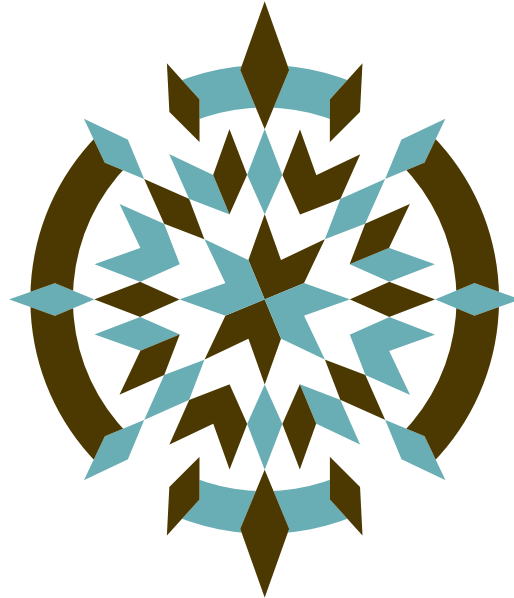


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CAROLINA THREAD TRAIL  
MASTER PLAN  
FOR LANCASTER COUNTY  
COMMUNITIES

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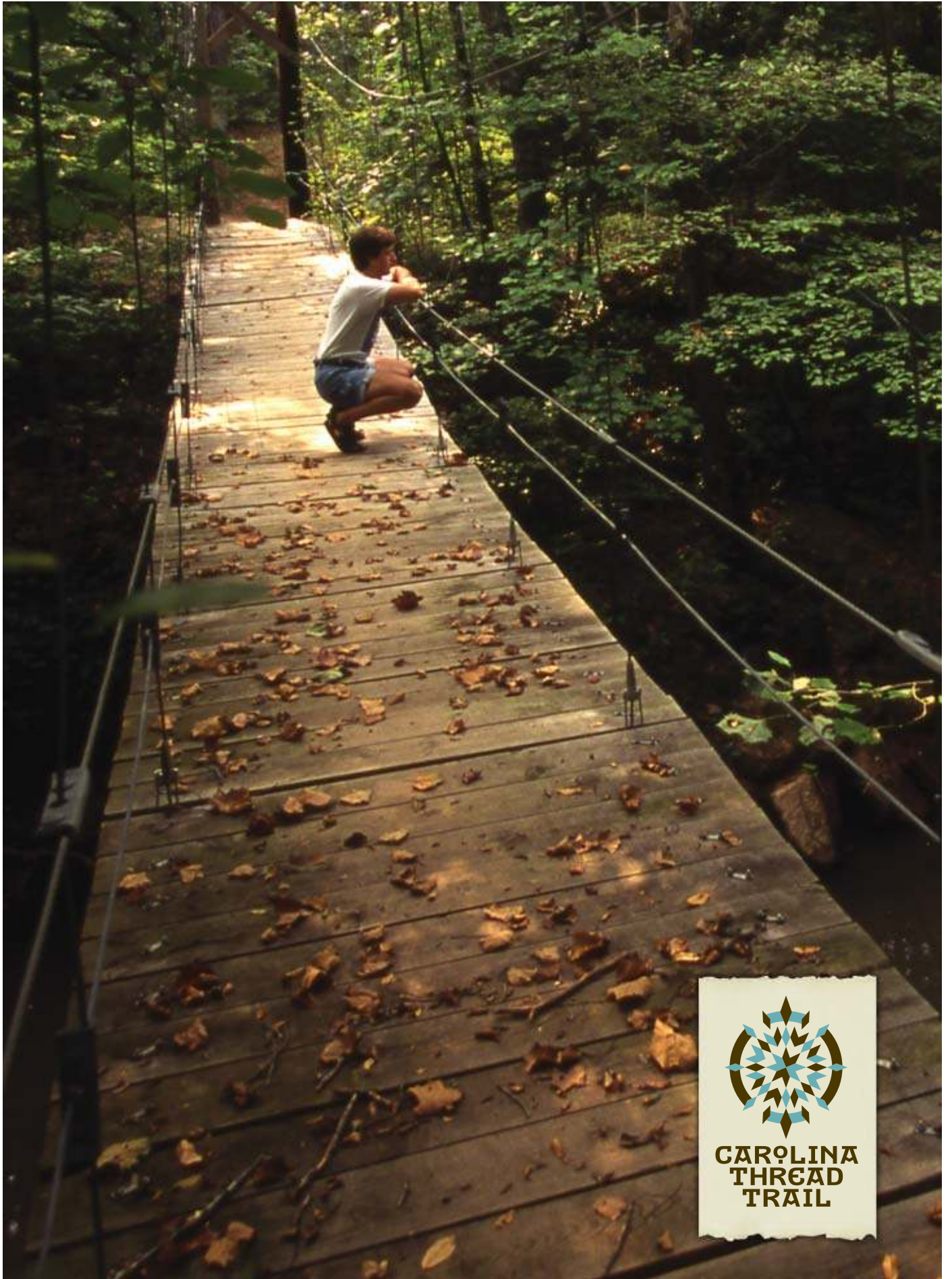


**CAROLINA  
THREAD  
TRAIL**

*Weaving  
Communities  
Together*

AUGUST 2011





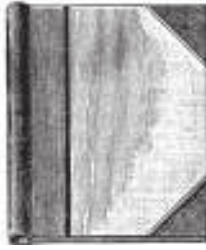


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## *acknowledgements*

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*The following organizations signed resolutions of support at the outset of this effort to work with neighboring communities and with the Carolina Thread Trail to plan, design, and build trails that will connect our communities:*

**Town of Heath Springs**

**Town of Kershaw**

**City of Lancaster**

**Lancaster County**

**See Lancaster**

**Katawba Valley Land Trust**



*Lancaster County Communities  
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**Brandy Sweisberger**  
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*Trust for Public Land - GIS Manager*

*The Steering Committee also served as the Technical Advisory Team who assisted in collecting and analyzing data, and proposing alternative scenarios for consideration by the public .*





## EXECUTIVE SUMMARY

The Lancaster County Carolina Thread Trail Greenway Master Plan (the master plan) outlines the steps necessary to preserve natural amenities, conserve historic sites, and provide public recreation facilities through greenway and trail development. This plan is the first step in the process of developing a network of trails through the communities in Lancaster County. Trail segments will link county residents and visitors to the sites and destinations that make Lancaster County unique, and will connect to trails across the Carolina Thread Trail region.

This plan is the result of a 12 month planning process led by Carolina Thread Trail and developed by an appointed steering committee of county residents and regional representatives. The goal of the Carolina Thread Trail is to connect the people, businesses, and communities of the 15-county Carolina Thread Trail region, located in North and South Carolina, through a network of trails that will promote economic development, healthy lifestyles, and the protection of land and sites that make the region unique.

Through this planning process a map that depicts recommended trail segments connecting Lancaster County residents to local and regional destinations was produced. These routes were developed using the input provided by county residents throughout the planning process as the primary source of guidance. Carolina Thread Trail segments are represented on the map with pink lines. Other connection opportunities, which are trails identified as providing further countywide connectivity, are displayed with green lines. Trail segments are shown as ¼-mile wide corridors. Local municipalities will finalize the actual location of each trail within the corridor as trail segments are developed.

The Lancaster County Carolina Thread Trail Greenway

Master Plan includes 110.1 miles of trails located along stream/river corridors, road rights-of-way, abandoned rail lines, undeveloped land, and dirt roads. In addition, a total of 34.3 miles of blueways have been identified along the Catawba River and Cane Creek between downtown Lancaster and the Catawba River.

The development of the master plan will occur over many years. Trail segments will probably be developed one at a time, focusing first on priority segments and taking advantage of trail development partnerships and funding opportunities. As development continues within the county and land uses evolve, trail segment locations and priorities may need to take advantage of site conditions and connection opportunities. The following steps are recommended to begin the process of transforming planned trail segments into real trails. These steps outline a trail planning process that is fair, consistent, and achievable for the residents of Lancaster County.

### ADOPT MASTER PLAN

The Lancaster County Carolina Thread Trail Greenway Master Plan has been reviewed and approved by the steering committee, the next step in the trail development process is adoption of the master plan by Lancaster County, the city of Lancaster, and the towns of Heath Springs and Kershaw. Adoption of the greenway master plan may include revisions to the master plan based on comments from municipal entities and advisory groups.

By adopting the final master plan, the county, city, and towns underscore their support for the development of trail segments within Lancaster County. Each municipal entity is encouraged to revisit existing zoning and land development ordinances to make revisions and additions to their ordinances to create trail supporting initiatives.





Floodplain development restrictions and regulations, land development regulations, zoning ordinance requirements, and open space dedication requirements should be revised or created for the protection of the county's environmental resources and development of trails.

#### **BUILD PUBLIC SUPPORT**

The Lancaster County Carolina Thread Trail Greenway Master Plan is a product of the residents of Lancaster County. This plan was developed by a dedicated group of county residents who served on the steering committee. The location of the Carolina Thread Trail in the county was based primarily on feedback received from residents throughout the master planning process. This master plan should be championed forward by county residents. The second step of the trail development process involves continued public involvement and support for the Carolina Thread Trail in the county.

It recommended that Lancaster County create a Greenways and Trails Advisory Committee, comprised of county residents, government officials, regional entities, local utility providers, and state transportation agencies. This committee could provide input on all greenway issues, provide feedback on greenway related planning and acquisition decisions, build support for greenway implementation, and help coordinate the construction and maintenance of trails.

Partnerships with recreation providers and organizations involved with land preservation can be beneficial for the development of trails. Both groups share common goals with trail supporters. Relationships with such organizations enable municipal entities to offset trail land acquisition, development, and maintenance costs by

combining available funds. Expertise offered by recreation and conservation partners can provide valuable insight for trail construction, trailhead development, access, and land or easement acquisition.

#### **PLAN AND DEVELOP PRIORITY GREENWAY SEGMENTS**

It is unrealistic to expect Lancaster County to develop all 110 miles of Carolina Thread Trail within a short period of time. A phased implementation plan for land acquisition, funding, design, construction, and maintenance of trails is necessary. Initial greenway development efforts should focus on Carolina Thread Trail priority greenway segments.

The steering committee used the following criteria to identify the priority trail segments within Lancaster County.

- Public support
- Availability of land/right-of-way
- Functional connection
- Population served
- Partnership potential
- Funding availability

A complete list of the priority greenway segments can be found on page 51 of the master plan.

The following Lancaster County Carolina Thread Trail segments have been identified and recommended by the steering committee as regional priority, priority, and secondary trail segments. These trail segments, presented in no particular order, represent the Carolina Thread Trail segments that meet the selection criteria developed and presented within this master plan.



REGIONAL PRIORITY TRAIL SEGMENTS:

Segment A: Mecklenburg County/York County Connector Greenway

Segment B: Mecklenburg County Connector Greenway

PRIORITY TRAIL SEGMENTS:

Segment D: Lancaster Panhandle Greenway

Segment G and Cane Creek Blueway: Lancaster Greenway

Segment L: Kershaw Greenway

Segment O: Hanging Rock Creek Greenway

SECONDARY TRAIL SEGMENTS:

Segment C: Indian Land Greenway

Segment F: Chester County Connector Greenway

Segment H: Camp Creek Greenway

Segment I: Buford Greenway

Segment K: Taxahaw Greenway

Segment N: Heath Springs Greenway

**IDENTIFY FUNDING AND FINANCING**

The completion of the Lancaster County Carolina Thread Trail Greenway Master Plan signals the end of the first step in trail development and the beginning of the crucial second step: funding and financing. Lancaster County must begin to identify funding sources for land acquisition, design, construction, and maintenance of the Carolina Thread Trail.

Many government entities are unable to fully fund the development of every mile of trail within a network using in-house funds. It is recommended that Lancaster County develop a multi-tiered approach for funding trail development using a variety of financing options, including local, state, federal, and private funding sources.

The most effective method for funding the Carolina Thread Trail and other local trails within Lancaster County

will involve a combination of public and private funding sources. A summary of potential funding sources can be found on page 52 of this document. Specific funding sources and programs that may be used for trail development can be found in Appendix 5.

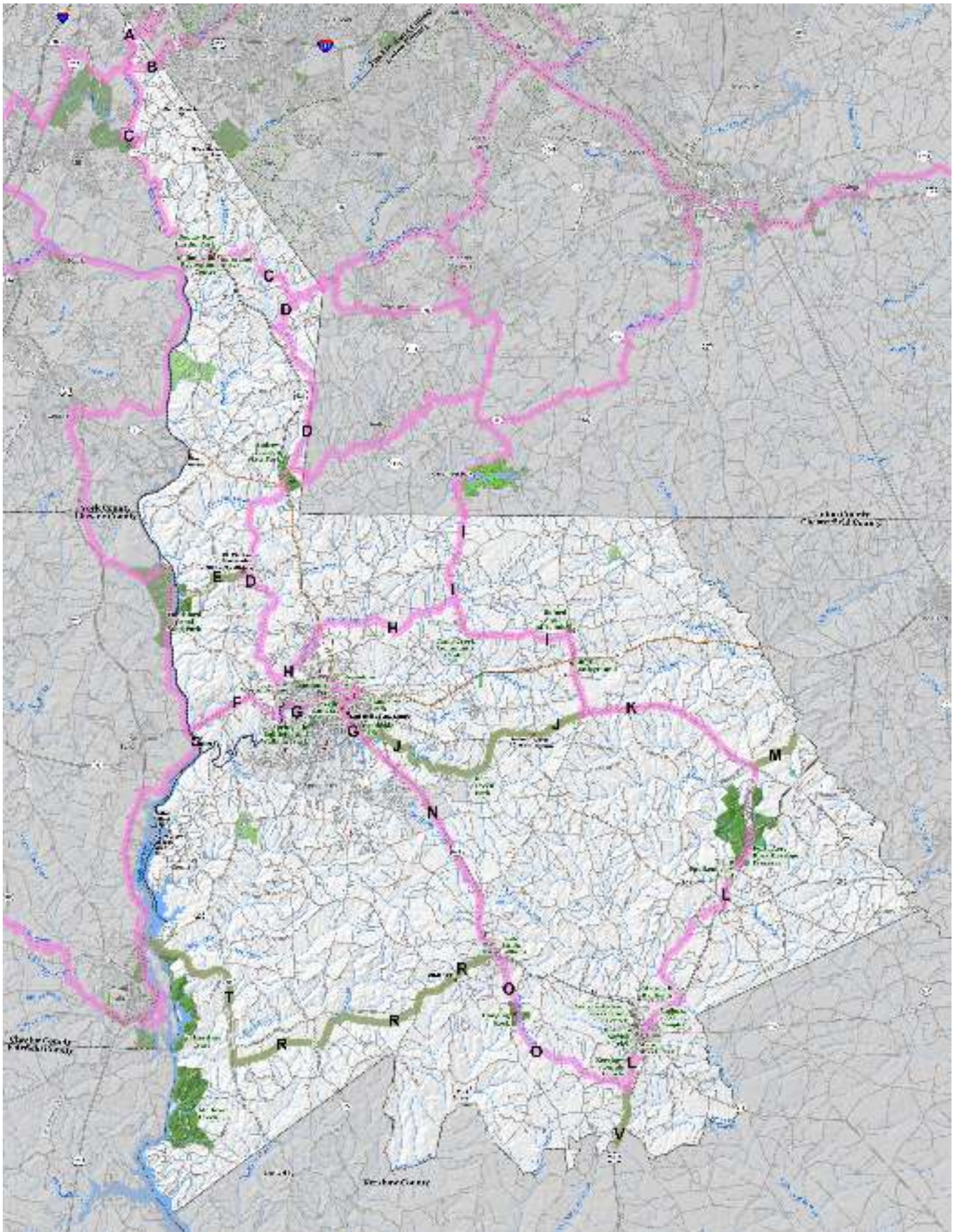
**EVALUATE LAND OR RIGHT-OF-WAY ACQUISITION OPTIONS**

The acquisition of land for trail development is an important and necessary step of the trail development process. Land acquisition provides the land resources necessary for development of trails, protects sensitive environmental and natural resources, and preserves historic and cultural treasures. Lancaster County should utilize a variety of land acquisition methods, which may include purchase, donations, zoning and development regulations, developer contributions, and/or rail corridors. Detailed descriptions of these methods can be found on page 53 of this document.

**DESIGN, CONSTRUCT AND MAINTAIN TRAILS**

As Lancaster County, municipalities within the county, and their partners select segments of the Carolina Thread Trail and acquire necessary land and/or easements for the trail, design and construction can begin. The county and its trail partners will need to determine the desired use or uses for each trail segment. The trail width and trail surface material will be determined by the desired use/uses, existing site conditions, cost of construction, and required level of maintenance. Typical trail surface materials include natural surface, crushed stone, asphalt, and concrete. Page 55 and Appendix 6 provides further description and trail design guidelines for the development of trails within Lancaster County.





Lancaster County Carolina Thread Trail Master Plan





## CONCLUSION

The Lancaster County Carolina Thread Trail Greenway Master Plan represents a citizen led collaborative planning process for the provision of trails throughout Lancaster County. Now that the master planning process is complete, it is the responsibility of the citizens of Lancaster County,

the city of Lancaster, and the towns of Heath Springs and Kershaw to transform this plan from lines on a map to trails on the ground. The Carolina Thread Trail will provide important connections through Lancaster County, linking residents to the places that make the county and region unique.



*Forty Acre Rock Heritage Preserve and Wildlife Management Area*

## COMMUNITY INPUT

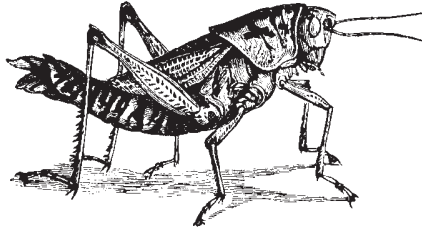
A guiding principle of the Carolina Thread Trail is “respect for the land and respect for the land owner.” This begins during the initial stages of trail development by allowing county residents to help determine the locations of trail segments. The master planning process provided opportunities for public input throughout Lancaster County.





*Andrew Jackson State Park, part of the Carolina Thread Trail in Lancaster County, SC*





## CHAPTER 1. INTRODUCTION

The Lancaster County Carolina Thread Trail Greenway Master Plan provides a long-term vision and implementation strategy for the development of a countywide trail network that provides connections to local and regional destinations. The proposed trail network will take many years to complete and will require a cooperative effort between citizens, municipalities, and landowners.

Once developed, these trails will provide transportation options, serve as linear parks, support economic growth, and link cultural resources. The Carolina Thread Trail planning effort illustrates that Lancaster County shares the vision of regional connectivity with the other participating counties in North and South Carolina. Together, 15 counties make up the Carolina Thread Trail network.

The master plan has been carefully crafted by an appointed steering committee. This committee consisted of representatives from each of Lancaster County's seven council districts, three municipalities, and county planning and recreation staff. In addition, several committee members represented larger planning and economic development organizations whose boundaries include Lancaster County. The steering committee participated in the public input process, developed alternate trail routes throughout the county, and created the vision presented in this document.

The master plan report serves as a guide for the development process of the Carolina Thread Trail routes through Lancaster County. In addition, the report provides information on the benefits of trails, the existing conditions of Lancaster County's geography, population, and economy, and a detailed summary of the proposed trail network. Recommended actions for adopting the plan, establishing the priority routes, planning specific trails, building those trails, and funding the development of the Carolina Thread Trail network in Lancaster County are also provided.

### WHAT IS A GREENWAY?

Before providing more specific information, let's take a step back and answer a very important question: What is a greenway?

Greenways are linear parks consisting of undeveloped or lightly developed land, usually containing trails. Greenway trails, also referred to as greenways or trails, support multiple uses which can include walking, jogging, cycling, horseback riding, and, in some cases, canoeing and kayaking.

Greenways can exist in both natural and man-made settings. Natural greenway settings may include areas along streams, rivers, and wooded areas. Man-made greenway settings include utility easements, railroad corridors, and road rights-of-way. Most greenways provide recreational, environmental, social, and health-based benefits for the communities in which they are located. Greenway networks, much like the Carolina Thread Trail, consist of a network of greenway trails that provide recreation and transportation connectivity to a large area. Well conceived greenways connect people to destinations, such as parks, schools, libraries, and commercial areas.

### CAROLINA THREAD TRAIL

The Carolina Thread Trail is envisioned as a connected network of trails weaving through a 15-county region in North and South Carolina. This regional trail network aims to connect approximately 2.3 million residents to local and regional destinations. The Carolina Thread Trail will link built environments to nature, showcase the region's unique history, and allow people of all ages and abilities to get outdoors and enjoy the places they call home.

Carolina Thread Trail is a private, non-profit entity led by Catawba Lands Conservancy with support from Foundation



of the Carolinas and local communities. Communities located within the 15-county Carolina Thread Trail region have signed resolutions of support and agreed to work with their surrounding communities to create an integrated network of trails. Each trail will be planned and built by the communities. Carolina Thread Trail provides each community with resources that assist in the development of greenway master plans and grant opportunities to help transition planned routes into built trails.

Communities included in the Carolina Thread Trail region have agreed to develop the trail network while adhering to the following guiding principles:

Connectivity and collaboration: Ensuring connectivity by helping communities communicate with counties and counties communicate with one another.

Inclusiveness and free access to all: The Carolina Thread Trail will be a free asset available to those living in urban, suburban, and rural environments.

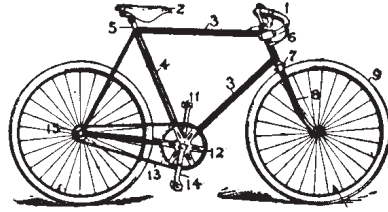
Leverage: Private capital will be used to stimulate planning and development activity and to attract local, state, and federal resources for projects that will benefit the region.

Respect for the land and respect for the landowner: The Carolina Thread Trail seeks to work with willing property owners and seeks to respect the wishes of all landowners along potential trail corridors.

The name for the Carolina Thread Trail was developed in large measure due to the region's rich history in weaving fabric and textile production. Many hands will be needed to help weave the miles of trails into the region's communities. Since each segment of the Carolina Thread Trail will be developed by the community, trail segments will have a unique look and feel. It is the underlying desire that each community promotes and develops an interconnected network of trails that will sustain this effort known as the Carolina Thread Trail.



*Bronze Sculpture of Andrew Jackson by Anna Hyatt Huntington, Andrew Jackson State Park*



## CHAPTER 2. GREENWAY BENEFITS

Any good investment provides a beneficial return. Trails provide a great return on the investment if properly planned, built, and maintained. The benefits of trails are multifaceted and the subject of numerous studies and reports. The following overview of the benefits provided by trail is divided into four categories: connecting communities; health benefits; economic impact; and environmental benefits.

### CONNECTING COMMUNITIES

The primary function of transportation facilities, be it urban streets, rural roads, or interstate highways, is to connect one place to another. Trails serve the same purpose. Well planned trails provide useful connections between homes, schools, businesses, parks, and other nearby destinations. The Carolina Thread Trail serves as the 'interstate' greenway system, linking trails that make local connections in Lancaster County to similar greenway networks in other towns, cities, and counties within the Carolina Thread Trail region. This is the concept of connecting communities.

#### Provide neighborhood connections

Connections to trail facilities allow residents to choose the form of transportation they would like to use on a daily basis. A recently completed study by the U.S. Department of Transportation, the Federal Highway Administration, and the Bicycle and Pedestrian Information Center indicates that when bicycle, pedestrian, and other trail-type facilities are available, people will use those facilities.

This study indicates that the number of trips taken by residents from their homes to nearby destinations using non-vehicular modes of transportation increased by 25 percent since 2001. During this same time period, funding for the development of bicycle, pedestrian, and other trail-

type facilities has also increased.<sup>1</sup>

#### Facilities for all to use and enjoy

Where most transportation facilities are exclusively designed for vehicles, trails are designed to be inclusive of most non-motorized modes of travel. Trails are designed to accommodate a broad range of users, different age groups, skill levels, and ability levels. The trails designed to be part of the Carolina Thread Trail network will be easy to access. Some trails will be located along local streams, creeks and rivers, while others may be located within the right-of-way of roads, but separated from roadway travel lanes for safety.

Trails are made to accommodate a variety of non-vehicular uses including walking, jogging, cycling, skating or rollerblading, and in some instances, horse back riding. For this reason, trails are designed to be wide enough to support all potential uses. Trails are primarily built with materials that provide stable and consistent surfaces. Trails are designed to minimize steep slopes to allow the trail to be utilized and experienced by people of all skill levels and abilities.

#### Connects communities to nature

The need for people to interact with nature has been the subject of several recent books and articles. Last Child in the Woods, by Richard Louv, explores the reduced connection between children and nature, the effects, and how that connection can be made again.<sup>2</sup> A recent article in *Landscape Architecture Magazine* shares that doctors in Japan have found that brief walks through wooded areas increase the body's production of certain cells used to fight off virus-containing cells.<sup>3</sup> Trails provide physical connections to nature in any environment, whether it is through a wooded





floodplain within an urban context, or a conservation easement or nature preserve in rural Lancaster County.

### Builds regional partnerships

Planning and developing a regional trail network which will cross municipal, county, and state lines cannot be accomplished without the dedication of a group of stakeholders. Each entity must make a conscious decision to become part of a larger group to take the idea of the Carolina Thread Trail and make it a reality. Lancaster County and its participating municipalities have agreed to be active participants in this process. Lines of communication



*University of South Carolina Lancaster*

within and beyond Lancaster County have been established and will be strengthened over time, as the planning and implementation of segments of the Carolina Thread Trail move forward.

### HEALTH BENEFITS

Many people understand that exercise is healthy and it is something that most people agree they need to do more often. However, many people lose sight of just how important exercising is and how it can positively affect day to day life. Experts continue to draw links between exercise and its positive effects on our health. Parks and recreation facilities that offer a safe location for exercise, like trails, can provide residents with easily accessible options for a healthier lifestyle.

### Encourages physical activity

Trails can be constructed in a variety of environments. Traditional parks often require certain types of land for development, provide amenities that support a single activity, and can be much more costly to develop. The adaptable nature of trails provides an advantage when compared to traditional parks. Trails serve as convenient and accessible venues that support a variety of recreational activities, such as walking, cycling, running, boating (on blueways), and horseback riding. Trails can help make the choice to exercise easier.

The Mayo Clinic released an article detailing seven benefits that regular exercise can provide to all people, regardless of age, sex, or ability.<sup>4</sup> Improving your mood, fighting chronic disease, boosting energy level, managing weight, and improving sleep are among a few ways regular exercise can improve the quality of daily life.



### Relieves stress and improves psychological health

Many studies have been conducted to measure the benefits regular exercise offers our physical health. Researchers are beginning to study the effects exercise can provide on mental health. A Duke University study tracked subjects suffering from depression. The study results indicated that depression was successfully treated for 60 percent of test subjects who exercised just 30 minutes a day for three days a week without the use of medication. Interestingly enough, the study also found that depression was successfully treated for the same percentage of test subjects who only used antidepressant medication.<sup>5</sup>

Health care professionals have been slow to encourage exercise as part of a treatment plan for anxiety, opting first for medication. Some within the research community are trying to change this. Two researchers (Jasper Smits of Southern Methodist University and Michael Otto of Boston University) have written a book for mental health professionals and are currently developing literature for general physicians and the public, encouraging the prescription of exercise. Such prescriptions would include recommended amounts, or doses, of exercise and helpful tips for beginning and continuing an exercise program.<sup>6</sup>

The direct link between regular exercise and the reduction of anxiety continue to be studied. Major questions linger as to which types of exercise work best, how much exercise is enough, and how exactly exercise helps with anxiety. Theories of the exercise/anxiety relationship include the brain's chemical response to activity, the affect exercise has on improving sleep, and the sense of accomplishment given to participants of regular exercise. Despite the insufficient scientific data on the subject, many agree that the benefits stretch beyond physical health.

These studies show the importance of providing easily accessible parks and recreation facilities for residents to use for exercise and recreation. Upon the completion of the master plan and the development of trails within Lancaster County, residents will have a large network of dedicated multi-use facilities for exercise.

### **ECONOMIC IMPACT**

The positive impacts trails have on communities are far-reaching. Economic data from communities where trails have been developed provide real world numbers on the direct and indirect positive economic impacts trails provide. These numbers help justify the expenditure of public dollars to develop recreational facilities that provide both an improved quality of life and positive long term economic impacts for nearby businesses, municipalities, and homeowners.

### Increases property values

Trails are one of the most desired amenities that homeowners look for when purchasing a house. A recent study by the National Association of Realtors shows that over 50 percent of Americans agree that homes and businesses should be located within walking distance of stores and shops to reduce the use of automobiles for every shopping trip.<sup>7</sup>

Armed with this information, many developers provide trails as amenities within new home communities. One study in North Carolina indicated that a developer put a premium on homes located near trails.<sup>8</sup> Despite this higher price, the homes nearest to the trails sold first. Homeowners are willing to pay more for homes located near trails. The convenience of living within a short distance from trails provides added value to nearby properties.



### Attracts tourism

Many communities who have invested in their local and regional trail networks have found that these networks attract visitors. These visitors provide a much needed boost to local economies when trails are properly marketed. The communities along the KATY Trail, a 185-mile trail in Missouri, partnered together to market to outdoor enthusiasts interested in two-to-four day excursions.<sup>9</sup> This combined marketing effort allowed local towns to benefit from marketing exposure they would not be able to afford otherwise.

Economic benefits associated with trails are not just limited to large regional trail networks. These benefits can also be experienced in small, rural towns. Abingdon and Damascus, Virginia are two small towns connected by the Virginia Creeper Trail. A survey of trail users conducted as part of a study by the Virginia Department of Conservation in 2004 estimates that trail users pump \$2.5 million into the local economy.<sup>10</sup> Over half of those surveyed were not locals, but visitors who came to the area to utilize the Virginia Creeper Trail. This popular trail has provided southwest Virginia with jobs and income that would have otherwise been spent elsewhere.

### Ability to attract new business and retain nearby businesses

Businesses are located along highly traveled roadways to attract potential customers. A business located along a high volume highway has increased exposure to the traveling public. Increased exposure results in increased revenue. Restaurants, hotels, gas stations, and other industries that cater to the motoring public seek locations that give them the best chance of attracting customers.

As the popularity and use of trails continues to grow, business owners have taken notice in a similar fashion. Business owners in New Orleans located, and in some cases moved, their businesses to be closer to the Lafitte Greenway.<sup>11</sup> Business owners along the Great Allegheny Passage Trail and the C&O Canal Trail have experienced increases in revenue since the completion of those trail networks.<sup>12</sup> Several owners report repeat customers from one year to the next, a trend that contributes to staying in business. Bicycle shops, bed and breakfasts, campgrounds, restaurants, and other similar businesses have found success by locating near trails.

Some government agencies have found it helpful to produce literature and guidelines to help local communities take full economic advantage of trails. The Iowa Department of Transportation developed a handbook entitled *Implementing Trail-Based Economic Development Programs*.<sup>13</sup> The handbook provides a list of guiding principles that helps communities determine the types of businesses that will be most likely frequented by trail users and identify the best locations for those businesses. Case studies from similar communities, lessons learned by communities located along existing trails, and a step-by-step, how-to guide for the development of a plan for capitalizing on trail recreation are also provided.

### ENVIRONMENTAL BENEFITS

Most people understand the benefits that trails provide; however, many do not realize the environmental benefits trails can provide. These benefits may be the most important within the Carolina Thread Trail region, given the ever expanding development of previously undeveloped lands. Lancaster County's population grew by 24.9 percent between 2000 and 2010 according to 2010 Census data.





However, the development associated with such growth can negatively impact our natural resources. Trails help preserve and protect natural amenities and agricultural lands, improve water and air quality, and provide habitats for native wildlife.

#### Preserve and protect natural and agricultural land uses

Trails possess the unique ability to provide transportation facilities and connections between communities while protecting and preserving existing land uses. Most roadways impact wide swaths of land, require extensive site disturbance, and invite development.

Trails, by contrast, work within narrow corridors, respond to existing land features, and help preserve existing natural features and land uses. Conservation easements or fee simple purchases of land for trails helps ensure that protected natural open space is preserved. These conservation efforts may also protect rural and agrarian land uses through agricultural conservation easements which restrict development, but allow for agricultural operations to continue in perpetuity.

#### Improve water quality

The protection and preservation of natural areas along streams provides many very important benefits. Riparian buffers, or protected, undeveloped, and forested lands along either side of streams, act as filters for runoff into streams. These buffers have been shown to remove pollutants, such as sediment, phosphorus, and nitrates from runoff.<sup>14</sup> The trees within riparian buffers help to shade existing streams, keeping temperatures down and sustaining native fish populations. The roots of vegetation within riparian buffers help to stabilize soils within floodplains, thereby reducing

the risk of stream bank erosion.

The linear nature of trails mimics the natural alignment of streams and water courses. The similar nature of the two provides added benefit in the protection of personal property within floodplains. The National Flood Insurance Program states that the average annual costs of losses due to floods over the last 10 years within the U.S. equals \$2.7 billion.<sup>15</sup> The cost of damage to homes and structures can be dramatically reduced by protecting floodplains through the implementation of development restrictions and the acquisition of lands for trails.



Downtown Kershaw, SC



### Improve air quality

Trails can help improve air quality in two distinct ways. First, trails provide alternative transportation routes. An EPA study in 2006 revealed that pollution from automobiles causes over half of the carbon monoxide, over a third of the nitrogen oxides, and almost a quarter of the hydrocarbons in our atmosphere.<sup>16</sup>

When properly planned, trails can be used by cyclists and pedestrians to commute to and from work, visit a park, or run errands. The reduced use of automobiles for such trips decreases the amount of pollution being delivered to the atmosphere.

The second way trails improve air quality is through the trees they preserve and protect. Trees can help reduce air pollutants such as carbon monoxide, nitrogen dioxide,

ozone particulates, and sulfur dioxide through gas intake in leaves. Tree surfaces can intercept pollution particulates in the air.<sup>17</sup> Preserving trees along trails within urban areas can have a significant impact on reducing the amount of localized air pollution.

### Provide habitats for native wildlife

Natural, undeveloped lands provide habitats for numerous varieties of flora and fauna. Trails help to preserve these natural areas, protecting habitats for birds, mammals, and plants. Trails also provide connectivity between fragmented natural areas within urban environments. Signage can be added to trails to educate trail users on the types of local plants and animals that benefit from the preservation of land on which these facilities exist.



*Old Waxhaw Presbyterian Church and Cemetery*



## CHAPTER 3. EXISTING CONDITIONS

### GEOGRAPHY OF THE STUDY AREA/LAND COVER

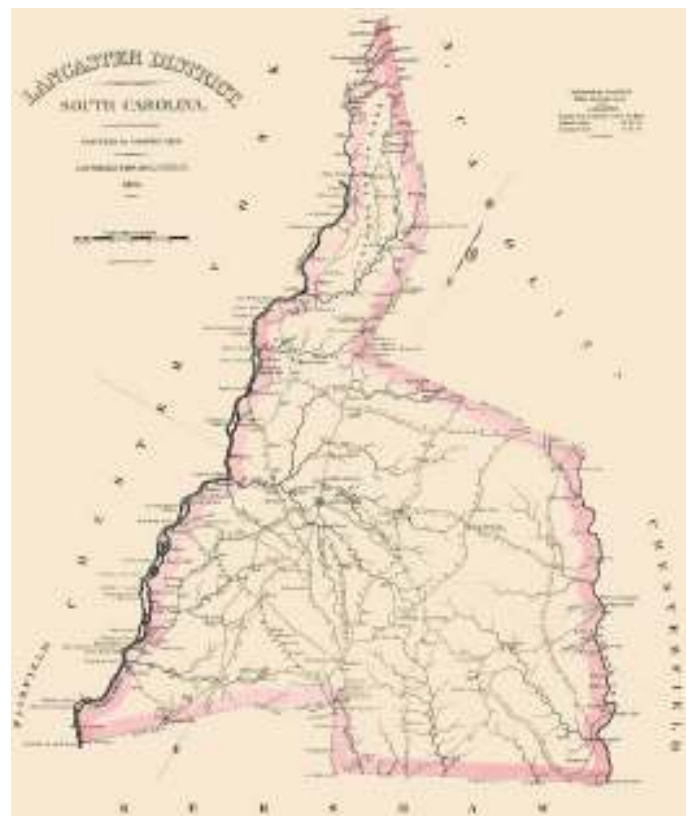
Lancaster County sits just south of the North Carolina state line within the Piedmont region in north, central South Carolina. The county is bordered by Chesterfield County to the east, Kershaw and Fairfield Counties to the south, Chester and York Counties to the west, and Mecklenburg and Union Counties in North Carolina to the north.

Lancaster County is approximately 549 square miles in size. Natural resources located within the county include fertile soil for agriculture, granite, and gold. Approximately 40 miles of the western border of Lancaster County is formed by the Catawba River.

Three municipalities are located in Lancaster County: Heath Springs, Kershaw, and Lancaster, the county seat. Unincorporated communities located in Lancaster County include Buford, Elgin, Indian Land, Stoneboro, Taxahaw, Tradesville, and Van Wyck.

Lancaster County was originally home to the Catawba and Waxhaw Indians. Scots-Irish settlers made their way south from Pennsylvania in the 1750s and settled in what is now northern Lancaster County. The county, named for Lancaster County, PA, was formed in 1785.<sup>18</sup> The county border in the northern panhandle was unclear for many years. Many questioned the political boundary jurisdiction between North and South Carolina until approximately 1813 when a corner stone, now included on the National Registry of Historic Places, was erected to settle the boundary issue.<sup>19</sup>

Lancaster County was the site of two significant battles of the Revolutionary War. Buford's Massacre, named for British Colonel Banastre Tarleton's forces devastating attack on Colonel Abraham Buford's forces in the community now known as Buford,<sup>20</sup> and the Battle of Hanging Rock, which took place just south of present day Heath Springs.<sup>21</sup> Union General William T. Sherman moved his troops through Lancaster County in 1865, burning, but not destroying, both the courthouse and jail in Lancaster.<sup>22</sup> After the Civil War, the textile industry moved into Lancaster County, ushered in by Colonel Leroy Springs.<sup>23</sup>



Source: [www.carolana.com](http://www.carolana.com)





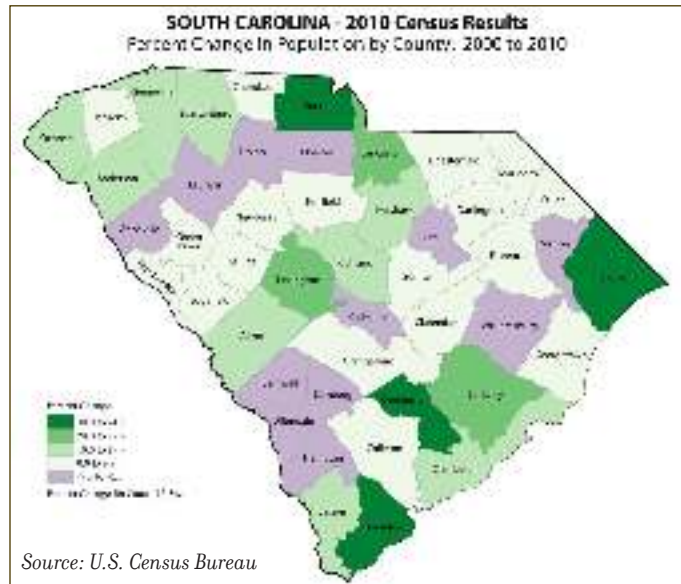
**POPULATION**

According to the 2010 US Census, Lancaster County has a population of 76,652. The 2000 US Census showed a countywide population of only 61,351. Lancaster County was the fifth fastest growing county in South Carolina between 2000 and 2010 with population growth of 24.9 percent. The median age of residents in Lancaster County is 35.9 years of age. Lancaster County has a total of 32,687 housing units.

**ECONOMY**

The textile industry has dominated Lancaster County’s economy for almost 100 years. The county has made significant strides in recent years to diversify the economy. The current distribution of jobs within Lancaster County by industry includes: private industry, manufacturing, retail trade, healthcare and social assistance, hospitality, finance and insurance, and construction. According to the Lancaster County Economic Development Corporation, the top private sector employers within Lancaster County include Springs Memorial Hospital, Cardinal Health, KMG America, Wal-Mart, P&G Duracell, Founders Federal Credit Union, Springs Industries, Inc., ZF Commercial Suspension Systems, U. S. Textile Corporation, and Comporium Communications.

Lancaster County School District provides public education for the entire county. County schools include eight elementary schools, four middle schools, one combined elementary/middle school, four high schools, three special



program schools, and one charter school. Total public school enrollment in Lancaster County is 11,508. Three private schools offer K-12 classes. Two schools of higher learning have campuses in Lancaster County; University of South Carolina Lancaster is located in Lancaster and York Technical College has campuses in Kershaw and Lancaster.

According to 2008 US Census estimates, the median income of Lancaster County residents was \$39,898, just below the statewide average in South Carolina. The US Bureau of Labor Statistics estimated the unemployment rate for Lancaster County was 13.4 percent for March 2011. For the same time period, the unemployment rate for South Carolina was 9.6 percent and 9.3 percent for the United States.

**Table 1**  
**Lancaster County Population: 1960 to 2010**

	1960	1970	1980	1990	2000	2010
Lancaster County, SC	39,352	43,328	53,361	54,516	61,351	76,652
Percent Change, Population	-	10.10%	23.16%	2.16%	12.54%	24.94%

Sources: Population of Counties by Decennial Census: 1900 to 1990, U.S. Census Bureau; State and County QuickFacts



### DEVELOPMENT TRENDS

Population projections for Lancaster County indicate continued growth. The county experienced a 25 percent population growth from 2000 to 2010 according to the US Census Bureau. The Indian Land area of the county, located in the northern panhandle, has experienced the bulk of the residential growth in recent years. The population in this area increased by 72 percent between 2000 and 2009, spurred by development along US Highway 521 due to the area's close proximity to Charlotte, NC.

The Catawba Regional Council of Governments reports that of 7,397 residential permits pulled for Lancaster County from 2000 to 2009, 5,030 (68%) were located in the northern panhandle of the county. In addition, a number of residential communities developed or planned during the mid-to-late 2000's have infrastructure installed, but have not reached residential unit capacity. This area is expected to continue to grow as demand for housing increases in

the county. This growth has and will continue to have a tremendous impact on the county's natural and rural lands.

The University of North Carolina Charlotte Urban Institute has developed an Urban Growth Model designed to illustrate the effects of development and population growth around the Charlotte Metro area. Lancaster County was included in that study. The study illustrates the correlation between population growth and land development from 1976 to 2006 and projects this growth pattern through 2030. In 1976, only 0.7 percent (2,459.43 acres) of Lancaster County's 351,353.60 acres of land was developed. This equals 0.05 acres of land developed per person. In 2006, 16.8 percent (59,027.40 acres) of the county's total land was developed. This equals 0.92 acres of land developed per person, a significant increase. Projections show that by 2030, 25.9 percent (91,000.58 acres) of county land will be developed, approximately 1.24 acres of developed land per person.<sup>24</sup>



*Replica Late 18th-Century Schoolhouse, Andrew Jackson State Park*



## EXISTING PARKS

Parks, recreation, and trail facilities are provided by three primary entities within Lancaster County. These entities and the facilities they provided are noted below.

Lancaster County Parks and Recreation Department operates and maintains 40 parks and recreation facilities within the county. In addition, the department operates four recreation centers. Park and recreation facilities in Lancaster County total approximately 127.0 acres with a full time staff of eight. Lancaster County's Parks and Recreation facilities include:

### Buford Area

- Bear Creek Park: 4.5 acres includes a picnic shelter, open green space and a fishing lake.
- Buford Battleground: one acre. Erected to the memory and in honor of the brave and patriotic American soldiers who fell in the battle which occurred at this place on the 28th of May, 1780.
- Buford Recreation Center: gymnasium, activity room, conference room, kitchen, offices and restrooms.
- Buford Recreation Complex: 26 acres with two youth and two adult baseball/softball fields and two soccer fields.
- Buford Softball Field: two acres with one lighted softball field.
- Buford Soccer Field: 5.5 acres with one lighted soccer field.
- Camp Creek Community Park: one acre includes one multi-use practice field.

### Flat Creek Area

- Flat Creek Park: six acres includes a walking track, lighted softball field, two lighted tennis courts, swing set, slide and merry-go-round.
- Tripp Faulkenberry Field: one acre includes one lighted baseball field.

### Heath Springs Area

- Heath Springs Ball Fields: four acres includes one lighted and one unlighted baseball/softball field.
- Heath Springs Soccer: three acres includes one multi-use and one baseball/softball field.
- Heath Springs Town Park: 1.5 acres includes one lighted tennis court, swing set, slide, merry-go-round and picnic tables.
- Heath Springs Walking Track: two acres includes a walking trail and an enclosed picnic shelter with lights.
- L.T. Reeves Park: half acre includes one basketball court.

### Indian Land Area

- Bailes Ridge Nature Trail: three acres includes a natural walking trail.
- Deputy Roy Hardin Park: nine acres includes a picnic shelter, two playgrounds, swing set and a paved walking track.
- Indian Land Fields: 12.5 acres includes one multi-use field and one lighted softball field.
- Indian Land Recreation Center: gymnasium, activity room, conference room, kitchen, offices and restrooms.
- Van Wyck Park: 4.5 acres includes one multi-use field and a swing set, slide, spring animals, picnic tables.





### Kershaw Area

- Andrew Jackson Recreation Center: gymnasium, activity room, conference room, kitchen, offices and restrooms.
- Marion Boan Park: four acres includes two baseball/softball fields (one lighted).
- Marion St. Park: three acres includes one baseball/softball field, two basketball courts, picnic table, swing set, slide and spring animal.
- Mullinax Park: 4.5 acres includes two lighted soccer fields, swing set, slide, arch climber, restrooms and concession building.
- Kershaw Softball: 1.5 acres includes one lighted softball field.
- Kershaw Tennis: one acre includes two lighted tennis courts. Resurfaced in 2010.
- Steve Williams Picnic Shelter: one acre includes an enclosed picnic shelter with lights. (Adjacent to the golf course and club house).

### Lancaster Area

- Buckelew Park: 11 acres includes two baseball/softball fields (one lighted), tennis court, two picnic shelters, swing set, slide and climber.
- Constitution Park: 2.25 acres includes two picnic tables, double grill, bench swing and open green space.
- Country Club Park: 1.5 acres includes one/two basketball court and one picnic table.
- Gay St. Courts: half acre includes two lighted basketball courts.
- Hughes St. Park: half acre includes a picnic shelter, swing set and play equipment.
- Independence Park: 3.75 acres includes four concrete picnic tables, rose garden and open green space.
- Lancaster County Parks and Recreation Pool & Tennis:

4.5 acres includes six lighted tennis courts and one outdoor swimming pool with restrooms.

- Laurie Brice Park: 5.75 acres includes one multi-use field.
- Melvin Steele Park: 10 acres includes two lighted multi-use fields.
- Pardue St. Park: one acre includes two basketball courts, picnic shelter, swing set, merry go round and arch climber.
- Shady Lane Park: two acres includes a swing set, slide, balance beam, spring see-saw, picnic table and grill.
- South Softball Complex: 7.5 acres include two softball fields (one lighted), restrooms and concession building.
- Southside Park: 7.25 acres includes one softball field, playground, swing set, slide, two picnic shelters and restrooms.
- Springdale Recreation Center: gymnasium, activity room, conference room, kitchen, offices and restrooms.
- Springdale Recreation Complex: 65 acres includes four softball fields (two lighted), four multi-use fields, restrooms and concession building.
- Springs Park Boat Landing: Includes boat ramp, fishing dock and paved parking.



Stevens Park



- Westmoreland Park: three acres includes a swing set, playground, picnic tables and open space.
- Woodland Hills Tennis: 1.5 acres includes one lighted tennis court.

#### Town of Kershaw

The Town of Kershaw Recreation Department operates and maintains two parks facilities.

- The Kershaw Golf Club: 18-hole golf course with tennis courts and a clubhouse.
- Stevens Park: 16.8 acre park includes Kershaw Recreation Center, a swimming pool, tennis courts, an outdoor pavilion, and the Haile Gold Mine Playground. The recreation center includes a bowling alley, multi-purpose rooms, and an arcade.

#### South Carolina

The South Carolina Department of Parks, Recreation, and Tourism operates one state park and South Carolina Department of Natural Resources oversees one heritage preserve in Lancaster County.

- Andrew Jackson State Park: The park hosts numerous festivals and living history programs. Park amenities include a replica 18th-century schoolhouse, amphitheater, campground, a lake for fishing and boating, picnic areas, and natural surface trails.
- Forty Acre Rock Heritage Preserve and Wildlife Management Area: The preserve, named for the large exposed granite flat rock, is overseen by the South Carolina Department of Natural Resources. Water slides and waterfalls along Flat Creek, a beaver pond, caves, pine and hardwood forests, and natural surface trails are also located within the preserve.



*Forty Acre Rock Heritage Preserve and Wildlife Management Area*



### EXISTING TRAILS

Trails are currently limited within Lancaster County. Existing trails are limited to the boundaries of several county and state facilities. This master plan was created expanding trails throughout the county. The existing trails currently within Lancaster County are as follows:

- Andrew Jackson State Park: two miles of natural surface trails
- Forty Acre Rock Heritage Preserve: five miles of natural surface trails
- Flat Creek Park: walking track
- Heath Springs Walking Track: walking trail
- Bailes Ridge Nature Trail: natural walking trail
- Deputy Roy Hardin Park: paved walking track
- University of South Carolina Lancaster: natural walking trail



*Nature Trail at University of South Carolina Lancaster*

### COMMUNITY PLANS

Various community plans have been developed for Lancaster County. The following plans include information pertaining to greenways and trails that were utilized throughout the Lancaster County Carolina Thread Trail Greenway Master Plan process.

#### US 521/SC 9 Corridor Study

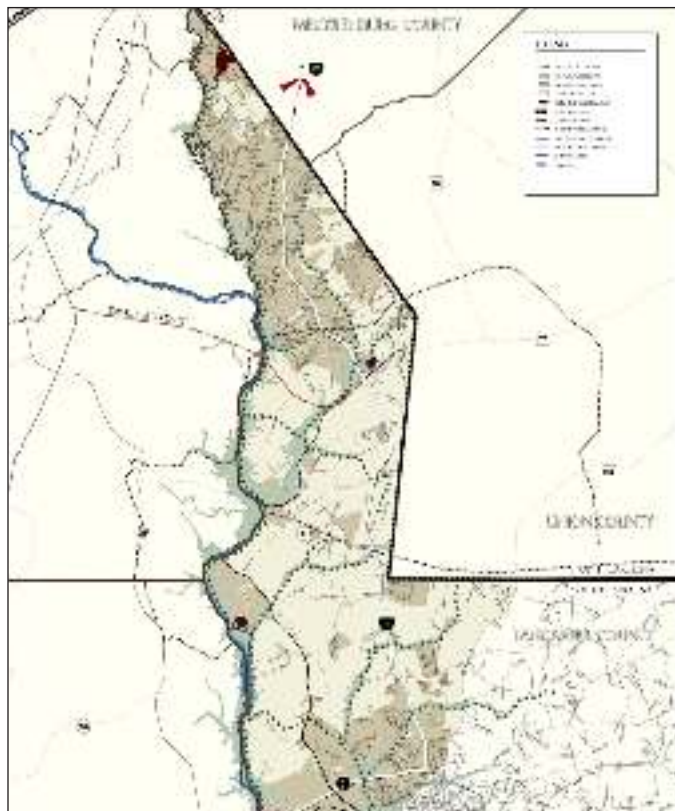
The US 521/SC 9 Corridor Study was completed in April 2010. The 169,000 acre study area lies along approximately 20 miles of US 521 and four miles along SC 9 in Lancaster County. The document was developed to serve as a guide for long-term growth along the two primary transportation corridors in the county's northern panhandle. The study provides recommendations for preferred development patterns, elements of design, and transportation infrastructure improvements within the study area.

A list of development principles was created based on existing corridor features, public input, and sustainable development principles developed by the consultant and the project advisory committee. These principles are recommended to guide development within the study area in an effort to support growth while not sacrificing quality of life and economic vitality.





1. Increase Opportunities for Open Space
2. Meet Future Housing Needs and Preferences for Various Housing Types
3. Move from Strip Development to Activity Centers
4. Designate Primary Future Growth Areas
5. Promote Mixed-Use Development
6. Build Walkable Neighborhoods
7. Promote Conservation Subdivision Design in Rural Areas
8. Designate a Traditional Town Center in Indian Land
9. Foster Distinctive and Attractive Communities with Strong Sense of Place
10. Provide a Variety of Transportation Choices<sup>25</sup>



Proposed Greenways  
Source: US 521/SC9 Corridor Study

The four highlighted development principles above apply directly to the Carolina Thread Trail. The development of greenway corridors and trails within Lancaster County will help identify open space opportunities throughout the county, provide on-and-off road trails that connect to walkable neighborhoods, connect to conservation subdivision trail systems (where provided), and accommodate various modes of transportation.

Transportation within the study area was addressed, with alternative modes of travel specifically discussed. Survey participants indicated existing bicycle and pedestrian facilities within the study are poor. Survey results also indicate that most participants are supportive of bicycle, sidewalk, and greenway facilities within the study area.

Early in the study, green infrastructure (floodplains, wetlands, conservation easements, park and recreation areas) and blue infrastructure (rivers and streams) were identified and mapped. A proposed greenways map was developed, illustrating potential trail locations that utilize both green and blue infrastructure corridors. This map was created to assist in the identification of trails during the Carolina Thread Trail planning process.



## DESTINATIONS

Lancaster County has a number of unique destinations that showcase the area's natural amenities and historic landmarks.

### Andrew Jackson State Park

Andrew Jackson State Park is dedicated to Andrew Jackson, the seventh president of the United States of America, who grew up on the land where the state park is located. This area was once known as the Waxhaws of the South Carolina backcountry. Park amenities include a replica 18th-century schoolhouse, amphitheater, campground, a lake for fishing and boating, picnic areas, and natural surface trails.<sup>26</sup>

### Buford Battleground

On May 29, 1780, troops commanded by Colonel Abraham Buford were returning to Virginia when they were engaged by British forces led by Colonel Banastre Tarleton. A battle ensued and the British forces quickly held the upper hand.<sup>22</sup> Knowing that his command was outmatched by the British calvary and infantry, Col. Buford surrendered. Col. Tarleton ignored the white flag of surrender and continued the onslaught. Col. Buford's command suffered 115 deaths while 151 soldiers were wounded and 53 captured. Today, the site of Buford's Massacre and the sacrifice made by his command is commemorated by a marker and monument on the site of the battle.<sup>20</sup>

### Forty Acre Rock Heritage Preserve and Wildlife Management Area

The Forty Acre Rock Heritage Preserve and Wildlife Management Area encompasses 2,267 acres. The name of the preserve is derived from the large, exposed 14-acre granite flat rock that dominates the site. Vernal pools in the rock provide habitats for several rare plants, including elf orpine and pool sprite.

This interesting land feature rests above the division point between the Piedmont and sandhills of South Carolina. Water slides and waterfalls along Flat Creek, a beaver pond, caves, pine and hardwood forests, and natural surface trails are also located within the preserve. Many species of birds and woodland mammals such as deer and fox call this area home. Forty Acre Rock is a National Natural Landmark.<sup>27</sup>



*Buford Battleground Monument*





### Hanging Rock Battleground

Hanging Rock is appropriately named for the large, overhanging rock and the surrounding unique rock and boulder features. Locals claim the shelter provided by the rock has been used by campers and hunting parties for hundreds of years. Two battles during the Revolutionary War took place within a week of one another at Hanging Rock, just south of present day Heath Springs.

The first battle occurred on August 1, 1780 when Major William Richardson Davie attacked and surprised British forces who were using Hanging Rock as an outpost.<sup>28</sup> During the second battle, occurring on August 6, 1780, Major Davie, Col. William Hill, and Col. Robert Irwin, under the leadership of General Thomas Sumter, attacked a British regiment under the command of the Prince of Wales.<sup>21</sup> A monument and natural surface trails can be found in Hanging Rock today. The site is on the National Register of Historic Places.



*Hanging Rock near Hanging Rock Battleground*



## CHAPTER 4. PROPOSED TRAIL NETWORKS

### PLANNING PROCESS

A steering committee consisting of county residents was formed to assist in the development of the Lancaster County Carolina Thread Trail Greenway Master Plan. Citizen representatives from the county's voting districts, the towns of Heath Springs and Kershaw, and the city of Lancaster were appointed to the steering committee.

To provide countywide and regional insight to the steering committee, representatives from the Lancaster County Planning Department, Lancaster County Parks and Recreation Department, Catawba Regional Council of Governments, Catawba Valley Land Trust, Olde English District, and Carolina Thread Trail were included. The steering committee and consultants for the Lancaster County Carolina Thread Trail Greenway Master Plan followed the planning process summarized below.

#### July 2010

A project kick-off meeting was conducted to begin the planning process. The steering committee, consultant, and representatives from Carolina Thread Trail discussed the trail planning process, discussed the scope of the master plan and reviewed the project schedule. Potential locations and dates for five community engagement sessions were selected. Existing parks, trails, schools, and cultural sites were located on the project base map and potential county destinations were identified.

#### August 2010

Public involvement is critical to any successful public planning process. The steering committee reviewed the community engagement session open house format. Trail survey questions were drafted by the consultant, reviewed and revised by the steering committee. Survey questions

were designed to gather information from county residents about general trail information, current trail use, recreation habits, potential or desired trail use, and demographic information.

#### September 2010

Community engagement sessions were held in Lancaster, Indian Land, Kershaw, Heath Springs, and Buford. Each community engagement session was formatted as an informal open house. Each session was designed to introduce residents to the Carolina Thread Trail, gather input regarding current trail use, and identify destinations around Lancaster County that citizens would like to access using future trails. Participants were asked to draw on the maps provided to indicate where they would like to see trails. An online survey was available for county residents unable to attend one of the five community engagement sessions.

#### October 2010 through December 2010

The input gathered through the five community engagement sessions and the online survey served as the basis for locating potential trail routes through Lancaster County. The steering committee, which also served as the project's technical advisory team, met regularly over the course of several months to identify an interconnected network of potential trail routes.

The resulting draft greenway master plan identified approximately 182 miles of trails and 41 miles of blueways. An interjurisdictional meeting was held with representatives from the adjacent counties (Chester, Mecklenburg, Union, and York Counties) to review the current master planning effort in Lancaster County. Connections to adjacent counties were verified to ensure



the Lancaster County Carolina Thread Trail Greenway Master Plan will provide regional connections to adjacent counties.

January 2011 through February 2011

The preliminary trail routes identified by the steering committee were reviewed in the field. The consultant led steering committee members on a driving and walking tour of each potential route to review the existing topography, character, identify potential obstacles, and assess the feasibility and ease of trail construction. Routes with significant obstacles or conditions not conducive to a safe, enjoyable trail environment were relocated.

April 2011

Draft master plan review forums were held at Andrew Jackson High School (Heath Springs/Kershaw), the Lancaster County Library (Lancaster), and Indian Land Recreation Center. Participants reviewed input gathered through the five community engagement sessions and the online survey. The draft trail routes, which were developed using this input, were presented.

The length, type of trail (on-road or off-road), and connections provided by each potential trail segment were discussed. Participants were asked to select five potential trail routes they believed were most beneficial to Lancaster County. An online survey was available for county residents unable to attend the draft master plan review forums.



Technical Advisory Team Planning Session





### April 2011 through July 2011

Using input received from the draft master plan review forums and the second online survey, the steering committee refined the potential trail routes to create the Lancaster County Carolina Thread Trail Greenway Master Plan. The consultant created the draft master plan report, summarizing the entire planning process, for review and comment from the steering committee. These comments were integrated into the final master plan. Additional Carolina Thread Trail information was provided to the community through an interview shown on Lancaster County School District's Learn TV and a presentation to the Rotary Club of Indian Land.

### LANCASTER COUNTY CAROLINA THREAD TRAIL GREENWAY MASTER PLAN

The recommended Carolina Thread Trail route through Lancaster County is 110.1 miles of trails located along stream/river corridors, road rights-of-way, abandoned rail lines, undeveloped land, and dirt roads. The vast majority of the recommended trails are located along stream/river corridors (54.7 miles) and along existing road rights-of-way (52.4 miles). In addition, a total of 34.3 miles of blueways have been identified along the Catawba River and Cane Creek between downtown Lancaster and the Catawba River.

The pink lines on the master plan map represent the final Carolina Thread Trail segments within the county. These lines are shown as 1/4-mile wide corridors. The mapped routes represent the intended location of the Carolina Thread Trail, but do not represent the actual location of trails. Final trail locations will be determined as each Carolina Thread Trail segment is designed in more detail by the county and its municipalities.

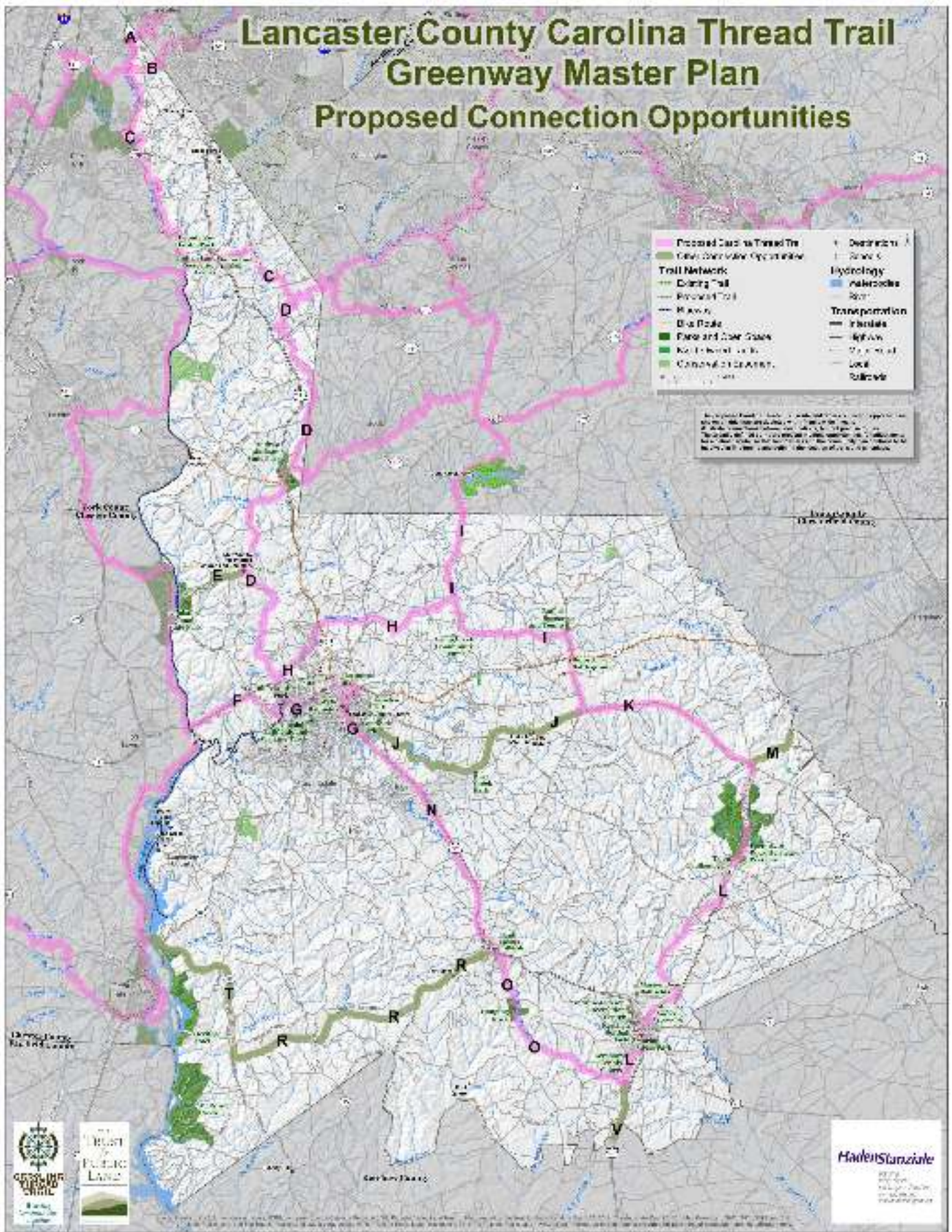
The Carolina Thread Trail in Lancaster County will provide connectivity to several unique and treasured destinations. Forty Acre Rock Heritage Preserve and Wildlife Management Area, Andrew Jackson State Park, Buford Battleground, and Hanging Rock Battleground represent the most popular county destinations, as indicated by county residents. These places represent just a few county destinations located within 0.5 mile of the proposed Carolina Thread Trail routes. The proposed trails are located within 0.25 mile of ten of the county's 17 public schools. The Lancaster County Carolina Thread Trail links to four adjacent counties located within the Carolina Thread Trail region: Chester, Mecklenburg, Union, and York Counties.

All three municipalities in the county are linked by the recommended Carolina Thread Trail segments. Approximately 37 percent of Lancaster County residents live within 0.5 mile of the proposed trails. This includes 37.4 percent of Lancaster County's children, 41.1 percent of the county's seniors, and 42.1 percent of low income households.

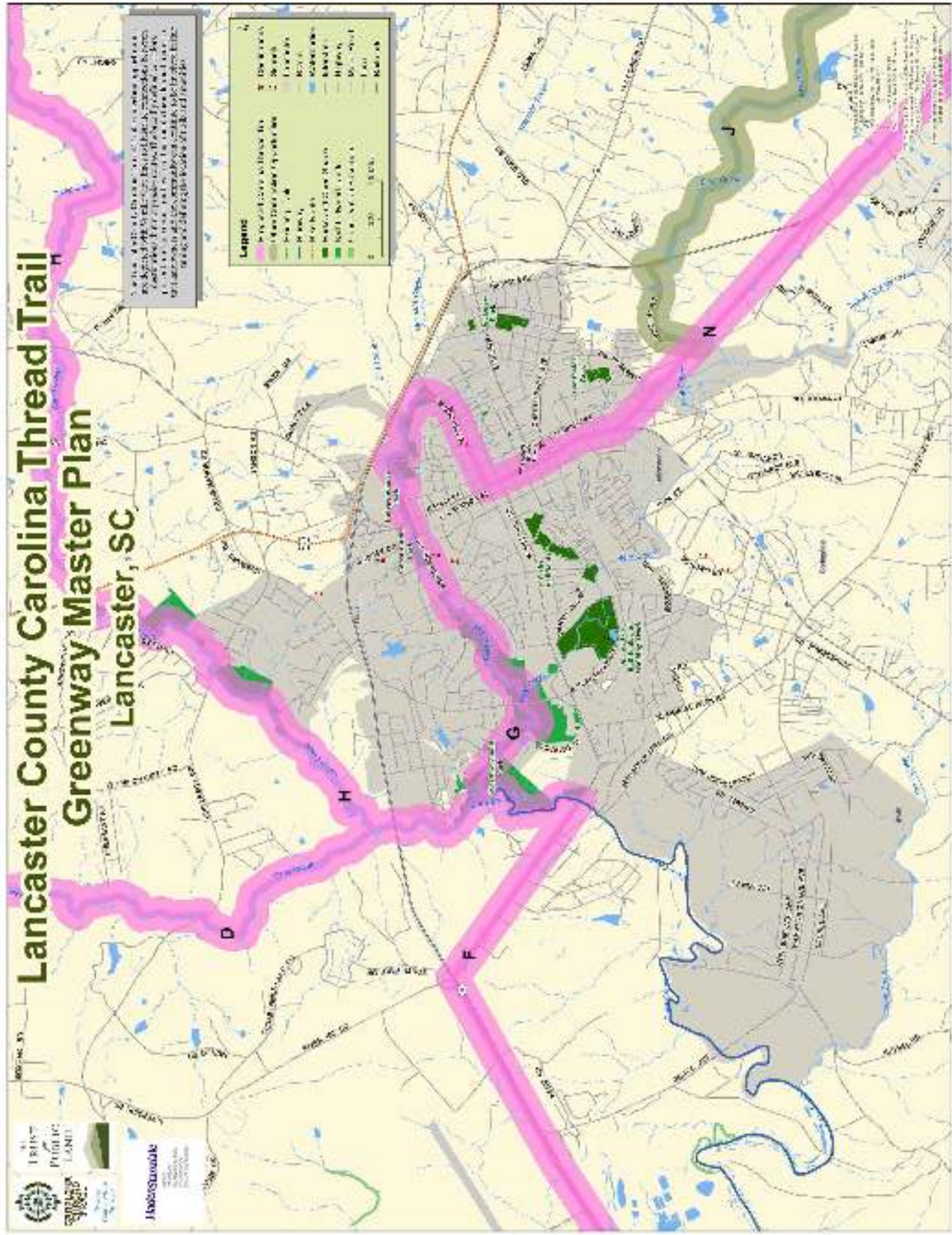
The steering committee also identified 39.2 miles of additional trails called "Other Connection Opportunities". These trail segments did not meet the criteria for population service, regional connectivity, or destinations served set during the planning process to be considered Carolina Thread Trail routes. However, these trail segments provide important connections within Lancaster County. "Other Connection Opportunity" trails provide connectivity to two counties not located within the Carolina Thread Trail region: Chesterfield and Kershaw Counties.



# Lancaster County Carolina Thread Trail Greenway Master Plan Proposed Connection Opportunities









# Lancaster County Carolina Thread Trail Greenway Master Plan Heath Springs, SC

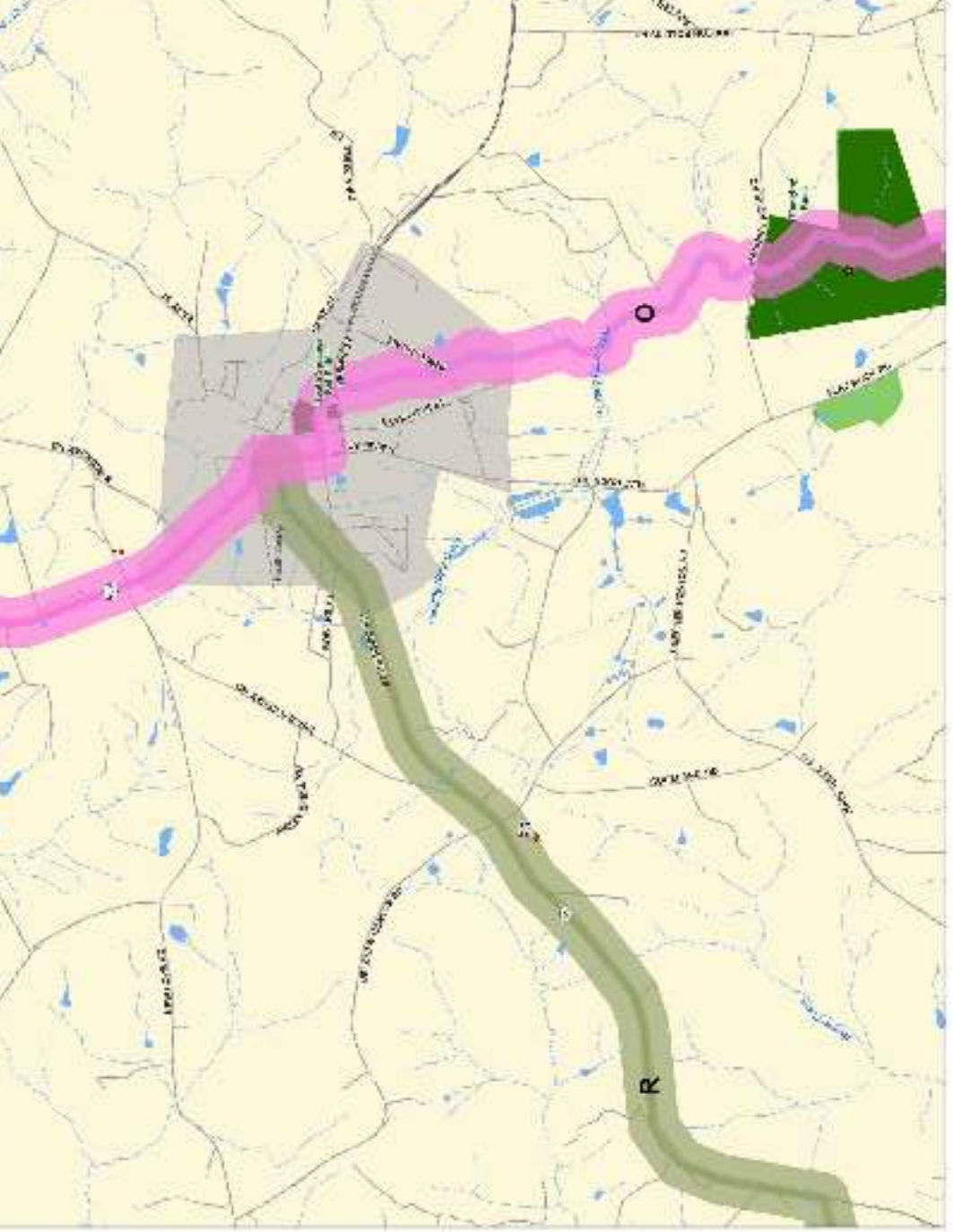


**Andersonville**  
 1000 Andersonville Rd  
 Andersonville, SC 29624  
 803.763.1234

As part of the Carolina Thread Trail project, the University of South Carolina and the South Carolina Department of Transportation are working together to develop a master plan for the Carolina Thread Trail in the Andersonville area. The plan will identify key locations for trail development and provide recommendations for trail design and construction. The plan will also identify key locations for trail development and provide recommendations for trail design and construction.

**Legend**

Proposed Carolina Thread Trail	Water
Existing Carolina Thread Trail	2-30 mph
Proposed 2-30 mph	30-40 mph
Proposed 30-40 mph	40-50 mph
Proposed 40-50 mph	50-60 mph
Proposed 50-60 mph	60-70 mph
Proposed 60-70 mph	70-80 mph
Proposed 70-80 mph	80-90 mph
Proposed 80-90 mph	90-100 mph
Proposed 90-100 mph	100+ mph



UNIVERSITY OF SOUTH CAROLINA  
 SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 ANDERSONVILLE  
 1000 ANDERSONVILLE RD  
 ANDERSONVILLE, SC 29624  
 803.763.1234



# Lancaster County Carolina Thread Trail Greenway Master Plan Kershaw, SC



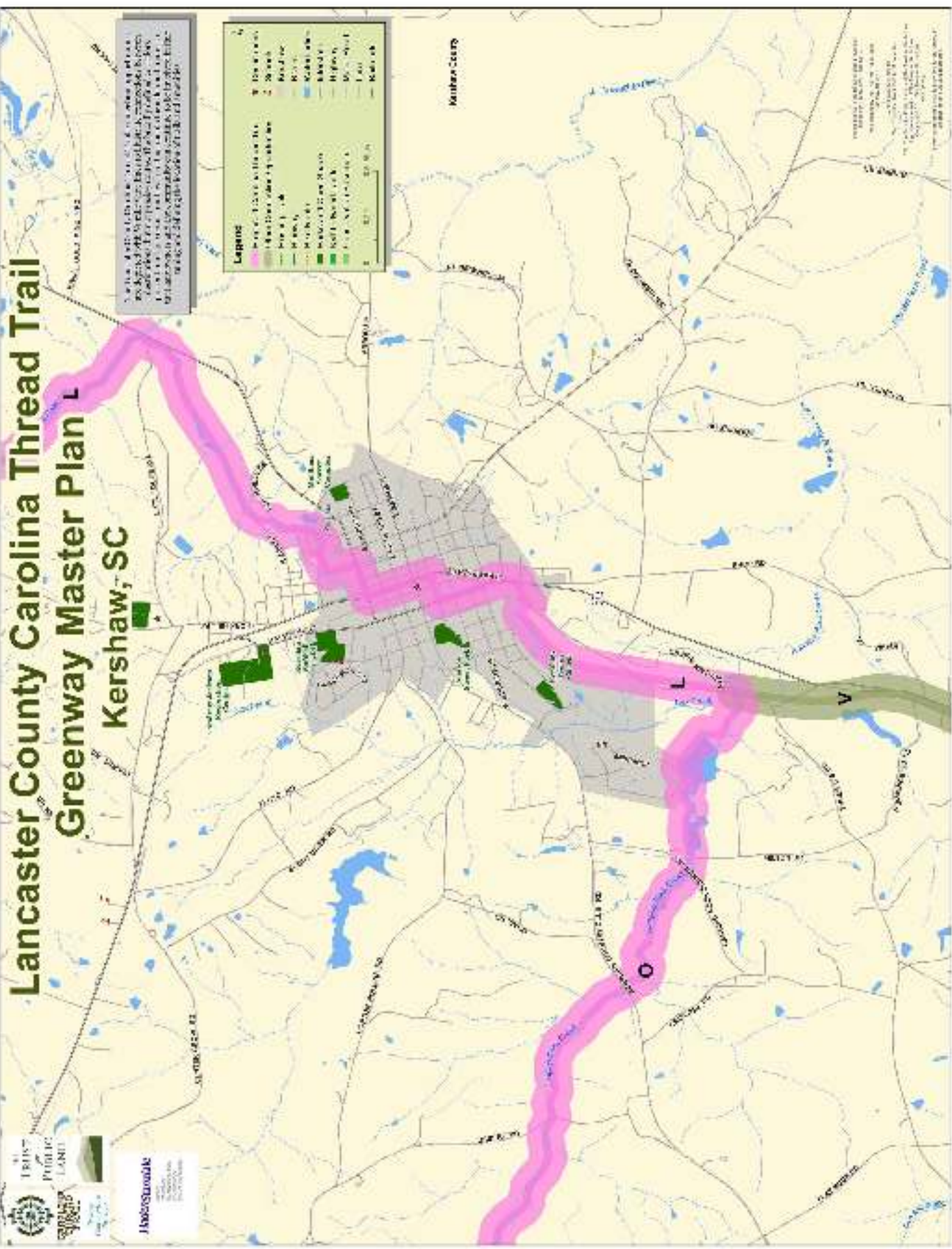
**HandSteady**  
Landscape Architecture  
1000 North Main Street  
Columbia, SC 29201  
704.739.1111

The Carolina Thread Trail is a series of paths and greenways that will connect the city of Kershaw to the surrounding rural landscape. The trail will provide a safe and scenic route for walking, jogging, and cycling. The trail will also provide a link to the surrounding natural resources and recreational opportunities. The trail will be a valuable asset to the community and will help to improve the quality of life for all residents.

**Legend**

- Proposed Carolina Thread Trail
- Existing Carolina Thread Trail
- Water
- Highway
- Local Road
- County Road
- City Road
- Water
- Highway
- Local Road
- County Road
- City Road

Kershaw, SC



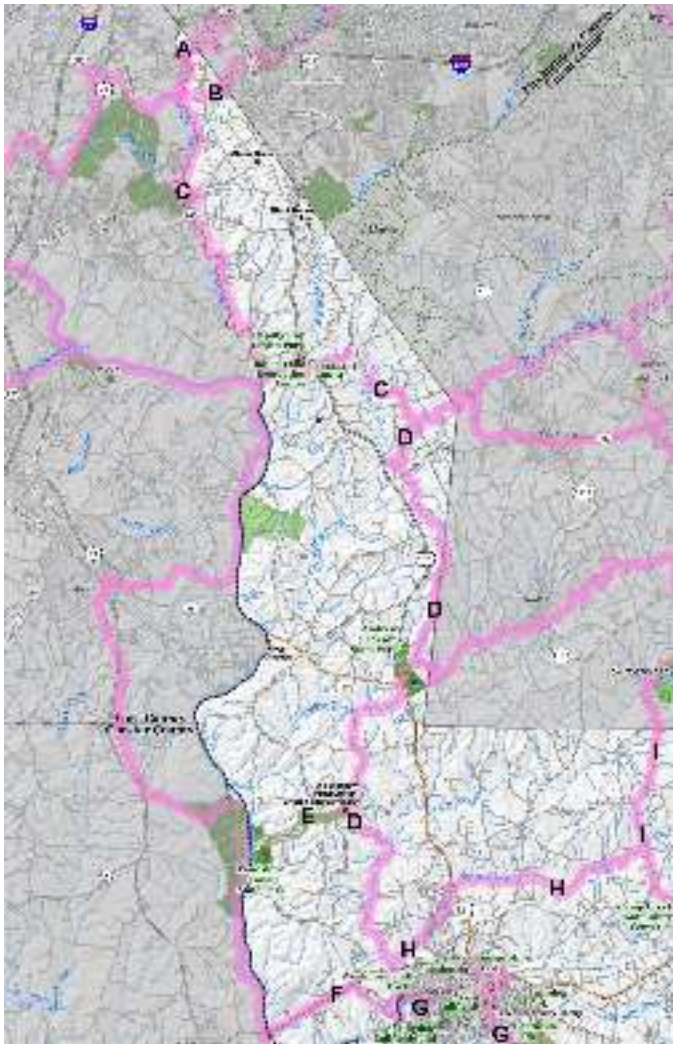




## LANCASTER COUNTY CAROLINA THREAD TRAIL SEGMENTS

### North Corridor

Includes Trail Segments A, B, C, and D



Lancaster County Carolina Thread Trail - North Corridor

### A. Mecklenburg County-York County Connector Greenway

Route profile:

- 0.75 miles in length
- 0.75 miles along stream/river corridor

Access opportunities:

- Connects to Carolina Thread Trail via Sugar Creek Greenway in Mecklenburg County, NC
- Connects to Carolina Thread Trail via proposed greenway in York County, SC
- Provides an important regional Carolina Thread Trail connection

Population within 0.5 mile of segment:

- 244 residents
- 325 residents per trail mile

Destinations within 0.5 mile of segment:

- None

Challenges and opportunities:

- Provides important regional Carolina Thread Trail connections and connects two Carolina Thread Trail region counties.
- Segment would require a bridge over Sugar Creek for connectivity with Lancaster County Carolina Thread Trail segments.

### B. Mecklenburg County Connector Greenway

Route profile:

- 1.54 miles in length
- 1.54 miles new overland trail

Access opportunities:

- Connects to Carolina Thread Trail via McAlpine Creek Greenway in Mecklenburg County, NC



Population within 0.5 mile of segment:

- 502 residents
- 325 residents per greenway mile

Destinations within 0.5 mile of segment:

- None

Challenges and opportunities:

- Segment would require a bridge over Sugar Creek for connectivity with York County Carolina Thread Trail segments.

### C. Indian Land Greenway

Route profile:

- 15.78 miles in length
- 10.73 miles along stream/river corridor
- 5.05 miles along existing road ROW

Access opportunities:

- Connects to Indian Land Recreation Center and Deputy Roy Hardin Park
- Connects to Indian Land Middle School and Indian Land High School
- Provides access to the Catawba River

Population within 0.5 mile of segment:

- 3,556 residents
- 225 residents per greenway mile

Destinations within 0.5 mile of segment:

- Catawba River
- Deputy Roy Hardin Park
- Indian Land High School
- Indian Land Middle School
- Indian Land Recreation Center

Challenges and opportunities:

- Great location to serve a growing area of Lancaster County.
- Provides connectivity between various land uses including residential, retail/commercial, and civic (parks and schools).
- Bridges may be necessary to ford streams and creeks flowing into Sugar Creek and the Catawba River.
- On-grade crossing will be necessary to traverse US Highway 521.

### D. Lancaster Panhandle Greenway

Route profile:

- 20.40 miles in length
- 13.34 miles along stream/river corridor
- 7.06 miles along existing road ROW

Access opportunities:

- Connects to Carolina Thread Trail via Twelve Mile Creek in Union County, NC
- Moves through Andrew Jackson State Park
- Connects to historic Old Waxhaw Presbyterian Church and Cemetery

Population within 0.5 mile of segment:

- 1,640 residents
- 80 residents per greenway mile

Destinations within 0.5 mile of segment:

- Andrew Jackson State Park
- Old Waxhaw Presbyterian Church and Cemetery

Challenges and opportunities:

- Provides critical north-south connector for the panhandle of Lancaster County.
- Challenging underpass using existing stream culverts to cross US Highway 521 may be costly.



### Central Corridor

Includes Trail Segments F, G, H, and I

#### F. Chester County Connector Greenway

Route profile:

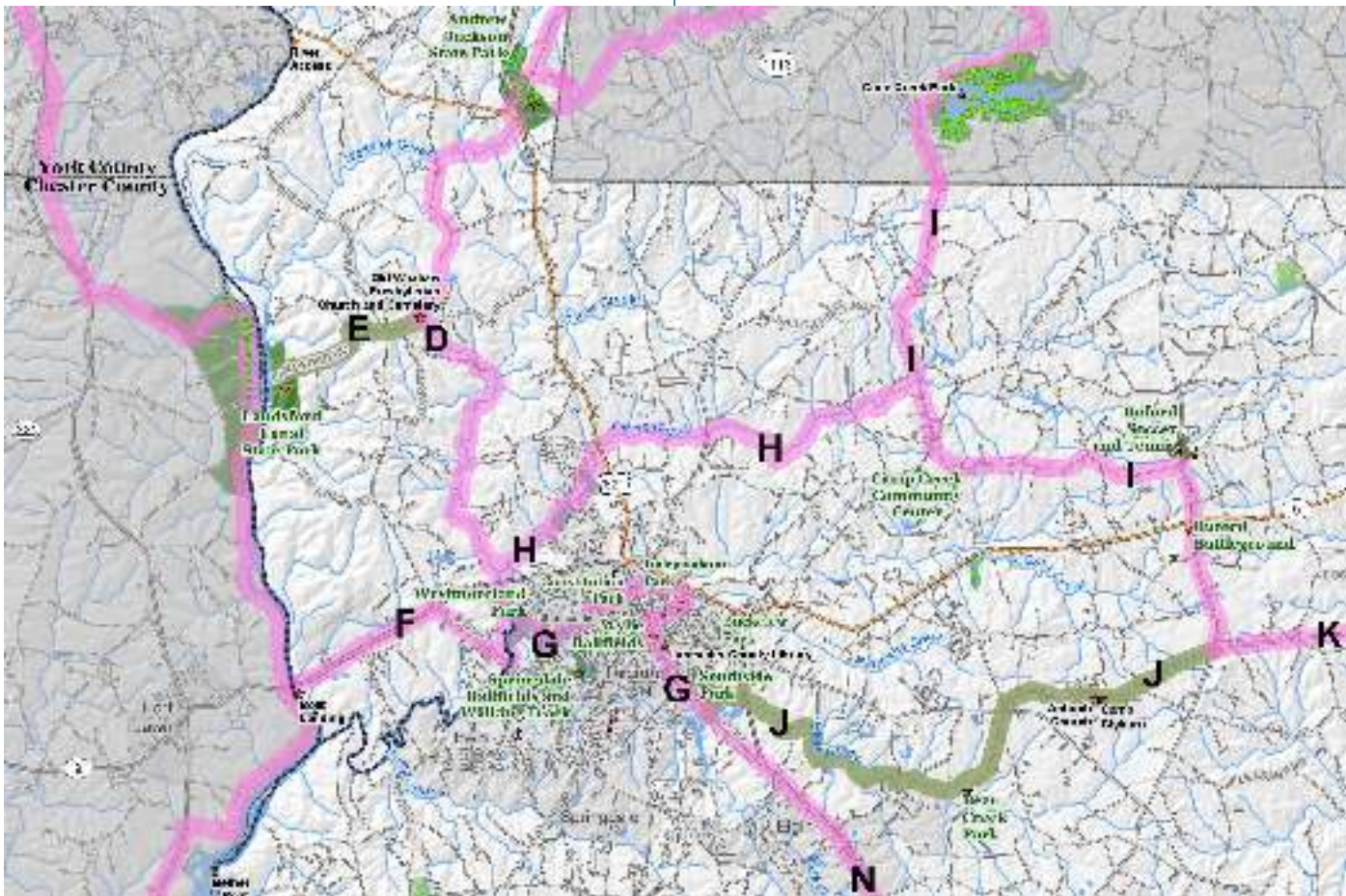
- 4.77 miles in length
- 0.85 miles along stream/river corridor
- 3.91 miles along existing road ROW

Access opportunities:

- Connects to Cane Creek Blueway.
- Connects to Carolina Thread Trail in Chester County, SC
- Provides connectivity to nearby manufacturing and industrial land uses

Population within 0.5 mile of segment:

- 604 residents
- 126 residents per greenway mile



Lancaster County Carolina Thread Trail - Central Corridor





Destinations within 0.5 mile of segment:

- Highway 9 Boat Landing

Challenges and opportunities:

- Provides connection to Cane Creek Blueway.
- Provides connection to the Carolina Thread Trail in Chester County, SC.
- A strategically planned trailhead can serve both this greenway trail segment and the Cane Creek Blueway.
- Providing a safe and enjoyable experience along Highway 9 may be challenging.

#### G. Lancaster Greenway

Route profile:

- 4.31 miles in length
- 3.66 miles along stream/river corridor
- 0.65 miles along existing road ROW

Access opportunities:

- Connects to downtown Lancaster via existing sidewalks
- Connects to North Elementary School and Lancaster High School

Population within 0.5 mile of segment:

- 5,521 residents
- 1,280 residents per greenway mile

Destinations within 0.5 mile of segment:

- Downtown Lancaster
- Lancaster County Library
- Lancaster High School
- North Elementary School

Challenges and opportunities:

- Much of the land necessary for the stream/river corridor portion of this segment is protected under a conservation easement.

- Sections of this greenway segment are highly visible and accessible.
- Greenway segment is located within close proximity to downtown Lancaster.
- Portions of this greenway segment will be located within flood plain.

#### H. Camp Creek Greenway

Route profile:

- 10.27 miles in length
- 10.27 miles along stream/river corridor

Access opportunities:

- Ties into four other Lancaster County Carolina Thread Trail segments

Population within 0.5 mile of segment:

- 2,826 residents
- 275 residents per greenway mile

Destinations within 0.5 mile of segment:

- None

Challenges and opportunities:

- Long contiguous stream-based trail provides great long hike/ride opportunities.
- Lack of destinations along greenway segment.
- Challenging underpass using existing stream culverts to cross beneath US Highway 521 may be costly.

#### I. Buford Greenway

Route profile:

- 11.19 miles in length
- 11.19 miles along existing road ROW

Access opportunities:

- Provides connection to the Carolina Thread Trail in Union County, NC





- Provides connection to Buford Elementary, Middle, and High Schools
- Provides connection to Buford Battleground
- Connects to Buford Recreation Center

Population within 0.5 mile of segment:

- 1,067 residents
- 95 residents per greenway mile

Destinations within 0.5 mile of segment:

- Buford Battleground
- Buford Elementary School
- Buford Middle School
- Buford High School
- Buford Recreation Center

Challenges and opportunities:

- Provides great connectivity for the Buford community.
- Provides important regional Carolina Thread Trail connection to Union County.
- Providing a safe and enjoyable experience along roadways may be challenging.



Lancaster County Carolina Thread Trail- East Corridor

## East Corridor

Includes Trail Segments K and L

### K. Taxahaw Greenway

Route profile:

- 6.92 miles in length
- 6.92 miles along existing road ROW

Access opportunities:

- Provides critical loop connection between two Lancaster County Carolina Thread Trail segments

Population within 0.5 mile of segment:

- 212 residents
- 30 residents per greenway mile

Destinations within 0.5 mile of segment:

- None

Challenges and opportunities:

- Lack of destinations along greenway segment could make phased development challenging.
- Providing a safe and enjoyable experience along roadway may be challenging.

### L. Kershaw Greenway

Route profile:

- 14.80 miles in length
- 6.49 miles along stream/river corridor
- 6.93 miles along existing road ROW
- 1.30 miles along abandoned rail line
- 0.08 mile along new overland trail

Access opportunities:

- Utilizes abandoned rail line
- Moves through downtown Kershaw
- Provides connectivity to Kershaw area parks
- Utilizes existing sidewalks



Population within 0.5 mile of segment:

- 2,706 residents
- 182 residents per greenway mile

Destinations within 0.5 mile of segment:

- Forty Acre Rock Heritage Preserve and Wildlife Management Area
- Downtown Kershaw
- Stevens Park

Challenges and opportunities:

- Utilizes existing trail to move through Forty Acre Rock Heritage Preserve and Wildlife Management Area.
- Provides potential connections to Chesterfield and Kershaw Counties via other connection opportunity trails.
- Moves through active mining area which may interfere with greenway trail development.



Lancaster County Carolina Thread Trail- South Corridor

## South Corridor

Includes Trail Segments N and O

### N. Heath Springs Greenway

Route profile:

- 10.90 miles in length
- 10.90 miles along existing road ROW

Access opportunities:

- Links downtown Lancaster with downtown Heath Springs

Population within 0.5 mile of segment:

- 4,148 residents
- 380 residents per greenway mile

Destinations within 0.5 mile of segment:

- Downtown Heath Springs
- Downtown Lancaster
- Heath Springs Elementary
- Heath Springs Industrial Park

Challenges and opportunities:

- Provides vital north-south connector between central and southern Lancaster County.
- A significant portion of this greenway segment parallels an active short line rail corridor.

### O. Hanging Rock Creek Greenway

Route profile:

- 8.84 miles in length
- 8.16 miles along stream/river corridor
- 0.68 miles along existing road ROW

Access opportunities:

- Moves through Hanging Rock Battleground
- Provides connection between downtown Heath Springs and downtown Kershaw



Population within 0.5 mile of segment:

- 550 residents
- 65 residents per greenway mile

Destinations within 0.5 mile of segment:

- Hanging Rock Battleground

Challenges and opportunities:

- Utilized existing trails through Hanging Rock Battleground.
- Moves along picturesque Hanging Rock Creek.

### 1. Cane Creek Blueway

Route profile:

- 7.70 miles in length
- 7.70 miles along stream/river

Access opportunities:

- Provides connection between downtown Lancaster and Catawba River
- Can share facilities, if developed, with Segment G, Lancaster Greenway.

Population within 0.5 mile of segment:

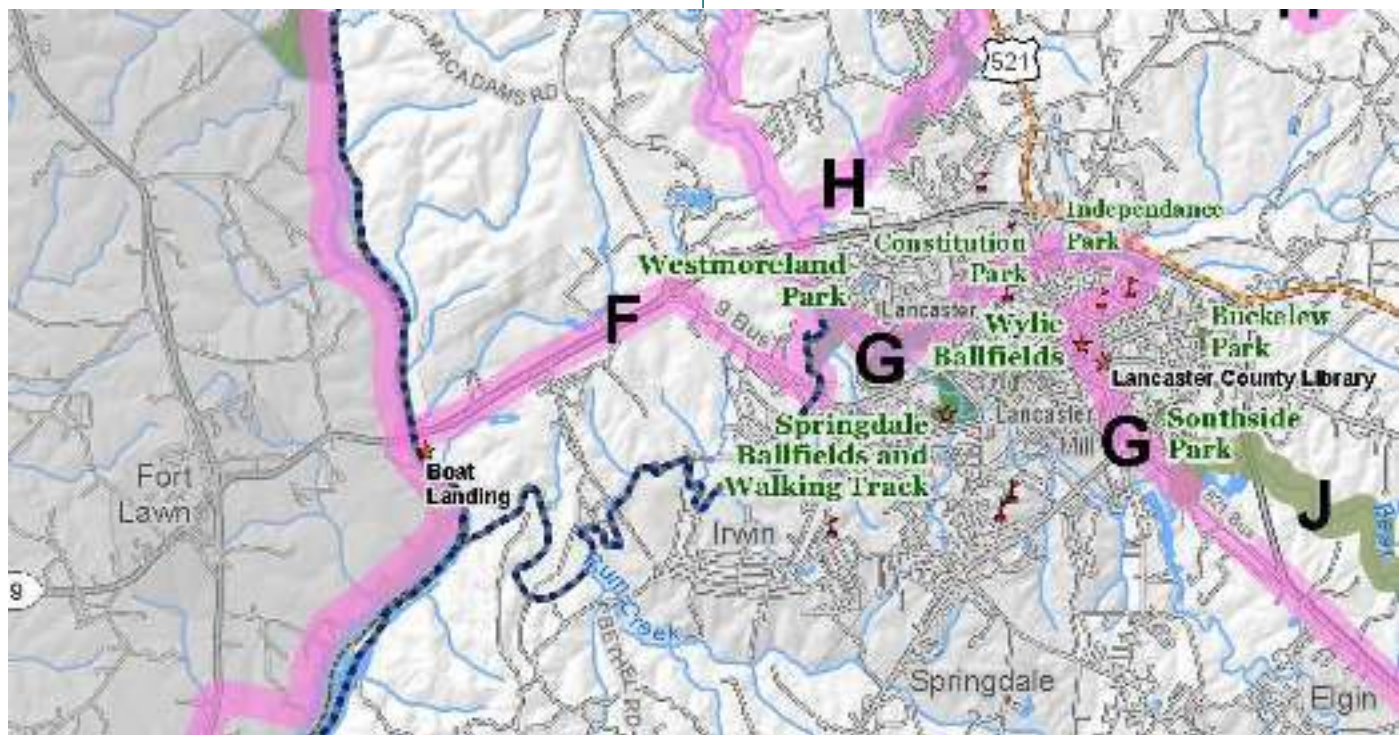
- 1,431 residents
- 185.5 residents per greenway mile

Destinations within 0.5 mile of segment:

- Downtown Lancaster
- Catawba River

## Blueways

Two blueways, or water based trails, were identified as part of the planning process.



Lancaster County Carolina Thread Trail- Cane Creek Blueway





Challenges and opportunities:

- Utilized existing paddle route on Cane Creek.
- Signage, access areas for parking and boat put-in/take out points are the only infrastructure needed.

2. Catawba River Blueway

Route profile:

- 26.60 miles in length
- 26.60 miles along stream/river

Access opportunities:

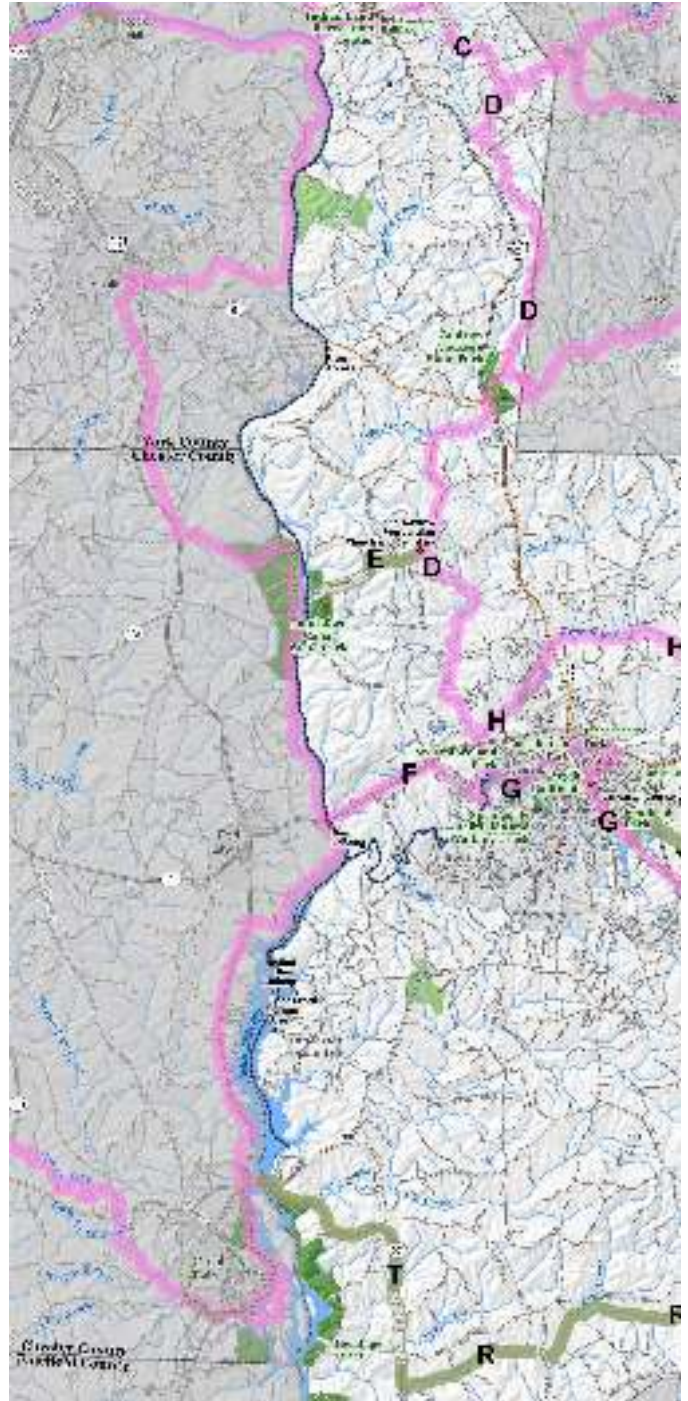
- Provides connection between downtown Lancaster and Catawba River
- Can share facilities, if developed, with Segment G, Lancaster Greenway.

Destinations within 0.5 mile of segment:

- Hanging Rock Battleground

Challenges and opportunities:

- Utilized existing paddle route on Catawba River.
- Signage, additional access areas for parking and boat put-in/take out points are the only infrastructure needed.

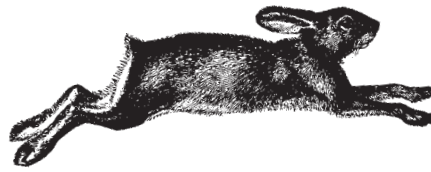


Lancaster County Carolina Thread Trail - Catawba River Blueway





*Mural in Downtown Lancaster, SC*



## CHAPTER 5. RECOMMENDED ACTIONS FOR IMPLEMENTATION

The completion of the Lancaster County Carolina Thread Trail Greenway Master Plan by the steering committee signifies the beginning of the implementation process of trails in Lancaster County. The process of trail development can be difficult at times and requires a strong commitment to continuing the process through to completion. The following goals detailed within this section simplify the trail development process and provide a step by step process for transforming a planned trail into a built trail.

### ADOPT MASTER PLAN

The next step in the trail development process is adoption of the master plan by Lancaster County, the city of Lancaster, and the towns of Heath Springs and Kershaw. Adoption of the greenway master plan may include revisions to the master plan based on comments from municipal entities and advisory groups. By adopting the final master plan, the county, city, and towns underscore their support for the development of trail segments within Lancaster County. Each municipal entity is encouraged to revisit existing zoning and land development ordinances to make revisions and additions to those ordinances to create trail supporting initiatives.



*Anvil Rock*

Floodplain development restrictions and regulations, land development regulations, zoning ordinance requirements, and open space dedication requirements should be revised or created for the protection of the county’s environmental resources and development of trails.

### Master Plan Adoption Checklist

- Incorporate revisions and additions to master plan upon completion of steering committee review and comment of draft master plan.
- Provide final draft master plan to municipal agencies for review and comment.
- Present the final Carolina Thread Trail Greenway Master Plan to municipal entities for master plan adoption.
- Develop amendments to floodplain, land use, zoning, and open space regulations.

### BUILD PUBLIC SUPPORT

The Lancaster County Carolina Thread Trail Greenway Master Plan is a product of the residents of Lancaster County. This plan was developed by a dedicated group of county residents who served on the steering committee. The location of the Carolina Thread Trail in the county was based primarily on feedback received from residents through the master plan process. This master plan should be championed forward by county residents. The second step of the trail development process involves continued public involvement and support for the Carolina Thread Trail in Lancaster County.

It is the recommendation of this master plan that Lancaster County create a Greenways and Trails Advisory Commission. This commission will provide input on all greenway issues, provide feedback on greenway related planning and acquisition decisions, build support for greenway implementation, and help coordinate the



construction and maintenance of trails. It is recommended that the commission provide municipal officials with an annual report detailing trail development efforts and progress. This group may host special events on completed segments of trails to showcase ongoing implementation efforts and engage county residents regarding future trail development plans.

This commission should be comprised of county residents, government officials, regional entities, local utility providers, and state transportation agencies. County residents, appointed by the county's municipal entities, should represent each county district and city/town. This will ensure that each area of Lancaster County is equally represented on the advisory commission. Each of the county's municipal entities should appoint one advisory commission member to serve as a liaison to their respective council. Representation from regional planning and tourism organizations will provide a broader perspective and share Lancaster County's plans beyond the county boundaries. Representatives from local utility providers will help reduce conflicts between trails and utilities during trail planning and construction. Representation from roadway and rail transportation agencies can stay informed of current and future trail development plans, renovate or construct appropriate infrastructure for trail facilities, and assist in eliminating trail conflicts within rights-of-way.

It is important that the Greenways and Trails Advisory Commission communicate with other county boards and commissions, in particular the Lancaster County Health and Wellness Commission, the Joint Recreation Commission, and the Transportation Commission. Coordination between these boards and commissions will ensure planning efforts are not duplicated, and that county, state, and federal funds are being utilized as efficiently and effectively as possible.

Partnerships with recreation providers and organizations involved with land preservation can be beneficial in the development of trails. Both groups share common goals with trail supporters. Relationships with such organizations enable municipal entities to offset trail land acquisition, development, and maintenance costs by combining available funds. Expertise offered by recreation and conservation partners can provide valuable insight for trail construction, trailhead development, and land or easement acquisition.

#### Public Support Checklist

- Create the Lancaster County Greenways and Trail Advisory Commission
- Appoint resident representatives to advisory commission
- Identify municipal, regional, state, and utility representatives for advisory commission
- Develop method for communication between county boards and commissions
- Develop partnerships for trail development.



Trails at Hanging Rock





## PLAN AND DEVELOP PRIORITY SEGMENTS

It is unrealistic to expect Lancaster County to develop all 110 miles of Carolina Thread Trail within a short period of time. A phased implementation plan for land acquisition, design, construction, and maintenance of trails is necessary. Initial greenway development efforts should focus on Carolina Thread Trail priority greenway segments. The following criteria have been developed to identify the priority trail segments within Lancaster County.

### Public Support

It is important that the residents of Lancaster County embrace the initial Carolina Thread Trail facilities. Input received from residents through the draft master plan review forums and online survey should be utilized. Trail segments which garnered a high response through the public involvement process should be included on the initial trail prioritization list. Input from the Greenways and Trails Advisory Commission (once established) will also be valuable in identifying priority trail segments which county residents will support.

### Availability of Land/Right-of-Way

A crucial step in the trail development process is the acquisition of land for trail construction. The ownership and availability of lands along Carolina Thread Trail segments must be identified. It is important to begin to acquire land and/or easements for trail development along all trail segments, but most importantly along priority segments. Carolina Thread Trail corridors where land is currently owned, under conservation easement, or within trail friendly easements should be considered priority segments.

### Functional Connection

The most popular, well-used, and effective trails link two or more destinations and have distinct termination points. Priority trail segments in Lancaster County must provide connections between multiple destinations (parks, schools, neighborhoods, commercial areas, etc.). Responses from the community engagement sessions, draft master plan review forums, and online surveys illustrate which destinations within the county are considered most important. Trail sections that provide access to the most popular and/or multiple destinations should be considered priority trail segments.

### Population Served

Trails benefit communities as recreation resources and transportation amenities. These benefits increase exponentially when trails are located within populated areas. The connections created by trails in populated and easily accessible areas provide Lancaster County residents with alternatives for commuting to work, attending events, running errands, exercising, or visiting friends. Carolina Thread Trail segments located within populated areas should be considered priority segments.

### Partnership Potential

Trails developed through partnerships positively benefit two or more parties and allow each to extend their funds by sharing the costs of the development. The state, county, local municipalities, non-profit organizations, local businesses, and individual land owners are all potential partners in the development of the Carolina Thread Trail. Partnerships can include shared construction costs, land or labor swaps, or other financial considerations. Carolina Thread Trail segments within Lancaster County that may





be developed through partnerships should be considered priority segments.

**Funding Availability**

No trail project can be developed and completed without first identifying the appropriate resources to fund the project. Potential funding sources for each of Lancaster County’s Carolina Thread Trail trail segments should be identified. SCDOT should be contacted and funding allocated for planned trails along state roads and highways during new construction and existing roadway improvement projects. Partnerships between two or more entities may be necessary or preferred for trail development. Priority segments of the Carolina Thread Trail in the county should have available funding for the development, completion, and maintenance of the project.

**Plan and Develop Priority Trails Checklist**

- Identify the three to five most popular trail segments per input gathered through the Carolina Thread Trail master planning process
- Determine which Carolina Thread Trail trail segments are along property under public or non-profit ownership
- Identify the three to five trail segments located within more heavily populated areas
- Identify the three to five trail segments that connect the most popular county destinations per input gathered through the Carolina Thread Trail master planning process
- Identify and develop partnerships with organizations who share the vision of and interest in development of the Carolina Thread Trail in Lancaster County
- Determine the availability for funding Carolina Thread Trail trail development in Lancaster County

**Priority Trail Segments**

The following Lancaster County Carolina Thread Trail segments have been identified as regional priority, priority, and secondary trail segments as recommended by the steering committee. These trail segments, presented in no particular order, represent the Carolina Thread Trail segments that meet the selection criteria developed and presented within this master plan.

**Regional Priority Trail Segments:**

- Segment A: Mecklenburg County/York County Connector Greenway
- Segment B: Mecklenburg County Connector Greenway

**Priority Trail Segments:**

- Segment D: Lancaster Panhandle Greenway
- Segment G and Cane Creek Blueway: Lancaster Greenway
- Segment L: Kershaw Greenway
- Segment O: Hanging Rock Creek Greenway

**Secondary Trail Segments:**

- Segment C: Indian Land Greenway
- Segment F: Chester County Connector Greenway
- Segment H: Camp Creek Greenway
- Segment I: Buford Greenway
- Segment K: Taxahaw Greenway
- Segment N: Heath Springs Greenway



## IDENTIFY FUNDING AND FINANCING

The completion of the Lancaster County Carolina Thread Trail Greenway Master Plan signals the end of the first step in trail development and the beginning of the crucial second step: funding and financing. Lancaster County must begin to identify funding sources for land acquisition, design, construction, and maintenance of the Carolina Thread Trail. Many government entities are unable to fully fund the development of every mile of trail within a network using in-house funds. It is recommended that the county develop a multi-tiered approach for funding trail development using a variety of financing options. The following summarizes several trail funding opportunities.

### **Public Funding**

There are several options available to assist Lancaster County in funding the development of the Carolina Thread Trail using public funding.

#### Federal Funding Options:

Federal funding programs for trail development are typically provided through two methods. The first federal funding method involves federal appropriations of funds to specific state agencies. These state agencies are charged with distributing, managing, and overseeing the expenditure of the funds. The second federal funding method provides local or county agencies direct funding for trail development. Congressional earmarks have been used in the past to fund certain trail projects, but recent scrutiny of this practice may limit or cease such funding. Specific federal funding programs that may be used for trail development are provided in Appendix 5.

#### State Funding Options:

Most state funding available to counties within South Carolina for trail development are managed through SCDOT and the South Carolina Parks, Recreation, and Tourism Department. Most state appropriated funding is limited to specific types of projects and requires matching funds of varying percentages of the grant request. Lancaster County will need to carefully review all state grant programs and plan appropriately for providing matching funds when required. Specific state funding programs that may be used for trail development is provided in Appendix 5.

#### Local Funding Options:

Traditionally local governments, like Lancaster County and the municipalities located within the county, have utilized three sources for funding trail development.

Discretionary annual spending, called the General Fund in Lancaster County, refers to spending that must be agreed upon on an annual basis. Trail development funds would need to be appropriated within the county's annual budget to a specific department's annual operating budget and would range in value annually.

Dedicated funding of trail development would require the county to identify permanent funding sources specifically for trail development or for capital improvements, which could include trail development.

Debt financing refers to the government agency borrowing funds for the development of trail facilities through loans or bonds. Such funding sources require repayment of funds over a specified period of time.

The sources used to fund trail development in the county will be tied to the county's budgetary resources, taxing capacity, political will, and voter preference. Lancaster County and the



municipalities located within the county have shown an interest and dedication to trail development with their support of the Lancaster County Carolina Thread Trail Greenway Master Plan.

### Private Funding

Trail development in Lancaster County may be funded by private sources that support the Carolina Thread Trail, understand the benefits of trails, and understand the need for additional transportation and recreation facilities. Private funding sources may include individual donors, non-profit organizations, foundations, philanthropic organizations, and businesses. The Catawba Lands Conservancy, which oversees Carolina Thread Trail operations, is leading efforts to gather private funds for trail development grants. These grants may be used by communities to fund the planning, land acquisition, design, and construction of trails.

It is recommended that Lancaster County and the county's Greenways and Trails Advisory Commission (once established) develop additional fund raising programs. Funds gathered through donations of personalized bricks to be displayed at greenway trailheads or within prominent trail plazas can fund portions of trail construction. "Buy a Foot" programs allow local businesses and citizens to provide private funding for the construction of trail facilities. Adopt-a-trail programs can be used to help maintain trails through volunteer labor.

The most effective method for funding the Carolina Thread Trail and other local trails within Lancaster County will involve a combination of public and private funding sources. Specific funding sources and programs that may be used for trail development are provided in Appendix 5.

### Funding and Finance Checklist

- Identify federal funding opportunities for trail development and determine which sources to pursue.
- Identify state funding opportunities for trail development and determine which sources to pursue.
- Identify local funding opportunities for trail development and determine which sources to pursue.
- Identify private funding opportunities for trail development and determine which sources to pursue.
- Develop programs to encourage private local funding for trail development.
- Allocate funds for matching grants which Lancaster County plans to pursue for trail development.

### EVALUATE LAND ACQUISITION OPTIONS

The acquisition of land for trail development is an important and necessary step of the trail development process. Land acquisition provides the land resources necessary for development of trails, protects sensitive environmental and natural resources, and preserves historic and cultural treasures. Lancaster County should utilize a variety of land acquisition methods for the protection and preservation of land for trail development.

#### Purchase

Lancaster County may choose to acquire land by fee-simple purchase. Such acquisitions are common for government entities and ensure control over the level of development and protection of the land. Land that could serve a dual purpose by accommodating both trail development and other public facilities or services would be ideal. This scenario justifies the purchase of the land by using public funds more effectively. Organizations, such as land trusts, can assist government entities in the purchase of land for





less than market value by offering tax deductions to the selling landowner.

### Donations

Landowners may wish to donate their property to a local government or land trust. Donations of land may occur if the landowner has no more use for the property, no heirs are present to receive the land, or tax and estate deductions are sought by the landowner. Landowners may prefer to donate an easement on the property. Such easements allow for certain agreed upon uses of the property, but the landowner retains ownership of the property.

### Zoning and Development Regulations

Government entities across the United States have developed restrictions and regulations along major rivers, streams, and creeks. These regulations have been developed to protect water quality, limit development activity within close proximity to streams, and preserve habitats along water courses. River, stream, and creek regulations often require buffers of varying widths to be located on either side of a water course. Uses within the buffers are often restricted to passive recreation, public boating and utility uses, and in some cases, preservation, conservation, or agriculture. Other zoning and development regulations that have proven helpful in the acquisition of land include setbacks along streams, floodplain development restrictions, and required dedication of open space.

### Developer Contributions

Government entities have the option to require, request, and/or incentivize developers to contribute land, build trail facilities, or both as part of their development project. Most government entities create a GIS database of the final

adopted Carolina Thread Trail routes for reference. Future developments located along segments of the adopted trail would be asked or required to incorporate the Carolina Thread Trail into their design plans. A review of the incorporation of the trail segments into design plans should be conducted during the development plan review process. Most developers are open to accommodating regional trails within their developments for two reasons: most people view trails as a wonderful community amenity and most developers can place a premium on lots or housing units located within close proximity to the trail.

### Rail Corridors

Typically abandoned rail corridors make great locations for trail development. The gradual slopes and narrow, cleared nature of rail corridors reduce clearing and construction costs for trails. Lancaster County should work with underlying landowners and SCDOT to determine the current status of county rail corridors. Owners and operators of active railroads are traditionally unwilling to allow trail development within rail rights-of-way due to safety concerns. Lancaster County is home to a locally owned and operated short line railroad that may be willing to work with the county in the development of the Carolina Thread Trail. It is recommended that the county contact the rail owners to discuss trail development alongside or across any active rail corridors.

### **Land Acquisition Options Checklist**

- Identify land for fee simple purchase that may house multiple county or municipal facilities.
- Discuss property and/or easement donations with local landowners along Carolina Thread Trail segments.
- Develop regulations for the protection of natural resources and allowance for passive recreation uses along rivers, streams, and creeks.



Work with developers to incorporate trails in developments along the adopted Carolina Thread Trail segments in Lancaster County.

Understand the current status of abandoned rail lines with SCDOT.

Discuss trail development along and across active rail corridors with owners/operators.

#### DESIGN, CONSTRUCT, AND MAINTAIN TRAILS

As Lancaster County, municipalities within the county, and their partners select segments of the Carolina Thread Trail and acquire necessary land and/or easements for the trail, the design and construction of the trail can begin. The county and its trail partners will need to determine the desired use or uses for the trail. The trail width and trail tread material will be determined by the desired uses, existing site conditions, cost of construction, and required level of maintenance.

Trails within floodplains or those located in heavy use areas may need to be paved with asphalt or concrete. Both surfaces are more costly to construct, but will reduce maintenance costs after floods and under heavy foot traffic. Boardwalks may be necessary within environmentally sensitive areas to reduce the impact of the trail. Natural surface, mulch, or stone trails may be best suited for historically significant sites where site impacts should be minimized. Public input received during the Lancaster County Carolina Thread Trail Greenway Master Plan process revealed that county residents preferred to use trails for walking, hiking, and cycling.

The costs to develop and maintain trails will vary depending on trail tread material, existing site conditions, culverts, bridges, and additional safety measures. Budget estimates for trail construction may be developed during the design phase of a trail. The actual costs of trails may not be known until competitive bids for trail construction are opened. Trail tread

materials vary in construction and maintenance costs. Typically, trail tread materials with higher construction costs, like asphalt and concrete, have lower maintenance costs. The topography of a site, the presence of floodplains, required creek crossings, and the amount of existing vegetation are typical existing site conditions that may affect trail development costs.

Trail planning should include those maintaining and securing the trail. It is financially irresponsible to build a trail that is impossible or too costly to maintain. Lancaster County must identify the entity(ies) that will be responsible for the trail maintenance during the initial phase of trail design.

Lancaster County should also include emergency service personnel during the trail planning process. These personnel will assist in developing safe trails that utilize principles of Crime Prevention through Environmental Design (CPTED). These principles allow trail planners to develop safe facilities that are inviting and reduce perceived criminal activity. Designing open visible spaces along trails improves visibility and encourages natural surveillance. Clear and accessible entrances to the trail, like trailheads, provide access control by defining spaces and creating designated points of entry or exit. Proper maintenance and community programs held along trails show that the trail is cared for, creating a sense of ownership. Regular patrols along trails provide a safe trail environment. Signage, kiosks, trail brochures, and informational programs can reinforce tips on staying safe and enjoying the trail.

#### Design, Construction, and Maintenance Checklist

- Determine the preferred use or uses for the trail.
- Design trail to accommodate preferred uses, respond to existing site conditions, and create an enjoyable trail environment.
- Include maintenance and security entities in the planning of the trail.
- Develop a maintenance and operations plan for trail upkeep.



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## CHAPTER 6. CONCLUSION

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The Lancaster County Carolina Thread Trail Greenway Master Plan represents a citizen led collaborative planning process for the provision of trails throughout Lancaster County. Now that the master planning process is complete, it is the responsibility of the citizens of Lancaster County,

the towns of Heath Springs and Kershaw, and the city of Lancaster to transform this plan from lines on a map to trails on the ground. The Carolina Thread Trail will provide important connections through the county, linking residents to the places that make the county unique.



*Trail at Forty Acre Rock Heritage Preserve and Wildlife Management Area*





*Abandoned Rail Right-of-Way*





## APPENDIX I: CAROLINA THREAD TRAIL COMMUNITY ENGAGEMENT SESSIONS SUMMARY

Public involvement is an important aspect of any public planning effort. Five community engagement sessions were held in various locations around Lancaster County. Each session was designed to educate residents on the benefits of trails, introduce county residents to the greenway master planning process, and identify the types of uses residents prefer trails to accommodate.

Participants were also asked to identify their five top destinations within Lancaster County. Destinations are defined as the places that people want to be able to access using trails. Schools, parks, natural resources, cultural amenities, and downtown areas are some examples of destinations. The input received from the community engagement sessions was used to directly influence the locations of potential Carolina Thread Trail routes within Lancaster County.

A total of 98 Lancaster County residents participated in the community engagement sessions. The location and attendance for each session is included below:

### Lancaster

Lancaster City Hall  
216 S. Catawba Avenue  
Tuesday, September 14, 2010  
5:00 pm to 7:00 pm  
Attendance: 17

### Indian Land

Del Webb Library at Indian Land  
7651 Charlotte Highway  
Thursday, September 16, 2010  
5:00 pm to 7:00 pm  
Attendance: 19

### Kershaw

Kershaw Town Hall  
113 S. Hampton Street  
Monday, September 20, 2010  
5:00 pm to 7:00 pm  
Attendance: 36

### Heath Springs

Heath Springs Town Hall  
103 Duncan Street  
Tuesday, September 21, 2010  
5:00 pm to 7:00 pm  
Attendance: 20

### Buford

Buford Recreation Center  
4073 Hurley Walters Road  
Thursday, September 23, 2010  
5:00 pm to 7:00 pm  
Attendance: 6



Community engagement session participants were asked to answer questions while referring to large maps of Lancaster County. One of those questions asked participants to select their top five places in Lancaster County that should be connected by trails. The top five responses, including ties, for that question from each of the five meetings and the combined totals are below.

**Lancaster Meeting**

1. University of South Carolina at Lancaster
2. Andrew Jackson State Park
3. Landsford Canal State Park
4. Catawba River
4. Cane Creek Greenway
4. Hanging Rock Battlefield
5. Downtown Lancaster
5. Old Waxhaw Presbyterian Church and Cemetery
5. Lancaster County schools/libraries

**Indian Land Meeting**

1. Andrew Jackson State Park
2. Catawba River
3. Landsford Canal State Park
4. Cane Creek Greenway
5. Indian Land Recreation Center

**Kershaw Meeting**

1. Forty Acre Rock Heritage Preserve
2. Kershaw Area Parks
3. Downtown Kershaw
3. Hanging Rock Battlefield
4. Landsford Canal State Park
5. Andrew Jackson State Park

**Heath Springs Meeting**

1. Hanging Rock Battlefield
2. Forty Acre Rock Heritage Preserve
3. Downtown Heath Springs
4. Andrew Jackson State Park
4. Landsford Canal State Park
5. Old Waxhaw Presbyterian Church and Cemetery

**Buford Meeting**

1. Buford Recreation Center
2. Downtown Lancaster
2. Forty Acre Rock Heritage Preserve
2. Buford Battleground
3. Springdale Recreation Center
3. Buford Area Parks
3. Cane Creek Park (Union Co.)





Overall Results	Totals
1. Forty Acre Rock Heritage Preserve	49
2. Hanging Rock Battlefield	42
2. Landsford Canal State Park	42
3. Andrew Jackson State Park	41
4. Kershaw Area Parks	33
5. Catawba River	29
6. Downtown Kershaw	25
7. Cane Creek Greenway	20
7. University of South Carolina at Lancaster	20
8. Downtown Heath Springs	15
9. Old Waxhaw Presbyterian Church and Cemetery	13
9. Lancaster County schools/libraries	13
10. Downtown Lancaster	12

In addition to the above questions, meeting participants were asked to fill out a survey. The survey included questions regarding current trail related activities, opinions of the importance of trails, the importance of trail benefits, factors that discourage trail use, and several demographic questions. The paragraphs below summarize the survey results from each of the five community engagement sessions.

**Lancaster Meeting:**

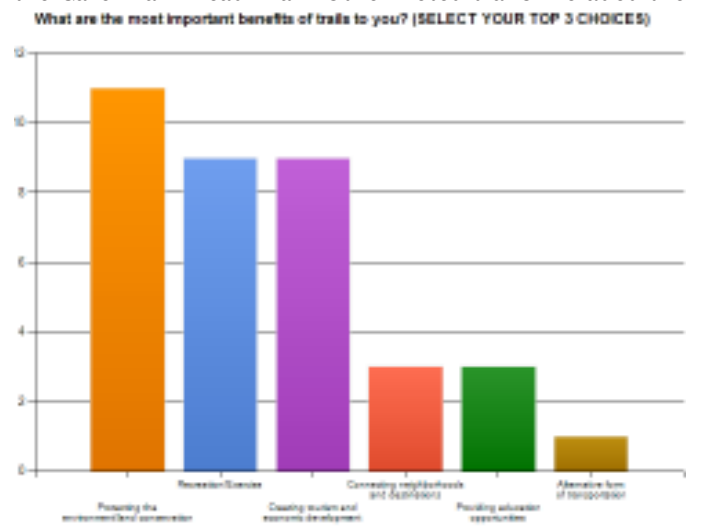
Two-thirds of participants who attended the Community Engagement Session held in Lancaster agreed that trails in Lancaster County are very important. Half of the participants indicated that they currently use trails on a monthly basis

and indicated that they would use trails more often if they were more easily accessible.

Walking was the highest ranked trail related activity that participants currently engage in, followed by hiking (distance) and running/jogging. Participants provided input in the same order when asked what activity they would like to be able to participate in on county trails. Kayaking was included as a write-in response.

It is important to understand how county residents view trails, both positively and negatively. Participants were asked to rank the most important benefits provided by trails. Protecting the environment/land conservation ranked first, followed closely by recreation/exercise, and creating tourism and economic development. Participants were then asked to list the biggest factors that discourage trail use. Lack of accessible facilities ranked the highest, followed by unsafe road crossings, and lack of off road trails.

Participants were asked to list trails they have visited and enjoyed. Responses included some local trails like Anne Springs Close Greenway and various segments of the Carolina Thread Trail. Other noted trails included the





Appalachian Trail, the Virginia Creeper Trail, the West Ashley Greenway in Charleston, SC, and the Cottonwood Trail in Spartanburg, SC. The trails indicated above range in width from four feet wide to 10 feet wide. Trail tread materials vary from natural surface to paved asphalt trails.

The final survey items asked participants to share any additional comments or concerns they have regarding the Carolina Thread Trail. The comments were overwhelmingly positive, stating that the Carolina Thread Trail is “important to our community” and trails are “important to tie into heritage tourism for the county.” One participant noted that trails should be easily accessible from urban centers, similarly to the trails developed in Charlotte.

#### Indian Land Meeting:

Over three-quarters (83%) of participants who attended the Community Engagement Session held in Lancaster agreed that trails in Lancaster County are very important. Half of the participants indicated that they currently visit parks or natural areas to use trails on a monthly basis, while a one-third of the participants use trails on a weekly basis. Over half (53%) of the participants indicated that they would use trails on a weekly basis if they were more easily accessible, while the remainder of participants (47%) indicated they would use more easily accessible trails on a monthly basis.

Two-thirds of the session participants indicated that walking is the trail related activity that they engage in on a regular basis, followed closely by hiking (distance). When asked which activity they would most like to participate in on trails in the future, participants again indicated that walking and hiking (distance) were most preferred, but responses for bicycling jumped considerably when compared to the previous question and response. Kayaking was included as a write-in response.

Recreation/exercise topped the list for the most important benefits provided by trails, followed by protecting the environment/land conservation, and creating tourism and economic development. The biggest factors listed that discourage trail use were lack of accessible facilities, lack of information about local trails, and lack of off-road trails which tied for the most responses.

Participants listed Riverwalk, McMullen Creek Greenway, Four Mile Creek Greenway, Anne Springs Close Greenway, and the trails at Landsford Canal State Park as local trails participants currently enjoy. Trails that participants have visited outside of the Lancaster County region include the New England National Scenic Trail, trails at Crowder’s Mountain, and trails within Pisgah National Forest. The trails indicated above range in width from four feet wide to 10 feet wide. Trail tread materials vary from natural surface to paved asphalt trails.

The majority of additional comments were positive in nature, stating that safe, dedicated trails will make the area even more desirable for residents. Several participants preferred trails to be as natural as possible, limiting paved trails to a minimum. One participant commented that they would like to see trails connect to places that have restrooms and those that either serve food or provide picnic facilities. Two participants noted that increased access to the Catawba River would be greatly appreciated for recreation on the land and on the water.

#### Kershaw Meeting:

Over half (61%) of participants at the Community Engagement Session in Kershaw felt that trails are very important in Lancaster County. Forty-six percent of participants currently use trails on a monthly basis compared to 39 percent who use trails less often (on a



yearly basis). When asked how often they would use trails if they were more easily accessible, 54 percent of participants indicated they would use trails weekly. This illustrates a desire for more easily accessible trails among participants.

When asked what trail related activities they currently participate in regularly, over two-thirds (84%) of participants indicated they walk on a regular basis, followed by hiking (distance) and bicycling. Participants indicated they would participate in the same three trail related activities in the future if trails were made more easily accessible.

Like in Indian land, recreation/exercise was the most important trail benefit to participants, followed by protecting the environment/land conservation. The biggest factors that discourage trail use included lack of off-road trails ranking the highest, followed by unsafe road crossings, lack of information about local trails, and lack of nearby destinations.

Trails that participants have visited and enjoyed include Anne Springs Close Greenway, trails at Landsford Canal

State Park, and trails at Forty Acre Rock. Other trails listed include the Virginia Creeper Trail in Virginia and the Three Kings Trail in Vermont.

Additional comments are supportive of the development of trails in Lancaster County, noting that the trails should be positive for the county and should get a lot of use. One participant noted that the trail should move through downtown Kershaw and through nearby Stevens Park. One participant commented that their biggest safety concern is being separated from vehicular traffic.

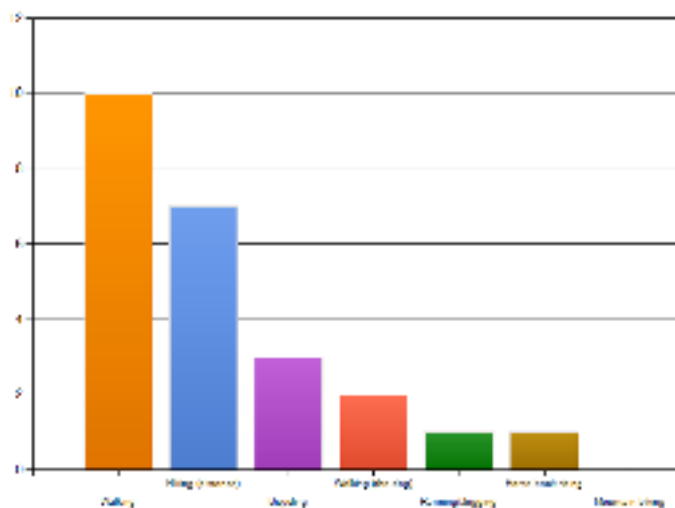
Heath Springs Meeting:

Every participant at the Community Engagement Session in Heath Springs felt that trails in Lancaster County are important (44%) or very important (56%). Most participants (62%) indicated that they visit parks or natural areas to use trails on a yearly basis. When asked how often they would use trails if they were more easily accessible, Forty-six percent of participants indicated they would use trails on a monthly basis compared to only 12 percent who currently use trails as often. Thirty-three percent of participants indicated they would use trails on a weekly basis if made more easily accessible. Currently, only 6 percent of participants use trails in parks and natural areas on a weekly basis.

The majority of participants (64%) currently walk on a regular basis, followed by 21 percent who run/jog. When asked what activity they would like to participate in on future trails, the majority again selected walking (43%) followed by horseback riding (18%), running/jogging, walking the dog, and bicycling (12% each).

Once again, recreation/exercise was seen as the most important trail benefit, followed by education opportunities and protecting the environment/land conservation. The biggest factors that discourage trail use were lack of

What activity would you most often like to participate in on trails and greenways?







information about local trails ranking the highest with personal safety concerns and lack of accessible facilities following close behind.

The trails at Andrew Jackson State Park, Hanging Rock Battleground, and Forty Acre Rock were noted as trails participants have visited and enjoyed. One participant indicated that they use the existing sidewalks in Heath Springs.

All recorded comments were positive and in favor of trail development in Lancaster County. One participant noted that the history in and around Heath Springs should be included along the Carolina Thread Trail route.

#### Buford Meeting:

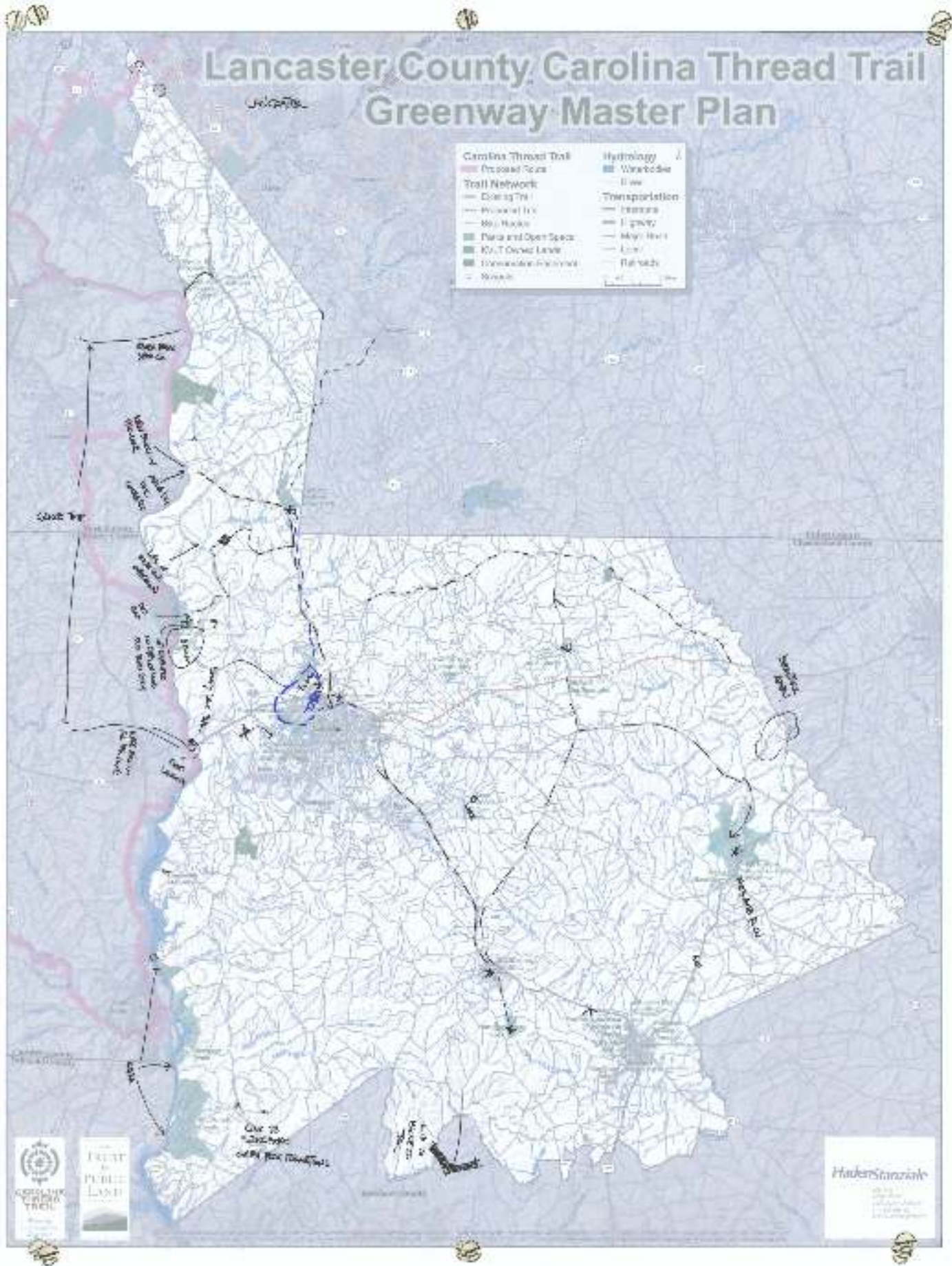
Participants at the Community Engagement Session in Buford also agreed that the need for trails in Lancaster County is an important issue. Survey results from the engagement session indicated that all participants currently consider themselves monthly users of trails within parks and natural areas. Results indicated that participants would continue to use trails on a monthly basis if trails were made more easily accessible.

Walking and walking the dog were tied for the two most popular trail related activities that participants currently engage in on a regular basis. When asked which activities they would most likely participate in on future trails in Lancaster County, participants indicated that walking and hiking (distance) were their preferences.

Recreation/exercise and creating tourism and economic development were the highest ranked choices for the most important benefits provided by trails, followed by protecting the environment/land conservation. Participants ranked lack of interest highest, followed by lack of information about trails, high traffic volumes, and lack of time as the biggest factors that discourage trail use.

The only additional comment or concern provided by participants was their hope that the use of eminent domain would not be used to acquire land for trail projects.





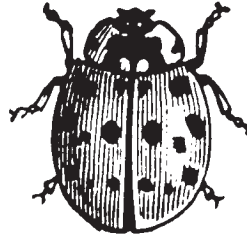
Potential Trail Routes from Lancaster Open House Meeting





*Forty Acre Rock Heritage Preserve and Wildlife Management Area*





## APPENDIX 2: ONLINE SURVEY SUMMARY - FALL 2010

An online survey was created to accommodate and include residents that could not attend any of the community engagement sessions. It is important to the master plan process to gather as much information as possible from residents of Lancaster County about their vision of the Carolina Thread Trail. The survey included questions regarding current trail related activities, opinions of the importance of trails, the importance of trail benefits, factors that discourage trail use, and several demographic questions. A total of 163 Lancaster County residents completed the online survey. The input received from this online survey was used to directly influence the locations of potential Carolina Thread Trail routes within Lancaster County. The survey results are summarized below.

Participants were asked to rank the importance of trails in Lancaster County. Almost three-quarters (72%) feel that county trails are very important, while 25 percent believe trails are important, and only 3 percent feel that trails are not important. Participants were asked how often they currently use trails in parks and natural areas. Forty-three percent of participants indicated that they use trails on a monthly basis, 34 percent say they use trails on a yearly basis, 17 percent indicated that they use trails on a weekly basis, and 6 percent never use trails. Next, participants were asked to indicate how often they would use trails if they were more easily accessible. Over half (58%) stated that they would use more easily accessible trails weekly, 34 percent indicated they would use trails monthly, followed by 6 percent who would use trails yearly, and 2% who would not use more easily accessible trails.

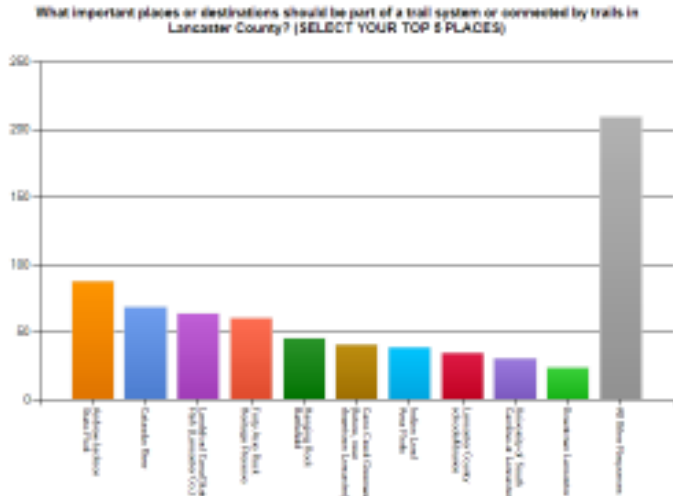
Participants were asked to indicate which trail related activities they currently participate in on a regular basis. Forty-seven percent of participants selected walking as the trail related activity they currently participate in

regularly. Walking the dog ranked second with 18 percent, followed by distance hiking (10%), and bicycling (7%). Next, participants were asked to indicate which trail related activities they would like to participate in on future trails. Forty percent of participants indicated they would like to use Lancaster County trails for walking, followed by walking the dog (16%), distance hiking (16%), and bicycling (14%). Several participants wrote in responses that were not provided on the survey. Write in activities included historic site observation, canoeing, and kayaking.

It is important to understand how county residents view trails, both positively and negatively. Participants were asked to rank the most important benefits provided by trails. Recreation/exercise was the highest ranked choice, followed by protecting the environment/land conservation, and providing educational opportunities. Participants were then asked to list the biggest factors that discourage trail use. Lack of information about local trails was the highest ranked response, followed by personal safety concerns, lack of nearby destinations, and lack of accessible facilities.

Online survey participants were asked to rank the top five places or destinations within Lancaster County they would like connected with trails. Andrew Jackson State Park ranked the highest with 88 responses, followed by the Catawba River (69 responses), Landsford Canal State Park (64 responses), Forty Acre Rock Heritage Preserve (61 responses), and Hanging Rock Battlefield (46 responses).

Participants were asked to list trails they have visited and enjoyed. The responses varied between trails located within Lancaster County, trails located within the region, and trails located in other parts of North Carolina and beyond. Lancaster County trails noted include the trails at Andrew Jackson State Park and Forty Acre Rock Heritage Preserve. Regional trails listed include Anne Springs Close



Greenway, trails at Cane Creek Park, trails at Landsford Canal State Park, Riverwalk, Little Sugar Creek Greenway, McAlpine Creek Greenway, McMullen Creek Greenway, and Six Mile Greenway. Participants listed the Appalachian Trail, trails at Linville Falls, trails in Smoky Mountain National Park, the Virginia Creeper Trail, the Pacific Crest Trail, and the Cayce Riverwalk in Columbia, SC as trails outside of the region that they have visited and enjoyed. The trails indicated above range in width from four feet wide to 10 feet wide. Trail tread materials vary from natural surface to paved asphalt trails.

Online survey participants were asked to indicate where they live within Lancaster County. Twenty-nine percent of participants live in the Indian Land area, followed by Lancaster County (23%), the city of Lancaster (15%), Buford (10%), and Kershaw (9%).

The final survey items asked participants to share any additional comments or concerns they have regarding the Carolina Thread Trail in Lancaster County. An overwhelming majority of comments were positive and in favor of the development of trails within the county. Participants see

trails as an extension of recreation facilities in Lancaster County, understand the potential economic benefits trails can bring to the county, and possess the need for safe, off-road trails for various recreation activities. Below are a few comments provided by online survey participants:

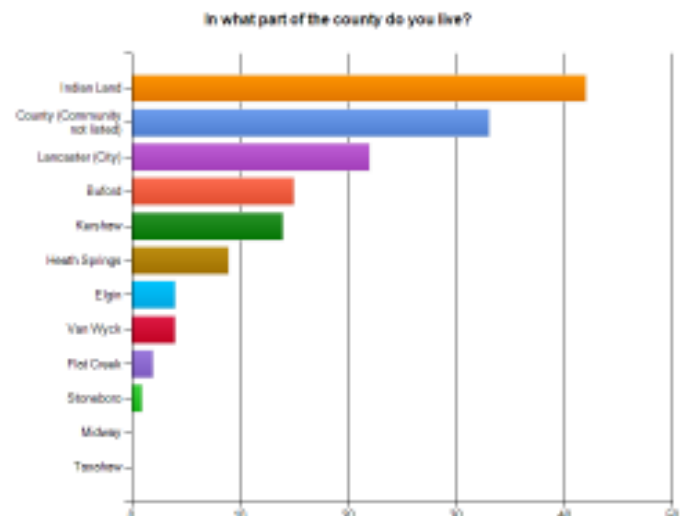
“Walking is (the) healthiest form of exercise. I would love more choices as to where to walk.”

“This is a wonderful thing for Lancaster County! We would love to have a great trail nearby.”

“I think combining trails with York County and North Carolina trails in the future promotes healthy activities for people to enjoy nature and planned routes without traveling far from home.”

“I quite frequently visit the greenway in North Carolina and would love to have something closer to me that I can enjoy as well. Thanks for making this happen.”

Several participants commented that it is currently very difficult to find information about existing trails in Lancaster County and the region as a whole.





## APPENDIX 3: DRAFT MASTER PLAN REVIEW FORUMS SUMMARY

The locations of potential Carolina Thread Trail routes throughout Lancaster County were generated directly from the input received from county residents during the community engagement sessions and online survey in the fall of 2010. A series of trail routes was identified by the steering committee based on resident feedback. Each potential trail route was researched to ensure accuracy and adjusted if field conditions were not easily adaptable or probable costs were too great for trail construction.

A Draft Lancaster County Carolina Thread Trail Master Plan map was created. The draft master plan consisted of 184.5 miles of potential Carolina Thread Trail routes and 40.9 miles of blueway routes within Lancaster County. Three draft master plan review forums were held in various locations around Lancaster County. Each public meeting was designed to share feedback gathered through the community engagement sessions and online survey, review the steps used by the steering committee to identify and verify potential trail routes, and review each of the potential trail routes with county residents.

A total of 22 Lancaster County residents participated in the draft master plan review forums. The location and attendance for each session is included below:

### **Heath Springs/Kershaw**

Andrew Jackson High School  
6925 Kershaw-Camden Highway  
Kershaw, SC 29067  
Monday, April 4, 2011  
6:00 to 7:30pm  
Attendance: 8

### **Lancaster**

Lancaster County Library  
313 South White Street  
Lancaster, SC 29720  
Tuesday, April 5, 2011  
6:00 to 7:30pm  
Attendance: 9

### **Indian Land**

Indian Land Recreation Center  
8286 Charlotte Highway  
Indian Land, SC 29707  
Monday, April 11, 2011  
6:00 to 7:30pm  
Attendance: 5

Review forum participants were also asked to fill out a new survey. Survey items included questions regarding participants' top five preferred Carolina Thread Trail segments, anticipated uses on future Lancaster County trails, and several demographic questions. The paragraphs below summarize the survey results from each of the three draft master plan review forums.

### Heath Springs/Kershaw Meeting

The primary focus of the Draft Master Plan Review Forum in Heath Springs/Kershaw was to review the potential Carolina Thread Trail segments in Lancaster County and gather preferences for the trail. Participants were asked to identify the five trail segments they felt were the most important. Segment D, connecting Union County near Marvin through Andrew Jackson State Park, Old Waxhaw Presbyterian Church and Cemetery to the city of Lancaster, was the





highest ranked trail segment. The second highest ranked segment was Segment O (Heath Springs to Kershaw through Hanging Rock Battlefield), followed by Segment C (Indian Land area), Segment G (downtown Lancaster), Segment L (Forty Acre Rock Heritage Preserve to downtown Kershaw), and Segment N (downtown Lancaster to downtown Heath Springs).

Lancaster Meeting

The trail segment preferences in Lancaster were slightly rearranged, with Segment O, connecting downtown Heath Springs to downtown Kershaw through Hanging Rock Battlefield, as the highest ranked trail segment. The second ranked trail segment was Segment D (Union County, Andrew Jackson State Park, Old Waxhaw Presbyterian Church and Cemetery, and city of Lancaster), followed by Segment L (Forty Acre Rock Heritage Preserve to downtown Kershaw),

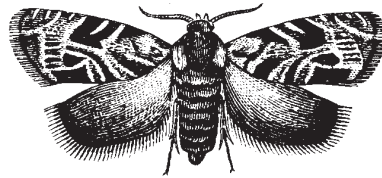
Segment G (downtown Lancaster), Segment H (along Camp Creek north of Lancaster), Segment I (Union County to Buford and Buford Battlefield), Segment N (downtown Lancaster to downtown Heath Springs), Segment P (rail trail south of Kershaw to Kershaw County line), Segment R (Stoneboro area), and Blueway Segment 1 (Cane Creek from Lancaster to Catawba River).

Indian Land Meeting

Segment D, connecting Union County near Marvin through Andrew Jackson State Park, Old Waxhaw Presbyterian Church and Cemetery to the city of Lancaster, was the highest ranked trail segment. The second highest ranked trail segment was Segment A (connecting trails in Mecklenburg County and York County), Segment C (Indian Land area), Segment E (spur connection to Landsford Canal State Park land in Lancaster County), and Segment L (Forty Acre Rock Heritage Preserve to downtown Kershaw).



Downtown Lancaster



## APPENDIX 4: ONLINE SURVEY SUMMARY-SPRING 2011

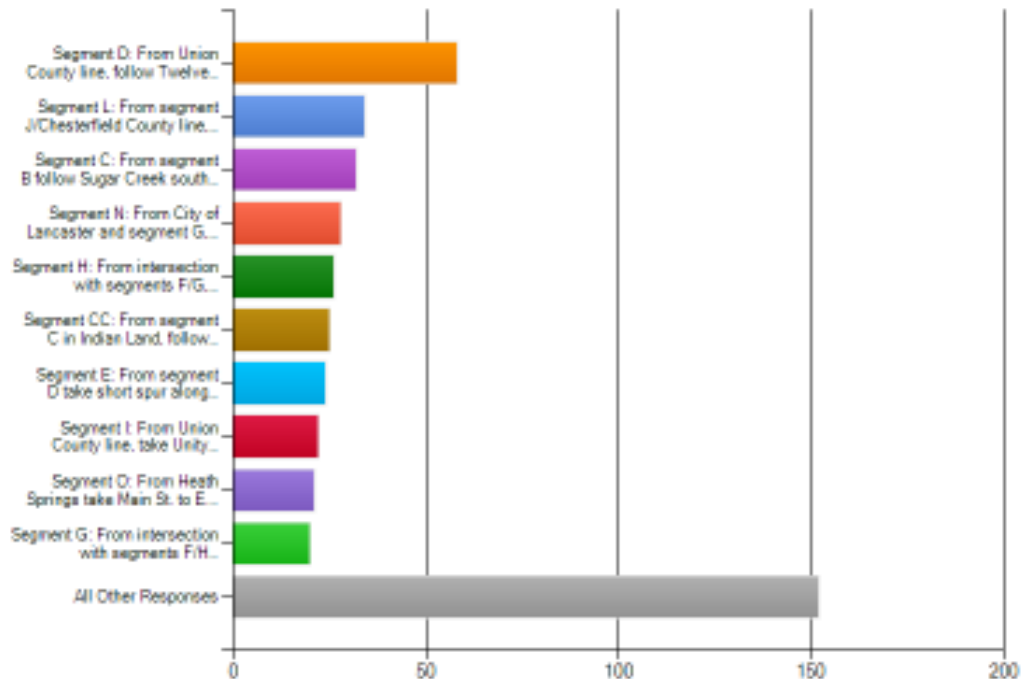
A second online survey was created in an effort to gather as much information as possible from residents of Lancaster County about their preferred routes for the Carolina Thread Trail. The survey included questions regarding participants' top five preferred Carolina Thread Trail segments, anticipated uses on future Lancaster County trails, and several demographic questions. A total of 100 Lancaster County residents completed the online survey. The input received from this online survey was used to identify the final Carolina Thread Trail routes within Lancaster County. The survey results are summarized below.

Segment D, connecting Union County near Marvin through Andrew Jackson State Park, Old Waxhaw

Presbyterian Church and Cemetery to the city of Lancaster, was the highest ranked trail segment. Online survey participants selected Segment L (Forty Acre Rock Heritage Preserve to downtown Kershaw), Segment C (Indian Land area), Segment N (downtown Lancaster to downtown Heath Springs), Segment H (along Camp Creek north of Lancaster), and Segment E (spur connection to Landsford Canal State Park land in Lancaster County).

Online survey participants were asked to indicate where within Lancaster County they live. Indian Land had the highest participation with 20 percent of total participants, followed by the city of Lancaster (18%), Lancaster County (18%), Kershaw (13%), and Buford (11%).

The Carolina Thread Trail is intended to be the primary routes for the greenway trail system in Lancaster County. Which of the following segments are the most important segments to you for the Carolina Thread Trail. (SELECT YOUR TOP FIVE (5) SEGMENTS)







*Nature Trail at University of South Carolina Lancaster*





## APPENDIX 5: ALTERNATIVE FUNDING SOURCES

### FEDERAL FUNDING SOURCES

#### Transportation Enhancement Program

Since 1992, the SCDOT Commission has elected to allocate a portion of available funds to the Transportation Enhancement Program. The program facilitates and provides a greater opportunity for local governments to collaborate with the agency to pursue a broad range of non-traditional transportation related activities such as bicycle and pedestrian facilities, streetscaping, scenic and landscaping programs, and historic preservation. Transportation Enhancement Funds are funded under the current Federal Transportation Legislation SAFETEA-LU (Formerly Transportation Equity Act for the 21st Century also known as TEA 21 and previously known as ISTEA) and allocated by the South Carolina Department of Transportation.

In 2008, the SCDOT Commission established categories to focus its federal enhancement dollars on projects that accomplish one or more of the following:

- Bicycle and Pedestrian Facilities (including new construction and modification to existing trails)
- Preservation of Abandoned Rail Corridors (including land acquisition and trail development)

More information can be found at:

[www.scdot.org/community/tep.shtml](http://www.scdot.org/community/tep.shtml)  
Transportation Enhancement Office:  
P.O. Box 191  
955 Park Street, Room 424  
Columbia, SC 29201-0191  
Tel: 803/737-1952

#### Safe Routes to School

In 2005, Congress provided funding for each state to have a Safe Routes to School (SRTS) Program. SRTS enables and encourages children, including those with disabilities, to safely walk and bicycle to and from school. SCDOT's Safe Routes to School Program assists schools and communities in the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools while promoting a healthy lifestyle for children and their parents.

SRTS is a reimbursement program of 100% federal funds with no matching required. Schools are eligible to receive up to \$200,000 for funding Safe Routes to Schools projects and programs. These funds are divided into either infrastructure or non-infrastructure programs. Any school with grades K-8, school district, municipality, or other government entity may apply. The timeframe for the next SRTS funding cycle has not been established as SRTS is pending federal reauthorization at this time.

More information can be found at:

[www.scdot.org/community/saferoutes.shtml](http://www.scdot.org/community/saferoutes.shtml)  
SC Department of Transportation  
Safe Routes to School Program  
P.O. Box 191  
955 Park Street, Suite 327  
Columbia, SC 29201-0191  
Tel: 803/737-4073



## STATE FUNDING SOURCES

### South Carolina Department of Parks, Recreation & Tourism

The following grants are administered through the South Carolina Department of Parks, Recreation & Tourism:

#### **Recreational Trails Program**

The Recreational Trails Program (RTP) is a Federal-aid assistance program designed to help States provide and maintain recreational trails for both motorized and non-motorized recreational trail use.

- Grant Cycle – Annually, (applications solicited in December and the deadline is in March)
- Administered by the Federal Highway Administration
- Trail type: Off-Road motorcycles, ATV's, mountain bikes, equestrians or hikers are eligible
- Eligibility: Qualified private organizations, municipal, county, State or Federal government agencies are eligible
- All Applications graded utilizing Open Project Selection Process (OPSP) reviewed by a grading team
- Required Match: This is an 80-20-match program
- Min./Max. grant request: \$10,000/\$100,000

More information can be found at:

[www.scprrt.com/our-partners/grants/trails.aspx](http://www.scprrt.com/our-partners/grants/trails.aspx)  
SC Department of Parks, Recreation & Tourism  
1205 Pendleton St. Room 225  
Columbia, SC 29201  
Tel: 803/734-1042

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

LWCF is a federally funded reimbursable grant that can be used for acquisition or development of land for public outdoor recreational use purposes.

- Grant Cycle: Two year (next asking November 2011 for a Spring 2012 cycle)
- Grant Use: Land acquisition or facility development for public outdoor recreation
- Applications graded utilizing Open Project Selection Process (OPSP) reviewed by a grading team
- Required Match: This is a 50-50 match program

More information can be found at:

[www.scprrt.com/our-partners/grants/lwcf.aspx](http://www.scprrt.com/our-partners/grants/lwcf.aspx)  
SC Department of Parks, Recreation & Tourism  
1205 Pendleton St. Room 225  
Columbia, SC 29201  
Tel: 803/734-1042

#### **Park & Recreation Development Fund (PARF)**

The PARF grant program is a state funded non-competitive reimbursable grant program for eligible local government or special purposes district entities within each county which provide recreational opportunities.

- Grant Cycle: Monthly (application Deadline is the 10th of each month)
- Non-competitive program available to eligible local governmental entities within each county area for development of new public recreation facilities or enhancement/renovations to existing facilities
- Projects need endorsement of majority weighted vote factor of County Legislative Delegation Members



- Required Match: This is an 80-20 match program
- Eligible entities notified of new allocation amounts each July

More information can be found at:  
[www.scprrt.com/our-partners/grants/pard.aspx](http://www.scprrt.com/our-partners/grants/pard.aspx)  
SC Department of Parks, Recreation & Tourism  
1205 Pendleton St. Room 225  
Columbia, SC 29201  
803/734-1042  
Email: [recreationgrants@scprtr.com](mailto:recreationgrants@scprtr.com)

## LOCAL FUNDING OPTIONS

### Hospitality Tax Grant Program

The city of Lancaster utilizes tax funds from the Hospitality Tax Grant Program for projects that develop and promote tourism within the city. These funds come from a two percent (2%) local hospitality fee tax upon the gross proceeds derived from the sale of all prepared foods and beverages served within the city of Lancaster by any establishment. Municipalities across the country use hospitality funds to help develop recreational facilities, including trails.

### Bond Referendums

A bond referendum can be placed on a county or municipal ballot to finance land acquisition and site development costs for trails. Bonds come in many forms such as revenue bonds, general obligation bonds, and special assessment bonds. Since voters must approve bonds, it is critical to educate the public on the mission and intent of the bond in order to gain support and approval.

### Impact Fees

Impact fees are one-time charges levied by a local government on new development. Unlike dedication fees that might be required through the development process, one time impact fees can be applied to finance nearby public services such as parks, recreation facilities, and trails made necessary by the introduction of new residents in an area.

### Payment in Lieu of Fees

Where land dedication does not occur through the development process, a municipality can require a payment in lieu of dedication. These fees can be applied to finance acquisition of land or development of nearby trails. Text adding payment in lieu of fees needs to be incorporated into a zoning ordinance before it can be implemented.

### Foundations and Friends Groups

Foundations and/or Friends Groups serve a useful purpose as these support groups fill a void that cannot be filled by government entities. Due to the nature of government, many potential donors who may be supportive of trails are more likely to donate to a non-governmental entity rather than the government itself. Therefore, interested citizens often recognize this void and organize themselves as either a Friends Group or a Foundation. Some Friends Groups or Foundations will even seek a 501(c)3 status allowing for further grant opportunities. Examples of successful trails Friends Groups can be viewed at:

- Kings Mountain Gateway Trails, Inc.: [www.kmgatewaytrails.org/](http://www.kmgatewaytrails.org/)
- Little Tennessee River Greenway: [www.littletennessee.org/](http://www.littletennessee.org/)
- Mecklenburg County, NC: [www.partnersforparks.org/](http://www.partnersforparks.org/)
- Friends of the High Line: [www.thehighline.org/](http://www.thehighline.org/)





### Sponsorships

“Adopt-A” Series: Lancaster County or one of the municipalities can promote trails while generating interest by developing a local Adopt-A-Stream, Adopt-A-Greenway, Adopt-A-Blueway or Adopt-A-Trail program that identifies the organization for providing walk through clean up, litter removal and environmental awareness programs, two to four times a year. This helps offset maintenance costs in municipal budgets. Organizations are recognized with markers or signs.

## PRIVATE FUNDING SOURCES

### American Hiking Society National Trails Fund

The American Hiking Society National Trails Fund, created in 1998, is the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America.

The National Trails Fund grants (ranging from \$500 - \$5,000) help give local organizations (must be registered as a 501(c)3) the resources they need to secure access, volunteers, tools, and materials to protect America’s cherished hiking trails.

More information can be found at:

[www.americanhiking.org/our-work/national-trails-fund/](http://www.americanhiking.org/our-work/national-trails-fund/)

American Hiking Society

1422 Fenwick Lane

Silver Spring, MD 20910

Tel: 800/972-8608

Fax: 301/565-6714

Email: [info@AmericanHiking.org](mailto:info@AmericanHiking.org)

### Bikes Belong

The Bikes Belong Coalition was formed in 1999 as the national coalition of bicycle retailers and suppliers working to put more people on bikes more often. Bikes Belong provides funding from helping create safe places to ride to promoting bicycling. They carefully select projects and partnerships that have the capacity to make a difference. Grant applications are accepted on-line, 3 times per year (February, August, October) for up to \$10,000 to assist local organizations in bicycle facility and policy development.

More information can be found at:

[www.bikesbelong.org](http://www.bikesbelong.org)

Bikes Belong Coalition

Boulder CO

Tel: 303/449-4893

### Carolina Thread Trail

Carolina Thread Trail offers implementation grants for segments of the Carolina Thread Trail on system-wide Carolina Thread Trail master plans that have been adopted.

There are three types of implementation grants:

- Corridor Design Grants: up to \$20,000 towards identification of trail alignment(s) on a specific parcel(s) along the Carolina Thread Trail. (Annual Cycle – April deadline for a September award)
- Land Acquisition Grants: up to \$150,000 towards land or easement acquisition for trail segments and open space for viewsheds, riparian buffers, wildlife habitats or recreation along the trail segments of the Carolina Thread Trail. (Annual Cycle – April deadline for a September award)
- Construction Grants (Type 1): up to \$150,000 towards completion of construction design and building of trail



segments of the Carolina Thread Trail. (Annual Cycle – April deadline for a September award)

- Construction Grants (Type 2): up to \$60,000 towards completion of construction design and building of natural surface trail segments of the Carolina Thread Trail. (Quarterly Cycle – January, March, July, October)

More information can be found at:

[www.carolinathreadtrail.org/resources/funding-sources/](http://www.carolinathreadtrail.org/resources/funding-sources/)

Carolina Thread Trail  
105 W. Morehead Street  
Charlotte, NC 28202  
Tel: 704/376.2556  
Fax: 704/342.3340

#### Conservation Alliance

The Conservation Alliance is a group of outdoor businesses that supports efforts to protect specific wild lands and waterways for their habitat and recreation values. Applicants (must be registered as a 501(c)3) must be nominated by a member of the Alliance. There are two funding cycles annually in the summer and winter with a maximum grant request of \$35,000.

More information can be found at:

[www.conservationalliance.com/grants](http://www.conservationalliance.com/grants)

The Conservation Alliance  
PO Box 1275  
Bend, OR 97709  
Tel: 541/389-2424  
Email: [info@conservationalliance.com](mailto:info@conservationalliance.com)

#### Kodak American Greenways Awards Program

Eastman Kodak Company, The Conservation Fund and the National Geographic Society team up each year to present the Kodak American Greenways Awards Program. One major element of the Program involves “seed” grant awards to organizations (of those registered as a 501(c)3 get preference) that are growing the nation’s network of greenways, blueways, trails and natural areas that demonstrate the convergence of economic prosperity and the environment.

Eligible projects can include elements such as greenway, blueway or trail mapping, ecological assessments, surveying, conferences, and design; developing brochures, interpretative displays, audio-visual productions or public opinion surveys; building a foot bridge, signage or other physical improvement or addition to a greenway, blueway; planning a bike path; and many other creative projects. In general, grants can be used for any appropriate expense needed to complete, expand or improve a greenway including planning, technical assistance, legal and other costs. Grant applications are accepted on-line, annually in June for up to \$2,500.

More information can be found at:

[www.conservationfund.org/kodak\\_awards](http://www.conservationfund.org/kodak_awards)

The Conservation Fund National Office

1655 N. Fort Myer Drive, Suite 1300  
Arlington VA 22209-3199

Tel: 703/525-6300

Fax: 703/525-4610

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



*Anvil Rock*





## APPENDIX 6: DESIGN GUIDELINES

The following design guidelines have been established to assist municipalities and other stakeholders in constructing trails and amenities that will provide safe and sustainable trail corridors for Lancaster County. These guidelines allow trail construction and character to be developed uniformly throughout the county regardless of which entities are constructing trail segments. The design guidelines are to be used as a toolkit with the understanding that actual site conditions may dictate adjustments in final trail design. These design guidelines have been organized into the following categories: types of greenways/trails, trail environments, accessible trail design, blueway (paddle) trails, trail structures, trail amenities, and trail character in Lancaster County.





## TYPES OF GREENWAYS/TRAILS

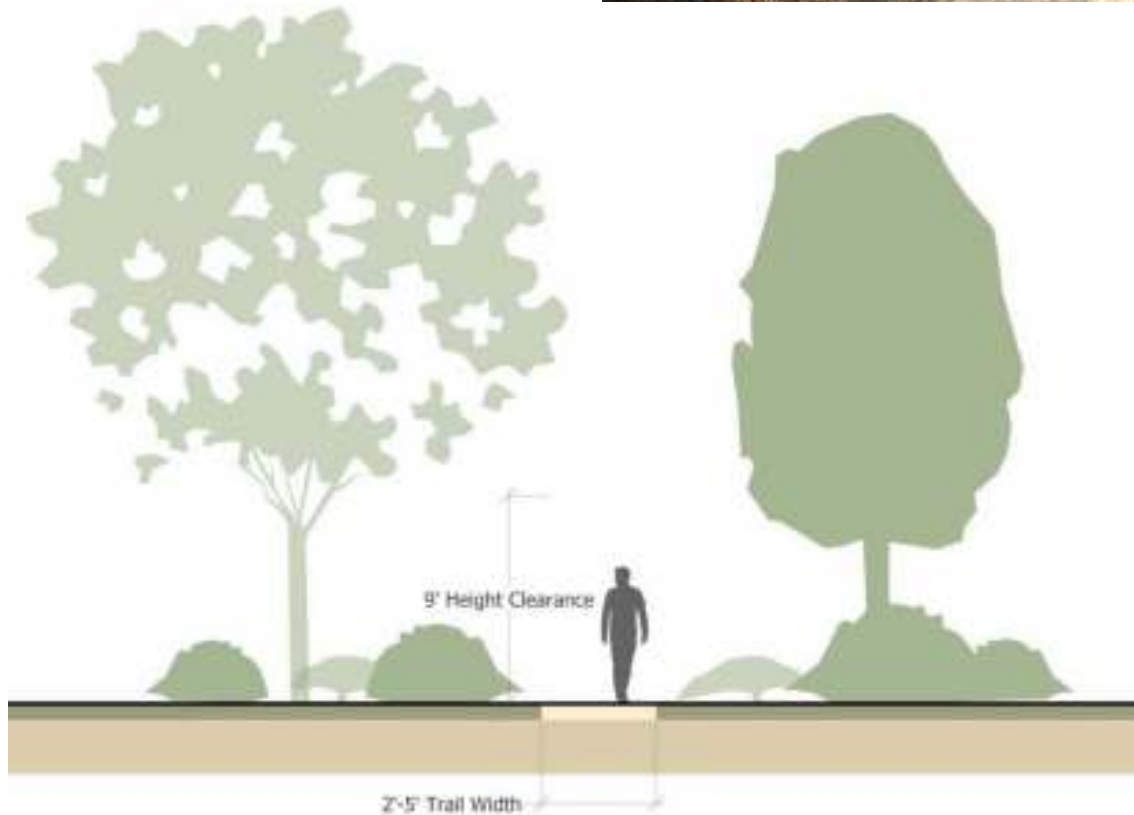
Greenways can mean many different trail facility types. The trail types that may be constructed in Lancaster County may include natural surface trails, paved or unpaved multi-use trails, sidewalks, bike lanes, shared roadways, sidepaths, equestrian trails, or multi-use trails with equestrian use.



### Natural Surface Trails

Most users will associate natural surface trails with hiking trails often found in natural park settings. These types of trails typically serve hikers more so than cyclists. Minimal site preparation or construction is needed. Recommended guidelines include:

- Maintain a trail width of two to five feet
- Maintain a vertical clearance of at least nine feet
- Trail surface is typically native materials such as dirt, rock, soil, forest litter, or mulch
- Be mindful of grade change; trail should follow contours to avoid steeper slopes
- Route trail around trees and other site features wherever possible
- Provide positive drainage for trail surface, but minimize extensive removal of existing vegetation or adjacent surfaces



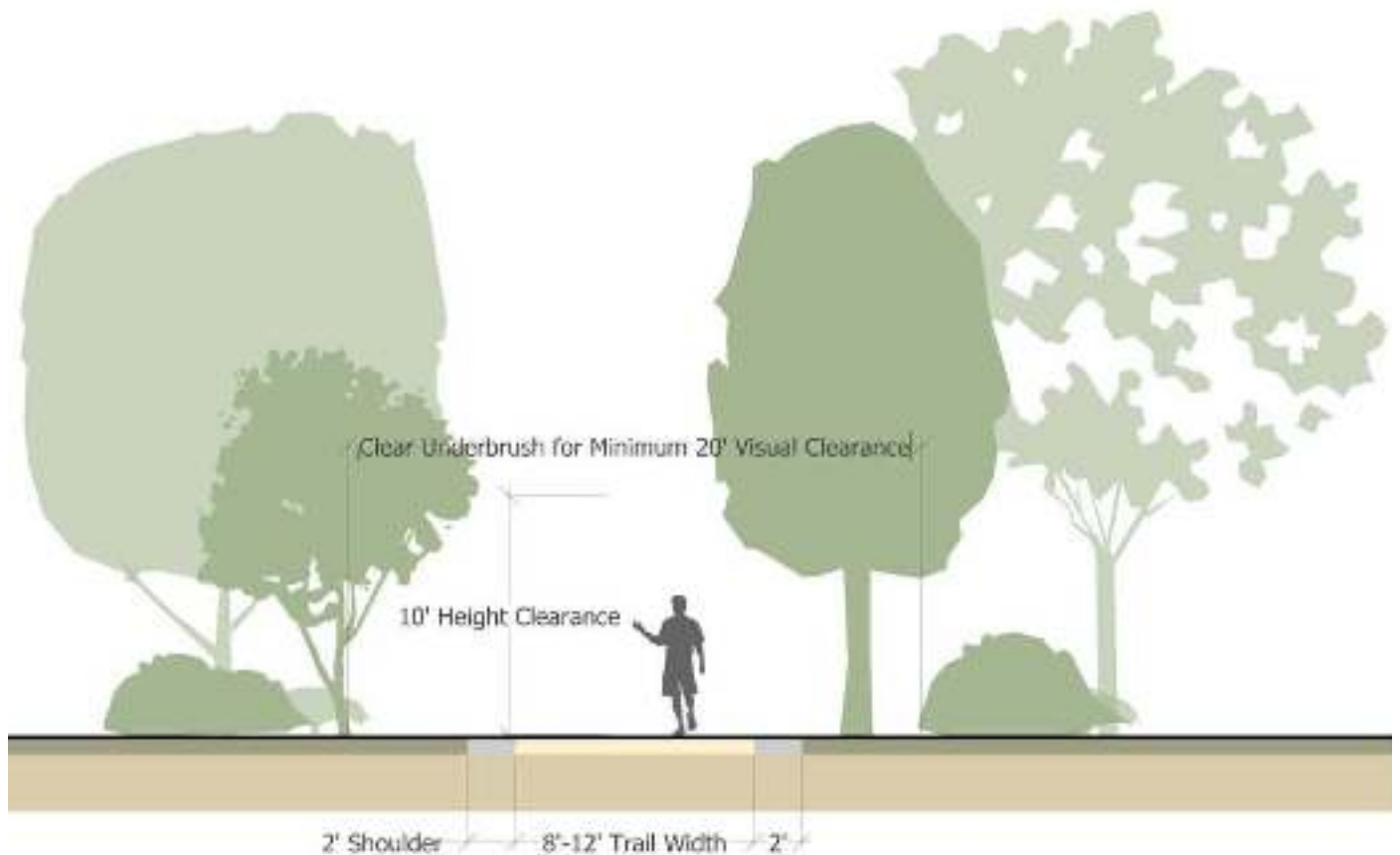




### Multi-Use Trails – Paved

Multi-use trails are the most common type of greenways (or greenbelts) within municipal park systems and trail networks. These trails can be used by hikers, walkers, joggers, cyclists, users in wheelchairs, and parents with strollers accommodating all levels and abilities of users. Recommended guidelines include:

- Maintain a paved trail width of eight to 12 feet; 10 feet is the most common
- Maintain a vertical clearance of at least 10 feet
- Provide a two foot graded (gravel) shoulder on each side of the trail
- Use asphalt or concrete pavement
- Consider pervious pavement in less clay-like soils
- Provide an aggregate base course (ABC) under the asphalt
- Consider using geotextile fabric under the ABC in softer soil conditions
- Specify concrete for use in highly floodprone areas
- Provide centerline stripes; may be needed on trails with high volumes of users and around curves



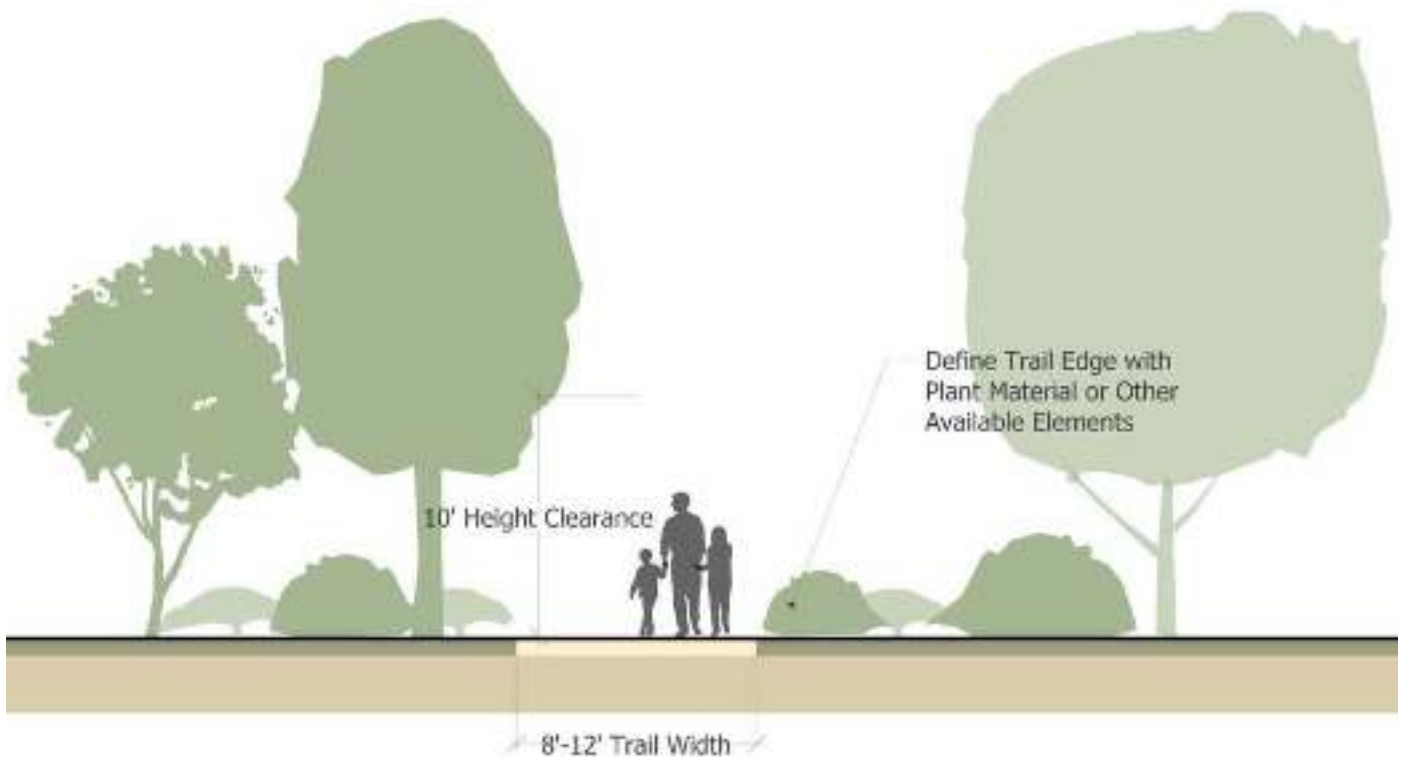




### Multi-Use Trails – Unpaved

Unpaved multi-use trails are often found in upland areas. With proper compaction, these trails can also be used by hikers, walkers, cyclists, users in wheelchairs, and parents with strollers accommodating all levels and abilities of users. Unpaved trails are often less expensive to construct, but can cost more to maintain depending on trail location, soil compaction, topography, and weather patterns. Joggers, runners, and some cyclists prefer unpaved trails. Recommended guidelines include:

- Maintain a paved trail width of eight to 12 feet; 10 feet is the most common
- Maintain a vertical clearance of at least 10 feet
- Soft surface trail materials may include graded aggregate stone (crusher run, decomposed granite, soil cement )
- Provide an aggregate base course (ABC) under the surface course
- Consider using geotextile fabric under the ABC in softer soil conditions
- Consider providing edging along both sides of the trail to maintain trail surface materials
- Monitor trail surfacing after rain events to minimize ruts and drainage channels

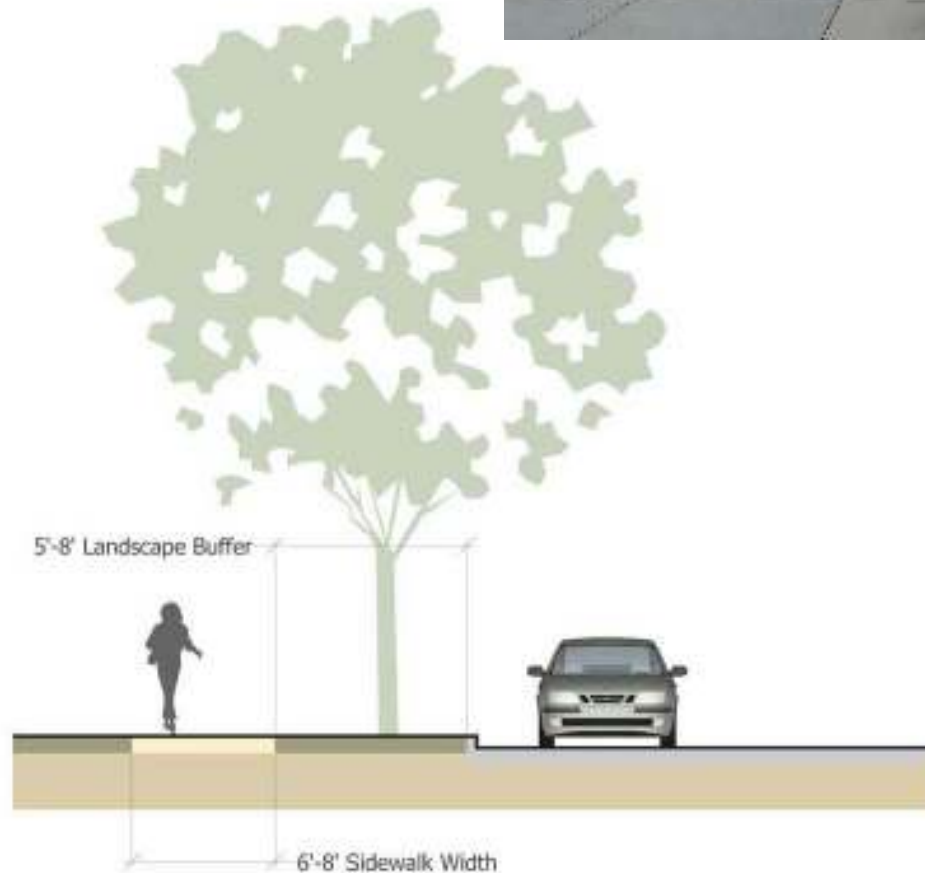




## Sidewalks

This greenway trail plan makes use of existing sidewalks through the downtown areas in Lancaster, Heath Springs and Kershaw. Sidewalks often become overland connectors between trails. In some instances, greenway master plans have encouraged the completion of sidewalk systems to help finish trail corridor connections. Sidewalks typically serve pedestrians and do not accommodate cyclists. For new sidewalks, recommended guidelines include:

- Minimum sidewalk width of six feet; eight to 10 feet preferred, especially if an extension is allowed
- Provide a five to eight foot landscaped buffer between the roadway and the sidewalk if room is available
- Use a light broom finish perpendicular to the direction of travel
- Provide accessible ramps and crosswalks at all intersections or street crossings

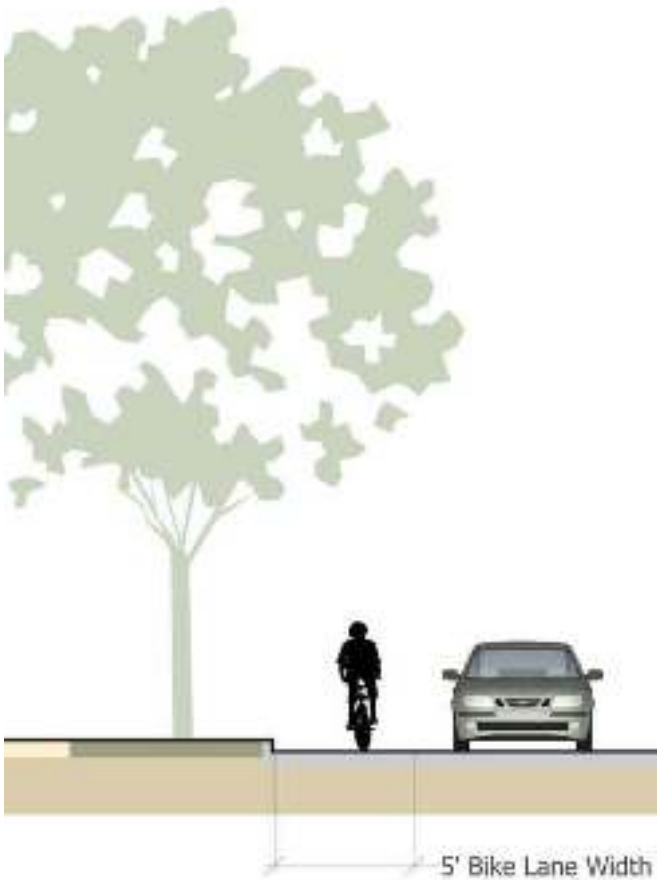




### Bike Lanes and Shared Roadways

On roadways where vehicle traffic volumes are less than 3,000 cars per day or where travel lanes are 14 to 18 feet wide, it may be possible to create shared roadway usage for cyclists either as a signed use or a wide outside lane. Bicycle lanes are also an option, especially if the traffic volume is greater than 3,000 cars per day. These types of facilities are generally provided for more skilled cyclists and not for most families or children. Recommended guidelines for bike lanes include:

- Bike lanes should be a minimum of four feet wide; five feet six inches preferred
- Drain grate openings should be perpendicular to the direction of travel
- Maintain clean paved surfaces
- Regulatory signage should be used in conjunction with painted signage on the surface (see signage section)



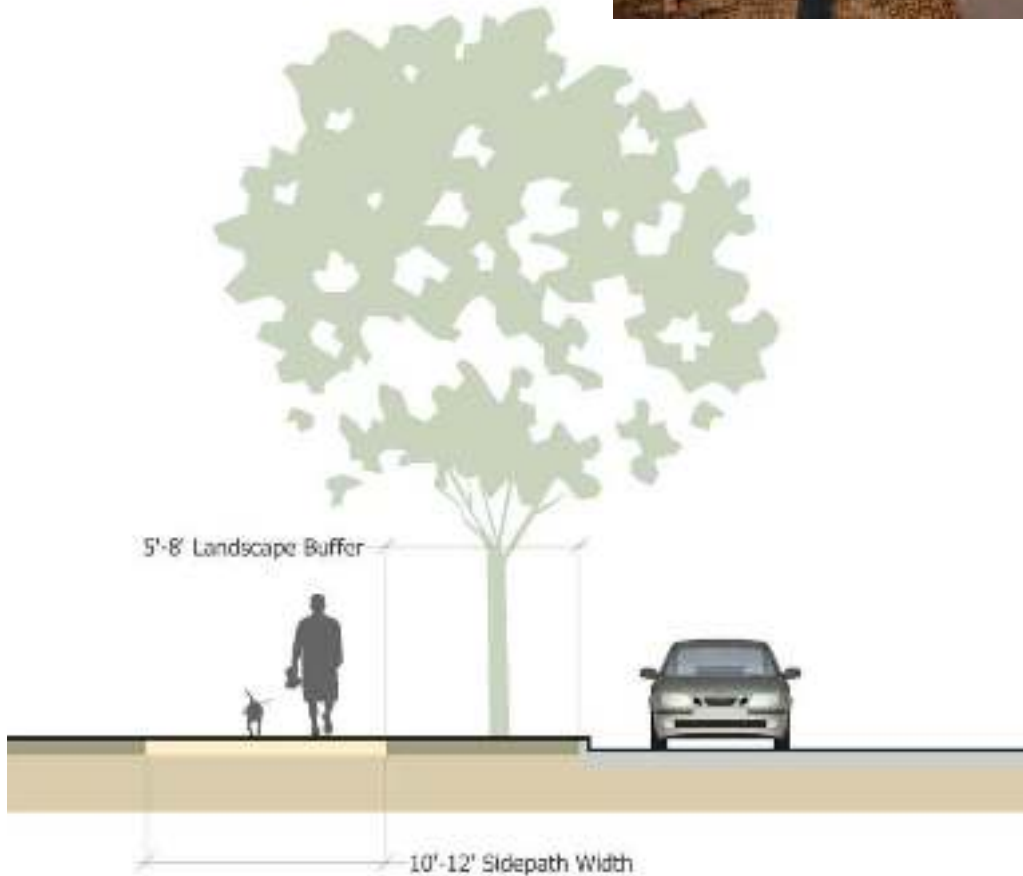




## Sidepaths

When the primary trail is street based and has limited driveway/intersection crossings, a sidepath is recommended along one side of the roadway. In Lancaster County this might occur along some of the more rural two lane roads. Recommended guidelines for sidepaths include;

- Sidepaths should be 10 to 12 feet wide
- Sidepaths should be set back at least five feet from the edge of the roadway with a vegetated buffer wherever possible
- Provide concrete or asphalt surfacing
- Provide accessible ramps from sidepaths to roadway
- Install bollards at intersections/roadways to prevent vehicles on the sidepath





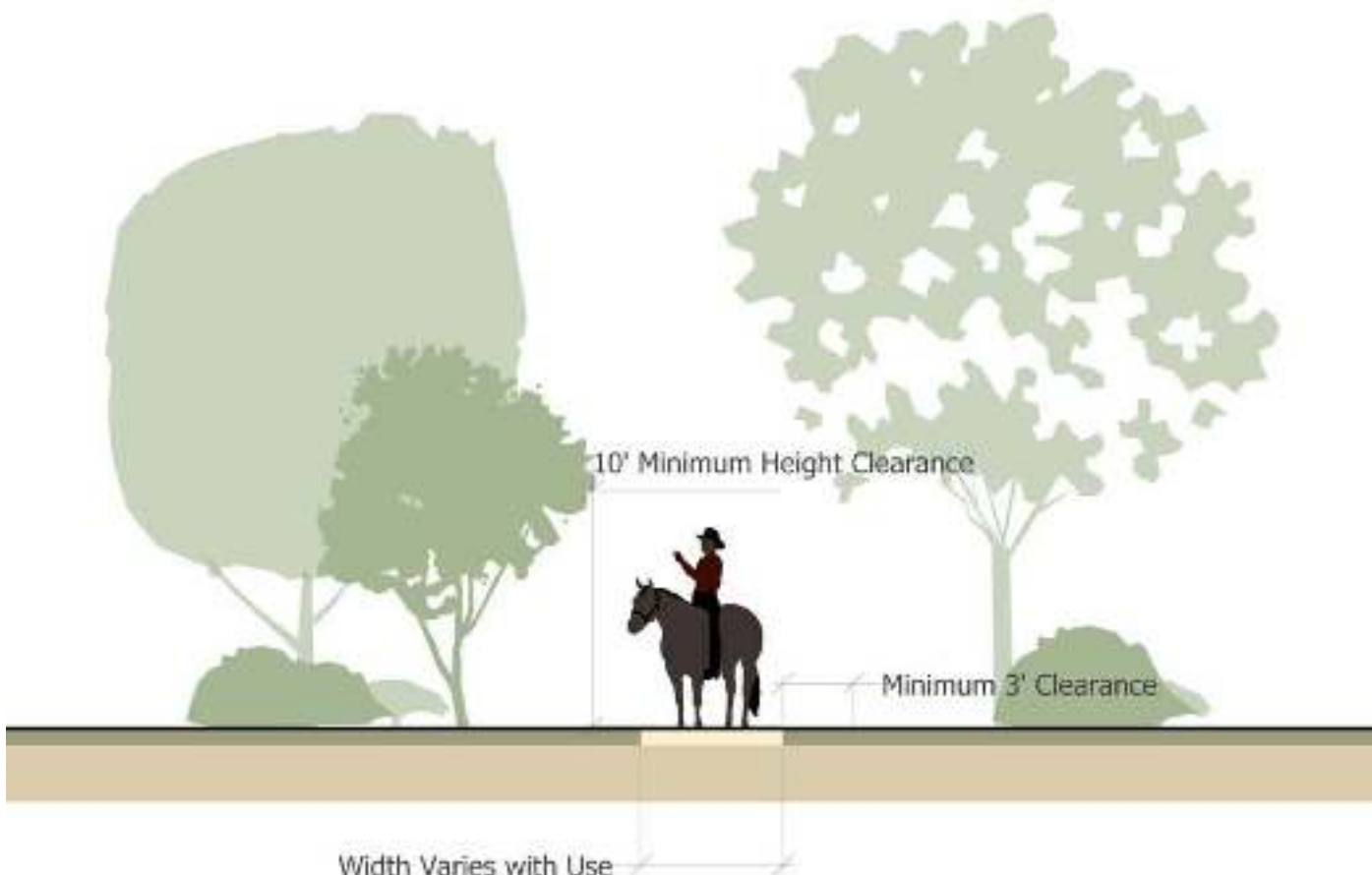
## Equestrian Trails

Equestrians prefer separate trails for their use not only for the types of rides they do, but for safety concerns of the riders and their horses. Horses can be easily startled by hikers and cyclists. Equestrians can use a wide area of space depending on whether they ride individually or in groups. Horses can be hard on trails, making trails more difficult to use for hikers and cyclists after rain events or during continued wet conditions.

Equestrian facilities need to provide enough space for horses and their riders to feel at ease, allow horses to ride away from trail edges, offer good visibility, avoid natural hazards, and provide safe interaction with other trail users. Dirt or stabilized dirt is the preferred trail surface, though crushed stone like granite screenings is also acceptable. Water crossings are preferred over bridge or boardwalk crossings which would require hoof mats on the treads. Based on USDA/FHWA guidelines there are suggested widths and clearance tolerances for standard single and

double track (side by side riding/passing) equestrian trails as follows:

- Trail width for single track ranges from one-and-a-half to two feet for low development; three to six feet for moderate development; eight to 12 feet for high development
- Horizontal clearing width which is equal to the trail width, plus 3 feet each side ranges from five-and-a-half to eight feet for low development; nine to 12 feet for moderate development; 14 to 18 feet for high development
- Trail width for double track ranges from five to six feet for low development; eight to 12 feet for moderate and high development
- Horizontal clearing width, which is equal to the trail width, plus three feet each, side ranges from 10 to 12 feet for low development; 14 to 18 feet for moderate and high development
- Vertical clearance should be 10 to 12 feet



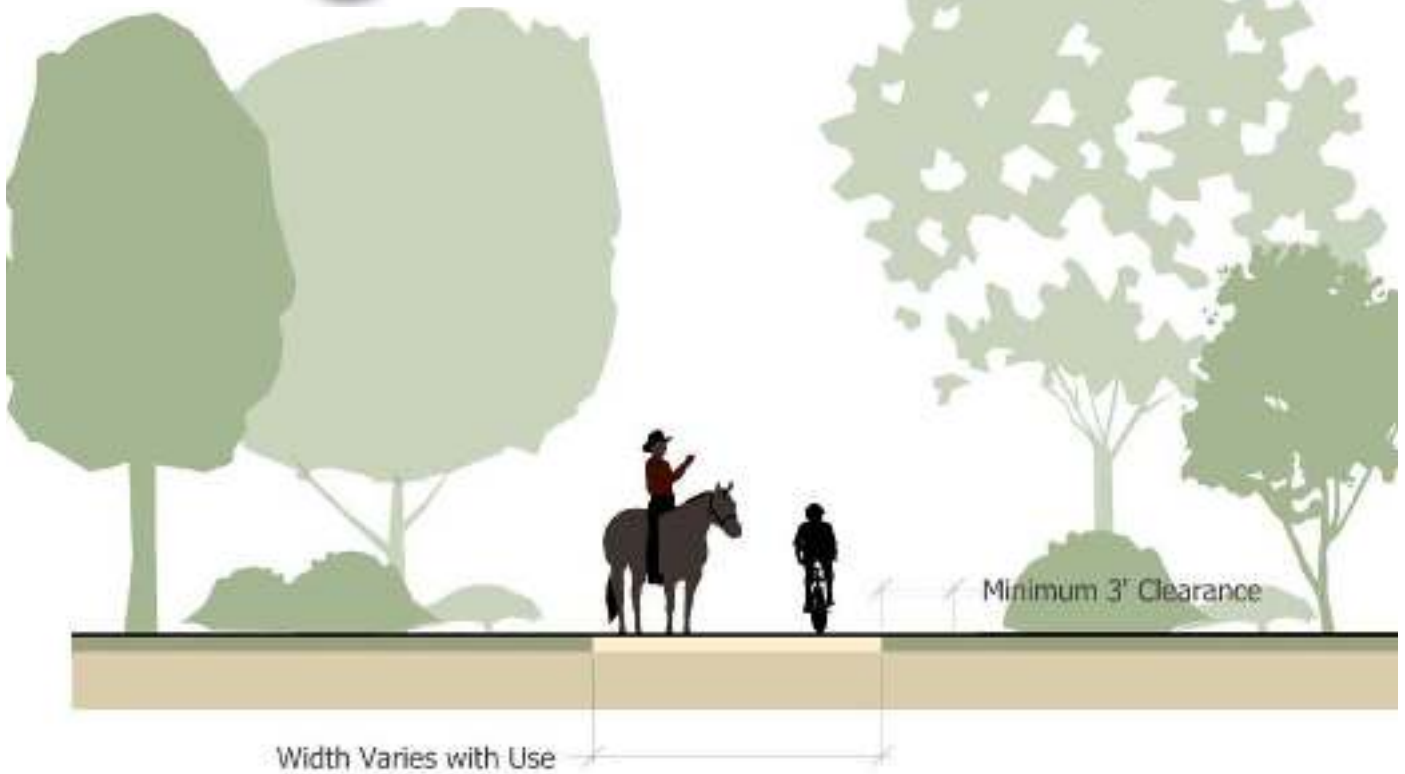


### Multi-use Trails with Equestrian Use

There are many multi-use trails across the country that also include equestrian use. It is important to install appropriate signage indicating trail protocol, especially noting that hikers and cyclists yield to equestrians at all times. Trail sub-base and sub-grade need to be firm and prepared properly. Maintenance of shared trails should be a priority due to the multiple uses during wet conditions and the need for more constant manure removal.



## SHARE THE TRAIL







## TRAIL ENVIRONMENTS

The trail corridors designated for Lancaster County occur in many different environments each providing a unique experience. When constructing trails, it is important to be mindful of the environment for that specific trail corridor, so that those environments are not damaged during construction or as a result of future trail use. Likewise, long term sustainability of trails should be considered based on the environments in which they are being constructed. Trail environments to be discussed include trails within floodways or floodplains, underpasses, utility easements, rail crossings, and rails with trails.

### Trails within Floodways

This type of trail is located within close proximity to a stream channel. A vegetative buffer or streamside zone is established between the stream channel and trail. Potential flooding is infrequent and periodic. Recommended guidelines for trails within floodways include;

- Minimum trail width should be ten feet with no shoulders
- Provide asphalt or concrete surfacing to withstand flooding and stream flow dependant on frequency of flooding.
- Provide a proper sub-base to increase longevity and sustainability of trail

### Trails within Floodplains

This type of trail is located outside of the floodways. A vegetative buffer between the stream channel and trail is left intact. Occasional flooding may occur during major rain events. Recommended guidelines for trails within floodplains include:

- Minimum trail width should be ten feet with two foot graded shoulders on each side
- Provide asphalt surfacing; aggregate stone surface can be used in upland situations
- Provide a proper sub-base to increase longevity and sustainability of trail; a geotextile fabric may need to be installed in softer soils





### Underpasses

Opportunities may arise when trail corridors can be routed under existing bridges or through culverts to avoid on road crossings. This will typically occur when the trail follows a stream channel. Recommended guidelines for underpasses include:

- Underpass width should be at least 12 feet
- Vertical clearance of the underpass should be at least eight feet; 10 feet preferred
- Ensure proper drainage is designed to avoid pooling of water
- Lighting is recommended for safety within the underpass



### Utility Easements

Utility easements can often be used for trail construction as long as joint-use easements are created with the utility company and property owner(s). Most common use of easements involves sewer and electric utilities where trails can be developed along edges of the ROWs.

Gas easements are more stringent and typically only allow trail crossings within their ROWs. Utility companies should be notified early in the planning and design process, so that easements and agreements can be completed in a timely manner and all parties are well informed. All utility ROW guidelines and restrictions should be reviewed and adhered to. Recommended guidelines for utility easements include:

- Trails within utility easements shall meander as necessary to accommodate elevation change and provide positive drainage
- For electric transmission ROWs, the trail width shall not exceed five feet in width, not including graded shoulders; trail surfacing shall be soft surface
- Trails should be located at least 25 feet away for transmission tower pads
- Trails shall not cross under power transmission lines
- In most sewer ROWs, the trail can parallel the ROW as long as the trail is not located over the actual sewer line (except for trails that cross the ROW)







## Rail Crossings

Where trails may have to cross rail lines at-grade, efforts should be made to ensure visibility and safety for all users. Ideally, at-grade rail crossings should occur in conjunction with existing sidewalk or vehicular crossings, but this is not always the case. Recommended guidelines for rail crossings include:

- Trails should cross rail lines as close to a 90 degree angle as possible
- Proper warning signage and pavement markings shall be installed along the trail on both sides of the rail crossing
- Crossing materials should be skid resistant; concrete and rubber crossing materials should be used to provide longevity and less maintenance
- If trail crossing is not in conjunction with an existing vehicular crossing additional vegetative clearing should occur to increase visibility for both the trail user and the rail line

## Rails with Trails

Some railroads will allow trails to be constructed within their ROWs or within an easement within the ROWs. Railroads should be included in planning and design discussions early in the trail process which in turn could help reduce time needed for approvals from railroads. Most railroads or regulators such as Public Utility Commissions or the Federal Railroad Administration have guidelines and policies that trail designs must adhere to before approvals can be gained. Recommended guidelines for rails with trails\* include:

- Trail should be at least 12 feet wide with a two foot graded shoulder on each side
  - Setbacks will vary with train type, speed, frequency and separation technique; edge of trail should be no closer than 15 feet from centerline of nearest rail line for rails that see minimal use or commuter use; trails should be set back a minimum of 25 feet or more from the centerline of the nearest rail on more active lines
  - Fencing at five to six feet high should be installed between the trail and the rail at least three feet off the trail shoulder
  - Graded the trail to drain away from the rail line
- \*More information can be found at: [www.railswithtrails.com](http://www.railswithtrails.com) and [www.railstotrails.org](http://www.railstotrails.org)







## ACCESSIBLE TRAIL DESIGN

It is important to consider accessibility when designing trails, not only relating to alternate transportation, but from a recreation standpoint as well. Standards for accessibility have been established by the U.S. Department of Justice through the Americans with Disabilities Act, U.S. Department of Transportation, Federal Highway Administration, AASHTO, and the U.S. Access Board with Accessibility Guidelines for Outdoor Developed Areas. This section will address trail design to meet the needs of users with varied mobility requirements.

All attempts should be made to design trails for accessibility for all users. Guidelines have been created in response to the Americans with Disabilities Act (ADA) for trail accessibility. However, meeting ADA guidelines may be difficult in some outdoor situations. Meeting ADA guidelines might cause conflict with trail sites having significant cultural or natural resources such as tree canopies or stream channels causing a significant grade change in the intended purpose of the trail or steep topography/terrain characteristics may prevent compliance.

The following standards are to be used in accessible trail design:

- Surface materials should be firm and stable through the use of asphalt, concrete, wood, or compacted gravel
- Trail gradient should be less than five percent without landings; trail gradient can be less than 8.33 percent with landings
- Trail cross slope should be two percent maximum to provide positive drainage
- Trail width should be eight feet minimum to allow the variety of users and the passage of two wheelchairs
- Resting areas or widened areas should be provided about every 300 feet
- Detectable pavement changes should be placed at curb ramps and top of ramp locations before entering roadways
- Concrete pads should be provided adjacent to one side of each bench location for wheelchairs





## BLUEWAY (PADDLE) TRAILS

Over forty miles of blueways are planned in Lancaster County to be developed along sections of Cane Creek and the Catawba River. Blueway facilities have increased in popularity over recent years. While the waterways serve as ready-made trails, a few support facilities are needed for blueway development. These facilities include access points, parking, portages, and signage.

### Access Points

Blueway access points are trailheads for canoeing, kayaking, and other paddling activities. All access points should have some level of parking (3-6 spaces) and regulatory/wayfinding signage. Major access points should offer larger parking areas (20 spaces +), picnic tables, information kiosks, and restrooms. General recommendations for access points should include:

- Trail width should be six feet minimum
- Provide vertical clearance of 14 feet minimum; if using grass as the surfacing, maintain cover at no more than five inches height
- Provide a firm compacted surface for the access trail
- Space access points every three to four miles along larger water bodies; every 1-2 miles along smaller creeks
- Locate access points no more than 1,500 feet from the launch/take out point; if more than 1,500 feet position a permanent canoe/kayak stand every 1,000 feet
- Allow enough room for unloading and loading of canoes/kayaks from vehicles
- Trail gradient from parking area to launch point should not exceed 20 percent, flatter at the parking areas
- Erosion mats or blankets should be used for slope stabilization at heavily used access/launch points
- Do not locate access points on the inside curves of waterways due to frequency of sand/silt deposits in these locations

### Portages

Portages are overland connectors for paddlers when an obstruction occurs in the blueway trail such as a dam, set of rapids, waterfall, etc. The need for portages should be minimized along blueways. If needed, landings should be placed above and below obstruction. Signage should be clearly visible upstream and downstream of the obstruction and well in advance of the obstruction directing paddlers to landing sites. Recommended guidelines for portages include:

- Trail width should be six feet minimum
- Provide vertical clearance of 14 feet minimum
- Position a permanent canoe/kayak stand every 1,000 feet

### Signage

Signage is critical for blueway trails. Directional signage is needed on roadways to direct paddlers to parking, access points, and to the river/stream. Signage is also needed on the river/stream to inform paddlers of landing sites, camping and picnicking facilities, portages, hazards, and level of experience for more difficult segments of the trail. It's also helpful to paddlers to incorporate mileage markers, road identification (on bridges), and points of interest, so that paddlers have reference markers along the blueway trail.







## TRAIL STRUCTURES

Development of trails within certain environments will create the need for additional facilities or structures including boardwalks, pedestrian/bicycle bridges, railings, and drainage and erosion control measures. These structural elements support trail use, help provide a safe trail experience, reduce a trail's impact on the environment, and reduce trail maintenance.

### Boardwalks

In general, trail routing should avoid wetlands if at all possible. If unavoidable, boardwalks should be used where trails need to be constructed through wetlands, areas where grading must be minimized or fill dirt is not an option (floodplain), or other environmentally sensitive areas. Recommended guidelines for boardwalks include:

- Clear width of boardwalks should be 10 feet minimum on main trails
- If the height of the boardwalk exceeds 30 inches, railings are required; toe rails should be used where rails are not required
- Pressure treated wood posts, concrete footers or auger piers should be used for foundation materials
- Decking should be pressure treated (non-toxic) wood or recycled plastic



- Thickness of deck planking should be 2 inches minimum
- Boardwalks with a length more than 300 feet should have a seating/resting area every 150 feet

### Pedestrian/Bicycle Bridges

Bridges should be used where trails cross streams or rivers, steeper drainage channels or roadways. There are many good options available for prefabricated wood or steel bridges that can be manufactured off site, delivered to the site, and easily installed with a crane. There may be opportunities to re-use abandoned railroad bridges that are either existing on site or can be relocated to a trail crossing location. The structural integrity should be assessed before reusing these types of bridges. A trail bridge should support a minimum H-5 loading (five tons). Other recommended guidelines for pedestrian/bicycle bridges include:

- Clear width of bridges should be 10 feet minimum
- Provide a reinforced concrete abutment on each side of the bridge
- Top of bridge rail should be 54 inches with a rub rail set at 36 inches maximum
- Decking should be pressure treated (non-toxic) wood
- Thickness of deck planking should be two inches minimum







## Railings

As mentioned in both the boardwalks and bridges sections, railings are needed when the deck height is over 30 inches from finished grade of trail to existing grade below. Local, state, and/or federal regulations and codes should be consulted for final rail design, but in general recommendations for railings include:

- Railings should consist of a horizontal top, bottom, and middle rail
- The top rail should be 54 inches from the bridge or boardwalk deck
- The middle rail should be set between 33 and 36 inches and serve as a rub rail for cyclists
- Pickets should be placed no further than four inches on center

## Drainage and Erosion Control Measures

Erosion control measures need to be incorporated into drainage design along trail corridors to reduce erosion problems, minimize maintenance (and costs), and extend the longevity of the trail. Overall, trails should be designed with rolling grades using a series of dips, crests, climbs, and drainage crossings to respond to the existing terrain. In flatter situations, grade reversals may need to be constructed to create drainage flow. Both design methods lead to a more sustainable trail. In addition, recommended guidelines for drainage and erosion control measures include:

- Provide a maximum two percent cross slope on paved trail surfaces and graded shoulders
- Provide a drainage pipe under the trail where uphill water is collected in swales and/or directed to inlets/basins, so concentrated flow is directed under trail through a properly sized culvert
- Trail treads on natural surface or soft surface trails should be sloped away from high side of trail, so water sheets across the trail, not down the trail
- Refer to local and state sedimentation and erosion control regulations and practices when designing trails





## TRAIL AMENITIES

Trail users will need accommodations or support facilities along the trail corridors. Inclusion of these support facilities will provide points of access to trails, encourage continued trail use, and create local character for trails. Typical amenities within a trail environment include trailheads and parking, seating, tables, trash receptacles, pet waste stations, overlooks, signage/wayfinding, opportunities for public art, and in some areas restroom facilities.

### Trailheads and Parking

Access points for the trails can occur in a variety of locations. Major trailheads should be developed where trails can be accessed from prominent heavily used nodes such as commercial developments, transportation nodes, or regional parks. Minor trailheads or neighborhood access points should be developed within parks and residential developments. Recommended amenities to be located at trailheads include:

#### **Minor Trailhead**

- Information kiosk/signage
- Benches
- Trash receptacles
- Pet waste stations
- Designated parking spaces, four to five minimum

#### **Major Trailhead, all of the above, plus**

- Picnic facilities
- Bicycle racks
- Shelters
- Restrooms with drinking fountain
- Landscape improvements
- Public art
- Informal gathering space
- Parking area for 25-35 cars



### Seating

Benches/seating comes in a wide variety of styles and materials. Bench selection should be based on design theme and cost. Seating opportunities should be created at regular intervals along the trail ensuring there are places to rest. Ideally, these seating areas should be located in shade. Recommended guidelines for seating include:

- Benches should be 16-20 inches high; seating depth should be 18-20 inches
- Benches should have backrests
- Locate benches every quarter mile along the trail, at trail intersections, at trailheads, and at overlook opportunities
- Length of bench should not exceed five feet
- Provide wheelchair access (30 x 48 inch area) adjacent to benches
- When locating more than one bench in a seating area allow a minimum four feet separation between benches







### Tables

As with seating, tables can vary from a standard wooden picnic table to a concrete or recycled plastic table. Tables should be located primarily at trailheads, but there may be opportunities to place tables in shaded settings along a trail, especially in areas that afford nice views. Tables should be located within view of a trail and be easily accessible for trail users or picnickers.

### Trash Receptacles

Trash receptacles should be located in close proximity to seating and table areas both at the trailheads and along the trail. Receptacle materials should be durable and be able to withstand the exterior conditions and constant use.

It is important that the receptacles are secured or contained in such a manner that trash does not spill easily. All receptacles should have tight fitting lids to keep rain out. Lids with latching mechanisms are good in keeping wildlife out of the receptacles. Some communities have started installing recycling receptacles next to trash receptacles for cans and bottles. Trash receptacles are to be used for trash only. Pet waste should be disposed of at pet waste stations (see next section)

### Pet Waste Stations

To keep pet waste out of trash receptacles it is recommended that separate pet waste stations be installed at trail heads and regular intervals along a trail. The best type of station should have 3 components installed on one steel post. Identification signage should be located at the top of the post. A bag dispenser should be located below the sign. A ventilated mesh aluminum can should be located at the bottom of the post. The can should be 10 gallon and have a secure lid. Green is a uniformly recognized color.

### Overlooks

There may be opportunities along a trail for users to enjoy a distant view or vista. These locations become favorable for the creation of an overlook. Overlooks can be designed as resting areas along a trail or as a destination point. Overlooks should contain the following elements:

- Benches
- Picnic table (at destination points only)
- Trash receptacles
- Railings, if significant elevation change occurs at the overlook area
- Informational signage







### Signage/Wayfinding

Signage is a very important element of any greenway trail system. It is important to locate signs along the roadways to direct trail users to trailheads and access points. Signage materials and lettering style should be consistent. Carolina Thread Trail (CTT) signage will be provided for some initial segments when trails are officially designated as a part of the Carolina Thread Trail network. The CTT logo can be displayed on all trail signage associated with the CTT network. For the trail system, signage can be grouped as follows:

#### **Trailhead/Vehicular Identification Signage**

The trailhead/vehicular identification signage is designed to mark all major trailheads/access points or trail crossings along the CTT. These signs are designed for easy recognition from a distance to aid trail users who drive to a major trailhead area. The signs are to be placed within the immediate vicinity of each major trailhead, preferably at the driveway or access road for the trailhead parking lot. These signs have a low, wide stance to the ground allowing easy identification with as little obtrusiveness as possible.



#### **Secondary Entrance/Secondary Trail Identification Signage**

Secondary Entrance/Secondary Trail Identification Signage serves to mark entrances from non-trailhead areas and other area trails. The signs identify other trails that can be accessed from the CTT. The signage is similar to trailhead/vehicular identification signage, but smaller in scale.

#### **Trail Information/Directional/Trail Rules Signage**

Trail information/directional and trail rules signs will be frequently located at trailheads and along trail corridors. This particular signage serves three distinct purposes. First, the signage provides users with the rules and regulations of the trail. Second, the signage serves to provide trail users with any helpful information related to the trail. Lastly, this signage provides directional guidance. Directional signage can be placed at many roadway and trail intersections and will serve to direct trail users to areas and destinations away from the immediate trail corridor. These signs should stand tall for ease of visibility, but be thin in order to reduce intrusion of the surroundings.

#### **Informational Kiosks**

Kiosks will be located primarily at trailheads and/or parking areas to provide trail maps, mileage and other important information to trail users.





### Interpretive Signage

Interpretive signage serves to locate specific sites or areas along the trail that warrant attention from a historic aspect. The signs may also describe environmental education features. Signage should stand tall and clearly mark a trail user's arrival to the specified destination.

### Mileage/Boundary Markers

Mileage and boundary markers should be provided throughout the CTT network in Lancaster County to aid the trail user in identifying destination points and allow users to track their mileage. These markers should be located a minimum of every mile along the trail. Quarter mile markers can be identified as a painted designation directly on the trail surface. Boundary markers enable trail users to remain on the trail and reduces the risk of a trail user getting lost or wandering onto private property. All boundary markers should display the CTT logo. Due to the frequency of mileage and boundary markers, they should be visible while blending in with the surroundings.



### Regulatory/Warning Signage

Regulatory or warning signage may be warranted along some areas where trails are in close proximity to roadways or populated areas. These types of signs may warn trail users of upcoming roadway crossings, changes in trail direction (if the trail is using a sidewalk system), speed limits, underpasses, or rail crossings. SCDOT, MUTCD, FHA, and AASHTO can provide more information on guidelines and standards for regulatory and warning signage.

### OPPORTUNITIES FOR PUBLIC ART

Trails and trailheads provide good opportunities to add interest and character to the trail corridor through public art. Art can help to depict local history or unique events. Art can be functional or aesthetic. Public art can occur along the trail in the form of seating or other furnishings. There are many opportunities to involve artists or the local community in providing ways to reflect the flavor of Lancaster County into the CTT corridors.







### RESTROOM FACILITIES

Restrooms are nice amenities to provide if feasible. There are many types of facilities that can be constructed from pre-fabricated units that can be delivered to a site and connected to public utilities to small pump and haul or vault toilet systems. There are also a variety of composting toilet systems available. Restroom facilities should be located at major trailheads. This allows for easy maintenance and service of the restrooms. All restrooms should be visible from parking and access points, easily accessible and ADA compliant.



### TRAIL CHARACTER IN LANCASTER COUNTY

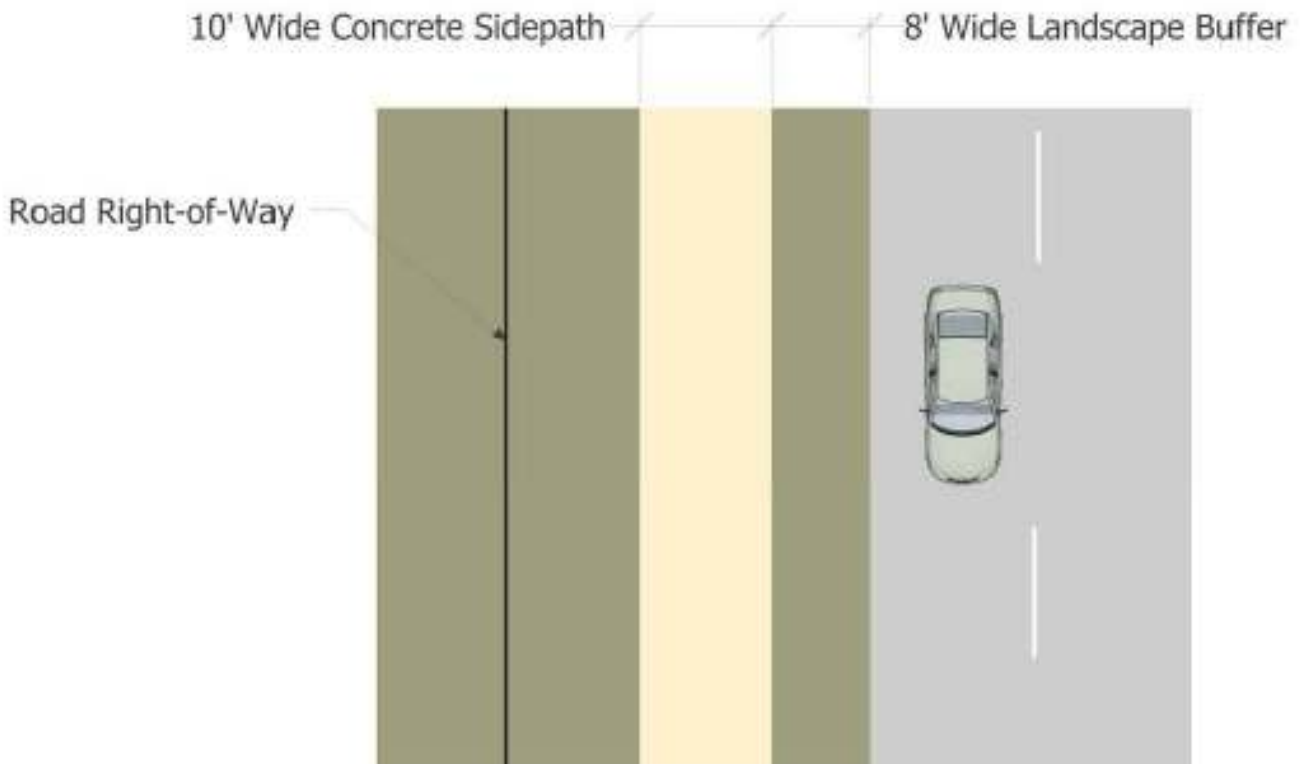
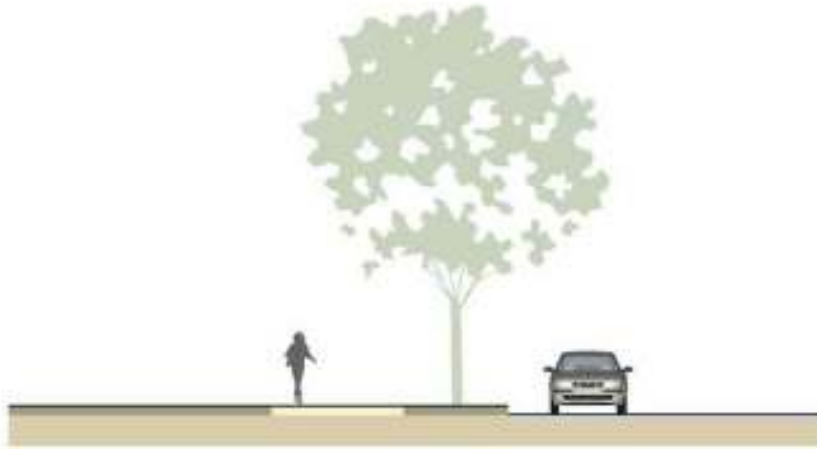
Each county within the Carolina Thread Trail network has its own unique character that should be maintained. While uniformity of trail construction will occur throughout the network, it is important to promote the character of unique areas in Lancaster County. Areas identified in these design guidelines include US 521 (four-lane section), downtown areas in Lancaster, Heath Springs and Kershaw, Hanging Rock Battleground, Forty Acre Heritage Preserve, and the county blueways.







US Highway 521





Downtowns



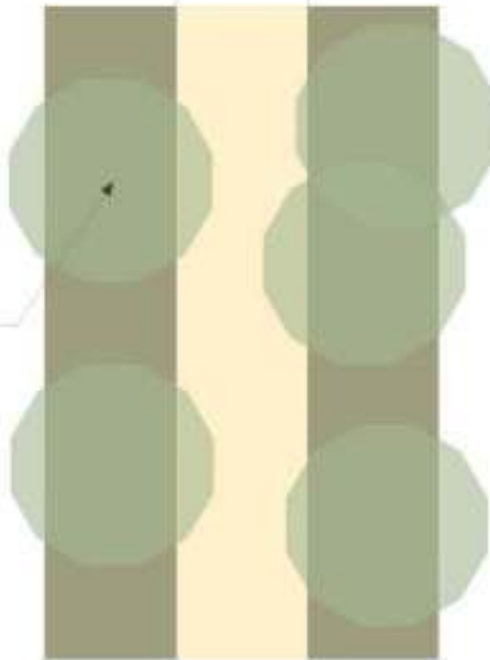


Hanging Rock Battleground  
Forty Acre Heritage Preserve



Trail Width Varies

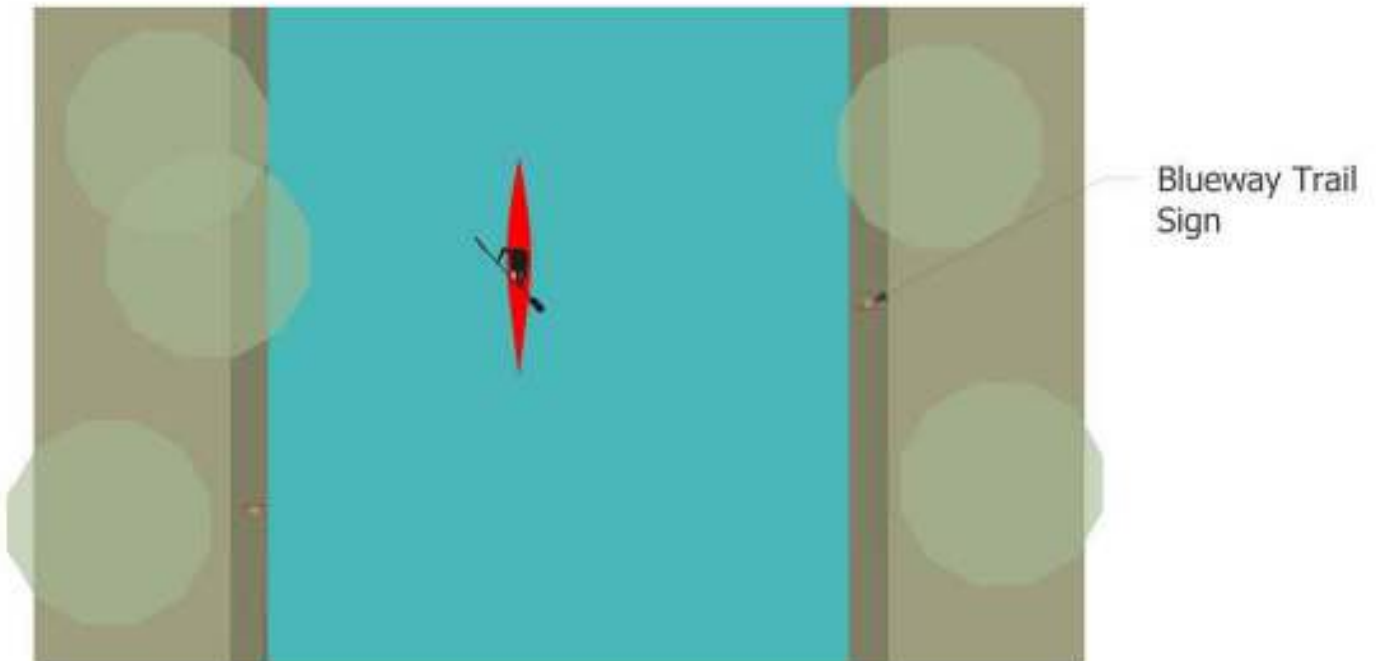
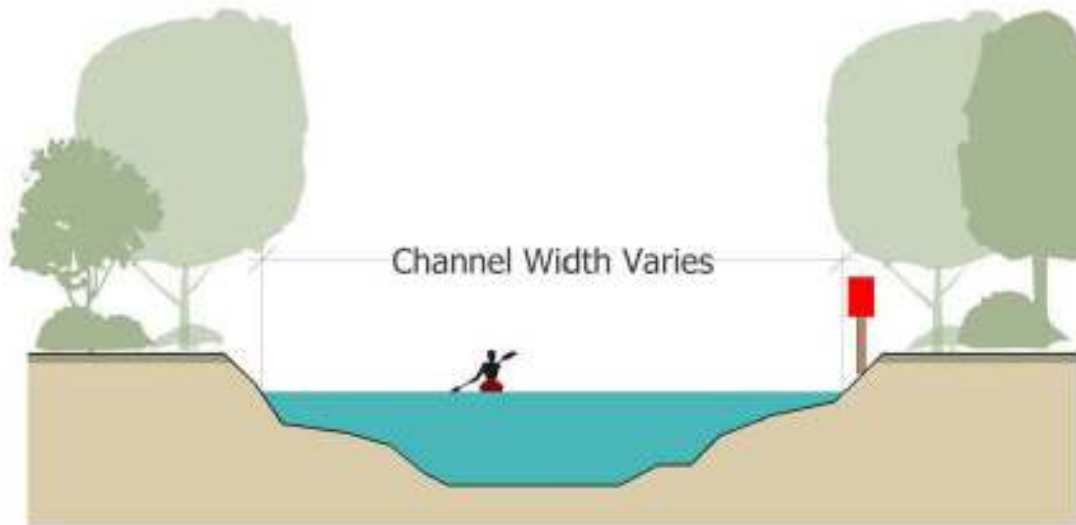
Minimum 3' Clearance  
from Edge of Trail to  
Existing Trees

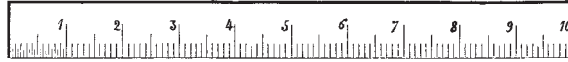






Blueways





## FOOTNOTES

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