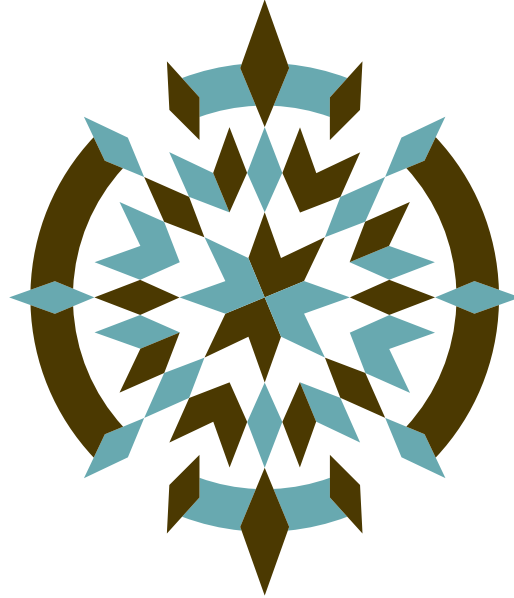


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CAROLINA THREAD TRAIL  
MASTER PLAN  
FOR STANLY COUNTY  
COMMUNITIES

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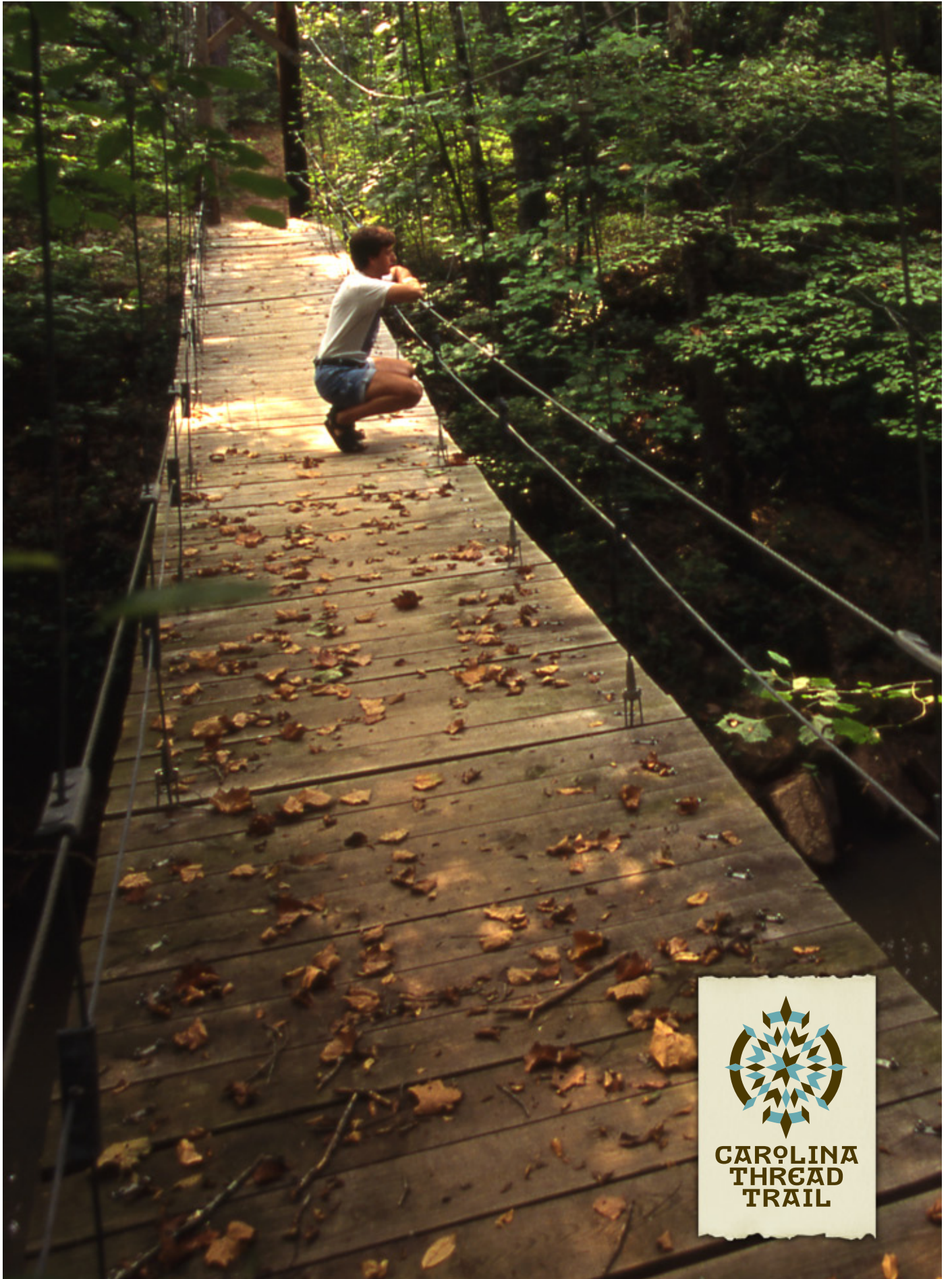


**CAROLINA  
THREAD  
TRAIL**

*Weaving  
Communities  
Together*

ADOPTED AUGUST 2010









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**Stanly County Chamber of Commerce**  
**Stanly County Convention & Visitors Bureau**  
**Town of Badin**  
**City of Locust**  
**Albemarle Rotary Club**  
**Town of Norwood**  
**Town of New London**  
**Village of Misenheimer**  
**Town of Oakboro**  
**Town of Richfield**  
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## EXECUTIVE SUMMARY

In 2008, The Stanly County Board of Commissioners and ten municipalities in the County passed resolutions in support of an update to the 1999 Stanly County Comprehensive Recreation Master Plan for the period of 2010 to 2020. The overall plan is intended to provide clear, logical, and precise guidelines for future development and growth of parks, park facilities, recreation programs and activities, greenways, and trails throughout the county.

The current updates are arranged into two primary components: an evaluation of and recommendations for parks and recreation needs in Stanly County for the 2010-2020 period; and a Carolina Thread Trail Greenway Master Plan for Stanly County (referred to as the CTT Master Plan).

The Carolina Thread Trail is a regional network of greenways, trails and conserved lands that will reach approximately 2.3 million citizens and effectively link people, places, cities, towns and attractions. The scale of The Thread's connectivity is unparalleled and is based on certain guiding principles and core values: Collaboration, Community Self-Determination, Connectivity, Inclusivity, Leverage, and Respect for the Land and Respect for the Landowners. The recommended CTT route for Stanly County includes a total of 109.2 miles of greenways and trails.

### ADOPT THE PLAN

Adopting the CTT Master Plan for Stanly County is a critical step in identifying the County's trail opportunities and challenges. Once adopted, the plan will influence County and municipal policy and decisions regarding trail development in the County, as well as make the County eligible for funding by various sources, helping to ensure that the implementation of the trail moves forward efficiently and effectively.

### BUILD PUBLIC SUPPORT FOR TRAIL IMPLEMENTATION

A trail system such as the Carolina Thread Trail will be most successful when supported by a county-wide citizens' group. Ultimately a group, such as a "Friends of the Carolina Thread Trail" coalition, could work to ensure that public and political interest in the Carolina Thread Trail remains high and that the trails are successfully used and maintained once built.

### COMPLETE TOP PRIORITY SEGMENTS

In light of the extensiveness of the Carolina Thread Trail network, it is important that Stanly County prioritize specific routes for development. That prioritization is based on public support, the importance of the connection, right-of-way availability, cost and available funding, and ease of implementation. These criteria established seven high priority Carolina Thread Trail routes which are shown in Figure 1 on page 12. Table 12 provides a concise summary of priority trail routes.

### KNIT TOGETHER FUNDING FROM A VARIETY OF SOURCES

A variety of potential funding sources are available to help pay for the Carolina Thread Trail in Stanly County including private, local, State, regional, and Federal funding programs. Weaving the resources of these varying sources together can assist in leveraging funds received and meeting match requirements.

Currently, the Catawba Lands Conservancy is leading a private fundraising effort to fund trail planning, design, land acquisition, and construction for local governments

## COMMUNITY INPUT



*Attendees at the public workshop in New London*



*Public meeting participants in Badin*



*Public workshop in Red Cross*

*Based on the Carolina Thread Trail guiding principle of "Community Self-Determination", the master planning process included citizen input from all over the county.*

## COMMUNITY INPUT



*A public workshop*



*Public meeting participants in Badin*



*Participants at the 2nd round of public workshops.*



*Steering Committee Members*



*Public comments on draft CTT map*



and communities that plan for and adopt greenway master plans. Federal funds can be an essential component of funding larger, more expensive trail projects. Each category of funding is described in detail in Appendix III.

#### EVALUATE LAND OR RIGHT OF WAY ACQUISITION OPTIONS

Land and right of way acquisition along the proposed route will weigh heavily in assessing each segment's ease of implementation. Negotiations with railroads, utility companies, municipal governments and agencies, and private property owners will be required. The recommended actions for implementation included in Chapter six of this plan provide a clear guide for pursuing appropriate options. In particular, land suitable for a greenway along the Rocky River corridor should be protected as opportunities arise with willing land owners.

#### DESIGN, CONSTRUCT AND MAINTAIN TRAILS

The design, construction, and sustenance of new segments of the Carolina Thread Trail will provide benchmarks for progress toward completion of the proposed network. Stanly County should qualitatively measure its successes toward achieving the goals of the CTT Master Plan and establish measurable indicators of advancement.

#### CONCLUSION

With the guiding principles of the CTT Master Plan process held constant, implementation of the Carolina Thread Trail in Stanly County will help the region achieve a world-class recreation and transportation system. Additionally, it will help to achieve educational, environmental, health, economic and community advantages.

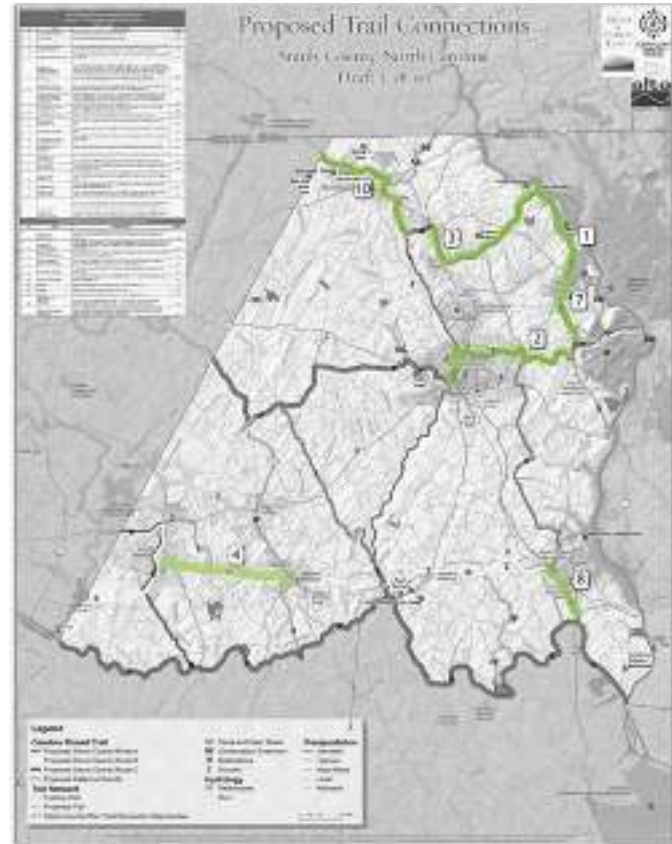
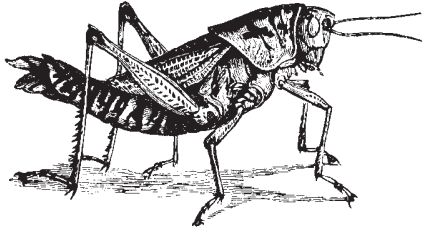


Figure 1: Top priority trail segments.



## CHAPTER 1. INTRODUCTION CAROLINA THREAD TRAIL

### PURPOSE AND PLAN OBJECTIVES

The Stanly County Board of Commissioners, along with the municipalities of Albemarle, Badin, Locust, Misenheimer, New London, Norwood, Oakboro, Richfield, Red Cross, and Stanfield, passed resolutions during 2008 to support the update of the 1999 *Stanly County Comprehensive Recreation Master Plan* to provide a planning tool for the period 2010-2020. The overall goal of the Plan update is to provide clear, logical, and precise guidelines for the future development and growth of parks and facilities, recreation programs and activities, greenways, and trails throughout the county. Specific Plan objectives, developed by the project Steering Committee, and confirmed through the public input process include:

- Enhance and expand local park facilities
- Provide walking and biking facilities and trails
- Use technology and county-wide marketing to increase participation and access to programs/facilities
- Establish partnerships between communities for facilities and programs
- Respond to new demands for recreation services
- Expand senior recreation facilities and access
- Provide outlets for youth recreation

The *Plan* updates and replaces the 1999 Plan, and is formatted into two parts. The first part evaluates, assesses, and makes recommendations regarding parks and recreation needs in Stanly County for the 2010-2020 period. The second part of the Plan is this stand-alone document entitled *Carolina Thread Trail Greenway Master Plan for Stanly County Communities*, hence forth referred to as the CTT Plan or the CTT Master Plan.

### CAROLINA THREAD TRAIL

The Carolina Thread Trail is a regional network of greenways, trails and conserved lands that will reach approximately 2.3

The Thread will help preserve our natural areas and will be a place for the exploration of nature, culture, science and history, for family adventures and celebrations of friendship.

million citizens. It will link people, places, cities, towns and attractions. The Thread will help preserve our natural areas and will be a place for the exploration of nature, culture, science and history, for family adventures and celebrations of friendship. It will be for young, old, athlete and average. This is a landmark project, and creates a legacy that will give so much, to so many, for so long.

The scale of The Thread's connectivity is unparalleled and is based on certain guiding principles and core values: Collaboration, Community Self-Determination, Connectivity, Inclusivity, Leverage, and Respect for the Land and Respect for the Landowners.

### COLLABORATION AND SELF-DETERMINATION

Collaboration and communication among the Stanly County Communities is almost as important as connectivity. The Master Plan aims to encourage a collaborative process by which greenways are conceived and designed in cooperation with adjoining communities in such a way that a regional asset is created out of a series of interrelated local decisions and actions.

### CONNECTIVITY AND INCLUSIVITY

Creating connections between communities and historical, cultural and recreational attractions is important. The Carolina Thread Trail seeks to create a region known for its "ribbons of green" connecting people to each other and to their heritage. In offering the vision of greater community interaction, the program seeks to build bonds among



diverse neighborhoods, as well as afford all residents greater access to our natural surroundings. Through this Master Plan, these goals are established.

#### LEVERAGE

The Plan's success depends upon generating additional investment of outside capital in our region's natural resources. Funding sources of the local, state and federal level are included in Chapter 5.

#### RESPECT FOR THE LAND AND LANDOWNERS

During the planning process, Stanly County communities determined the location of their preferred segments of The Thread by considering multiple alternative routes. Portions of these routes included public lands or property owned by interested landholders, including developers who may want to offer this amenity to their neighborhoods. The broad corridors featured present multiple opportunities, and adjustments to the route will be incorporated as more landowners are engaged. Expert trail builders indicate that

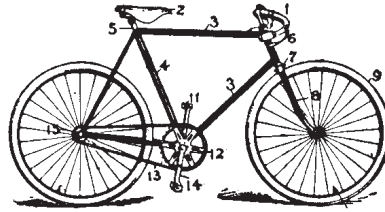
trails are built by assimilating parcels over time in this fashion.

Through an inclusive, collaborative process, each county and the communities within that county decide where their local trail systems will connect and become part of The Thread. However, not all local trails and greenways will become part of the Carolina Thread Trail. Analogous to our highway systems, The Thread will develop as a "green interstate" focused on linking local trails and regionally significant attractions. Other trails will continue to exist or be planned but may not receive the Carolina Thread Trail designation. Local trails will retain their own identities, whether or not they are designated as part of The Thread.

The look and feel of the Carolina Thread Trail may vary from community to community and county to county. Designation as the Carolina Thread Trail will signify that a particular trail is part of a plan to create an interconnected system, a plan created by local communities working together with their neighbors to identify connection points and to build trails that will grow together over time.



*Collaboration and self-determination are principles of the CTT process.*



## CHAPTER 2. GREENWAY BENEFITS

Implementing the Carolina Thread Trail in Stanly County will help the region achieve a world-class recreation and transportation system. Multi-use trail facilities will result in expanded recreation and mobility options for Stanly County residents and visitors, especially those who seek to integrate a healthy lifestyle into their daily activities. Given the scenic beauty of the area, the trail will also offer important recreational opportunities. Benefits can be found in a number of categories, including: education, environment, health, economics, and overall community rewards.

### EDUCATION

Trails are excellent outdoor classrooms that allow trail users to learn about the natural environment, develop an appreciation for open spaces, and establish a conservation ethic. An understanding of one's natural environment can lead to future efforts to preserve ecologically important areas. Trails can also highlight historical and cultural sites and encourage trail users to learn about the historical significance and unique culture heritage of an area.

### ENVIRONMENTAL

The Federal Highway Administration (FHWA) conducted a case study published in 1993 titled *The Environmental Benefits of Bicycling and Walking in the United States*. This

study states that "...bicycle-riding and walking do not contribute to the environmental damage inherent in extracting, transporting, processing and burning petroleum or other fossil fuels". The FHWA also reports that Americans are willing to walk to destinations up to two miles away and bicycle up to five miles away. Given that nearly half of all trips taken are for a distance of five miles or less<sup>1</sup>, encouraging bicycling and walking as a transportation option can reduce:

- Fossil fuel use
- CO<sub>2</sub> (carbon dioxide), CO (carbon monoxide), NO<sub>x</sub> (nitrogen oxides) and VOC (volatile organic compounds) emissions
- Traffic congestion
- Vehicle miles traveled (VMT)

Connecting homes, schools, parks, downtown and recreation destinations, along with cultural attractions with a trail system can encourage local residents to walk or bike to destinations. People choosing to ride or walk rather than drive are typically replacing short automobile trips, which contribute disproportionately high amounts of pollutant emissions. These emission reductions benefit all residents, whether they are trails users or not.

### HEALTH

Americans' lack of physical activity is leading to an increase in a variety of health conditions including hypertension, cancer, heart disease, diabetes, and obesity, which will soon eclipse tobacco as the number one preventable cause of death in the United States. In 2005, less than half of U.S. adults meet the Centers for Disease Control/American College of Sports Medicine recommendations for daily physical activity levels<sup>2</sup>.

#### GREEN SPACE CONTRIBUTES TO HEALTHY PLACES THROUGH:

- Stress reduction
- Air filtration
- Encouragement of physical activity
- Economic enhancement
- Carbon sequestration



The Surgeon General's 1992 report, "*Physical Activity and Health*," determined that physical activity can help reduce cardiovascular disease, lower the risk of colon cancer, lower the risk of diabetes, lower the risk of osteoporosis, reduce the risk of obesity, and relieve symptoms of depression and anxiety. The report also contains a 1991 Center for Disease Control study that shows walking is the most common form of exercise for 44.1 percent of the population over 18 years of age.

Bicycling and walking offer a way to integrate physical activity into busy schedules, and have been demonstrated to improve these conditions as well as to contribute to emotional well-being. Studies show that frequency of trail use is directly proportional to the distance that one lives from trail access points, and regular trail users see health benefits. It logically follows that communities with greater access to trail systems and recreational opportunities will have healthier populations.

In addition to individual health benefits, physical activity provides fiscal rewards to the entire community with a reduction in health care costs and lost days of work. The studies reviewed report an average annual per capita health cost savings of \$128.<sup>3</sup>

### ECONOMIC

An integrated and consistent trail system can result in significant economic benefits to the region. The types of economic benefits include: increased property values, tourism revenue, increased consumer spending, local business expansion, public spending savings and household savings.

A number of studies show that home prices near trails are higher than home prices farther away from trails. Along the Little Miami Scenic Trail in Ohio, an increased sales price of \$7.05 for each foot closer to the trail was recorded<sup>4</sup>. This study was conducted in response



*Trails in greenways and parks encourage walking and outdoor recreation.*

to concerns by residents of property value decreases due to an increase of crime, traffic and noise resulting from the trail. In 2006, a study analyzed home values in seven Massachusetts towns near the Minuteman Bikeway and Nashua River Rail Trail. Homes near the trails sold at 99.3 percent of the listing price, compared to 98.1 percent for other homes in these towns. Additionally, homes near the trails sold in an average of 20 days faster compared to other homes<sup>5</sup>.

Bicycle-related tourism has been shown to bring in significant revenue to a region. Studies of bicycle tourism in Colorado, Maine and the Outer Banks Region of North Carolina estimate annual bicycle tourism





revenues ranging from \$15 million to \$193 million in 1999 dollars<sup>6, 7, 8</sup>.

Bicycle and pedestrian facilities can also lead to increased spending by consumers. A 1991 National Park Service study found that long rural trails generated more revenue per person than shorter urban trails. The study estimated average expenditures of rail-trail users at \$1.90 per person to \$14.88 per person<sup>9</sup>.

A high-quality bicycling environment can bring bicycle-related businesses to the region. Portland, Oregon's bicycle industry was worth approximately \$90 million in 2009, and a study of the economic impact of bicycling in Colorado found that manufacturing contributes \$763 million and retail sales and service contribute up to \$193 million<sup>10, 6</sup>.

Bicycle and pedestrian infrastructure saves public dollars as well. A lane of roadway will accommodate five to ten times more pedestrian and bicycle traffic than driving and the cost of bicycling and pedestrian infrastructure is just a small fraction of that of building highways. Trails and paths can also be efficient connections to transit, reducing the need for expensive and land-gobbling park-and-ride stations.

Household savings can be found by utilizing non-

A comparison of GIS and medical record data show a positive correlation between urban nature and health, including:

- Respiratory disease
- Cardiovascular disease
- Mental health
- Musculoskeletal Pain
- Neurological disease
- Digestive complaints

(Mass et al, 2009)<sup>11</sup>

motorized transportation. Transportation is second to housing as a proportion of household budgets. Between 2002 and 2008, fuel costs rose from 3% of household expenditures to 8.5%. Walking and/or bicycling can help the community shave transportation expenses from their budgets.

#### COMMUNITY

The extent of bicycling and walking in a community has been described as a barometer of how well that community is advancing its citizens' quality of life. Areas that are busy with bicyclists and walkers are considered to be environments that work at a human scale, and foster a heightened sense of neighborhood and community. These benefits are impossible to quantify, but when asked to identify civic places that they are most proud of, residents will most often name places where walking and bicycling are common, such as a popular greenway, a river front project, a neighborhood market, Main Street, or downtown.

Walking and bicycling are also good choices for families. A bicycle enables a young person to explore her neighborhood, visit places without being driven by his parents, and experience the freedom of personal decision-making. More trips by bicycle and on foot mean fewer trips by car. In turn, this means less traffic congestion in the community. There are also more opportunities to speak to neighbors and more "eyes on the street" to discourage crime and violence. It is no accident that communities with low crime rates and high levels of walking and bicycling are generally attractive and friendly places to live.

#### PROTECTING PEOPLE AND PROPERTY FROM FLOOD DAMAGE

The protection of open spaces associated with trail and greenway development often also protects natural floodplains along rivers and streams. According to the Federal



Emergency Management Agency (FEMA), the implementation of floodplain ordinances is estimated to prevent \$1.1 billion in flood damages annually. By restoring developed floodplains to their natural state and protecting them as greenways, many riverside communities are preventing potential flood damages and related costs.<sup>12</sup>



*Flood wall adjacent to trail and residences*



## CHAPTER 3. EXISTING CONDITIONS

### GEOGRAPHY OF THE STUDY AREA/LAND COVER

Stanly County encompasses 399 square miles (255,360 acres) and is situated between the Blue Ridge Mountains and the Coastal Plain. Stanly County is located 42 miles north-east of Charlotte, North Carolina and 115 miles southwest of Raleigh, North Carolina. There are nine incorporated communities in the County: Badin, Locust, Misenheimer, New London, Norwood, Oakboro, Red Cross, Richfield and Stanfield. Albemarle, the County seat, is the most populous area of the County. Overall, the County retains a rural flavor that defines central North Carolina.

Stanly County is in the Piedmont region, which includes a portion of the ancient Uwharrie Mountain range. Flat terrain and gentle rolling hills typify the County's topography, with a land cover of forests, agricultural land and surface water. Slopes within the County are generally under ten percent. Sedimentary and volcanic rocks underlie the soils, which support 89,048 acres of forest land and 104,517 acres of farmland. Farmlands are concentrated primarily in the western and southern portion of Stanly County. Man-made lakes (reservoirs) include, Tuckertown, Narrows, Falls and Tillery. Reservoirs and the Yadkin-Pee Dee River form the eastern boundary of the County. The Rocky River demarks the southern County boundary. Surface water covers about 6,638 acres of the County.

### POPULATION

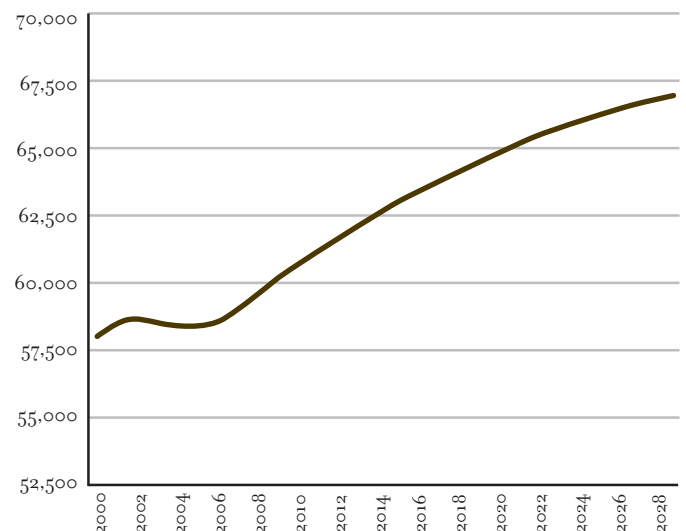
Stanly County's population has grown approximately 15% over the past 20 years from a population of 51,765 in 1990 to 59,714 in 2008. While this growth rate is robust, the county, on average, has grown only half as fast as that of the State of North Carolina as a whole. Most notably, the pace of growth in Stanly County had tapered to an annual rate of 0.3% between 2000 and 2008, compared to 1.8% annually for the state.

**Table 1. Population Change: Stanly County & North Carolina State (1990-2008)**

Jurisdiction	1990	2000	2008
Stanly County	51,765	58,100	59,714
Percent change ('90-'00)		+12.2%	
Percent change ('00-'08)			+2.8%
North Carolina	6,628,637	8,049,313	9,222,414
Percent change ('90-'00)		+21.4%	
Percent change ('00-'08)			+14.6%

The North Carolina Office of State Budget and Management produces population forecasts for counties extending out to 2029. Using certified, state-based population estimates for Stanly County and interpolating between the forecasted population data points, the following chart illustrates the potential population forecast for Stanly County. Continued growth is expected for Stanly County with an estimated 2029 population of approximately 67,450.

**Figure 2. Stanly County Population Forecast (2000-2029)**





One aspect to overall population change is the distribution of age groups. The child and youth/teen age groups within Stanly County, which include populations less than 5 years of age and those less than 18 years of age respectively, indicate slightly smaller populations of youth and teens as compared to the state average. By 2006, a larger percentage of Stanly County youth in their late teens moved into an older age group than that of their peers across the state. Additionally, the senior population (65 and over) is larger than the state average and is growing at a faster rate. Between 2000 and 2006, Stanly County's senior population increased by 5.6%, which is 3 times faster than the state experienced (1.7%) for the same period. These age group distributions show that the County is

slightly older and has fewer children, which in turn may place special demands on certain recreation facility types or program options.

Household characteristics, such as size, income and poverty levels, also provide insight into the community. As compared to the state figures from the 2000 Census, Stanly County households have a larger than average household size, lower than average income and a higher percentage of persons with disabilities (ages 5 and over). Additionally, between 2000 and 2006 Stanly County has experienced increasing family (up 2.4%) and household (up 5%) sizes, as compared to the state.

Although the County's population dynamics indicate an aging cohort, fewer families now are below the poverty

**Table 2. Household and Age Group Comparisons**

Demographics	Stanly County (2000)	Stanly County (2006 ACS)	North Carolina (2000)	North Carolina (2006 ACS)
<b>Population Characteristics</b>				
Population	58,100	59,110	8,049,313	9,036,449
Language other than English	4.7%	NA	8.0%	NA
Hispanic/Latino	2.1%	3.2%	4.7%	7.0%
Persons w/disabilities	11,949	NA	1,540,365	NA
Persons w/disabilities (%)	22.4%	NA	21.1%	NA
<b>Household Characteristics</b>				
Median income	\$36,898	\$44,988	\$39,184	\$46,107
Families below poverty level	8.1%	6.7%	9.0%	10.8%
Average household size	2.53	2.59	2.49	2.48
Average family size	3	3.15	2.98	3.04
Home ownership rate	76.3%	78.3%	69.4%	68.1%
<b>Age Groups</b>				
Median age	36.9	38.8	35.3	36.8
Population under 5 years of age	6.2%	6.2%	6.7%	7.0%
Population under 18 years of age	25.0%	23.4%	24.4%	24.3%
Population over 65 years of age	14.2%	15.0%	12.0%	12.2%

Source: US Census 2000 & American Community Survey 2006; American FactFinder ([factfinder.census.gov](http://factfinder.census.gov))

Note: Income figures in 1999 dollars (2000 Census) and in 2008 dollars (ACS)



*Trails provide opportunities for physical activity and access to open space*



limit (down 17%) relative to Census 2000 data, and the County has shown stronger growth in median income than that of the state average. Additionally, the County had witnessed an increase in home ownership rates (up 2.6%) between 2000 and 2006, while statewide declines existed (down -1.9%).

### ECONOMY

Historically, Stanly County's strong agricultural economy was supported by robust textile and aluminum industries. Today, at 27.1 percent, the manufacture of non-durable goods is the largest employment sector of the Stanly County economy. The next two major employment sectors are retail trade at 14.5 percent, and the manufacture of durable goods at 13 percent. In recent years, tourism has emerged as an important industry.

Protecting the agricultural economy has been identified by the County and its citizens to be essential to Stanly County's future. In light of the importance of farmland in Stanly County, a Farmland Preservation Plan was adopted in late 2009 to guide land use policy. In 2006, the cash receipts from farming activities in Stanly County were estimated at 66 million dollars, while only accounting for 2.1 percent of the County workforce. Farmland is a natural resource and farmland preservation can impact the economy indirectly. Preserving farmland can help direct future development to existing population centers where public infrastructure is available. Preserving farmland can also preserve a local foodshed, provide wildlife habitat, support the growth industry of agritourism, and sustain the small-town atmosphere and character desired by residents.

### DEVELOPMENT TRENDS

Stanly County is at the edge of the Charlotte metropolitan region. Between 1990 and 2000, Stanly County's population has grown more than 20 percent. Growth and



*Photosimulation of a greenway on the Little Long Creek in Albemarle*

development pressures are impacting the County, particularly near Locust, Oakboro, Red Cross and Stanfield. Currently, 74 percent of the County workforce travels less than 30 minutes to work. It is anticipated that as planned road improvements are constructed, access between Stanly County and the Charlotte metropolitan region will become easier and the number of commuters, and thereby commute times, will increase. This trend can change the dynamic of Stanly County, as the County becomes more amenable to a commuting workforce. Rural sprawl is an outcome of rapid growth. "Leap-frog" development patterns are beginning to occur in less developed areas, which can strain public infrastructure systems.

### EXISTING PARKS AND TRAILS

About 2.6 percent of land in Stanly County is covered by park and recreation facilities. The County currently does not provide recreation services. All recreation facilities and programs are offered and maintained by the State, local municipalities, private and non-profit groups, and volunteers.

Residents of Stanly County benefit from a variety of public parks and natural areas, including the Rocky



River, the Pee Dee River, and Badin and Tillery Lakes. There are currently 608 acres of public parkland and natural areas distributed among 33 municipally-owned sites. Additionally, a number of other public and private open spaces exist throughout Stanly County and add to the county’s recreation resources, including the 4,742 acres at Morrow Mountain State Park.

Morrow Mountain State Park is the largest public recreation area in the County, with 32 miles of trails, including 16 miles of equestrian trails.

Existing trails in Stanly County include a 1.5 mile multi-use path in Albemarle and a 0.2 mile path in Oakboro (connecting to an estimated 1.1 mile path within Oakboro District Park). Morrow Mountain State Park has 30 miles of hiking and equestrian Trails. The Town of Badin has

adopted a comprehensive pedestrian plan that includes a proposed 8 mile trail along the Alcoa Loop and a boardwalk along the shoreline of Badin Lake. Other proposed trail projects include 12 miles of trails in Norwood and 27 miles of multi-use paths in Albemarle.

NCDOT has documented 187 miles of bike routes along existing roads in Stanly County. The City of Albemarle is in the process of completing a Comprehensive Bicycle Plan.

#### REVIEW OF OTHER COMMUNITY PLANS

In addition to the 1999 Stanly County Park & Recreation Master Plan and to supplement public and stakeholder outreach, other community plans were reviewed for policy direction and goals as they pertain to the provision and planning for parks, recreation, and trails in Stanly County. The development of each plan reviewed below involved public input and final adoption by the responsible legislative body.

#### Stanly County 2002 Land Use Plan

At the time of writing, the 2002 Land Use Plan was being updated. Below are principles of the Land Use Plan that pertain to parks and open space:

##### Principle Number 2

*Protect farming as an essential element of Stanly County’s future in terms of culture, economy, and land use.*

##### Principle Number 4

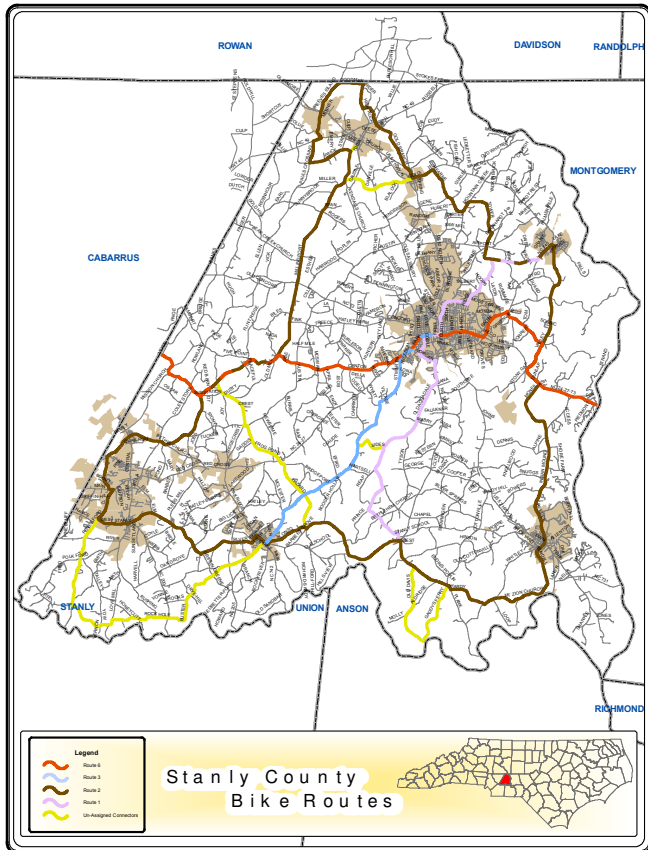
*Protect Stanly County’s unique natural and cultural resources.*

##### Principle Number 7

*The provision of parks, recreation, and open space needs to be an element of future land use planning in Stanly County.*

The 2002 Plan also includes a recommendation for preserving land for a greenway along the Rocky River:

“The Rocky River Greenway presents a unique opportunity to link southern Stanly County with a regional greenway to Cabarrus, Mecklenburg, and Union Counties and the Charlotte metropolitan area. A multi-purpose



Stanly County Bike Route Map



greenway is recommended for this corridor, a greenway that ultimately would link to the Yadkin-Pee Dee River at Norwood.”

#### **2003 Stanly County Thoroughfare Plan**

This plan identifies state and county recommended on-road bike routes for recreational cyclists.

#### **2005 Albemarle/Stanly County Strategic Economic Development Plan**

The Target Industry Analysis identified five target industries to stimulate growth in Stanly County: plastics, retirement and health care services, fabricated metals and machinery, transportation equipment, and tourism.

#### **2009 City of Albemarle Land Use Plan**

Albemarle recently adopted a new comprehensive land use plan. The planning committee considered bicycle and pedestrian friendly issues to be a top priority within numerous categories of the plan, including transportation, residential development, commercial development, open space/recreation, downtown development, and community appearance. The creation of the greenway system was repeatedly mentioned as a top strength of the City. The plan also emphasizes the need for connectivity between parks and the need to preserve additional open space areas.

#### **2007 Albemarle Comprehensive Pedestrian Plan**

Along with identifying, pricing, and ranking 49 miles of multi-use greenway paths, this transportation plan



Rocky River, Leiby Park (Source: T. Morehead, Carolina Thread Trail)





Children at the Waddell Center (Source: City of Albemarle)

recommended several guidelines and policy changes related to recreation that would:

- set design guidelines for greenway trails;
- give project priority to pedestrian access to parks;
- incorporate aesthetics and landscaping into transportation design; and,
- require new development to set aside public green space.

#### **2010 Albemarle Comprehensive Bicycle Plan**

Recommendations in this plan will connect 11 miles of proposed multi-use greenway paths (including recommended routes for the Carolina Thread Trail) with proposed on-street bike accommodations throughout the City of Albemarle. In addition, guidelines suggested in the Plan will help to determine the appropriate type of bicycle facility on roadways according to their traffic volumes and speeds. The plan includes recommendations for the acquisition of land for on and off-road paths.

#### **2007 Badin Comprehensive Pedestrian Plan**

Recommendations for this plan include numerous walking and biking paths, trails, and boardwalks connecting downtown Badin with Badin Lake and the Alcoa Facility, along

with the design guidelines for these amenities. The plan includes 8 miles of proposed trails as well as additional mileage of new sidewalks.

#### **2007 Norwood Comprehensive Pedestrian Plan**

Recommendations for this plan include pedestrian and bicycle paths that connect downtown Norwood with Lake Tillery and Rocky River, along with the design guidelines for these amenities. The plan includes 12 miles of proposed trails as well as additional mileage of new sidewalks.

#### **2003 Village of Misenheimer Land Use Plan**

Principle # 5 of the Land Use Plan states: “Create public spaces in which the community can gather and enjoy recreational opportunities. In order to fulfill our desire to place recreational facilities at the disposal of our citizens, we need places where individuals can come together and enjoy common pursuits. We need parks or similar spaces in which to gather, exercise, play and compete. These sites should be varied in size, function, and location in order to fulfill the assorted tastes of our diverse population. The Village should seek over time to create more public places and social gathering places which ought to be scattered in various neighborhoods throughout the Village.”

#### **2007 Town of Red Cross Zoning Ordinance**

In order to develop a system of quality open spaces and recreation areas throughout the Town of Red Cross, new developments need to account for a minimum percentage of open space, depending on their density. Open space shall include recreational areas, wooded areas, and environmental open space. As an alternative to incorporating required open space on a development site, the developer has the option of requesting that the town permit the purchase of another piece of land more suitable to conservation.



## DESTINATIONS

The county is a destination for equestrian sports and on- and off-road cycling. Stanly County's rivers, fields and waterways continue to accommodate many active and passive use outdoor recreational activities such as fresh-water fishing, hiking, boating and paddle sports.

The following sites were identified by the public and the Stanly County CTT Advisory Committee as important potential destinations for the Thread Trail:

- Stanly County Farmers Market (Albemarle)
- Albemarle Music Store/Train Dealer
- Badin Inn Golf Resort & Club
- Badin Lake
- Badin Road Drive-in Theater
- Barringer Mine (near Misenheimer)
- City Lake Park
- All Major Parks in Stanly County
- Cotton Patch Gold Mine
- Dennis Vineyards (Endy Rd.)
- God's Country Outfitters (Albemarle)
- Hardaway pre-historic Site (near Badin)
- Middle Ring Cycles (Albemarle)
- Morrow Mountain Skate Park
- Mountain Brook Golf Club (Albemarle)
- Norwood Campground
- Oakboro Museum
- Oakboro Music Hall & Fountain Grill
- Old Whitney train trestle and boat landing (Badin)
- Pee Dee National Wildlife Refuge (Anson County)
- Pfeiffer University
- Piney Point Golf Club (Norwood)
- Richie's Lake (near Richfield)
- Rocky River Springs Fish Camp
- Cities and Towns in Stanly County (Albemarle, Badin, etc)
- Stanly County Museum, Freeman-Marks House
- Stony Mountain Vineyards
- The Fork Farm/Stables
- Stanly County Community College
- The Fresh House Restaurant (Locust)
- Uwharrie National Forest (Montgomery County)
- Uwharrie Vineyards
- Vac and Dash (Albemarle)



## CHAPTER 4. STAKEHOLDER AND PUBLIC OUTREACH

Citizen and stakeholder input was the cornerstone for formulating the Carolina Thread Trail and Greenway Master Plan recommendations. Community and stakeholder input provided a clear framework for park, trail and recreation planning that reflected the current priorities of the community, while looking forward to the next ten years. Most residents care deeply about the future of Stanly County's parks and open space system and appreciated the opportunity to offer feedback in the development of this Plan. Public outreach was local and grassroots-oriented, with varied and extensive methods to involve the community, specifically including:

- Creation of the Stanly County Comprehensive Recreation Plan Steering Committee (SCCRP).
- Creation of a Stanly County Carolina Thread Trail Advisory Sub-Committee
- Focus groups to develop a needs assessment and public opinion questionnaire
- Eight Public Workshops held throughout the county
- Administration of a random sample countywide needs assessment and public opinion survey between October and December 2009
- Youth-specific survey distributed to schools throughout the County

### **Stanly County Comprehensive Recreation Plan Steering Committee (SCCRP)**

Public outreach began with a Steering Committee meeting in which members from each community in the County were introduced to the recreation needs assessment process. The project steering committee was created to assist in completing the plan. The Stanly County Comprehensive Recreation Plan Steering Committee (SCCRP) is a steering committee of agency staff and citizens appointed by County Commissioners

and Municipal Councils. A list of the committee members is included on page 6 in the acknowledgements section. The committee provided information, ideas, and feedback during the planning process, assisted in overcoming obstacles, represented public, agency and organization interests and policies, and assisted in building support for the plan process and recommendations. The members provided ongoing feedback during the process to create a master plan which reflects the real needs of Stanly County.

The steering committee met monthly or bi-monthly over the course of the process, including five meetings facilitated by the consultant team. Notes from the steering committee meetings are contained in Appendix IV.

### **Stanly County Carolina Thread Trail (CTT) Advisory Sub-Committee**

The participating jurisdictions and SCCRP members established a sub-committee of 12 representatives from across the county and the region to provide oversight and guidance in the development of the Carolina Thread Trail Plan for Stanly County. A list of the committee members is included on page 6 in the acknowledgements section. The committee was sub-divided into a Technical Advisory Team (TAT) to provide input on trail alignments and an Outreach Team to help facilitate public awareness of the plan and process. The committee met in person and via conference call throughout the course of the project to establish project goals and objectives and to recommend preliminary alignments for the CTT based on local knowledge and public input.

The kickoff meeting of the Stanly County Advisory CTT Sub-Committee was held on September 22, 2009 at the Stanly County Agri-Civic Center near Albemarle. Below is a categorized list of committee feedback with suggested overarching goal headings:



CTT Advisory Committee Goals

Consider Broader Community Benefits in Trail Development

- Healthier lifestyles; opportunities for walking/biking
- Appreciate natural, cultural heritage
- Utilization of farmland for tourism

Promote Trail Connections across County and Within Towns

- Make connections: prioritized trails, well connected, decent distances/length
- Encourage towns to connect to CTT
- Greenways along Rocky River tributaries into nearby towns
- In-city trails

- Finish what has been started in towns re: greenways/trails

- Establish/Improve blue trails along water ways

Establish Partnerships in Trail Network Development

- Establish working relationships between groups: railroads, utilities, landowners

- Get in touch with Fork Farms. Fork Farm connections along Rocky River

Utilize Sensitive Trail Design Details

- Pervious trail surfaces
- Keep natural feel; less urban; e.g., limited lighting
- Ready access for emergency responders
- Overnight facilities
- Set up parks at each bridge along the Rocky River for access to trails



senderos de la actividad de recreación de la comunidad desempeñan trator caminar parques vecindarios excursiones en bicicleta canotaje de becas ejercicio ecuestre turismo rural camping gimnasio de escalada de vida silvestre de picnic

Seleccione un lugar y tiempo conveniente para usted...

**Jueves, Octubre 15<sup>o</sup>**  
6:30 pm-8:00 pm  
Centro Comunitario de Norwood  
247 West Turner Street  
Norwood, NC 28128

**Martes, Octubre 20<sup>o</sup>**  
7:00 pm-9:00 pm  
Mt. Zion Lutheran Church  
111 West Church Street  
Richfield, NC 28137

**Jueves, Octubre 29<sup>o</sup>**  
7:00 pm-8:30 pm  
Stanly Community College  
Cruftfield Campus  
102 Stanly Parkway  
Locust, NC 28077

**Miércoles, Octubre 28<sup>o</sup>**  
7:00 pm-8:30 pm  
Badin Ayuntamiento  
36 Falls Road  
Badin, NC 28009

**Martes, Noviembre 3<sup>o</sup>**  
4:30 pm-6:00 pm  
City Council Chambers  
157 North Second Street  
Albemarle, NC 28001

REÚNASE CON NOSOTROS PARA LOS TALLERES COMUNITARIOS SOBRE EL PLAN MAESTRO PARA PARQUES, RECREACIÓN Y SENDEROS DEL CONDADO STANLY.

El consejo de comisionados del condado Stanly, junto con las municipalidades de Albemarle, Badin, Locust, Misenheimer, New London, Norwood, Oakboro, Richfield, Red Cross, y Stanfield, le invitan a usted a que asista a los talleres públicos para proveerle información sobre el plan integral maestro para parques, recreación, y senderos del condado Stanly. El objetivo del esfuerzo, por sobre todo, es de desarrollar un plan que pueda utilizarse para crecimiento y desarrollo futuros en la próxima década de los parques e instalaciones, programas y actividades de recreación, vías verdes, y senderos a través del condado. El plan proveerá también un plano para un sistema de excursionismo, ciclismo, caminatas, senderos ecuestres y/o acuáticos que constituirán la porción del condado Stanly de entre los 15 condados que compondrán la red Carolina Thread Trail.

Por favor asista a uno de los cinco talleres que se ofrecen en el condado y provea su aporte informativo. Los niños son bienvenidos en asistir y participar. A principios de octubre, va a estar disponible una encuesta pública por vía web y por escrito para recibir contribuciones informativas de los ciudadanos.

Para más información, favor de contactar a Toby Thorpe, Director del departamento de parques y recreación de Albemarle al 704-984-9564 o a [tthorpe@ci.albemarle.nc.us](mailto:tthorpe@ci.albemarle.nc.us). Si USTED PLANEA ASISTIR Y NECESITA INTERPRETACIÓN EN CASTELLANO DURANTE LA REUNIÓN, FAVOR DE CONTACTAR AL SR. THORPE.



INFORMACIÓN AL DÍA SOBRE EL PROYECTO ESTARÁ DISPONIBLE EN LAS SIGUIENTES PÁGINAS WEB:  
SITIO DE PARQUES Y RECREACIÓN DE ALBEMARLE  
[HTTP://WWW.CI.ALBEMARLE.NC.US/PR\\_INDEX.HTM](http://www.ci.albemarle.nc.us/pr_index.htm)  
SITIO DEL CONDADO STANLY  
[HTTP://WWW.CO.STANLY.NC.US](http://www.co.stanly.nc.us)  
TAMBIÉN VISITE  
[WWW.CAROLINATHREADTRAIL.ORG](http://www.carolinathreadtrail.org)  
PARA INFORMACIÓN SOBRE LA RED CAROLINA THREAD TRAIL!

**ROUND**

**JOIN US FOR STANLY COUNTY'S PARKS, RECREATION, & TRAILS MASTER PLAN COMMUNITY WORKSHOPS**

Select a location and time convenient to you...

**Thursday, February 25<sup>th</sup>**  
7:00 pm-8:30 pm  
Norwood Community Center  
247 West Turner Street  
Norwood, NC 28128

**Tuesday, March 2<sup>nd</sup>**  
7:00 pm-8:30 pm  
West Stanly H.S. Cafeteria  
306 East Red Cross Road  
Oakboro, NC 28129

**Thursday, March 4<sup>th</sup>**  
7:00 pm-8:30 pm  
New London Community Ctr.  
114 West Gold Street  
New London, NC 28127

For more information, please contact Toby Thorpe, Director of Albemarle's Parks & Recreation Department, at 704-984-9564 or [tthorpe@ci.albemarle.nc.us](mailto:tthorpe@ci.albemarle.nc.us).

The Stanly County Board of Commissioners, along with the municipalities of Albemarle, Badin, Locust, Misenheimer, New London, Norwood, Oakboro, Richfield, Red Cross, and Stanfield, invite you to attend public workshops to provide your feedback on preliminary recommendations for the Stanly County Comprehensive Parks, Recreation, and Trails Master Plan. Last fall you provided input at meetings and through surveys. We are now inviting you to give feedback and help prioritize plan recommendations. The goal of the overall effort is to develop a plan that can be used for future development and growth of parks and facilities, recreation programs and activities, greenways, and trails throughout the county over the next decade. The plan will also provide a blueprint for a system of hiking, biking, walking, equestrian, and/or water trails that will be Stanly County's portion of the 15-County Carolina Thread Trail network.

Please attend one of the three workshops around the county. Provide your feedback, and hear the priorities of your fellow citizens. Children are welcome to attend.

UPDATED INFORMATION ON THE PROJECT WILL BE AVAILABLE AT THE FOLLOWING WEB PAGES:

ALBEMARLE PARKS AND RECREATION WEBSITE  
[HTTP://WWW.CI.ALBEMARLE.NC.US/PR\\_INDEX.HTM](http://www.ci.albemarle.nc.us/pr_index.htm)

STANLY COUNTY WEBSITE  
[HTTP://WWW.CO.STANLY.NC.US](http://www.co.stanly.nc.us)

ALSO VISIT  
[WWW.CAROLINATHREADTRAIL.ORG](http://www.carolinathreadtrail.org)  
FOR INFORMATION ON THE CAROLINA THREAD TRAIL

**ALBEMARLE**  
activity trails recreation events jogging community walking parks neighborhoods biking hiking boating exercise fellowship fitness agritourism equestrian camping climbing picnic wildlife

**RECREATION**

**PARKS**

**TRAILS**

Workshop flyers were developed in English and Spanish



## PUBLIC WORKSHOPS

### First Round Public Workshops

In order to gain further insight into the public's perceptions of the needed parks and recreation facilities in Stanly County, the SCCRP held two rounds of public workshops for the Carolina Thread Trail Greenway Master Plan project. The first series of workshops were held during the fall of 2009 at:

- The Norwood Community Center in Norwood on October 15, 2009
- The Mt. Zion Lutheran Church in Richfield on October 20, 2009
- The Badin Town Hall in Badin on October 28, 2009
- The Stanly Community College, Crutchfield Campus, in Locust on October 29, 2009
- The City Council Chambers in Albemarle on November 3, 2009

SCCRP members recruited attendance at the workshops by posting flyers in public places and notices on public websites. SCCRP also announced the meetings through e-mail distribution lists and through personal contacts.

Nearly seventy participants attended the fall 2009 public workshops to learn about the project, engage in group discussions and mapping exercises. These participants represented a broad spectrum of County residents, including youth, municipal staff and local elected officials.

Each workshop began with an introductory presentation on the Carolina Thread Trail and the park and recreation planning processes. The presentation was followed by a facilitated small group discussion on current issues, future visions and opportunities for enhancing and expanding park, recreation and trail facilities and programs. The outcome of each meeting included detailed recommendations of potential greenway and trail routes.

“Identify the issues...  
Build consensus for solutions.”

### Public Workshop Comment Summary

The feedback from the first round of public meeting is summarized as follows:

- Participants indicated that greenways and trails were important to develop over the next twenty years. Trails should be developed to link community and area destinations. Trail planning efforts should be coordinated with regional trail planning projects
- Trails should accommodate a wide range of users, including pedestrians, bicyclists, equestrians, and watercraft users
- Good access to trails (both land and water based trails) was an important factor. Access included physical access to trail and designing trails and access points to be ADA compliant
- A number of trail support facilities, such as, water fountains, restrooms, lighting, picnic shelters and signage were listed as desirable. Other support facilities mentioned were concession stands along long stretches



Attendees at the 2nd round public meeting in Red Cross



of trail and bike and water equipment rental facilities with drop-off and pick-up options

- Design safety into trails and bikeways. Elements such as lighting, emergency phones were noted as essential safety features. Exposure to vehicular traffic was noted as safety issue for non-motorized trail users and outdoor enthusiasts.
- Preservation of green or open spaces was a meaningful component of a greenways, blueways and trails plan
- Collaborate with organizers of local events such as “Run the Loop”, “Run the Valley”, cross country events and farmer’s markets.

### Second Round Public Workshops

In February and March of 2010, the second round of public meetings took place. These meetings were conducted in:

- The Norwood Community Center in Norwood on February 25, 2010
- West Stanly High School cafeteria in Oakboro on March 2, 2010
- New London Community Center in New London on March 4, 2010

Preliminary recommendations, based on the input from earlier public meetings, were presented to attendees. These meetings were attended by more than 90 citizens and stakeholders, including elected officials, youth, and local business owners and land owners. Many of the attendees at the second round workshops had not attended the first round workshops or participated in the prior public outreach efforts. The attendees came with strong opinions, especially regarding the potential alignments of the CTT. This input proved very valuable in refining the recommended CTT routes and developing the plan priorities.



*Participants at the 2nd round public meeting in New London*

The following is a summary of the comments received during the discussion and question and answer portion of the public meetings.

- Support for trails in Stanly County:
  - Trails and bikeways are among the most important priorities for future park projects.
  - Trails in other states have been very successful.
  - Trails alongside roads and in other existing rights-of-way might be more easily maintainable and more publicly palatable.
- Preservation:
  - The County should preserve land now before it can be lost to development.
  - There was also concern about the preservation of agricultural lands for use in food production.
- Concerns about trails in Stanly County:
  - Consensus that eminent domain should be avoided for trails in Stanly County.
  - Property owners may support trails going across the frontage of a property but not along the rear of a property.
  - Perception of theft and trespassing along trails in agricultural areas.
  - Trails in areas used for hunting could be a liability.

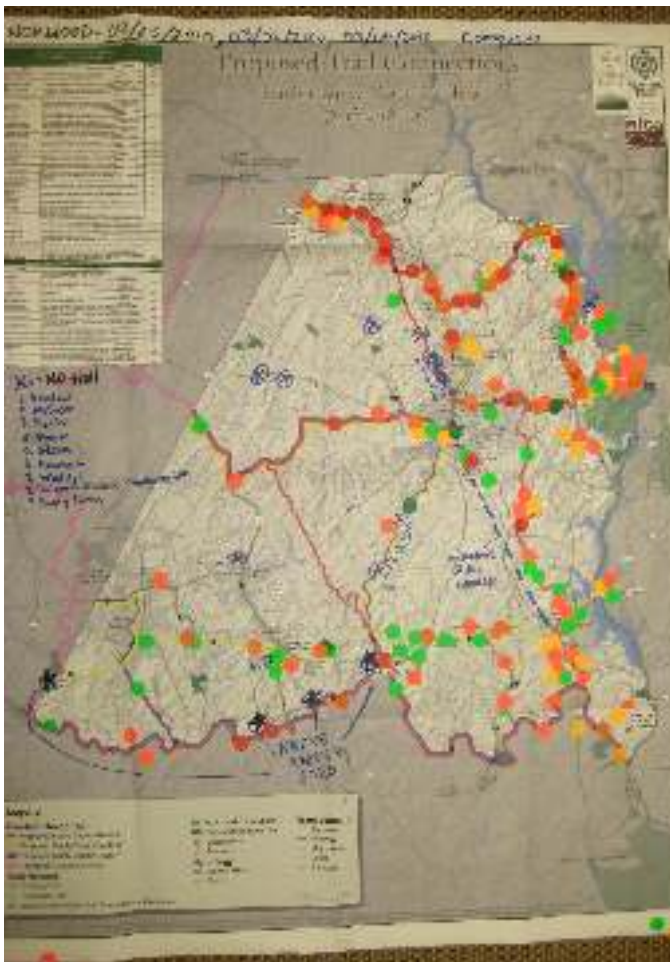


- Trails should not be located on private property
- Trails must be policed and maintained
- Concerns about lack of connectivity.
- Some felt that park and recreation facilities are more important than trails.
- Trails could be damaging to the environment.

### PUBLIC SURVEY

#### Needs Assessment and Public Opinion Questionnaire Focus Groups

Management Learning Laboratories (MLL) and the



Priority CTT trail routes identified by second round public meeting participants.

consultant team led a series of local focus group meetings to assist in designing a user needs assessment survey. The design process included review, input, and pre-testing by the SCCRP, staff, and other stakeholders. The focus groups included County and municipal staff, elected officials, and representatives of various county agencies, recreation organizations, and user groups (see Appendix IV for a complete list of focus group participants).

#### Needs Assessment and Public Opinion Survey and Report Overview

As a key component of the public input process, MLL prepared a “comprehensive assessment of the recreation needs, attitudes and opinions of the residents of the entire community.” The needs assessment was based on “a statistically viable and reliable random sampling procedure”. The survey was administered between October and December 2009 through two separate efforts: a random sample survey mailed to four thousand county households, and a self-selected survey posted on the Internet.

#### Random Sample Survey

Due to cost constraints, it was not feasible to survey all Stanly County residents about their recreational needs, attitudes and opinions. In order to get survey results that would reflect the community as a whole, a statistically viable and reliable random sampling survey method was administered. Four thousand addresses were randomly selected from all county addresses to receive the survey. Within a small margin of error (3% to 5%) the sample is a reliable representation of the entire community. Of the 4,000 surveys mailed, 305 (or 8%) of the surveys were returned and recorded.

#### Self-Selected Online Survey

The survey was also posted online. The online survey allowed a group of “self-selected” individuals to have their comments included in the survey results. Self-selected

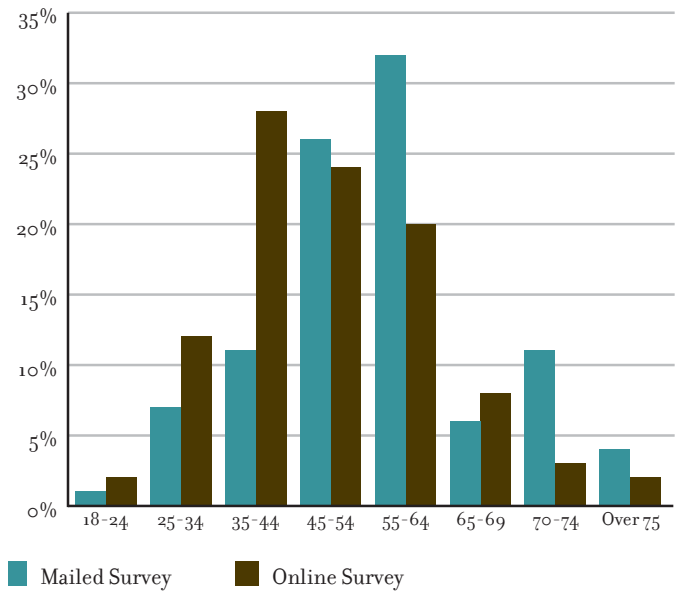


individuals choose to participate in the survey and they tend to be more familiar with the recreational opportunities in Stanly County. Since familiarity can be a source of bias, self-selected surveys are not statistically valid, although they do provide additional insight.

The online survey netted nearly 200 responses. Generally, the results of the online survey were very close to the results of the random sample survey. One of the significant differences between the respondents of the mailed survey and the online survey was found in the age group category. Online respondents in the 35 to 44 years age category outpaced the same age group in the random sample survey response category by 16.9% (Figure 3). Although, mail survey respondents in the 55 to 64 age category beat the online responders in the same age category by 12.2%.

As the random sample survey results are unbiased sampling, the following summary is based on trail and greenway related answers from the random sample survey results.

**Figure 3. Random Sample Survey and Online Survey Respondent by Age Category**



**Table 3. Distribution of adult respondents by location**

Do you live in the town/city limits of the following places?	Response Percent	Response Count
Albemarle	47.3%	140
Badin	0.3%	1
Gold Hill	0.3%	1
Kannapolis	0.3%	1
Locust	10.8%	32
Midland	0.3%	1
Mount Pleasant	0.7%	2
New London	6.8%	20
Norwood	12.5%	37
Oakboro	7.4%	22
Richfield	4.7%	14
Stanfield	8.5%	25
Total Responses		296
Skipped Question		8

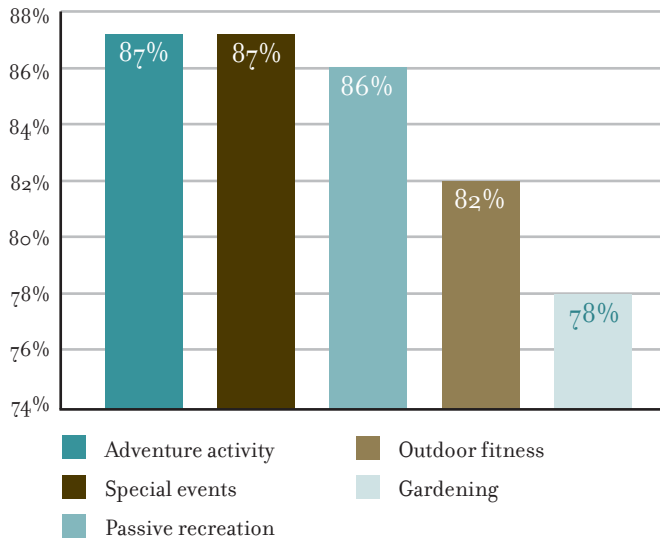




### Community Recreation Interest Recommendations

Survey respondents indicated that adventure activities, special events, passive recreation opportunities, outdoor fitness opportunities and gardening are the top five recreational interests in Stanly County (see Figure 4.)

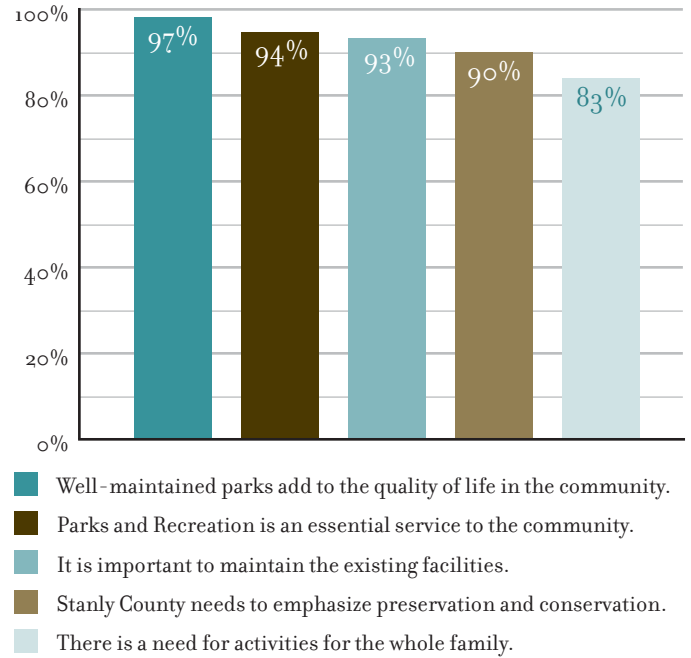
Figure 4. Random Sample Survey Respondents Top Recreational Interests



### Personal Opinions Recommendations

Respondents were given the opportunity to evaluate 25 statements and rank them according to importance. The top five issues are shown in Figure 5.

Figure 5. Personal Opinions of Random Sample Survey Respondents



### Areas of Importance

Respondents were given a list of 62 facilities and programs to consider. Respondents were asked to choose facilities and programs were important to them and their households. Respondents were also asked to indicate if they would support increased funding for the facilities and programs. The top ten results are listed in Table 4 and are recommended for implementation as they correlate with the recreation interests demonstrated by the respondents. Of the top ten results, many of the facilities or programs indicated are related to trails and greenways facilities or activities.



**Table 4. Top 10 Facilities and Programs Important to Random Sample Survey Respondents**

Facility or Program	Importance Rating	Support Increased Funding
Natural areas	85%	15%
Walking trails	83%	14%
Picnic shelters	77%	9%
Playgrounds	77%	12%
Special events and festivals	75%	10%
Youth activities	74%	13%
Festivals for arts and crafts	72%	6%
Passive recreation opportunities	70%	7%
Signed bicycle walking routes	70%	9%
Surveillance in the parks	*69%	18%
Youth leagues	*69%	15%

\*Tied for the tenth spot

### Online Youth Survey Overview

A youth survey was conducted by the project team to measure attitudes and interest in parks and recreation facilities and programs. Respondents could respond to the survey online or on a printed form. Five hundred and fifty (550) local youths took the survey, with the largest number of respondents (229) coming from Gray Stone Day School. The highest percentage of respondents ranged between 13 years and 15 years in age (36.5%), with the respondents in the 16 years to 18 years of age category (34.3%), close behind (see Table 5). Female and male respondents were nearly evenly split, with 51.8% female respondents and 48.2% male respondents.

**Table 5. Youth respondents sorted by age range**

Age Range of Respondents	Response Percent	Response Count
6-8	3.6%	20
9-12	25.6%	141
13-15	36.2%	199
16-18	34.0%	187
Unresponsive	0.50%	3
Total Responses		550

The largest percentage of the respondents live within Albemarle’s boundaries (33.3%), followed closely by respondents who live in unincorporated Stanly County (30.5%). Table 6 shows the distribution of respondents by location.

**Table 6. Distribution of youth respondents by location**

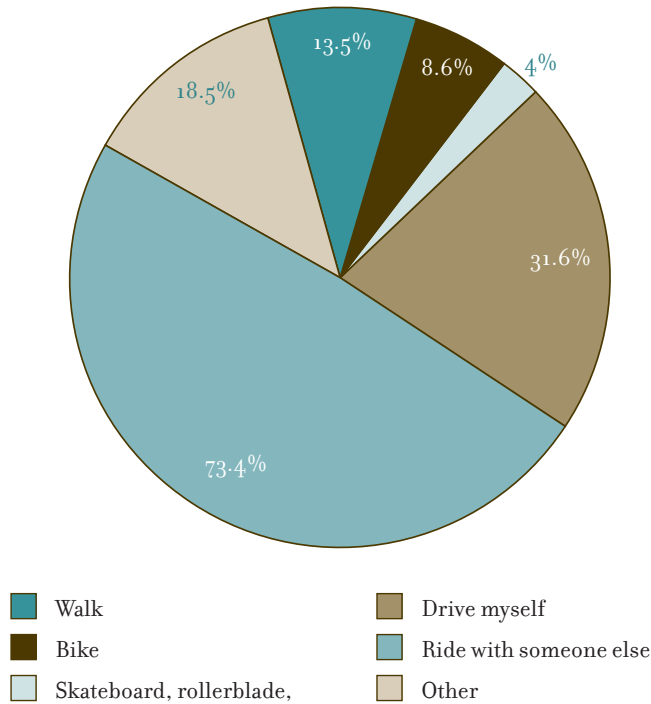
Do you live in the town/city limits of the following places?	Response Percent	Response Count
Albemarle	33.3%	179
Badin	11.3%	61
Locust	1.3%	7
Misenheimer	1.3%	7
New London	11.5%	62
Norwood	3.0%	16
Oakboro	2.0%	11
Red Cross	0.9%	5
Richfield	4.3%	23
Stanfield	1.7%	9
No, I do not live in any of these town/city limits.	30.5%	164
Total Responses		538
Skipped Question		12

Given that most respondents (73.4%) are not of driving age, it was indicated that they “ride with someone else” to get to parks or recreational activities. Figure 6 shows modes of travel used by youth to get to parks in Stanly County. Nearly half of the respondents (44.2 %)



indicated that the lack of transportation “sometimes” kept them from participating in recreation activities or going to parks.

**Figure 6. Youth Mode of Transportation to Parks in Stanly County**



The survey listed 29 facilities or activities and asked that respondents rate each whether it was not needed, slightly needed or most needed. The top five facilities that were rated “most needed” by participants were:

- Playgrounds
- Aquatic Center/Pool
- Special Events and Festivals
- Water Access to Lakes & Rivers
- Youth Centers

The top rated greenway-related facilities are given in Table 7.

**Table 7. Top Rated Trail and Greenway Facilities or Activities**

Top Five Trail and Greenway Facilities	Overall Rank in the Survey
Water access to lakes & rivers	4
Water based recreation	9
Picnic shelters	11
Greenways & trails	17
Mountain bike trails	22



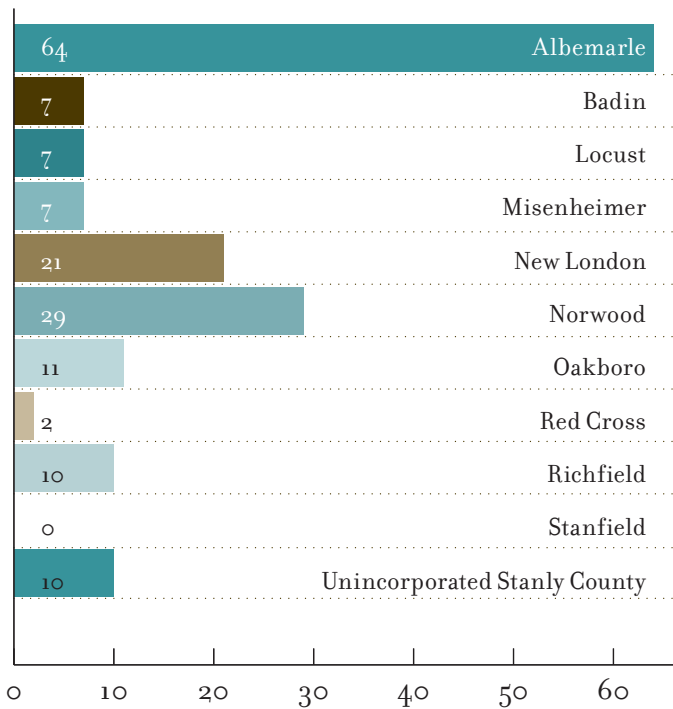
*Water recreation and water access are high priorities for Stanly County youth. (Image: City Lake Park, Source: URS)*



### Follow-up Survey

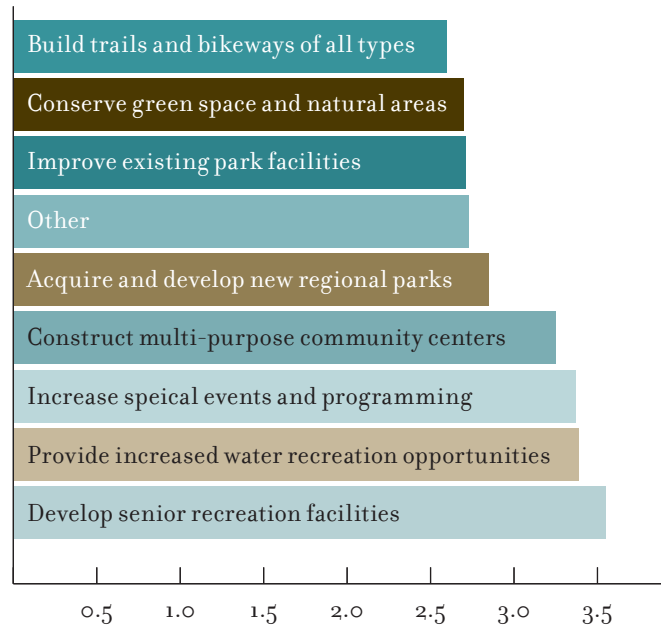
The SCCRP and the consultant team developed and distributed a follow-up survey to obtain public feedback on preliminary plan recommendations and potential CTT alignments and destinations. The survey was distributed at the second round public meetings and via e-mail distribution through SCCRP members. The survey was also made available through local websites. More than 210 county residents participated in the survey. The location of residence of survey respondents is shown in the table below.

Figure 7. Survey 2 Respondents by Location



The Survey asked participants to identify their top investment priorities based on preliminary plan recommendations. “Building Trails and Greenways of All Types” ranked as the number one priority for survey participants.

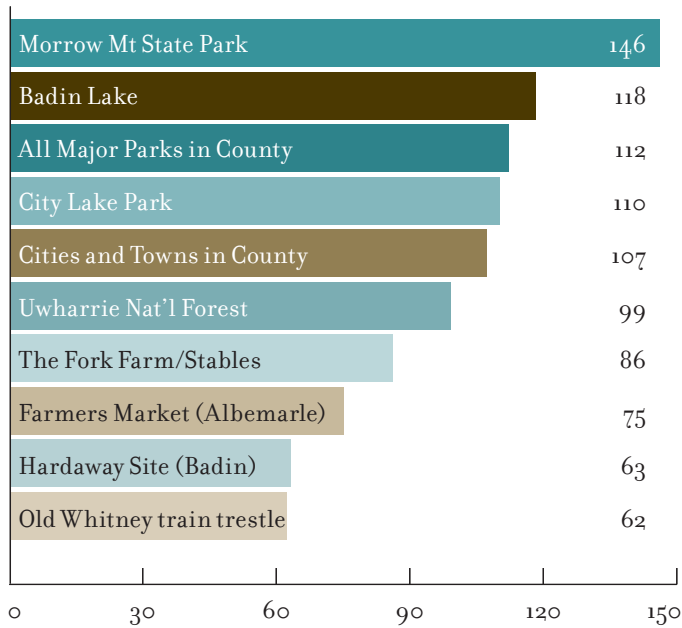
Figure 8. Survey 2 Top Funding Priorities





The survey also asked participants to rank destinations for the Thread Trail in Stanly County. Morrow Mountain ranked as the top destination for survey participants. Other parks, Stanly County municipalities also ranked high on the list. The top 10 destinations for the CTT as ranked by survey participants is shown in the table below.

Figure 9. Survey 2 Top Ten Destinations



Finally, the survey asked participants to rank segments of potential CTT alignments. The rail corridor from Badin to Old Whitney ranked as the top segment. Other top 10 indicated segments are shown on the map at right.

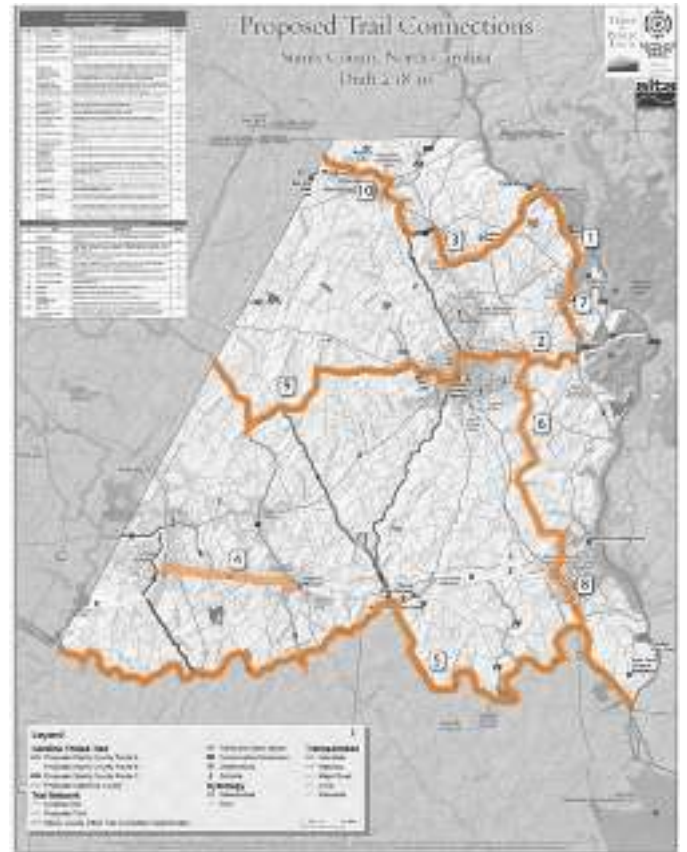
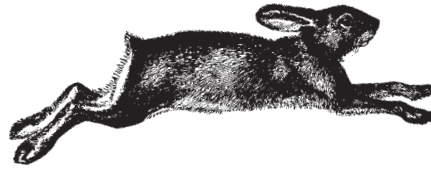


Figure 10: Greenway Segments with High Public Support





## CHAPTER 5. GREENWAY MASTER PLAN TRAIL ROUTES

The proposed Carolina Thread Trail route for Stanly County is outlined in this chapter and reflects the community priorities articulated through the public input process. Chapter 4 of this plan outlines the community input process that informed the Carolina Thread Trail and Greenway Master Plan recommendations. Public outreach was local and grassroots-oriented, with varied and extensive methods to involve the community.

The recommended route includes a total of 109.2 miles of greenways. Of this total, 13.1 miles of greenways represent trails previously recommended in other local planning efforts. The remaining 94.3 miles of newly-proposed greenways are located along streams, utility rights-of-way, and rail corridors. Other trails take advantage of existing and proposed sidewalks, and existing road rights-of-way. Trails on sidewalks are better suited for pedestrians and children than for adult bicyclists. To accommodate these users, it is assumed that the addition of parallel bicycle facilities would be required. Although they are not counted as part of the Carolina Thread Trail’s mileage, the Master Plan proposes blueways along Rocky River, Yadkin River, Long Creek, and Long Lake.

The proposed greenway routes connect the municipalities of Misenheimer, Richfield, New London, Albemarle, Oakboro, Locust, Stanfield, Norwood, and Badin.

In Table 9, which outlines the proposed Carolina Thread Trail route, ID numbers refer to the segment numbers on Figure 11.

Figure 11 depicts the location of the proposed trails. The trails are identified with thick lines that represent ¼-mile corridors of land. It is not intended that the Carolina Thread Trail would encompass an entire ¼-mile corridor of land; rather, the ¼-mile corridor allows flexibility in identifying the final alignment of a trail

when the alignments are studied in more detail.

Table 8 shows the mileage of proposed trails per Stanly County community. The mileage does not reflect planned or proposed local greenways per adopted local plans. The mileage does also not reflect proposed blueways.

Tables 9 and 10 present a summary description of the proposed CTT and other trail routes. The table outlines trail types, lengths, connections made, and access. The Carolina Thread Trail would connect 10 towns, 17 destinations, 22 schools, and tens of thousands of residents.

**Table 8: Trail Mileage by Community**

**Stanly County Carolina Thread Trail**

Jurisdictions	Proposed CTT Route	Local Opportunities
Albemarle	9.7	5.4
Badin	1.8	0.4
Locust	2.6	0.6
Misenheimer	1.9	0
New London	1.6	0.4
Norwood	3.4	0
Oakboro	1.3	0.5
Red Cross	0	0
Richfield	2.1	0.7
Stanfield	4.2	.2
Stanly County Unincorporated	80.6	44.6
Stanly County Total	109.2	52.8

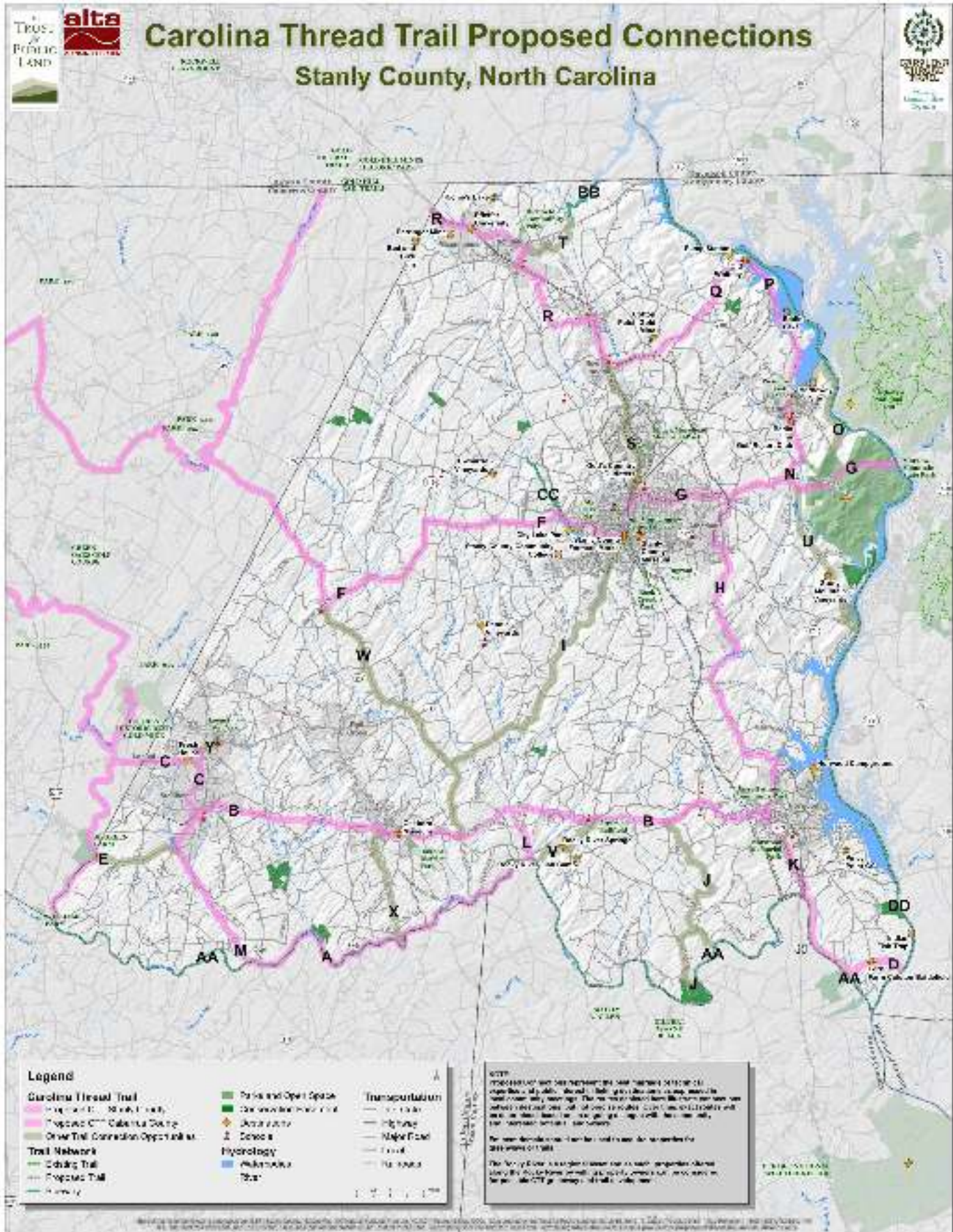


Figure 11: Proposed CTT Routes for Stanly County





**Stanly County - Carolina Thread Trail  
Alternative Route Analysis  
DRAFT 5/20/10**

Route	Proposed CTT Route	
	Miles	Percentage
<b>Total Length (mi)</b>	<b>109.2</b>	
Existing Greenways (mi)	1.7	1.6%
Proposed Greenways (mi)	13.1	11.0%
Newly Proposed Greenway (mi)	94.3	86.4%
New Trail via Stevens River Corridor (mi)	27.7	25.4%
New Trail via Doherty ROW (mi)	2.6	2.4%
New Trail via Highway (mi)	6.9	6.0%
New Trail via Dirt Road	6.9	6.0%
New Trail via New Trail	6.5	6.0%
New Trail via Existing Sidewalk (mi)	3.9	3.7%
New Trail via Proposed Sidewalk (mi)	2.3	2.0%
New Trail via Existing Road ROW (mi)	26.1	23.9%
New Trail via Rail Corridor (mi)	26.1	24.0%
<b>Connections and Destinations</b>		
Town Connections	9	90.0%
Cross-County Connections	9	
Destinations within walking distance*	9	94.6%
Schools within walking distance**	9	40.9%
Through Parks (mi)	4.1	4.4%
<b>Access</b>		
Children within service area***	4,360	31.1%
Seniors within service area***	1,884	34.9%
Total Residents within service area***	19,176	31.4%
Low Income Households within service area***	3,777	34.1%
<b>Regional Metrics</b>		
Miles per 1000 residents	1.84	
Miles per 10 sq miles county area	2.70	

\*Walking Distance assumed at 1/2 mi  
 \*\*Service Area assumed at 1/2 mi  
 \*\*\*Based on 2007 census projections (Claritas)

TOTALS	
Towns	10
Destinations	26
Schools	23
Children (under 18)***	14,012
Seniors (over 65)***	4,787
Residents***	59,328
Low Income HHs (less than \$25K/yr)***	9,614
County Area (sq mi)	454.0



**Table 9: Proposed Carolina Thread Trail Route  
Stanly County Greenway Connection Identification**

ID	TYPE	DESCRIPTION	MILES
A	Creek Corridor	Along Rocky River from segment L to segment M.	11.5
B	Rail Corridor	Connection between Stanfield and Norwood.	18.3
C	Existing Sidewalk, New Trail, Creek Corridor	From Cabarrus County line along existing sidewalk in Locust; then south on new trail to East Prong Rock Hole Creek connecting to segment B.	4.1
D	Creek Corridor New Trail	From segment K south along Rocky River to the Fork ending at the Montgomery County line.	4.7
F	Road ROW, Existing Sidewalk, Proposed Sidewalk, New Trail	From Cabarrus County line southeast along Lambert to Five Point to Ridgecrest. Then north onto Millingport and then east on Hatley Farm Rd. to Community Rd. to Treece Rd. to Fink Rd. Continue along Hwy 73 on proposed sidewalk and enter City Lake Park. Through City Lake Park on new trail and proposed trail connecting with Kingsley Rd. on proposed sidewalk and then Main Street on existing sidewalk. Connecting with segment G in Albemarle.	15.1
G	Proposed Trail, Proposed Sidewalk, Road ROW, Existing Trail	From Segment F on Main Street follow proposed trail north on rail corridor and then east along Melchor Branch to proposed sidewalk on Moss Springs Rd. Then take NC 740 north to Morrow Mountain Road. Follow Morrow Mountain Road east to Morrow Mountain State Park entrance. Continue through the park, ending at the boat ramp.	11.3
H	Proposed and Existing Trail, Proposed Sidewalk, Creek Corridor, Road ROW	From segment G follow proposed trail south from NC 740 to proposed sidewalk on Main Street and then along Anderson Road to Jacobs Creek corridor. Follow Jacobs Creek and then take Dennis Road to unnamed creek corridor going south to Pee Dee Road. Take Pee Dee Road to Norwood proposed trail ending on Norwood existing trail and connecting with segment B in Norwood.	12
K	Rail Corridor, Proposed Trail	From segment B in Norwood south along rail corridor to proposed trail ending at the Rocky River.	3.0
L	Creek Corridor	South along Long Creek from segment B to the Rocky River.	1.6
M	Creek Corridor	From junction with segments B and C, south along East Prong Rock Hole Creek to Rock Hole Creek ending at the Rocky River.	4.2
N	Creek Corridor, Proposed Trail	North from Morrow Mountain State Park along Little Mountain Creek connecting into Badin along proposed trail.	3.2
P	Proposed Trail, Rail Corridor	From Badin north along proposed trail to rail corridor ending at Old Whitney.	4.9
Q	Rail Corridor, Proposed Trail	From Old Whitney west along rail corridor to proposed trail ending at the junction with segments R and S.	5.8
R	Utility Corridor, Road ROW	From segment Q and S; north along Hwy 52 to New London. Then west along Steakhouse Road. Follow utility corridor north along Town Creek into Richfield. Then connect to existing sidewalk on Church Street to Main Street. Take Curl Tail Creek west into Richfield Community Park and connect to utility corridor. Take utility corridor to Pfeiffer Road to existing sidewalk on Hwy 52. Take Lions Club to Glenmore ending at the Cabarrus County line.	9.2

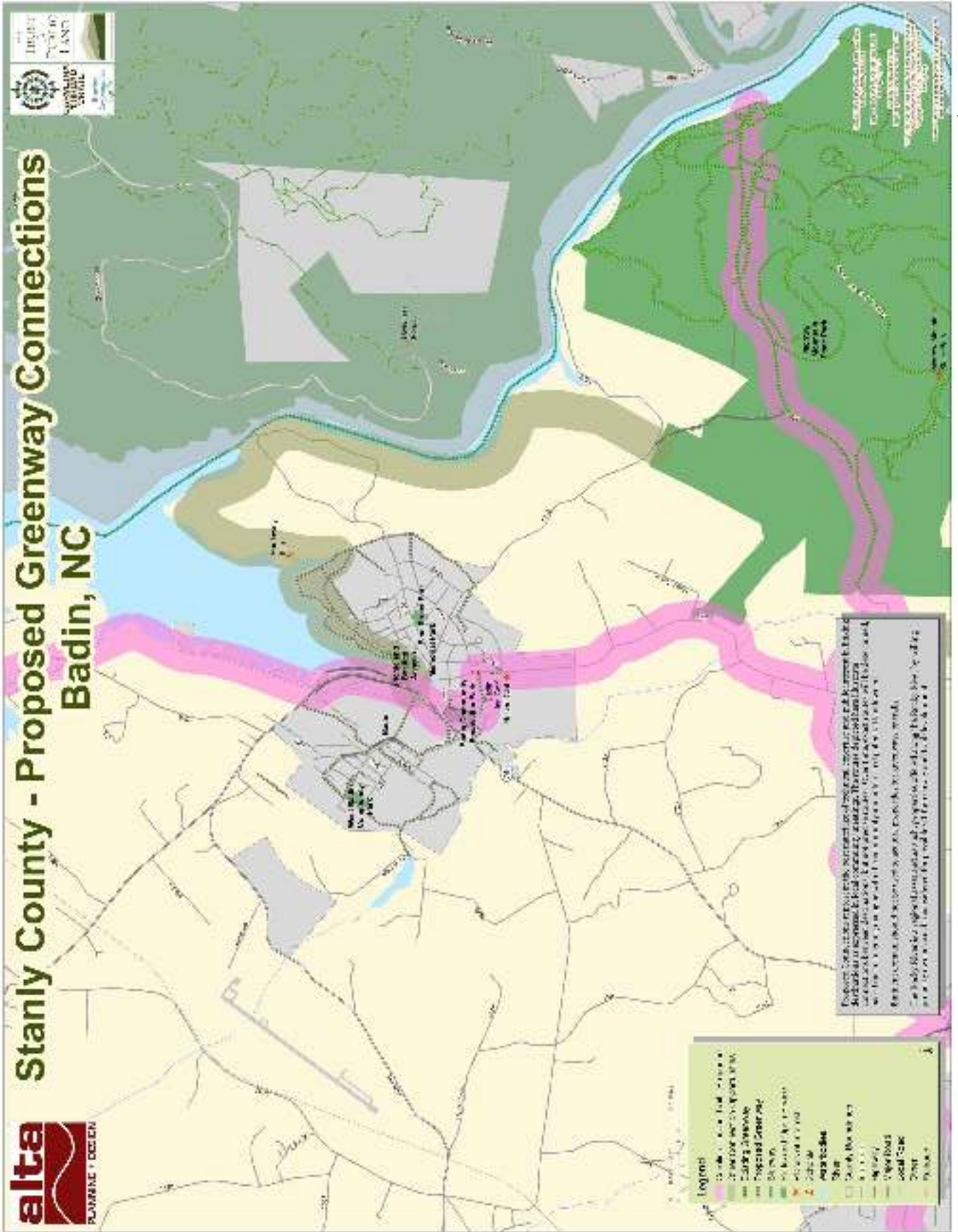


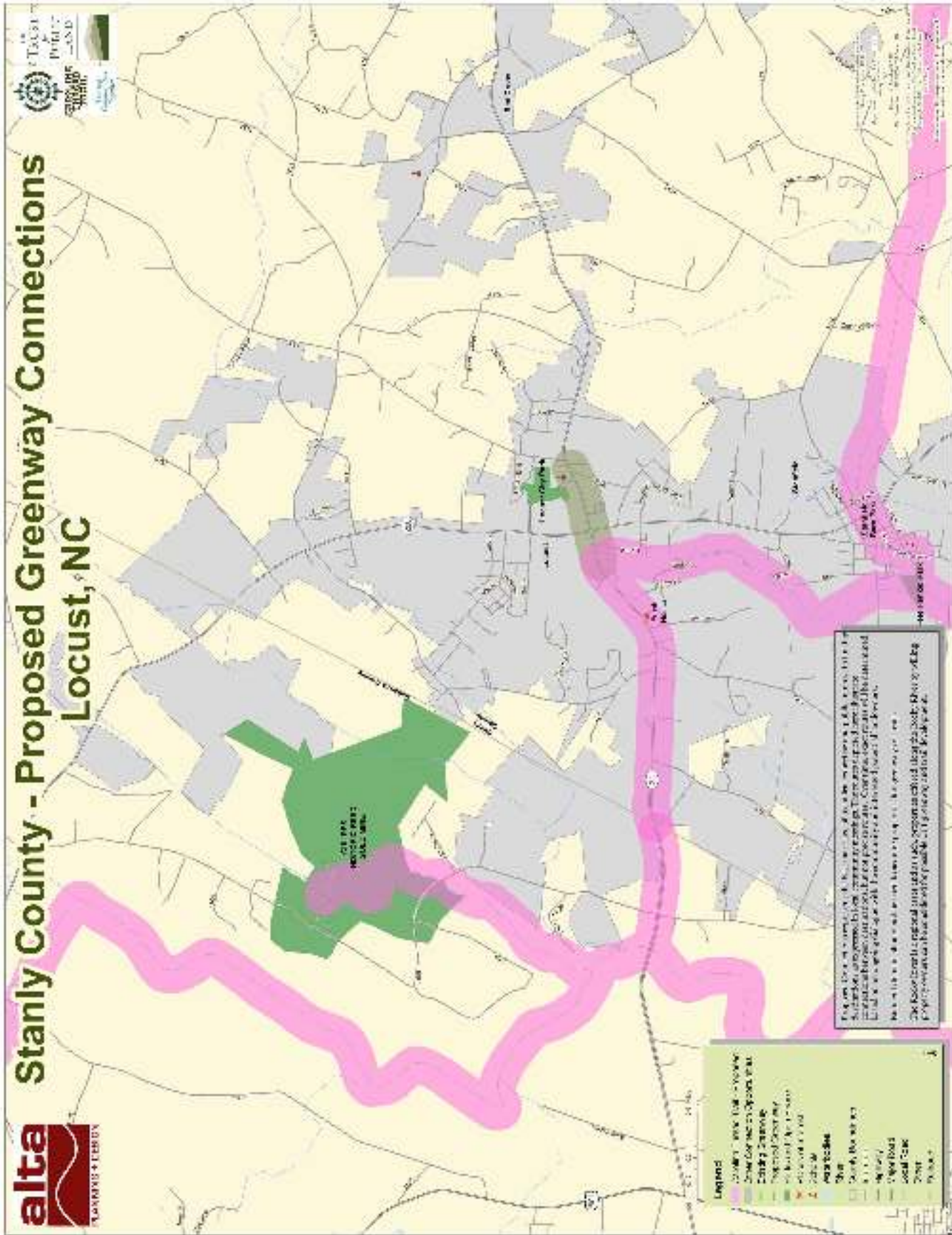
**Table 10: Proposed Other Connection Opportunities (Green Routes)**

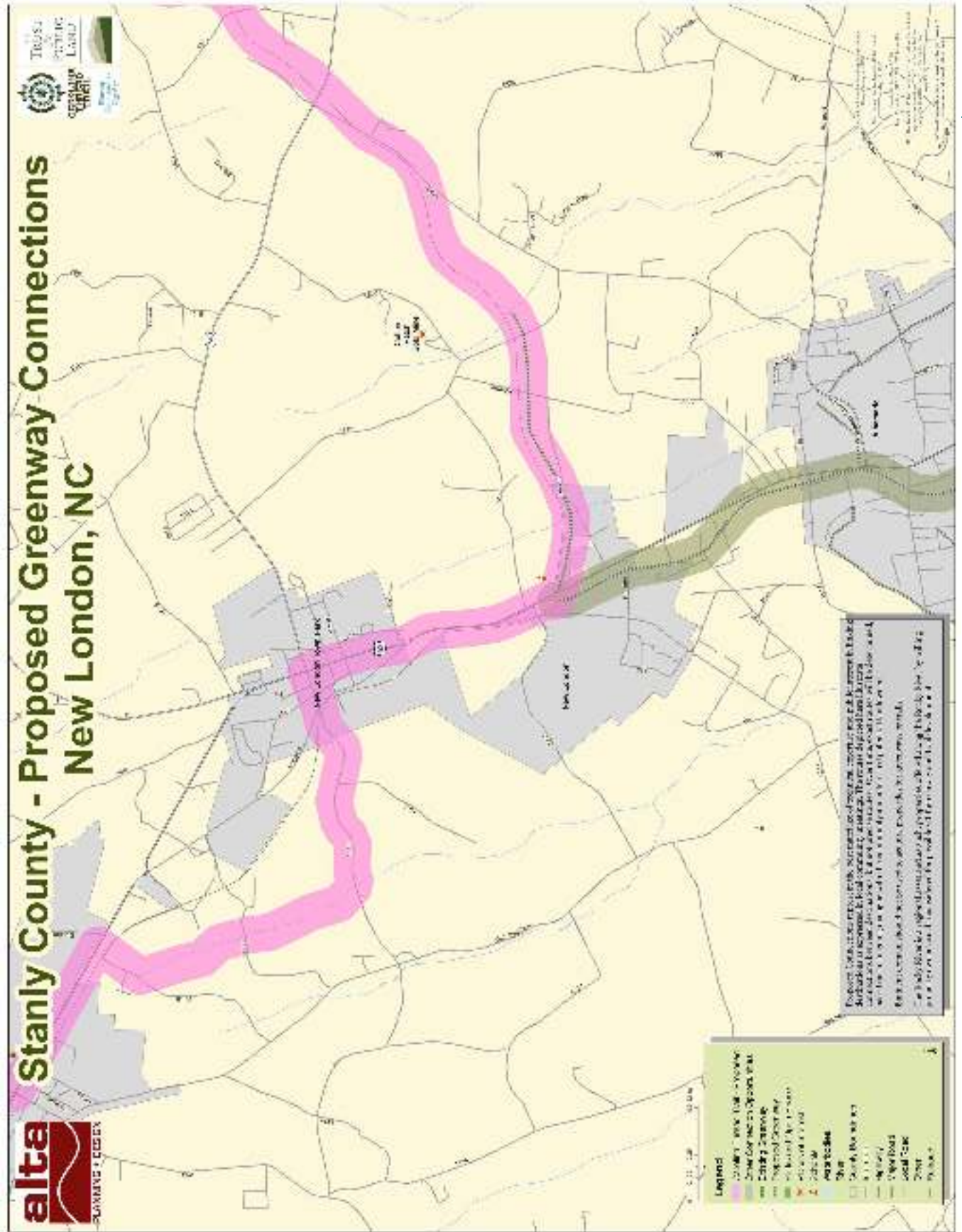
**Stanly County Greenway Connection Identification**

E	Road ROW, New Trail	Connection from Rocky River to segment M via new trail.	2.7
I	Creek Corridor Proposed Trail	From Albemarle take proposed trail south to Long Creek. Follow Long Creek south to Hartsell Rd.; then take St Martin Rd. connecting to segment W.	9.7
J	Creek Corridor Road ROW	From Junction with segment B south along Hardy Creek ending at the Rocky River. Optional route from Hardy Creek along Mt. Zion Road to Plank Road ending at Plank Road bridge at the Rocky River	7.7
O	Proposed Trail, New Trail	From Badin follow proposed trail east to new trail that connects to Morrow Mountain State Park.	5.0
S	Proposed Trail	From junction with segment G in Albemarle north along proposed trail to junction with segments Q and R.	4.2
T	Creek Corridor	From junction with segment R in Richfield follow Curl Tail Creek to junction with blueway segment BB.	2.3
U	Road ROW, Utility Corridor	From junction with segment G south along utility corridor to Strand Road to Fox Road to Tar Heel road ending at the Hwy 24/27 bridge and the Montgomery County line.	5.5
V	Creek Corridor	From junction with segment B in Aquadale south along Alligator Branch to the Rocky River.	2.5
W	Road ROW, Existing Sidewalk	From junction with segment F south along Ridgecrest Road to Frog Pond Road to Hazard Road and connect to segment B.	9.0
X	Utility Corridor, Creek Corridor	From junction with segment B in Oakboro south along utility corridor to Coldwater Branch ending at the Rocky River.	3.6
Y	Existing Sidewalk	From junction segments C in Locust travel east on existing sidewalk to Locust City Park	0.6
<b>Proposed Blueway Opportunities (Blue Routes)</b>			
AA	Blueway	Rocky River from Cabarrus County to the Fork	39.7
BB	Blueway	Blueway along Riles Creek/Yadkin River to Roan County line.	1.8
CC	Blueway	Blueway south along Long Creek to Long Lake	2.0
DD	Blueway	Blueway south from Roan County line to Anson County line	31.4



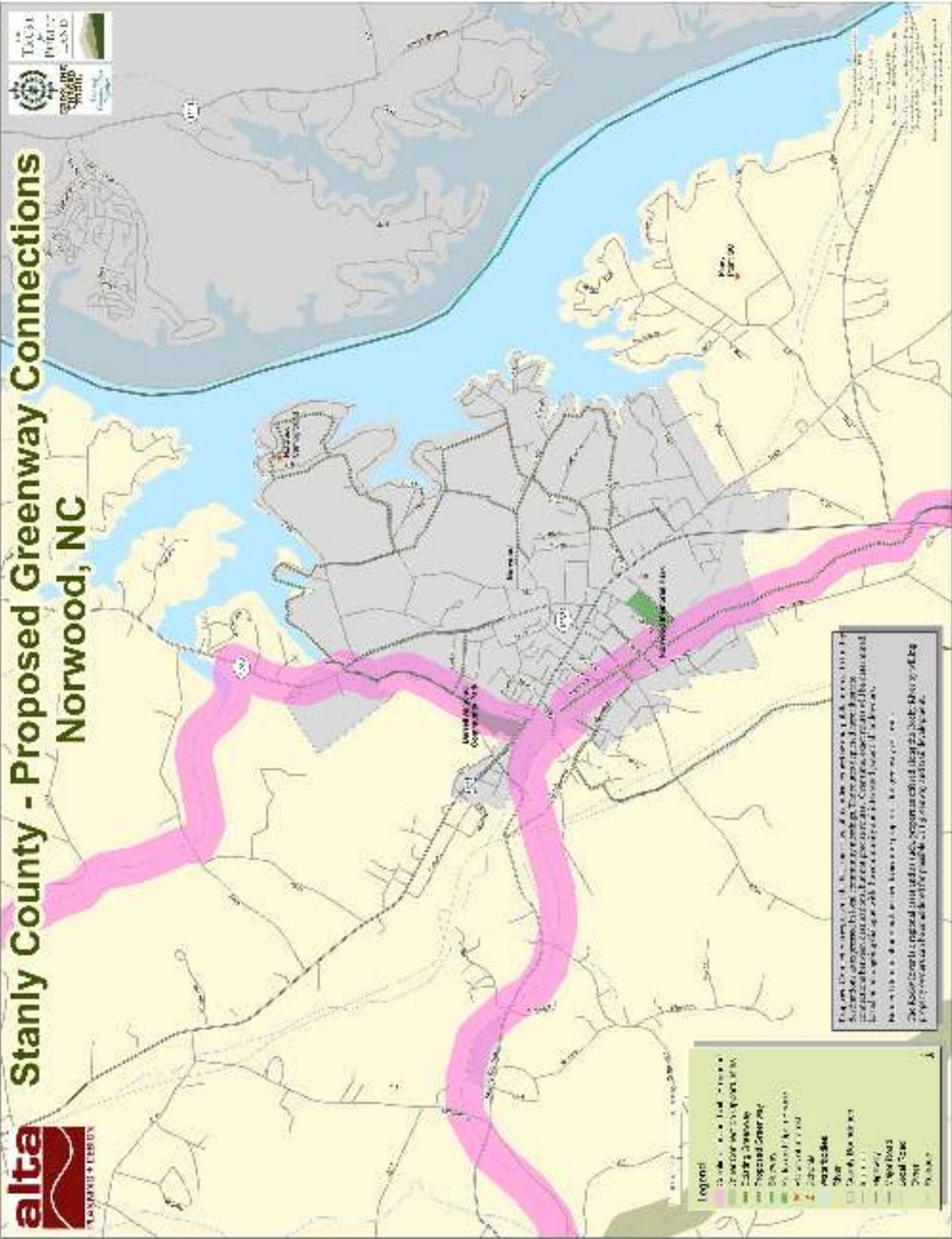




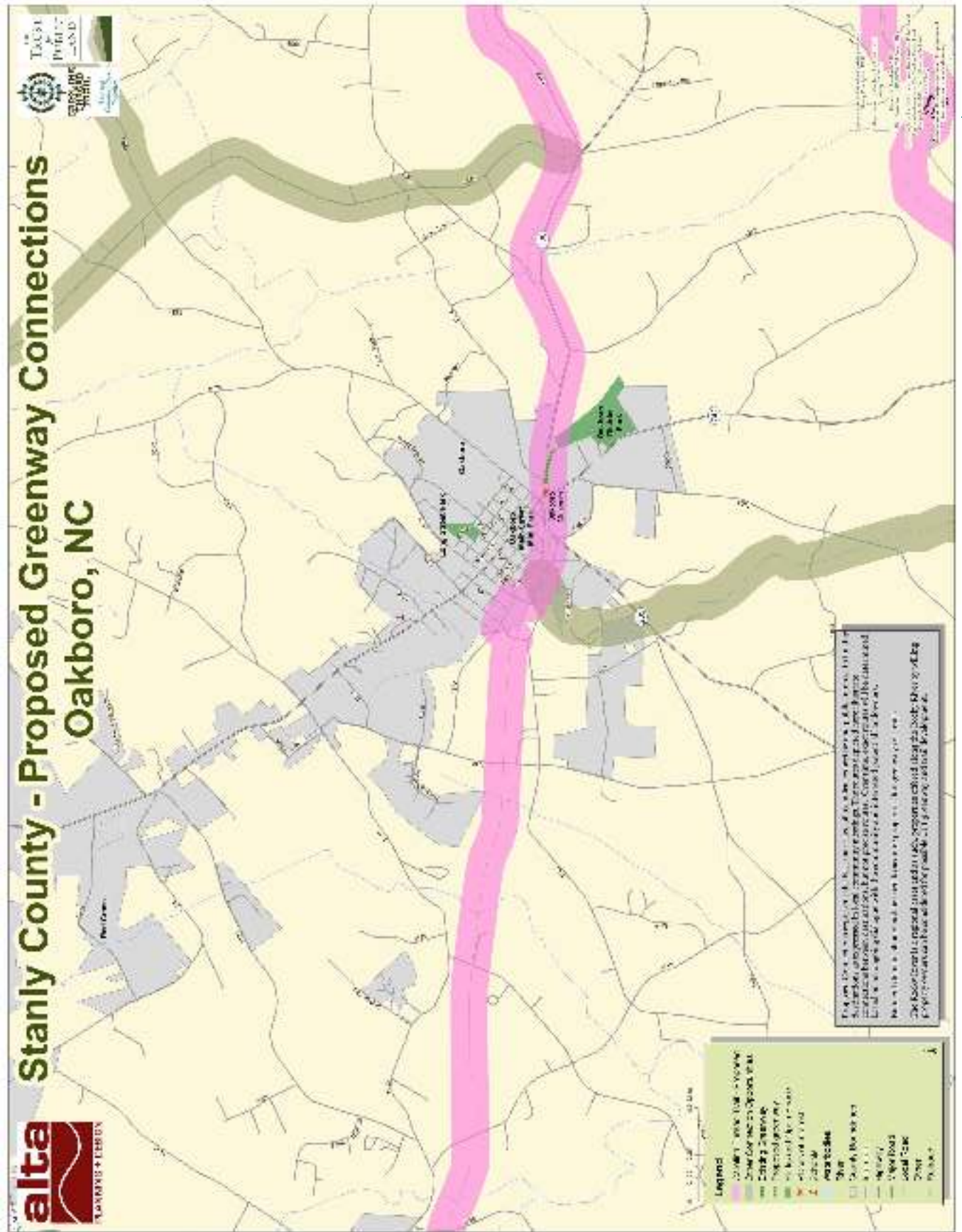


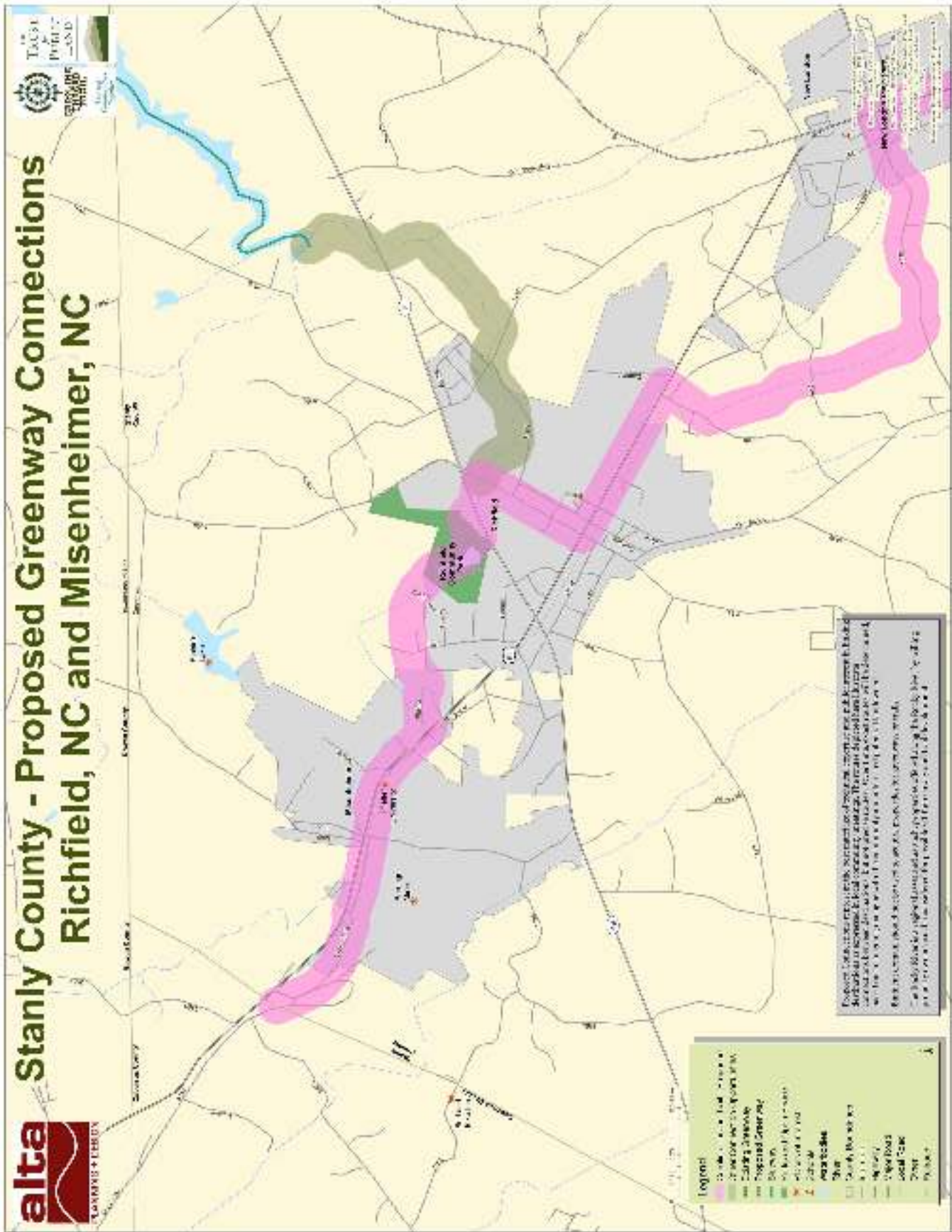


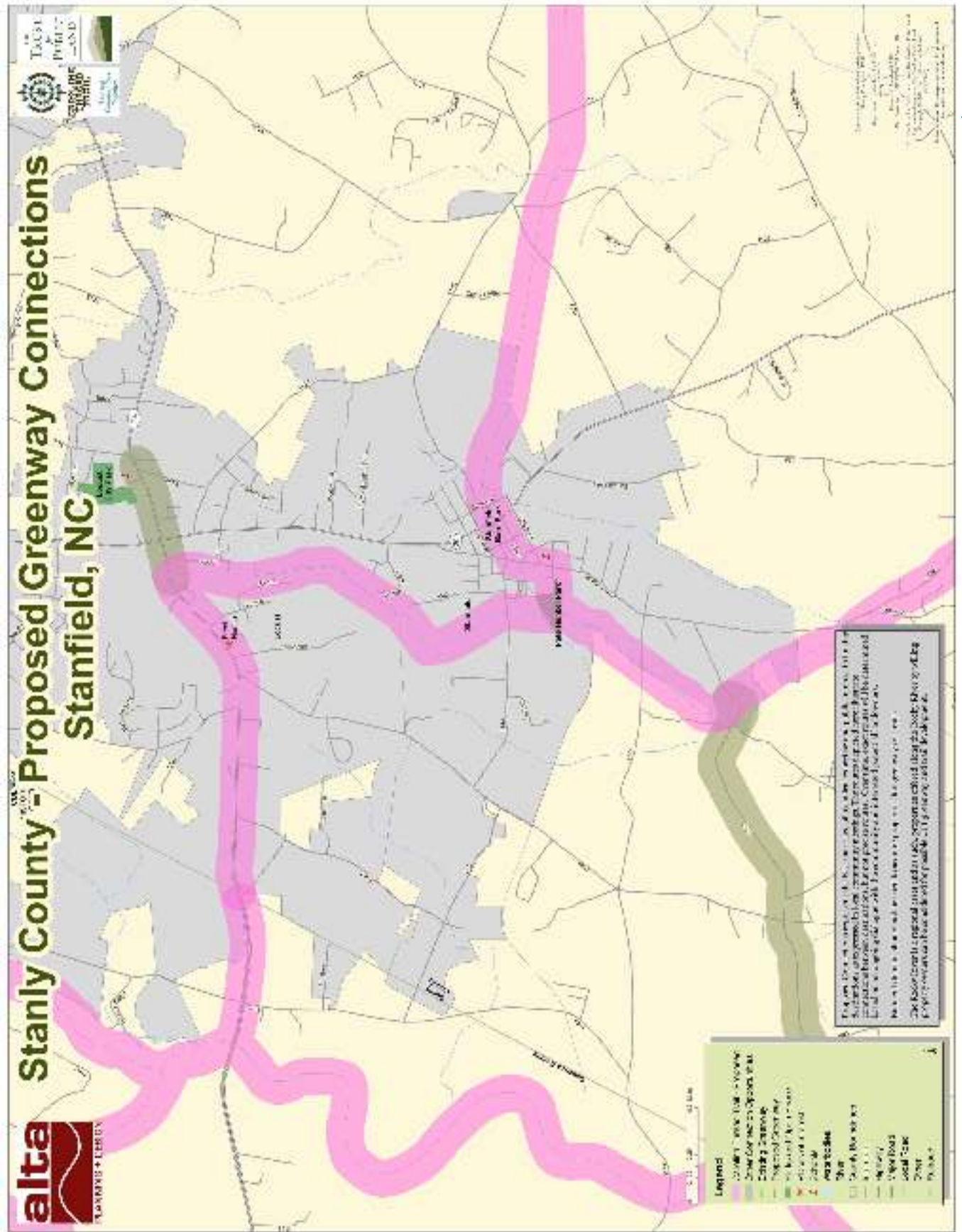
# Stanly County - Proposed Greenway Connections Norwood, NC













*Chuck Morehead Memorial Park, Albemarle (photo: City of Albemarle)*



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## CHAPTER 6. RECOMMENDED ACTIONS FOR IMPLEMENTATION

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### ADOPT THE PLAN

The *Carolina Thread Trail Greenway Master Plan for Stanly County Communities* will be an important tool for County and municipal residents, boards, and officials as the community makes decisions about economic development, land use, transportation, open space preservation, environmental protection, and recreation development in Stanly County. Adopting the *Carolina Thread Trail Plan for Stanly County* is a critical first step in identifying the County's trail opportunities and challenges and will influence County and municipal policy and decisions regarding trail development in the County. Adopting the Master Plan will help Stanly County get the Carolina Thread Trail built, by making the County eligible for funding by CTT and other sources and provide key political and public support for this visionary effort.

### BUILD PUBLIC SUPPORT

#### Establish a “Friends of the Carolina Thread Trail” Organization

A trail system such as the Carolina Thread Trail will be most successful when supported by a county-wide citizens' group. Stanly County communities have tremendous social capital that should be tapped to provide implementation opportunities for the Carolina Thread Trail. The primary purpose of a Friends group would be to generate support and interest in the Carolina Thread Trail among local and regional partners. Ultimately, such a group should work to ensure that public and political interest in the Carolina Thread Trail remains high and that the trails are successfully used and maintained once built.

A Friends group could organize events that improve the trail corridors, including tree plantings, clean-up

activities, trail monitoring, bridge building, and invasive plant removal. The group could work with other civic organizations and local businesses to get in-kind donations for cleaning up trail corridors (e.g., a local hauling service could donate a truck to haul away debris or a local nursery could donate native plants for enhancement activities). The group could also work with local artists and designers, as well as students from local schools, colleges, and universities, to develop user maps and signs, interpretive illustrations, and functional artwork for the corridor. The group could also perform fundraising activities for trail enhancements, such as interpretive sites in the County. Additionally, the group could be responsible for assisting the County and municipalities with grant writing efforts to secure state funding for the next phases of development.

#### Develop a Trail Identity for Stanly County

A unique and identifiable image for trail and greenway signs in the county will create a sense of continuity and consistency throughout the trail corridors, especially on local greenways that tie into the Carolina Thread Trail. Project partners could coordinate with local schools, artists, and college and university students to develop an image or concept that embodies the trail and greenway corridors for trail signs, interpretive areas, and maps and that ties in with the overall CTT identity and logo elements. Potential themes include:

- Dominant landscape elements – creeks, the lakes, Rocky River, hills and mountains, vegetation
- Walking and bicycling elements – silhouettes of people walking and riding, equipment
- Place names – community names; creek, river, or lake name
- Historic elements – pioneers, Native American cultures,



agriculture, railroad

- Environmental elements – wildlife habitats, floodplains, watersheds

### COMPLETE PRIORITY GREENWAY ROUTES

#### Greenway Prioritization

The following criteria support the selection of priority Carolina Thread Trail routes:

**Public Support:** Priority Carolina Thread Trail and local greenway routes are those that have the support of the public. Figure 1 depicts the ten greenway routes that received the highest amount of public support, based on data from the community survey.

**Importance of Connection:** Carolina Thread Trail routes should provide connections to key destinations throughout Stanly County and beyond its borders. Some of these destinations include: Morrow Mountain State Park, cities and towns, parks, Pfeiffer University, Badin Lake, Stanly County Museum, the Rocky River, and many others.

**Willing Property Owners and Available Right-of-Way:** Many of the proposed Carolina Thread Trail routes will be located along private property. Priority Carolina Thread Trail routes should include those that are located along the property of willing landowners, public land, and available rights-of-way.

**Cost and Available Funding:** Priority Carolina Thread Trail routes are those that require less cost, and/

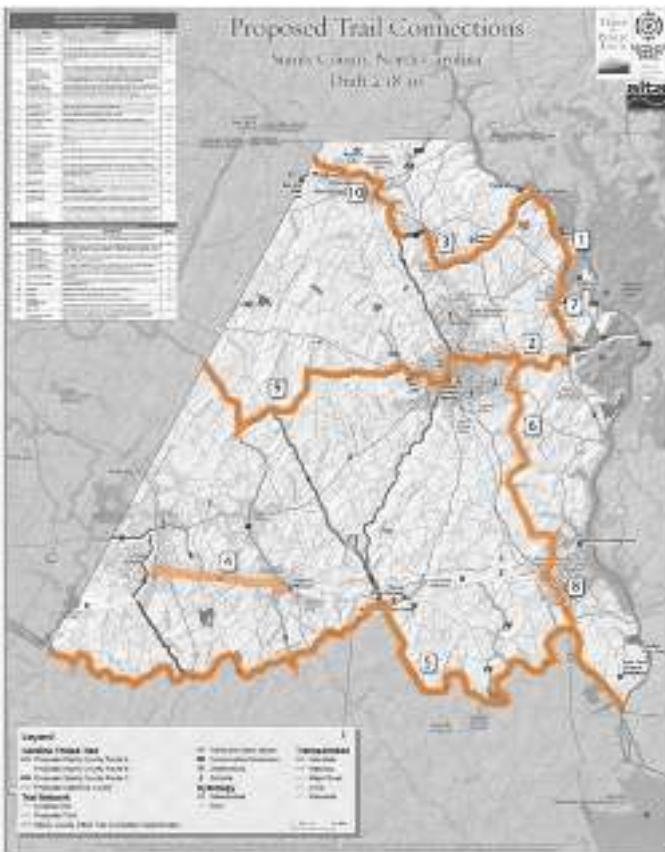


Figure 12: Greenway Segments with High Public Support



Figure 13: Priority Greenway Routes



or for which funding is available. Planning-level costs have been projected for the Option A and Option B of the Carolina Thread Trail.

**Ease of Implementation:** Since the Carolina Thread Trail will require negotiations with railroads, utility companies, municipal governments and agencies, and private property owners, priority is given to the least challenging routes to implement.

Based on these criteria, seven Carolina Thread Trail routes are identified as high priority. Table 11 depicts the greenway priority matrix.

Based on the priority matrix, Table 12 outlines the following greenway routes that are identified as high priority. Routes are listed in priority order.

Figure 13 depicts the locations of the priority routes.

Trail construction costs vary by location, state of the economy, condition of right-of-way, and surface type. The following list identifies the range of costs associated

Route Letter	P	G	Q	B	A	H	N	K	F	U
Public Support Ranking (Per Survey And Public Meeting Input)	1	2	3	4	5	6	7	8	9	10
Public Support Importance Of Connection (Number Of Priority Destinations Served)	1	1	1	1	1	1	1	1	1	1
Willing Property Owners And Available Row	6	5	4	1	1	2	5	2	3	1
Cost And Available Funding (Assumes Less Expense Along Existing Rows)	1	0	1	1	0	0	1	1	0	1
Ease Of Implementation (Assumes Easier Implementation In Municipalities And Along Existing Row)	2	1	1	1	0	0	1	1	0	1
Total	1	0	1	1	0	0	1	1	0	1
	11	7	8	5	2	3	9	6	4	5

**Table 12: Carolina Thread Trail in Stanly County Priority Routes**

Route Descriptions			
ID	TYPE	DESCRIPTION	MILES
P	Proposed Trail, Rail Corridor	From Badin north along proposed trail to rail corridor ending at Old Whitney.	4.9
N	Road ROW, Proposed Trail	North from junction with segment G along Valley Drive connecting into Badin along proposed trail.	2.8
Q	Rail Corridor, Proposed Trail	From Old Whitney west along rail corridor to proposed trail ending at the junction with segments R and S.	5.8
G	Proposed Trail, Proposed Sidewalk, Road ROW, Existing Trail	From Segment F on Main Street follow proposed trail north on rail corridor and then east along Melchor Branch to proposed sidewalk on Moss Springs Road. Then take NC 740 north to Morrow Mountain Road. Follow Morrow Mountain Road east to Morrow Mountain State Park entrance. Continue through the park ending at the boat ramp.	11.3
K	Rail Corridor, Proposed Trail	From Norwood segment B south along rail corridor to proposed trail ending at the Rocky River	3.0
B	Rail Corridor	Connection between Stanfield and Norwood	18.3
U	Road ROW, Utility Corridor	From junction with segment G south along utility corridor to Strand Road to Fox Road to Tar Heel road ending at the Hwy 24/27 bridge and the Montgomery County line.	5.5



with different trail surface types. These costs are based on local construction sources, as well as national sources (including the Rails-to-Trails Conservancy) and experience in other regions. Costs are given per mile, and do not include land acquisition.

Asphalt - \$100K - \$750K

Concrete - \$300K - \$500K

Crushed/granular stone - \$60K - \$130K

Soil cement - \$60K - \$100K

Resin-based stabilized material – varies

Boardwalk - \$1.5 mil – \$2 mil

#### INITIATE OTHER PRIORITY ACTION STEPS AND POLICY RECOMMENDATIONS

This Carolina Thread Trail Greenway Master Plan for Stanly County Communities is intended to serve as a point of beginning in developing a network of trails in Stanly County with connections to the surrounding region. The steps required to implement the trails identified in this plan will vary by project and by municipality. The goals, recommended policies, and action steps listed below supply the policy and implementation framework for the Master Plan at the county and municipal level.

The aspirations of county residents and other stakeholders expressed during the planning process are directly reflected in the recommended action steps. The recommendations are a composite of feedback from focus groups and stakeholders, Steering Committee input, the county-wide park and recreation needs assessment survey, youth survey, a follow-up survey, as well as eight public meetings during the planning phase of the project. Throughout all of the public outreach efforts, trails were a top priority for Stanly County residents.

This master planning process is ongoing, and will require continual re-examination of goals and priorities to reflect shifts in user patterns, community desires, demographics, availability of land and availability of

financial resources. As such, the recommendations addressed in this master plan should be regularly reviewed and updated.

The following action steps and policy recommendations should be considered in planning and implementing future Carolina Thread Trail improvements in Stanly County.

#### Action Step #1

Strategically pursue trail projects to maximize results and minimize costs.

- 1.1 Study for feasibility and develop the proposed Carolina Thread Trail routes (approximately 90 miles) and other recommended local greenways/trails as reflected in the adopted Carolina Thread Trail Greenway Master Plan for Stanly County Communities as well as locally adopted pedestrian, bicycle, and greenway plans.
- 1.2 Pursue land and/or easements and funding for higher-priority trail projects first.
- 1.3 Work with local agencies and private landholders to secure trail easements and access to greenspace for trail connections.
  - 1.3.1 As opportunities arise with willing land owners, protect land for a greenway along the Rocky River corridor, as recommended in the Stanly County Land Use Plan.
  - 1.3.2 Coordinate with local railroad owners and operators for potential rail-with-trail or rail-to-trail opportunities.
  - 1.3.3 Provide coordination with other trail development efforts in the region (e.g., PTCOG plan for Piedmont counties; Mountain to Sea Trail; Uwharrie trails; surrounding counties).
  - 1.3.4 Coordinate with NCDOT and the Rocky River RPO for opportunities to fund and develop Carolina Thread Trail routes.
- 1.4 In the case where grant requirements or construction in conjunction with another project make construction of a lower priority trail project possible, pursue funding





sources for that trail project regardless of priority.

- 1.5 Publish a public report documenting the status and ongoing actions for all trail projects at the end of each fiscal year.

#### **Action Step # 2**

Ensure that the Carolina Thread Trail Master Plan for Stanly County project list is current and relevant.

- 2.1 Review and update the Carolina Thread Trail Greenway Master Plan for Stanly County Communities as needed, within a minimum of every ten years, with input from the SCCRP, Carolina Thread Trail Subcommittee, local advocacy groups, and land use agencies.
- 2.2 Share updated Carolina Thread Trail Master Plan project list with the public and the municipalities.

#### **Action Step # 3**

Integrate Carolina Thread Trail planning and construction into the municipalities' day-to-day activities of planning, designing, funding, constructing and maintaining infrastructure.

- 3.1 Promote recreation easements and open space corridors through existing and future development areas for use as linear parks and trails. Integrate the siting of proposed trail segments into the development review process.
- 3.2 Install approved trail projects simultaneous with road, stormwater, or utility improvements projects scheduled in the same area, regardless of the priority placed upon a trail project.
- 3.3 Adopt policies that promote walking and bicycling.
- 3.4 Adopt a Complete Streets Policy to ensure that consideration of bicycle and pedestrian facilities are included in all major construction and reconstruction projects. Bicycle and pedestrian facilities should be addressed at the project scoping stage.

#### **Action Step # 4**

Encourage private donors to support the Carolina Thread Trail

- 4.1 Institute an "Adopt a Trail" program to encourage corporations, institutions and individual private donors to support the Carolina Thread Trail system.
- 4.2 Leverage this program to enhance maintenance through volunteer work to can connect philanthropy with fundraising to sustain the system.
- 4.3 Evaluate the opportunities for establishing a philanthropic giving program that can be used to support the construction and maintenance of Stanly County's Carolina Thread Trail.

#### **Action Step #5**

Qualitatively measure Stanly County's progress toward implementing the Carolina Thread Trail Master Plan

- 5.1 Establish measures of effectiveness to evaluate the County's progress toward meeting the goal outlined in this Carolina Thread Trail Master Plan.
- 5.2 Include measurable indicators of progress and time-sensitive targets for the County to meet.

### **FUND TRAIL IMPLEMENTATION**

#### **Funding for the Carolina Thread Trail and Local Greenways**

A variety of potential funding sources are available to help pay for the Carolina Thread Trail in Stanly County, including private, local, State, regional, and Federal funding programs. Many of these involve the completion of extensive applications with clear documentation of the project need, costs, and benefits, and which compete with similar applications from other communities.

A summary of potential public funding sources for trail projects is provided in Appendix III. Some are restricted to specific types of improvements. It is important to note



that many of the funding sources are highly competitive and it is impossible to determine exactly which projects will be funded by which funding sources. It is also difficult to pinpoint the timing of projects, due to dependence on competitive funding sources, timing of related infrastructure and development projects, and the overall economy.

### **Right-Of-Way Acquisition Strategies For Trails**

The relationship of the parties in a trail corridor will be driven to a great extent by which entity holds the dominant property interest. The type of property acquisition influences both the ease of implementing the project and the liability burden. There are four types of property acquisition: purchases, landowner incentive measures, conservation easements, and licenses.

#### **Purchases**

##### **Market Value Purchase**

Through a written purchase and sale agreement, a local government purchases land at the present market value based on an independent appraisal. Timing, payment of real estate taxes and other contingencies are negotiable.

##### **Partial Value Purchase (or Bargain Sale)**

In a bargain sale, the landowner agrees to sell for less than the property's fair market value. A landowner's decision to proceed with a bargain sale is unique and personal; landowners with a strong sense of civic pride, long community history or concerns about capital gains are possible candidates for this approach. In addition to cash proceeds upon closing, the landowner may be entitled to a charitable income tax deduction based on the difference between the land's fair market value and its sale price.

##### **Option to Purchase Agreement**

This is a binding contract between a landowner and the local government that would only apply according to the conditions of the option and limits the seller's power to revoke

an offer. Once in place and signed, the Option Agreement may be triggered at a future, specified date or upon the completion of designated conditions. Option Agreements can be made for any time duration and can include all of the language pertinent to closing a property sale.

##### **Right of First Refusal**

In this agreement, the landowner grants the local government the first chance to purchase the property once the landowner wishes to sell. The agreement does not establish the sale price for the property, and the landowner is free to refuse to sell it for the price offered by the government agency. This is the weakest form of agreement between an owner and a prospective buyer.

##### **Life Estates & Bequests**

In the event a landowner wishes to remain on the property for a long period of time or until death, several variations on a sale agreement exist. In a life estate agreement, the landowner may continue to live on the land by donating a remainder interest and retaining a "reserved life estate." Specifically, the landowner donates or sells the property to the local government, but reserves the right for the seller or any other named person to continue to live on and use the property. When the owner or other specified person dies or releases his/her life interest, full title and control over the property will be transferred to the local government. By donating a remainder interest, the landowner may be eligible for a tax deduction when the gift is made. In a bequest, the landowner designates in a will or trust document that the property is to be transferred to the local government upon death. While a life estate offers the local government some degree of title control during the life of the landowner, a bequest does not. Unless the intent to bequest is disclosed to and known by the local government in advance, no guarantees exist with regard to the condition of the property upon transfer or to any liabilities that may exist.



### Landowner Incentive Measures

The following tools should be considered by the County and local municipalities as a means to incentivize developer participation in the development of the Carolina Thread Trail and local greenway network.

#### Density Bonuses

Density bonuses are a planning tool used to encourage a variety of public land use objectives, usually in urban areas. They offer the incentive of being able to develop at densities beyond current regulations in one area, in return for concessions in another. Density bonuses are applied to a single parcel or development. An example is allowing developers of multi-family units to build at higher densities if they provide a certain number of low-income units or public open space. For density bonuses to work, market forces must support densities at a higher level than current regulations.

#### IRC 1031 Exchange

If the landowner owns business or investment property, an IRC Section 1031 Exchange can facilitate the exchange of like-kind property solely for business or investment purposes. No capital gain or loss is recognized under Internal Revenue Code Section 1031 (see [www.irc.gov](http://www.irc.gov) for more details).

#### Conservation Easements

In most instances, full ownership acquisition is not necessary for trail development, and, in many cases, is not really an option. Easements typically are acquired when the landowner is willing to forego use of the property and development rights for an extended period. Through a conservation easement, a landowner voluntarily agrees to sell or donate certain rights associated with his or her property – often the right to subdivide or develop – and a private organization or public agency agrees to hold the right to enforce the landowner’s promise not to exercise those rights. In essence, the rights are forfeited

and no longer exist. This is a legal agreement between the landowner and the local government (or private organization) that permanently limits uses of the land in order to conserve a portion of the property for public use or protection.

Typically, this approach is used to provide trail corridors where only a small portion of the land is needed or for the strategic protection of natural resources and habitat. The landowner still owns the property, but the use of the land is restricted. Conservation easements may result in an income tax deduction and reduced property taxes and estate taxes. The preservation and protection of habitat or resources lands may best be coordinated with the local land trust or conservancy, since that organization will likely have staff resources, a systematic planning approach and access to non-governmental funds to facilitate aggressive or large scale transactions.

The list below provides an overview of easement agreement issues.

#### Easement Agreement

A model easement agreement should:

- Guarantee exclusive use or uses compatible.
- Be granted in perpetuity.
- Include air rights if there is any possible need for a structure.
- Broadly define purpose of the easement and identify all conceivable activities, uses, invitees, and vehicular types allowed to avoid any need to renegotiate with fee interest owner in future.
- State that all structures and fixtures installed as part of a trail are property of grantee.
- Include subsurface rights for use by utility franchises.

It is also understood that major landowners would want an easement agreement to address issues on their side. Through cooperative negotiation, the following issues should be addressed in an easement agreement:

- Access needs related to maintenance, etc.



- Trail management plan.
- Future improvements or modifications to the trail.

### Licenses

A license is usually a fixed-term agreement that provides limited rights to the licensee for use of the property. Typically, these are employed in situations when the property cannot be sold (e.g., a publicly owned, active electrical utility corridor), or the owner wants to retain use of and everyday control over the property. The trail management authority obtains permission to build and operate a trail. However, it will have little control over the property, and may be subject to some stringent requirements that complicate trail development and operation. The list below provides an example of model license agreement language.

#### License Agreement

A model license agreement should:

- Provide an acceptable term length with an option to renew.
- Identify all conceivable activities, uses, invitees, and vehicular types.
- Provide clarity on maintenance responsibilities.
- Specify limits on other uses of license property.

As with easement agreements, property owners would want a license agreement to address issues on their side. Through cooperative negotiation, the following issues should be addressed in a license agreement:

- Access needs related to maintenance, etc.
- Trail management plan.
- Future improvements or modifications to the trail.



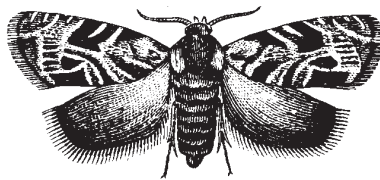
## CHAPTER 7. CONCLUSION

Through a collaborative planning process community members in Stanly County articulated a sense of place and showed excitement about honoring special landscapes and destinations for economic, psychological, cultural and health reasons by connecting them and interacting with them on foot, on horseback, on bicycle and other modes. Given the rate of growth in Stanly County, this proposal is not for a luxury good but a necessary good. This report outlines an ambitious plan for developing a comprehensive network of trails across Stanly County.

The many community partners who have been involved in the planning process recognize the urgency of starting a county-wide and region-wide linear park system now, while opportunities still exist for making connections and linking important places. They also recognize that this plan will not be implemented overnight, and that while segments should begin appearing soon, it will take years, if not decades, to link them all together. The time to start is now.







## APPENDIX I: DESIGN GUIDELINES

The Carolina Thread Trail system will accommodate a wide range of users including: pedestrians, bicyclists, equestrians, kayakers, canoers, and persons with mobility impairments. The Carolina Thread Trail system will also pass through a number of different landscapes in Stanly County. Trail character will vary in response to the landscape or built environment in which is located.

There are a number of federal, state and local guidelines that apply to pedestrian and bicycle facilities. While these documents are not absolute standards, public agencies may require projects to meet the guidelines as a minimum condition for key dimensions including slope, horizontal and vertical clearances, surface conditions, signage and pavement markings.

This section presents trail design guidelines for typical facilities that may occur in Stanly County, including:

- Paved Multi-Use Paths and Bikeways
- Natural Surface Trails
- Rails-with-Trails
- Unique Trail Applications
- Accessible Trails
- Trails and Roadway Crossings
- Signs and Way-finding
- Trail Amenities
- Drainage and Erosion Control

These design guidelines are based on applicable mandatory or advisory state and federal standards and are not engineering specifications. Design engineering should be conducted by licensed professionals and should meet all local design and construction standards.

### REFERENCE MATERIALS

Reference materials used to support the design guideline recommendations include:

#### **AASHTO Guidelines for the Development of Bicycle Facilities, 1999**

A new version of the AASHTO Guide is anticipated to be released in 2010. The current version of this nationally recognized document is the 3rd Edition, dated 1999. The new guide is anticipated to be nearly three times larger than the 1999 edition, with significant alterations. Additional content includes over seventy pages on the design of on-street bicycle facilities. The new guidelines should be used to update the design guidelines when they become available.

#### **Manual of Uniform Traffic Control Devices (MUTCD), 2009**

The 2009 Federal MUTCD includes *Part 9: Traffic Controls for Bicycle Facilities*, along with detailed guidelines for pedestrian facilities crossings available, and is available online at: [http://mutcd.fhwa.dot.gov/kno\\_2009.htm](http://mutcd.fhwa.dot.gov/kno_2009.htm).



#### **Equestrian Design Guidebook for Trails, Trailheads and Campgrounds**

The needs of equestrians require specific design treatments. The *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds* was developed for the U.S. Forest Service in cooperation with





the Recreational Trails Program of the Federal Highway Administration in 2007. This guide provides practical strategies and models for developing recreation opportunities for equestrians, including trail and amenity design.

### North Carolina Department of Transportation (NCDOT) Guidelines and Resources

In North Carolina, bicycles are legally defined as vehicles. NCDOT publishes “A Guide to North Carolina Bicycle and Pedestrian Laws” as a reference document for planners, citizens and law enforcement officials, available on NCDOT’s website. Other documents available on the website are the *Greenways Administrative Process* and the *Bicycle and Bikeways Act*. The website can be accessed at: [http://www.ncdot.org/transit/bicycle/laws/laws\\_intro.html](http://www.ncdot.org/transit/bicycle/laws/laws_intro.html)

NCDOT also publishes the *Bicycle Facilities Planning and Design Guidelines*. Published in 1994, this comprehensive manual outlines detailed planning and design considerations specific to North Carolina.

### Rails-with-Trails: Lessons Learned

This report was prepared at the direction of the U.S. Department of Transportation for the purpose of examining safety, design, and liability issues associated with the development of shared use paths and other trails within or adjacent to active railroad and transit rights-of-way. This document is intended to explore lessons learned from the experience of Rails-with-Trails (RWTs), and suggest practices to enhance safety and security for railroads, transit, and trail users.



### Universal Design/ADA Access



Good design for the Carolina Thread Trail will ensure universal access for all. In addition, all greenway paths and other trails that receive funding from state or federal sources must conform to Americans with Disabilities Act (ADA) guidelines. The Federal Highway Administration publishes a guidebook entitled *Designing Sidewalks and Trails for Access*. Chapter 5, Trail Design for Access is the most relevant portion of the report and is available online at: <http://www.fhwa.dot.gov/environment/sidewalks/chap5a.htm>

Another good resource is *Universal Access to Outdoor Recreation: A Design Guide*, which details the systems and elements needed to ensure universal access to recreation sites. The guide helps users determine the appropriate level of access for a range of outdoor sites.

### Blueway Design Guidelines

The Carolina Thread Trail in Stanly County may include designated Blueways to accommodate the growing interest in the use of small paddlecrafts (i.e. kayaks and canoes) to experience waterways along the trail. To assist with designing this important element within the greenway, the following resources can provide step-by-step guidelines for planning, building and managing water trails:

- *Water Trail Toolbox: How to Plan, Build and Manage a Water Trail*, published by the non-profit Chesapeake Bay Gateways Network. This report can be found online at: <http://www.baygateways.net/watertrailtools.cfm>.
- *Blueways: A Water Trail Network for Northwestern Indiana* (Chapter Three) published by The Northwestern Indianan Regional Planning Commission & Openland Project. This report can be found online at: <http://www.nirpc.org/>





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## THE DESIGN GUIDELINES ARE ORGANIZED INTO THE FOLLOWING SECTIONS:

### **Paved Multi-Use Paths and Bikeways**

Paved multi-use paths and bikeways, for purposes of this plan, include trails that meet or are proposed to meet the dimensional, geometric and functional standards set forth by NCDOT and AASHTO. They are paved surface multi-use pathways, bicycle lanes, bicycle routes and bicycle boulevards that serve a variety of commuter trips, utilitarian trips, and recreational trips.

### **Natural Surface Trails**

Natural surface trails are primarily recreational trails that serve a variety of recreational user groups. Natural surface trails may occasionally serve transportation needs such as: school access, commuter use, or local errands. There is no one set of standards for natural surface trails, but there are many resources available for constructing successful trails.

### **Rails-With-Trails**

The linear nature of rail corridors offers trail connection opportunities that might not otherwise be available. Railroad companies own wide rights-of-ways that often can accommodate a trail. Trails in active rail corridors must be designed to meet both the operational needs of the railway system and road systems, as well as the safety of trail users. National design standards have not been developed for Rails-With-Trails, although guidelines have been developed from studies conducted by the Federal Highway Administration and the Rails-To-Trails Conservancy.

### **Unique Trail Applications**

This section will cover special trail design treatments that may be required to complete the trail connections, including trails in a floodplain, boardwalks, water trails and

the accommodation of non-compatible users (i.e. equestrians and bicyclists) in the same trail corridor. These trail will require special attention to trail planning, design and construction.

### **Accessible Trail Design**

Accessible trail design is important to both recreational and transportation trails and the standards for accessibility are generally established by the United States Access Board and the U.S. Department of Transportation, Federal Highway Administration, Recreational Trails Program Guidance. The discussion included in this section introduces the basic concepts of accessible trail design which provide for the needs of people with varied mobility requirements.

### **Trail and Roadway Crossings**

The design of trail crossings of streets, roads, highways, railroads and driveways must account for a variety of factors and always requires site specific traffic engineering and safety analysis. The framework presented here introduces the key variables that influence trail crossings.

### **Signs and Way-Finding**

A comprehensive sign system increases user safety, comfort and helps make a trail system memorable. This section covers regulatory, etiquette, way-finding and identity, informational and interpretive, and striping signs and markings.

### **Trail Amenities**

Trail support facilities should provide trail users with the accommodations they need and encourage use of the facilities.

### **Drainage and Erosion Control**

Design of trails to maximize drainage, minimize erosion, and ensure long-term sustainability is critically important to trail and resource managers. This section introduces basic drainage and erosion control concepts.



## PAVED MULTI-USE PATHS AND BIKEWAYS

### Multi-Use Paths

Multi-use paths typically have their own right-of-way and are designed for two-way bicycle and pedestrian traffic. These paths are also designed to accommodate maintenance and emergency vehicles. This type of path should not be used if there are numerous driveway and intersection conflicts.

### Standards

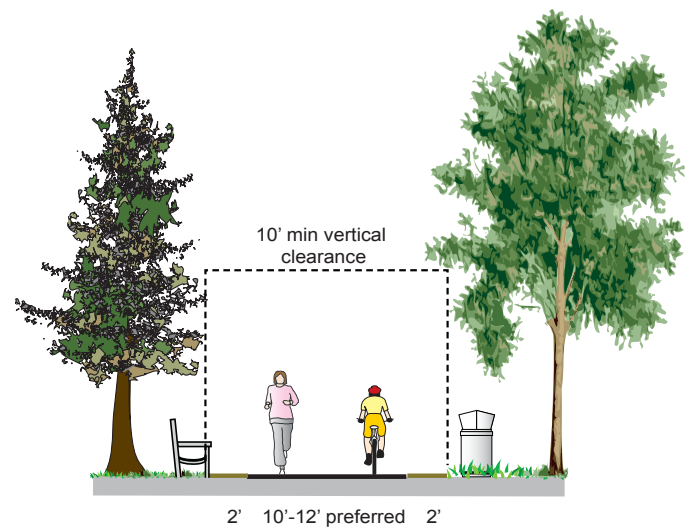
According to American Association of State and Highway Transportation Officials (AASHTO) design standards, two-way multi-use paths should be designed to be a minimum of 8 feet in width. However, 8 foot wide sections should be reserved for pinch points that have physical or environmental constraints.

- A width of 10-12 feet is the preferred recommendation, allowing for maintenance vehicles. Paved paths less than 12 feet have been found to break up along the edges due to vehicle loads.
- A 10 foot vertical clearance should be maintained on multi-use trails. This area should be free from tree limbs and any other obstructions that may interfere with pathway use.
- Stopping sight distance on horizontal curves and lateral clearance can be calculated using the equations in the AASHTO Guide 1999.
- The minimum design speed for bike paths is 20 miles per hour, except on sections where there are long downgrades (not applicable to grades steeper than 4% and longer than 500 feet). Speed bumps or other surface irregularities or obstacles should never be used to slow bicycles.

- A yellow centerline stripe is standard for multi-use paths in many regions, especially at: blind corners, high traffic areas, areas of narrow path width, intersection approaches, and/or areas where nighttime riding is expected with limited lighting.

### Potential Applications

- Regional trails and local access trails to schools, parks, and neighborhoods
- Some community connector trails and pathways.





### Multi-Use Paths Adjacent to Roadways

Pathways adjacent to roadways can provide critical links in regional trail systems where a local or NCDOT public right-of-way is the only viable alignment alternative. These pathway types are used where it is desirable to completely separate multiple user groups from high speed or high volume car traffic. Particular design attention is required at intersections, including driveways, where motorists may not expect bicyclists to enter the intersection. Guidance on appropriate pathway design, warning and regulatory signage, and intersection control devices is available in a variety of technical manuals (AASHTO *Guidebook for Development of Bicycle Facilities*, and MUTCD) and professional engineering judgment must be applied.

### Standards

- Separation from automobile traffic by a 5 foot (min.) separation
- Trail widths of 10 feet to 12 feet (8 foot min.) to avoid conflicts between users
- Asphalt or concrete paved surface to minimize maintenance requirements
- Longitudinal grades of less than 5%. 2% to 3% preferred where possible
- Cross slopes of 2% or less
- 10 foot vertical clearance

### Potential Applications

- Publicly-owned easements and right-of-ways that connect major community destinations or connect independent communities and may provide a non-motorized commute facility
- Rights-of-way where a separated path is feasible and complimentary to the existing State Route transportation function



Provides completely separated right-of-way for exclusive use by bicycles and pedestrians with cross-flow minimized





### Bike Lanes

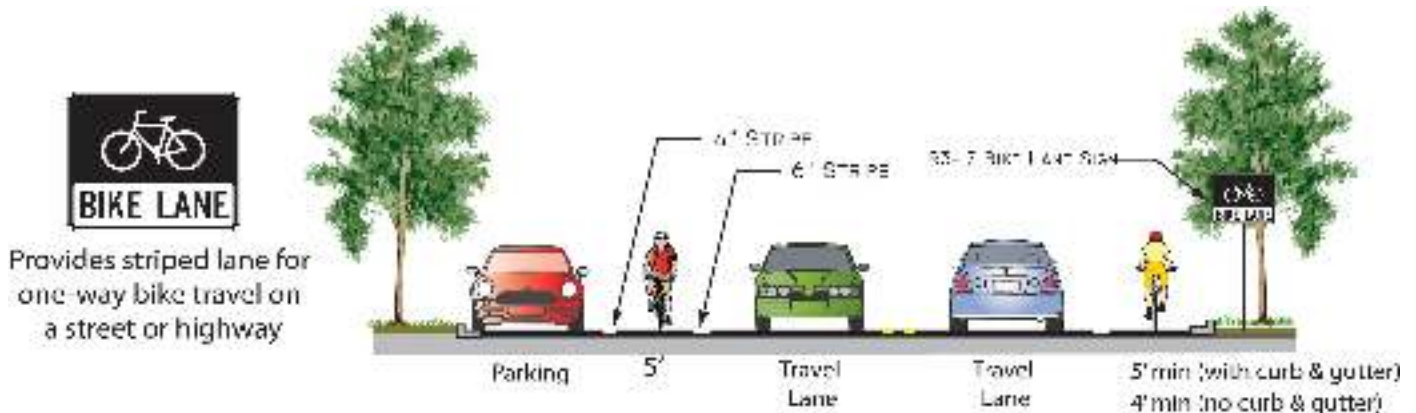
Bike Lanes are a marked space along the length of a roadway for exclusive use of cyclists. Bike lanes create a visual separation between bicycle and automobile facilities, thereby increasing bicyclist's comfort and confidence. Bike lanes are typically used on major through streets with average daily traffic (ADT) counts of 3,000 or higher and should be one-way facilities that carry bicycle traffic in the same direction as motor vehicle traffic.

### Standards

- A 5 foot width is recommended for bike lanes without on-street parking. This width allows for added separation between bicyclists and vehicles.
- A 5 foot minimum with normal gutter, measured from curb face with vertical curb; or 5 feet measured from the gutter pan seam where curb and gutter are used
- A 4 foot width minimum if no gutter exists, measured from edge of pavement
- If adjacent to on-street parking, 5 foot width minimum. Parking bays may vary in width up to 9 feet wide
- 10 foot vertical clearance

### Potential Applications

- Streets and roads that provide connections to community destinations, e.g. shopping, schools, library, and employment centers.





### Bike Routes

A bike route is a signed route on a road, street or path and does not require that the road include any special bicycle facilities. According to AASHTO, bike routes suggest to bicyclists that a particular route has advantages over other alternate routes. Further, AASHTO indicates that bike routes serve one of two purposes: To provide continuity to other bicycle facilities (usually bike lanes) or to designate preferred routes through high demand corridors. Bike routes are typically found on lower volume streets and can provide directional wayfinding signage to assist the bicyclist in navigating.

### Standards

- AASHTO recommends 10- to 12-foot lanes on rural and urban arterials (“Green Book”, 2004).
- Bicycle Route Signage installed at decision points along designated bicycle routes and at regular intervals. Intervals should consider the location of the bike route, i.e. longer intervals for regional routes and shorter intervals for local routes.

### Potential Applications

- Local streets and streets without adequate width for bike lanes
- Regional roadways where safe and convenient bicycle travel is prioritized
- Can incorporate pavement markings, traffic calming and other streetscape treatments, depending on traffic volumes, vehicle and bicycle circulation patterns, street connectivity, street width, physical constraints, and other parameters



Pavement marking



Provides for shared use with pedestrians or motor vehicles, typically on lower volume roadways





### Bicycle Boulevards

Bicycle boulevards are bike routes on low-volume and low-speed streets that have been optimized for bicycle travel through treatments such as traffic calming and traffic reduction, signage and pavement markings, and intersection crossing treatments. These treatments allow through movements for cyclists while discouraging similar through trips by non-local motorized traffic. Motor vehicle access to properties along the route is maintained.

Bicycle Boulevard treatments have five main “application levels” based on the level of physical intensity desired. Level 1 represents the least physically-intensive treatments that can be implemented at relatively low cost. Identifying appropriate application levels for individual bicycle boulevard corridors provides a basis for selecting appropriate site-specific improvements. The five bicycle boulevard application level treatments include the following:

- Level 1: Signage
- Level 2: Pavement markings
- Level 3: Intersection treatments
- Level 4: Traffic calming
- Level 5: Traffic diversion

#### Standards

- Supplemental arrows to indicate approaching turns
- Install markings just after each intersection and in intervals of approximately 200 feet
- Install markings near high volume driveways or other conflict points to alert drivers.
- Pavement marking signs can range from 12 to 24 inches in diameter (Portland, Oregon) to 30 feet long by 6 feet wide (Berkeley, California)
- Size and placement guidance for pavement markings are

provided in the California MUTCD.

- Apply markings with paint or thermoplastic. Thermoplastic tends to be longer lasting.
- Increase the skid resistance and retro-reflectivity by using glass beads.
- Do not use bicycle boulevard markings or shared lane markings within bicycle lanes.



Bicycle boulevard sign in Portland, Oregon.



Frequent pavement markings act as a “breadcrumb trail” for cyclists.



As the route evolves and becomes more popular, further analysis and engineering should be conducted to determine if enhanced treatments are needed.

**Potential Applications**

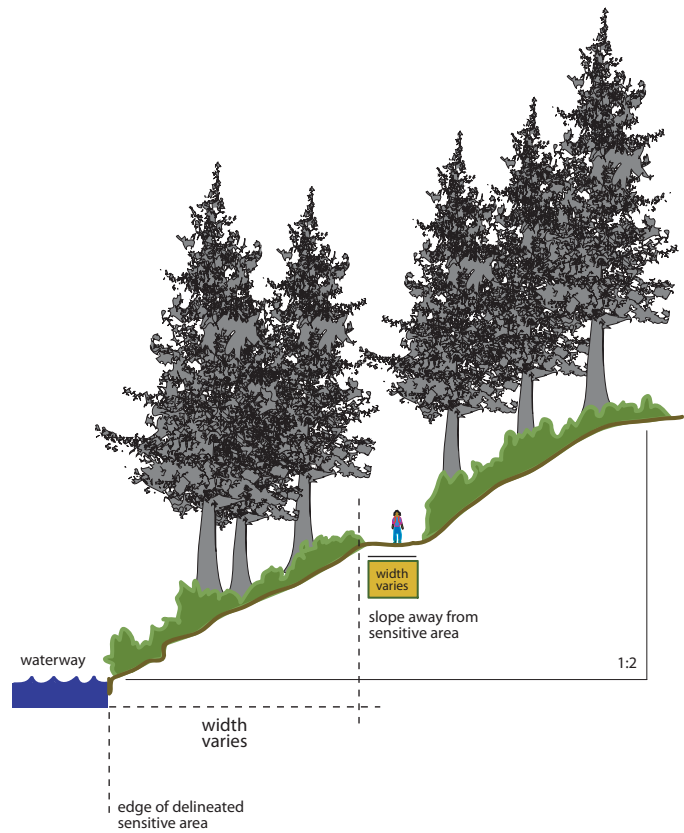
- Low-volume and low-speed streets
- On corridors where other bikeway treatment may not be feasible due to right-of-way or funding constraints



## NATURAL SURFACE TRAILS

The successful design, construction and management of natural soft-surface trails is critical to building a trail network that accommodates a wide range of users. The following trail classification guidelines are not a “how-to” for building trails, rather they offer a framework for management and decision making to help build a trail

system in Stanly County. In addition, this guide establishes standard terms and definitions that can aid communication with planning partners about trail needs, design standards and environmental issues. Table 13 provides a summary of natural surface trail classification standard dimensions.



**Table 13. Natural Surface Classifications Summary**

Trail Type	Tread Width	Trail Corridor	Surface	Average Grade	Max Grade*	Outslope	Turn Radius
Hiking Trail	18"-48"	3'-6' (w) 7'-8' (h)	Native soil and rock; compacted	5%	15-25%	2-5%	3'
Mountain Bike Trail	12"-36"	2'-6' (w) 6-8' (h)	Native soil and rock; compacted	2-10%	≥15%	5-10%	≥2'
Multipurpose Trail	10'-12'	10'-16' (w) 8-12' (h)	Native soil or compacted granulated stone	2-5%	10%	2-4%	5-10'

\* Max grade depends largely on soil type and running distance of slope





## Hiking Trail

Hiking trails accommodate walking and hiking in a variety of contexts and are generally defined by the presence of tread dips, trail structures and bridges where required, but are generally compacted natural soil surface. Typical trail widths vary from 18-48 inches and vegetation should be maintained clear on both sides of the trail tread for a minimum of 24-36 inches.

To encourage the natural appearance of the trail, vegetation under 18-22 inches and 8-12 inches from the trail edge can remain. Vegetation 18-22 inches and over should be cleared to meet the 24-36 inch horizontal clearance minimum (see illustrative graphic below). Where wheelchairs are expected, the height at which the additional clearance should begin is 8-10 inches above the trail surface.

Regulatory, resource protection and user reassurance signs, such as directional and destination signs, should be installed as part of the trail system.

A hiking trail is the minimum trail standard incorporated into a regional trails network. This facility

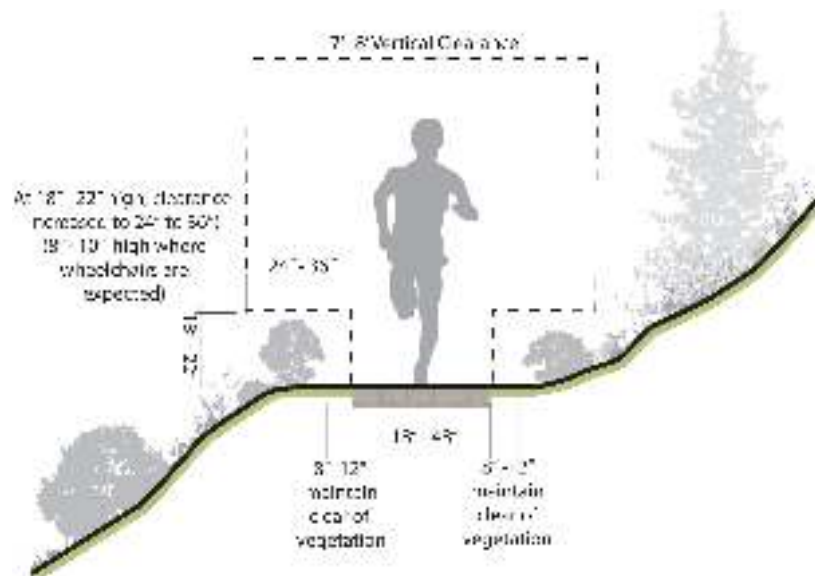
type is typically located at local and county parks and open space, undeveloped public rights-of-way such as utility corridors and in parkland and resource land units with frequent public access connecting to other regional trail network segments.

### Standards

- Obstacles infrequently encountered
- Vegetation cleared outside of trail way
- Trail bridges as needed for resource protection and appropriate access
- Generally native materials used
- Trail tread width may vary from 18 inches to 48 inches depending on context and use
- Trail clearance should be maintained on both sides of trail tread at 24-36 inches or greater

### Potential Applications

- Local parks and open space
- State and federal parks and resource lands
- Public utility corridors and rights-of-way not suited to paved multi-use pathways





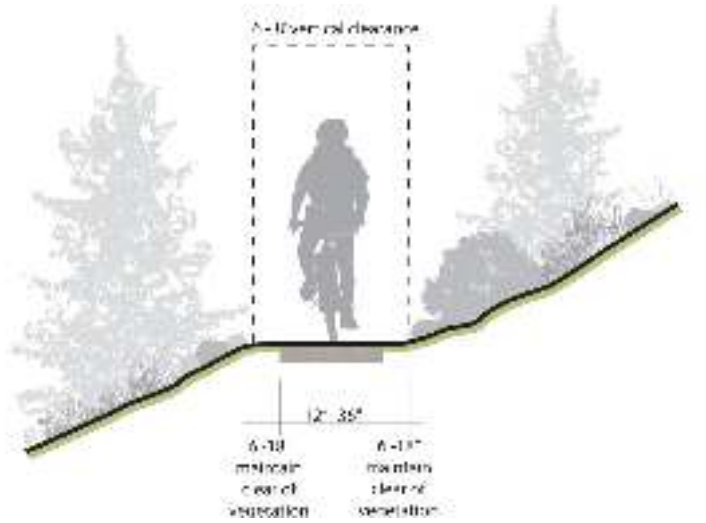
## Mountain Bike Trail

Mountain bicyclists have a broad range of riding abilities. This guideline for single track mountain bike only trails focuses on recreational experience and a range of technical challenge. The International Mountain Bike Association (IMBA) has developed a classification system similar to ski runs, which is indicated by the colored symbols below. These symbols may accompany wayfinding

and warning signage to alert bikers of upcoming trail conditions. In addition, mountain bicyclists are typically permitted on shared-use trails (described in the following guideline) and should be aware that they must yield to all other users.

### Potential Applications

- Mountain bike only segments of the regional trail network
- Topographically varied terrain



**Table 14: Mountain Bike Trail Standards**

Skill Level	Tread Width	Surface	Average Grade	Max Grade	Unavoidable Obstacles
Easiest ○	≥ 72"	Hardened or surfaced	<5%	10%	None
Easy ●	≥ 30"	Firm and stable	5%	15%	2"
Moderate ■	≥ 18"	Mostly stable; some variability	10%	15%	8"
Difficult ◆	≥ 12"	Variable	15%	15%	15"
Extremely Difficult ◆◆	≥ 6"	Widely variable & unpredictable	20%	20%	15"



### Multi-Purpose Natural Surface Trail

Unless designated otherwise, all recreation trails are considered shared use trails. For instance, many mountain bike trails are also open to hikers. Multi-purpose trails are designed and managed for all types of users.

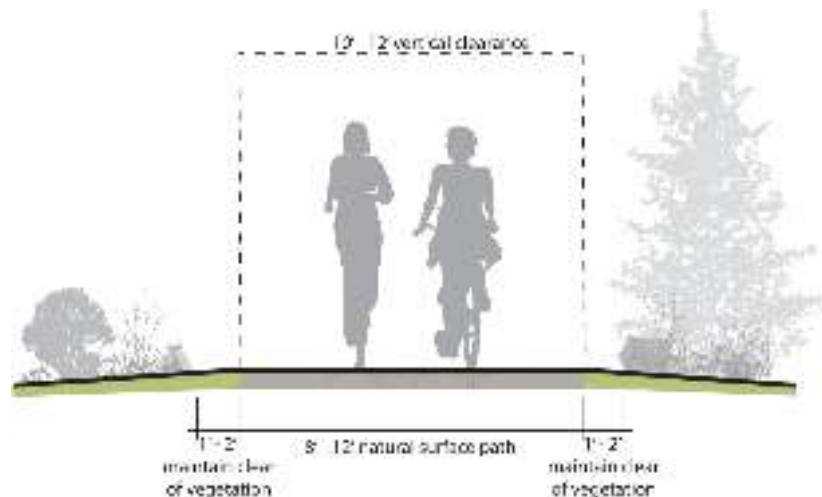
Anticipated levels of use, local public opinion and site evaluations should be used to determine whether or not a multipurpose trail is an appropriate solution. Multipurpose trails are wide enough to accommodate divergent user groups. As the width of the trail increases, the less technical the trail can be. Regulatory signs should be installed to alert trail users to their limitations and responsibilities for sharing the trail.

### Standards

- Tread width 8 feet to 12 feet
- Allowance for passing
- Native materials or crushed rock
- Very few obstacles
- Prevailing grade 5% or less, with limited steeper segments
- Visibility and trail clearance are an important design consideration

### Potential Applications

- Local parks and open space
- Low use areas of state and federal parks and resource lands
- Public utility corridors and rights-of-way not suited to paved multi-use pathways
- Not recommended as a high speed transportation facility for cyclists





## Equestrian Trails

Trails reserved exclusively for equestrians are also called bridle trails, bridle paths, or bridleways. The needs of equestrian trail users are unique, due to the natural flight instinct of equine when startled. As with any trail design, the design of an equestrian trail facility should respond to the setting, needs of the trail users, level of use, and safety issues. Less developed or rural equestrian trail settings include: rivers, open spaces, and drainages among others. Safety concerns for riders in rural settings involve: visibility, interactions with other trail users and natural hazards. Urban settings include developed or congested areas.

Equestrians include youth, elders, leisure riders, professional riders, organized groups, novices, and people with disabilities. Riders may recreate individually or in groups for pleasure, exercise or challenge. While some equestrians prefer wide, gentle trails, others seek a technically challenging route.

Trail facilities should provide enough space so that a horse feels at ease. Horses prefer to travel away from walls or barriers that they cannot see through or over and are most comfortable traveling in the tread that other stock have traveled.

Horizontal trail clearance will vary based on the trail setting. USDA/FHWA suggested widths, with clearance tolerances for a standard single- and double-track horse trails are shown in Table 15. A horse on a single-track will often travel 18 inches from a trail edge or tread surface. Single track treads vary from 1.5 feet in open areas to 8 feet in urban areas. Double-tracked equestrian trails are designed to be 5 feet to 6 feet wide in open areas and are often 8 feet to 12 feet wide in developed areas. A double-track tread allows for equestrians to ride side by side while

also providing a comfortable passing distance. This is a common configuration for moderately developed trails in rural settings where right-of-way is available.



*Equestrians often like to travel side-by-side*



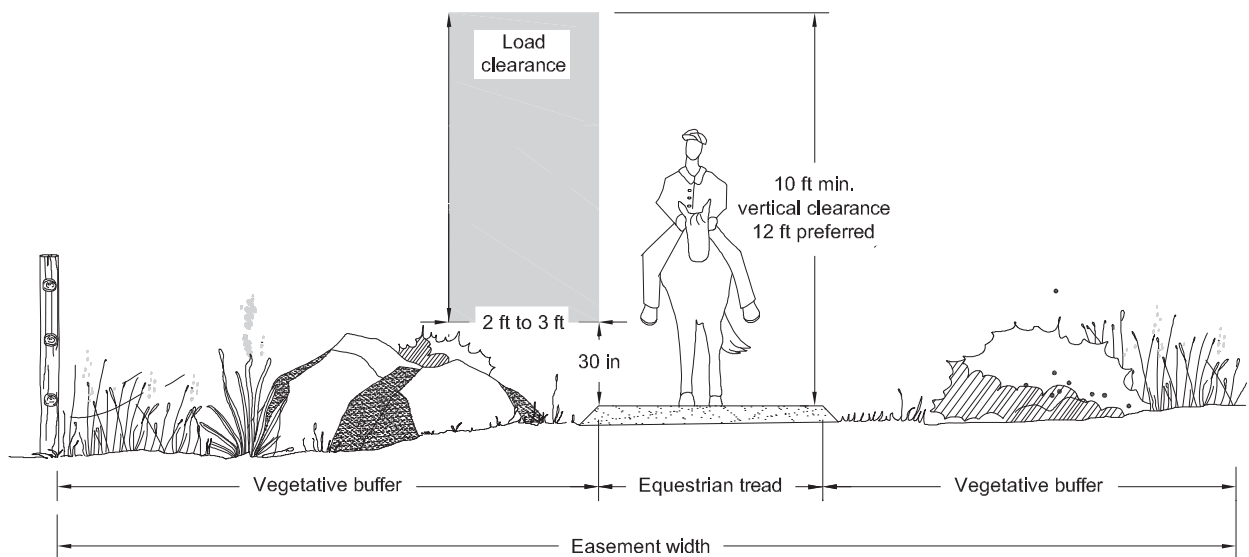
**Table 15: Suggested Widths and Clearance for a Standard, Single-Track Horse Trail**

Trail Element	Low development (feet)	Moderate development (feet)	High development (feet)
Trail width	1.5 to 2	3 to 6	8 to 12
Clearing width (horizontal)	5.5 to 8 (Tread plus 2' to 3' each side)	9 to 12 (Tread plus 3' each side)	14 to 18 (Tread plus 3' each side)
Vertical clearance (vertical)	10	10 to 12	10 to 12

**Suggested Widths and Clearance for a Standard, Double-Track Horse Trail**

Trail width	5 to 6	8 to 12
Clearing width (horizontal)	10 to 12 (Tread plus 2' to 3' each side)	14 to 18 (Tread plus 3' each side)
Vertical clearance (vertical)	10	10 to 12

Source: USDA/FHWA Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds



Recommended guidelines for an equestrian-only trail. Source: USDA/FHWA, Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds



## RAILS-WITH-TRAILS

Railroad rights-of-way can present opportunities for path and trail construction. Typically, railroads follow favorable topography for bicycling and hiking and are located in scenic areas. However, they also present a range of security and safety issues for trail users that should be addressed through planning and design processes. National design standards have not been developed for rails with trails.

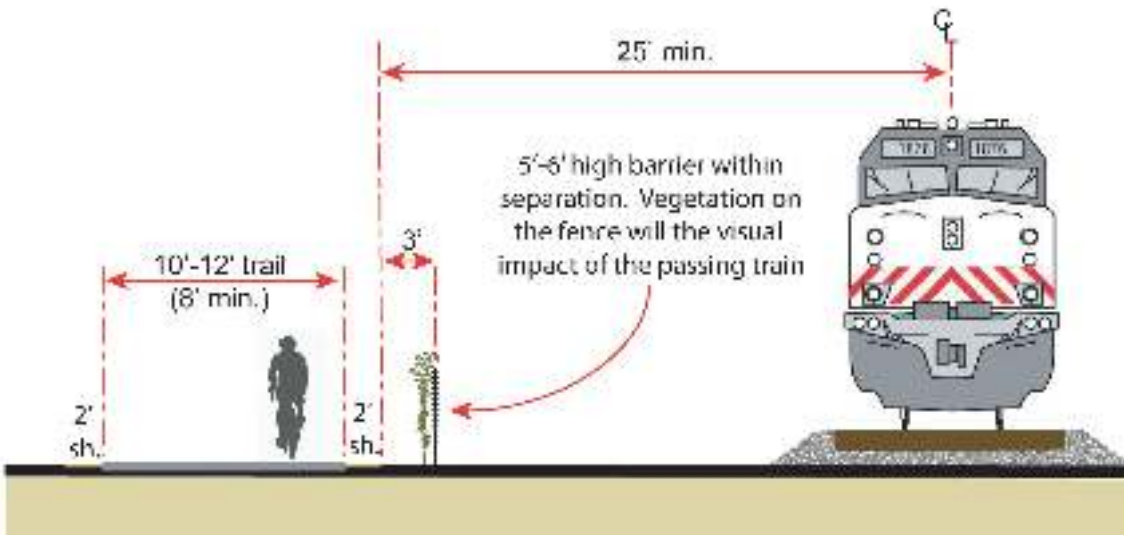
Setback is measured from the nearest edge of the trail to the centerline of the nearest railroad track. A review of 65 existing trails as part of the “Rails-with-Trails: Lessons Learned” study shows wide variance in the setback distance used today. Researchers attempted to determine if narrower setback distances have a direct correlation to safety problems. However, based on the almost non-existent record of claims, crashes, and other problems on these RWTs, they were unable to conclude a strong correlation between setback and safety. At an absolute minimum, the setback must keep trail users outside the “dynamic envelope” of the trains, defined as “the clearance required for the train and its cargo overhang due to any combination of loading, lateral motion, or suspension



Springwater Trail, Portland, Oregon

failure.” Additionally, in corridors with regular use of maintenance equipment that operates outside the dynamic envelope, the setback distance should allow adequate clearance between the maintenance equipment and the trail.

The Federal Railroad Administration (FRA) publishes minimum setback standards for fixed objects next to active railroad tracks, the distance between two active tracks, and adjacent walkways (for railroad switchmen).





These published setbacks represent the legal minimum setbacks based on the physical size of the railroad cars, and are commonly employed along all railroads and at all public grade crossings. Most Public Utilities Commissions (PUCs), which regulate railroad activities within states, also have specific minimum setbacks for any structures or improvements adjacent to railroads, including any sidewalk or trail that parallels active railroad tracks.

The *Rails-with-Trails: Lessons Learned* study outlines preferred setback distances, with encouragement toward as much setback distance as possible. The study details circumstances under which a RWT can be set back a minimum of 10 feet, with greater width preferred. Rail operators often prefer that reduced setbacks are accompanied by increased safety measures such as fencing.

The standards presented below are result of studies completed by the Federal Highway Administration and Rails with Trails Conservancy, along with the PUC guidelines. Other useful sources include AASHTO, and AADAG.

#### Standards

- A 12 foot path is strongly recommended, as these paths often provide access for maintenance and emergency vehicles. Paths less than 12 feet wide can crack along the edges due to vehicle loads.
- Setbacks should be maximized and correlate with train type, speed, frequency, and separation technique, varying from 8.5 feet (9.5 feet on curves) to 100 feet.
- Less setback may be needed if the trail is vertically separated
- Fencing and barriers should meet the requirements of the railroad company

- 5 feet to 6 feet high fencing is adequate for separation in most instances
- Vegetation may grow on fencing to buffer noise
- Storm and irrigation water from the trail should not flow or collect in the railroad right-of-way
- At-grade trail crossings of the railroad should be minimized



Rail with Trail, Portland, Oregon



### UNIQUE TRAIL APPLICATIONS

Special trail design treatments may be required on segments of the Carolina Thread Trail to complete the trail system. These trails may be constructed along a creek, within the floodplain or through sensitive biological areas or wetlands. Additionally, there may be situations where the available rights-of-way may require that non-compatible users (i.e. equestrians and bicyclists) share the same trail corridor. In these circumstances, special attention should be made in the planning, design and construction phases.

### Floodway and Floodplain Trails

Trails that are developed in the floodway and floodplain due to right-of way constraints and channelized streams present challenges for the trail managing agency. The main conditions in which creek and floodplain trails occur in Stanly County are: on top of the creek bank in the floodway and on a slope in the floodplain. These conditions affect how each trail is constructed, although there are common standards that apply to both conditions.

### Floodway and Floodplain Trail Standards

- Where feasible, trails should be located outside of the riparian forest buffer zone and active stream channel as defined by the Natural Resource Conservation Service of North Carolina to protect water quality and reduce erosion of stream banks
- A width of 12 feet is the preferred recommendation, allowing for maintenance vehicles. Paved paths less than 12 feet have been found to break up along the edges due to vehicle loads.
- Trails that are developed in the floodway are recommended to be constructed of concrete, as these trails are prone to flooding. Concrete paths are better suited to withstand high-velocity stream flows that other

surface materials. Concrete surfaces are expensive, however, concrete is a better community investment as it lasts much longer than asphalt and is easier to maintain. When properly installed, concrete will last 25 years or longer and will need little maintenance. In wetland areas or perennially wet areas, boardwalk or elevated trails should be installed.



*Paved multi-use path in a floodway*



*Paved multi-use path on a bank*



*Retaining wall doubles as seating*



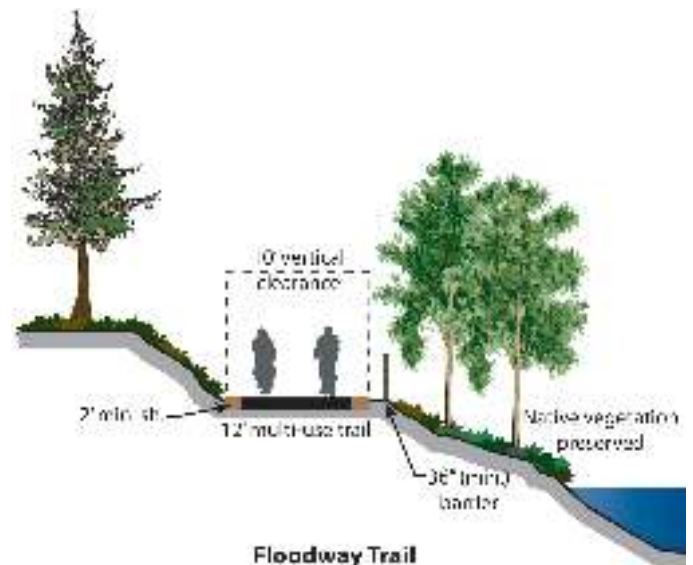


- Where the trails are located in drainage areas, and are expected to be inundated on an annual basis, the trail should be constructed of concrete of sufficient thickness to allow for regular blading (cleaning) of the surface by equipment.
- Trail shoulders should be a minimum of 2 feet
- The trail should have a 2% cross slope to direct water to a sub drainage or swale
- The trail should be designed to discourage trespass into environmentally sensitive areas by using natural barriers such as split rail fencing, rocks, and native vegetation buffers to steer people away from sensitive areas. Interpretive signs should be installed to explain why areas are sensitive
- Where trails are located in narrow corridors, they should be complemented by frequent nodes to create greater diversity of the linear experience
- Trail amenities (benches, signage, and trash receptacles) in floodways should be carefully considered. Where amenities are appropriate or necessary they should be installed to withstand high velocity flows
- Retaining walls can double as seating areas and increase pedestrian comfort along trails
- Concrete trail surfaces should be broom finished for traction
- Joints should be saw-cut to reduce bumps.
- Concrete may be dyed any color to complement the surrounding environment, if desired

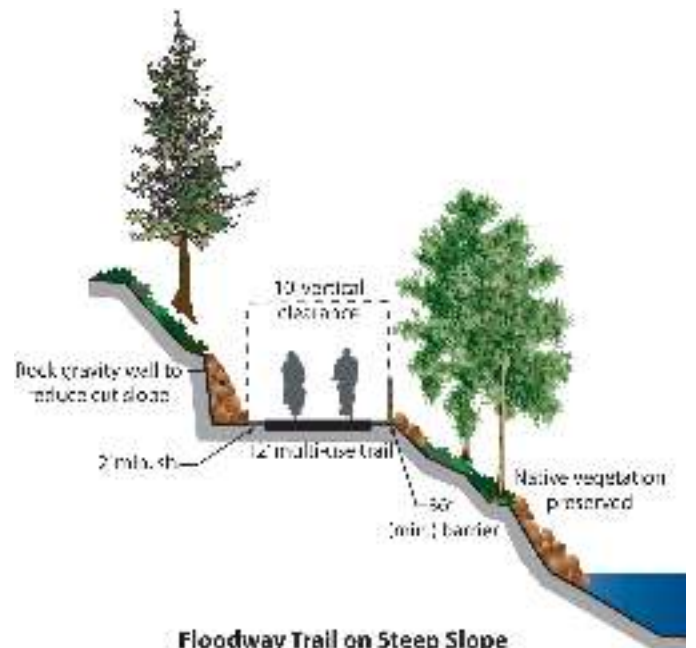
### Trails in the Floodway

The trail elevation in floodways should be set to minimized flooding impacts. The top of the creek bank is generally a good location for a creek trail. The top of the bank (or a bench on a slope) is generally flat and can provide a good platform for a trail. Because these areas are flat, grading is kept to a minimum and existing vegetation can be preserved. Erosion and bank stabilization problems are

also minimized. However, flooding frequency and high water lines may require trail elevations to be set above the creek bank. A geotechnical engineer should be consulted to assess flood elevation levels, soil conditions and a determination of appropriate trail profile materials and quantities.



Floodway Trail



Floodway Trail on Steep Slope



### Additional Recommendations

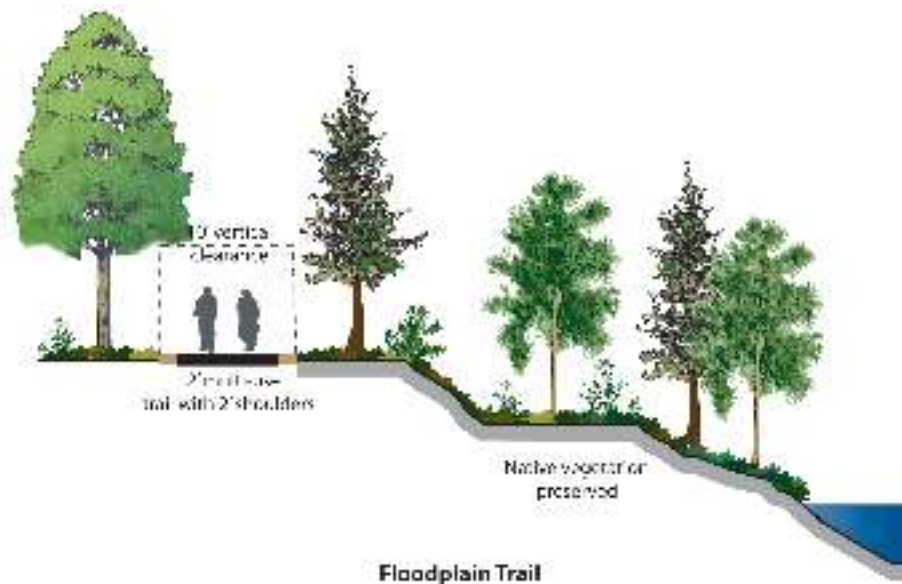
- A vegetative buffer between the stream and trail should be preserved
- Trail shoulders should not consist of a soft material to reduce replacement costs after a flood event
- Install guard rail or fence where vertical drop of 18 inches or greater exists at edge of trail
- Guardrail or fence should 36 inches high (minimum) to meet ADA guidelines
- A retaining wall may be required to protect the trail base when the side slope grade exceeds 50 percent. Water must be allowed to drain around, beneath, or through the wall and must not be allowed to accumulate behind it

### Trails in the Floodplain

Floodplain trails are located outside of the floodway, but within the floodplain. These trails are subject to flooding when large storm events occur.

### Additional Recommendations

- A wide vegetative buffer should be maintained
- Existing terraces above the floodway can be utilized for trail alignments
- Concrete is recommended for the trail surface, unless it is cost prohibitive. Asphalt could be used as an alternative surfacing material with the expectation of a lower life expectancy.





## Elevated Trails

Sections of the Carolina Thread Trail may require an elevated trail treatment (i.e. boardwalk). Elevated treatments can minimize impact to sensitive wet areas and create “showcase” trail segments that allow users to experience riparian ecosystems with minimal impact.

Biological conditions may require platforms to be located so as not to shade sensitive resources. Trail treads should allow light to penetrate to vegetation under the trail. Screw piles are recommended for building boardwalks and viewing platforms along the Carolina Thread Trail. They are less disruptive to the creek bed than wooden pier foundations and more environmentally sensitive than using chemically treated lumber. Boardwalks can be very expensive and should go through an extensive design process so they do not contribute to flooding hazards, are ADA compliant, and minimize impact to the surrounding environment.



*Boardwalk through a wetland*



*Boardwalk railings assist in keeping trail users away from sensitive areas*



*Elevated trail segment allows trail connectivity along a sensitive slope*



## Blueways

The term blueway refers to a *designated* route through a waterway, offering trail users an alternative way to see scenic and historical sites along a waterway or lake shore. Blueways can accommodate both motorized and non-motorized transportation.

### Basic Design Standards

#### Access

The level of improvements at an access site will largely depend the setting and the type of support facility is needed. Access points are essentially trailheads. Major trailheads may require larger parking areas (15 to 20 parking spaces), restrooms, picnic tables and interpretative kiosks. Minor trailheads may provide only a few parking spaces and regulatory signage. In general, access points should:

- Allow enough room for paddlecraft to be unloaded from vehicles
- Be located 1500 feet or less from the launch point.
- The slope between the parking area and the water's edge should be slight to moderate and should not exceed 20% (maximum). At major trailheads, the slope should meet the accessible trail design standards shown in this section where feasible.
- Where access points are anticipated to be heavily used, erosion mats or blankets should be used to stabilize the slope.
- Access points should not be located on the inside curve of a waterway, as silt and sand are commonly deposited in these areas.
- Sanitary facilities should be situated at all major trailheads.
- A "pack it in, pack it out" policy should be instituted along blueway trails to ensure the proper disposal of waste.

#### Minimum spacing of access points:

- Local neighborhood creeks, every mile preferred
- Larger water bodies, every 3 to 4 miles to accommodate recreational paddlers

#### Portages

Portages should be kept to a minimum. If required, landing sites should be established above and below obstructions. Signage should be installed upstream of the obstruction to notify paddlers of the obstruction and direct paddlers to the landing site. The distance between the obstruction and the signage is dependent on current speed, sight lines and the slope and conditions of the banks. Portage trails should comply with the natural trail standards outlined in this document, using a trail width of 8 feet minimum.

#### Signage

Signage should be included to direct users to the river, and to inform users on the river. Uniform directional signage should be placed on nearby roadways to advertise landing locations. Uniform signage should be installed along the river to advertise landings, camping facilities (if applicable), portages, hazards and what level of experience is necessary to traverse the route.



Kayakers enjoying the river

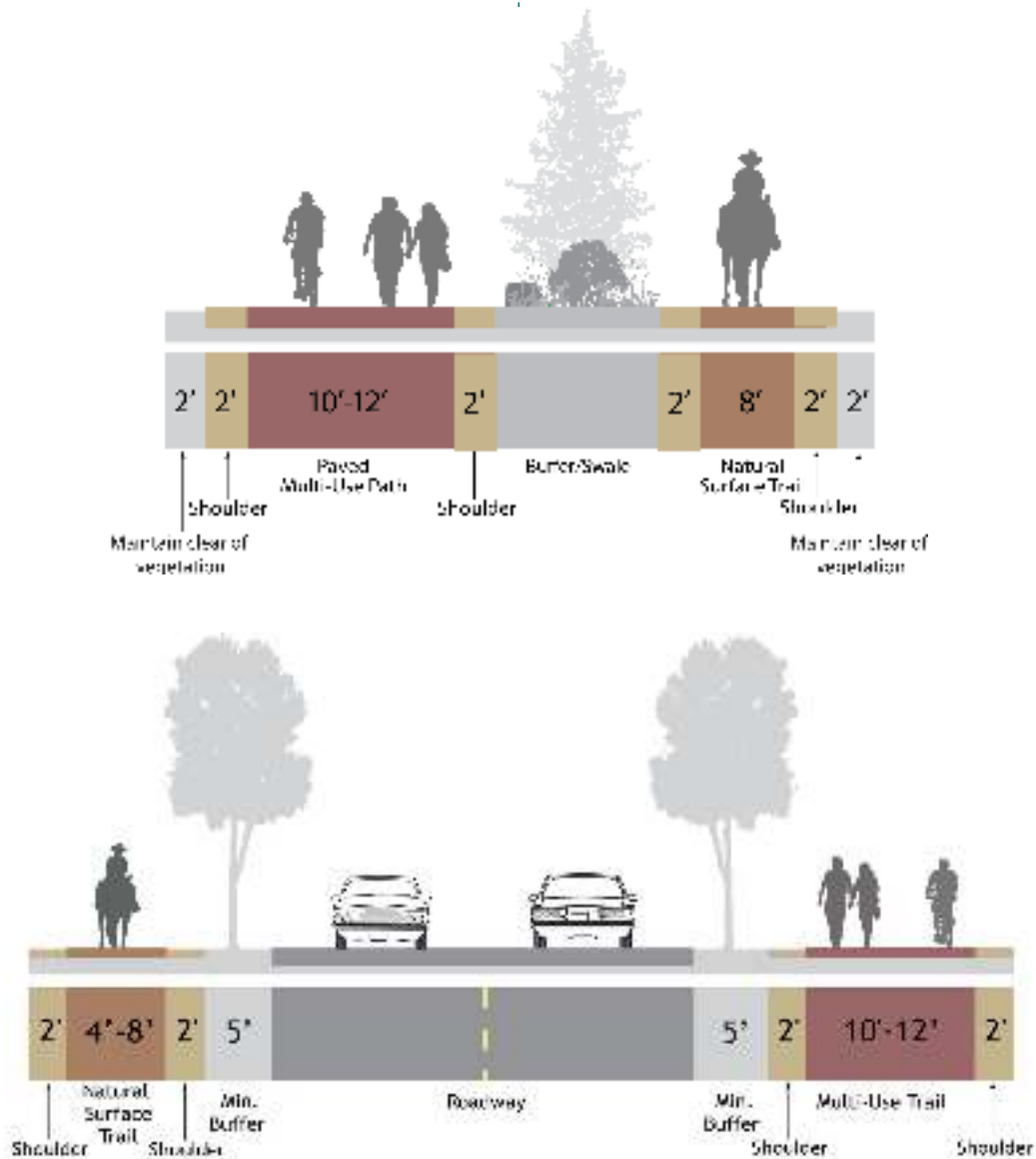


### Shared-Use Corridors

Design that considers the interactions of all trail users is essential for a successful trail system. Limited right-of-way availability may require users to share corridors in the Carolina Thread Trail network.

Pedestrians and equestrians are often compatible on the same tread as they both accept unpaved surfaces

and move at relatively slow speeds. However, bicyclists and equestrians are not typically compatible sharing a trail. When a fast moving and quiet, cyclist approaches a horse from behind, the horse can be startled and shy or take flight. In areas where conflicts seem likely, efforts are made to physically separate the different user groups within the corridor.





## ACCESSIBLE TRAIL DESIGN

General guidelines have been created in response to the American with Disabilities Act (ADA) for accessible trails. Constructing outdoor trails may have limitations that make meeting ADA guidelines difficult and sometimes prohibitive. Prohibitive impacts include: harm to significant cultural or natural resources, a significant change in the intended purpose of the trail, requirements of construction methods that are against federal, state or local regulations, or terrain characteristics that prevent compliance. The following standards serve to accommodate persons with disabilities in feasible situations.



*Non-paved surfaces can meet the needs of users with disabilities when properly constructed*

**Table 16: Accessible Trail Design Standards**

Trail Surface	Hard surface such as, asphalt, concrete, wood, compacted gravel	Provide smooth surface that accommodates wheelchairs
Trail Gradient	Less than 5% maximum without landings	
Less than 8.33% maximum with landings	Greater than 5% is too strenuous for wheelchair users	
Trail Cross Slope	2% maximum	Provide positive trail drainage, avoid excessive gravitational pull to side of trail
Trail Width	5' minimum	Accommodate a wide variety of users and allows for the passage of two wheelchairs
Trail Amenities, phones, drinking fountains and pedestrian- actuated buttons	Place no higher than 4' off ground	Provide access within reach of wheelchair users
Detectable pavement changes at curb ramp approaches	Place at top of ramp before entering roadways	Provide visual and/or tactile queues for visually impaired users
Trailhead Signage	Accessibility information such as trail gradient/ profile, distances, tread conditions, location of drinking fountains and rest stops	User convenience and safety
Parking	Provide at least one accessible parking area per every 25 vehicles spaces at each trailhead	User convenience and safety
Rest Areas	On trails specifically designated as accessible, provide rest areas or widened areas on the trail optimally at every 300 feet	User convenience and safety



## TRAIL AND ROADWAY CROSSINGS

### Trail / Roadway Crossings

It is highly desirable to minimize the number of potential vehicle-trail user conflicts. As a general rule, when roadway crossings are required, they should occur at established pedestrian crossings, or at locations completely away from the influence of intersections.

Trail approaches at roadways should always have Stop or Yield signs to minimize conflicts with autos. Bike crossing stencils may be placed in advance of trail crossings to alert motorists. Curb ramps should be designed to accommodate the range and number of users.

When considering a proposed off-street multi-use path and required at-grade crossings of roadways, it is important to remember two items: 1) trail users will be enjoying an auto-free experience and may enter into an intersection unexpectedly; and 2) motorists may not anticipate bicyclists riding out from a perpendicular trail into the roadway. However, in most cases, an at-grade trail can be properly designed to a reasonable degree of safety and meet existing traffic engineering standards.

Evaluation of multi-use trail crossings should involve an analysis of vehicular traffic patterns, as well as the behavior of trail users. This includes traffic speeds, street width, traffic volumes (average daily traffic and peak hour traffic), line of sight, and trail user profile (age distribution, range of mobility, destinations). A traffic safety study should be conducted as part of the actual civil engineering design of the proposed crossings to determine the most appropriate design features. This study would identify the most appropriate crossing options given available information, which must be verified and/or refined through the actual engineering and construction document stage.

### CROSSING PROTOTYPES

Intersection approaches are based on established standards, published technical reports, and the experiences from existing facilities. Virtually all crossings fit into one of four basic categories:

#### Type 1: Unprotected/Marked

- Unprotected/marked crossings include trail crossings of residential, collector, and sometimes major arterial streets or railroad tracks.

#### Type 2: Route Users to Existing Intersection

- Trails that emerge near existing intersections may be routed to these locations, provided that sufficient protection is provided at the existing intersection.

#### Type 3: Signalized/Controlled

- Trail crossings that require signals or other control measures due to traffic volumes, speeds, and trail usage.

#### Type 4: Grade-Separated

- Bridges or under-crossings provide the maximum level of safety but also generally are the most expensive and have right-of-way, maintenance, and other public safety considerations.

#### Type 1: Unprotected/Marked Crossings

An unprotected crossing (Type 1) consists of a crosswalk, signing, and often no other devices to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, trail traffic, use patterns, vehicle speed, road type and width, and other safety issues such as the proximity of schools. Unprotected crossings may be acceptable when the following thresholds are met:

Install crosswalks at all trail-roadway crossings

Maximum traffic volumes:

- Up to 15,000 ADT on two-lane roads, preferably with a median.



- Up to 12,000 ADT on four-lane

Maximum travel speed

- 35 mi/h

Minimum line of sight:

- 25 mi/h zone: 250 feet
- 35 mi/h zone: 350 feet
- 45 mi/h zone: 450 feet

On two lane residential and collector roads below 15,000 ADT with average vehicle speeds of 35 mph or less, crosswalks and warning signs (“Bike Xing”) should be provided to warn motorists, and stop signs and slowing techniques (bollards/geometry) should be used on the trail approach. Care should be taken to keep vegetation and other obstacles out of the sight line for motorists and trail users. Engineering studies should be done to determine the appropriate level of traffic control and design.

A flashing yellow beacon or embedded pavement lights, may be used with a marked crosswalk, preferably one that is activated by the trail user rather than operating continuously. Some jurisdictions have successfully used flashing lights activated by motion detectors on the trail, triggering the lights as trail users approach the intersection. This equipment, while slightly more expensive, informs motorists about the presence of trail users. This type of added warning would be especially important at locations with restricted sight distance.

### Type 2: Route Users to Existing Intersection

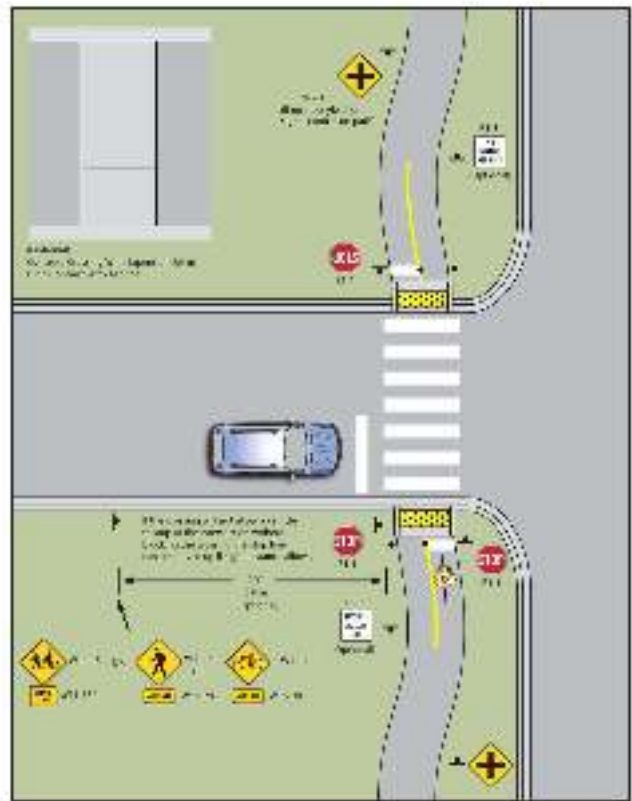
Crossings within 250 feet of an existing signalized intersection with pedestrian crosswalks are often diverted to the signalized intersection for safety purposes. For this option to be effective, barriers and signs may be needed to direct trail users to the signalized crossings. In most cases, signal modifications would be made to add pedestrian detection and to comply with ADA recommendations. In many cases, such as on most community trails parallel to roadways,

crossings are simply part of the existing intersection and are not a significant obstacle for trail users.

### Type 3: Signalized/Controlled Crossings

New signalized crossings are recommended for crossings more than 250 feet from an existing signalized intersection and where the 85th percentile of travel speeds are 40 mph and above and/or average daily traffic counts (ADT) exceeds 15,000 vehicles. Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity and safety.

Trail signals are normally activated by push buttons, but also may be triggered by motion detectors or weight sensors. The maximum delay for activation of the signal



Type 1 crossing improvements are recommended at trail intersections with major roads.





should be two minutes, with minimum crossing times determined by the width of the street. The signals may rest on flashing yellow or green for motorists when not activated, and should be supplemented by standard advanced warning signs. Typical costs for a signalized crossing range from \$150,000 to \$250,000.

#### Type 4: Grade-separated Crossings

Grade-separated crossings are needed where ADT exceeds 25,000 vehicles, and 85th percentile speeds exceed 45 mph. Safety is a major concern with both overcrossings and under-crossings. When designed properly, grade-separated crossings practically eliminate any safety concerns related to crossing a roadway.

Grade-separated crossing approaches should minimize the out-of-direction travel required by the trail user, so that users don't alternatively attempt to dart across the roadway. Under-crossings, like parking garages, have the reputation of being places where crimes occur, but these safety concerns can be addressed through design. An undercrossing can be designed to be spacious, well-lit, equipped with emergency cell phones at each end, and completely visible for its entire length prior to entering. For cyclists and pedestrians, vertical clearance should be kept to a minimum of 8 feet (12 feet for equestrians).

Over-crossings, or bridges, avoid darkness and safety concerns that occur with an at- or below-grade option. Any bicycle and pedestrian bridge needs to be approached via ADA compliant ramps (running slopes less than 5%). Bridges present unique opportunities for creating landmark architectural and artistic statements.



Type 3 Crossing



Type 4 Grade-Separated Overcrossing



Type 4 Grade-Separated Undercrossing



## Railroad Crossings

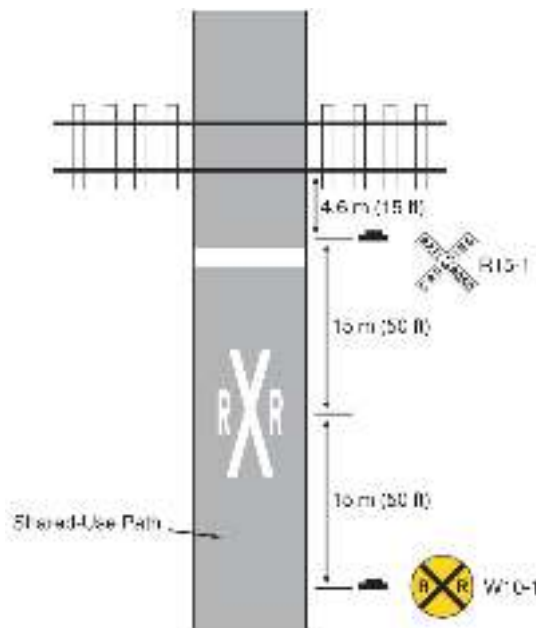
The preferred Carolina Thread Trail alignment may include at-grade crossings of the railroad tracks. New pedestrian railroad crossing flashers are typically not required for sidewalk crossings at legal crossings as they are redundant with adjacent vehicle crossing warning equipment.

Efforts should be made to have multi-use trails cross railroad tracks at as close to a 90 degree angle as possible. As crossing angles deviate from perpendicular angles, possibilities increase for a bicycle wheel to become trapped in the flangeway, or for cyclists to lose traction on wet rails. AASHTO guidelines do not specify a minimum crossing

angle; however, they do recommend that any crossing that is less than a 45 degree angle should be accompanied by a widening in the trail or shoulder area in order to permit a cyclist to cross the track at a safer angle, preferably perpendicular.

Standard concrete railroad crossings with compressible flangeway fillers permit rail operations while creating a smooth or subtle bump for cyclists.

Crossing materials should be skid resistant. Colored surfaces also help alert cyclists to potential conflict points. Rubber and concrete materials require less maintenance and have a longer lifespan than wood or asphalt.



MUTCD example of signing and marking for shared-use path / railroad crossing



### Additional Crossing Enhancements

Additional measures may be taken to improve comfort and safety conditions for trail users at roadway intersections. These include: curb extensions, midway refuge islands and vehicle travel lane width reductions. Curb extensions effectively narrow the width of roadway that a trail user needs to cross. Also referred to as “bulb-outs,” curb extensions are a literal extension of the curb and sidewalk, or pedestrian realm into the travel way from each direction. Oftentimes, extensions occupy space formally taken by on-street parking. Shifting parking farther from the intersection with an extension provides for better visibility between trail users and motorists. Also, the real estate gained may be used for additional plantings or site furnishings.

Midway refuge islands provide a protected stopping point midway across roadways. Refuge islands are particularly appropriate in areas with high numbers of young people, the elderly and those with mobility impairments as they shorten the distance and thus time for which the trail user spends within the unprotected travel way.



*Current configuration of Old Salisbury Road, Albemarle*



*Old Salisbury Road with a median that also serves as a pedestrian refuge island. Refuge islands reduce the time pedestrians are exposed to vehicular traffic.*



*A curb extension can effectively narrow the width of the roadway.*



**SIGNS AND WAY-FINDING**

Multi-use trail signs and markings should include: regulatory, way-finding, identity and informational or interpretive signs for bicyclists, pedestrians, paddlecraft users and motorists. Sign selection and placement should generally follow the guidelines in the Manual on Uniform Traffic Control Devices.

**General Standards**

- All signs shall be retro-reflective on shared-use paths. Lateral sign clearance shall be a minimum of three feet and a maximum of six feet from the near edge of the sign to the near edge of the path.
- Mounting height shall be between four and five feet from the bottom edge of the sign to the path surface level.
- All on-street signs should be oriented so as not to confuse motorists. The designs (though not the size) of signs and markings should generally be the same as used for motor vehicles.
- A yellow centerline stripe is standard for multi-use paths in many regions, especially at: blind corners, high traffic areas, where the path width narrows, intersection approaches, and/or areas where nighttime riding is expected with limited lighting.

- The final striping, marking, and signing plan for the Carolina Thread Trail will be resolved in the full design phase of the trail, and should be reviewed and approved by a licensed traffic engineer or civil engineer. This will be most important at locations where there are poor sight lines from the trail to cross-traffic (either pedestrian or motor vehicle).



Local identity sign with trail etiquette insert. (Photo credit: URS)



Informational sign about facility funding partners



MUTCD regulatory sign



Alternative bike route sign that can be customized with route number and community identity



## Regulatory

Regulatory signs should state the rules and regulations associated with trail usage, as well as the managing agency, organization or group. The purpose of trail regulations is to promote user safety and enhance the enjoyment of all users. It is imperative that before the trail is opened, trail use regulations are developed and posted at trailheads and key access points. Trail maps and informational materials might include these regulations as well. Establishing that the trail facility is a regulated traffic environment just like other public rights of way is critical for compliance, and often results in a facility requiring minimal enforcement. Be sure to have an attorney review the trail regulations for consistency with existing ordinances and enforceability. In some locations, it may be necessary to pass additional ordinances to implement trail regulations.

Below is a sample of the most common items that should be covered in trail regulations:

- Hours of use
- Motorized vehicles, other than power-assisted wheelchairs, are prohibited
- Keep to the right except when passing
- Yield to on-coming traffic when passing
- Bicyclists yield to pedestrians
- Give an audible warning when passing
- Pets must always be on short leashes
- Travel no more than two abreast
- Alcoholic beverages are not permitted on the trail
- Do not wander off of trail onto adjacent properties

In addition, other warning signs informing users of approaching intersections and crossings of driveways will need to be installed.



*MUTCD sign for narrow travel lanes that require sharing*



*A MUTCD approved combined pedestrian and bicycle trail crossing sign*



### Way-Finding and Identity

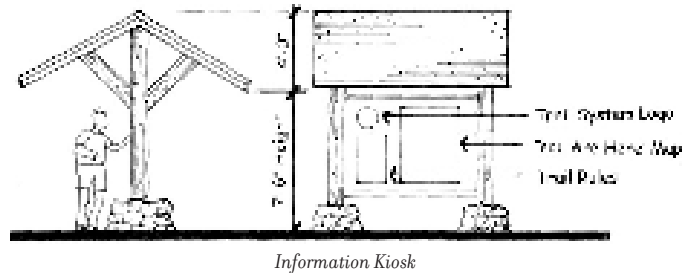
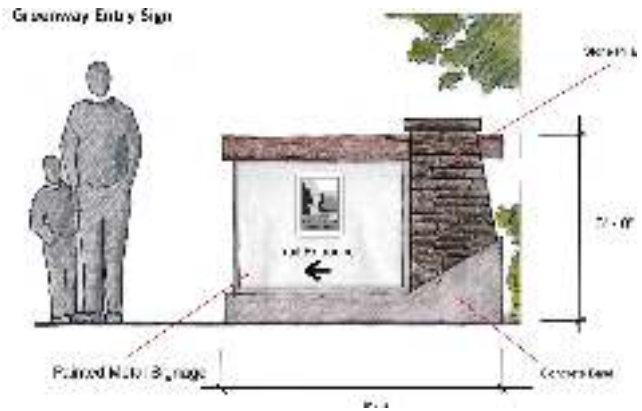
A comprehensive sign system makes a trail system memorable. Informational kiosks with maps at trailheads and other pedestrian generators can provide enough information for someone to use the trail system with little introduction. A trail way-finding map typically includes: current location, nearby destinations and prominent natural and built features.

Trail legibility and identity is enhanced by having a consistent, unique logo or design that will help guide people to and on the trail. Gateways or entry markers at major access points with trail identity information further augments the trail experience. They should be visually clear and distinctive while maintaining consistency with other sign features found on the trail.

Clear, pedestrian-scaled, signs and markers will aid in way-finding and separation of user groups. Signs should be consolidated to avoid clutter and sign fatigue. In addition to a trail logo being posted on bollards, gates and at the trailheads, way-finding markers and signs should be placed at key decision points. Distances may also be marked periodically so that trail users who wish to pace themselves have a means of doing so.

### Informational and Interpretive

Interpretive installations and signs enhance the trail experience by providing information about the history, environment and culture of the area. Installations may provide educational information while creating a unique and memorable experience. Interpretive signs should use similar materials, forms and colors as other sign elements found throughout the trail in order to provide a unified trail experience.





### Trail Etiquette

Informing trail users of acceptable trail etiquette is a common issue when multiple user types are anticipated. Yielding the right-of-way is a courtesy and yet a necessary part of a safe trail experience involving multiple trail users. Trail right-of-way information should be posted at trail access points and along the trail. The message must be clear and easy to understand. The most common trail etiquette systems involve yielding of cyclists to pedestrians and equestrians and the yielding of pedestrians to equestrians. The education of trail users is a critical part of creating a safe trail environment for all trail users. Not everyone understands the innate flight sense of a horse. Guidelines should be clearly posted at trail access points. Education curriculums, similar to the “Safe Routes to Schools” Programs, could be used to encourage safe practices around equestrians on the trail.



User etiquette sign for a bridge



Trail etiquette signage advises trail users about proper interactions to minimize conflicts.



A commonly used multi-use trail etiquette sign



### User Conflict Reduction Strategies

There are many means of separating trail users including: time, distance, screening, and barriers. Time separation applies when different user groups are expected to use a corridor at different times of the day or week (such as cyclists during weekday commute hours and equestrians during evenings or weekends only).

In corridors where adequate right-of-way is available, trail users may be separated by physical space. Vegetated buffers or barriers have successfully been used in many trail scenarios. Elevation changes are another means of effectively physically and visually separating different use corridors. Differing surfaces suitable to each user group, also help foster visual separation and clarity of where each user group should be. When trail corridors are constrained, the approach is often to locate the two different trail surfaces side by side with no separation. Oftentimes, an expanded trail shoulder serves the role of the equestrian facility.

When barriers are considered necessary to separate user types, options include: vegetation, walls, fences, railings and bollards. The accepted height for most equestrian barriers is 54 inches. Solid barriers significantly limit an animal's peripheral vision and sense of security and thus are not recommended. When solid walls are necessary, vegetation should be used to soften the structure's appearance.

Railings or safety barriers are recommended when a trail occurs within six feet of a steep slope (more than 3:1) with a vertical grade change or drop off of more than 30 inches.



*An example of a trail system that clearly separates trail users*



*A motorized vehicle barrier that allows for equestrian passage*



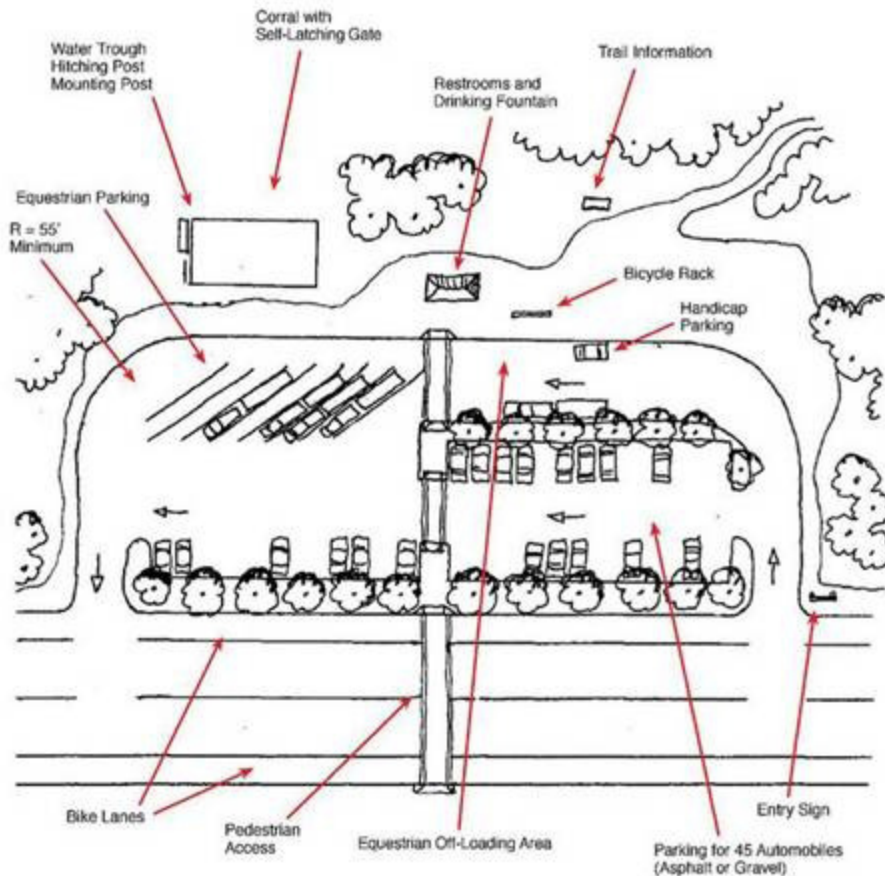


## Trailheads

Clearly defined trail access points are crucial to making trails inviting. Trail access points should provide the appropriate facilities to accommodate the permitted user types and expected user volumes. The graphic below is an example of a major trailhead access point to a trail that allows hikers, equestrians and bikers. This trail also provides ADA access as indicated by the accessible parking stall nearest the entrance.

Trailheads should:

- Provide signage displaying permitted uses, regulations and emergency contact information
- Provide wayfinding and informational signage
- Provide the appropriate number of automobile, bike, and horse parking stalls based on the expected user volume
- For major trail heads, provide restrooms and drinking fountains



*A major trailhead that accommodates equestrians*



## TRAIL AMENITIES

Trails with high user volumes, particularly those that access a destination point and drive-in access, should provide amenities to support users. Amenities include trash and recycling receptacles, benches, restrooms, and an informational kiosk. Trails that restrict biker or equestrian use should provide parking stalls for bikes and horses at their entrances.

### Seating and Tables

Providing benches at key rest areas and other appropriate locations encourages people of all ages to use the trail by ensuring that they have a place to rest along the way. Benches can be simple with wood slates or more ornate with stone, wrought iron, and concrete. Benches should ideally utilize shady areas to provide trail users relief from the sun. Tables provide picnicking opportunities and should be installed in easily accessible areas near trailheads and parks. This will encourage both trail users and non-trail users to picnic. Trash receptacles should be installed accordingly.

### Drinking Fountains

Drinking fountains provide relief to trail users and their pets. They should be installed in combination with seating where the topography requires extra exertion from the trail user. A spigot can be installed at lower levels, with a catch basin for watering dogs.

### Trash Receptacles

Trash and dog waste receptacles help encourage trail users to keep the trail and trailheads free from debris. It is recommended that both types of receptacles be placed at trailheads and key access points along the trail. However, the National Park Service's ethic of "pack it in, pack it out" should be encouraged.

### Bicycle Parking

Bicycle parking allows trail users to safely park their bicycles if they wish to stop along the way or leave their bicycle at trailheads while they hike. Bicycle parking may be installed at trailheads, bicycle trail intersections with trails that prohibit bicycle use, and at popular destinations along a trail.

### Lighting

Lighting improves the safety of the trail or path user by increasing visibility during non-daylight hours. Lighting should consider the surrounding land use to minimize light pollution in unwanted areas such as residential areas. Lighting fixtures should be pedestrian scale and installed near benches, drinking fountains, bicycle racks, trailheads, and roadway crossings. Lighting is typically most appropriate along Class I multi-use paths used for transportation purposes.



*Clockwise from top left: Pedestrian-scaled lighting along a paved path; bicycle racks encourage bicycle use; shaded seating increases trail users comfort and encourages trail use; seating and trash receptacle surround made from wood.*



### PUBLIC ART

Public art along a trail provides an opportunity to add interest to the trail experience and, depending on the scale and form, can become an “event” in itself and serve as a public draw. Public art can be aesthetic or functional, doubling as sitting or congregation areas. Local artists should be encouraged to produce artwork in a variety of materials for sites along the Carolina Thread Trail corridor that reflect the communities in Stanly County.



*Interpretive panels on a decorative wall*



*Art installation on a retaining wall*



*Art installation along a trail in Lincoln, Nebraska*



*Art installation on a bikeway*



## DRAINAGE AND EROSION CONTROL

Erosion control is necessary to maintain a stable walkway and trail surface. Following land contours helps reduce erosion problems, minimizes maintenance and increases comfort levels on all trail types.

**Paved Surfaces:** A 2% cross slope will resolve most drainage issues on a paved path and should be used for both the trail and its shoulders. A maximum 1:6 slope may be used for the shoulders although 2% is preferred. For sections of cut where uphill water is collected in a ditch and directed to a catch basin, water should be directed under the trail in a drainage pipe of suitable dimensions. Per NCRA guidelines, water should always be directed away from rail tracks. During trail construction, local erosion control best practices should be followed.

**Natural Surfaces:** Erosion will occur on natural surface trails. Natural surface trails should be designed to accommodate erosion by shaping the tread to limit how much erosion occurs and to maintain a stable walkway and trail surface. The goal is to outslope the trail so that water sheets across, instead of down, its tread. Even the most well built trails will break down over time from forces such as compaction and displacement.

Designing trails with rolling grades is the preferred way to build sustainable natural surface trails. “Rolling grade” describes the series of dips, crests, climbs and drainage crossings linked in response to the existing landforms on the site to form a sustainable trail. The tread of the trail must be able to drain to a point lower than the trail at all times. When a natural rolling grade cannot be developed, grade reversals (sometimes known as grade dips, grade breaks, drain dips or rolling dips) are constructed to create trail undulations. Frequent grade reversals (grade dips, grade brakes, drain dips or rolling dips) are a critical element for controlling

erosion on sustainable trails. A general rule-of-thumb is to incorporate a grade reversal every 20 to 50 linear feet along the trail to divide the trail into smaller watersheds so the drainage characteristics from one section won't affect another section. Water flowing along a segment of trail that is deeply compacted will be trapped on the trail a short distance before it can drain.

Grade reversals have the added benefit of adding interest to any trail. All trail users appreciate the short downhill break during a long climb, or the opportunity to ‘let off their brakes’ for a bit during a long downhill trek.

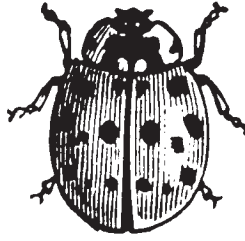
Rolling grade and grade reversals are preferred to other mechanical methods of routing water off of trails such as water bars, check dams and culverts because they do not present a barrier to users.



*Debris on an asphalt paved trail due to improper drainage design*



*Water erosion undercuts an asphalt trail surface, posing a safety issue for trail users and costly maintenance repairs.*



## APPENDIX II: MAINTENANCE AND MANAGEMENT

### Trail Maintenance

Effective trail maintenance is critical to the overall success and safety of any trail system. Maintenance activities typically include: pavement stabilization, landscape maintenance, facility upkeep, sign replacement, pruning, litter removal and painting. A successful maintenance program requires continuity and often involves a high level of citizen participation. Routine maintenance on a year-round basis will not only improve trail safety, but will also prolong the life of the trail. The benefits of a good maintenance program are far-reaching, including:

- A high standard of maintenance is an effective advertisement to promote the trail as a local and regional recreational resource.
- Good maintenance can be an effective deterrent to vandalism, litter, and encroachments.
- A regular maintenance routine is necessary to preserve positive public relations between the adjacent land owners and managing agency.
- Good maintenance can make enforcement of regulations on the trail more efficient. Local clubs and interest groups will take pride in “their” trail and will be more apt to assist in protection of the trail.
- A proactive maintenance policy will help improve safety along the trail.

Ongoing trail maintenance likely includes some, if not all, of the following activities:

### Inspections

A good maintenance program begins with a means of locating and identifying problems, such as erosion, vandalism, safety issues and plant replacement needs. Regular inspections can also alert staff to sections of trail that may need to be realigned to avoid on-going repairs in problem spots.

### Vegetation

In general, plants should be allowed to grow in their natural state. Plantings along the trailside should be sited to maintain visibility between plantings and to avoid creating the feeling of an enclosed space. This will give trail users good, clear views of their surroundings, which enhances the aesthetic experience. Under-story vegetation within the trail right-of-way should not be allowed to grow higher than 36 inches. Selection and placement of trees should minimize vegetative litter on the trail as well as root uplifting of pavement. Vertical clearance along the trail should be periodically checked, and any overhanging branches should be pruned to a minimum vertical clearance of 10 feet (12 feet for equestrians).

Planted vegetation should be inspected during scheduled maintenance periods (Table 17 on the following page) to identify plants in need of replacement.

### Surfacing

#### Asphalt

Recommended surface material for the multi-use segments. Cracks, ruts and water damage will need to be repaired periodically.

Where drainage problems exist along the trail, concrete construction and drainage pipes may need to be installed. Ditches and drainage structures need to be kept clear of debris to prevent wash outs and maintain positive drainage flow. Maintenance checks should be conducted immediately after each storm that causes localized flooding. Maintenance staff should inspect for erosion of the trail and trail shoulders. Erosion problems should be corrected as soon as possible.

The trail surface should be kept free of debris, especially broken glass and other sharp objects, loose



gravel, leaves and stray branches. Trail surfaces should be swept periodically. Soft shoulders should be well maintained to maximize their usability. Typical installation practices include two applications of herbicide when laying and installing granular surfaces and plant material.

**Natural Surface Trails**

Light maintenance of natural trails is recommended semi-annually. Maintenance would include cleaning and servicing water bars and drains, raking loose rock, tightening signs and make sure posts are secure and upright. Inspection during regular light maintenance will assist staff in determining when heavy maintenance will be required.

Heavy maintenance activities may encompass installation or repair of drainage systems, re-establishing the cant of the trail through cut and fill, removing large embedded rocks and major corridor clearing. A heavy maintenance schedule will occur as needed.

**Pest and Vegetation Management**

Basic measures should be taken to protect the trail investment. This includes a bi-annual pruning along both sides of the trail to prevent invasion of plants into the pavement and shoulder areas. The recommended time of year for pruning is fall and spring. Wherever possible, vegetation control should be accomplished by mechanical means or hand labor. Some species may require spot application of state-approved herbicide.

**Litter and Illegal Dumping**

Staff or volunteers should remove litter along the trail. Litter receptacles should be placed at primary access points such as trailheads.

Illegal dumping should be controlled by vehicle barriers, regulatory signage and fines as much as possible. When it does occur, it should be removed as soon as possible in order to prevent further dumping. Neighborhood volunteers, friends groups, alternative community service

crews and inmate labor should be considered in addition to maintenance staff.

**Signage**

Signs should be replaced along the trail on an as-needed basis.

**Flooding**

Portions of trail may be subjected to periodic flooding. Debris accumulated on the trail surface should be removed after each recession of water. Debris should be periodically removed from the waterway under any bridge structure.

Typical maintenance vehicles for the trail will be light pick-up trucks and occasionally heavy dump trucks and tractors. A mechanical sweeper is recommended to keep the trail clear of loose gravel and other debris. Care should be taken when operating heavier equipment on the trail to warn trail users and to avoid breaking the edge of the trail surface.

**Table 17. Maintenance Recommendations**

Item	Suggested Frequency
Sign replacement/repair	1-3 years
Pavement marking replacement	1-3 years
Planted Tree, Shrub, trimming/fertilization/replacement	5 months -1 year
Pavement sealing/potholes	5-15 years
Natural surface trails light maintenance	Bi-annually
Clean drainage system	After a storm event
Pavement sweeping	Monthly
Shoulder pruning*	Bi-annually (fall/spring)
Trash disposal	As needed, twice a week
Graffiti removal	Weekly/or as reported
Maintain benches, site amenities	1 year, or as needed
Pruning to maintain vertical clearance	1-4 years
Remove fallen trees	As needed
Weed control	Monthly
Water plants	As needed

\*Additional maintenance may be required.



## APPENDIX III: OVERVIEW OF FUNDING OPTIONS

Acquiring funding for projects and programs is considerably more likely if it can be leveraged with a variety of local, state, federal and public and private sources. This chapter identifies potential matching and major funding sources available for trail projects and programs as well as their associated need and criteria.

**Private Funding** - Private funding from citizens, philanthropic organizations, non-profits and local businesses should be used to build segments of the Stanly County Greenway system and the Carolina Thread Trail. The Catawba Lands Conservancy (CLC) is leading a private fundraising effort to fund to fund trail planning, design, land acquisition, and construction for local governments and communities that plan for and adopt greenway master plans. These grant funds can be supplemented with other local, private sector monies to support future implementation of this master plan.

**Public Funding** - A variety of public funding dollars are available to support future development of the Stanly County trails.

- **Federal Funding** - Federal funding is a key source of funding for larger or more expensive trail projects. Some federal funds are direct appropriations to States and are therefore distributed and managed by a state agency. Other funds are distributed directly from the federal program. Federal funding programs described in greater detail following.
- **State Funding** - Most state funding for greenway acquisition and development in North Carolina comes from NCDOT and trust funds. Local governments must provide matching funds for many of these sources, therefore Stanly County should consider establishing a dedicated, recurring source of revenue for greenway acquisition and development.

- **Local Funding Options** - Local governments generally use discretionary annual spending (General Fund), dedicated funding, and debt financing. Funding varies by community dependent on taxing capacity, budgetary resources, voter preference, and political will. The ability to establish dedicated funding sources may also depend on enabling authority. North Carolina has given local governments a limited number of options to fund land conservation and trail projects.

### OVERVIEW OF LOCAL FUNDING OPTIONS

#### Revenue Bonds

The county could issue revenue bonds to fund bicycle and/or pedestrian improvements. This would spread the cost of the improvements over the life of the bonds. Certain types of bonds would require voter approval. The debt would have to be retired, so funding for repayment on the bond and the interest would be required.

A bond issued in Denver, Colorado funded \$5 million for trail development and also funded the city's bike planner for several years. The City of Albuquerque, New Mexico and Bernalillo County have a 5 percent set-aside of street bond funds for trails and bikeways. This has amounted to approximately \$1.2 million for the City every two years.

#### General Obligation Bonds (GOB)

General obligation bonds are issued with the underlying belief that a municipality will be able to repay its debt obligation through taxation or revenue from projects. This financial commitment does not require assets to be used as collateral, but is issued as "good faith debt". A GOB is a bond sold by a specified jurisdiction to investors to raise



money. Typically, money is raised for capital improvement projects and general improvements (i.e. open space acquisition and/or park and greenway construction); this depends on the local and state laws which are subject to change. A GOB requires a referendum approval before it is issued. This portion of the process is time sensitive as referenda are approved or denied during election years.

### Special Assessment Bonds

A Special Assessment Bond is a special type of municipal bond used to fund a development project. Interest owed to lenders is paid by taxes levied on the community benefiting from the particular bond-funded project. For example, if a bond of this sort were issued to pay for sidewalks to be re-paved in a certain community, an additional tax would be levied on homeowners in the area benefiting from this project. Area homeowners get nicer walking paths, and they will probably see the value of their property increase accordingly, but this comes at a price. Their property taxes will increase to pay the interest owed to the bondholders by the municipality. Source: <http://www.investopedia.com>

### State Revolving Bonds

There are a variety of revolving loan funds offered through the State for water pollution control and environmental protection. These revolving loan funds are available for local communities and act similar to revenue bonds which require upfront revenue repayment sources, limited repayment terms and low interest rates.

### Installment Purchase Agreement (IPA)

An installment purchase agreement is basically a payment plan to compensate property owners for restrictions on the future use of their land. IPAs spread out payments so that landowners receive tax exempt interest over a period up to 30 years. The principal of the sales amount is due at the end of the agreed upon term thus making the agreement

favorable in terms of property taxes. However, because installment purchase agreements are essentially long-term debt, the agreements generally require the same approvals as general obligation bonds and require a dedicated funding source to be in place (American Farmland Trust, 2000).

### Street User/Street Utility Fees

The County could administer street user fees through residents' monthly water or other utility bills. The revenue generated by the street user fee is used for operations and maintenance of the street system. Revenue from this fund could be used to maintain on-street bicycle and pedestrian facilities, including routine sweeping of bicycle lanes and other designated bicycle routes. Additionally, this type of fee may free up more general fund money for off-street projects. Implementation of street user fees would require a public vote.

### Impact Fee / Developer Contribution

Another potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site bikeway and pedestrian improvements that will encourage residents to bicycle and walk rather than drive. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

### Mitigation Banking

Mitigation banking involves the creation, preservation, or enhancement of wetlands. This happens only when wetland losses are unavoidable in advance of development actions, when the wetland cannot be compensated for within the development's parameters, or when the wetland would not be as environmentally beneficial. It typically involves the





consolidation of small, fragmented wetland mitigation projects into one large contiguous site. Units of restored, created, enhanced or preserved wetlands are expressed as “credits” which may subsequently be withdrawn to offset “debits” incurred at a project development site.

### **Private Individual Donations**

Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Municipalities typically create funds to facilitate and simplify a transaction from an individual’s donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented. Such donations can improve capital budgets and/or projects.

### **Corporate Donations**

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Municipalities typically create funds to facilitate and simplify a transaction from a corporation’s donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented. Such donations can improve capital budgets and/or projects.

### **Corporate Sponsorships**

Corporate sponsorships are often delivered in the form of services, personnel volunteers, liquid investments (cash or stock) or land. Municipalities often team with corporations for necessary and/or alternative funding. A sponsorship, which is the equivalent of a donation, usually involves some marketing elements or recognition in one form or another. The benefits of marketing often improve the image of the given corporation and are often thought to benefit both parties.

### **Foundation Grants**

Foundation grants are provided by corporations, individuals, or organizations with a specific mission. The process involves an application which requires the municipality to explain the direct relation between the foundation’s mission and the applicant’s reason for the funding needs.

Foundation grants can offer a wide range of awards from a thousand dollars to a million dollars. The award amounts depend on the foundation’s funding capacity and allocation decision.

### **Local Grants**

Municipalities oftentimes offer a variety of grants, each with specific purposes. Local grants are limited to areas within the specific municipality’s border. These grants range from capital improvement projects to economic revitalization purposes. The award amounts of these grants depend on the local municipality’s funding capacity and allocation decisions. These grants are typically much lower than federal grants and state grants.

### **Fundraising / Campaign Drives**

Organizations and individuals can participate in a fundraiser or a campaign drive. It is essential to market the purpose of a fundraiser to rally support and financial backing. Oftentimes fundraising satisfies the need for public awareness, public education, and financial support.

### **Land Trust Acquisition and Donation**

Land trusts are held by a third party other than the primary holder and the beneficiaries. This land is oftentimes held in a corporation for facilitating the transfer between two parties. For conservation purposes, land is often held in a land trust and received through a land trust. A land trust typically has a specific purpose such as conservation and is used so land will be preserved as the primary holder had originally intended.



### Greenway Specific Trust Fund

A greenway specific trust fund is a holding company designated to shelter land for the purpose of greenway usage. This land should be preserved as intended and is protected by law. The trust can accept land, funding, or both. The land can be utilized for the actual greenway or for a potential land swap, which depends on the donor's specifications. Funding can be used for infrastructure, land acquisition, maintenance, and/or services. Examples of similarly specific funds can be found in the North Carolina Natural Heritage Trust Fund ([www.ncnhf.org](http://www.ncnhf.org)) and the North Carolina Agriculture Development and Farmland Preservation Trust Fund ([www.ncadfp.org](http://www.ncadfp.org)).

### Capital Budget Increase

An increase in the capital budget increases the financial capacity for capital improvements. This option is rarely exercised unless there is a specific use for the capital reallocation. Capital budget changes originate in the capacity of the federal government, state, county, town or city. It is possible for a jurisdiction to ask for a change in capital budget from more than one entity to obtain funding for a project.

### Local Budget Yearly Contributions

Local governments may choose to contribute to capital improvement projects on an annual basis as opposed to a one-time budget allocation. A funding change such as this offers a project a financial perpetuity which is a continuous stream of funding. This is especially beneficial when a project requires additional funding for maintenance, operations, salaries, or scheduled enhancements.

### Tax Increment Financing/Project Development Financing

Tax Increment Financing (TIF) is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., shared-use

path) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project.

### Developer Impact Fees

Another potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site bikeway and pedestrian improvements that will encourage residents to bicycle and walk rather than drive. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

### In Lieu of Fees

Developers often dedicate open space or greenways in exchange for waiving fees associated with park and open space allocation requirements in respect to proposed development. These types of requirements are presented within local municipal codes and ordinances.

### Utility Lease Revenue

A method to generate revenues from land leased to utilities for locating utility infrastructure on municipally owned parcels. This can improve capital budgets and support financial interest in property that would not otherwise create revenue for the government.

## OVERVIEW OF FEDERAL FUNDING SOURCES

Federal funding is primarily distributed through a number of different programs established by the Federal Transportation Act. The latest federal transportation act, The Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU) was



enacted August 2005, as Public Law 109-59. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the five year period 2005-2009. The current SAFETEA-LU legislation is in the process of reauthorization. Funding has been extended until December 2010. It will be important for Stanly County and the CTT to continue monitoring the development of new legislation, including federal stimulus funds, new federal Livability initiatives and the SAFETEA-LU reauthorization process.

Federal funding is administered through the state (North Carolina State Department of Transportation) and regional planning agencies. Most, but not all, of these funding programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements, and safety, educational programs, and trail projects must relate to the surface transportation system.

#### **Surface Transportation Act (SAFETEA LU)**

On August 10, 2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). With guaranteed funding for highways, highway safety, and public transportation totaling \$244.1 billion, SAFETEA-LU represents the largest surface transportation investment in our Nation's history. The two landmark bills that brought surface transportation into the 21st century—the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21)—shaped the highway program to meet the Nation's changing transportation needs. SAFETEA-LU builds on this firm foundation, supplying the funds and refining the programmatic framework for investments needed to maintain and grow our vital transportation infrastructure.

Source: Federal Highway Administration Office of Legislation and Intergovernmental Affairs  
Program Analysis Team  
Enhancements Unit  
Department of Transportation  
1534 Mail Service Center  
Raleigh, NC 2766-1534  
Tel: 919-733-2039

#### **Surface Transportation Program – Transportation Enhancement Activities**

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a wide variety of projects on any Federal-aid Highway including the National Highway System, bridges on any public road, and transit facilities.

Eligible bicycle improvements include on-street facilities, off-road shared-use paths, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. SAFETEA LU also specifically clarifies that the modification of sidewalks to comply with the requirements of the Americans with Disabilities Act is an eligible activity. As an exception to the general rule described above, STP-funded bicycle facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. In addition, bicycle-related non-construction projects, such as maps, coordinator positions, and encouragement programs, are eligible for STP funds.

Source: [www.fhwa.dot.gov/environment/te & www.enhancements.org](http://www.fhwa.dot.gov/environment/te&www.enhancements.org)  
Department of Transportation  
1534 Mail Service Center  
Raleigh, NC 2766-1534  
Tel: 919-733-2039



### Federal Lands Highway Program

Federal Lands Highway Program (FLHP) funds may be used to construct roads and trails within (or, in some cases, providing access to) Federal lands. FLHP funds total about \$800 million per year. Recreation interests often benefit from FLHP funds.

There are four categories of FLHP funds: Indian Reservation Roads, Public Lands Highways, Park Roads and Parkways, and Refuge Roads. Funds available to the US Forest Service may be used for forest development roads and trails. Funds available to the US Fish and Wildlife Service also may be used for trails (up to 5 percent). To be eligible for funding, projects must be open to the public and part of an approved Federal land management agency general management plan.

FLHP funds appropriated to a Federal land management agency may be used to pay the non-Federal share of the cost of any Federal-aid highway project that provides access to or within Federal or Indian lands. This allows Federal agencies to use FLHP funds to match Transportation Enhancement, Recreational Trails, or Scenic Byways funds.

Source: [www.fhwa.dot.gov](http://www.fhwa.dot.gov)

Contact: Federal Highway Administration  
400 Seventh Street, SW  
Washington, DC 20590

### Recreational Trails Program (RTP)

The Recreational Trails Program of the Federal Transportation Bill provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders

or sidewalks along roads.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails, including unpaved trails
- Acquisition or easements of property for trails
- State administrative costs related to this program (limited to seven percent of a State's funds)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds)

Source: <http://www.fhwa.dot.gov/environment/recreational>

Contact: Darrell L McBane, State Trails Coordinator  
NC Division of Parks & Recreation  
MSC 1615  
Raleigh NC 27699-1615  
Tel: 919-715-8699  
Fax: 919-715-3085  
Email: [darrell.mcbane@ncdenr.gov](mailto:darrell.mcbane@ncdenr.gov)

### Surface Transportation Program (STP)

The Surface Transportation Program provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the National Highway System, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities.

Funds are subject to the overall Federal-aid obligation limitation. Apportioned funds are to be distributed based on the following factors:

- 25% based on total lane miles of Federal-aid highways
- 40% based on vehicle miles traveled on lanes on Federal-aid highways
- 35% based on estimated tax payments attributable to highway users in the States into the Highway Account



of the Highway Trust Fund (often referred to as “contributions” to the Highway Account)

The Federal share is generally 80 percent, subject to the sliding scale adjustment. When the funds are used for Interstate projects to add high occupancy vehicle or auxiliary lanes, but not other lanes, the Federal share may be 90 percent, also subject to the sliding scale adjustment.

Source: [www.fhwa.dot.gov](http://www.fhwa.dot.gov)

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Tel: 919-733-2039

#### Highway Safety Improvement Program (HSIP)

This program funds projects designed to achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways and walkways. This program includes the Railway-Highway Crossings Program and the High Risk Rural Roads Program. This program replaces the Hazard Elimination Program from TEA-21.

Source: [www.fhwa.dot.gov](http://www.fhwa.dot.gov)

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#### National Scenic Byways Program

The National Scenic Byways Program provides for the designation by the Secretary of Transportation of roads that have outstanding scenic, historic, cultural, natural, recreational, and archaeological qualities as All-American Roads or National Scenic Byways. To be considered for the designation as an All-American Road or National Scenic Byway, a road must be nominated by a State, Indian Tribe, or a Federal land management agency and must first be designated as a State scenic byway or, in the case of a road

on Indian or Federal land, as a Tribal byway or a Federal land management agency byway.

The program also provides discretionary grants for scenic byway projects on All-American Roads, National Scenic Byways, or State-designated scenic byways, and for planning, designing, and developing State scenic byway programs.

The normal Federal share is 80 percent, with a 20 percent non-Federal share required. However, Federal land management agencies may provide matching funds for projects on Federal or Indian lands. Projects must be developed through each State DOT. In making grants, priority is given to:

- Each eligible project associated with a highway that has been designated as a National Scenic Byway or All American Road and that is consistent with the corridor management plan for the byway;
- Each eligible project along a State designated scenic byway that is consistent with the corridor management plan for the byway, or is intended to foster the development of a plan, and is carried out to make the byway eligible for designation as a National Scenic Byway or All American Road; and
- Each eligible project that is associated with the development of a State scenic byway program or an activity related to the planning, design, or development of a State scenic byway program.

Types of improvements include:

- Construction along a scenic byway of a facility for pedestrians and bicyclists, rest area, turnout, highway shoulder improvement, passing lane, overlook, or interpretive facility.
- An improvement to a scenic byway that will enhance access to an area for the purpose of recreation, including water-related recreation.
- Protection of scenic, historical, recreational, cultural, natural, and archaeological resources in an area adjacent



to a scenic byway.

- Development and provision of tourist information to the public, including interpretive information about a scenic byway.
- Development and implementation of a scenic byway marketing program

Source: <http://www.bywaysonline.org/grants/>

Contact: Tel: 1-800-429-9297, option 3, option 5

E-mail: [grants-support@byways.org](mailto:grants-support@byways.org)

#### Safe Routes to School Program (SRTS)

The purpose of the Safe Routes to Schools (SRTS) program is to provide children a safe, healthy alternative to riding the bus or being driven to school. The SRTS Grants were established to address pedestrian and bicycle mobility and safety near schools. Application for these funds is open to any public agency. Agencies providing a funding match will be given preference.

Eligible projects may include three elements:

- **Engineering Improvements.** These physical improvements are designed to reduce potential bicycle and pedestrian conflicts with motor vehicles. Physical improvements may also reduce motor vehicle traffic volumes around schools, establish safer and more accessible crossings, or construct walkways, trails or bikeways. Eligible improvements include sidewalk improvements, traffic calming/speed reduction, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, and secure bicycle parking facilities.
- **Education and Encouragement Efforts.** These programs are designed to teach children safe bicycling and walking skills while educating them about the health benefits, and environmental impacts. Projects and programs may include creation, distribution and implementation of educational materials; safety based field trips; interactive bicycle/pedestrian safety video

games; and promotional events and activities (e.g., assemblies, bicycle rodeos, walking school buses).

- **Enforcement Efforts.** These programs aim to ensure that traffic laws near schools are obeyed. Law enforcement activities apply to cyclists, pedestrians and motor vehicles alike. Projects may include development of a crossing guard program, enforcement equipment, photo enforcement, and pedestrian sting operations.

All projects must be within two miles of primary or middle schools (K-8). Project proposals are due in early May.

Source: [www.fhwa.dot.gov](http://www.fhwa.dot.gov)

Enhancements Unit

Department of Transportation

1534 Mail Service Center

Raleigh, NC 2766-1534

Tel: 919-733-2039

#### High Priority Projects

The High Priority Projects Program provides designated funding for specific projects identified in SAFETEA-LU. A total of 5,091 projects are identified, each with a specified amount of funding over the 5 years of SAFETEA-LU. [1701] The funds designated for a project in section 1702 are available only for that project with the following exception: Funds allocated for a project specified below may be obligated for any other of these projects in the same State: High Priority Projects listed in section 1702 and numbered 3677 or higher; Projects of National and Regional Significance listed in section 1301 and numbered 19 or higher; National Corridor Infrastructure Improvement Program projects listed in section 1302 and numbered 28 or higher.

The Federal share remains at 80%, except in the States of Alaska, Montana, Nevada, North Dakota, Oregon, and South Dakota.

Source: [www.fhwa.dot.gov](http://www.fhwa.dot.gov)

Enhancements Unit



Department of Transportation  
1534 Mail Service Center  
Raleigh, NC 2766-1534  
Tel: 919-733-2039

#### **Land and Water Conservation Fund (LWCF)**

Land and Water Conservation Fund is a federally funded program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction.

Grant recipients must provide at least 50% matching funds in either cash or in-kind contributions. Applications are to be evaluated in a competitive process by a team of experts, with criteria developed by a citizen advisory committee. A portion of Federal revenue is derived from sale or lease of off-shore oil and gas resources. The program is administered by the US Department of the Interior through the National Park Service and the Intergovernmental Advisory Committee.

Source: <http://www.nps.gov/>  
Contact: Division of Parks and Recreation  
Dept. of Environmental and Natural Resources  
P.O. Box 27687  
Raleigh, NC 27611-7687  
Tel: 919-733-4181

#### **Environmental Protection Agency (EPA) - Environmental Education Grants Program**

The Grants Program sponsored by EPA's Environmental Education Division (EED), Office of Children's Health Protection and Environmental Education, supports environmental education projects that enhance the public's awareness, knowledge, and skills to help people make informed decisions that affect environmental quality. EPA awards grants each year based on funding appropriated by Congress. Annual funding for the program ranges

between \$2 and \$3 million. More than 75 percent of the grants awarded by this program receive less than \$15,000.

Source: <http://www.epa.gov/enviroed/grants.html>  
Contact: Alice Chastain  
U.S. EPA, Region 4  
Environmental Education Grants  
Office of Public Affairs  
61 Forsyth Street SW  
Atlanta, GA 30303  
Email: [chastain.alice@epa.gov](mailto:chastain.alice@epa.gov)

#### **Community Block Development Grant Program (HUD-CBDG)**

The Community Development Block Grants program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal Community Development Block Grant grantees may use funds for the following activities:

*acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities; paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grants funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs.*

Contact: Greensboro Field Office  
Asheville Building  
1500 Pinecroft Road, Suite 401  
Greensboro, NC 27407-3838  
Tel: 336-547-4001 (Field Office Director)  
Fax: 336-547-4138

#### **Congestion Mitigation/Air Quality Improvement Program**

The Congestion Mitigation/Air Quality Improvement



Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. These federal funds can be used to build bicycle and pedestrian facilities that reduce travel by automobile.

Eligible bicycle and pedestrian facilities and programs include:

- Constructing bicycle and pedestrian facilities (paths, bike racks, support facilities, etc.) that are not exclusively recreational and reduce vehicle trips
- Non-construction outreach related to safe bicycle use
- Establishing and funding State bicycle/pedestrian coordinator positions for promoting and facilitating nonmotorized transportation modes through public education, safety programs, etc. (Limited to one full-time position per State)

States may choose to transfer a limited portion of their CMAQ apportionment to the following Federal-aid highway programs: Surface Transportation Program (STP), National Highway System (NHS), Highway Bridge Program (HBP), Interstate Maintenance (IM), Recreational Trails Program (RTP), and the Highway Safety Improvement Program (HSIP).

## OVERVIEW OF NORTH CAROLINA FUNDING SOURCES

### North Carolina DOT – Bicycle and Pedestrian Program

The North Carolina General Assembly enacted legislation (G.S. 136-71.12 Funds) that authorizes the North Carolina Department of Transportation (NCDOT) to spend any federal, state, local, or private funds available to the Department and designated for the accomplishment of Article 4A, Bicycle and Bikeway Act of 1974. In addition, the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) requires

the Department to set aside federal funds from eligible categories for the construction of bicycle and pedestrian transportation facilities”

**State Construction Funds** – State roadway construction funds (not including the Highway Trust Fund for Urban Loops and Interchanges) may be used for the construction of sidewalks and bicycle accommodations that are a part of roadway improvement projects. Governor’s Highway Safety Program (GHSP) – GHSP funding is provided through an annual program, upon approval of specific project requests, to undertake a variety of pedestrian and bicycle safety initiatives. Amounts of GHSP funds vary from year to year, according to the specific amounts requested.

**Independent Projects** – \$6 million is set aside annually for the construction of bicycle improvements that are independent of scheduled highway projects in communities throughout the state. Eighty percent of these funds are from STP Enhancement funds, while state funds provide the remaining 20 percent. Currently, \$1.4 million is set aside annually for pedestrian hazard elimination projects in the 14 NCDOT highway divisions across the state; \$200,000 is allocated to the Division of Bicycle and Pedestrian Transportation for projects such as training workshops, pedestrian safety and research projects, and other pedestrian needs statewide.

**Incidental Projects** – Bicycle accommodations such as bike lanes, widened paved shoulders and bicycle-safe bridge design are frequently included as incidental features of highway projects. In addition, bicycle-safe drainage grates are a standard feature of all highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds.

For all the above funding sources contact  
[www.ncdot.org](http://www.ncdot.org)

Contact: Robert Mosher, Division of Bicycle and





Pedestrian Transportation  
(Mail) 1552 Mail Service Center  
(Delivery) 401 Oberlin Road, Suite 250  
Raleigh, NC 27605  
Raleigh, NC 27699-1552  
Tel: 919-807-0777 (Main Office)  
Fax 919-807-0768  
Email: [bikeped\\_transportation@dot.state.nc.us](mailto:bikeped_transportation@dot.state.nc.us)

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

North Carolina's Clean Water Management Trust Fund (CWMTF) receives a direct appropriation from the General Assembly in order to issue grants to local governments, state agencies and conservation nonprofits to help finance projects that specifically address water pollution problems. The 21-member, independent, CWMTF Board of Trustees has full responsibility over the allocation of moneys from the Fund.

CWMTF funds projects that:

- Enhance or restore degraded waters;
- Protect unpolluted waters; and/or
- Contribute toward a network of riparian waters.

Source: <http://www.cwmtf.net>

Contact: Western Piedmont Field Representative:

Bern Schumak

Tel: 336-366-3801

Email: [bschumak@surry.net](mailto:bschumak@surry.net)

#### **North Carolina Parks and Recreation Trust Fund (PARTF)**

The North Carolina General Assembly established the Parks and Recreation Trust Fund (PARTF) to fund improvements in the state's park system, to fund grants for local governments and to increase the public's access to the state's beaches. The Parks and Recreation Authority, an eleven-member appointed board, was also created to

allocate funds from PARTF to the state parks and to the grants program for local governments.

PARTF is the primary source of funding for building and renovating facilities in the state parks as well as for buying land for new and existing parks. The PARTF program also provides dollar-for-dollar grants to local governments. Recipients use the grants to acquire land and/or to develop parks and recreational projects that serve the general public.

Source: <http://www.partf.net>

Contact: John Poole, Program Manager

1615 MSC

Raleigh, NC 27699-1615

Tel: 919-715-2662

Email: [John.Poole@ncmail.net](mailto:John.Poole@ncmail.net)

#### **North Carolina Farmland Preservation Trust Fund**

The North Carolina Farmland Preservation Trust Fund supports the purchase of agricultural conservation easements, including transaction costs. Fund public and private enterprise programs that will promote profitable and sustainable farms by assisting farmers in developing and implementing plans for the production of food, fiber and value-added products, agritourism activities, marketing and sales of agricultural products produced on the farm, and other agriculture-related business activities. The legislation also established a Trust Fund Advisory Committee to advise Commissioner Troxler on the prioritization and allocation of funds, the development of criteria for awarding funds, program planning, and other areas for the growth and development of family farms in North Carolina.

Source: <http://www.agr.state.nc.us/paffairs/farmlandpreservation.htm>

Contact: North Carolina Department of Agriculture & Consumer Services

(Mail) 1001 Mail Service Center



(Delivery) 2 West Edenton Street, Raleigh, NC 27601  
Raleigh, NC 27699-1001  
Tel: 919-733-7125

### North Carolina Natural Heritage Trust Fund

The North Carolina Natural Heritage Trust Fund provides funding to select state agencies for the acquisition and protection of important natural areas, to preserve the state's ecological diversity and cultural heritage, and to inventory the natural heritage resources of the state. The trust fund is supported by 25% of the state's portion of the tax on real estate deed transfers and by a portion of the fees for personalized license plates. These sources now generate about \$19 million each year. Since its creation, the trust fund has contributed more than \$136 million through 345 grants to support the conservation of more than 217,000 acres.

Source: <http://www.ncnhtf.org/>  
Contact: Lisa Riegel, Executive Director  
MSC 1601  
Raleigh, NC 27699-1601  
Tel: 919-715-8014  
Fax : 919-715-3060  
Email: [nc.nhtf@ncmail.net](mailto:nc.nhtf@ncmail.net)

### North Carolina Conservation Income Tax Credit Program

The Income Tax Credit Program assists land-owners to protect the environment and the quality of life. A Credit is allowed against individual and corporate income taxes when real property is donated for conservation purposes. Interests in property that promote specific public benefits may be donated to a qualified recipient. Such conservation donations qualify for a substantial tax credit.

Source: <http://www.enr.state.nc.us/conservationtaxcredit/>  
Contact: N.C. Department of Revenue

Tel: 919-733-4684 for individual income taxes  
Fax: 919-733- 3166 for corporate income taxes

### North Carolina Adopt-A-Trail Grants

The Adopt-A-Trail Grant Program (AAT) awards \$108,000 annually to government agencies, nonprofit organizations and private trail groups for trails projects. The funds can be used for trail building, trail signage and facilities, trail maintenance, trail brochures and maps, and other related uses. This grant requires no local match or in-kind services.

Source: <http://www.ncparks.gov/About/grants/trailsmain.php>  
Contact: Darrell McBane  
N.C. Division of Parks and Recreation  
State Trails Program  
1615 Mail Service Center  
Raleigh, NC 27699-1615  
Tel: 919-715-8699  
Email: [darrell.mcbane@ncdenr.gov](mailto:darrell.mcbane@ncdenr.gov)

### North Carolina Division of Water Quality - 319 Program Grants

By amendment to the Clean Water Act Section in 1987, the Section 319 Grant program was established to provide funding for efforts to curb non-point source (NPS) pollution, including that which occurs through storm water runoff. The U.S. Environmental Protection Agency provides funds to state and tribal agencies, which are then allocated via a competitive grant process to organizations to address current or potential NPS concerns. Funds may be used to demonstrate best management practices (BMPs), establish Total Maximum Daily Load (TMDL) for a watershed, or to restore impaired streams or other water resources. In North Carolina, the 319 Grant Program is administered by the Division of Water Quality of the Department of Environment and Natural Resources.



Each fiscal year North Carolina is awarded nearly 5 million dollars to address non-point source pollution through its 319 Grant program. Thirty percent of the funding supports ongoing state non-point source programs. The remaining seventy percent is made available through a competitive grants process. At the beginning of each year (normally by mid-February), the NC 319 Program issues a request for proposals with an open response period of three months. Grants are divided into two categories: Base and Incremental. Base Projects concern research-oriented, demonstrative, or educational purposes for identifying and preventing potential NPS areas in the state, where waters may be at risk of becoming impaired. Incremental projects seek to restore streams or other portions of watersheds that are already impaired and not presently satisfying their intended uses.

State and local governments, interstate and intrastate agencies, public and private nonprofit organizations, and educational institutions are eligible to apply for Section 319 monies. An interagency workgroup reviews the proposals and selects those of merit to be funded.

Source: [http://h2o.enr.state.nc.us/nps/Section\\_319\\_Grant\\_Program.htm](http://h2o.enr.state.nc.us/nps/Section_319_Grant_Program.htm)

Contact: Mooresville Regional Office

610 East Center Ave

Suite 301

Mooresville, NC 28115

Tel: 704-663-1699

Fax: 704-663-6040

#### **North Carolina Ecosystem Enhancement Program (EEP)**

Clean water, clean air and thriving natural habitats are fundamental indicators of a healthy environment. Protecting North Carolina's ecosystems is critical to maintaining the state's quality of life, continuing its economic growth, and ensuring the health and well-being of its citizens. According to the three-party Memorandum

of Agreement that established the initiative's procedures in July 2003, the mission of the Ecosystem Enhancement Program is to "restore, enhance, preserve and protect the functions associated with wetlands, streams and riparian areas, including but not limited to those necessary for the restoration, maintenance and protection of water quality and riparian habitats throughout North Carolina."

EEP provides:

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

Source: <http://www.nceep.net>

Contact: MAIN OFFICE

(Mail) 1652 Mail Service Center

Raleigh, NC 27699-1652

(Delivery) 2728 Capital Blvd, Suite 1H 103

Raleigh NC 27604

Tel: 919-715-0476

Fax: 919-715-2219

#### **North Carolina Wetlands Restoration Program (NCWRP)**

Established by the General Assembly in 1996, the North Carolina Wetlands Restoration Program (NCWRP) is an innovative, non regulatory initiative to restore wetlands, streams and nonwetland riparian areas throughout the state. The Department of Environment and Natural Resources – Division of Water Quality oversees the program. The goals of NCWRP are:

- To restore functions and values lost through historic, current and future wetland and stream impacts.
- To achieve a net increase in wetland acres, functions and



values in all of North Carolina's major river basins.

- To provide a consistent approach to address mitigation that may be required by law when dredging or filling wetlands, or altering of streams, is authorized.
- To increase the ecological effectiveness of required wetlands and stream mitigation.
- To promote a comprehensive approach to the protection of natural resources.

The NCWRP actively seeks land owners who have restorable wetland, riparian and stream sites.

Source: <http://h2o.enr.state.nc.us>

Contact: Bonnie Mullen

North Carolina Wetlands Restoration  
NCWRP

Tel: 919-733-5208

#### **Urban and Community Forestry Assistance Program**

Urban and Community Forestry begins to address the stewardship of urban natural resources where 80 percent of the Nation lives. Important connections exist between the quality of life in metropolitan areas and land consumption associated with sprawl. In addition there is a strong economic case for conservation of green open space to guide growth and revitalize city centers and older suburbs. The Urban and Community Forestry Program responds to these needs by maintaining, restoring, and improving the health of urban trees, forests, greenspaces and sustainable forest ecosystems for more than 70 million acres of America's urban and community forest resources. Through these efforts the Program encourages and promotes the creation of healthier, more livable urban environments across the Nation. The Program will continue to expand partnerships with non-governmental organizations to restore natural resources in older, declining cities and towns.

Source: <http://www.fs.fed.us/ucf/>

Contact: Ed Macie (R-8)

USDA Forest Service

1720 Peachtree Road, NW, Suite 850S

Atlanta, GA 30367

Tel: 404-347-1647

Fax: 404-347-2776

Email: [emacie@fs.fed.us](mailto:emacie@fs.fed.us)

#### **Water Resources Development Grant Program**

This program is designed to provide cost-share grants and technical assistance to local governments throughout North Carolina. Applications for grants are accepted for seven purposes: General Navigation, Recreational Navigation, Water Management, Stream Restoration, Beach Protection, Land Acquisition and Facility Development for Water-Based Recreation, and Aquatic Weed Control. There are two grant cycles per year. The application deadlines are January 1st and July 1st.

Contact John Sutherland, Jeff Bruton or

Darren England for additional information.

Source: [http://www.ncwater.org/Financial\\_Assistance/](http://www.ncwater.org/Financial_Assistance/)

Contact: NC Division of Water Resources, DENR

1611 Mail Service Center

Raleigh, NC 27699-1611

Tel: 919-733-4064

Fax: 919-733-3558

#### **Blue Cross Blue Shield Mini Grant**

The BCBSNC Foundation developed the Mini-Grants category in order to provide funding opportunities for counties that are experiencing greater levels of economic distress. The Foundation is also interested in supporting smaller non-profit organizations that provide direct services within the specified geographic region. Specifically, funding is restricted to the 85 designated rural counties across the state. Organizations with an annual operating budget of less than \$500,000 are eligible to apply.



The BCBSNC Foundation funds programs that align with its mission and established focus areas. Applicants in the Mini-Grants category will engage in a competitive process for funding. The typical range is between \$1,500-\$5,000.

Source: <http://www.bcbsnc.com/foundation/minigrants.html>  
Contact: (Mail) P.O. Box 2291  
Durham, NC 27702  
Tel: 919-765-7347  
Fax: 919-765-2433  
Email: [foundation@bcbsnc.com](mailto:foundation@bcbsnc.com)

#### **Blue Cross Blue Shield Grant**

The BCBSNC Foundation funds programs that align with its mission and established focus areas. Applicants in the Grants up to \$25,000 category, engage in a two-step, competitive process to identify those projects that meet all required eligibility criteria and present the most compelling case for funding. The typical range is between \$5,000 - \$15,000.

Source: <http://www.bcbsnc.com/foundation/grants.html#four>  
Contact: Mailing Address:  
P.O. Box 2291  
Durham, NC 27702  
Tel: 919-765-7347  
Fax: 919-765-2433  
Email: [foundation@bcbsnc.com](mailto:foundation@bcbsnc.com)

#### **OVERVIEW OF PRIVATE FUNDING**

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are a few examples of private funding opportunities available in North Carolina.

#### **American Greenways Program**

Administered by The Conservation Fund, the American Greenways Program provides funding for the planning and design of greenways. Applications for funds can be made by local regional or state-wide non-profit organizations and public agencies. The maximum award is \$2,500, but most range from \$500 to \$1,500. American Greenways Program monies may be used to fund unpaved trail development.

#### **Bikes Belong Grant Program**

The Bikes Belong Coalition of bicycle suppliers and retailers has awarded \$1.2 million and leveraged an additional \$470 million since its inception in 1999. The program funds corridor improvements, mountain bike trails, BMX parks, trails, and park access. It is funded by the Bikes Belong Employee Pro Purchase Program.

#### **Foundation for the Carolinas**

The Foundation provides strategic leadership in the community by convening stakeholders on critical issues related to the civic, social, environmental and economic health of the region. It also assists community leaders in better understanding the challenges confronting the region and helps find solutions to many of our most pressing community issues.

Source: <http://www.ffc.org/affiliates/community/nc/charlotte/>  
Contact: Foundation For The Carolinas  
217 S. Tryon Street  
Charlotte, NC 28202.  
Tel: 704-973-4500 / 800-973-7244

#### **North Carolina Community Foundation (NCCF)**

The North Carolina Community Foundation serves philanthropic donors and supports not-for-profit organizations



throughout North Carolina. The NCCF makes grants from charitable funds established by individuals, families, corporations, and non-profit organizations. Donors make grants from over 800 funds that serve the following areas of interest:

- Arts and Humanities
- Community Service
- Education
- Environment
- Health
- Historic Preservation
- Religion
- Science
- Social Services
- Youth

Source: <http://www.nccommunityfoundation.org/>

Contact: 4601 Six Forks Road, Suite 524

Raleigh, North Carolina 27609

Tel: 919-828-4387 / 800-201-9533

Fax: 919-828-5495

### **The Cinergy Foundation**

The Cinergy Foundation places special emphasis on projects that help communities help themselves. The Foundation supports local community, civic and leadership development projects. The Cinergy Foundation also views community foundations as positive vehicles for sustaining the long-term health of a community and promoting philanthropic causes. Infrastructure needs by a community will not be considered.

The Cinergy Foundation supports health and social service programs which promote healthy life styles and preventative medical care. United Way campaigns are included in Health and Social Services funding.

Source: <http://www.cinergy.com/foundation/categories.asp>

Contact: Rachelle Caldwell, Manager

Cinergy Foundation

Tel: 513-287-2363 / 800-262-3000 x 2363

The Cinergy Foundation

139 E. Fourth St.; EA029

Cincinnati, Ohio 45202

### **American Greenways Eastman Kodak Awards**

Eastman Kodak, The Conservation Fund, and the National Geographic Society provide small grants to stimulate the planning and design of greenways in communities throughout America. The annual grants program was instituted in response to the President's Commission on Americans Outdoors recommendation to establish a national network of greenways. Made possible by a generous grant from Eastman Kodak, the program also honors groups and individuals whose ingenuity and creativity foster the creation of greenways. The program goals include:

- Develop new, action-oriented greenway projects
- Assist grassroots greenway organizations
- Leverage additional money for conservation and greenway development
- Recognize and encourage greenway proponents and organizations

Source: <http://www.conservationfund.org>

Contact: The Conservation Fund

Tel: 703-525-6300

Email: [greenways@conservationfund.org](mailto:greenways@conservationfund.org)

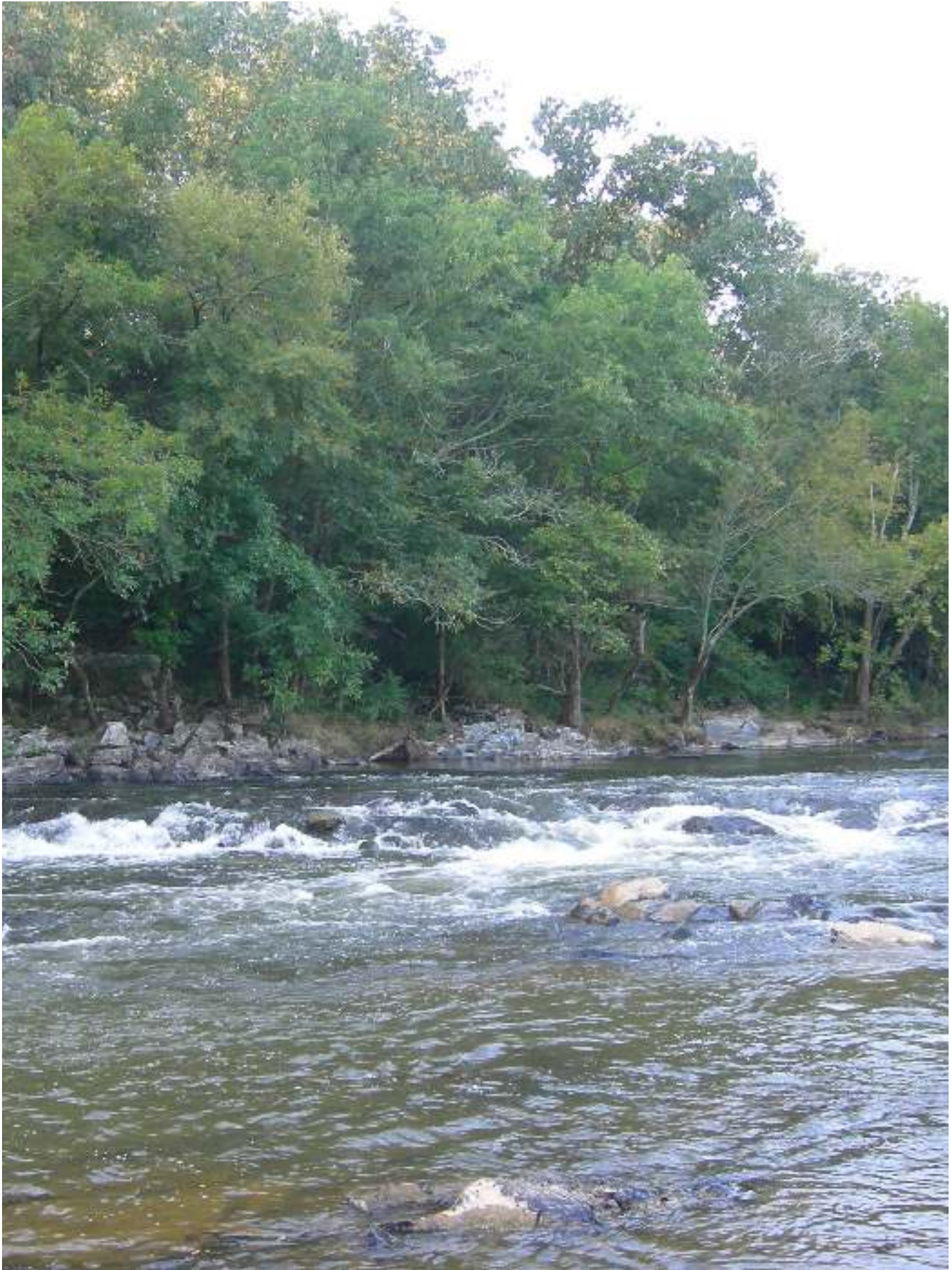


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## APPENDIX IV: STAKEHOLDER AND FOCUS GROUP PARTICIPANTS

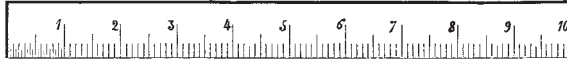
### FOCUS GROUP PARTICIPANTS – SEPTEMBER 10, 2009

NAME	AFFILIATION(S)
Payne Caulder	City of Albemarle Parks & Rec Staff
Oliver Webster	City of Albemarle Parks & Rec Staff
Brian Hinson	City of Albemarle Parks & Rec Staff
Mandy Vari	City of Locust Planning & Zoning
Tim Flieger	City of Locust Public Works
Dan Sullivan	City of Locust Parks & Recreation
Larry Branch	Oakboro Town Administrator
Jay Almond	Badin Town Administrator
Wayne Carter	Badin Public Works
Deloris Chambers	Badin Town Council
Allen, Ray	Albemarle City Manager
Jeannette Napier	Albemarle City Council
Judy Holcomb	Albemarle City Council
Lindsey Dunevant	Stanly County Commission; NC RRS
Jenny Allen	Stanly County Public Library
Karen Lowder	Retired Teacher; Badin Resident
Denise B. Ross	Stanly Community College
Jerry Hudson	Badin Resident
Daisy Washington	Badin Resident
Charles McComas	Uwharrie Wheelmen Bicycle Club
Keith Hinson	County Resident, Coach, Tennis Enthusiast
Derek Hill	County Resident, Basketball Enthusiast
Brett Speight	New London Resident, Softball Enthusiast
Brian Taylor	Stanly County Safe Kids Coalition
Ron Crawley	Stanly County Planning and Zoning Board
Mike Blanton	AP&R Advisory Board; Youth Sports Coach
Kathy Odell	Pfeiffer University; Stanly Special Olympics
Barrett Eatman	NCDOT; Volleyball Enthusiast
Toby Thorpe	Albemarle Parks & Recreation Director
Elaine Plowman	AP&R Advisory Board
Bob Hinkle	Badin Resident



*Rocky River near Leiby Park, Stanfield (photo: T. Morehead, CTT)*





## FOOTNOTES

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[http://www.ncdot.org/transit/bicycle/safety/Economic\\_Impact\\_Study\\_PDFs/OBX%20EIS%20Tech%20Rprt%20Full.pdf](http://www.ncdot.org/transit/bicycle/safety/Economic_Impact_Study_PDFs/OBX%20EIS%20Tech%20Rprt%20Full.pdf)
8. Wilbur Smith Associates in association with Buxton Communications and Bicycle Federation of America for Office of Passenger Transportation: Maine Department of Transportation. (April 2001). *Bicycle Tourism in Maine: Economic Impacts and Marketing*.
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*Footnotes*

