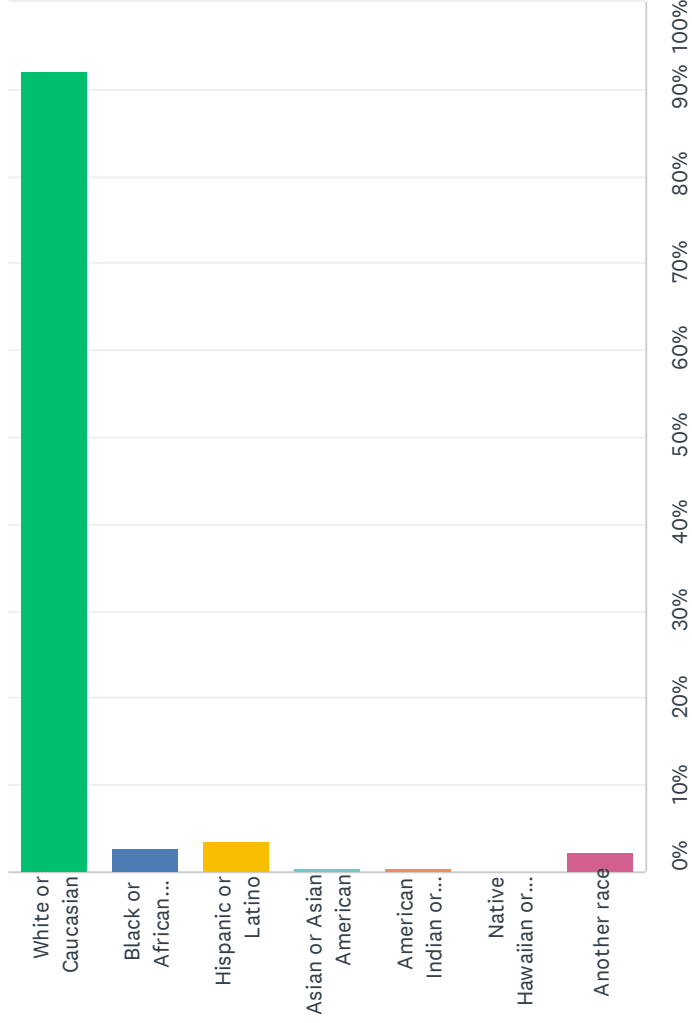
Answered: 234 Skipped: 10



ANSWER CHOICES	RESPONSES
Male	43 18.38%
Female	191 81.62%
TOTAL	234

### Q16 Please CHECK ALL of the following that BEST describe your race and ethnicity. (optional)

Answered: 226 Skipped: 18



ANSWER CHOICES	RESPONSES
White or Caucasian	208
Black or African American	6
Hispanic or Latino	8
Asian or Asian American	1
American Indian or Alaska Native	1
Native Hawaiian or other Pacific Islander	0
Another race	5
Total Respondents: 226	

**Q17 If you would like to receive future information regarding the Davie County Bicycle and Pedestrian Plan please include your name and email address below. (optional)**

Answered: 80 Skipped: 164

ANSWER CHOICES	RESPONSES
Name	97.50% 78
Company	0.00% 0
Address	0.00% 0
Address 2	0.00% 0
City/Town	0.00% 0
State/Province	0.00% 0
ZIP/Postal Code	0.00% 0
Country	0.00% 0
Email Address	100.00% 80
Phone Number	0.00% 0