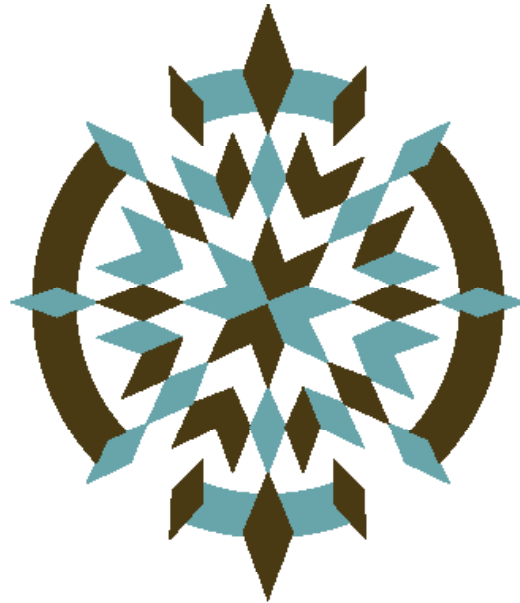


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CAROLINA THREAD TRAIL  
MASTER PLAN  
FOR ROWAN COUNTY  
COMMUNITIES

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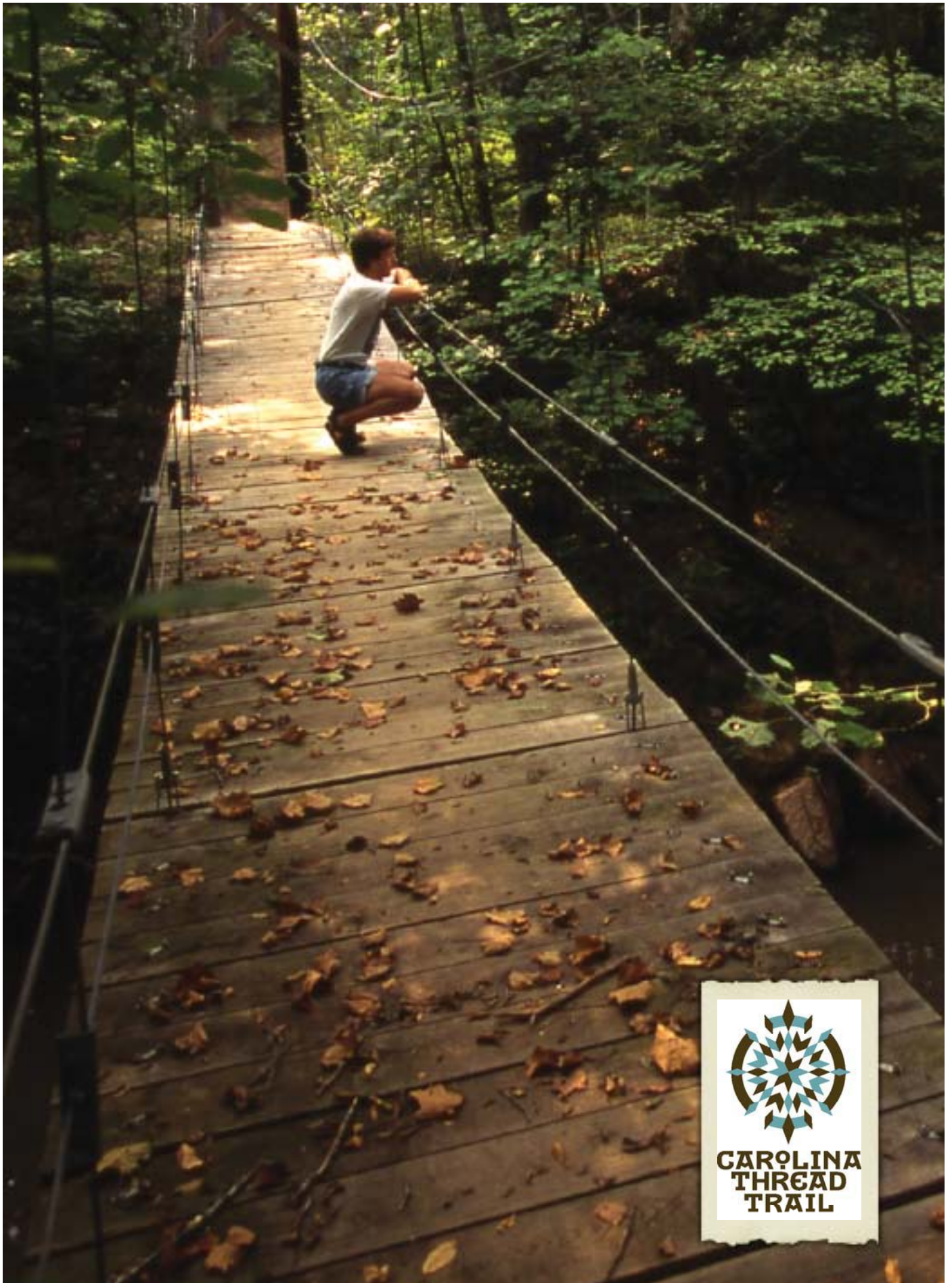


**CAROLINA  
THREAD  
TRAIL**

*Weaving  
Communities  
Together*

October 2014







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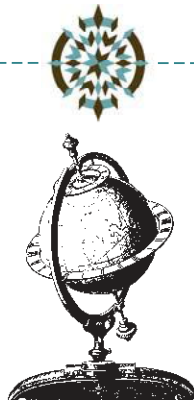
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## ACKNOWLEDGEMENTS

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Town of China Grove

Town of Cleveland

Town of East Spencer

Town of Faith

Town of Granite Quarry

City of Kannapolis

Town of Landis

Town of Rockwell

City of Salisbury

Town of Spencer

Civitan Club of Salisbury

Granite Quarry Civitan

Salisbury/Rowan Runners Club

### *Other Supporting Organizations:*

Community of Gold Hill

Land Trust for Central North Carolina

### *Carolina Thread Trail for Rowan County Communities Steering Committee Members:*

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*Susan Closner  
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City of Kannapolis Parks & Recreation Director*

*Larry Smith  
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*Macon Sammons  
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*Wendy Brindle  
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*Thanks also to the Town of Granite Quarry for hosting all of the Steering Committee meetings in the Town Board Room. 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 Carolina Thread Trail Greenway Master Plan for Rowan County Communities 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 local municipalities and communities in Rowan County. Trail segments will link residents and visitors to the sites and destinations that make the area unique, and will connect local users to trails across the Carolina Thread Trail region.

This plan is the result of a 12 month planning process led by the Carolina Thread Trail and developed by a steering committee made up of local community staff, community leaders, 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.

The primary deliverable produced through this planning process is a map that depicts recommended trail segments connecting Rowan residents to local and regional destinations. These routes were developed using the input provided by county residents, gathered 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 county-wide connectivity, are displayed with green lines. Trail segments are shown as ¼-mile wide corridors. The actual location of each trail within the corridor will be finalized by local municipalities as trail segments are developed.

The Carolina Thread Trail Greenway Master Plan for Rowan County Communities includes 107.8 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 69.7 miles of blueways have been identified along the Tuckertown Reservoir, High Rock Lake and South Yadkin River – the defining boarder between Rowan County and Davidson and Davie Counties.

The development of the Carolina Thread Trail Greenway Master Plan for Rowan County Communities 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 trails on the ground. These steps outline a trail planning process that is fair, consistent, and achievable for the residents within the communities of Rowan County.

## ADOPT MASTER PLAN

Once the Carolina Thread Trail Greenway Master Plan for Rowan County Communities has been reviewed and approved by the steering committee, the next step in the trail development process is adoption of the master plan by Salisbury, China Grove, East Spencer, Cleveland, Spencer, Kannapolis, Landis, Faith, Gold Hill, Granite Quarry, and Rockwell. 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 cities and towns underscore





their support for the development of trail segments within Rowan 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 Carolina Thread Trail Greenway Master Plan for Rowan County Communities is a product of the residents of Rowan County. This plan was developed by a dedicated group of county residents who served on the steering committee and attended public input meetings, providing valuable feedback throughout the master planning process. This master plan should be championed forward by local residents. The second step of the trail development process involves continued public involvement and support for the Carolina Thread Trail.

It is the recommendation of this master plan that Rowan County Communities create a Greenways and Trails Advisory Commission, comprised of county residents, government officials and staff, regional entities, local utility providers, and state transportation agencies. 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.

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 pooling 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 the Rowan County communities to develop all 107.8 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 segments. The following criteria have been developed to identify the priority trail segments within Rowan County Communities.

- 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 63 of the Carolina Thread Trail Greenway Master Plan for Rowan County Communities.

The following Rowan County Communities 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:

SECONDARY TRAIL SEGMENTS:

**IDENTIFY FUNDING AND FINANCING**

The completion of the Carolina Thread Trail Greenway Master Plan for Rowan County Communities signals the end of the first step in trail development and the beginning of the crucial second step: funding and financing. Rowan County Communities 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 each community develop a multi-tiered approach for funding trail development using a variety of financing options, including local, state, federal, private funding sources.

The most effective method for funding the Carolina Thread Trail and other local trails within Rowan County communities will involve a combination of public and

private funding sources. A summary of potential funding sources can be found on page 65 of this document. Appendix 4 of this Master Plan report provides specific funding sources and programs that may be used for trail development.

**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. Rowan County communities should utilize a variety of land acquisition methods, which may include purchase, donations, zoning and development regulations, developer contributions, and/or rail corridors for the protection and preservation of land for trail development. Detailed descriptions of these methods can be found on page 66 of this document. Where public land is not already available, conversations with private landowners are recommended to assess their interest in trails through their communities. This will assist in route feasibility and alignment. It is imperative that all trail efforts work with willing landowners to ensure a successful trail project that benefits everyone involved.

**DESIGN, CONSTRUCT AND MAINTAIN TRAILS**

As municipalities within Rowan County and their partners select a segment(s) 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 community 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(s), existing site conditions, cost of construction, and required level of maintenance. Typical trail surface materials include natural surface, crushed stone, asphalt, and concrete. Page 68 and Appendix 5 of the Carolina Thread Trail Greenway Master Plan for Rowan County Communities provide further description and trail design guidelines for the development of trails.

#### CONCLUSION

The Carolina Thread Trail Greenway Master Plan for Rowan County Communities represents a citizen led collaborative planning process for the provision of trails throughout Rowan County Communities. Now that the master planning process is complete, it is the responsibility of the citizens of Rowan County communities to transform this plan from lines on a map to trails on the ground. The Carolina Thread Trail will provide important connections through the Rowan County communities, linking residents to the places that make the individual communities and region unique.



Main Street, China Grove

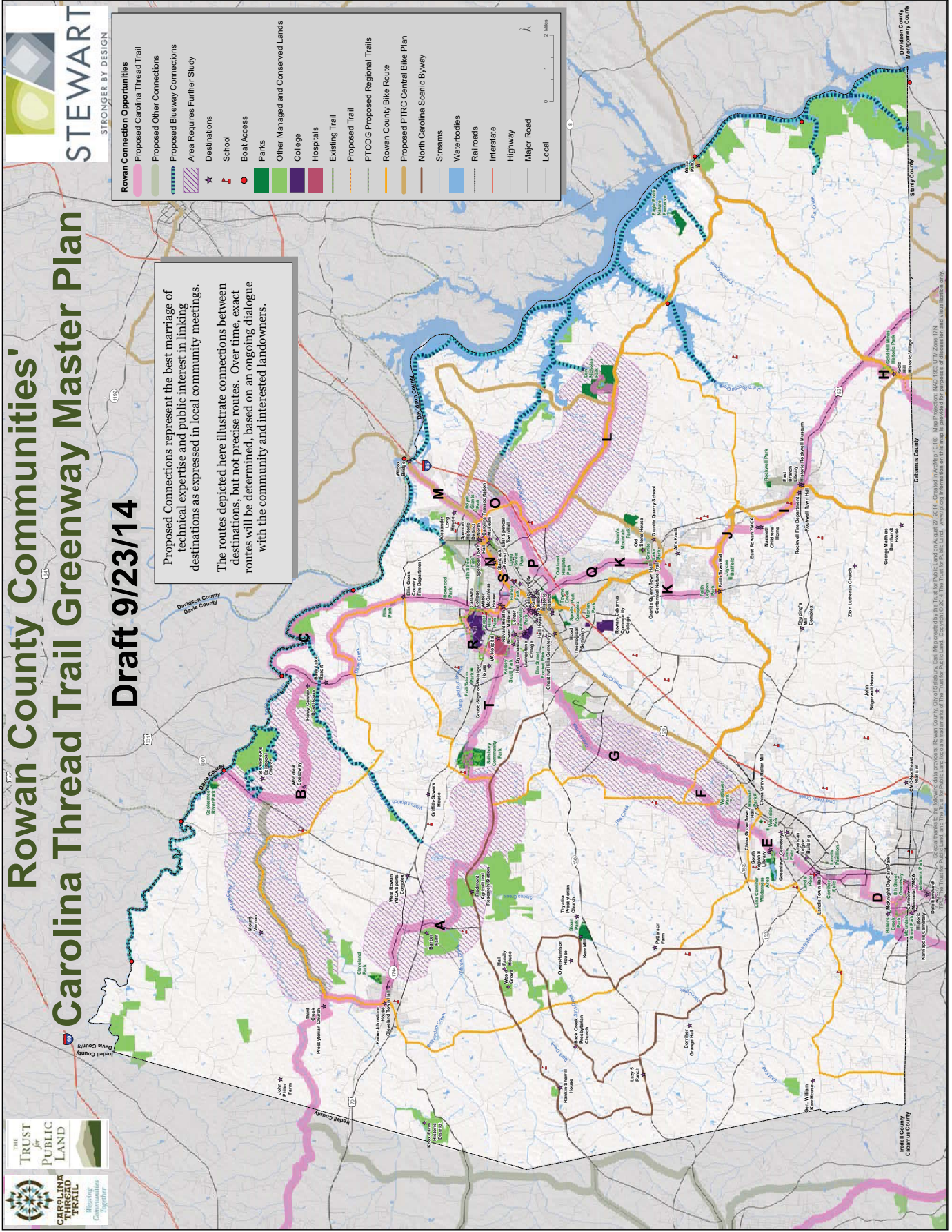


# Rowan County Communities' Carolina Thread Trail Greenway Master Plan

## Draft 9/23/14

Proposed Connections represent the best marriage of technical expertise and public interest in linking destinations as expressed in local community meetings. The routes depicted here illustrate connections between destinations, but not precise routes. Over time, exact routes will be determined, based on an ongoing dialogue with the community and interested landowners.

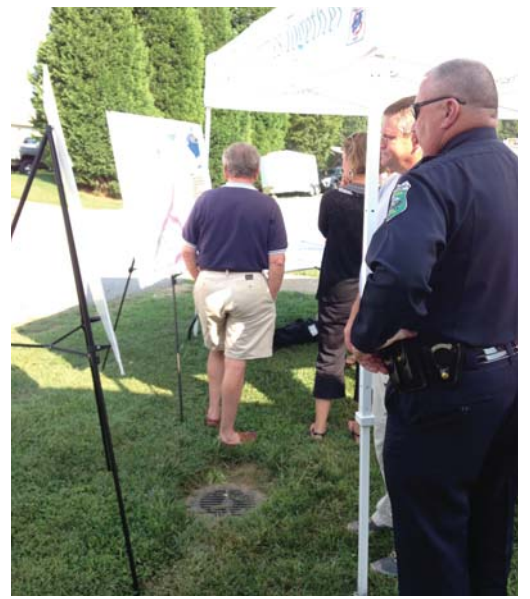
	Rowan Connection Opportunities
	Proposed Carolina Thread Trail
	Proposed Other Connections
	Proposed Blueway Connections
	Area Requires Further Study
	Destinations
	School
	Boat Access
	Parks
	Other Managed and Conserved Lands
	College
	Hospitals
	Existing Trail
	Proposed Trail
	PTCOG Proposed Regional Trails
	Rowan County Bike Route
	Proposed PTRC Central Bike Plan
	North Carolina Scenic Byway
	Streams
	Waterbodies
	Railroads
	Interstate
	Highway
	Major Road
	Local



Carolina Thread Trail Master Plan for Rowan County Communities

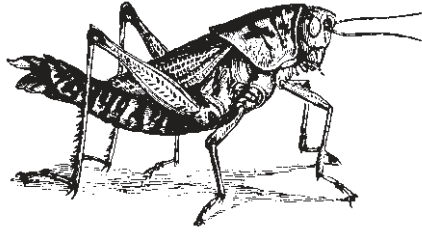
## COMMUNITY INPUT

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 Cherokee County.





*Bakers Creek Greenway, Kannapolis*



## CHAPTER I. INTRODUCTION

The Carolina Thread Trail Master Plan for Rowan County Communities provides a long-term vision and implementation strategy for the development of a community-wide trail network providing connections to local and regional destinations. The proposed trail network will take many years to complete and require a cooperative effort between citizens, organizations, 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 the communities of Rowan County share 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 Carolina Thread Trail Master Plan for Rowan County Communities has been carefully crafted by a volunteer steering committee consisting of community stakeholders. The steering committee participated in the public input process, developed alternate trail routes throughout their communities, and created the vision presented in the final Carolina Thread Trail Greenway Master Plan maps and report.

The Carolina Thread Trail Master Plan for Rowan County Communities report serves as a guide for the development process of the Carolina Thread Trail routes through the communities within Rowan County. In addition, the report provides information on the benefits of trails, the existing conditions of Rowan 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 within the communities of Rowan County are also provided.



*Yadkin River*

### 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 (Thread Trail) is a regional network of greenways, trails and conserved lands that will reach approximately 2.3 million citizens. It will link people, places, cities, towns and attractions. The Thread Trail will help preserve our natural areas and will be a place for the exploration of nature, culture, science and history, for family adventures and celebrations of friendship. It will be for young, old, athlete and average. This is a landmark project, and creates a legacy that will give so much, to so many, for so long.

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

### COLLABORATION & SELF DETERMINATION

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

### CONNECTIVITY AND INCLUSIVITY

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

greater access to our natural surroundings. Through this Master Plan, these goals are established.

### LEVERAGE

The Plan's success depends upon generating additional investment of outside capital in our region's natural resources. Funding sources of the local, state and federal level are included in Appendix 4.



North Carolina Transportation Museum - Spencer, NC

### RESPECT FOR THE LAND AND LANDOWNERS

During the planning process, Rowan County communities determined the location of their segments of the Carolina Thread Trail by having alternate routes to consider. The broad corridors featured represent multiple opportunities, and adjustments to the route can be incorporated as more landowners are engaged.

Through an inclusive, collaborative process, each county and the communities within that county decide where their local trail systems will connect and become part of the Thread Trail. However, not all local trails and greenways will become part of the Carolina Thread Trail. Analogous to our highway systems, the Thread Trail will develop as a "green interstate" focused on linking local



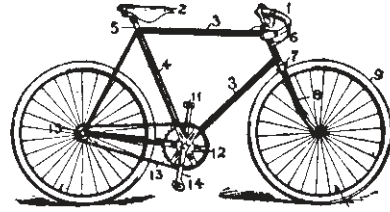


trails and regionally significant attractions. Other trails will continue to exist or be planned but may not receive the Carolina Thread Trail designation. Local trails will retain their own identities, whether or not they are designated as part of the Thread Trail.

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







## CHAPTER 2. GREENWAY BENEFITS

Any good investment provides a beneficial return. Trails provide a great return on the investment required 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 many benefits provided by trails is divided into four categories:

- Connecting Communities
- Health Benefits
- Economic Impact
- 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 the communities of Rowan 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. The absence of such facilities dictates that all trips, no matter how short, are made via automobile. 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. Their 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% since 2001. During this same time period, funding for the development of bicycle, pedestrian, and other trail-type facilities has increased. The provision of dedicated bicycle and pedestrian facilities, like trails, provides alternative choices in transportation.

#### 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 rights-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 roller blading, and in some instances, horseback 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 that meet the requirements of the Americans with Disabilities Act. 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

Much has been written recently about people’s need to interact with nature. Last Child in the Woods, by Richard Louv, explores the reduced connection between children,



its effects on children, and how that connection can be made again. 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 NK cells used to fight off virus-containing cells. 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.

Builds regional partnerships

Planning and developing a regional trail network which will cross municipal, county, and state lines cannot



Salisbury Greenway - Salisbury, NC

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. Rowan County and its participating municipalities have agreed to be active participants in this process. Lines of communication within and beyond Rowan 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, canoeing or kayaking (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. 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 that regular exercise offers our physical health. Researchers are beginning to study the effects that 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% 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.

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. Helpful tips for beginning and continuing an exercise program will be included within each prescription. The direct link between regular exercise and the reduction of anxiety are unknown. 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 relationships 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.

It is important to provide easily accessible parks and recreation facilities for residents to use for exercise and recreation. Upon the completion of the Carolina Thread Trail Greenway Master Plan and the development of trails within the communities of Rowan County, residents will have a large network of dedicated multi-use facilities. These facilities will extend the current recreational infrastructure in the county, providing additional places for residents 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 on 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% 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. 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. 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 of trails 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 toward outdoor enthusiasts interested in two-to-four day excursions. This combined marketing effort allows 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. Over half of those surveyed were not locals, but visitors who came to the area to ride on 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 increases the exposure that business has 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. 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. Within North Carolina, the Charlotte Business Journal printed an article stating that a major regional headquarters selected its location not only due to its proximity to a major interstate, but also due to the connectivity to the Anne Springs Close Greenway. 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.

Within the Carolina Thread Trail network, Green Way Cycle Rentals was established in fall 2011 on the Avon/Catawba Creek Greenway in Gastonia, NC. Realizing its success, the business returned in 2012 for the season renting bicycles, tricycles, and tandems for family enjoyment, and has re-opened every season since.

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*. 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 identifies 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 folks 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. Rowan County's population grew by only 0.6% between 2000 and 2010 according to 2010 Census data. However, the development associated with any growth can negatively impact our natural resources. Trails help preserve natural amenities, protect agricultural lands, improve water and air quality, and provide habitats for native wildlife.

##### Preserve 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. 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



*Lake Corriher Wilderness Area - Landis, NC*



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. 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.

#### Improve air quality

Trails can help improve air pollution 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. 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. Preserving trees along trails within urban areas can have a significant impact on reducing the amount of localized air pollution.

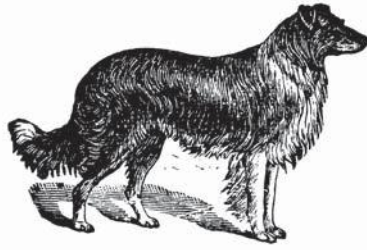
#### Provide wildlife habitats and wildlife corridors

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.



Centennial Natural Trail - Granite Quarry, NC





## CHAPTER 3. EXISTING CONDITIONS

### GEOGRAPHY OF THE STUDY AREA/LAND COVER

Rowan County is located in central North Carolina, just north of Charlotte along the I-85 corridor. It is in the heart of North Carolina's Piedmont region and is approximately two hours from the state's mountains and four hours from the beach. Rural in character, agricultural lands dominate the area. The county is bordered by Davie County to the north, Davidson County to the east, Cabarrus and Stanly to the south, and Iredell to the west.

Rowan County is approximately 524 square miles in size with 511 sq. miles in land and about 13 sq. miles in water. Water bodies define the County's borders on the north and east with the South Yadkin River, Yadkin River, High Rock Lake and the Tuckertown Reservoir. High Rock Lake is one of four Yadkin Project dams that generate hydroelectric power for surrounding communities; it is fairly large with a water surface that covers approximately 15,180 acres and 365 miles of shoreline. The landscape of Rowan County consists primarily of agricultural lands, with the majority of the County's growth occurring along the I-85 corridor and parallel railroad corridor.

Rowan County is home to Salisbury, the county seat, and nine other municipalities – Town of China Grove, Town of Cleveland, Town of East Spencer, Town of Faith, Town of Granite Quarry, Town of Landis, Town of Rockwell, Town of Spencer, and the City of Kannapolis.

### HISTORY

The first Native Americans to reside in the area were the Sponi and Catawba, followed by

German and Scotch-Irish settlers who arrived in the area via what is known as "The Great Wagon Road", a trail used by settlers moving south from Philadelphia. The area evolved and developed into the northern part of Anson County. Later, Rowan County was established in 1753 with the assistance of 350 residents petitioning the North Carolina legislature. The county is named in honor of Matthew Rowan, acting governor of North Carolina from 1753-1754.

Gold was discovered in North Carolina in 1799 in Cabarrus County and in a community known as Gold Hill in Rowan County later in 1824. The mines at Gold Hill produced more than six million dollars in gold, some of which can be seen today within the Mint Museum in Charlotte. The construction of the North Carolina Railroad was the largest internal improvement effort in the state during the antebellum era. It was chartered in 1849 and originally ran 223 miles – beginning in Goldsboro, leading to Salisbury, and then turning south and ending in Charlotte. The NC Transportation Museum in Spencer was once Southern Railway



*Rockwell Town Park - Rockwell, NC*



Company's largest steam locomotive servicing facility as it was midway between Washington DC and Atlanta. The state continued to reinvent itself and the site was transformed into a museum. (Source: NCtrans.org)

Before the war, Catawba College was founded based on religious purposes and continues to operate today. When North Carolina joined the Confederacy (1861-1865), the then Governor was instructed to construct a prison for incoming Union prisoners of war. This was done by utilizing an empty textile mill in Salisbury. This site can also be visited today, as it is an important component of Rowan County's history. After the war, Livingstone College was established (1879) and operates today as a private historically black institution with academic and spiritual education programs.

(Source: North Carolina History Website)

#### POPULATION

According to the 2010 US Census, Rowan County has a population of 138,428, approximately 1.5% of North Carolina's residents. This is an increase of 0.6% since the 2000 census with a total of 130,340. AccessNC further breaks down these numbers into urban and rural – 61.2% and 38.8% respectively. 80% of those residents label themselves as White and 16.5% African American. Rowan County has a total of 53,140 housing units – 13.3% of which are labeled vacant. 60,211 households occupy the county as of 2010.

#### DEVELOPMENT ECONOMY

Rowan County has direct access to interstate

highways, rail and both international and regional airports including the Rowan County Airport.

#### Historic Industry in Rowan

The current distribution of employment within Rowan County is led by health care and social assistance, followed by manufacturing, then retail trade (Source: AccessNC). The top ten employers and industries in Rowan County today include Food Lion (3206 employees), Rowan Salisbury Schools, Daimler Trucks North America, W.G. Hefner VA Medical Center, Rowan Regional Medical Center, Rowan Cabarrus Community College, Rowan County, Magna Composites (Manufacturing), Piedmont Correctional Institute, and the City of Salisbury (464 employees). (Source: Rowanworks.com) Major attractions include historic downtown Salisbury, Dan Nicholas Park, NC Transportation Museum, Lazy 5 Ranch, Patterson Farm, Yadkin Valley Wine Region, High Rock Lake and the Kannapolis Intimidators.

#### Education

The Rowan-Salisbury School System (RSS) is a consolidated city-county system serving the entire county except for the City of Kannapolis. County schools include twenty elementary schools, seven middle schools, and eight high schools. Total public school enrollment in Rowan County was 20,082 in the 2010-2011 school year. Colleges in the area include Catawba College, Livingstone College, Rowan-Cabarrus Community College, and Hood Theological Seminary.



### Income

According to the US Census Bureau, the median income of Rowan County residents is \$41,561, just below the statewide average in North Carolina. The unemployment rate is 6.8%, slightly higher than that of North Carolina at 6.6%. When taking a look at commuting to and from work, 84% of people drove a vehicle alone, followed by 10% who carpooled. The average travel time is slightly less than 20 minutes (Source: AccessNC).

### **DEVELOPMENT TRENDS**

Population projections for Rowan County indicate continued growth. In managing this growth, the county has divided its Land Use Plan into two separate documents – one for areas west of the I-85 corridor and one for areas east of the I-85 corridor. These two documents state that 2030 projections expect an additional 26,000 residents to enter the area, an average yearly growth rate of 0.2%. This appears to be driven by continued development along the I-85 corridor due to the area's close proximity to both Charlotte and Greensboro. Historically, areas east of I-85 have been growing at a higher pace than the west, but current statistics suggest that the growth rate of the two is about equal.

### **EXISTING PARK FACILITIES AND TRAILS**

In the eastern portion of the County, High Rock Lake and Tuckertown Lake offer a variety of recreational opportunities, such as fishing, boating, hunting and camping. Many of the undeveloped properties

located along these lakes, owned by Alcoa Power, are designated as Game Lands by the North Carolina Wildlife Resources Commission. Each of the communities within the County also operate and maintain local parks as described below.

NCDOT has established bicycle routes that allow users to navigate the area, including most of the area's major communities.

### China Grove Area

Cannon Park: includes three lighted little league baseball fields, concessions/restroom building, and small water tower. There are no established trails at this facility.



Grants Creek - China Grove, NC



Hannah Park: is a small community pocket park located downtown. It is a more formal park with a single gazebo in the center, a water feature, open lawn space and surrounding plantings. Other than the short brick walkway leading up to the gazebo, there are no established trails at this facility.

Village Grove Park: is located next to the China Grove Community Center Building. The park includes a playground area provided for kids approximately 3 to 6 years of age, a covered picnic shelter with 3 picnic tables and a grill, one covered gazebo, 2 tennis courts, and benches scattered throughout the park for users. The park has an asphalt section of trail that connects with the existing sidewalk, creating approximately a 0.5 mile loop around the block.

Westhaven Park: consists of a storage building, gazebo, playground play sets for younger children (up to age 6), two picnic tables and a grill. There are no established trails at this facility.

Westside Park: is a fenced-in community park with a few small playground sets, swings and a 0.1 mile sidewalk track. The park is geared towards young children, ages 3 and under.

#### Cleveland Area

Cleveland Town Park: includes a fenced in playground area, a concessions/restroom building, a 0.5 mile walking path around a baseball field, and an open grassy meadow.

#### Spencer Area

8th Street Park: also known as Spencer Ballpark includes 2 baseball fields, a restroom building, picnic pavilion with 4 picnic tables underneath, concessions stand, press box with storage unit, and amphitheater seating overlooking one of the main ball fields. There are no established trails at this facility.

Library Park: is a formal park square adjacent to the town's library, as the name suggests. A gazebo is located in its center with concrete sidewalks located around the perimeter and brick walkways navigating to the center, creating an "X" when viewed from above. There are no established trails at this facility.

Spencer Woods: is a 46 acre hardwood forest park protected through a partnership with the LandTrust for Central NC and the Town of Spencer. It currently has a 0.7 mile hiking loop with a view overlooking a small lake. According to the Spencer Woods Master Plan, completed in January 2012, the name



Library Park - Spencer, NC



is in the process of transitioning to The Fred and Alice Stanback Educational Forest. Future plans include an Urban Forestry Education Center, two overlook decks, picnic shelter, and covered outdoor classroom and connects with a proposed 2 mile loop trail within the surrounding neighborhoods.

Rowan Park: contains playground equipment for children ages 3 to 6, swings, picnic tables, swinging benches and a covered picnic shelter. Other than a 100 foot walkway to the picnic shelter, there are no established trails at this facility.

#### East Spencer Area

Royal Giants Park: includes 2 full size basketball courts, a playground for kids up to 6 years of age, a swing set, a baseball field, an open grassy area, and a building/shelter for storage, restrooms and covering for picnic tables. There are no established trails at this facility.

#### Salisbury Area

Bell Tower Park: is a 0.25 acre park located in historic downtown Salisbury. The park includes one large gazebo, benches, and a small fountain. There are no established trails at this facility.

Boxwood Park: A boxwood shrub was planted on this site in 1826 and nurtured for 175. The property and the specimen plant were donated to the City of Salisbury in 2001.

Cannon Park: is a 3.5 acre park featuring a gazebo, play structure, bankshot basketball game, and



*Royal Giants Park - East Spencer, NC*

tables. There is a small walking area, but no established trails at this facility.

Centennial Park: is a 1 acre community park with a playground set and walking trails.

Fairview Heights Park: is a 1 acre park with a children's play area and a picnic table.

Foil Tatum Park: is a 1.5 acre park with a gazebo, playground structure and a 0.25 mile walking loop.

Forest Hills Park: is a 9.4 acre park conveniently located and provides a greenway connector between Memorial Park and Knox Middle and Overton Elementary Schools. The connector features an attractive bridge with inviting walking and sitting areas, a play structure and a basketball court.

Elm Street Pocket Park: is an open triangular green space with a concrete sidewalk running the length of one of its edges.



Gordon P. Hurley Soccer Complex: is located at 1510 Majolica Road and consists of three soccer fields and a restroom/storage building.

Hurley Park; is a 14 acre public park composed of woodlands, streams, gardens and walkways. Finely crafted benches and tables, specially designed bridges and distinctive gazebos enhance the gardens. There is an approximately 0.25 mile concrete walkway that runs the length of the park and connects with the adjacent Salisbury City Park.

Jersey City Park: consists of a play structure, a multipurpose court with basketball goals, and picnic tables. The park is approximately 1 acre in size.

Kelsey Scott Park; is 21.7 acres and includes a play structure, picnic shelter with tables and grills, one softball field, two basketball courts and a 9-hole disc golf course.

Lincoln Park / Pool: is a 3.2 acre park with a basketball court, play structure, picnic area with tables and grills, and a swimming pool.

Long Street Park: is a 2 acre park and includes two half basketball courts, a playground set for children age 3 to 6, and a grassy open field.

Magnolia Park: is located at 324 W. Innes Street and consists of an open grassy lawn approximately 1 acre in size. Along the corner at the intersection of Innes Street and Fulton Street, there are some ornamental plantings with a sculpture piece that



gets changed out periodically. Sidewalks runs along two of the park's four sides.

Memorial Park: consists of a 0.5 mile vehicular loop around the park. It navigates through the historic cemetery, as well as a woodland forest.

Miller Park: is located behind the Miller Recreation Center and consists of several playground structures, one half basketball court, and one large open grassy field, available for a wide range of activities to take place.

Morlan Park: is a 1 acre park with picnic tables, grills and a play structure.

Oakland Heights Park: is a 2.9 acre park that consists of a multipurpose court with four basketball goals, a picnic shelter with tables, and a play structure.

Robertson Eastern Gateway Park: is a small park located at the corner of Depot and E. Innes Street. It features a fountain that replicates the figure Rebecca which stood in the Square in downtown Salisbury in the early 1900's. It serves as a great



photo location for wedding and graduation pictures.

Sports Complex (Jaycee-Optimist): is a 17.8 acre park and has three lighted baseball/softball fields, a restroom facility, play structure, two basketball goals and picnic tables. There is one walkway that runs across the park and fragments of sidewalks that navigate along the perimeter of the park.

Salisbury City Park; is a 41 acre park with a community center, two play structures, six tennis courts, two picnic shelters with tables, grills and a scenic lake.

Salisbury Community Park: is 300 acres and offers active and passive areas including four soccer fields, open grassy fields, walking trails, five ball fields, a concession and bathroom area, a well-stocked fishing lake with picnic decks, a picnic area and playground. There is also a 1.5 mile walking trail available to park users.

Tar Branch Park: is located at 505 E. Liberty Street and consists of approximately 1.5 acres. It includes a grassy amphitheater and a small creek covered with tree canopy. There are no established walking trails at this facility.

Town Creek Park/Civic Center: is an 18 acre linear park with a basketball court, a play structure, four clay tennis courts, walking trails and a picnic shelter with picnic tables. There are no established walking trails at this facility.

West End Community Park and Garden: is a 1.5 acre garden which includes various aspects of urban gardening including: composting, raised bed gardening, butterfly gardening, bog gardening, small fruit trees, enabling gardening, and traditional vegetable gardening.

Thurston Property: is a 30 acre property next to Knox Middle School and Overton Elementary School that was donated to the City of Salisbury by Dr. Thomas G. Thurston II. The Catawba College Environmental Nature Preserve and a portion of the Salisbury Greenway are located on this site.



*Boxwood Park - Salisbury, NC*



### Kannapolis Area

Bakers Creek Park; is 40 acres designed as an active community park. It consists of a baseball/softball field, three large covered shelters, one small covered shelter, grills, picnic sites, a large playground, a miniature golf course, four lighted tennis courts, horseshoe pits, sand volleyball courts, one half basketball court, a concessions/restroom building, and connects with the existing 8th Street Greenway.

Dale Earnhardt Plaza: is a one acre plaza home to a 900 foot bronze statue honoring Kannapolis hometown hero and racing legend, Dale Earnhardt. The plaza consists of formal brick walkways and benches surrounding the memorial, as well as several patches of open lawn space.

Kannapolis Cemetery: is a registered historic landmark that dates back to 1746. The City completed a major upgrade to the cemetery, including brick gateways, black steel fencing,

landscaping, and paved entrances. It is located at 100 Cedar Avenue, adjacent to Village Park and Bakers Creek Greenway. There are no established trails within the park, only paved vehicular paths.

Mountain Street Park: is an extension of Bakers Creek Park, located at the intersection of West 8th Street and Mountain Street. The area offers four picnic tables, a grill, playground, two sand volleyball courts, horseshoe pits and restrooms. There are no established trails within the park other than the adjacent Bakers Creek Greenway.

Village Park: offers an amphitheater, walking trail, the Rotary Express train, a rentable building/multipurpose room, a splash pad, playground, picnic shelters and open space. There are no established trails within the park other than the Bakers Creek Greenway that navigates through it.

Veterans Park: is formerly named Town Park and was renamed Veterans Park in honor of those who have served to protect our country. It was recently renovated in May 2013 into a regional historic landmark with its focus being the Ring of Honor – a display of memorial plaques and water feature with 1,700 names of the individuals from Rowan and Cabarrus Counties. It consists of brick walkways and green spaces, and also serves the community as a concert and special events venue. There are no established trails within the park.

Walter M. Safrit Park: is a 17 acre athletic facility located at 1314 Bethpage Road. It includes two



Bakers Creek Greenway - Kannapolis, NC Source: City of Kannapolis





lighted softball fields, one lighted soccer field, a playground, a small covered picnic shelter concessions/restroom building, and a 0.5 mile paved walking trail around the park.

#### Landis Area

Landis Pavilion: is located at 353 South Beaver Street and includes one large picnic pavilion, playground, two tennis courts and an open grassy area. There are no established trails at this facility.

Linn Field Park: includes one baseball field, one peewee field, and a concessions/restroom building. There are no established trails at this facility.

Landis Pool: is located next to Corriher-Lipe Middle School. The pool is open to the public during the summer months and can also be rented for special events.



*Landis Pool - Landis, NC*

Lake Corriher Wilderness Area Park: is located across from the South Rowan YMCA. The area includes over five miles of trails through the

wilderness area and around Lake Corriher and Lake Landis. Fishing passes, as well as campsite rentals are available for a small fee. Picnic areas are scattered throughout the area, within this passive section and the more active area of the park; this includes five soccer fields, one baseball field, concessions/restroom building and a 1/2 mile paved walking track. Additional elements include a playground and shelter; future components include kayaking and disc golf. Every year, this facility is home of the Down and Dirty Adventure Mud Run, a 4 +/- trail run with obstacles meandering through the woods, creeks, marshes, hills and mud.

#### Faith Area

Faith Legion Park: includes one baseball field and a concessions/restroom building.

Jaycee Ball Field: consists of one baseball field and a concessions/restroom building.

#### Granite Quarry Area

Centennial Park: can be described as a heavily wooded landscape with walking paths meandering throughout and alongside a stream. The paths eventually connect to Granite Lake Park, the length is unknown. The park also includes a gazebo, grills, and picnic tables. Centennial Nature Trail connects this park with Granite Lake Park, running approximately 0.25 miles.

Granite Civic Park: is a 5.25 acre recreation memorial to the people of Granite Quarry. It serves as a passive park for youth and family activities.



Components include a large picnic shelter with an enclosed kitchen and restrooms, a smaller shelter, a baseball field, a large playground set, three tennis courts, two full size basketball courts, a sand volleyball court, and an obstacle/aerobic course with eight stations. An asphalt walkway connects the different components for a total length of approximately 0.25 miles, but other than this there are no major established trails at this facility.

Granite Lake Park: consists of a shelter with bathrooms, a playground area, a one acre lake with fountain, and two piers available for fishing. Walking trails – part of Centennial Nature Trail – connect to Centennial Park, approximately 0.25 miles south. This trail is described under Centennial Park.



Granite Lake Park - Granite Quarry, NC

#### Rockwell Area

Rockwell Park: includes a 0.25 mile asphalt walking track around two picnic shelters, a restroom building, a playground area, a sand volleyball court, a basketball court, and an open grassy field.



Rockwell Town Park - Rockwell, NC

#### Gold Hill Area

Gold Hill Mines Historic Park: can be described as both a pastoral and wooded landscape with a variety of elements that have either been historically on the property or have been relocated from property in the area to allow users to experience and learn about the historic past of the community. Some of the site offerings include a modern facility with a conference room, a rustic log barn, a small plantation office, stage, miner's field, powder house, picnic areas and a pond. The Gold Hill Rail Trail/Greenway navigates around this facility, running approximately one mile.

#### Rowan County Parks

Dan Nicholas Park: 330 acres, 17 covered shelters, recreational vehicle campground, large lake, paddle boats, concession stand, camping, soccer fields, baseball fields, open passive fields, golf course, playground with handicap access, carousel, nature center, petting barn, outdoor theater, and several miles of trails.



*Gold Hill Historic Park - Gold Hill, NC*

Dunn's Mountain Park: 83 acres of land protected under a conservation easement, trails, and overlook area.

Eagle Point Nature Preserve: 200 acres, natural habitat for fauna and flora native to the area, 3 miles of trails, observation overlooks, interpretive tree and plant identification loop, and high water canoe access to High Rock Lake.

Ellis Park: is composed of 26 acres located just north of Salisbury. It includes two baseball fields, concession stand, two lighted tennis courts, volleyball court, horseshoe pits, bocce courts, game room, two shelters, children's playground, 1.5 mile walking trail, event center with a riding arena, judge's tower, restrooms, game room, ceramics workshop, and a large dining room with fully equipped kitchen.

Sloan Park and Kerr Mill: 100 acres of passive green space, 3 miles of trails, five picnic shelters, volleyball courts, a softball diamond, playground, and historic gristmill.

#### Davie County Park

Cooleemee River Park "The Bullhole": features a stone dam on the South Yadkin River that creates a scenic waterfall, a natural beach area placed there by a flood, and natural surface trails. This park is a popular swimming, fishing, and picnicking destination in the northern area of Rowan County.



*Cooleemee River Park - Cooleemee, NC*



### Trails

In Rowan County, existing trails are limited to the boundaries of several county and state facilities, creating isolated patches of trails. The Carolina Thread Trail Greenway Master Plan aims to link together a network of existing and proposed trails throughout the County. The existing trails currently within Rowan County as part of local, city and county parks are as follows:

- Village Grove Park: The park has an asphalt section of trail that connects with the existing sidewalk, creating approximately a 0.5 mile loop around the block – along Cedar St, 1st St, Myrtle Ave, and Stevens St.
- Westside Park: This facility has a 0.1 mile mini sidewalk track.
- Cleveland Town Park: The park includes a 0.5 mile walking path around a baseball field and an open grassy meadow.
- Spencer Woods: The Spencer Woods Trail is a 0.7 mile loop trail with a lake overlook.
- Hurley Park: This park includes a 0.25 mile concrete walkway that runs the length of the park and connects with the adjacent Salisbury City Park.
- Sports Complex (Jaycee-Optimist): This park includes one 400 foot walkway and fragments of sidewalk around the perimeter

that connect with the adjacent Hurley Park.

- Salisbury Community Park: A 1.5 mile walking trail is available to park users.
- Dan Nicholas Park: There are several miles of trails at this park that connect users with the various site amenities.
- Dunn's Mountain Park: There are approximately 0.5 miles of hiking trails that take the trail user to the top of Dunn's Mountain.
- Eagle Point Nature Preserve: There are three miles of trails within this natural habitat, great for both walking and hiking.
- Ellis Park: This park consists of a 1.5 mile walking trail.
- Sloan Park and Kerr Mill: There are three miles of trails navigating through this passive green space.
- Walter M. Safrit Park: This park includes a 0.5 mile paved walking trail around the park.
- Lake Corriher Wilderness Area Park: (5 miles total) The area is broken up into the Yellow-DC Linn Trail, which navigates behind the soccer fields and leads to the spillway, the Red-Raider Trail, about a one mile loop around the small lake, the Blue-Blue Ridge Trail, a trail with both rough and steep terrain for users located on the left side of Lake Corriher, the Mt. Moriah Trail, which branches off the Blue Ridge Trail and offers a one mile loop behind



- Mt. Moriah Church, and Green-Swamp Trail, which navigates along the left side of Lake Corriher and over a mile of relatively flat terrain. Additionally, a ½ mile paved walking track circles one of the large soccer fields. The Down and Dirty Adventure Mud Run takes place by utilizing the above mentioned trails, as well as creating temporary new ones.
- Centennial Park: Centennial Nature Trail connects Centennial Park with Granite Lake Park, running approximately 0.25 miles.
  - Rockwell Park: There is a 0.25 mile asphalt walking track around the park amenities.”
  - The existing trails/blueways currently within Rowan County as part of local, city and county greenways are as follows:
    - 8th Street Greenway: This is a 10 foot wide paved trail and pedestrian walkway in Kannapolis. It connects Loop Road to 8th Street, crosses 8th Street and continues to West A Street, then ties into the existing Bakers Creek Park Greenway. 8th Street Greenway and Bakers Creek Greenway create a 2 mile loop.
    - Bakers Creek Greenway: This Kannapolis greenway runs through Bakers Creek Park and connects the 8th Street Greenway with Bakers Creek Park and then Village Park. Bakers Creek Greenway and 8th Street Greenway create a 2 mile loop.
    - Gold Hill Rail Trail/Greenway: This greenway is located within the Gold Hill Mines Historic Park. It navigates around the amenities within the park for about 1 mile in length. It winds through untouched forest and artifacts left over from the days when Gold Hill was the premier mining town in the entire nation. The trail is mixed terrain; part is a well laid gravel path and other areas are worn dirt paths.
    - Salisbury Greenway: This greenway is broken up into 5 sections. (1) The Prescott Connector measures 2,820 feet beginning near the Overton Elementary School and includes a covered bridge. This is the site of several community events, including the Earth Day Celebration, Greenway Growlers, 5K Run/Walk for the Greenway and the Land Trust Tree Lighting. (2) The Forest Hills section is approximately 1,700 feet and includes a bridge and a playground area. (3) The Memorial Park Loop section of the runs 2,463 feet, contains a bridge, and encircles a scenic lake. (4) The fourth section is approximately 1,890 feet in length and crosses a disc golf course, playground, picnic area and a ball field. (5) The final section runs along Brenner Avenue and encompasses 3,900 feet beginning at the Harris Teeter Shopping Center and continuing to the Union Hill / Oakdale Cemetery. Combined, the Salisbury Greenway spans nearly 2.5 miles.
    - Yadkin River Pee Dee River Trail: This blueway is a 125 mile long paddling trail which includes



multiple put-in and take-out areas for easy access to the river. The River Trail is mostly flat, with Class I ripples and a few Class II spots. The trail may be paddled by kayak or canoe beginning east of W. Kerr Scott Reservoir in Wilkes County, meandering east through Elkin and over towards Winston-Salem and then turning south along the boundaries of Davie, Rowan and Davidson counties to the entrance to High Rock Lake. Public access along the Yadkin River is limited to four improved boating launch points located in the area at Tamarac Marina, Bringle Ferry Road (Davidson), River Road and NC8/49 Highway (Stanley). A fifth primitive site is located on Providence Church Road.

Known proposed trail networks currently within Rowan County

- Stanback Loop: According to the Master Plan for Spencer Woods, the Stanback Loop would be a walking and biking connection from the adjacent neighborhood and the Spencer Woods Park, marking historical landmarks along the way. Discussions involve integrating signage and marketing to NC Transportation Museum as another fun thing to do while in Spencer.

#### COMMUNITY PLANS

Various community plans have been developed for Rowan County, all of which include information pertaining to greenways and trails that was utilized in The Carolina Thread Trail Master Plan for Rowan County Communities.

NCDOT Bike Routes in Rowan County

This plan identifies the Rowan County bicycle route system, a 226 mile network that links the cities, towns, points of interest and recreational areas. According to the plan, the routes encompass “rolling hills, interspersed with occasional short steep climbs.” There are 5 different routes, all of which are illustrated on the Master Plan in Chapter 5.

Route 1: Ellis Park, Sailsbury, Granite Quarry, Rockwell, Gold Hill

Route 2: China Grove, Faith, Dan Nicholas Park

Route 3: Ellis Park, China Grove, Landis, Cabarrus County Line

Route 4: Ellis Park, Cleveland, China Grove

Route 5: Salisbury, Spencer, East Spencer, Gold Hill

#### Land Use Plan: Areas West of I-85

This document was adopted in April 2009 and provides a general overview of the western part of the county in terms of population, housing, regional growth impacts/geography, history, economic development, land use, community/recreation facilities, schools, transportation and the natural environment. The document suggests the following recommendations, in terms of land use:

- Encourage conservation subdivision development where appropriate.
- Minimize the clearing of vegetation and preserve important natural features. Retain stone walls, hedgerows and other rural landscape elements.
- Allow common uses for protected open space, including agriculture and community gardens, pastures, meadows and wildlife habitat



preservation, recreational fields and trails, visual or sound barriers, and forest management.

- Encourage connectivity through open space networks with surrounding development to promote walking and biking, without mandating them over private property.

#### Land Use Plan Areas East of I-85

This plan was issued January 2012 and consists of information/statistics about the eastern half of Rowan County, such as geography and environment, population, housing, public facilities, schools, recreational facilities, transportation, infrastructure, historic places and agriculture. The document goes on to provide future land use recommendations, some of which are outlined below as they pertain to the Carolina Thread Trail:

- The rural character of the area can be better preserved by promoting the clustering of smaller residential tracts, while preserving open space and/or farmland. Opportunities for conservation subdivision design may offer more efficient and flexible lot design in order to preserve rural character.

- A mix of uses is encouraged in or near the community nodes.

- Connectivity should be promoted between adjacent developments and commercial nodes through open space networks that promote walking and biking, without mandating them over private property.

- Consider the establishment of a one-hundred foot minimum stream buffer for all new development in watershed protection areas and a

minimum fifty foot buffer for all new development outside of watershed protection areas.

Downtown Salisbury History and Art Trail: This trail is part of a long range plan that can be broken into two parts. First, a series of markers that incorporate both history and art will be installed on downtown sidewalks and buildings in locations appropriate to the events. Then, over a period of time, a series of larger public art installations will interpret key historic sites or events.

#### **DESTINATIONS**

Rowan County has a number of unique destinations that showcase the area's natural amenities, historic landmarks, and cultural experiences that attract local, regional, and statewide visitors.

Downtown Salisbury: The city's long history can be seen throughout the downtown area with its History and Art Trail, scary ghost walk tours, and



*Dan Nicholas Park - Salisbury, NC*



fascinating cemetery markers. Downtown boasts a wide variety of beautiful architecture throughout the downtown area.

**Dan Nicholas Park:** This 330 acre park attracts users from all over the county, as well as surrounding communities. It consists of 17 covered shelters, a recreational vehicle campground, large lake, paddle boats, concession stand, camping, soccer fields, baseball fields, and open passive fields, golf course, playground with handicap access, carousel, nature center, petting barn, outdoor theater, and



*North Carolina Transportation Museum, Spencer, NC*

several miles of trails.

**Dunn's Mountain Park:** This 83 acre park opened in 2006 and was developed using funds from Friends of the Mountain and a Parks & Recreation Trust Fund Grant (PARTF). The park land is protected through a conservation easement with the Land Trust for Central North Carolina. On a clear day, the skylines of Charlotte and Winston-Salem can be seen from the top of this mountain along with the quarries at the foot of the mountain. On weekends there is a shuttle to take visitors who chose not to hike to the top on the trail.

**Gold Hill Historic Park:** This park pays homage to the discovery of gold at this site in 1824. The area grew into a bustling mining town and became known as Gold Hill. The 70 acre park provides picnic areas, playground, rental facilities, historic homes and relics of the mining operation.

**Kannapolis Intimidators:** This baseball team plays at the CMC-NorthEast Stadium in Kannapolis and is the Class A affiliate in the Chicago White Sox minor league system. The team attracts families and sports teams from all over the region.

**NC Transportation Museum:** Allows users to discover the people and machines that have navigated industry and trade throughout North Carolina. It is located on the site of Southern Railway's former steam locomotive repair facility. Up to 3,000 people once worked here, but today visitors can see an authentic train depot, antique automobiles, and a roundhouse with about 25 locomotives.





## CHAPTER 4. PROPOSED TRAIL NETWORKS

### PLANNING PROCESS

A steering committee consisting of community stakeholders was formed to assist in the development of the Carolina Thread Trail Master Plan for Rowan County Communities. Representatives from the Town of Landis, Town of China Grove, Town of Cleveland, Town of East Spencer, Town of Faith, Town of Granite Quarry, City of Kannapolis, Town of Rockwell, City of Salisbury, Town of Spencer, community of Gold Hill, and other local advisory groups and organizations were appointed to the steering committee. To provide countywide insight to the steering committee, representatives from the Piedmont-Triad Regional Council of Governments, Catawba Center for Environment, Land Trust for Central NC, Duke Energy, Catawba College, Trust for Public Land and Carolina Thread Trail were also included. The steering committee and consultants for The Carolina Thread Trail Master Plan for Rowan County Communities followed the planning process summarized below.

#### September 2013

A project kick-off meeting was conducted to begin the planning process. The steering committee, consultants, and representatives from the Carolina Thread Trail discussed the trail planning process, the scope of The Carolina Thread Trail Master Plan for Rowan County Communities, and reviewed the project schedule. The committee agreed to host four community engagement sessions and began to explore meeting locations and dates. Each committee member received a project base map to identify existing parks, trails, schools, cultural sites, and potential destinations within their respective communities.

#### October 2013

Public involvement is critical to any successful public planning process and was integral to the identification of the routes for the Carolina Thread Trail Master Plan for Rowan County Communities. The steering committee reviewed and approved the community engagement session open house format and began planning the forums for January 2014. Trail survey questions were drafted by the consultant and reviewed and revised by the steering committee. The survey questions were designed to gather information from residents on general trail information, current trail use, recreation habits, potential or desired trail use, and demographic information. The committee shared methods of community outreach that would promote the engagement sessions.

#### January 2014

Community engagement sessions were held at the Saleeby-Fisher YMCA in Rockwell, the NC Research Campus in Kannapolis, the NC Transportation Museum in Spencer, and the Cleveland Town Hall in Cleveland. Each community engagement session was formatted as an informal drop-in open house. At each session residents were introduced to the Carolina Thread Trail through an informational video, asked to provide input regarding their current trail use, and to identify destinations around the ten Rowan County communities that they would like to access using future trails. Maps of the entire county and of each municipality were provided at each session on which citizens could write and draw trail ideas. Attendees filled out the committee approved survey at each session, and an online survey was available for residents unable to attend one of the four community engagement sessions.



January-March 2014

The input gathered through the four community engagement sessions and the online surveys were compiled, analyzed, and shared with the Steering Committee. The results served as the basis for locating potential trail corridors throughout the Rowan County communities.

Though the counties to the north and east lie outside of the Carolina Thread Trail footprint, connecting to the adjacent counties ensures The Carolina Thread Trail Master Plan for Rowan County Communities will provide regional connectivity. An inter-jurisdictional meeting was held with representatives from the adjacent counties, Davie and Davidson, to review the current master planning effort in the Rowan County communities and the greenway planning efforts in Davie and Davidson and key cross-county connection points were identified.

March 2014

The Wil-Cox Bridge, a bridge built in 1922, was the first free bridge over the Yadkin River that connected Rowan and Davidson Counties. The bridge previously carried traffic travelling along US 29/70 across the river, but was recently decommissioned from vehicular traffic and a new bridge was built alongside the Wil-Cox Bridge. As of May 2014, North Carolina Department of Transportation (NCDOT) turned the ownership of the bridge over to Davidson County for use as a bicycle and pedestrian bridge only. Alongside the efforts to create this master plan for the Carolina Thread Trail, the Tourism-Recreation Investment Partnership for Davidson County Foundation (TRIP) requested the assistance of the North Carolina Chapter of the American Society of Landscape Architects (NCASLA) to hold a charette to look at the planning and programming for



Public Open House at the NC Transportation Museum



the Wil-Cox Bridge and surrounding area. Representatives from Davidson County, the Town of Spencer, the City of Salisbury, Stewart, the Carolina Thread Trail, NCDOT Safe Routes to School, Alcoa, the Deputy Secretary of Cultural Resources, NC Transportation Museum, Piedmont Triad Council of Governments, Land Trust for Central NC, and members of the NC ASLA attended a Preview Day with a site visit in March and the Charette in April. A document summarizing the ideas and plans from the charette is being compiled. The final document had not been released at the time of this report.

#### April-June 2014

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 throughout the Rowan County communities. This process took into account all of the input from the public meetings and the survey responses. The resulting draft greenway master plan identified approximately 107.8 miles of trails and 69.7 miles of blueways.

#### June 2014

The preliminary trail routes identified by the technical advisory team were reviewed in the field through a two-day "ground-truthing" excursion. The consultants led the team members on a driving and walking tour of each potential route to review existing topography, character, and potential obstacles and to assess the feasibility and ease of trail construction. Routes with significant obstacles or conditions not conducive to safe, enjoyable trail environment were eliminated or relocated. Several routes were also added in order to include all ten communities and to existing trails discovered during the field trip.

#### July 2014

Draft master plan review forums were held at Granite Quarry Town Hall in Granite Quarry, Salisbury Community Park in Salisbury, 8th Street Park in Spencer, and at a Kannapolis Intimidators Baseball Game in Kannapolis. Participants provided input on the draft trail routes, which were developed using the input from the first round of forums. The draft metrics for the trail were provided at these events as well, delineating the trail lengths, type of trail (on-road or off-road), connections to the community, and walking distances to the top destinations.

#### August - October 2014

The input received from the draft master plan review forums was used by the steering committee/technical advisory team to refine the potential trail routes to create the final Carolina Thread Trail Master Plan for Rowan County Communities. The consultant created the draft master plan report, summarizing the entire planning process, for review and comment from the steering committee.



Plan Review Forum at 8th Street Park, Spencer, NC



## CAROLINA THREAD TRAIL MASTER PLAN FOR ROWAN COUNTY COMMUNITIES

The final trail routes of the Carolina Thread Trail through the Rowan County communities consists of 107.8 miles of trails located along stream/river corridors, road right-of-ways, abandoned rail lines, utility easements, undeveloped land, and bike routes. Almost half of the recommended trails are located along existing road right-of-ways (51.3 miles), while the next highest trail type is along stream/river corridors (19.0 miles), mostly along Grant's Creek, with the third largest trail type being along Rowan County Bike Routes (14.3 miles). A total of 69.7 miles of blueways have also been identified along the Yadkin and South Yadkin Rivers and their tributaries.

The pink lines on the Carolina Thread Trail Master Plan for Rowan County Communities map represent the final Carolina Thread Trail segments within the communities. Potential routes within the county proper will require further study. The Carolina Thread Trail designated routes are shown as ¼-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 municipalities.

The Carolina Thread Trail in the Rowan County communities will provide connectivity to many unique destinations within the communities. The most desired destinations, as indicated by residents were Downtown Salisbury, Dan Nicholas Park, High Rock Lake, Rowan County Libraries, and Catawba College. All of these places, along with thirteen schools (36.1% of schools in Rowan County), and all four Rowan County Libraries are located within walking distance (0.25 mile) of a proposed Carolina Thread Trail route. The proposed Carolina Thread Trail for

Rowan County Communities links to two adjacent counties located within the Thread Trail region, Iredell and Cabarrus Counties, and two outside the region, Davie and Davidson Counties.

All ten municipalities and one community in the county are linked by the recommended Carolina Thread Trail segments. Almost half, 47.1%, of all Rowan County Communities' residents live within 0.5 mile of the proposed routes. This includes 49.3% of Rowan County Communities' children, 44.7% of the county's seniors, and 61.7% of low income households.

The steering committee also identified 15.0 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 or were parallel to other proposed routes. However, these trail segments provide important connections within Rowan County Communities that could be included in future trail plans within their respective municipalities.

## ROWAN COUNTY COMMUNITIES CAROLINA THREAD TRAIL SEGMENTS

The maps on the following pages show the entire Rowan County Communities Carolina Thread Trail Master Plan, each of the communities, and several additional maps of the trail.



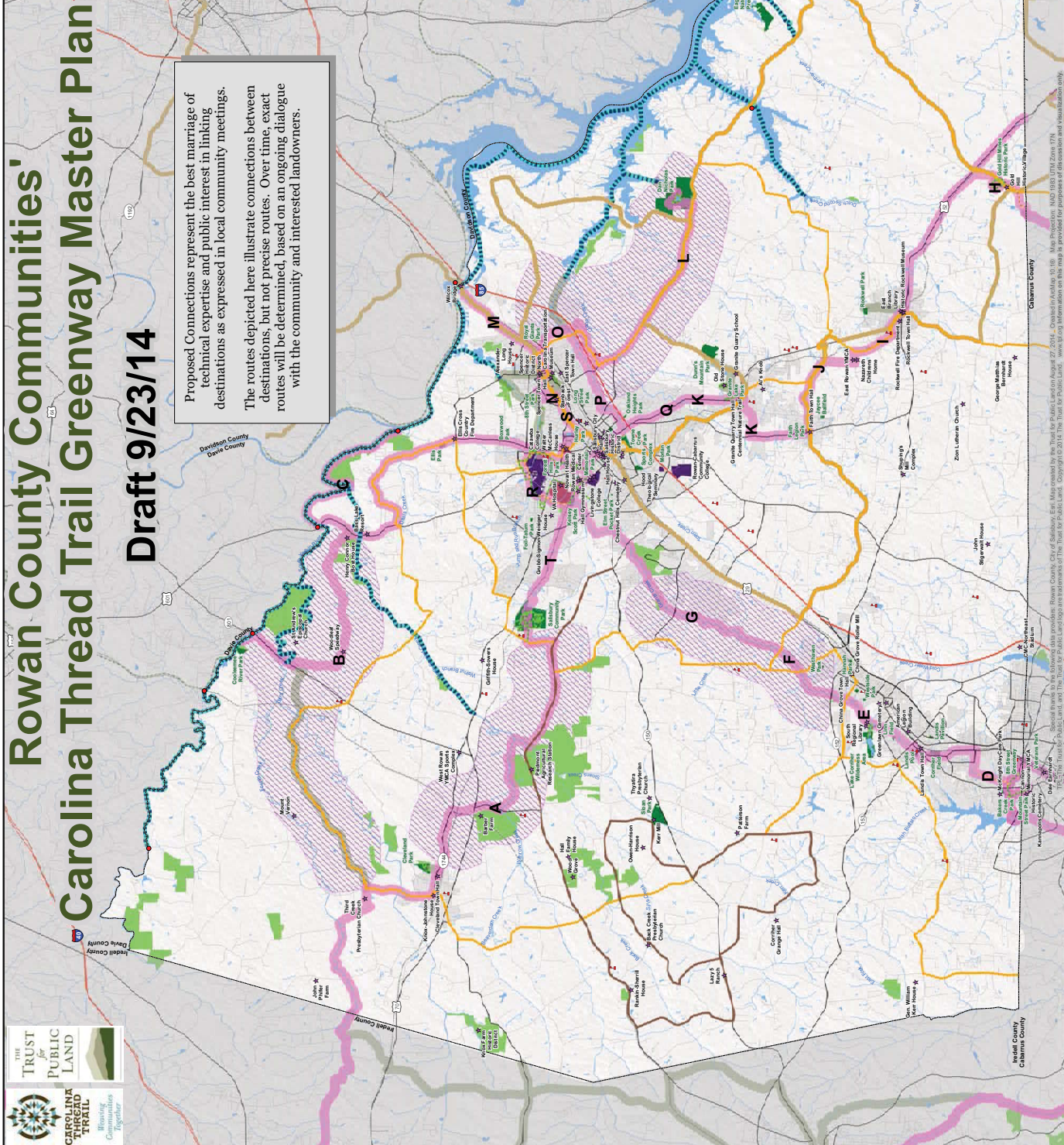
# Rowan County Communities' Carolina Thread Trail Greenway Master Plan

## Draft 9/23/14

Proposed Connections represent the best marriage of technical expertise and public interest in linking destinations as expressed in local community meetings.

The routes depicted here illustrate connections between destinations, but not precise routes. Over time, exact routes will be determined, based on an ongoing dialogue with the community and interested landowners.

	Rowan Connection Opportunities
	Proposed Carolina Thread Trail
	Proposed Other Connections
	Proposed Blueway Connections
	Area Requires Further Study
	Destinations
	School
	Boat Access
	Parks
	Other Managed and Conserved Lands
	College
	Hospitals
	Existing Trail
	Proposed Trail
	PTCOG Proposed Regional Trails
	Rowan County Bike Route
	Proposed PTRC Central Bike Plan
	North Carolina Scenic Byway
	Streams
	Waterbodies
	Railroads
	Interstate
	Highway
	Major Road
	Local



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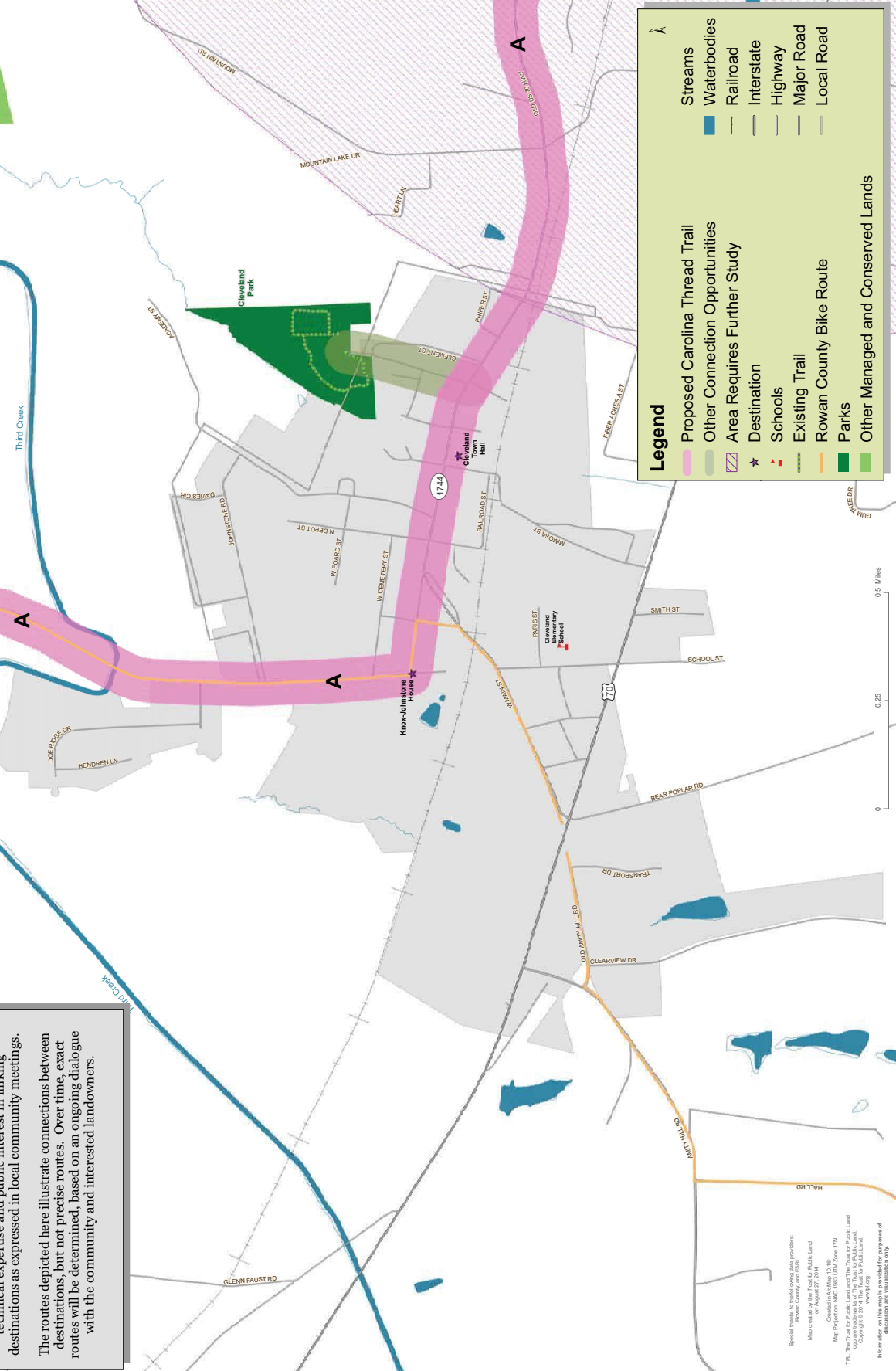


# Rowan County Communities Cleveland, NC

Draft 9/23/14



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**Legend**

- Streams
- Waterbodies
- Railroad
- Interstate
- Highway
- Major Road
- Local Road
- Proposed Carolina Thread Trail
- Other Connection Opportunities
- Area Requires Further Study
- Destination
- Schools
- Existing Trail
- Rowan County Bike Route
- Parks
- Other Managed and Conserved Lands

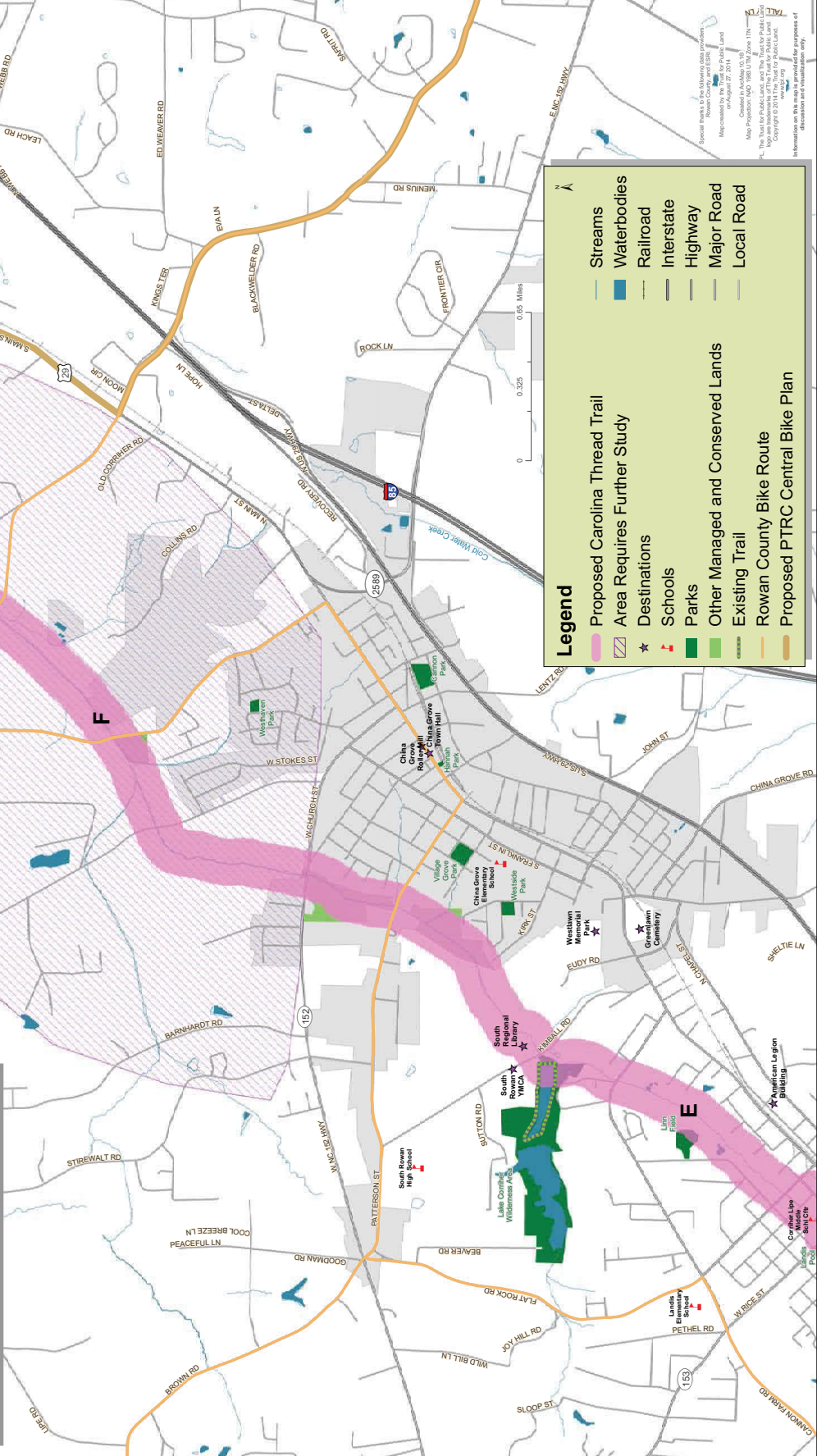
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Map created by The Trust for Public Land  
on August 27, 2014  
Cleveland, NC  
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# Rowan County Communities China Grove, NC

Draft 9/23/14

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### Legend

- Proposed Carolina Thread Trail
- Area Requires Further Study
- Destinations
- Schools
- Parks
- Other Managed and Conserved Lands
- Existing Trail
- Rowan County Bike Route
- Proposed PTRC Central Bike Plan
- Streams
- Waterbodies
- Railroad
- Interstate
- Highway
- Major Road
- Local Road

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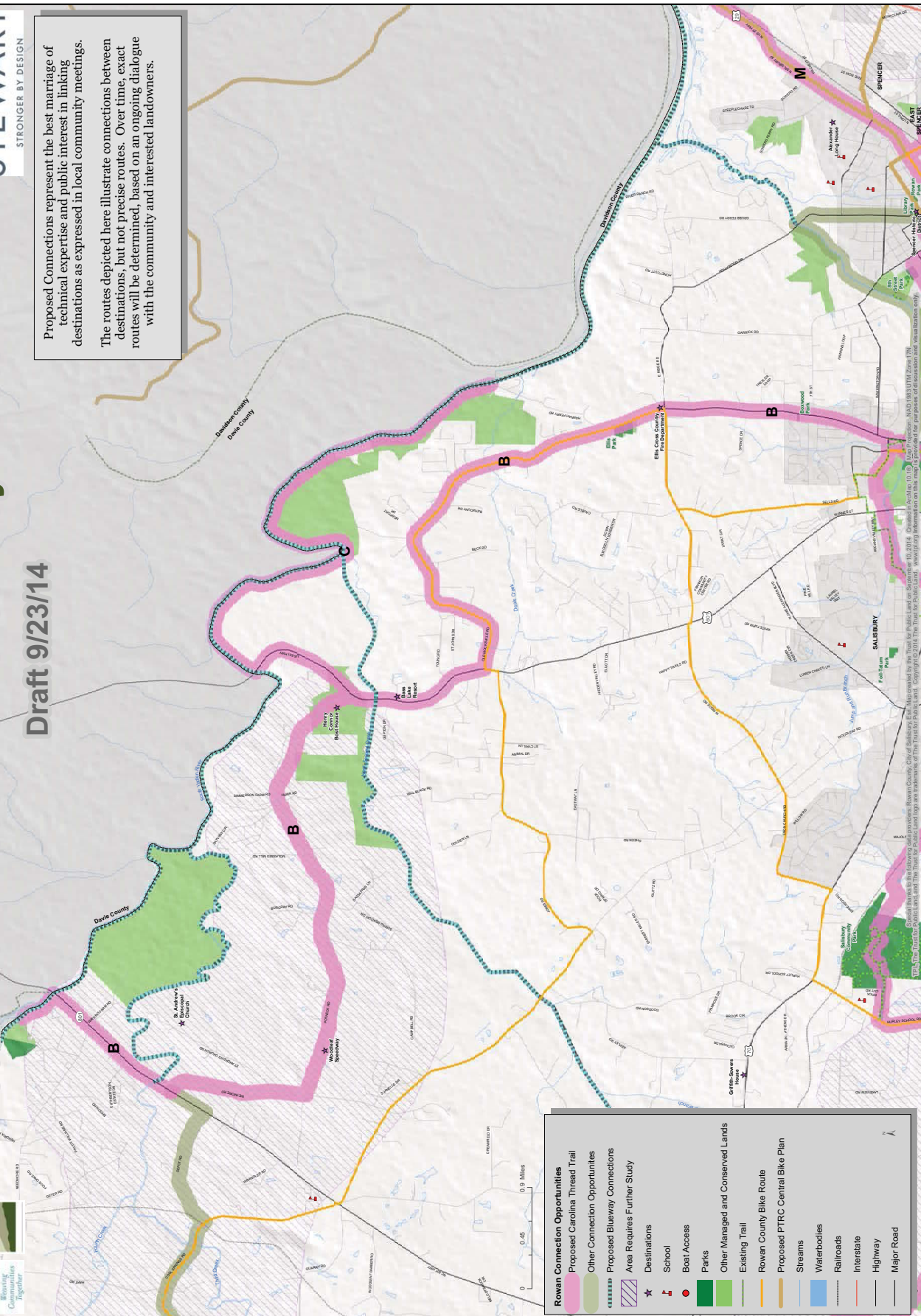


# Rowan County Communities' Carolina Thread Trail Greenway Master Plan

Draft 9/23/14



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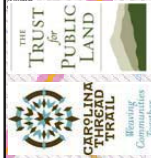


**Rowan Connection Opportunities**

- Proposed Carolina Thread Trail
- Other Connection Opportunities
- Proposed Blueway Connections
- Area Requires Further Study
- Destinations
  - School
  - Boat Access
  - Parks
  - Other Managed and Conserved Lands
- Existing Trail
- Rowan County Bike Route
- Proposed PTRC Central Bike Plan
- Streams
- Waterbodies
- Railroads
- Interstate
- Highway
- Major Road

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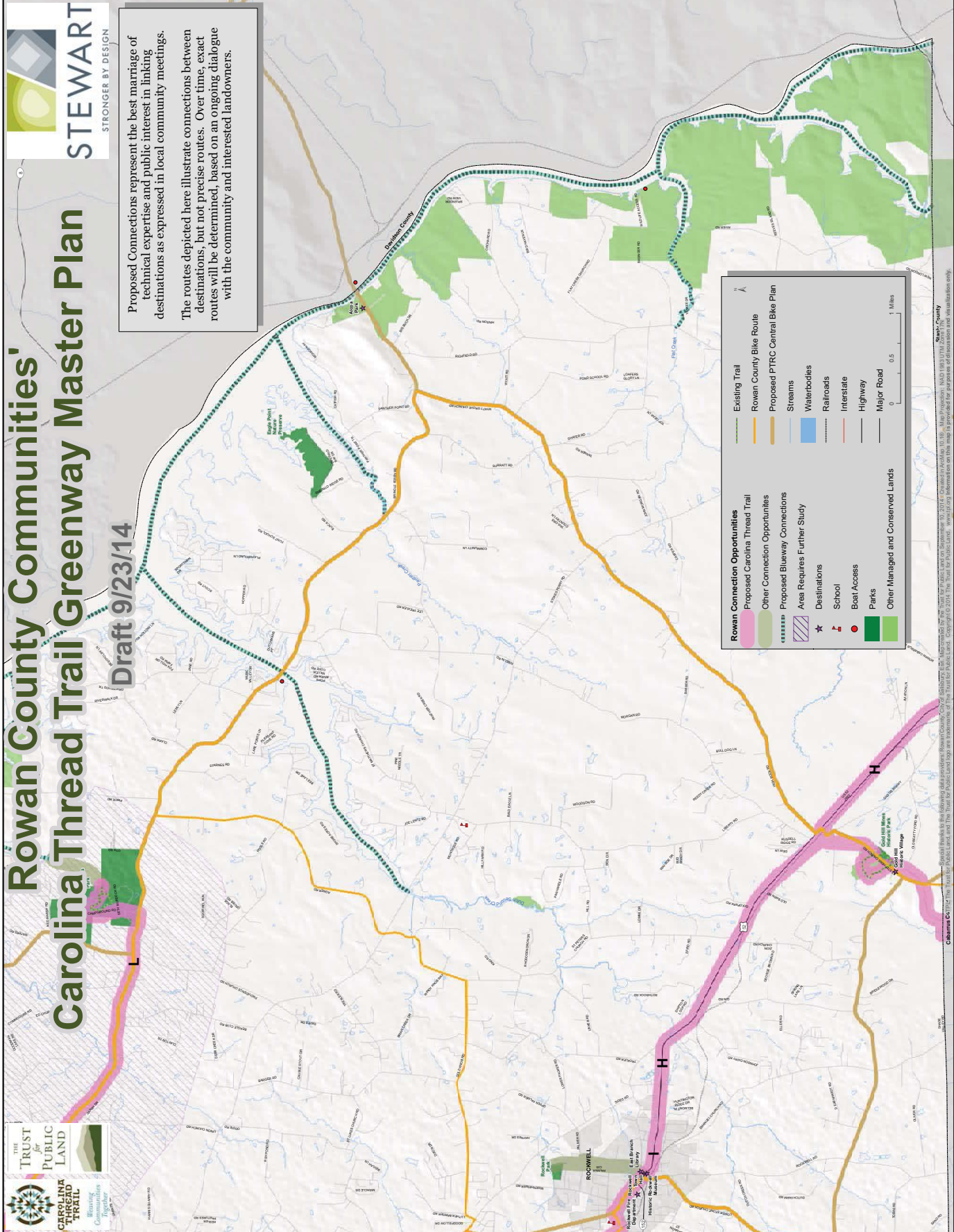


# Rowan County Communities' Carolina Thread Trail Greenway Master Plan

## Draft 9/23/14



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**Rowan Connection Opportunities**

- Proposed Carolina Thread Trail
- Other Connection Opportunities
- Proposed Blueway Connections
- Area Requires Further Study

**Destinations**

- School
- Boat Access
- Parks
- Other Managed and Conserved Lands

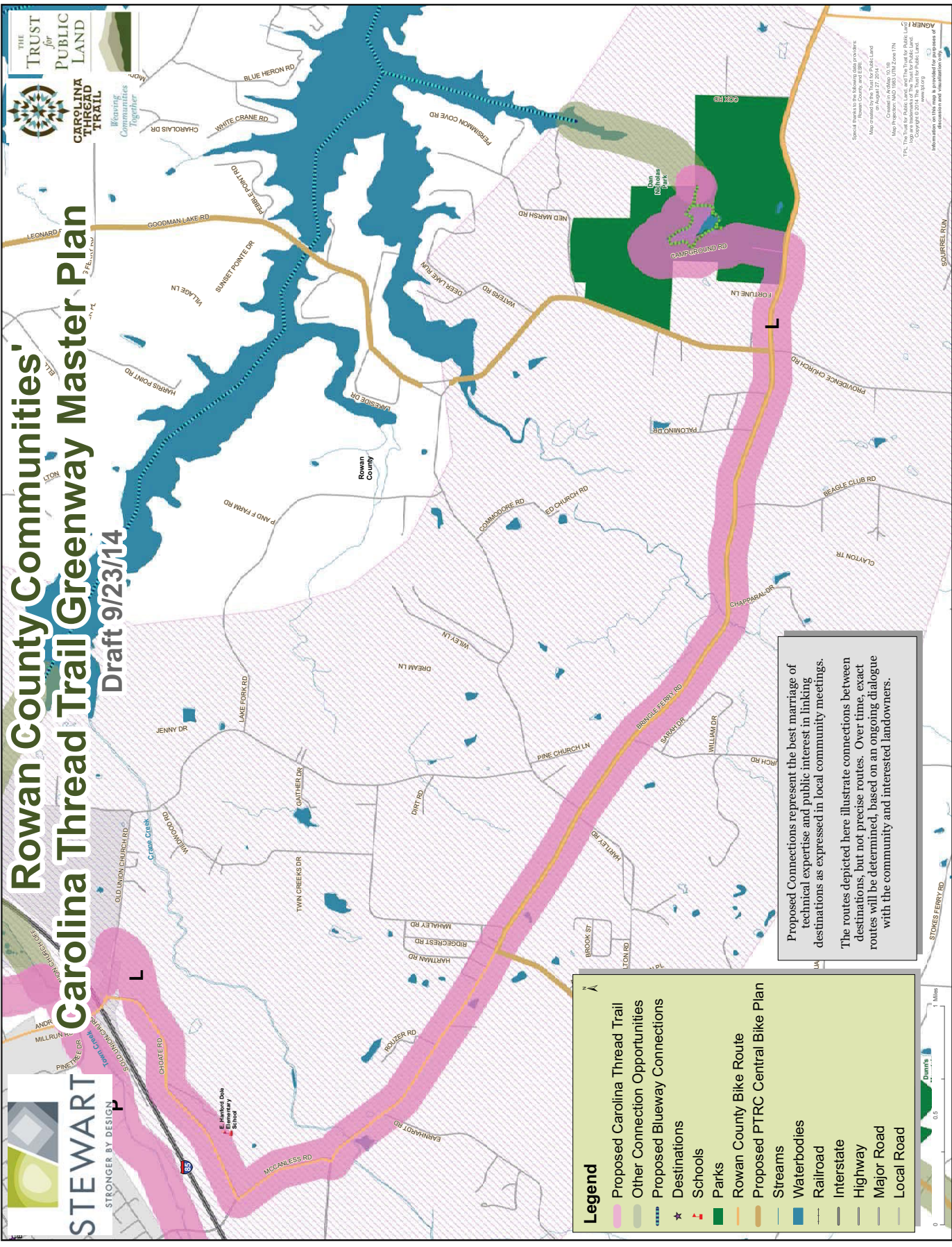
**Rowan Connection Opportunities**

- Existing Trail
- Rowan County Bike Route
- Proposed PTRC Central Bike Plan
- Streams
- Waterbodies
- Railroads
- Interstate
- Highway
- Major Road

Scale: 0 to 1 Miles

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# Rowan County Communities' Carolina Thread Trail Greenway Master Plan

## Draft 9/23/14



**STEWART**  
STRONGER BY DESIGN

- Legend**
- Proposed Carolina Thread Trail
  - Other Connection Opportunities
  - Proposed Blueway Connections
  - Destinations
  - Schools
  - Parks
  - Rowan County Bike Route
  - Proposed PTRC Central Bike Plan
  - Streams
  - Waterbodies
  - Railroad
  - Interstate
  - Highway
  - Major Road
  - Local Road

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# Rowan County Communities East Spencer, NC

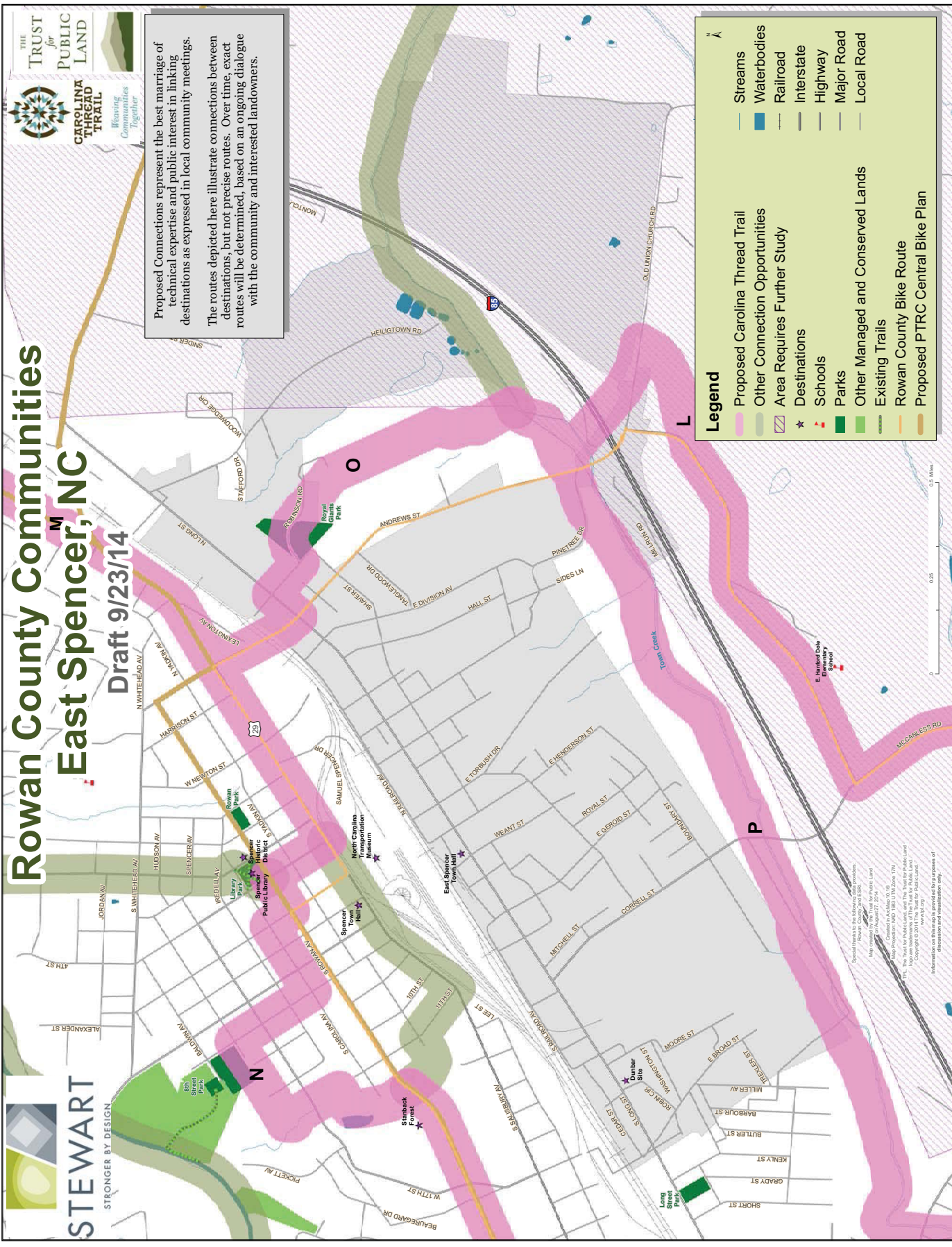
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### Legend

- Streams
- Waterbodies
- Railroad
- Interstate
- Highway
- Major Road
- Local Road
- Proposed Carolina Thread Trail
- Other Connection Opportunities
- Area Requires Further Study
- Destinations
- Schools
- Parks
- Other Managed and Conserved Lands
- Existing Trails
- Rowan County Bike Route
- Proposed PTRC Central Bike Plan



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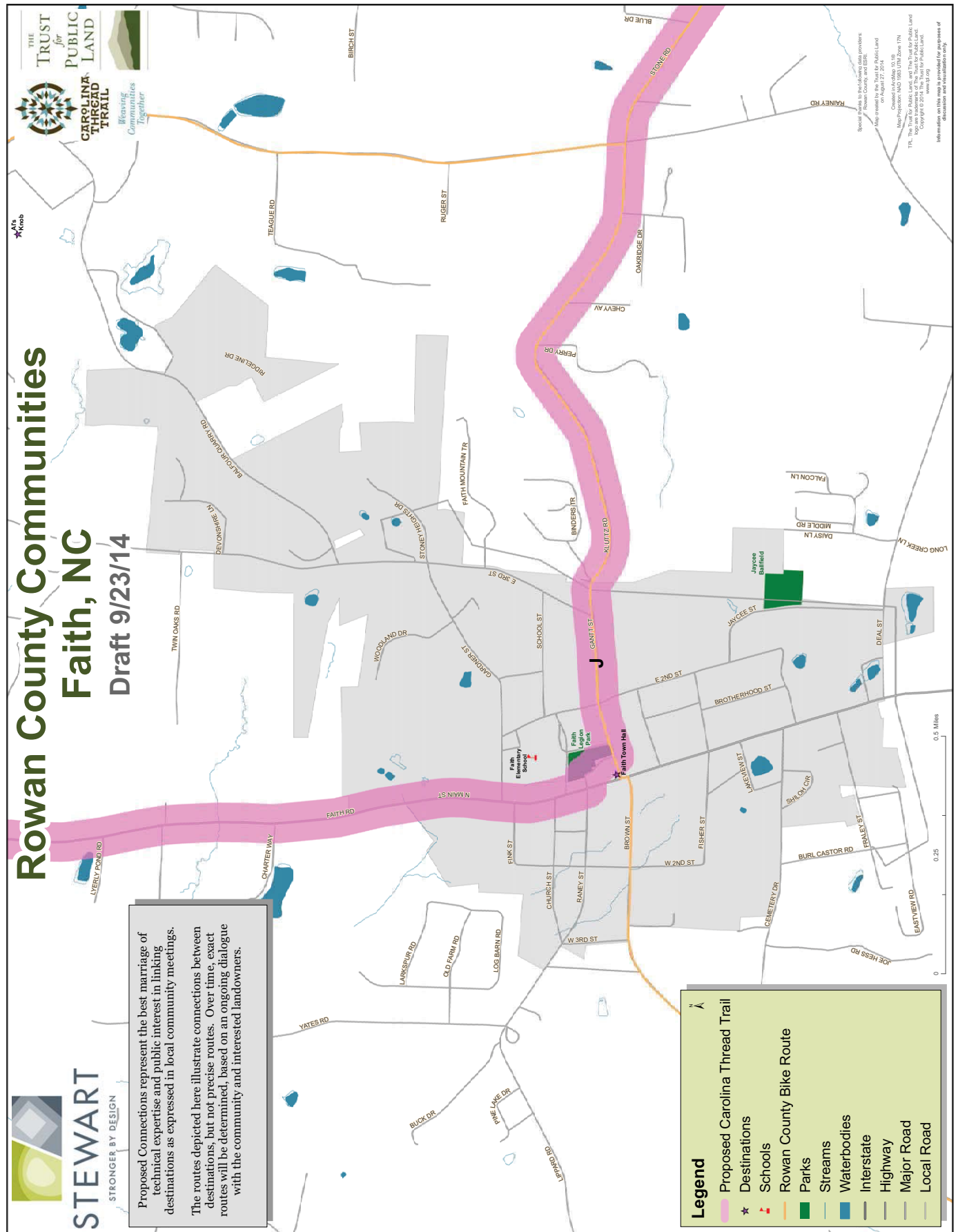
# Rowan County Communities Faith, NC Draft 9/23/14



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**Legend**

- Proposed Carolina Thread Trail
- Destinations
- Schools
- Rowan County Bike Route
- Parks
- Streams
- Waterbodies
- Interstate
- Highway
- Major Road
- Local Road



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# Rowan County Communities Gold Hill, NC

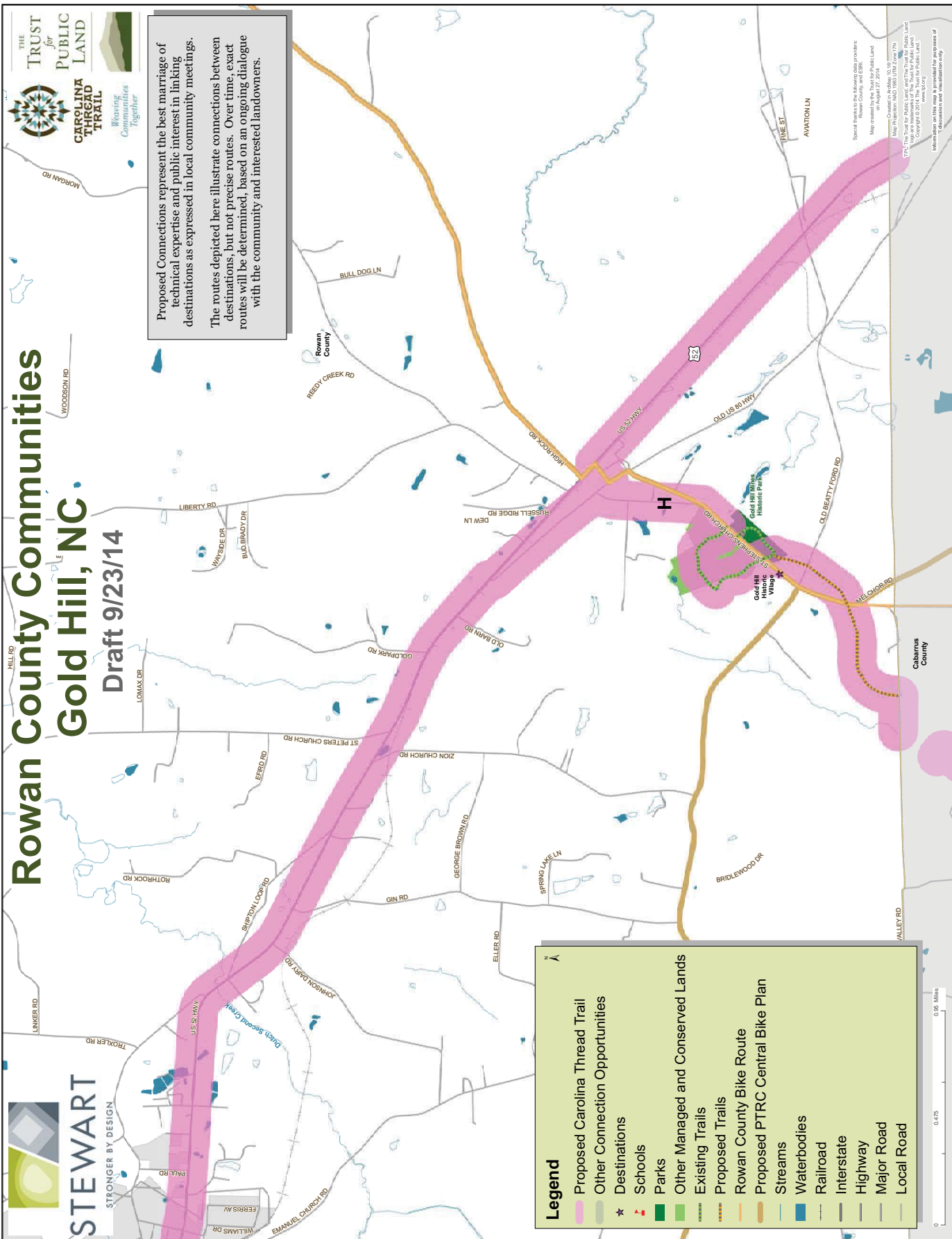
Draft 9/23/14



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**Legend**

- Proposed Carolina Thread Trail
- Other Connection Opportunities
- Destinations
  - Schools
  - Parks
- Other Managed and Conserved Lands
- Existing Trails
- Proposed Trails
- Rowan County Bike Route
- Proposed PTRC Central Bike Plan
- Streams
- Waterbodies
- Railroad
- Interstate
- Highway
- Major Road
- Local Road



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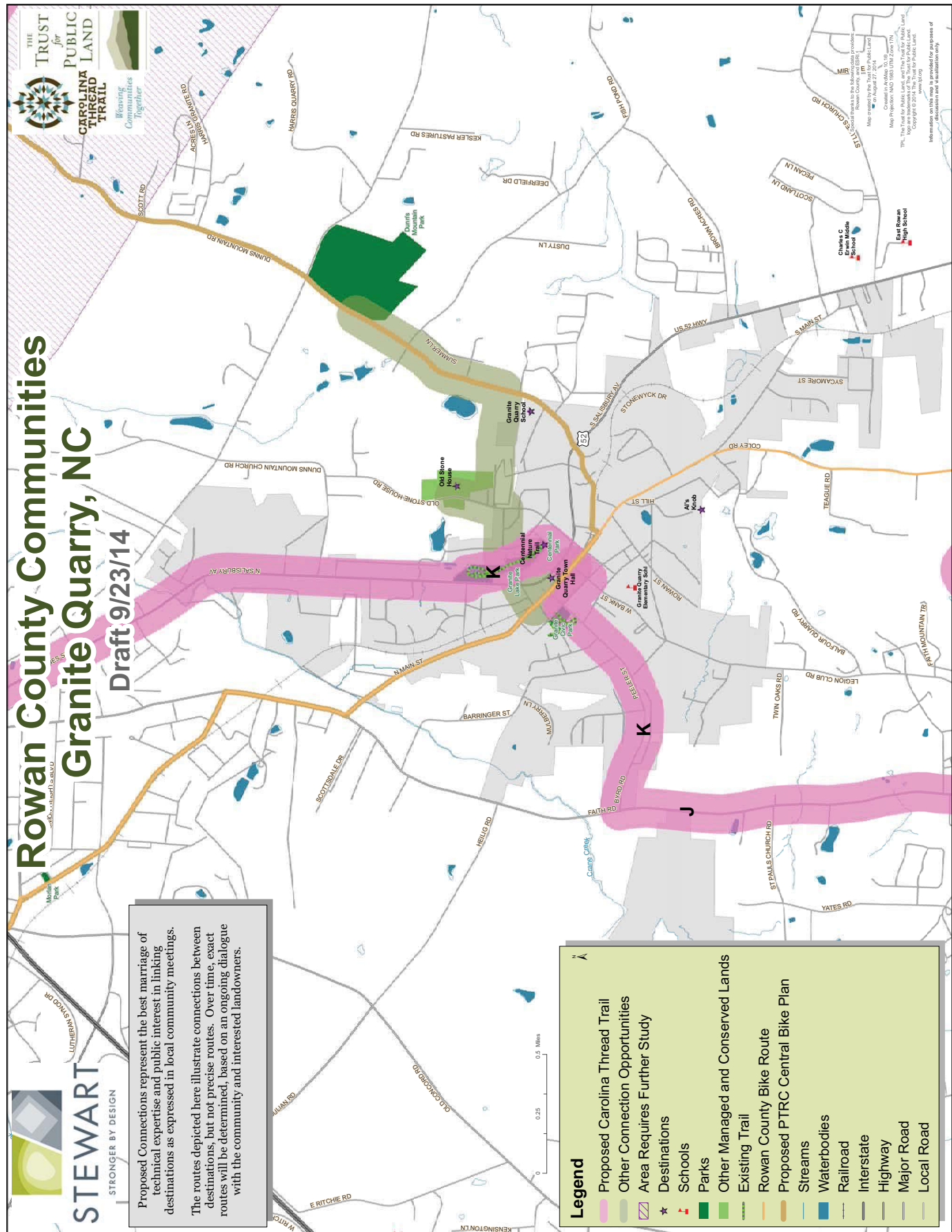


# Rowan County Communities Granite Quarry, NC

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**Legend**

- Proposed Carolina Thread Trail
- Other Connection Opportunities
- Area Requires Further Study
- Destinations
- Schools
- Parks
- Other Managed and Conserved Lands
- Existing Trail
- Rowan County Bike Route
- Proposed PTRC Central Bike Plan
- Streams
- Waterbodies
- Railroad
- Interstate
- Highway
- Major Road
- Local Road

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# Rowan County Communities Kannapolis, NC

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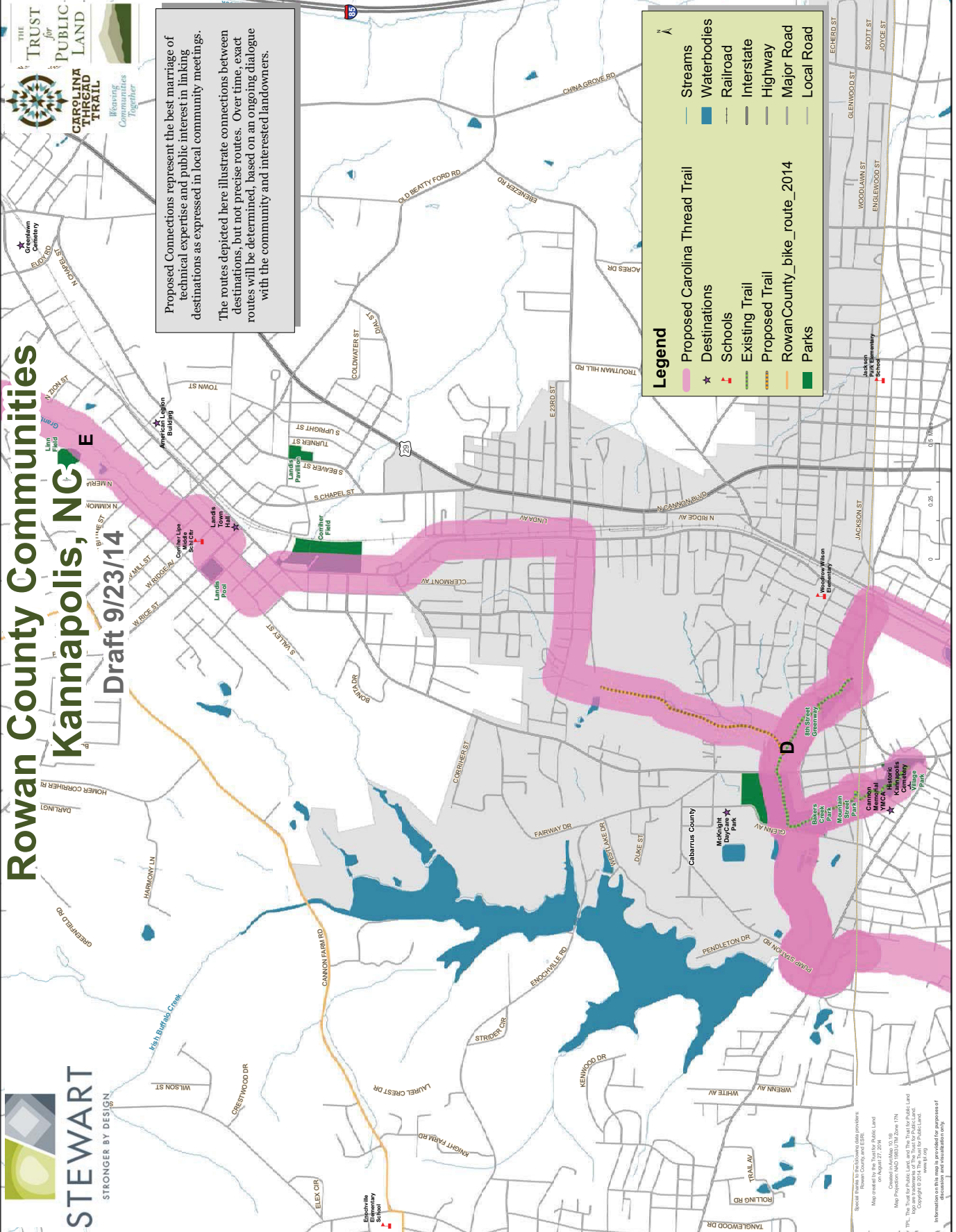


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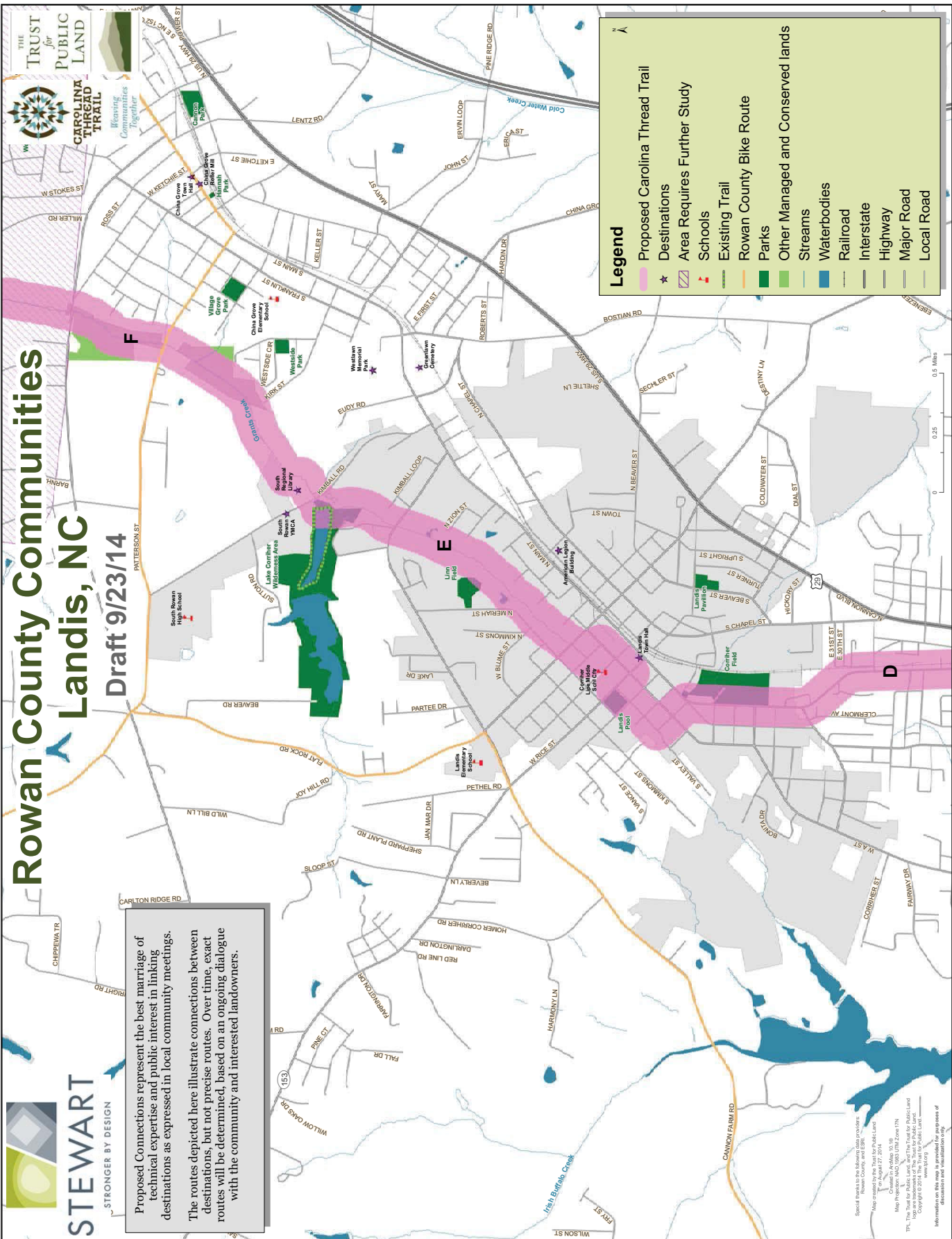
**Legend**

- Streams
- Waterbodies
- Railroad
- Interstate
- Highway
- Major Road
- Local Road
- Proposed Carolina Thread Trail
- Destinations
- Schools
- Existing Trail
- Proposed Trail
- Rowan County\_bike\_route\_2014
- Parks



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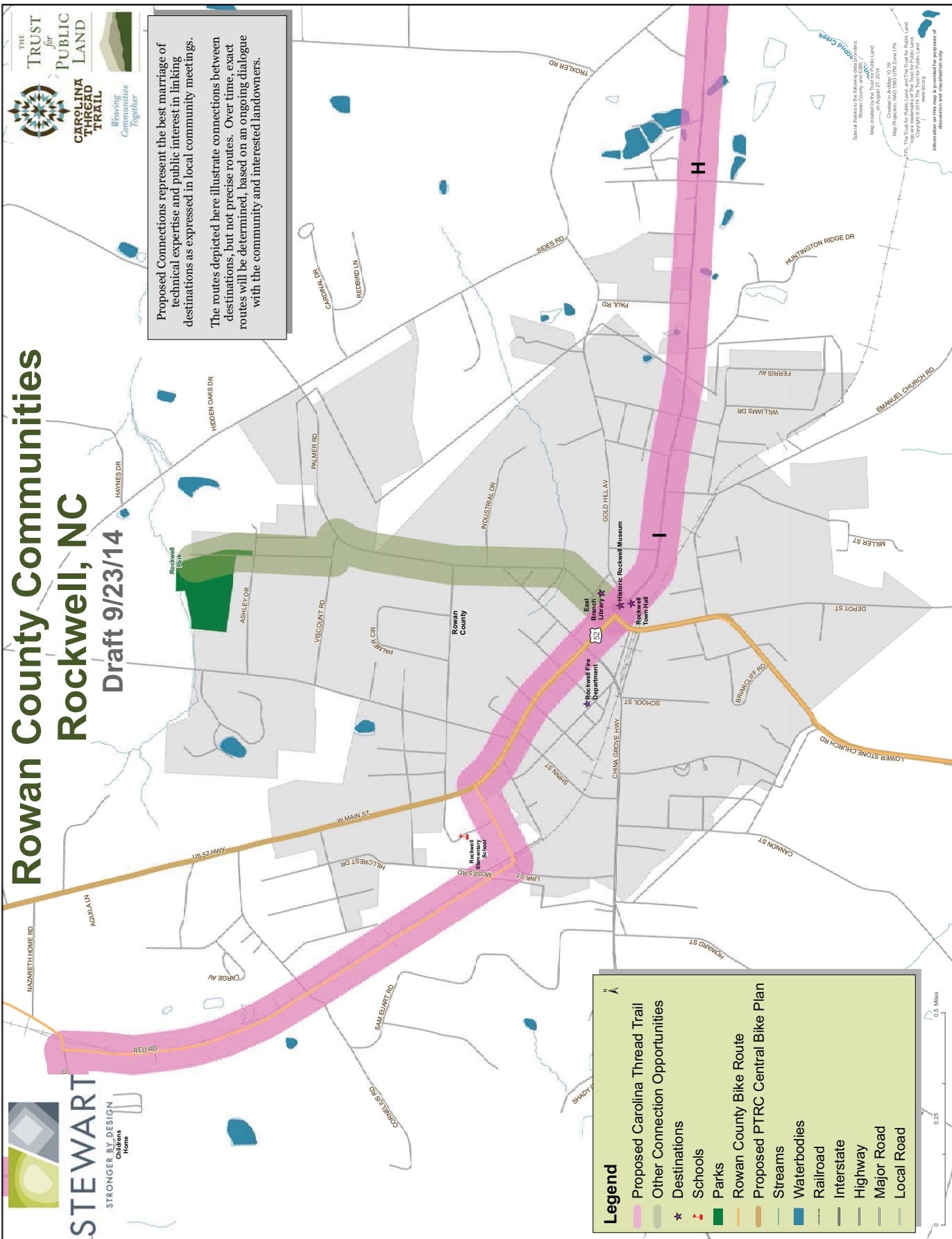
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**Legend**

- Proposed Carolina Thread Trail
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- Destinations
  - Schools
  - Parks
- Rowan County Bike Route
- Proposed PTRC Central Bike Plan
  - Streams
  - Waterbodies
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# Rowan County Communities Spencer, NC

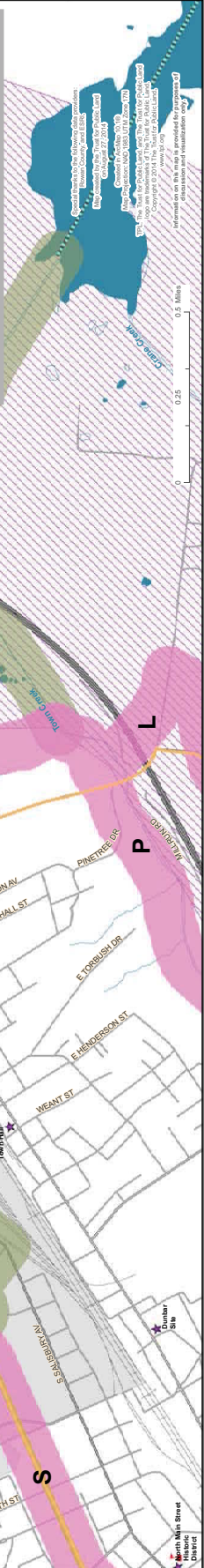
Draft 9/23/14



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### Legend

- Proposed Carolina Thread Trail
- Other Connection Opportunities
- Proposed Blueway Connections
- Area Requires Further Study
- Destinations
- Schools
- Parks
- Other Managed and Conserved Lands
- Existing Trails
- Rowan County Bike Route
- Proposed PTRC Central Bike Plan
- Streams
- Waterbodies
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## CHAPTER 5. RECOMMENDED ACTIONS FOR IMPLEMENTATION

The completion of the Carolina Thread Trail Master Plan for Rowan County Communities by the steering committee signifies the beginning of the implementation process of trails in Rowan 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 route into a built trail.

### ADOPT MASTER PLAN

Once the Rowan Carolina Thread Trail Master Plan for Rowan County Communities has been reviewed and approved by the steering committee, the next step in the trail development process is adoption of the master plan by Salisbury, China Grove, East Spencer, Cleveland, Faith, Gold Hill, Granite Quarry, Kannapolis, Landis, Rockwell, and Spencer. 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 municipalities underscore their support for the development of trail segments within their communities. Each municipal



*Downtown Landis*

entity is encouraged to revisit existing zoning and land development ordinances to make revisions and additions to those 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.

### Master Plan Adoption Checklist

- Incorporate revisions and additions to the master plan upon completion of steering committee review and comment of draft master plan.
- Provide final draft master plan to municipal agencies and advisory groups 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 Carolina Thread Trail Master Plan for Rowan County Communities is a product of the residents of the communities within Rowan County. This plan was developed by a dedicated group of county residents who served on the steering committee and technical advisory team. The location of the Carolina Thread Trail within the Rowan County communities was based primarily on feedback received from county residents through the public master planning process. This master plan should be championed forward by the residents. The second step of the trail development process involves continued public involvement and support for the Carolina Thread Trail in the communities within Rowan County.



It is the recommendation of this master plan that the municipalities 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 residents, government officials and staff, regional entities, local utility providers, and state transportation agencies. Each of the 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 the greenway plans beyond the county boundaries. Representatives from local utility providers like Duke Energy and Piedmont Gas will help reduce conflicts between trails and utilities during trail planning, design, 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 municipal agencies, boards, and commissions, in particular any public works, recreation boards, development commissions and chambers of commerce in the communities and associated

with the county. Coordination between these agencies, boards, and commissions will ensure planning efforts are not duplicated, and that municipal, 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 pooling available funds. Expertise offered by recreation and conservation partners can provide valuable insight for trail construction, trailhead development, and land or easement acquisition.

#### Checklist

- Create the Rowan County Communities 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 agencies, boards and commissions
- Develop partnerships for trail development



*Wil-Cox Bridge across Yadkin River*



## PLAN AND DEVELOP PRIORITY GREENWAYS

It is unrealistic to expect Rowan County Communities to develop all 107.8 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 the communities of Rowan County.

### Public Support

It is important that the residents of each community 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 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 from willing land owners 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 within the communities must provide connections between multiple destinations (cultural facilities, parks, schools, colleges, neighborhoods, commercial areas, etc.). Responses from the community engagement sessions, draft master plan review forums, and online surveys illustrate which destinations within the communities 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 communities and their 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, National Park Service, 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 the communities of Rowan



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 the Carolina Thread Trail routes should be identified. NCDOT 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 within the communities of Rowan County should have available funding for the development, completion, and maintenance of the project.

#### Checklist

- Identify the three to five most popular trail routes per input gathered through the Carolina Thread Trail master planning process
- Determine which Carolina Thread Trail routes are along or within property under public or non-profit ownership
- Identify the three to five trail routes located within more heavily populated areas
- Identify the three to five trail routes 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 within the communities of Rowan County
- Determine the availability for funding Carolina Thread Trail trail development in each community.

#### **PRIORITY TRAIL ROUTES:**

The following Carolina Thread Trail segments in the Rowan County Communities 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:





## IDENTIFY FUNDING AND FINANCING

The completion of the Carolina Thread Trail Master Plan for Rowan County Communities signals the end of the first step in trail development and the beginning of the crucial second step: funding and financing. Rowan County communities 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 Rowan County communities 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 Rowan County Communities 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. Appendix 4 of the Carolina Thread Trail Master Plan for Rowan County Communities report provides specific federal funding programs that may be used for trail development.

### State Funding Options:

Most state funding available to counties within North Carolina for trail development is managed through NCDOT and the North Carolina State Parks System. Most state appropriated funding is limited to specific types of projects and requires matching funds of varying percentages of the grant request. Rowan County Communities will need to carefully review all state grant programs and plan appropriately for providing matching funds when required. Appendix 4 of the Carolina Thread Trail Master Plan for Rowan County Communities report provides specific state funding programs that may be used for trail development.

### Local Funding Options:

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

- Discretionary annual spending, called the General Fund, refers to spending that must be agreed upon on an annual basis. Trail development funds would need to be appropriated within each communities' annual budget to a specific department's annual operating budget and would range in value annually.
- Dedicated funding for trail development would require Rowan County communities 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 Rowan County communities will be tied to each communities' budgetary resources, taxing capacity, political will, and voter preference. The communities located within Rowan County have shown an interest and dedication to trail development with their support of the Carolina Thread Trail Master Plan for Rowan County Communities.

#### Private Funding

Trail development in the communities of Rowan 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 Carolina Thread Trail 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 the 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 Rowan County communities will involve a combination of public and private funding sources. Appendix 4 of the Carolina Thread Trail Master Plan for Rowan County Communities report provides specific funding sources and programs that may

be used for trail development.

#### 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 Rowan County communities plan 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. Rowan County communities should utilize a variety of land acquisition methods, working with willing landowners, for the protection and preservation of land for trail development.

#### Purchase

Rowan County communities 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 waterway. 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. Rowan County communities should work with underlying landowners and NCDOT to determine the current status of rail corridors within their communities. Owners and operators of active railroads are traditionally unwilling to allow trail development within rail rights-of-way due to safety concerns.

#### 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 Rowan County.
- Understand the current status of abandoned rail lines with NCDOT.
- Discuss trail development along and across active rail corridors with owners/operators.

#### DESIGN, CONSTRUCT, AND MAINTAIN TRAILS

As the municipalities within Rowan County, and their partners select a segment(s) of the Carolina Thread Trail and acquire necessary land and/or easements for the trail, the design and construction of the trail can begin. Each municipality 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 use(s), 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 flooding 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 Carolina Thread Trail Master Plan for Rowan County Communities process revealed that 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, using recent figures from similar projects to estimate construction costs. The actual costs of

trail development 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. Rowan County communities must identify the entity(ies) that will be responsible for the trail maintenance during the initial phase of trail design. Interaction during the design process will allow the county to be mindful of both construction and maintenance costs.

Rowan County communities should also include emergency service personnel and representatives from local police and sheriff departments 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 designers, governmental officials, and other personnel to develop safe facilities that are inviting and reduce perceived criminal activity. Designing visible open 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.



Checklist:

- Determine the preferred use or uses for the trail.
- Design trail to accommodate preferred use(s), 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.





## CHAPTER 6. CONCLUSION

The Carolina Thread Trail Master Plan for Rowan County Communities represents a citizen led collaborative planning process for the provision of trails throughout the communities within Rowan County. Now that the master planning process is complete, it is the responsibility of the citizens within Cleveland, China Grove, Landis, Rockwell,

Granite Quarry, Salisbury, East Spencer, Spencer, Faith, Kannapolis and Gold Hill to transform this plan from pink lines on a map to physical trails on the ground. The Carolina Thread Trail will provide important connections throughout Rowan County Communities, linking residents to the local destinations that make each community unique.

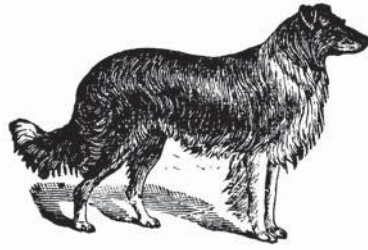


*China Grove Roller Mills, Inc - China Grove*



*High ground north of Cleveland, North Carolina*





## APPENDIX I: COMMUNITY ENGAGEMENT SESSIONS

### SUMMARY

Public involvement is an important aspect of any public planning effort. Four community engagement sessions were held in January 2014 in various locations around Rowan County. Each session was designed to educate residents on the benefits of trails, introduce residents to the greenway master planning process, identify the types of uses residents prefer trails to accommodate, and begin to define trail corridors. Participants were also asked to identify their five top destinations within Rowan County and its communities. 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 the Rowan County communities.

A total of 62 residents participated in the first round of community engagement sessions. The location and attendance for each session is included below:

#### Rockwell

Saleeby-Fisher YMCA  
950 Kimball Road  
China Grove, NC 28023  
Tuesday, January 14  
4:30 pm to 6:30 pm  
Attendance: 21

#### Kannapolis

NC Research Campus  
201 North Main Street  
Kannapolis, NC 28081  
Thursday, January 16  
4:30 pm to 6:30 pm  
Attendance: 17

#### Spencer

NC Transportation Museum  
411 South Salisbury Avenue  
Spencer, NC 28159  
Tuesday, January 21  
4:30 pm to 6:30 pm  
Attendance: 19

#### Cleveland

Cleveland Town Hall  
100 North Depot Street  
Cleveland, NC 27013  
Thursday, January 23  
4:30 pm to 6:30 pm  
Attendance: 5

Community engagement session participants were asked to answer four questions while referring to large maps of each community within Rowan County. Those questions and the responses are below:





1. What trails have you visited and where are they located?

Overall (Top 10 selections shown):

- Appalachian Trail
- Dan Nicholas Park Trails
- Raleigh Greenway
- Salisbury Greenway
- Lake Norman State Park
- Charlotte Greenway
- Swamp Rabbit Trail
- Virginia Creeper Trail
- Kannapolis Greenway
- Boone Greenway

Reasons why people liked the trails:

- Aesthetically pleasing experience, scenic, quiet.
- Wide trails with markers to measure distance.
- Surface: packed gravel for road bikes or natural mulched, also interest in having more challenging trails for bikers.
- Well-maintained.
- Included destinations such as downtown, restaurants, parks, water features, etc.
- Serves most areas of the city.
- Includes rest areas, water fountains and restrooms.

2. What important places or destinations should be part of a trail system or connected by trails or blueways within the communities of Rowan County?

Overall (Top 5 destinations shown):

- Downtown Salisbury - 16
- Dan Nicholas Park - 15
- High Rock Lake - 12
- Rowan County Public Libraries - 12
- Catawba College - 12

3. Where do you live in Rowan County?

All answers shown:

- Kannapolis - 10
- Salisbury - 7
- Rockwell - 5
- China Grove - 4
- Cleveland - 3
- Granite Quarry - 3
- East Spencer - 2
- Cabarrus County - 2
- Mt. Ulla - 1
- Woodleaf - 1
- Rowan County - 1
- Gold Hill - 1

4. What activity would you most often like to participate in on trails or blueways?

All answers shown:

- Bicycling - 20
- Walking - 15
- Hiking - 13
- Canoeing / Kayaking - 9
- Running / Jogging - 9
- Mountain Biking - 6
- Horseback Riding - 3
- Fishing - 3
- Camping - 3

In addition to the above questions, 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 30 survey



results from each of the four community engagement sessions.

Rockwell Meeting: (7 surveys collected)

Ninety percent of participants who attended the Community Engagement Session held at Saleeby-Fisher YMCA agree that trails in their communities are very important and that they currently use trails on a weekly basis. All of the participants indicated that they would use trails more often and at least monthly if they were more easily accessible.

Walking, running/jogging and mountain biking were the highest ranked trail related activities that participants currently engage in, followed by hiking (distance) and bicycling tying for second. Bicycling was the highest ranked preference when asked what activity they would most often like to participate in on trails and blueways, followed by walking and hiking (distance). When asked which important places or destinations should be part of a trail system or connected by trails and blueways within the Rowan County communities, respondents ranked the following as their top 4: existing greenways/trails, parks/nature preserves, Yadkin River, and High Rock Lake.

It is important to understand how residents view trails, both positively and negatively. Participants were asked to rank the most important benefits provided by trails. Recreation/exercise ranked first, followed by connecting neighborhoods/destinations, and protecting the environment. Participants were then asked to list the biggest factors that discourage trail use. Lack of information about local trails ranked the highest, followed by lack of accessible trails. Lack of off road trails, unsafe road crossings, and aggressive motorist behavior, ranked third. Regarding funding of the trails within the communities, the majority of respondents prefer matching funds/grants,

followed by current taxes, fundraising/donations, and government bonds.

The final survey items asked participants who were interested in volunteering to participate in future trail and blueway related activities to provide contact information, the majority of which did. Another question asked respondents to share any additional comments or concerns they have regarding the Carolina Thread Trail. The only comment received at this open house was, “Lack of County participation might affect progress.”

Kannapolis Meeting: (8 surveys collected)

Two-thirds of participants at the Community Engagement Session held at the NC Research Campus felt that trails are very important in their community. Half of participants use trails or blueways on a monthly basis, compared to 38% who use trails on a weekly basis. When asked how often they would use trails if they were more easily accessible, 88% of participants indicated they would use trails weekly and the remaining percentage would use them monthly. This illustrates a desire for more easily accessible trails among participants.

When asked what trail related activities they currently participate in regularly, three-fourths of participants indicated they walk on a regular basis, followed closely by bicycling, hiking (distance), and running/jogging. Bicycling was the highest ranked preference when asked what activity they would most often like to participate in on trails and blueways, followed by running/jogging. When asked which important places or destinations should be part of a trail system or connected by trails and blueways within the Rowan County communities, respondents ranked the following as their top 4: parks/nature preserves, downtowns, existing greenways/trails, and the Yadkin River.



Like in Rockwell, recreation/exercise was the most important trail benefit to participants, followed closely by protecting the environment/land conservation and connecting neighborhoods and destinations. The biggest factors that discourage trail use are tied between high traffic volumes and deficient sidewalks. Regarding funding of the trails within the communities, respondents tended to select multiple answer choices (similar to Rockwell). The most popular selections included current taxes (57%), and fundraising/donations (28%).

Those interested in volunteering for future trail and blueway related activities provided their contact information, only 20% of which did so. Additional comments included two respondents that expressed excitement about the trails in Kannapolis, two more respondents that expressed

concern about the political climate in the county, and one that discussed the need to connect to bikeable roads.

Spencer Meeting: (13 surveys collected)

Ninety percent of participants who attended the Community Engagement Session held at the North Carolina Transportation Museum agree that trails in their community are very important. Half of respondents currently use trails on a monthly basis and thirty-six percent use them on a weekly basis. Three-fourths of participants indicated that they would use trails weekly if they were more easily accessible.

Walking was by far the highest ranked trail related activity that participants currently engage in, followed by bicycling and hiking (distance). There was one write in





answer that came up several times—camping—which came in 4th. When asked what activity they would most often like to participate in on trails and blueways, bicycling and walking were the highest ranked. When asked which important places or destinations should be part of a trail system or connected by trails and blueways within the Rowan County communities, respondents ranked the following as their top 5: parks/nature preserves, High Rock Lake, existing greenways/trails, Yadkin River, and historical destinations.

Participants were asked to rank the most important benefits provided by trails and blueways. Recreation/exercise ranked first, followed closely by protecting the environment/land conservation. Participants were then asked to list the biggest factors that discourage trail use. Lack of information about local trails ranked the highest, followed by a tie between narrow road widths/right of ways, personal safety concerns and aggressive motorist behavior. One response written in was “political”. Regarding funding of the trails within Rowan County, the majority of respondents prefer a combination of resources, the highest ranked which are current taxes, fundraising/donations, and usage fees/charges.

The final survey items asked participants who were interested in volunteering to participate in future trail and blueway related activities to provide contact information, eighty percent of which did. Another question asked respondents to share any additional comments or concerns they have regarding the Carolina Thread Trail. The following comments were collected: (1) “Keep up the good work.” (2) “Would like more access available for canoeing and/or kayaking. [I] love greenspace and [am] looking forward to seeing all the great things you’re going to do for our county!” (3) “This is an exciting project – it would attract new people to the area. It would be especially attractive to sports minded

and academic types. It would help the economy and also people would be eager to move to this area!” (4) “It should be family friendly.” (5) “This is a wonderful idea! I am nearing retirement and once I do, I would love to help make this a reality and participate in its upkeep.” (6) “I think we should be part of it.”

Cleveland Meeting: (2 surveys collected)

Attendance at the Cleveland Town Hall was low in comparison to the other locations and a total of two surveys were completed at this location. The following is a brief summary of those results, but keep in mind that this is not a complete picture of how residents living in the area feel about the Carolina Thread Trail. On a scale of one to ten, the importance for more trails and blueways within Rowan County communities is very important – nine. One respondent currently uses trails on a yearly basis and the other on a weekly basis. When asked how often they would use a trail or blueway if it were more easily accessible, responses were monthly and weekly.

The highest ranked trail related activities that participants currently engage in are walking, followed by a tie between bicycling and running/jogging. When asked what activity they would most often like to participate in on trails and blueways, bicycling and walking were the highest ranked. When asked which important places or destinations should be part of a trail system or connected by trails and blueways within the Rowan County communities, there was a three way tie between parks/nature preserves, existing greenways/trails and historical destinations, followed by the Yadkin River.

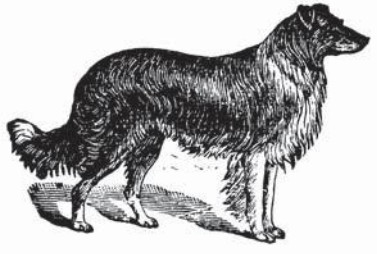
Participants were asked to rank the most important benefits provided by trails and blueways. Providing environmental education opportunities and providing



historical education opportunities came in at the top of the list, followed by recreation/exercise and protecting the environment/land conservation. Participants were then asked to list the biggest factors that discourage trail use. There was a six-way tie between unsafe road crossings, lack of accessible facilities, lack of interest, lack of time, personal safety concerns and lack of nearby destinations.

Regarding funding of the trails within Rowan County, there was a split between matching funds/grants and government bonds. The final survey items asked participants who were interested in volunteering to participate in future trail and blueway related activities to provide contact information, both respondents of which did.





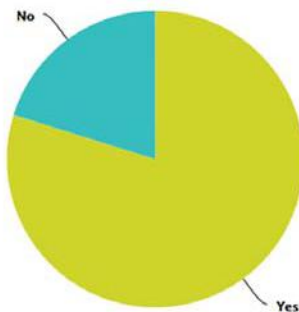
## APPENDIX 2: SURVEY SUMMARY - WINTER 2013/SPRING 2014

An online survey was created to accommodate and include residents that could not attend any of the community engagement sessions. The results analyzed within this section include both online responses and hand written surveys. It is important to the master planning process to gather as much information as possible from residents of the communities within Rowan County about their vision for 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. 100 residents completed the online survey and 30 surveys were collected from the four community engagement sessions discussed in Appendix 1, for a total of 130 responses. The input received from this online survey was used to directly influence the locations of potential Carolina Thread Trail routes within Rowan County. The survey results are summarized below:

1. The first question asked respondents if they have heard of the Carolina Thread Trail, 80% of which stated “yes”.

### Have you heard of the Carolina Thread Trail project?

Answered: 114 Skipped: 16

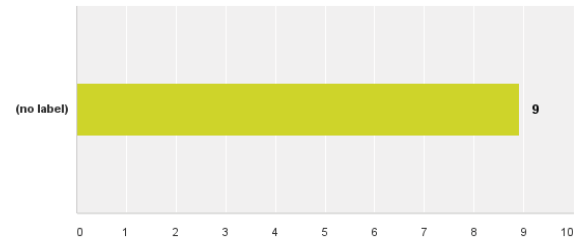


Answer Choices	Responses	Count
Yes	79.82%	91
No	20.18%	23
Total		114

2. Participants were asked to rank the importance of trails within the communities of Rowan County. The majority of respondents (78%) feel that trails are very important, while 13% believe trails are important, and only 7% feel that trails are not important.

### Q2 In your opinion, how important is the need for (more) trails and blueways within the Rowan County Communities? (PLEASE CHECK ONE)

Answered: 122 Skipped: 8

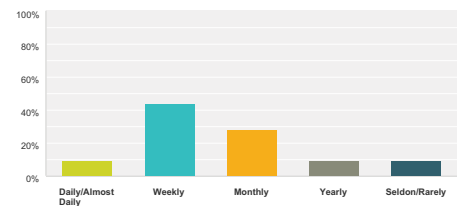


Importance Level	Percentage	Count
(no label)	2.46%	3
Not important	0.00%	0
Slightly important	0.00%	0
Important	13.93%	17
Very important	9.30%	11
Total	62.30%	76
Average Rating		122

3. Participants were asked how often they visit a park or natural area to use trails or blueways. 44% of participants indicated that they use trails on a weekly basis, 28% on a monthly basis, and a tie between daily, yearly and seldom/rarely at 9.3% each.

### Q3 How often do you visit a park or natural area to use trails or blueways?

Answered: 129 Skipped: 1



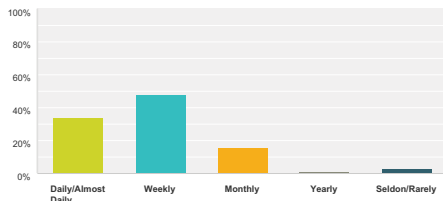
Answer Choices	Responses	Count
Daily/Almost Daily	9.30%	12
Weekly	44.19%	57
Monthly	27.91%	36
Yearly	9.30%	12
Seldom/Rarely	9.30%	12
Total		129



4. Next, participants were asked to indicate how often they would use a trail or blueway if they were more easily accessible. Almost half (48%) stated that they would use more easily accessible trails weekly, 34% indicated they would use trails daily/almost daily, followed by 16% who would use trails monthly.

**Q4 How often would you use a trail or blueway if it were more easily accessible?**

Answered: 128 Skipped: 2

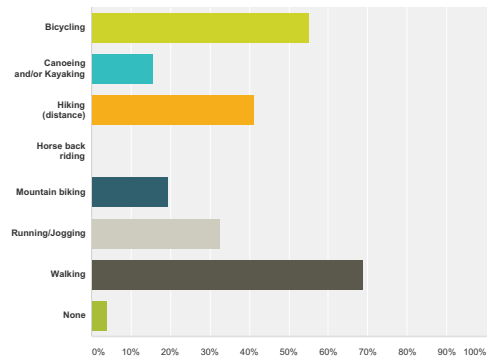


Answer Choices	Responses	Count
Daily/Almost Daily	33.59%	43
Weekly	47.66%	61
Monthly	15.63%	20
Yearly	0.78%	1
Seldom/Rarely	2.34%	3
<b>Total</b>		<b>128</b>

5. Participants were asked to indicate which trail related activities they currently participate in on a regular basis. 69% of participants selected walking as the trail related activity they currently participate in regularly. Bicycling ranked second with 55%, followed by hiking (41%), and running/jogging (33%). Additional write-in responses included: skateboarding (1), meditation (1), dog walking (3), camping (4), nature study (1).

**Q5 What trail and blueway related activities do you currently participate in on a regular basis? (SELECT YOUR TOP 3 CHOICES)**

Answered: 129 Skipped: 1



Answer Choices	Responses	Count
Bicycling	55.04%	71
Canoeing and/or Kayaking	15.50%	20
Hiking (distance)	41.09%	53
Horse back riding	0.00%	0
Mountain biking	19.38%	25
Running/Jogging	32.56%	42
Walking	68.99%	89
None	3.88%	5
<b>Total Respondents: 129</b>		

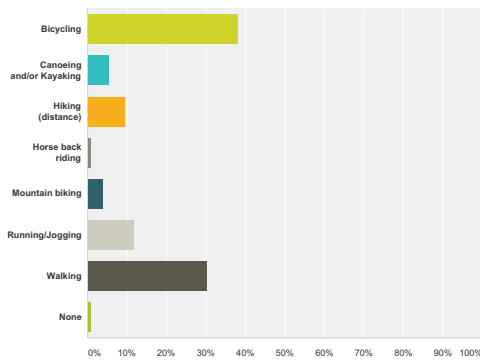




6. Next, participants were asked what activity they would most often like to participate in on trails and blueways. 38% of participants indicated they would like to use trails for bicycling, followed by walking (30%), running/jogging (12%), and distance hiking (9%). Write in activities included meditation (1), and nature study (1).

**Q6 What activity would you most often like to participate in on trails and blueways? (CHOOSE ONE)**

Answered: 129 Skipped: 1

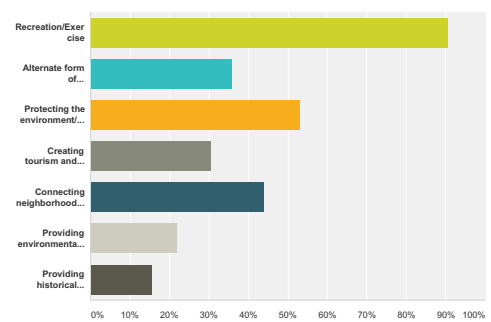


Answer Choices	Responses
Bicycling	37.98% 49
Canoeing and/or Kayaking	5.43% 7
Hiking (distance)	9.30% 12
Horse back riding	0.78% 1
Mountain biking	3.88% 5
Running/Jogging	11.63% 15
Walking	30.23% 39
None	0.78% 1
<b>Total</b>	<b>129</b>

7. It is important to understand how residents view trails, both positively and negatively. Participants were asked to rank the most important benefits provided by trails and blueways. Recreation/exercise was the highest ranked choice by far, followed by protecting the environment/land conservation, and connecting neighborhoods/destinations.

**Q7 What are the most important benefits of trails and blueways to you? (SELECT YOUR TOP 3 BENEFITS)**

Answered: 128 Skipped: 2



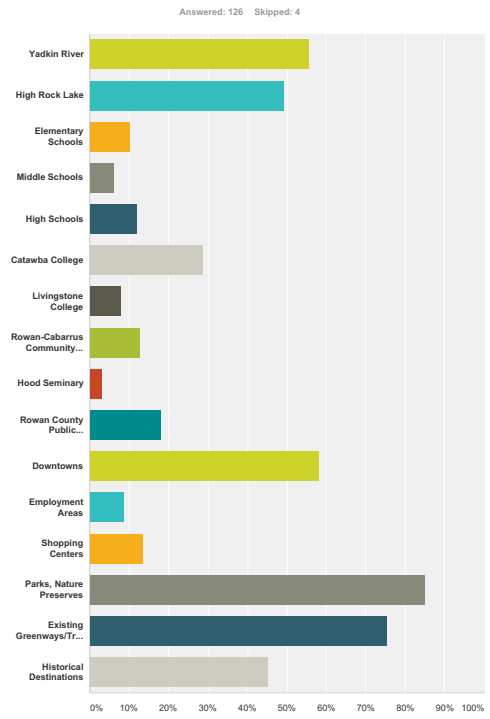
Answer Choices	Responses
Recreation/Exercise	90.63% 116
Alternate form of transportation	35.94% 46
Protecting the environment/land conservation	53.13% 68
Creating tourism and economic development	30.47% 39
Connecting neighborhoods and destinations	43.75% 56
Providing environmental education opportunities	21.88% 28
Providing historical education opportunities	15.63% 20
<b>Total Respondents: 128</b>	



8. Respondents were asked to rank the top five places or destinations within Rowan County and their communities they would like connected with trails and blueways (if any). Parks/nature preserves ranked the highest with 107 responses, followed by: existing greenways/trails (95 responses), downtowns (73 responses), Yadkin River (70 responses), High Rock Lake (62 responses), and historical destinations (57 responses). Additional relevant comments included:

- “All streams and all schools and colleges.”
- “Spencer Woods.”
- “All schools and public buildings.”
- “Gold Hill and Cleveland.”
- “Catawba Environmental and Spencer Woods.”
- “North Carolina Transportation Museum.”
- “VA Hospital.”

**Q8 What important places or destinations should be part of a trail system or connected by trails and blueways within the Rowan County Communities? (SELECT YOUR TOP 5 PLACES)**  
 Answered: 126 Skipped: 4



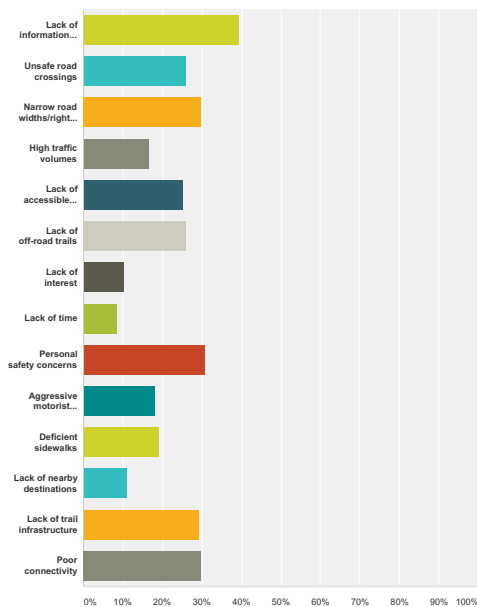
Answer Choices	Responses	Count
Yadkin River	55.56%	70
High Rock Lake	49.21%	62
Elementary Schools	10.32%	13
Middle Schools	6.35%	8
High Schools	11.90%	15
Catawba College	28.57%	36
Livingstone College	7.94%	10
Rowan-Cabarrus Community College	12.70%	16
Hood Seminary	3.17%	4
Rowan County Public Libraries	18.25%	23
Downtowns	57.94%	73
Employment Areas	8.73%	11
Shopping Centers	13.49%	17
Parks, Nature Preserves	84.92%	107
Existing Greenways/Trails	75.40%	95
Historical Destinations	45.24%	57
<b>Total Respondents: 126</b>		



9. Participants were then asked to list the biggest factors that discourage trail use. Lack of information about local trails was the highest ranked response (50), followed closely by personal safety concerns (39), narrow road widths/right of ways (38), poor connectivity (38), and lack of trail infrastructure (37). Additional comments included political issues (3).

**Q9 What do you think are the biggest factors that discourage trail, sidewalk, bicycle facility, or blueway use? (SELECT YOUR TOP 3 CHOICES)**

Answered: 127 Skipped: 3



Answer Choices	Responses
Lack of information about local trails	39.37% 50
Unsafe road crossings	25.98% 33
Narrow road widths/right-of-ways	29.92% 38
High traffic volumes	16.54% 21
Lack of accessible facilities	25.20% 32
Lack of off-road trails	25.98% 33
Lack of interest	10.24% 13
Lack of time	8.66% 11
Personal safety concerns	30.71% 39
Aggressive motorist behavior	18.11% 23
Deficient sidewalks	18.90% 24
Lack of nearby destinations	11.02% 14
Lack of trail infrastructure	29.13% 37
Poor connectivity	29.92% 38
<b>Total Respondents: 127</b>	



10. Participants were asked to list trails they have visited and enjoyed. The responses varied between trails located within Rowan County, trails located within the region, and trails located in other parts of North Carolina and beyond. Trails noted included the following:

- Salisbury Greenways/Parks (13)
- Rowan Greenways Overall (7)
- VA Creeper in southwestern VA (6)
- Bakers Creek Greenway in Kannapolis (4)
- Swamp Rabbit in Greenville, SC (4)
- Boone Greenway in Boone, NC (2)
- Prescott Greenway in Salisbury (2)
- Spencer Woods in the Town of Spencer (2)
- Uwharrie Trail near Troy, NC (2)

There were a variety of descriptions of the aforementioned trails. Distances ranged from 1 mile to 20+ miles. Trail surface materials included asphalt (21 responses), wooded/dirt (12 responses), and stone/gravel (7 responses).

**Q10 What trails/blueways have you visited and where are they located? Please write "none" if you have not visited any.**

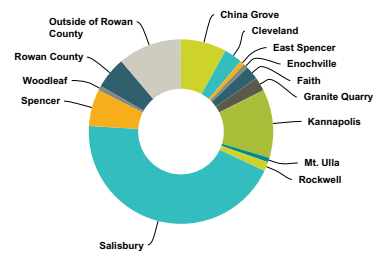
Answered: 100 Skipped: 30

Answer Choices	Responses
Trail Name	93.00% 93
Location	78.00% 78
Description (length, surface material, etc.)	60.00% 60

11. Survey participants were asked to indicate where they live. The top 5 ranked responses: 44% of participants live in the Salisbury area, followed by 12% in Kannapolis, 11% outside Rowan County (some of which indicated that they work in Rowan), 10% in China Grove, and 5.6% in Rowan County.

**Q11 In what part of the county do you live?**

Answered: 125 Skipped: 5



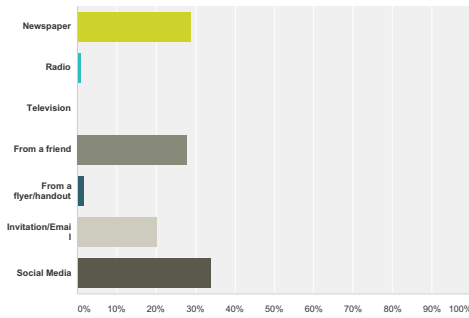
Answer Choices	Responses
China Grove	8.00% 10
Cleveland	3.20% 4
East Spencer	0.80% 1
Enochville	0.80% 1
Faith	2.40% 3
Gold Hill	0.00% 0
Granite Quarry	2.40% 3
Kannapolis	12.00% 15
Landis	0.00% 0
Mt. Ulla	0.80% 1
Rockwell	1.60% 2
Salisbury	44.00% 55
Spencer	6.40% 8
Woodleaf	0.80% 1
Rowan County	5.60% 7
Outside of Rowan County	11.20% 14
<b>Total</b>	<b>125</b>



12. Next, participants were asked how they heard about the Carolina Thread Trail Master Plan for Rowan County Communities survey. Social media came in on top at 34%, followed by friend referral at 28% and newspaper at 29%.

**Q12 How did you hear about the Rowan County Communities Carolina Thread Trail Greenway Master Plan survey?**

Answered: 118 Skipped: 12



Answer Choices	Responses	Count
Newspaper	28.81%	34
Radio	0.85%	1
Television	0.00%	0
From a friend	27.97%	33
From a flyer/handout	1.69%	2
Invitation/Email	20.34%	24
Social Media	33.90%	40
<b>Total Respondents: 118</b>		

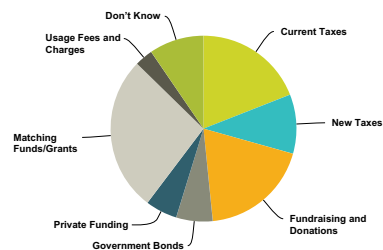
13. Regarding funding of trails and blueways within the Rowan County communities, the majority of respondents selected a variety of responses. The breakdown is as follows:

- Matching Funds/Grants: 49 respondents
- Fundraising/Donations: 45 respondents
- Current taxes: 38 respondents
- Government Bonds: 23 respondents
- New taxes: 14 respondents
- Private Funding: 13 respondents
- Don't Know: 12 respondents
- Usage Fees/Charges: 10 respondents
- Some of the comments regarding usage fees/charges discussed applying them to kayaking only activities (2) and adding annual membership dues (1).

Note: There was an error when setting up the online survey, because it only allowed participants to select one answer instead of multiple. 41 comments were left within the comment section and taken into full consideration when analyzing the survey.

**Q13 How should trails and blueways be funded within the Rowan County Communities? (PICK AS MANY AS YOU WANT)**

Answered: 126 Skipped: 4



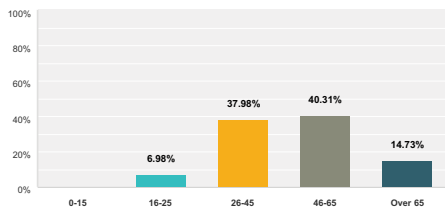
Answer Choices	Responses	Count
Current Taxes	19.05%	24
New Taxes	10.32%	13
Fundraising and Donations	19.05%	24
Government Bonds	6.35%	8
Private Funding	5.56%	7
Matching Funds/Grants	26.98%	34
Usage Fees and Charges	3.17%	4
Don't Know	9.52%	12
<b>Total</b>		<b>126</b>



14/15. The majority of respondents stated that they were within the 46-65 age group (40%), followed by the 26-45 age group (38%). Gender of those participants was slightly more male (59%) than female (41%).

**Q14 What is your age group?**

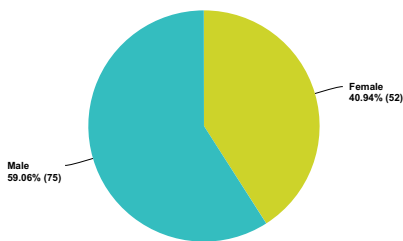
Answered: 129 Skipped: 1



Answer Choices	Responses	Count
0-15	0.00%	0
16-25	6.98%	9
26-45	37.98%	49
46-65	40.31%	52
Over 65	14.73%	19
<b>Total</b>		<b>129</b>

**Q15 What is your gender?**

Answered: 127 Skipped: 3

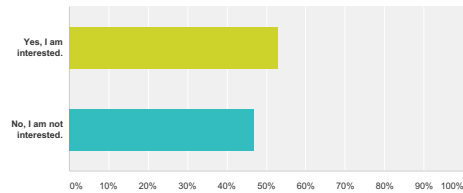


Answer Choices	Responses	Count
Female	40.94%	52
Male	59.06%	75
<b>Total</b>		<b>127</b>

16. Those participants that were interested in volunteering to participate in future trail and blueway related activities within Rowan County Communities were asked to provide contact information, about half of which did so. Note: This private information was given directly to the Carolina Thread Trail organization and will not be revealed within this report.

**Q16 Would you be interested in volunteering to participate in future trail and blueway related activities within the Rowan County Communities? If so, please provide your name, phone number, email address, and mailing address.**

Answered: 117 Skipped: 13



Answer Choices	Responses	Count
Yes, I am interested.	52.99%	62
No, I am not interested.	47.01%	55
<b>Total</b>		<b>117</b>



17. The final survey items asked participants to share any additional comments or concerns they have regarding the Carolina Thread Trail in the Rowan County Communities. An overwhelming majority of comments were positive and in favor of the development of trails within the communities. Participants see trails as a network for the biking community especially, as a mode of transportation and recreation/exercise. A handful of comments also came up regarding the political climate in Rowan County and respondents were hopeful that these issues would get resolved and trail networks would begin to get established for the benefit of local residents. Below are a few comments provided by survey participants:

“This is an exciting project - it would attract new people to the area. It would be especially attractive to sports minded and academic types. It would help the economy and also people would be eager to move to this area!”

“I am very excited about this. I am a huge advocate.”

“I’d ride local trails far more if we had longer routes away from road traffic. My main concern while riding my bike is my safety around motor vehicles, so bike routes sharing paved road surfaces with auto/truck traffic are less attractive than dedicated trails.”

“I work with a client base in which these facilities are very important. I hear from customers on a daily basis about how they have nowhere to ride their bikes and that the roads are just not safe-enough.”

“I am concerned that the Rowan County commissioners are going to stonewall and preventing all of these great

plans from coming to fruition. The trail system only works as designed if all communities are connected!”

“We here at Skinny Wheels Bike Shop would be/are glad to be advocates for the Carolina Thread Trail and any future support that we can give, Thanks.”

“Riding a bike in Rowan Co is very dangerous. There is no room beside the road and cars drive very fast.”

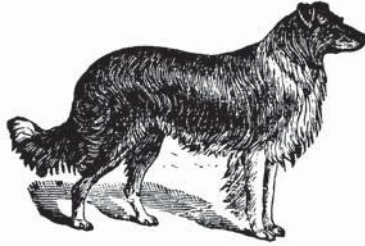
“After reading the Salisbury Post article about how the Rowan County Commissioners rejected the Thread, I am concerned about the Thread’s construction. Without Rowan County’s support, the Thread may not be connected from one municipality’s boundary to another municipality’s boundary. I want the Thread to be connected throughout Rowan County and into Iredell and Cabarrus Counties.”

“Please help put sidewalks to the schools. Children walk on unsafe roads every day to school. It’s just not right.”

“I believe this would be a monumental step in the modernization of rowan county, and surrounding areas as a progression towards the economy, tourism, infrastructure, ect.”







### APPENDIX 3: DRAFT MASTER PLAN REVIEW FORUMS SUMMARY

The locations of potential Carolina Thread Trail Routes throughout Rowan County communities were generated directly from the input received from county residents during the community engagement sessions and online survey in Winter 2013 through Spring 2014. A series of trail routes was identified by the Steering Committee based on resident feedback. Each potential trail route was ground truthed to ensure accuracy and adjusted if field conditions were not easily adaptable or probable costs were too great for trail construction.

A Draft Carolina Thread Trail Master Plan map for Rowan County Communities was created and revised after several review forums were held in July 2014. Each forum 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 102 individuals participated in the draft master

plan review forums for Rowan County Communities. The location and attendance for each session is included below:

#### Granite Quarry

Granite Quarry Town Hall  
143 N. Salisbury Avenue  
Granite Quarry, NC  
Tuesday, July 22  
5:00 to 7:00pm  
Attendance: 13

#### Salisbury

Salisbury Community Park  
935 Hurley School Road  
Salisbury, NC  
Thursday, July 24  
5:00 to 7:00pm  
Attendance: 7





Spencer

8th Street Park  
705 8th Street  
Spencer, NC  
Tuesday, July 29  
5:00 to 7:00pm  
Attendance: 41

Kannapolis

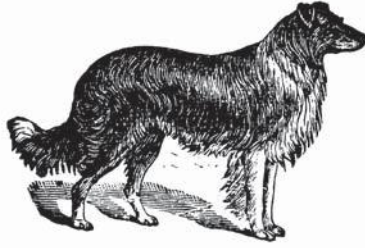
Kannapolis Intimidators Baseball Game  
CMC – NorthEast Stadium  
2888 Moose Road  
Kannapolis, NC  
Thursday, July 31  
6:00 to 8:00pm  
Attendance: 41+

Review forum participants were educated about the purpose of the Carolina Thread Trail Master Plan for Rowan County Communities and then channeled to their specific community within the county to provide detailed feedback. This valuable resident input allowed additional information to be gathered, such as key destinations not marked on the map, existing popular corridors for hikers/bikers, vehicular heavy corridors to potentially avoid, and local organizations that the Thread Trail could potentially partner with for trail installation and maintenance.

The majority of participants were excited about the addition of new trails throughout their individual communities, as well as a county-wide master plan. Many people described themselves as daily/weekly walkers and

weekend hikers seeking new trails. There was a large turnout of bicycle advocates, stressing the importance of safe routes separate from vehicular traffic, a diversity of terrain types and clearly marked routes. A second group could be categorized into canoe/kayak advocates, as they all tended to stress the need for more public access points along the blueways and a clear map illustrating these points and routes.





## APPENDIX 4: ALTERNATIVE FUNDING SOURCES

### FEDERAL FUNDING SOURCES

#### State Transportation Improvement Program (STIP)

The North Carolina Department of Transportation has established a multi-year schedule for all its transportation projects – including bicycle and pedestrian related projects – called the STIP. Once projects have been adopted by the Division of Bicycle and Pedestrian Transportation (DBPT) and the North Carolina Board of Transportation, they are incorporated into the STIP. In its efforts to increase the safety of bicyclists in North Carolina, the department has undertaken many types of bicycle and pedestrian projects including:

- Construction of shared-use facilities and on-road highway improvements
- Safety and education programs
- Bicycle route designation and signing
- Other projects to facilitate bicycle and pedestrian transportation

According to the NCDOT website, DBPT utilizes a project prioritization methodology to rank all projects. Projects are evaluated based on local prioritization, estimated cost, right-of-way availability, connectivity, inclusion in a bike/pedestrian plan, population of region served, and statewide equality. Bicycle and pedestrian projects are divided into two categories, which determine the types of funds that may be available.

1. *Independent Projects* are those which are not related to a scheduled highway project.
2. *Incidental Projects* are those related to a scheduled highway project.

### STATE FUNDING SOURCES

#### NC Clean Water Management Trust Fund

The North Carolina Clean Water Management Trust Fund (CWMTF) provides grant assistance to conservation non-profits, local governments and state agencies for the protection of surface waters in North Carolina. Specifically, CWMTF funds projects that contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits. This funding agency provides four grants that can be utilized for greenways: Land Acquisition Grant, Donation MiniGrant, Greenway Planning, and a Pre-Acquisition Costs MiniGrant.

More information can be found at:

[www.cwmtf.net](http://www.cwmtf.net)

Clean Water Management Trust Fund

217 W. Jones Street

Raleigh, NC 27604

Tel: 919/707-9120

#### NC Parks and Recreation Trust Fund Grant

The North Carolina Parks and Recreation Trust Fund Grant (PARTF) is the primary source of funding to build and renovate facilities in the state parks as well as to buy land for new and existing parks. The PARTF program also provides dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the public, up to a maximum grant of \$500,000. Recipients use the grants to acquire land and/or to develop parks and recreational projects that serve the general public.

More information can be found at:

[http://www.ncparks.gov/About/grants/partf\\_grant.php](http://www.ncparks.gov/About/grants/partf_grant.php)

NC Parks and Recreation Trust Fund (PARTF)

1615 MSC, Raleigh, NC 27699

Tel: 919/707-9303



### NC Department of Parks and Recreation Grants

The North Carolina Department of Parks and Recreation was established to conserve and protect representative examples of the natural beauty, ecological features and recreational resources of statewide significance; to provide outdoor recreational opportunities in a safe and healthy environment; and to provide environmental education opportunities that promote stewardship of the state's natural heritage. This funding agency provides three grants for greenways: Land and Water Conservation Fund Grant (LWCF), NC Recreational Trails Grant, and NC Adopt-a-Trail Grant.

More information can be found at:

[http://www.ncparks.gov/About/trails\\_grants.php](http://www.ncparks.gov/About/trails_grants.php)

State Trails Program

1615 MSC, Raleigh, NC 27699

Tel: 919/707-9315

### NCDOT Grants

The North Carolina General Assembly authorized NCDOT to spend available federal, state, local and/or private funding designated for the promotion and facilitation of the safe and efficient use of bicycles. It also states that facilities for the purpose of bicycle use are a "bona fide highway purpose, subject to the same rights and responsibilities, and eligible for the same considerations" as other highways. NCDOT offers the following grant programs that can be utilized for trail projects: Transportation Enhancement Grant (NCDOT Transportation Enhancement Division), Safe Routes to School (SRTS\*) Infrastructure Reimbursement Grant (NCDOT Division of Bicycle & Pedestrian Transportation) F, Safe Routes to School (SFTS\*) Non-Infrastructure Reimbursement Grant (NCDOT Division of Bicycle & Pedestrian Transportation), Bicycle and

Pedestrian Planning Grant (NCDOT Division of Bicycle & Pedestrian Transportation)

More information can be found at:

<http://www.ncdot.gov/bikeped/funding/>

### **LOCAL FUNDING OPTIONS**

#### Bond Referendums

A bond referendum can be placed on a county or municipal ballot to finance land acquisition and site development costs for greenways and 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 greenways/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 could require a payment in lieu of dedication. These fees can be applied to finance acquisition of land or development of nearby greenways and 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 greenways and 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: Rowan County or one of the municipalities can promote greenways and 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

### 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 awarded on a quarterly cycle with deadlines in January, April, August, and October.

- Corridor Planning Grants: up to \$20,000 towards identification of trail alignment(s) on a specific parcel(s) along the Carolina Thread Trail.
- 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.
- Construction Grants: up to \$150,000 towards completion of construction design and building of trail segments of the Carolina Thread Trail.

More information can be found at:

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

Carolina Thread Trail

4530 Park Rd, Suite 420

Charlotte, NC 28209

Tel: 704/376.2556

Fax: 704/342.3340

### 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. Bike 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, 2-3 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  
Email: [mail@bikesbelong.org](mailto:mail@bikesbelong.org)

### 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 (must registered as a 501(c)3s 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)

### Duke Energy Foundation

The Duke Energy Foundation is the core of Duke Energy's support and development of sustainable communities and actively works to improve the quality of life in our communities, lending expertise in the form of leadership and financial support through grants to charitable organizations. At the core of The Duke Energy Foundation is its commitment to the community, with a focus in four areas:

#### Environment:

- Programs that support conservation, training and research around environmental initiatives.
- Initiatives that support the efficient use of energy, but that also do not create a conflict with the programs approved in the regulated jurisdictions (reducing cost of utility service).

#### Economic Development:

- Initiatives that support the company's economic development strategies (may vary by region).
- Skills and workforce development.

#### Education:

- Pre K-12 education focused on science, technology, engineering and math (STEM).
- Higher education, focused on (STEM) and environment related programs.

#### Community Vitality:

- Human services, arts, cultural, and community safety.
- Community leadership development.

Grant applications are accepted on-line through their webpage at:

[www.duke-energy.com/community/foundation.asp](http://www.duke-energy.com/community/foundation.asp)



*Rockwell Park*





## APPENDIX 5: 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 the communities within Rowan 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

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

### Trail Environments

The trail corridors designated for the communities within Rowan 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, the long term sustainability of trails should be considered based on the environments in which they are being constructed. Trail environments to be discussed include creekside trails, trails within floodways or floodplains, underpasses, utility easements, rail crossings, and rails with trails.

### 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.

### Blueway (Paddle) Trails

Nearly 70 miles of blueways are planned in Rowan County communities to be developed from the Tuckertown Reservoir to High Rock Lake and continuing along the South Yadkin 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.

### 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.



### 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, overlooks, signage/wayfinding, tables, trash receptacles, pet waste stations, opportunities for public art, and in some areas, restroom facilities.

### Trail Character in Rowan County Communities

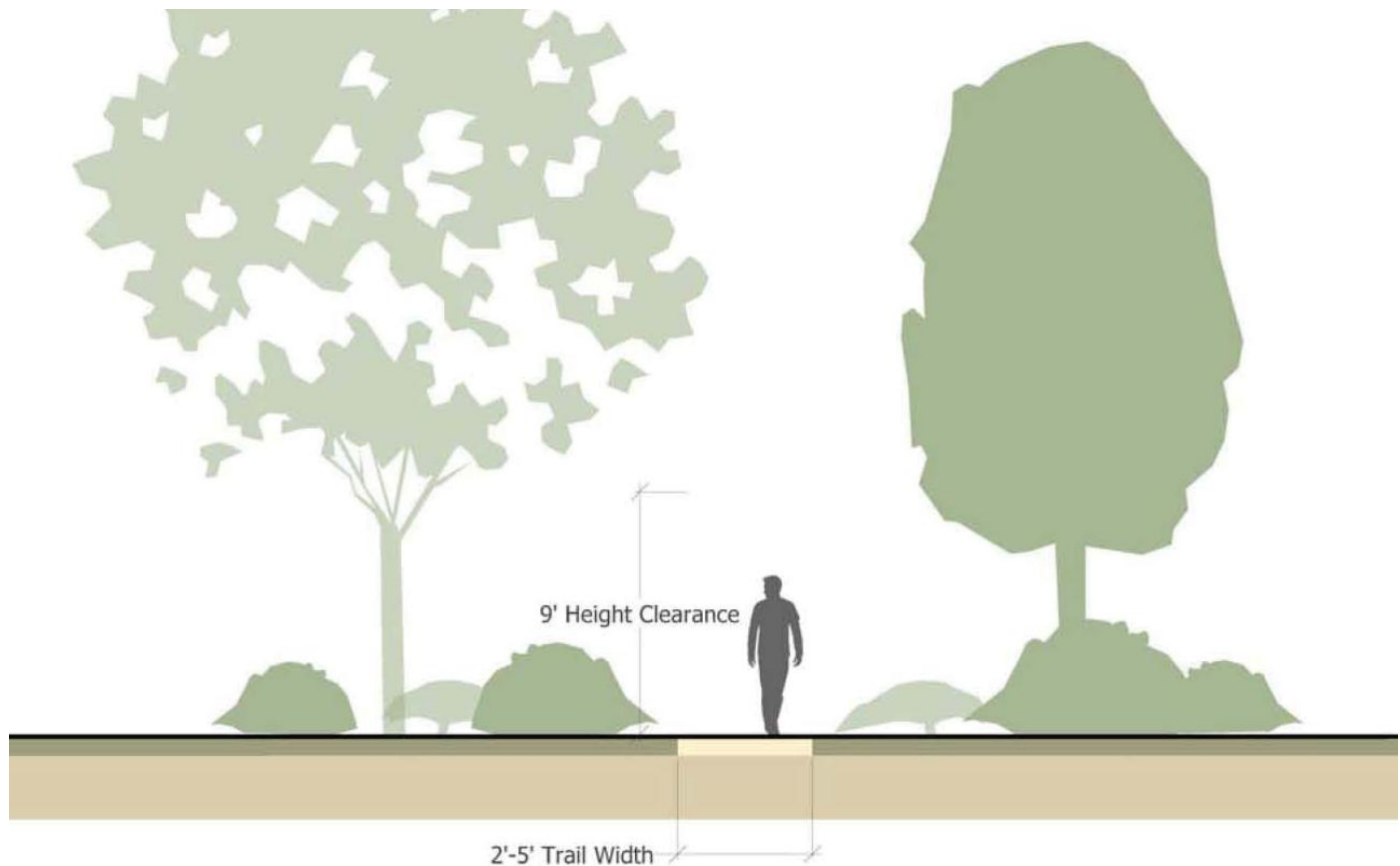
Each county within the Carolina Thread Trail network has its own unique character that should be maintained. While uniformity of trail construction will occur throughout the network, it is important to promote the character of unique areas in each community.

## TYPES OF GREENWAYS/TRAILS

### 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 2 to 5 feet.
- Maintain a vertical clearance of at least 9 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:

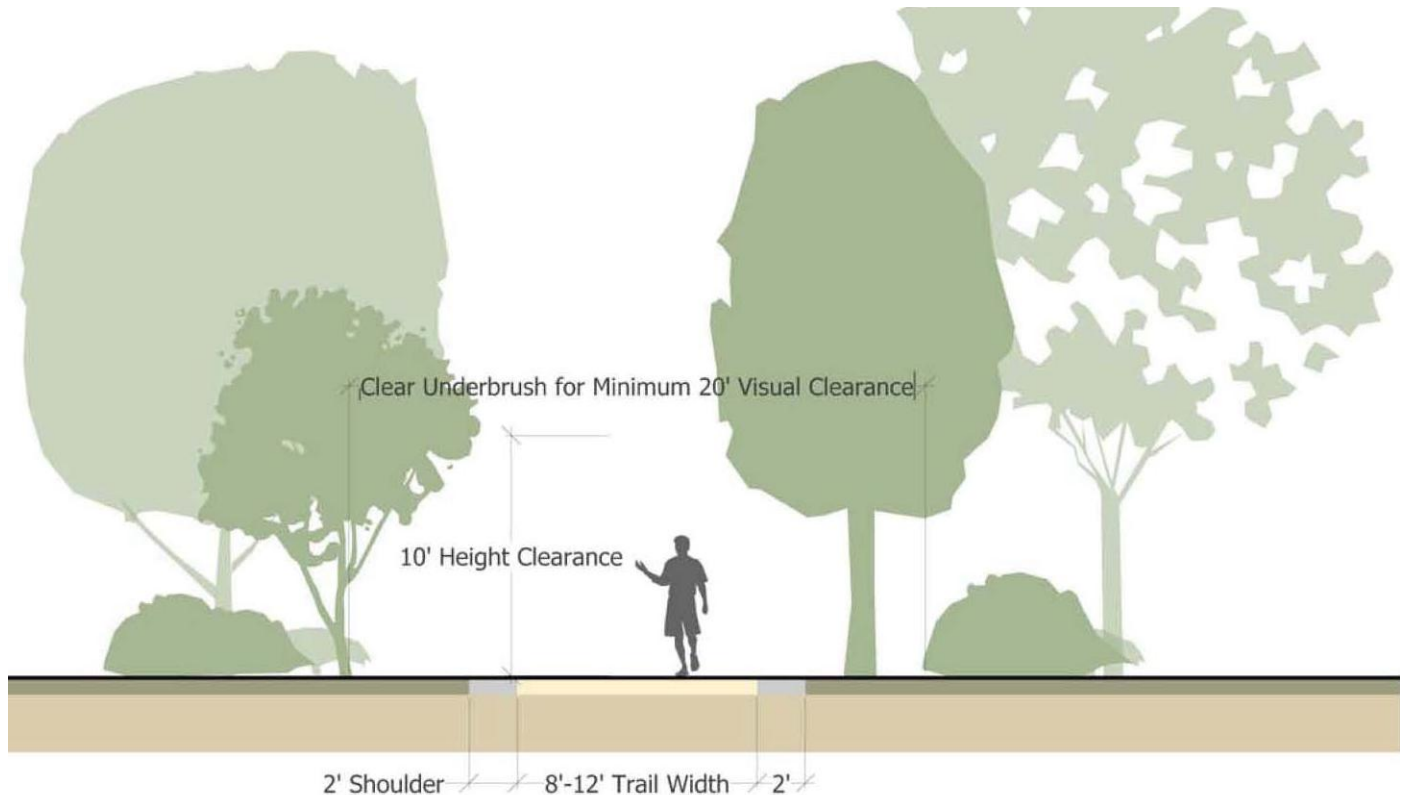
- Maintain a paved trail width of 8 to 12 feet; 10 feet is the most common
- Maintain a vertical clearance of at least 10 feet
- Provide a two foot graded (gravel) shoulder on each side of the trail
- Use asphalt or concrete pavement
- Consider pervious pavement in less clay-like soils
- Provide an aggregate 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 on trails with high volumes of users and around curves



*Asphalt*



*Concrete*





### 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:

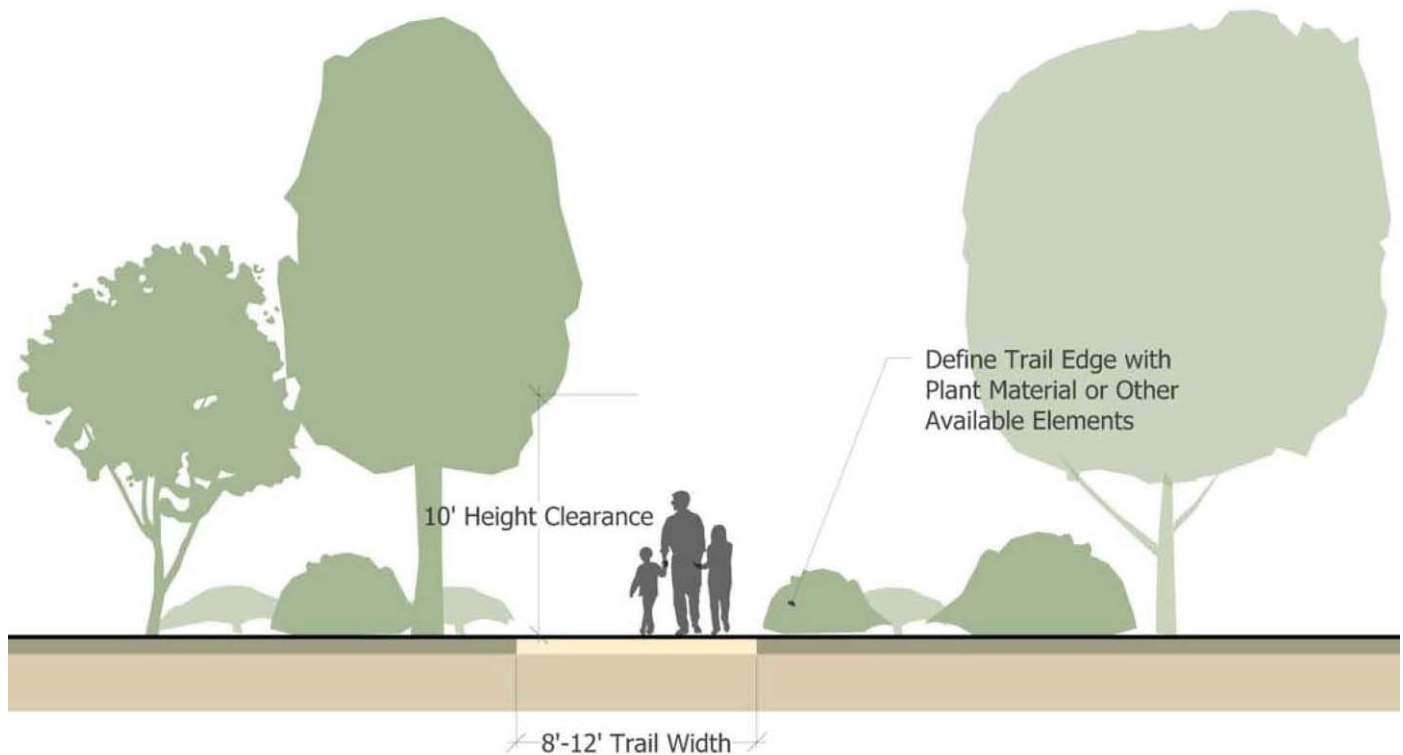
- Maintain a paved trail width of 8 to 12 feet; 10 feet is the most common
- Maintain a vertical clearance of at least 10 feet
- Soft surface trail materials may include graded aggregate stone (crusher run, decomposed granite, soil cement)
- May require an aggregate base course (ABC) under the surface course
- In softer soil conditions, consider using geotextile fabric under the surface course or ABC (if using)
- 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



*Screenings*



*Pit gravel*

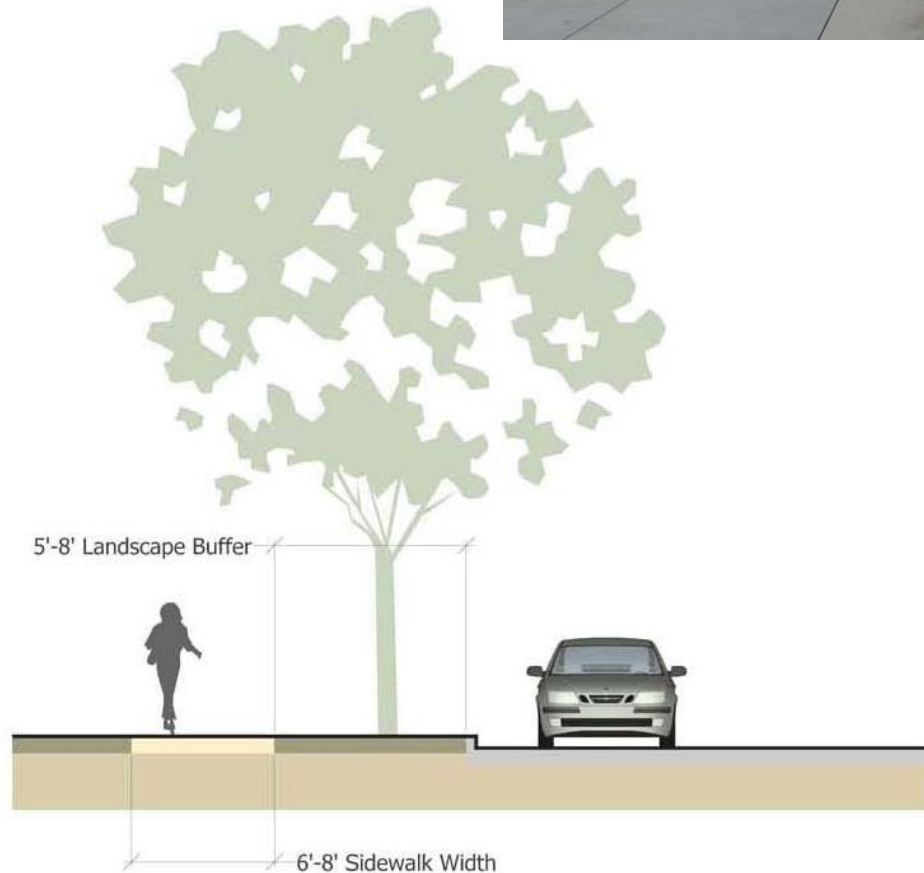




### Sidewalks

This greenway trail plan makes use of existing sidewalks through the downtown areas. 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 6 feet; 8 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
- Install pedestrian signaling at intersections, especially those with heavy traffic volumes and/or rapid traffic speeds.

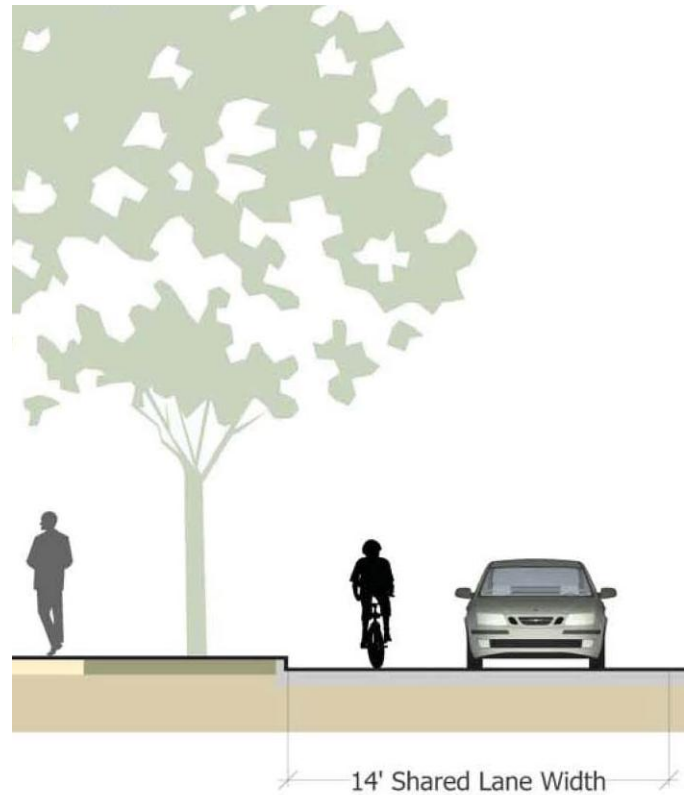




### Bike Lanes and Shared Roadways

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. 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



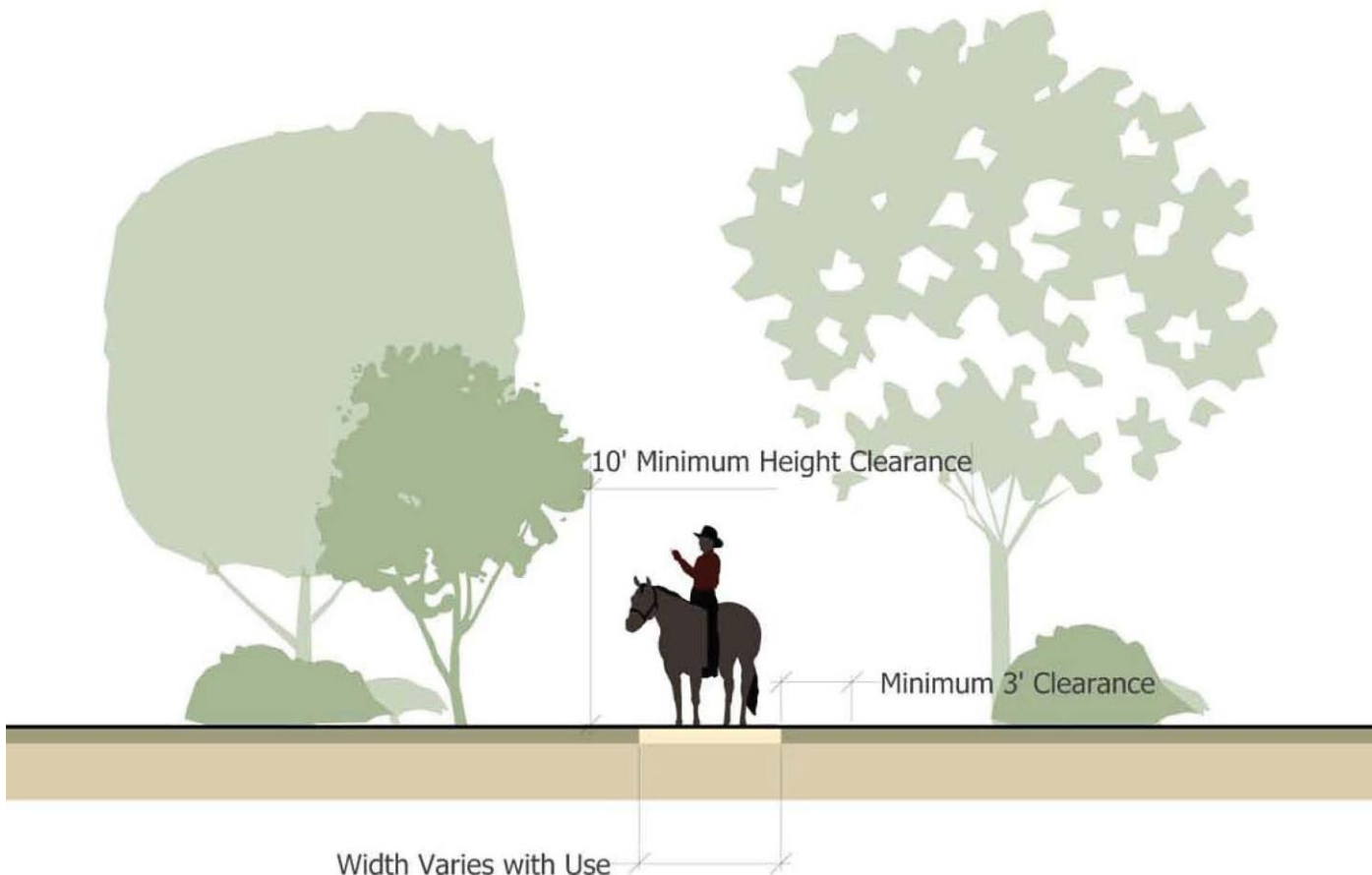


## Equestrian Trails

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





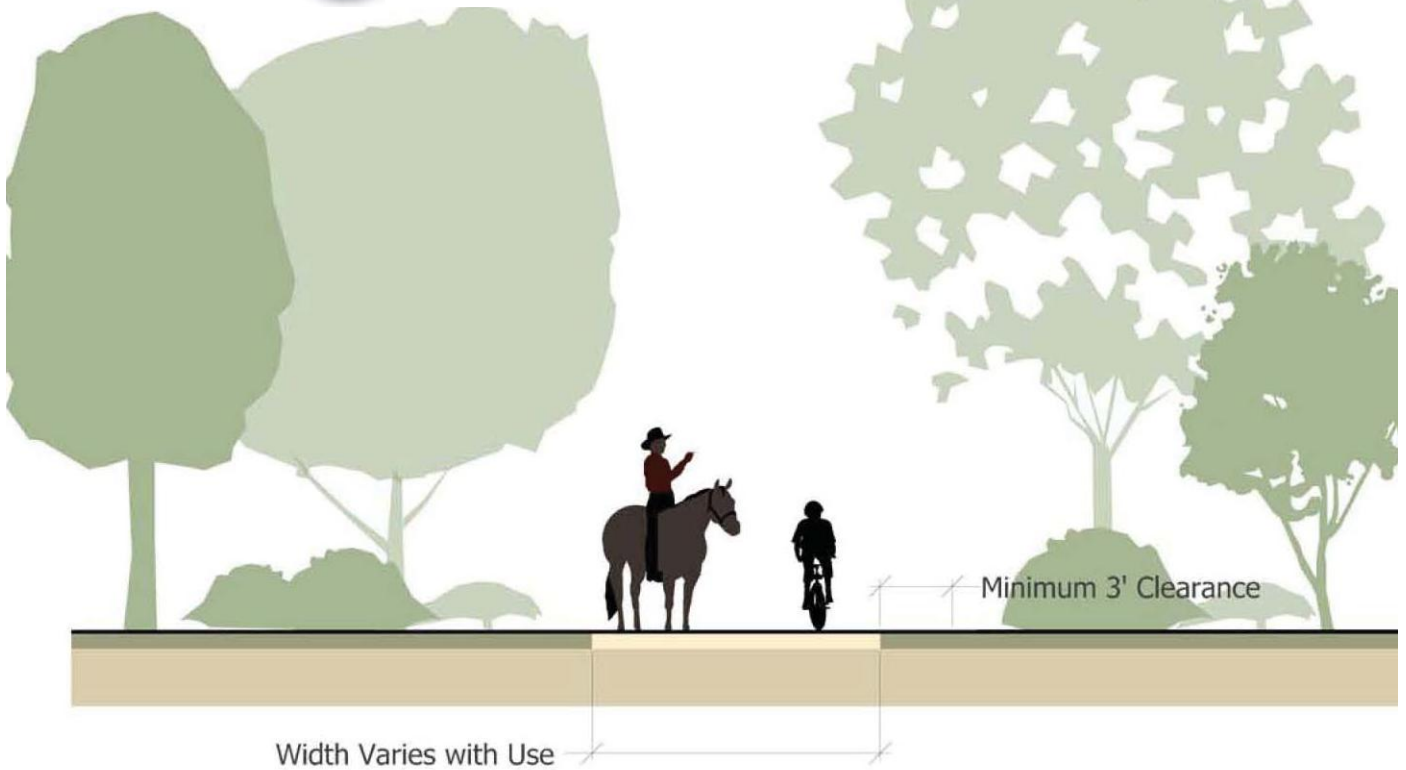


## Multi-use Trails with Equestrian Use

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



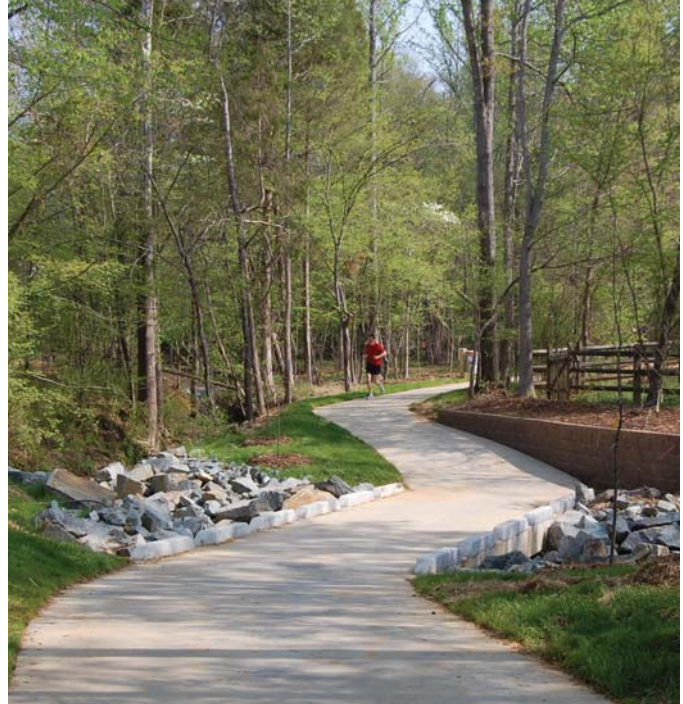


## TRAIL ENVIRONMENTS

### Creekside Trails

Creekside trails occur more often in more populated or developed areas. Road ROWs and density may warrant a shift in trail development to the rear of lots if stream channels are present and can provide a connectivity link. Trails are located immediately adjacent to the stream channel, thus flooding frequency needs to be considered. Retaining walls and gabion walls may be required due to the potential tightness of this type of trail corridor. Walls also help to protect the trail from erosion and flooding. Recommended guidelines for creekside trails include:

- Minimum trail width should be ten feet with no shoulders
- Provide concrete surfacing to withstand prolonged flooding and high-velocity stream flow
- Trail amenities should be minimized along creekside trails; retaining walls could also serve as seatwalls



### Trails within Floodways

These trails are similar to creekside trails, but the trail is not located immediately adjacent to the stream channel. A vegetative buffer or streamside zone is established between the stream channel and trail. Potential flooding is infrequent and more 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 or natural 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 or river. Recommended guidelines for underpasses include:

- Underpass width should be at least 12 feet.
- Vertical clearance of the underpass should be at least 8 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 5 feet in width, not including graded shoulders; trail surfacing shall be soft surface
- Trails should be located at least 25 feet away from transmission tower pads
- Trails may cross under power transmission lines at an angle not less than 30° from the center line
- 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 rail 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
- 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.

## 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 width should be at least 12 feet with a two foot graded shoulder 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 5-6 feet high should be installed between the trail and the rail at least 3 feet off the trail shoulder
- The trail should be graded 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

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 5% without landings; trail gradient can be less than 8.33% with landings
- Trail cross slope should be 2% maximum to provide positive drainage
- Trail width should be 8 feet minimum to allow the variety of users and the passage of 2 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
- Should bollards be used at trailheads and access points, spacing should be at least 32”.





## BLUEWAY (PADDLE) TRAILS

### 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 6 feet minimum
- Provide vertical clearance of 14 feet minimum; if using grass as the surfacing, maintain cover at no more than 5 inches height
- Provide a firm compacted surface for the access trail
- Space access points every 3-4 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%, 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 6 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

### Boardwalks

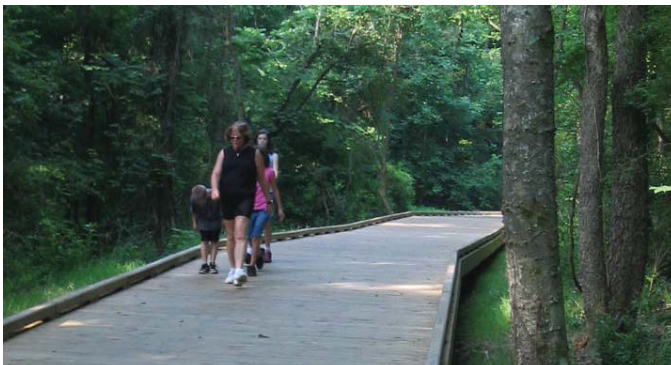
In general, trail routing should avoid wetlands if at all possible. If unavoidable, boardwalks should be used where trails need to be constructed through wetlands, areas where grading must be minimized or fill dirt is not an option (floodplain), or other environmentally sensitive areas. Recommended guidelines 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 the 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 (10,000 Lbs./5 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 2 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 4 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 2% 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 the 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

### 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 5 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 4 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 styles should be consistent. Carolina Thread Trail signage will be provided for some initial segments when trails are officially designated as a part of the Carolina Thread Trail network. The Thread Trail logo can be displayed on all trail signage associated with the Thread Trail 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 Thread Trail. 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 Thread Trail. 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 Thread Trail network 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 Thread Trail 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. NCDOT, MUTCD, FHA, and AASHTO can provide more information on guidelines and standards for regulatory and warning signage.





### Public Art

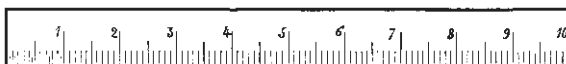
Trails and trailheads provide good opportunities to add interest and character to the trail corridor through public art. Art can help to depict local history or unique events. Art can be functional or aesthetic. Public art can occur along the trail in the form of seating or other furnishings. There are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

### Restrooms

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.







## FOOTNOTES

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