

**fonta flora state trail master plan** | lake james to morganton





# FONTA FLORA STATE TRAIL

LAKE JAMES TO MORGANTON MASTER PLAN

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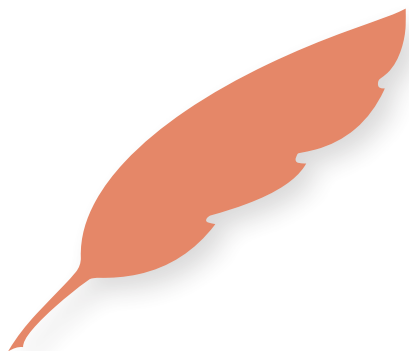


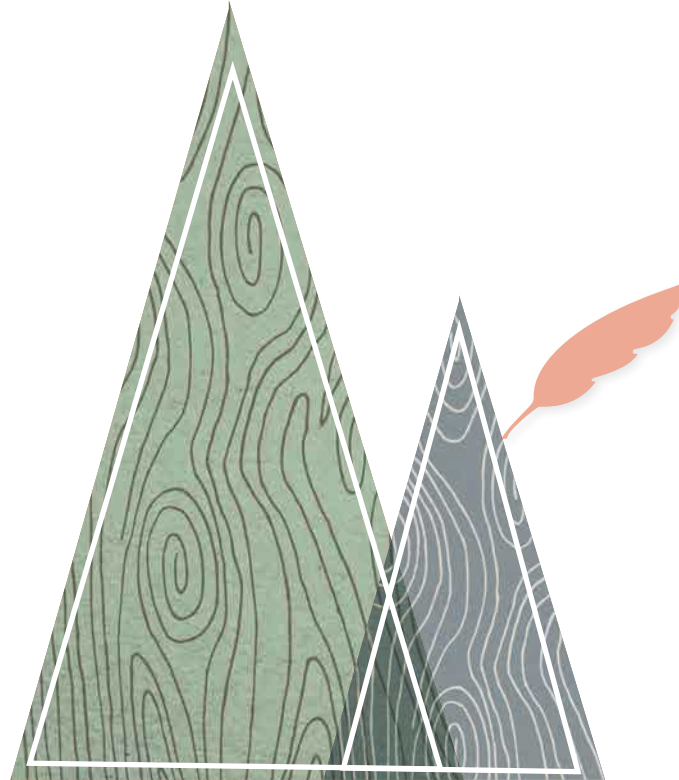


A black and white photograph of a person walking away from the camera on a dirt trail through a wooded area. The person is wearing a dark jacket and light-colored pants. The trail is surrounded by trees and brush, with a building visible in the distance through the trees.

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## INTRODUCTION AND BACKGROUND

THE EASTERN-MOST SEGMENT OF THE FONTA FLORA STATE TRAIL EXTENDS FROM LAKE JAMES TO MORGANTON.

- This trail master plan serves as a road map for establishing the Fonta Flora State Trail from Lake James, in Burke County, to the City of Morganton.
- This chapter provides an overview of previous planning efforts and their goals.

### IN THIS CHAPTER:

- A| PURPOSE AND BACKGROUND
- B| PREVIOUS PLANNING EFFORTS
- C| VISION STATEMENT
- D| TRAIL BENEFITS
- E| PLAN ORGANIZATION

# PURPOSE & BACKGROUND

The Fonta Flora State Trail finds its origins in the desires of Burke County citizens to increase quality of life for residents, provide a recreational amenity for visitors and the region's diverse population, and provide public access to the area's cultural and natural resources.

In 2015, the North Carolina General Assembly approved legislation to establish the Fonta Flora State Trail. Upon completion, the proposed trail will extend from Asheville to Morganton connecting Marion, Old Fort, and Black Mountain.



Burke County is a leading agency in the establishment of the Fonta Flora State Trail. Following the adoption of a master plan in 2016, the County partnered with the NC Division of State Parks and Duke Energy to complete 10 miles of trail in 2017. The County is now beginning construction on another 10 miles that will eventually encircle Lake James to

complete Section 2 of the state trail. Also in 2017, Burke County opened a new trailhead featuring custom trail facilities and artistic signage. Additionally, a master plan is currently in development for Section 3 from Lake James to Marion.

Financial support from Duke Energy continues to advance the project with \$1.1 million in grants committed to the development of the Fonta Flora State Trail and Overmountain Victory National Historic

Trail (OVNHT). Financial resources will be released from Duke Energy now that the Federal Energy Regulatory Commission has approved the company's re-licensing to operate its hydroelectric power plants along the Catawba River.

This plan addresses Section 1 of the Fonta Flora State Trail from Lake James to Morganton. This section is unique in that it coincides with a segment of the OVNHT.

LEGISLATION WAS SIGNED INTO LAW BY GOVERNOR MCCRORY IN SUMMER 2015 THAT MAKES THE FONTA FLORA STATE TRAIL THE LATEST ADDITION TO NORTH CAROLINA'S STATE PARK SYSTEM.



# PREVIOUS PLANNING EFFORTS

## Overmountain Victory National Historic Trail Master Plan (OVNHT): Lake James to Morganton

In 2015, Burke County developed a comprehensive trail master plan for the OVNHT along the Catawba River corridor from Lake James to Morganton. The National Park Service provided financial assistance for plan development. The OVNHT overlaps with the southern portion of the FFST at Lake James and as the trail extends to Morganton. Portions of the trail systems at both Lake James and the Catawba River Greenway in Morganton are certified as part of the Overmountain Victory National Historic Trail. The OVNHT Lake James to Morganton Master Plan serves as the foundation of the Fonta Flora State Trail Lake James to Morganton Master Plan.



## Fonta Flora State Trail Master Plan: Lake James Section

The *Fonta Flora State Trail Master Plan: Lake James Section* was completed in 2016. The plan provided a major update to the Lake James Loop Trail Master Plan published by Burke County in 2014. This section of the Fonta Flora State Trail will ultimately encircle Lake James with a continuous 30-mile state-of-the-art hiking and biking nature trail. As a state trail, the loop is now under the purview of the NC Division of Parks and Recreation as an official unit of the State Parks system.



## Lake James Loop Trail Master Plan

Since 2005, the Burke County Planning Department has led efforts to plan for and establish a loop trail around Lake James that would provide for a family and leisure trail experience while protecting the natural environment.

In early 2013, the Burke County Community Development Director began a new planning effort to jumpstart the Loop Trail initiative and promoted the project to the top of the department's priority list. In September 2013, a diverse stakeholder work group met to begin creating the Lake James Loop Trail Master Plan to serve as a guide for the development, management, and implementation of the trail.

The Lake James Loop Trail Master Plan, published in 2014, outlined an easy to moderate 30 mile multi-use hiking and biking trail with a natural mineral soil surface. The plan recommended an average trail width of five feet wide and overall average grade of 5% or less.



# VISION STATEMENT

The Fonta Flora State Trail will provide pedestrians and bicyclists of all abilities a safe and legal route that will eventually extend from Morganton to Asheville. The trail will allow users to experience the natural diversity of the area, incorporate multiple access points and support facilities, create a community and regional asset that will provide for recreation opportunities for local residents and visitors, and promote tourism and low-cost economic development for Burke County and the surrounding region.

## PLAN GOALS

- 1 Refined and Specific Trail Routes.** Using the 2015 OVNHT Lake James to Morganton Master Plan as its foundation, this plan further refines the trail route to reflect new opportunities and re-engages landowners.
- 2 Landowner Outreach.** Make a direct appeal to landowners identified during the analysis and record their sentiment for providing a trail easement.
- 3 Trail Character.** Develop designs and trail support facilities that incorporate both the OVNHT and FFST brands.
- 4 Visual Plan.** Create a visual plan that utilizes renderings and schematics to demonstrate trail character.



## WHAT IS A STATE TRAIL?

The State Parks Act (GS 113-44.9) defines the types of units in the NC State Parks System to include State Parks, State Natural Areas, State Recreation Areas, State Trails, State Rivers and State Lakes. Fonta Flora is a State Trail.

The difference between a State Park and a State Trail is that a State Park is operated and managed by the Division of Parks and Recreation, but a State Trail represents a partnership among multiple agencies, landowners and local governments, working together to implement a shared vision. Working together on a connected State Trail is a way for communities to leverage their investments in trails to maximize the value for their citizens. Sections of a State Trail on state park property may be managed by the Division of Parks and Recreation, but sections of the trail that cross property controlled by others will continue to be built, maintained and managed by those other landowners.

A State Trail is comprised of multiple connected sections, and each section of the trail is sponsored by a state or federal agency, local government, or landowner. Overall trail corridor planning and coordination are the responsibility of the Division of Parks and Recreation, but each section of the trail will be planned, built and managed in accordance with the needs and wishes of each local section sponsor. DPR will provide guidance, coordination and assistance for the multiple section sponsors whose individual and diverse sections link together to form the State Trail.

**SECTION** - A portion of the trail within the jurisdictional boundaries of a single agency or organization, who serves as the sponsor of that section.

**SECTION SPONSOR** - Any agency or organization that owns the land the trail utilizes and that enters into an agreement with the Division of Parks and Recreation to maintain their section of trail as a part of the State Trail. The section sponsor, in coordination with adjoining section sponsors, is responsible for the design, construction, maintenance and management of the trail within their section, including its location, appearance, surface, uses, and amenities. Section sponsors retain authority on lands under their jurisdiction. Section sponsors are encouraged to showcase places of natural, scenic, historic, and cultural significance; to feature the diversity of natural communities and landscapes in the state; and to consider the needs of both long and short distance trail users.

# TRAIL BENEFITS



## ECONOMIC

There is no question that countless communities across America have experienced significant economic growth from a result of trail and greenway infrastructure. Below are a few examples of such impacts:

### **Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts (2011)**

- Evaluated 58 separate projects in 11 cities
- Multi-use trails (e.g., greenways) create 9.6 jobs per \$1 million invested

### **East Central Florida Regional Planning Council; Economic impact of Orange County trails (2013)**

- Little Econ Greenway (7.4 miles); West Orange (20 miles); and Cady Way Trails (7.2 miles) in Orange County, Florida
- Supported 516 jobs and had an estimated positive economic impact of \$42.6 million on the area
- Nearby Downtown Winter Garden (pop. 37k) = \$14.6M Revenues

### **Year 3 Economic Impact of Swamp Rabbit Trail (2014)**

- Swamp Rabbit = 20 miles (Greenville, NC to Travelers Rest)
- \$6.7 Million

### **Virginia Creeper Trail, Damascus, VA**

- 34 mile rail-trail
- Direct economic impact approximately \$3 million a year



## HEALTH

Trails and greenways provide an attractive, safe, and accessible low- or no-cost place to walk, hike, jog, or bicycle. More parks and green spaces lead directly to more physical activity by citizens. This gives people of all ages an opportunity to incorporate exercise into their daily routines.



## ENVIRONMENTAL

Trails and greenways protect important habitat, improve water quality, and provide corridors for wildlife. By protecting land along rivers and streams, greenways help filter pollution caused by agricultural and road runoff. These areas can often serve as natural floodplains. Also, trails and greenways can serve as hands-on environmental classrooms.



## EDUCATIONAL

The Fonta Flora State Trail will provide for a variety of educational opportunities. A significant portion of the trail will pass through Lake James State Park, which will provide an educational experience about natural habitats and native flora and fauna from throughout the region. Since this trail coincides with portions of the Overmountain Victory National Historic Trail, users have the opportunity to learn about the Overmountain Men and their impact on the Revolutionary War. Other opportunities exist to learn about hydroelectric dams, bicycle safety, wilderness medicine, and search and rescue.



## RECREATIONAL

The recreational benefits offered by the Fonta Flora State Trail will complement existing opportunities found in the area at Lake James State Park, NCWRC Game Lands, Linville Gorge, Catawba River, and adjoining US Forest Service lands.

The Fonta Flora State Trail will anchor a host of recreation offerings. Foremost, this trail offers the unique opportunity to separate automobiles from cyclists to circumnavigate the Lake, thereby creating a safe and scenic destination for cycling enthusiasts. This plan also calls for a new boat launch, camping and cabin facilities, fishing access areas, and over 25 miles of trails, boardwalks, and bridges. All of these additional recreational opportunities will be beneficial for personal, community, and business development.



## TRANSPORTATION

Trails and greenways serve as a crucial element within a regional multi-modal transportation system. These facilities provide efficient and safe connectors among civic, commercial, and residential land uses. The Fonta Flora State Trail will help create these connections and play a central role in establishing a regional trail network that will ultimately include the NC Mountains-to-Sea Trail, Overmountain Victory National Historic Trail, Upper Catawba River Trail, and other local connecting trails.

# PLAN ORGANIZATION



## EXISTING CONDITIONS, ANALYSIS, AND PRELIMINARY ALIGNMENTS

This chapter provides a comprehensive overview and analysis of the opportunities and constraints found throughout the study area. The analysis begins with a brief description of the study area followed by a comprehensive discussion of the natural and built environments and their implications for trail suitability, trail design features, permitting, and costs. This chapter concludes with a map and photographic series that highlights a host of preliminary trail route alternatives.



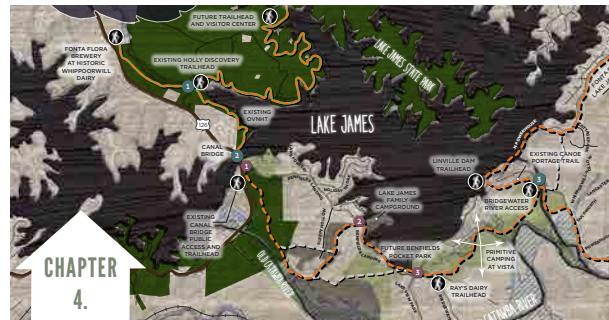
## LANDOWNER OUTREACH

Significant efforts were made to reach out to landowners where the preliminary analysis indicates that the trail is most suitable. This chapter describes the landowner outreach process and provides highlights from the landowner workshop meetings.



## TRAIL CHARACTER AND DESIGN GUIDELINES

This chapter is dedicated to visually defining the various trail types to be used throughout the corridor. Design concepts are provided for trail user orientation signage, mile markers, and other support facilities. Social Media is explored as a mechanism for trail promotion and marketing.



## RECOMMENDATIONS

This chapter is organized according to four (4) planning sections. Each planning section description includes a map that identifies a preferred alignment. Each planning section further incorporates the analysis and design elements from the previous chapters along with a host of supporting renderings and design schematics.



## IMPLEMENTATION

This chapter summarizes details for each planning section and establishes responsibilities and priorities for trail implementation. Additionally, this chapter identifies focus areas for development that will serve as catalyst projects for completing the trail.





## EXISTING CONDITIONS, ANALYSIS, AND PRELIMINARY ALIGNMENTS

THIS SECTION OF THE FONTA FLORA STATE TRAIL HAS A SIGNIFICANT NATURAL AND CULTURAL HISTORY INCLUDING A SHARED ALIGNMENT WITH THE OVERMOUNTAIN VICTORY NATIONAL HISTORIC TRAIL.

The analysis begins with a brief description of the study area followed by a comprehensive discussion of the natural and built environments and cultural resources and their implications for trail suitability, design features, permitting, and costs. This chapter concludes with a map and photographic series that highlights a host of preliminary trail route alternatives.

### IN THIS CHAPTER:

- A| STUDY AREA DESCRIPTION
- B| STUDY AREA MAJOR FEATURES
- C| NATURAL ENVIRONMENT
- D| CULTURAL RESOURCES
- E| BUILT ENVIRONMENT
- F| PRELIMINARY ROUTE ALTERNATIVES:  
MAP & PHOTO SERIES

# STUDY AREA DESCRIPTION



MAP 1: GENERAL STUDY AREA

THE LAKE JAMES TO MORGANTON FFST STUDY AREA IS ONE MILE WIDE AND EXTENDS APPROXIMATELY 20 MILES FROM THE FONTA FLORA BREWERY AT WHIPPOORWILL FARM TO DOWNTOWN MORGANTON.

The Lake James to Morganton FFST study area is one mile wide and extends approximately 20 miles from the Fonta Flora Brewery at Whippoorwill Farm on Highway 126 to Downtown Morganton.

Starting at the Fonta Flora Brewery at Whippoorwill Farm adjacent to Lake James State Park, the corridor extends east through large tracts of rural agricultural land primarily owned by two landowners: Duke Energy and Crescent Resources, which continue to partner with Burke County to provide easements and financial support for the FFST and OVNHT.

The planning corridor follows the Catawba River east, transitioning to a mix of large tracts of privately owned land and residential subdivisions. Located on

the south side of the Catawba River is Glen Alpine, a small municipality whose jurisdiction intersects with portions of the study area.

The Upper Catawba River Trail, which provides for a series of river access areas throughout the study area, serves as a foundation for the river's recreation offerings. Land parcels become smaller as the corridor continues toward the City of Morganton before reaching the 3.8-mile Catawba River Greenway, which is officially designated as part of the Overmountain Victory National Historic Trail.

The FFST extends from the Catawba River Greenway to downtown Morganton via a future greenway connector planned by the City of Morganton.

# STUDY AREA MAJOR FEATURES

## LAKE JAMES

Lake James is a large reservoir located in the foothills of Western North Carolina which straddles the border between Burke and McDowell Counties. This 6,812 acre impoundment was created between 1916 and 1923 to produce hydroelectric power for the small towns of Marion and Morganton. Low density zoning requirements help to ensure that areas around the lake will be carefully managed and developed. Lake James offers residents and visitors opportunities to boat, fish, swim, and participate in other water-based activities.

Lake James contains 10.2 square miles of surface area and more than 150 miles of shoreline. The average depth of the Lake is 65 feet with a maximum recorded depth of 120 feet. At an elevation of approximately 1,200 feet, Lake James is located within the Catawba River basin.



## LAKE JAMES STATE PARK

Lake James State Park is one of the most recent additions to the North Carolina State Parks system. It was established in 1987 by the North Carolina General Assembly when funds were appropriated for the purchase of 565 acres of land and the initial phase of facility development in McDowell County. In 2004, Lake James State Park acquired an additional 2,915 acre tract from Crescent Resources Inc. in Burke County. This purchase expanded the state park to six times its former size and protected more than 30 miles of shoreline. The state park offers opportunities for hiking, mountain biking, picnicking, nature observation, swimming, and canoeing. A section of the Fonta Flora State Trail that is currently under construction will meander through the park and provide trail users the opportunity to take advantage of traditional state park facilities and services.



## OVERMOUNTAIN VICTORY NATIONAL HISTORIC TRAIL

The Overmountain Victory National Historic Trail (OVNHT) is part of the National Park Service's National Trails System. It recognizes the patriot militia from Virginia, Tennessee, North Carolina, and South Carolina who crossed the Appalachian Mountains to fight and win at the Battle of Kings Mountain during the Revolutionary War in present-day South Carolina.

The trail network consists of a 272-mile corridor, including a 70-mile branch from Elkin, North Carolina, that joins the main route at Morganton, North Carolina. Sixty-five miles of OVNHT are officially developed for public use, and development continues on the remaining sections. The official sections of the trail were established through agreements with landowners and land managers and often have overlapping designations. All officially certified segments are identified by signs displaying the trail logo (an Overmountain man in profile on a brown and white triangle) or a white triangular blaze.

This master plan proposes a shared alignment of the FFST and OVNHT from Lake James to the Catawba River Greenway in Morganton, a certified segment of the OVNHT. Currently, 5.5 miles of OVNHT are certified in Burke County. Based on this master plan and the OVNHT companion plan for the same study area, approximately 20 new miles along the Catawba River could be completed.

The OVNHT is a cooperative effort of the National Park Service, U.S. Forest Service, U.S. Army Corps of Engineers, Overmountain Victory Trail Association, local governments, local citizens' associations, local historical societies, and the states of Virginia, Tennessee, North Carolina, and South Carolina.

# NATURAL ENVIRONMENT

## STEEP SLOPES

Much of the corridor has gently rolling topography. The most challenging slopes are along the banks of the Catawba River near the Glen Alpine area and Lake James. The trail should be designed for grades under 5% slope when possible. Natural surface trails can vary up to 10% slope while maintaining sustainable design. Alignments proposed in this plan should be designed with these guidelines and may require a larger corridor to incorporate a more gradual trail grade.

## FLOODPLAINS

Floodplain areas provide both an opportunity and constraint for trail development. Since traditional development is often not suitable within floodplain areas, private landowners may be more willing to provide access for public trails within these areas. Also, these scenic areas attract wildlife, which creates an engaging trail experience. Within this study area, much of the floodplain areas along the Catawba River corridor are ideal for greenway development.

Although development is regulated within the floodplain, greenways and trails are allowed and can be permitted. Sound trail engineering techniques are necessary to ensure trails can sustain flooding. To the extent possible, greenway alignments should be avoided within the floodway<sup>1</sup>.

<sup>1</sup> **Avoid disturbance in the floodway.** Avoid placement of structures or disturbance within the floodway. Floodways are regulated locally and by the Federal Emergency Management Agency (FEMA). Fill, structures (walls, kiosks, etc), and impervious services are discouraged. Any structures located within the floodway require a no-impact/no-rise certification through FEMA. These studies can vary on cost but can range from \$2,500-\$15,000 depending on complexity.

## WETLANDS AND HYDRIC SOILS

The study area includes several wetland areas as identified on the National Wetland Inventory (NWI). According to NWI, there are likely smaller wetland areas within the study corridor that are not indicated within their inventory that could impact final trail alignments. Hydric soils in combination with wetland plant species and wetland hydrology are considered indicators of a wetland, which require costly permitting if impacted<sup>2</sup>.

## STREAMS, LAKES, AND PONDS

The County, State, and Federal government regulate the many waterbodies found throughout the study area<sup>3</sup>. The Catawba River is the dominant waterway within this corridor. Canoe Creek, located to the west of Morganton, is a tributary of the Catawba that serves as a possible trail corridor.



<sup>2</sup> **If wetlands are unavoidable, utilize elevated boardwalk systems.** Boardwalks allow for travel over flat, poorly draining soils, standing water, and wetland features and have significantly less impact than other options. A section 404 (Clean Water Act) Permit may be required if the wetland is considered jurisdictional by the USACE. This means that the wetland is not isolated and part of a broader lake or water system. A small boardwalk for a non-isolated wetland with limited fill or dredging may qualify for a programmatic Nationwide Permit. Nationwide Permits are designed to streamline the permitting process for actions with limited disturbances. In addition to permitting, disturbances exceeding a tenth (0.1) of an acre would require mitigation which can increase project costs. Impacts under a tenth (0.1) of an acre do not trigger mitigation fees.

## CATAWBA RIVER

The Catawba River (named after the Native American tribe that first settled on its banks) is a tributary of the Wateree River in the states of North and South Carolina. The river is approximately 220 miles long and is considered one of “America’s Most Endangered Rivers” by the American Rivers organization. The river includes a series of reservoirs for flood control and hydroelectricity and provides drinking water to millions of residents.

The headwaters of the Catawba River begin in the Blue Ridge Mountains in western McDowell County approximately 20 miles east of Asheville. The Catawba joins the Linville River and forms Lake James. The river then extends east and south, flowing through other impoundments near Morganton, Hickory, and Mooresville on its way to Lake Norman. From Lake Norman it flows south, passing west of Charlotte, before entering Lake Wylie, where it forms approximately ten miles of the border between North and South Carolina. The Catawba River continues through South Carolina before joining the Wateree River, which spills into the Atlantic Ocean.

<sup>3</sup> **Maintain a 50-foot buffer from all waterways, particularly those regulated under the Catawba River Buffer Rules.** The state requires a 50-foot buffer along the shorelines of Catawba River and associated lakes. Streams within the study area are identified by the State of North Carolina as having poor water quality and maintaining or improving an adequate vegetated buffer is crucial to improving the quality. Zone 1 of this buffer includes an undisturbed 30-foot buffer from top of bank in which trails are discouraged. Zone 2 is an additional 20-foot buffer. This zone allows for managed vegetation and trails and greenways. While trails are an allowable use within Zone 2, the NC Division of Water Quality requires a permit (through DWQ or designated local government). The applicant must show that disturbance has been minimized and no other alternatives exist.

## RARE FLORA AND FAUNA

The State Natural Heritage Program provides data identifying the state's most sensitive environmental areas to be avoided; these areas are incorporated within the analysis map series at the end of this chapter. Rare flora and fauna species can also exist outside of these designated areas, which can alter final trail alignments prior to construction.

Coordination with the U.S. Fish and Wildlife Service (USFWS) is an important aspect of the design process. Involving USFWS early on in the process can help avoid potential planning obstacles related to federally protected species. Additionally, permits<sup>2</sup> like Section 401 and 404 will initiate the review of the State Natural Heritage Program database. If species are found within the project area, State or Federal requirements may dictate avoidance or mitigation.

Species identified by the State Natural Heritage Program within this study area include:

- A| Dwarf-flowered Heartleaf (see Map 1, found on Duke Energy held lands)
- B| White Trillium (see Map 2, found in the larger Glen Alpine area)
- C| Carolina Foothills Crayfish and Eastern Creekshell (see Map 3, found along the Catawba)
- D| Mountain Golden Heather plant (Lake James area)
- E| Peregrine Falcon (Lake James area)
- F| Bald Eagle (Lake James area)



THE NORTH AMERICAN BALD EAGLE  
FEATHER PROVIDES THE INSPIRATION  
FOR THE FONTA FLORA LOGO.

# CULTURAL RESOURCES



## NATIVE AMERICANS

The Catawba River has served as a historic transportation route, cultural connector, and wildlife corridor throughout the area's history. Early Native Americans in the area identified themselves as the Kawahcatawbas, "the people of the river". The Catawba and Wateree Tribes used the river for transportation and traded with Spanish explorers at river outposts. The ruins of one of these outposts, Fort San Juan, have been located and excavated in close proximity to the Catawba River in Morganton. Based on Spanish records and archaeological findings, it appears that Fort San Juan was occupied in 1567 and 1568.



## OVERMOUNTAIN MEN

The Catawba River and its tributaries were also followed by Revolutionary War soldiers on their way to the Battle of Kings Mountain, SC in 1780. The Overmountain Victory National Historic Trail preserves and commemorates the route.

The original Overmountain Victory National Historic Trail (OVNHT) route was identified by a National Parks Service research team. The team relied on the 1881 account of the march, which has been amended by local historians, descendants of battle participants, and other sources. As part of this congressionally designated trail, any officially certified portion of the OVNHT must lie within a one-mile corridor (half-mile on either side) of the historic route.



## FONTA FLORA VILLAGE

The impoundment of the Catawba River to form Lake James also marks another important moment in history. The local settlement of Fonta Flora, an African American sharecropping village, was flooded in 1916 by the Southern Power Company (predecessor to Duke Energy) to develop Lake James. This community included approximately 100 full-time residents; there are no known photographs or painted pictures of Fonta Flora before it was slowly covered by the rising waters of Lake James.

# THE BUILT ENVIRONMENT

The opportunities and constraints found within the built and human environment are critical for determining suitable trail locations and feasibility, ideal user experiences, construction costs, and necessary permits.

This section highlights four (4) built environmental features and their implications for developing the Fonta Flora State Trail from Lake James to Morganton, including: 1) Land Use; 2) Existing Trails and Parks; 3) Utilities; and 4) Transportation.

## LAND USE SNAPSHOT

### Western Section

The western extent of the study area is typified by a rural wooded landscape with large tracts of land, many which are owned by Crescent Communities, Duke Energy, NC State Parks, and family trusts. Many of these large tracts are leased as tree and plant nurseries. The fertilization of these crops must be considered when providing for public trails.

### Central Section

The central section of the corridor exhibits a mix of large tracts and small tracts, many which serve second-home owners. Many of the large landowners have owned their property for multiple generations, while smaller tracts have been purchased for retirement or personal retreats. Through the course of landowner outreach, both of these groups described issues with trash and other problems with the general public and river users. This history serves as a barrier for obtaining trail easements.

### The City of Morganton

The City of Morganton's western edge is typified by single-family residential growth. Pockets of dense land development create a challenge for creating a public trail. The City has successfully acquired property for a greenway connector that will link the Catawba River Greenway to the central business district.



# THE BUILT ENVIRONMENT

## EXISTING PARKS AND GREENWAYS

Burke County and Morganton have a collection of parks and greenways that are ideal for trail connections. Some of these major assets include:

### Fonta Flora State Trail: Lake James Loop

Ten miles of the Fonta Flora State Trail were completed in 2017, and an additional 10 miles are currently under construction. When complete, the trail will provide for a complete loop around Lake James.



### OVNHT at Lake James State Park

This state park is one of the most significant linkages in the planning corridor and western section of the study area. Two miles of certified OVNHT are located along Paddy Creek in the state park.



### Canal Bridge Public Access

NC Wildlife Resources Commission currently manages the Canal Bridge Public Access which is located near the western terminus of the study area. NCWRC also plans to establish the North Bend public river access at Powerhouse Rd., west of Glen Alpine. Both access areas will be important for trail connectivity.



### Bridgewater Fishing Access

This public fishing access area and canoe launch is owned by Duke Power, which has plans to further improve the site.



### Watermill River Access

This public fishing access area near Glen Alpine is owned by Burke County.



### City of Morganton Parks and Greenways

The City has many parks and greenways to connect, such as the Catawba River Greenway, Freedom Park and Greenway, Catawba Meadows Park, Rocky Ford Access, and the Catawba River Soccer Complex.





## UTILITIES

The study area has a complex matrix of utilities that include transmission lines, utility towers, water lines, and sewer infrastructure. Both sewer and water lines are indicated on the subsequent map series. However, the maps do not include transmission lines.

Locations where the potential trail alignment intersects with sewer or water lines have been indicated on the map and notes (i.e. Canoe Creek). Sewer lines are often compatible with trails since existing easements preclude development. However, the easement will often need to be modified to provide for a public trail.



## TRANSPORTATION

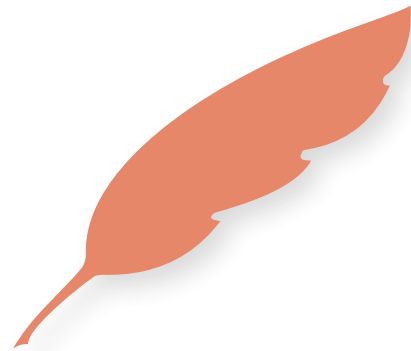
The study area analysis includes an extensive review of the existing transportation network including the North Carolina Department of Transportation (NCDOT) right-of-way (ROW), NCDOT plans, existing bike and pedestrian infrastructure (crosswalks, bike lanes, etc.), railways, and existing greenways.

NCDOT's right-of-way was analyzed for the ability

to accommodate a trail alignment or accommodate a widened shoulder. These opportunities are shown on the Site Analysis Maps with corresponding opportunities and constraints notes.

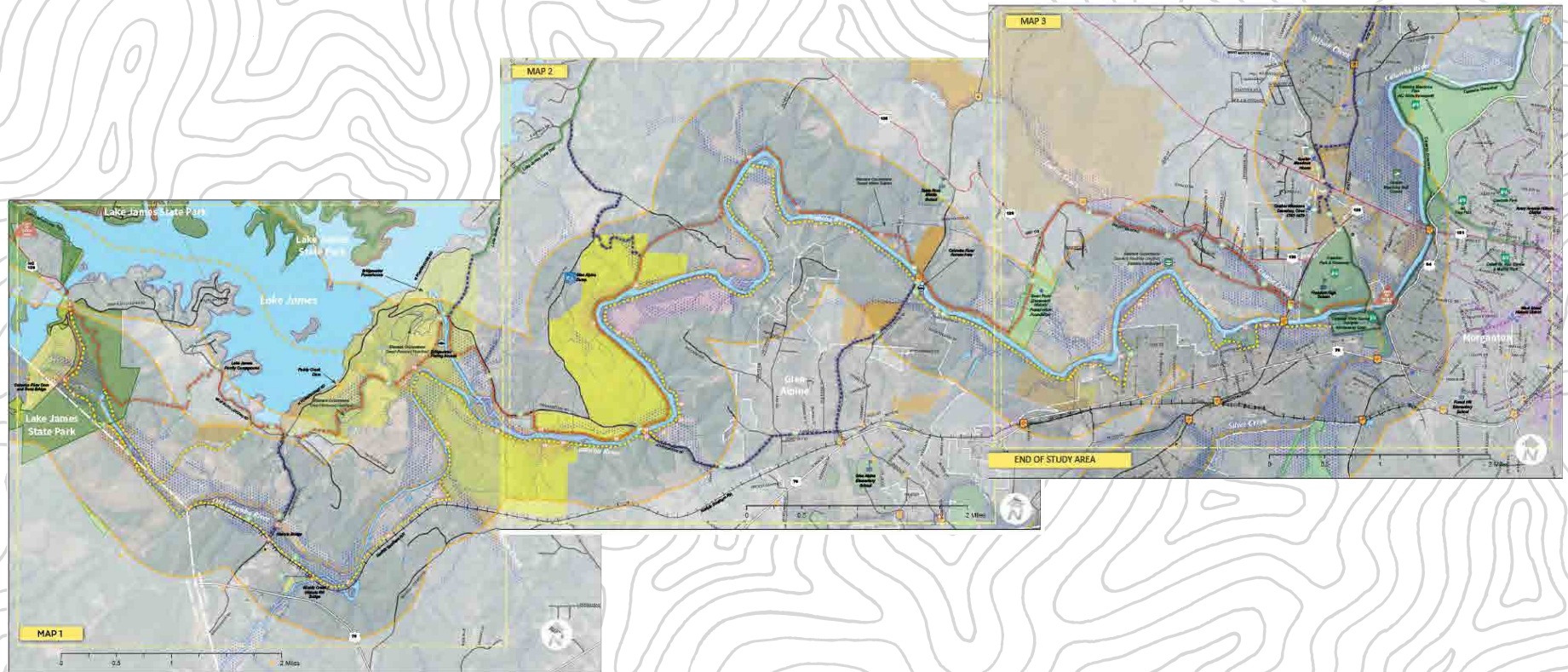
Norfolk Southern has an operational rail on the south side of the Catawba River. If this rail were to ever become abandoned, a significant opportunity would exist to establish a considerable section of trail. The right-of-way and adjacent lands were analyzed as a potential future route, as illustrated in the maps and notes.





# MAP AND PHOTO SERIES: PRELIMINARY TRAIL ROUTE ALTERNATIVES

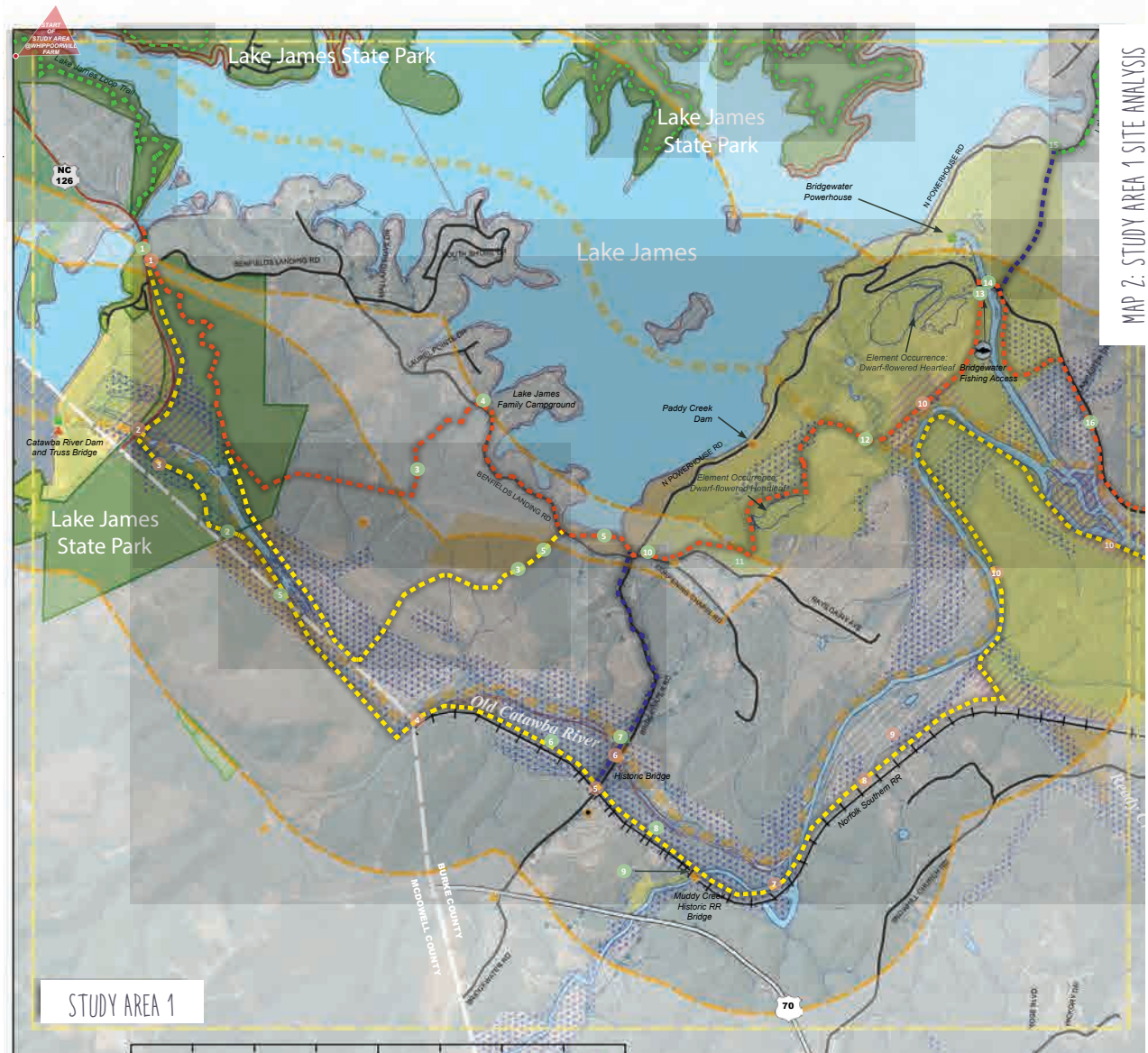
The map and photographic series, which spatially incorporates the natural and built environment analysis, highlights a host of preliminary trail route alternatives. These routes were further refined by local leaders to identify and engage landowners. This information will serve as an ongoing reference guide as alternative routes may need to be developed due to unforeseen barriers.



# STUDY AREA 1: SITE ANALYSIS

## LEGEND

- |  |               |  |               |
|--|---------------|--|---------------|
|  | Alignment 'A' |  | Opportunities |
|  | Alignment 'B' |  | Constraints   |
|  | Connectors    |  |               |
- 
- |  |                               |  |                               |
|--|-------------------------------|--|-------------------------------|
|  | 20-Foot Contours              |  | OVNHT & Other Recreation      |
|  | County Boundary               |  | Overmountain Victory NH Trail |
|  | Municipal Boundaries          |  | OVNHT 1/2-Mile Buffer         |
|  | Property Lines                |  | Existing Trails               |
|  | Duke Energy Properties        |  | Proposed Trails               |
|  | Crescent Resources Properties |  | Fishing Access                |
- 
- |  |                           |  |              |
|--|---------------------------|--|--------------|
|  | Hospitals                 |  | Parks        |
|  | Public Health Departments |  | Golf Courses |
|  | Public Libraries          |  |              |
|  | Colleges and Universities |  |              |
|  | Schools                   |  |              |
- 
- |  |                                   |  |                             |
|--|-----------------------------------|--|-----------------------------|
|  | Federal & State Ownership         |  | Brownfields                 |
|  | Private                           |  | Inactive Hazardous Sites    |
|  | Municipal/County Owned Properties |  | Active & Inactive Landfills |
- 
- |  |                   |  |                   |
|--|-------------------|--|-------------------|
|  | Plant             |  | Animal            |
|  | Animal Assemblage |  | Natural Community |
|  | Animal            |  |                   |
|  | Natural Community |  |                   |
- 
- |  |             |  |          |
|--|-------------|--|----------|
|  | Exceptional |  | Moderate |
|  | Very High   |  | General  |
|  | High        |  | Unranked |
- 
- |  |                |  |                     |
|--|----------------|--|---------------------|
|  | Wetlands (NWI) |  | Waterbodies         |
|  | Hydic Soils    |  | Floodway            |
|  | Streams        |  | 100-Year Floodplain |
|  | Waterbodies    |  | 500-Year Floodplain |
- 
- |  |            |  |  |
|--|------------|--|--|
|  | Waterlines |  |  |
|  | Sewer      |  |  |



MAP 2: STUDY AREA 1 SITE ANALYSIS

# STUDY AREA 1: OPPORTUNITIES AND CONSTRAINTS

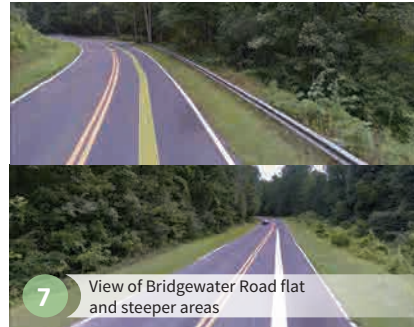
## Opportunities and Constraints: Lake James (Map 1)

### OPPORTUNITIES

- 1 Potential Trailhead and improvement area
- 2 Maintained open meadow
- 3 Routes utilize private dirt roads
- 4 Connect to Lake James Family Campground and single-family residential development by paralleling Benfields Landing Road
- 5 Potential amenable landowner
- 6 Flat area with potential to use Norfolk Southern right-of-way (around 200-feet) or adjacent private lands for alignment
- 7 Bridgewater Road could be an excellent connector route or a preferred alignment if one alignment section was determined unfeasible
- 7 Bridgewater Road hosts a Bed and Breakfast and may have opportunity for greenway related commercial
- 8 Area is relatively flat
- 9 Utilize Muddy Creek Historic Rail Road Bridge
- 10 Potential amenable landowner on north side—alignment could utilize or parallel Corpening Chapel Road
- 11 Potential amenable landowner on north side—alignment could utilize or parallel Rays Dairy Avenue
- 12 Alignment parallels private road
- 13 Potential trailhead at Bridge Water Fishing Access Area
- 14 Powerhouse Road bridge has ample deck width to allow for on-grade bridge crossing
- 15 Potential connection to North Powerhouse Road and Lake James Loop Trail
- 16 Powerhouse Road has 60-feet of right-of-way and is fairly flat through the rest of this area going east

### CONSTRAINTS

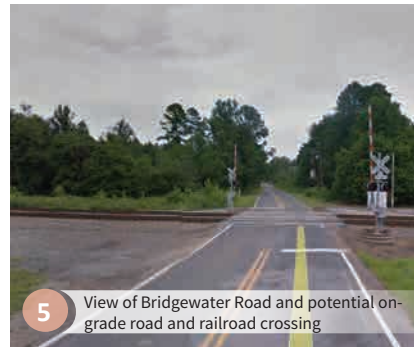
- 1 Steep hillside may require greenway alignment to parallel Highway 126 until the crossing of Benfields Landing Road
- 2 Hwy 126 Bridge has narrow shoulder with railing obstruction for several hundred feet—would likely require a bridge attachment
- 3 Wetland/low lying area
- 4 Area has stream crossing and significant fill slope from rail road bed and would require alignment to be in floodway or elevated on a structure
- 5 At-grade road crossing on Bridgewater Road
- 6 Bridgewater Road bridge has narrow shoulder and would need to have a bridge attachment or separate pedestrian bridge
- 7 Rail-bed is on elevated dike and significant fill slope from rail road bed and would require alignment to be in floodway or elevated on a structure
- 8 Large disturbance area (possible motor cross track) within and adjacent to Norfolk Southern right-of-way
- 9 Tree farm
- 10 Sensitive cultural resource areas



7 View of Bridgewater Road flat and steeper areas



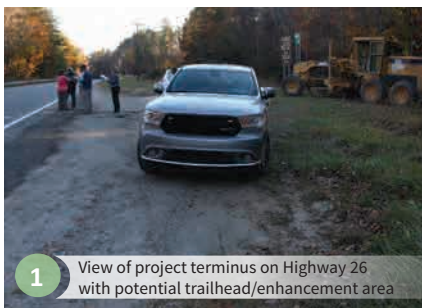
14 Approach to Bridgewater Fishing Access Area on Powerhouse Road



5 View of Bridgewater Road and potential on-grade road and railroad crossing



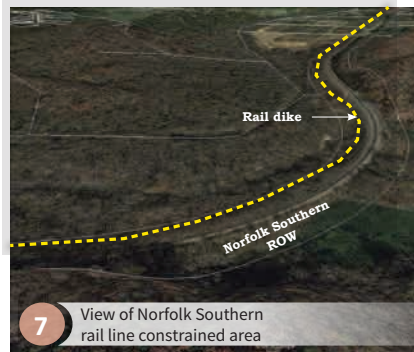
14 View of decking over the Catawba River on Powerhouse Road



1 View of project terminus on Highway 26 with potential trailhead/enhancement area



10 View of Rays Dairy Avenue and potential on-road or parallel alignment



7 View of Norfolk Southern rail line constrained area

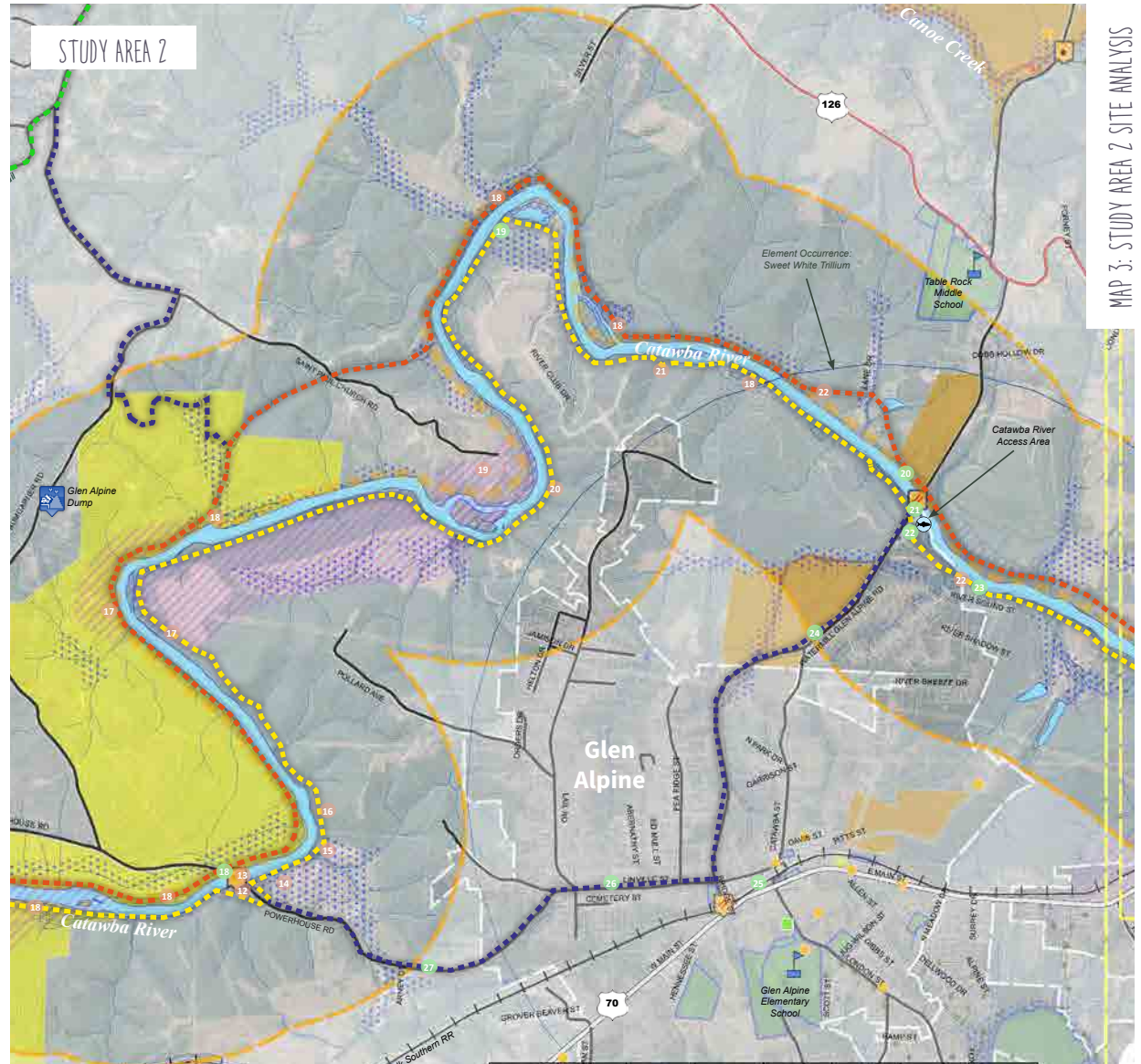


16 View of Riverview Apartments with sewer line easement shown at the right

# STUDY AREA 2: SITE ANALYSIS

## LEGEND

- |  |               |  |               |
|--|---------------|--|---------------|
|  | Alignment 'A' |  | Opportunities |
|  | Alignment 'B' |  | Constraints   |
|  | Connectors    |  |               |
- 
- |  |                               |  |                               |
|--|-------------------------------|--|-------------------------------|
|  | 20-Foot Contours              |  | Overmountain Victory NH Trail |
|  | County Boundary               |  | OVNHT 1/2-Mile Buffer         |
|  | Municipal Boundaries          |  | Existing Trails               |
|  | Property Lines                |  | Proposed Trails               |
|  | Duke Energy Properties        |  | Fishing Access                |
|  | Crescent Resources Properties |  | Parks                         |
|  |                               |  | Golf Courses                  |
- 
- |                        |                           |  |                                   |
|------------------------|---------------------------|--|-----------------------------------|
| <b>Civic Landmarks</b> | <b>Managed Lands</b>      |  |                                   |
|                        | Hospitals                 |  | Federal & State Ownership         |
|                        | Public Health Departments |  | Private                           |
|                        | Public Libraries          |  | Municipal/County Owned Properties |
|                        | Colleges and Universities |  |                                   |
|                        | Schools                   |  |                                   |
- 
- |                                     |  |                               |                             |
|-------------------------------------|--|-------------------------------|-----------------------------|
| <b>Historic Sites and Districts</b> | <b>State Natural Heritage Data</b>             |                               |                             |
|                                     | National Register (NR) of Historic Places Site |                               | Brownfields                 |
|                                     | NR and Local Landmark                          |                               | Inactive Hazardous Sites    |
|                                     | National Register Historic District (NRHD)     |                               | Active & Inactive Landfills |
|                                     | NRHD Boundary                                  | <b>Element Occurrences</b>    |                             |
|                                     | Local District Center Point                    |                               | Plant                       |
|                                     | Study List (SL)                                |                               | Animal Assemblage           |
|                                     | SL and Landmark                                |                               | Animal                      |
|                                     | SL and Determined Eligible (DOE)               |                               | Natural Community           |
|                                     | SL, DOE, and Landmark                          | <b>Natural Heritage Areas</b> |                             |
|                                     | DOE NRHD                                       |                               | Exceptional                 |
|                                     | Surveyed                                       |                               | Moderate                    |
|                                     | Surveyed in NRHD                               |                               | Very High                   |
|                                     | Site Gone                                      |                               | General                     |
|                                     | Sensitive Cultural Resources                   |                               | High                        |
|                                     |  |                               | Unranked                    |
- 
- |                       |                        |  |                     |
|-----------------------|------------------------|--|---------------------|
| <b>Transportation</b> | <b>Hydrology</b>       |  |                     |
|                       | Bike Route             |  | Wetlands (NWI)      |
|                       | NCDOT Bridge Locations |  | Hydric Soils        |
|                       | Rail Roads             |  | Waterbodies         |
|                       | Roads/Interstates      |  | Streams             |
|                       | Interstates            |  | Flood Zones         |
|                       | Local Roads            |  | Floodway            |
|                       | State and County Roads |  | 100-Year Floodplain |
|                       | State Roads            |  | 500-Year Floodplain |
- 
- |                  |            |
|------------------|------------|
| <b>Utilities</b> |            |
|                  | Waterlines |
|                  | Sewer      |



MAP 3: STUDY AREA 2 SITE ANALYSIS

# STUDY AREA 2: OPPORTUNITIES AND CONSTRAINTS

## OPPORTUNITIES

- 17 Utilize 60-foot right-of-way (with 18-20-foot shoulder) on Powerhouse Road
- 18 Potential for bridge underpass at low-flow periods—but on-grade crossing of Powerhouse Road may be more practical
- 18 Bridge decking may accommodate a shoulder for on-grade crossing across the Catawba River
- 19 Existing trail easement may allow for greenway accommodation in gated equestrian community—land bordering the Catawba River is owned by the club/community
- 20 Potential amenable land owner
- 21 Bridge clearance across the Catawba River would allow for a greenway underpass on either sides but lacks adequate shoulder on bridge deck for crossing the river
- 22 Burke County's Catawba River Access Area—potential trailhead location
- 23 Subdivision platted but properties bordering river appear to be undeveloped and still owned by developer
- 24 Watermill Glen Alpine Road/Turkey Tail Lane right-of-way has 60-foot right-of-way with approximately 30-feet of shoulder on the western side
- 25 Downtown Glen Alpine hosts a commercial area that could serve greenway tourism including a bike shop, winery, and bed and breakfast
- 26 Linville Street has an approximately 5-foot sidewalk through the majority of downtown Glen Alpine
- 27 Powerhouse Road has 60-foot of right-of-way and relatively flat terrain into Glen Alpine



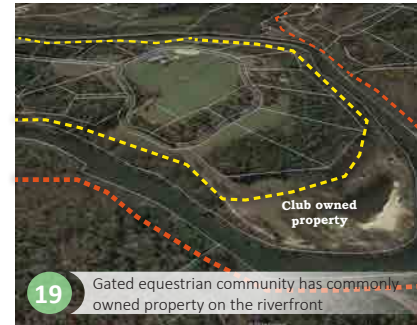
18 View of Powerhouse Road bridge over the Catawba River

## CONSTRAINTS

- 11 Sensitive cultural resource area
- 12 Homesite is close to Catawba River—alignment would need to navigate around it
- 13 Bridge clearance may not be desirable for a greenway underpass and on-grade crossing may be necessary
- 14 Tree farm
- 15 Trust property
- 16 Homesite located fairly close to Catawba River
- 17 Sensitive cultural resource areas
- 18 Wetland/low lying areas
- 19 Trust property not likely to be amendable to a greenway
- 20 Trust property
- 21 Use of some private property in drainage would be needed for alignment
- 22 This alignment may be less probable due to the intersection with several small privately held parcels



12 View of home site on the Catawba River that prevents an adjacent alignment on the south end



19 Gated equestrian community has commonly owned property on the riverfront



20 View from Catawba River Bridge—landowner on right of picture may be amenable



21 View of Bridgewater Road and potential on-grade road and railroad crossing



22 Burke County Catawba River Access area and potential trailhead



14 View of Watermill Glen Alpine Road right-of-way as a potential connector to Glen Alpine

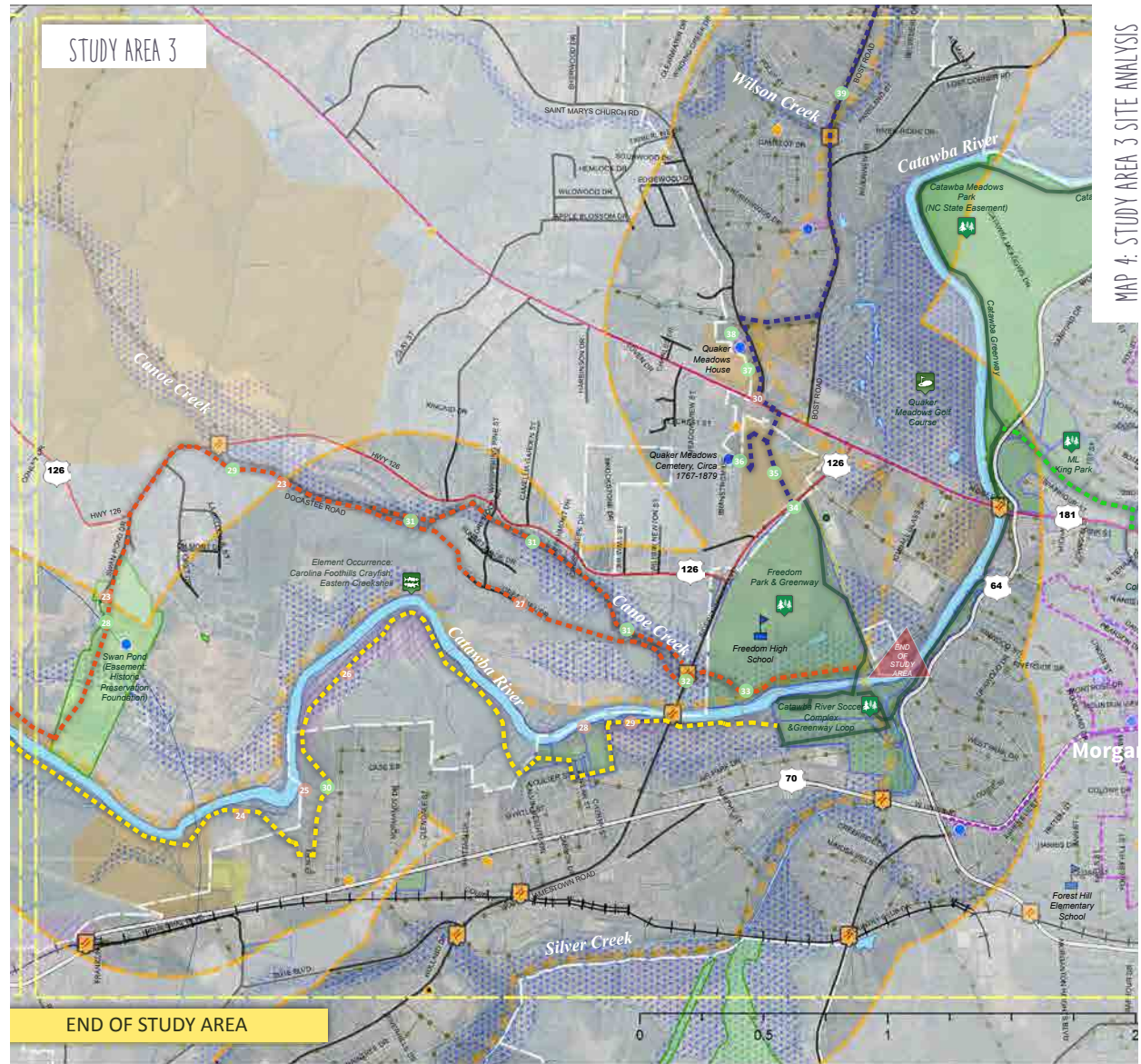


16 Downtown Glen Alpine (with Norfolk Southern railroad line in the foreground)

# STUDY AREA 3: SITE ANALYSIS

## LEGEND

- Alignment 'A'
  - Alignment 'B'
  - Connectors
- 
- 20-Foot Contours
  - County Boundary
  - Municipal Boundaries
  - Property Lines
  - Duke Energy Properties
  - Crescent Resources Properties
- 
- Civic Landmarks**
- Hospitals
  - Public Health Departments
  - Public Libraries
  - Colleges and Universities
  - Schools
- 
- Historic Sites and Districts**
- National Register (NR) of Historic Places Site
  - NR and Local Landmark
  - ★ National Register Historic District (NRHD)
  - NRHD Boundary
  - ★ Local District Center Point
  - ★ Study List (SL)
  - SL and Landmark
  - ▲ SL and Determined Eligible (DOE)
  - ▲ SL, DOE, and Landmark
  - ★ DOE NRHD
  - ★ Surveyed
  - ★ Surveyed in NRHD
  - Site Gone
  - ▨ Sensitive Cultural Resources
- 
- Transportation**
- Bike Route
  - NCDOT Bridge Locations
  - Rail Roads
- Roads/Interstates**
- Interstates
  - Local Roads
  - State and County Roads
  - State Roads
- 
- Utilities**
- Waterlines
  - Sewer
- 
- OVNHT & Other Recreation**
- Overmountain Victory NH Trail
  - OVNHT 1/2-Mile Buffer
  - Existing Trails
  - Proposed Trails
  - Fishing Access
  - Parks
  - Golf Courses
- 
- Managed Lands**
- Federal & State Ownership
  - Private
  - Municipal/County Owned Properties
- 
- State Natural Heritage Data**
- Element Occurrences**
- Plant
  - Animal Assemblage
  - Animal
  - Natural Community
- Natural Heritage Areas**
- Exceptional
  - Very High
  - High
  - Moderate
  - General
  - Unranked
- 
- Hydrology**
- ▨ Wetlands (NWI)
  - ▨ Hydric Soils
  - ▨ Waterbodies
  - Streams
- Flood Zones**
- ▨ Floodway
  - ▨ 100-Year Floodplain
  - ▨ 500-Year Floodplain



MAP 4: STUDY AREA 3 SITE ANALYSIS



# STUDY AREA 3: OPPORTUNITIES AND CONSTRAINTS

## OPPORTUNITIES

- 28 Historic farm (Swan Pond)
- 29 Alignment could parallel Docastee Road
- 30 Alignment could travel on-road on Elm Street and would need to travel through private property to access along the river
- 31 Alignment overlaps with sewer lines/easements
- 32 Canoe Creek bridge may accommodate a greenway underpass and separated pedestrian lane
- 33 Connection could use some current path alignments through Freedom Park
- 34 Intersection has planned signalization improvements
- 35 Development is planned to link in sidewalk infrastructure and will link to the north side of Hwy 181
- 36 Connection to Quaker Meadows Cemetery—a historically significant OVT site
- 37 Potential amenable landowner—property was historically a part of Quaker Meadows
- 38 Connection to Quaker Meadows House—a historically significant OVT site
- 39 Bost Road has significant 60-foot right-of-way and could serve as a connection to a neighboring subdivision

## CONSTRAINTS

- 23 Alignment leaves OVT mile-buffer
- 24 Topography is steep with a bluff that drops off behind buildings—alignment could need a switchback in this location
- 25 Homesite close to the Catawba River would make an adjacent river alignment less likely
- 26 Sensitive cultural resources area and trustee property
- 27 Alignment on Cresthill Drive would need to be on-road or the construction of a 5-foot sidewalk—which is less than the recommended minimum 10-foot path for a greenway in suburban/urban areas
- 28 Access is restricted on the Morganton Water Plant but alignment is proposed around the perimeter and would require fencing (also a sensitive cultural resource area)
- 29 Sensitive cultural resource area and wetlands
- 30 Intersection of Saint Marys Church Road and Highway 181 is signalized but no crosswalks exist



28 Swan Pond (a National Historic Register site) was settled just after the American Revolution



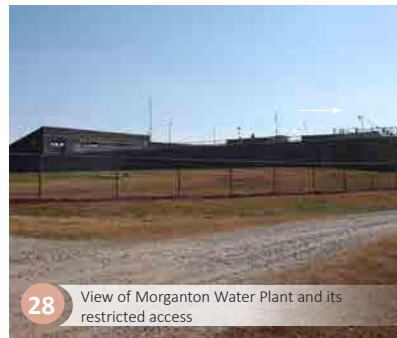
29 A view of Docastee Road from Highway 126



30 24 25 Section where alignment would navigate away from the river



20 View of Cresthill Drive—a potential on-road or parallel alignment



28 View of Morganton Water Plant and its restricted access



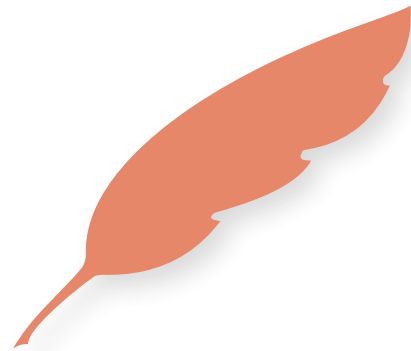
22 View from Independence Boulevard bridge over Canoe Creek



14 Quaker Meadows Cemetery—revolutionary War grave sites and one of the oldest historic sites in Western NC



16 The McDowell House (Quaker Meadows) historically significant through several eras





LANDOWNER OUTREACH AND ENGAGEMENT WAS A KEY COMPONENT OF THE PLANNING PROCESS.

## LANDOWNER OUTREACH

The environmental analysis (Chapter 1) was critical to determine physically feasible locations for trail development. However, significant portions of these routes impact private property and require landowner outreach to fully assess trail feasibility. This chapter highlights the good-faith effort to engage landowners throughout the planning process.

## THE ENGAGEMENT PROCESS

- A| IDENTIFYING THE LANDOWNERS
- B| LANDOWNER WORKSHOP
- C| TRAIL ROUTE RE-EVALUATION

# IDENTIFY THE LANDOWNERS

## FEASIBILITY ANALYSIS

Trail alternatives were developed based upon an environmental feasibility analysis (see Chapter 1).

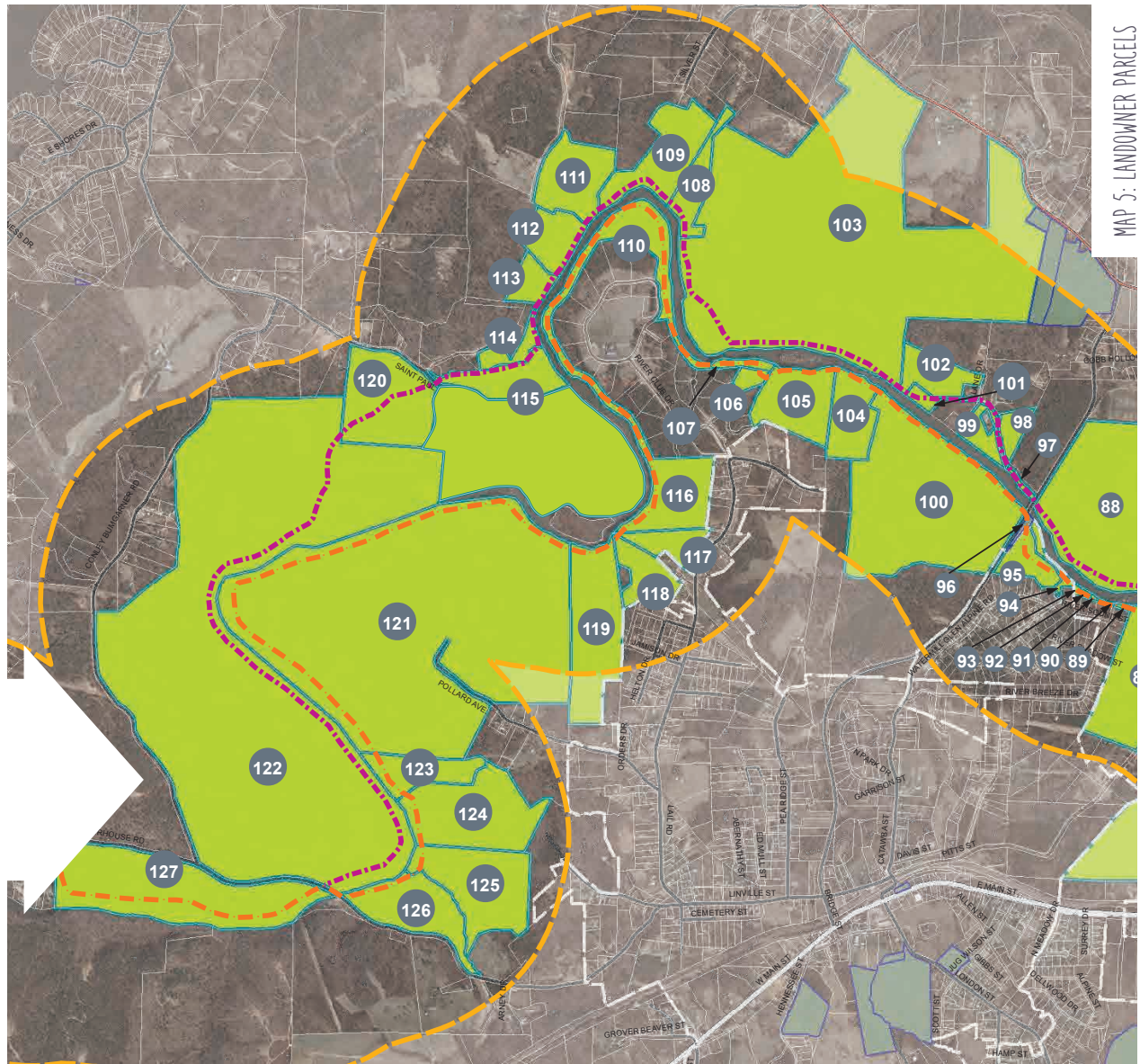
## LANDOWNER DATABASE

This effort builds upon previous landowner outreach efforts conducted in 2015 for the OVNHT Master Plan and incorporates additional preliminary alignments for landowner contact.

A mailing database was created that included all property owners impacted by the preliminary trail alignment(s).

STEP 1:  
DETERMINE WHERE THE TRAIL IS FEASIBLE  
(CHAPTER 1).

STEP 2:  
START A CONVERSATION WITH LANDOWNERS.



MAP 5: LANDOWNER PARCELS

# LANDOWNER WORKSHOP

## LANDOWNER INVITATION AND POSTCARD

Formal invitations were sent to all landowners requesting their attendance at a special meeting. Landowners who were unable to attend could respond with a pre-stamped postcard indicating their level of interest in providing for the trail.

## PRESENTATION

After signing in, the landowner workshop began with a presentation by Burke County staff that highlighted origins of the Fonta Flora Trail project, previous planning efforts, and trail progress and accomplishments.

## MAP REVIEW

Landowners were able to review preliminary maps and ask questions about their specific property and the associated trail alignment with Burke County planning staff and consultants.

## SENTIMENT CARD

The meeting concluded with landowners noting their level of willingness to provide a trail easement via the Landowner Interest Survey printed on the back of their invitation post card.



### Morganton to Lake Section of the Fonta Flora State Trail & Overmountain Victory National Historic Trail!

In partnership with the North Carolina Division of State Parks, Burke County is beginning to identify properties and routes for establishing the Lake James to Morganton section of the Fonta Flora State Trail (FFST). Designated as a State Trail in 2015, Fonta Flora is a public walking and biking trail that will eventually connect Morganton, Lake James, Marion, Old Fort, Black Mountain, and Asheville.

The Fonta Flora State Trail finds its origins in the desires of Burke County citizens to increase the quality of life enjoyed by residents, provide a destination-quality recreational amenity for visitors and the region's diverse population, and provide public access to the area's outstanding cultural and natural resources.

The Lake James to Morganton section of the FFST is unique in that it shares a corridor with the Overmountain Victory National Historic Trail (OVNHT). It is the vision of the partner organizations, including the National Park Service, that a single trail can be developed that serves as both the FFST and OVNHT.



- I am Familiar with the FFST  
 Yes  No  Maybe
- I am familiar with the Overmountain Victory National Historic Trail  
 Yes  No  Maybe
- I plan on attending the landowner workshop on February 27, 2018  
 Yes  No  Maybe
- I am interested in donating a corridor to accommodate the trail  
 Yes  No  Maybe
- I am interested in selling a corridor to accommodate the trail  
 Yes  No  Maybe
- I am interested in donating property to Burke County to accommodate the trail  
 Yes  No  Maybe
- I am interested in selling an entire property at full market value to Burke County  
 Yes  No  Maybe

*Your participation in this survey is incredibly important to the success of the trail!*  
*Thank you!!!*

Burke County  
Community Development  
PO Box 219  
Morganton, NC 28650

LANDOWNER ID: \_\_\_\_\_

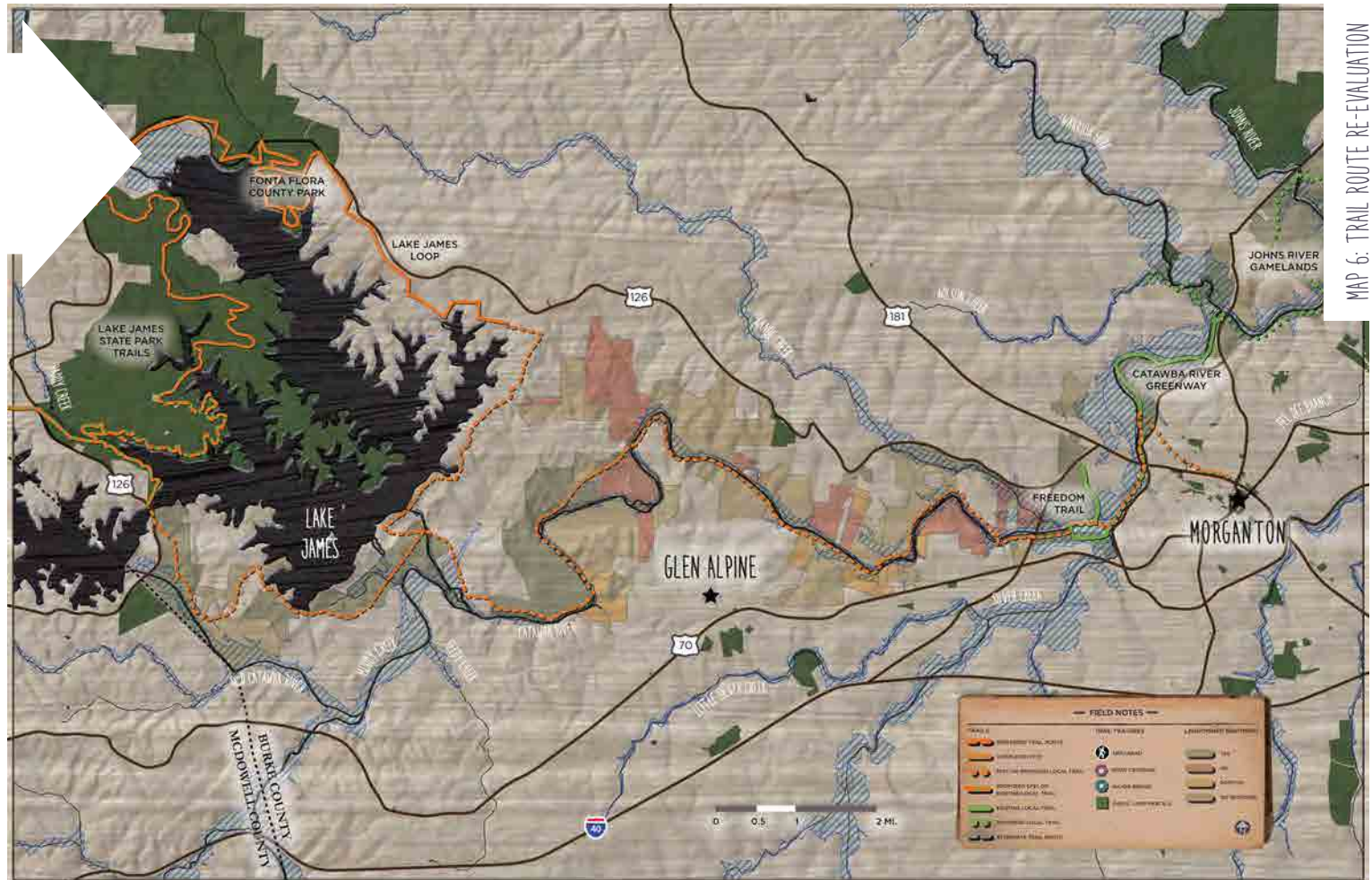
ON FEBRUARY 27, 2018, 20 LANDOWNERS ATTENDED THE LANDOWNER WORKSHOP AT THE BURKE COUNTY GOVERNMENT CENTER.

# TRAIL ROUTE RE-EVALUATION

## REVISE TRAIL ALIGNMENTS

“Landowner Sentiment” was helpful for determining the preferred alignment and was included as a component of the final map series (Chapter 4).

A COMBINATION OF FACTORS, INCLUDING THE NATURAL ENVIRONMENT, THE BUILT ENVIRONMENT, AND LANDOWNER SENTIMENT, WERE USED TO DETERMINE THE PREFERRED TRAIL ALIGNMENT (CHAPTER 4).



MAP 6: TRAIL ROUTE RE-EVALUATION



## TRAIL CHARACTER AND DESIGN GUIDELINES

THIS CHAPTER PROVIDES DESIGN DETAILS FOR VARIOUS TRAIL TYPES AND TRAIL SUPPORT FACILITIES AND OFFERS INSIGHT FOR INCORPORATING SOCIAL MEDIA.

- This chapter describes specific trail construction standards and trail types to ensure minimal maintenance and the best user experience.
- Additionally, this chapter defines three trail types and illustrates their transitions along the preferred trail alignment.
- A unique architectural and branding theme is presented for signage, wayfinding, and other trail support facilities. This chapter concludes with recommendations for using social media to market the trail.

### IN THIS CHAPTER:

- A| SUSTAINABLE TRAIL DESIGN & CONSTRUCTION
- B| TRAIL TYPES
- C| TRAIL PROFILE
- D| TRAIL SUPPORT FACILITIES
- E| SOCIAL MEDIA MARKETING

# TRAIL CHARACTER

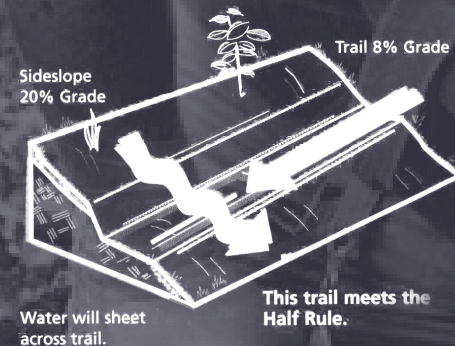
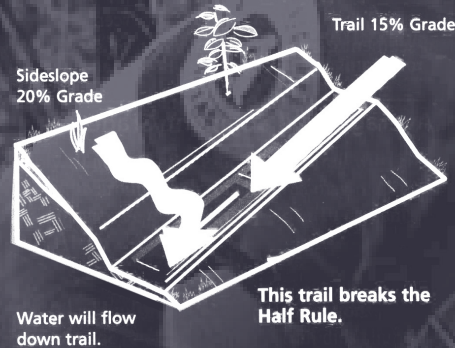
## SUSTAINABLE TRAIL DESIGN

The trail must be designed and constructed to minimize erosion and ongoing maintenance, while providing for a leisure, family-oriented experience. The trail width will be approximately five-feet wide and allow for multiple users and emergency access from off-road vehicles. The overall average trail grade or steepness will be 5% or less. The trail will be slightly rolling with a gentle grade that follows the terrain contours. The trail will be slightly out-sloped, and meanders and undulates frequently to remove water from the trail surface and create interest. The trail corridor will remain as narrow as possible while still maintaining the required tread width.

The trail design will utilize the five essential elements of sustainable trails as outlined in the International Mountain Bicycling Association's (IMBA) publication "Trail Solutions."

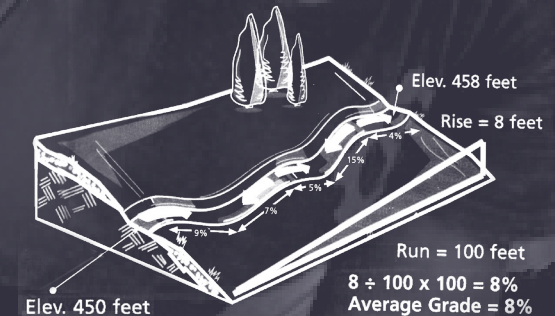
### 1. THE HALF RULE

A trail's grade shouldn't exceed half the grade of the hillside or sideslope that the trail traverses. If the grade does exceed half the sideslope, it's considered a fall-line trail. Water will flow down a fall-line trail rather than run across it.

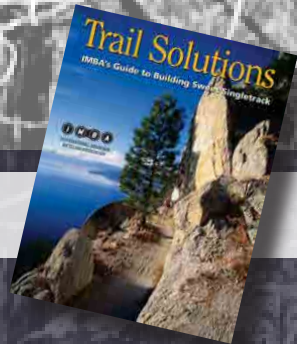


### 2. THE TEN PERCENT AVERAGE GUIDELINE

An average trail grade of 10 percent or less is considered sustainable. This doesn't mean that all trails should be kept under 10 percent, but the trail builder will need to limit the length of sections that exceed 10 percent.





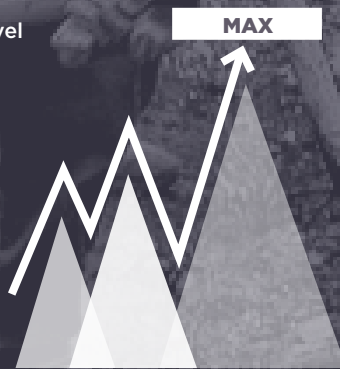


## THE FIVE ESSENTIAL ELEMENTS OF SUSTAINABLE TRAILS

### 3. MAXIMUM SUSTAINABLE TRAIL GRADES

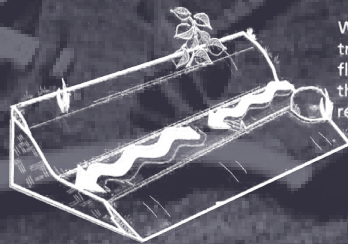
Maximum grade is the steepest portion of a trail that is more than approximately 10 feet in length. It's critical to determine what the maximum allowable trail grade will be prior to beginning construction. Several factors should be considered when determining the maximum sustainable trail grade which include:

- Half Rule
- Soil Types
- Rock
- Annual Rainfall Amount
- Grade Reversals
- Type of Users
- Number of Users
- Difficulty Level

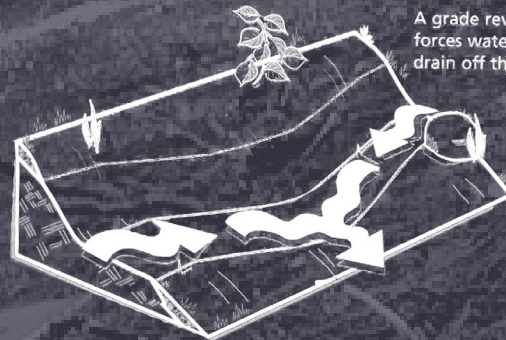


### 4. GRADE REVERSALS

A grade reversal is a point where an ascending trail changes direction subtly for 10 to 50 linear feet before ascending again. This change in grade allows for water to exit the trail.



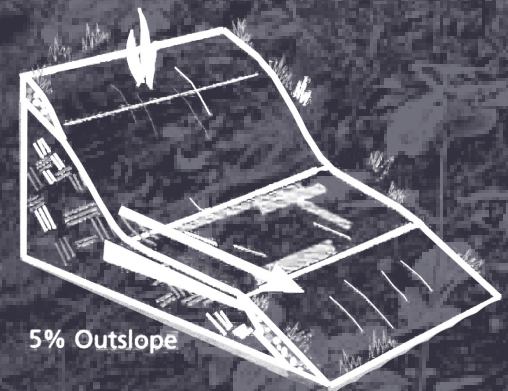
Water may become trapped on trail and flow long distances if there are no grade reversals:



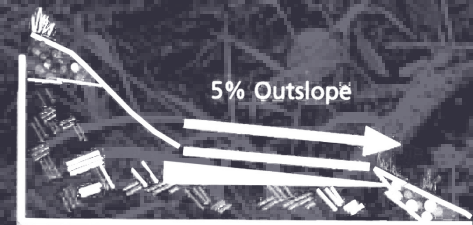
A grade reversal forces water to drain off the trail.

### 5. OUTSLOPE

Outslopes allow water to sheet flow off the trail instead of channeling down its center.



5% Outslope

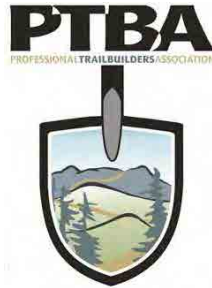


5% Outslope

# TRAIL CHARACTER

## TRAIL CONSTRUCTION

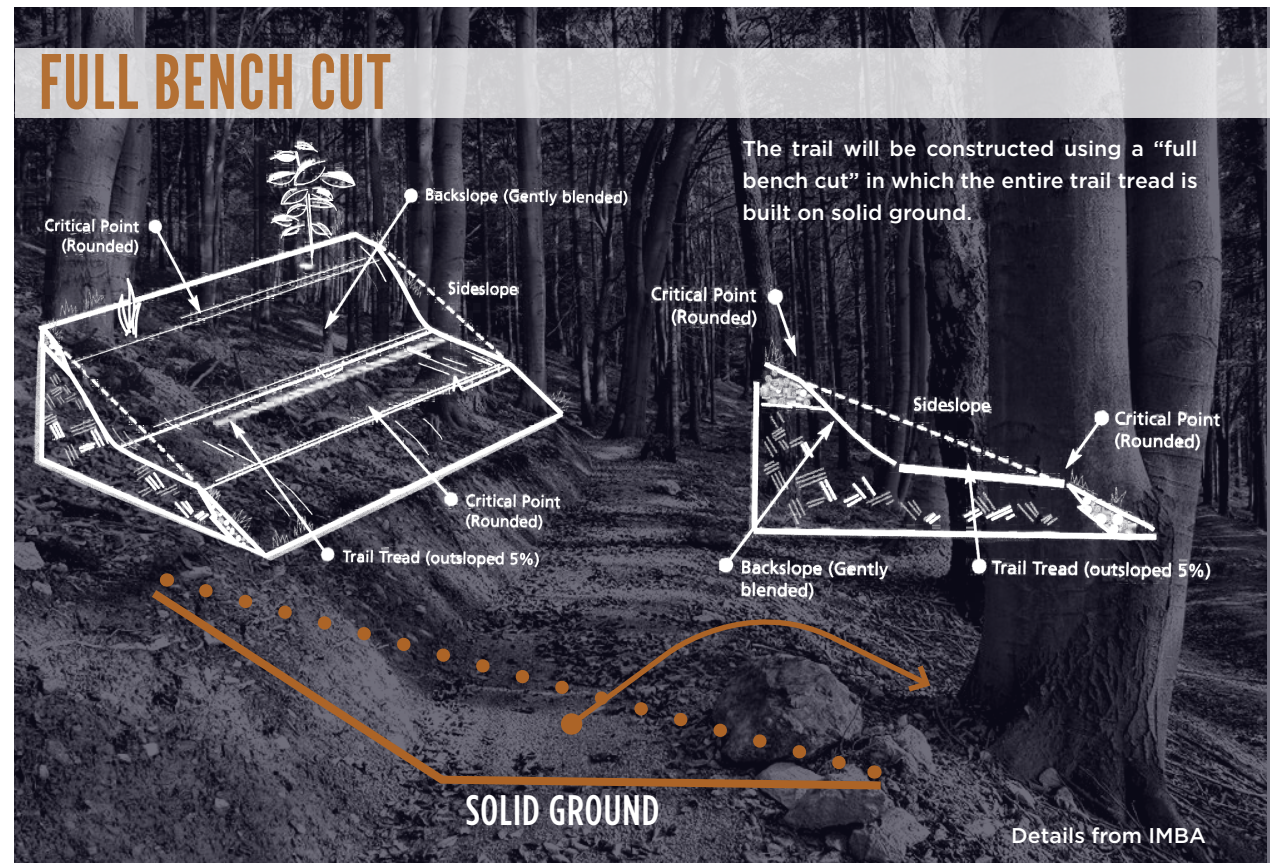
Members and associates of the Professional Trailbuilders Association (PTBA) should be preferred contractors for constructing the trail with mechanized equipment. These contractors have a thorough understanding of sustainable trail design and construction.



Volunteers may also work with PTBA contractors in a “hybrid” manner. When utilizing this method, the contractor is responsible for the rough cut of the trail tread and volunteers complete the finish work. Burke County will be responsible for securing any required local, state, or federal permits for construction.

The trail will be constructed using a “full bench cut” in which the entire trail tread is built on solid ground. A “partial bench cut” which is similar to “cut and fill” will only be utilized if a full bench cut is not feasible due to rock outcrops, slabs, or other natural features. A partial bench cut uses loose fill dirt to construct a portion of the trail treads. The fill dirt has a tendency to loosen over time and can then wash and erode. This issue is minimized when constructing a full bench cut. The trail bed will be shaped to leave an even, compacted, uniform surface free of indentations or protruding roots and stumps. The grading of the trail tread, back slope, and drainage

features will be finished to a smooth, stable surface. Any excess or disturbed soil outside the trail tread is evenly distributed and covered with leaves, organic debris, and other natural materials to aid in aesthetics and sedimentation and erosion control.



# TRAIL TYPES

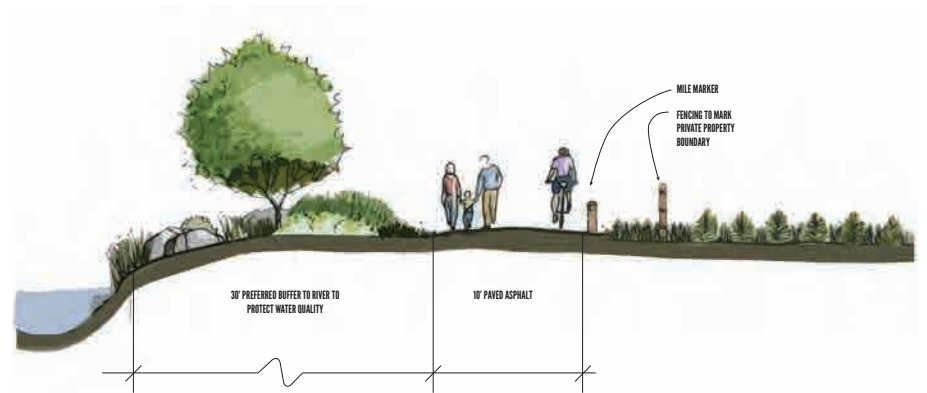
Five trail types are proposed along the preferred alignment. A specific trail type is proposed according to its surrounding environment, whether it is for safety along roadways or to enhance user experience.



THE CATAWBA RIVER GREENWAY INCORPORATES APPROXIMATELY FOUR MILES OF CERTIFIED OVERMOUNTAIN VICTORY NATIONAL HISTORIC TRAIL.

## TYPICAL GREENWAY

10' PAVED ASPHALT



**User Group:** Multi-Use

**Material:** Paved Asphalt

**Preferred Width:** 10'

**Average Construction Cost:** \$80/ln. ft.

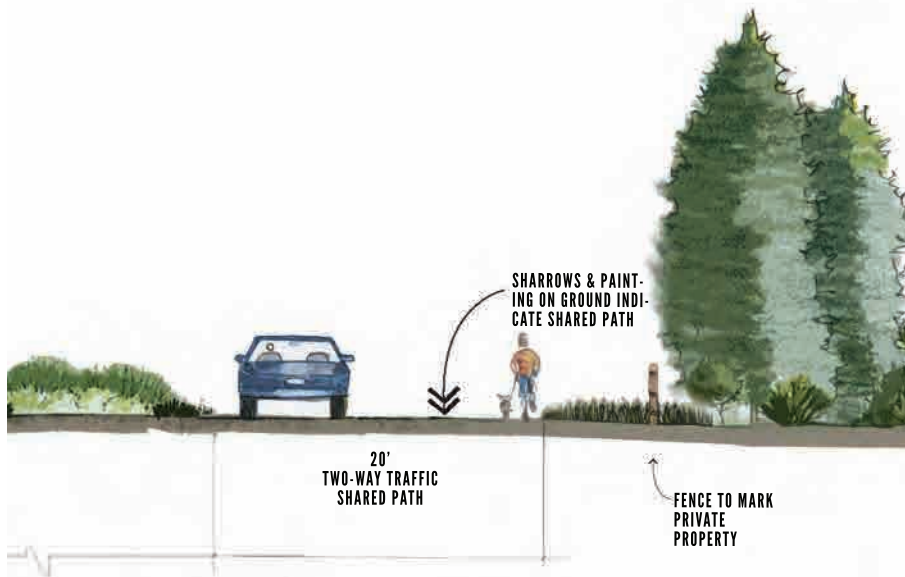
**Preferred Easement Width:** 50'

**Minimum Easement Width:** 20'

# TRAIL CHARACTER

## TRAIL TYPES SHARED PATH

20' PAINTED ASPHALT



**User Group:** Hikers, Cyclists, and Vehicles

**Avg. Construction Cost:** \$15/ln. ft.

**Material:** Painted Asphalt

**Preferred Easement Width:** Existing road width

**Preferred Width:** 20'

## DUAL-USE TRAIL

5' NATURAL SURFACE



**User Group:** Hikers and Cyclists

**Average Construction Cost:** \$12/ln. ft.

**Material:** Native Soils

**Preferred Easement Width:** 50'

**Preferred Width:** 5'

**Minimum Easement Width:** 10'

## NCDOT SIDE PATH

8' PAVED ASPHALT



**User Group:** Multi-Use

**Material:** Paved asphalt

**Preferred Width:** 8'

**Note:** Trail to be approved in accordance with NCDOT encroachment agreement.

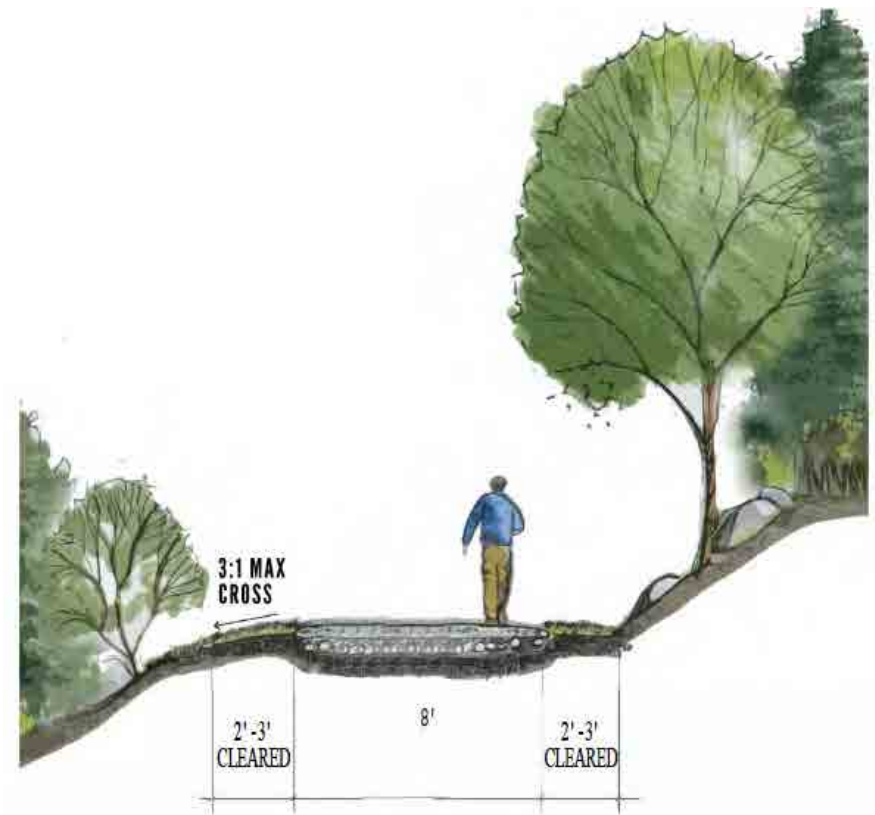
**Average Construction Cost:** \$120/ln. ft.

**Preferred Easement Width:** 25'

**Minimum Easement Width:** 25'

## MULTI-USE TRAIL

8' CRUSHED GRAVEL FINES



**User Group:** Hikers, Cyclists, Equestrians

**Material:** Crushed Gravel Fines

**Preferred Width:** 8'

**Average Construction Cost:** \$25/ln. ft.

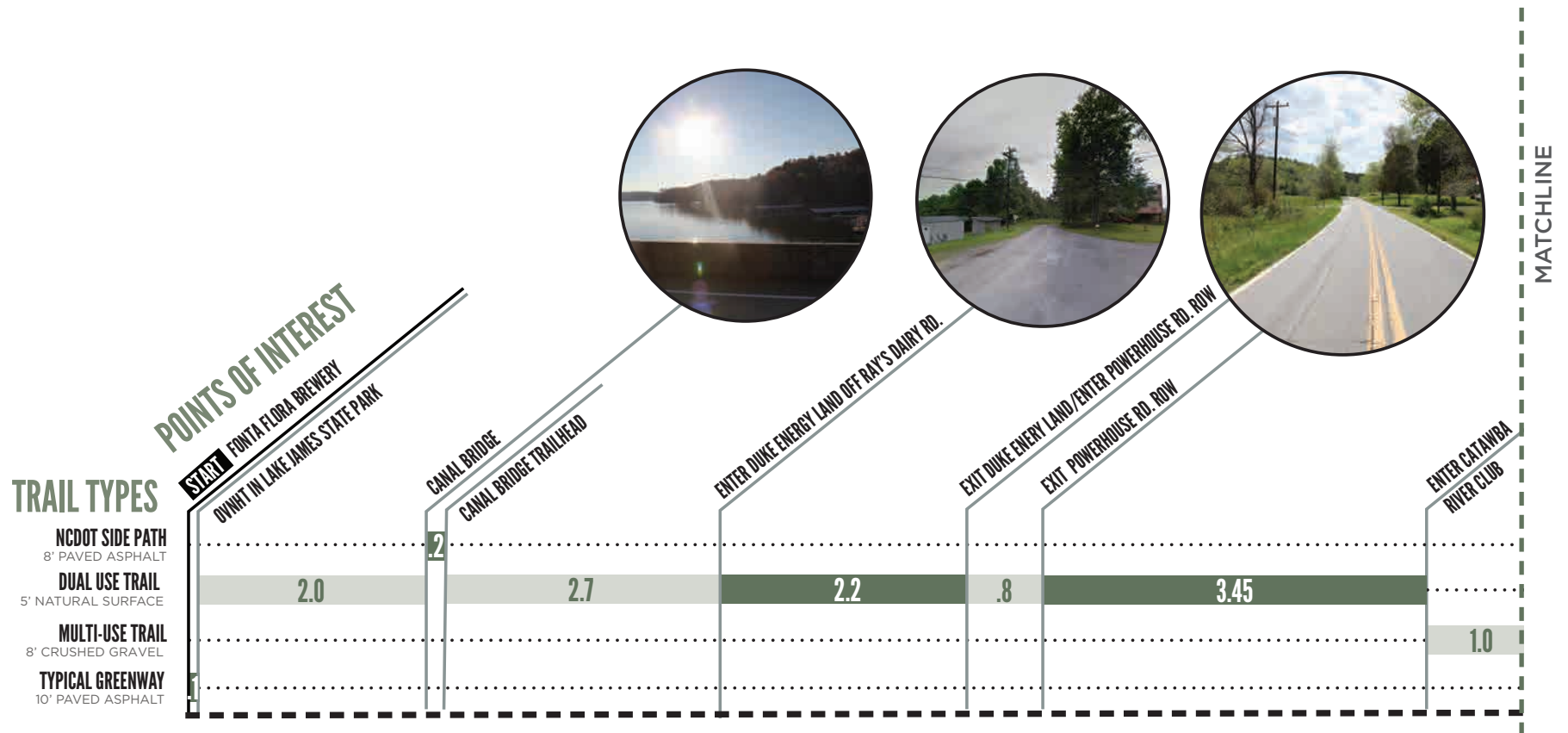
**Preferred Easement Width:** 25'

**Minimum Easement Width:** 15'

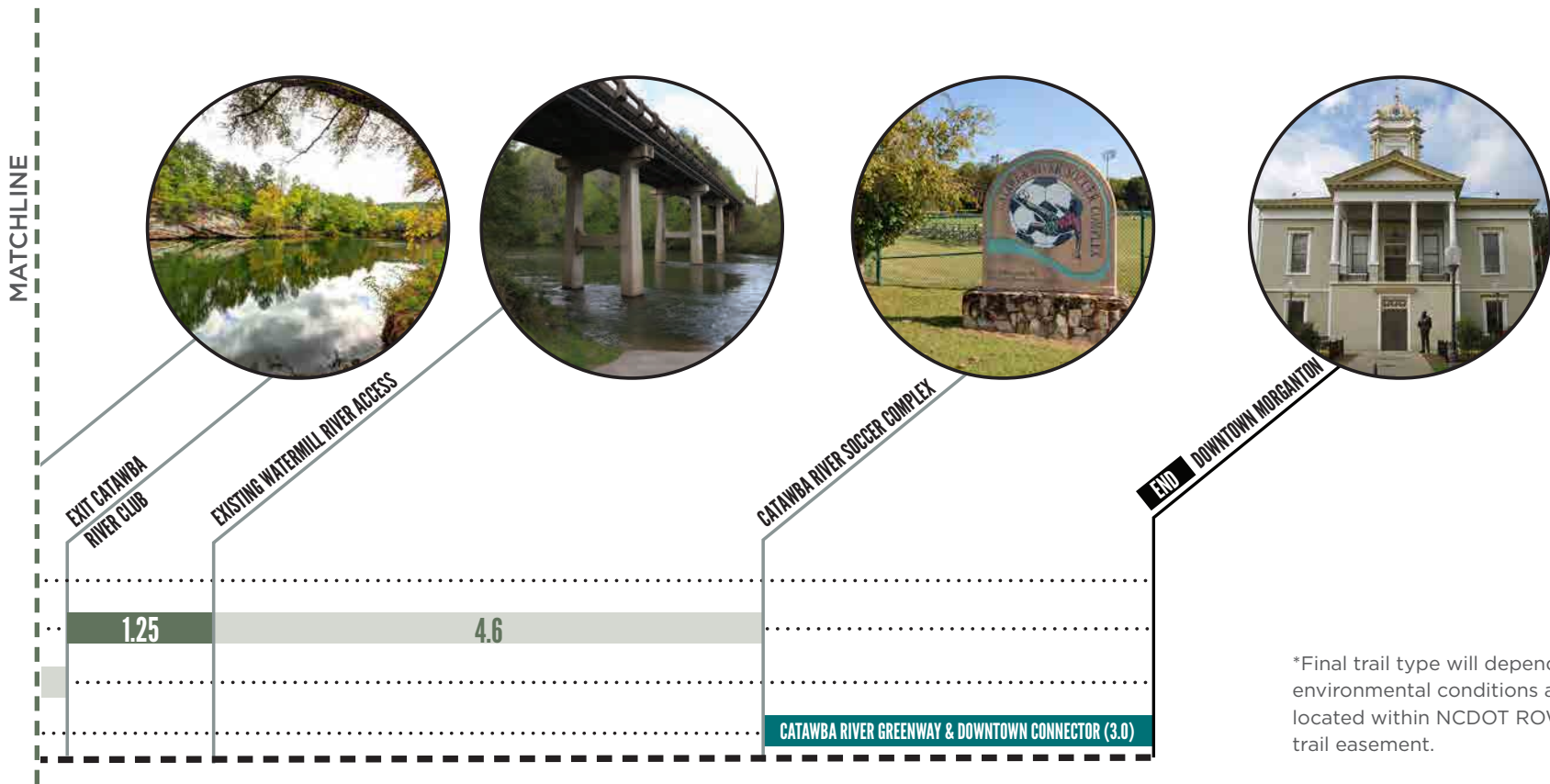
# TRAIL CHARACTER

## TRAIL TYPE PROFILE

There are two (2) primary trail type transitions proposed along the preferred trail route, which extends approximately 20 miles. The Trail Type Profile identifies the transition location, along with associated length, for each trail type.



APPROX. DISTANCE IN MILES



\*Final trail type will depend on specific environmental conditions and whether trail is located within NCDOT ROW or within a private trail easement.

APPROX. DISTANCE IN MILES

# TRAIL SUPPORT FACILITIES

## OVERVIEW

A unique architectural and branding theme is presented for trail support facilities presented on the following pages.



### TRAILHEAD KIOSK

The kiosk will provide a trail map and other important information for trail users. This facility will be located at trailheads and pocket parks along the FFST.



### PICNIC SHELTER

The shelter design includes a timber frame structure. This architectural style, along with a cedar shingle roof, provides for a natural character conducive to the Lake James environment.



### TRAILHEAD MONUMENT

Large monuments will be located at major trailheads or pocket park facilities that provide access to the FFST. This monument should also provide for the name of the specific trailhead or pocket park.





### VAULT TOILET

The vault toilet does not require a septic system, but must be pumped regularly. This facility will be provided for at the Fonta Flora County Park



### BREAKAWAY SIGN

The FFST shares a route with the Overmountain Victory National Historic Trail. The directional signage post will provide users with important trail information and is compliant with NCDOT standards.



### MILEAGE POSTS

Mileage posts not only provide distance information, but also serve as confidence markers that create a feeling of safety.

# SUPPORT FACILITIES

## TRAIL FEATURES & SITE FURNITURE

Burke County is working in partnership with Oak Hill Iron and other local artisans to develop custom site furniture and other support facilities. These unique and custom elements will be provided for at Fonta Flora County Park, trailheads, pocket parks, and other locations where trail users can be served.



BICYCLE RACK



BENCHES



TRAILHEAD KIOSK



NCDOT BRIDGE DETAIL



TRAILHEAD MONUMENT

# SOCIAL MEDIA: THE NEW WORD OF MOUTH

Trail users should be encouraged to utilize social media to share their experiences with their “friends” and “followers.” Special signage along the trail will signal users to consider posting pictures of themselves or their group of friends as they walk or ride bikes along the trail. In addition, special props and features should be developed during the final design phase. After all, who can market this destination-quality trail better than trail users themselves? Lets take advantage of social media - the new word of mouth.

## #FONTAFLORA

The proposed official hashtag for the Fonta Flora State Trail is #fontaflora.

The use of this hashtag will allow local tourism leaders to curate local photos and content that can be shared on website and re-posted through other social media platforms.

## CROSS PROMOTE WITH OTHER NOTABLE HASHTAGS

#trail2victory

@NCParks

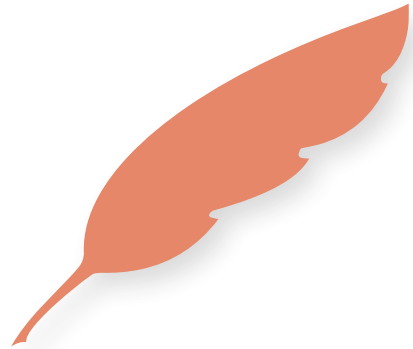
#LakeJames

#findyourpark

## #FINDYOURPARK

Find Your Park is the official centennial campaign of the National Park Service (NPS). The NPS is encouraging National Park enthusiasts to use the hashtag “findyourpark” when posting to social media. The OVNHT can help continue this campaign for years to come by encouraging the use of this hashtag at unique locations along the trail.







## RECOMMENDATIONS

THIS CHAPTER SERVES AS THE HEART OF THE TRAIL MASTER PLAN, PROVIDING SPECIFIC TRAIL ALIGNMENTS AND RECOMMENDATIONS.

- Specific trail alignments and recommendations are provided for the FFST within four (4) planning sections.
- Trail recommendations are supported with renderings that demonstrate trail character at specific locations.

### IN THIS CHAPTER:

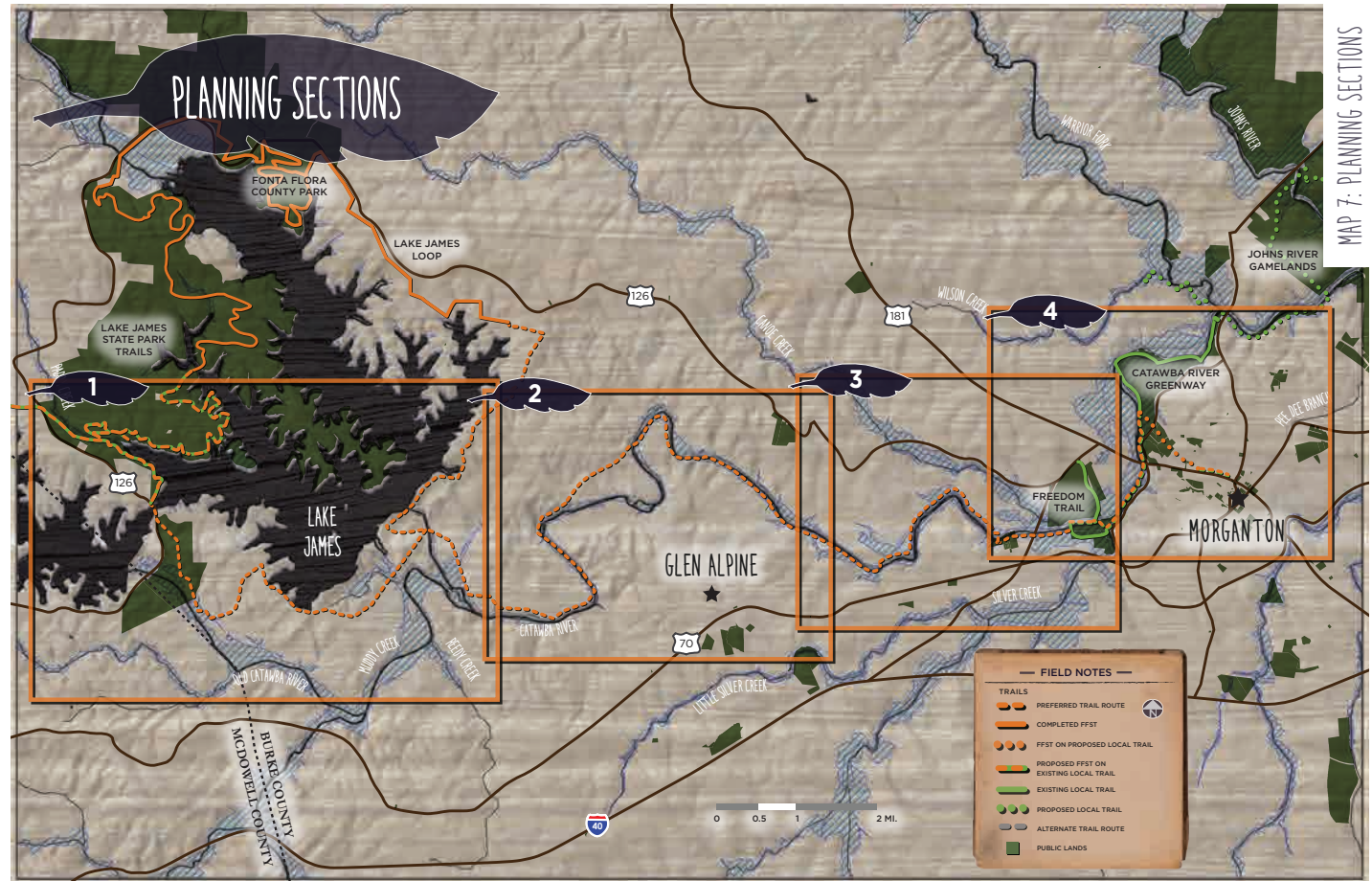
- A| PLANNING SECTIONS OVERVIEW
- B| TRAIL SECTION RECOMMENDATIONS

# PLANNING SECTIONS

The 20 mile study area from Lake James to Morganton is divided into four (4) planning sections. The geographic extent of each section includes a beginning and ending terminus that features a key asset or significant connectivity point for the trail. Many of the planning sections represent project areas that can be developed independently over time, providing a logical method for implementation as landowner willingness, funding, and other opportunities arise.

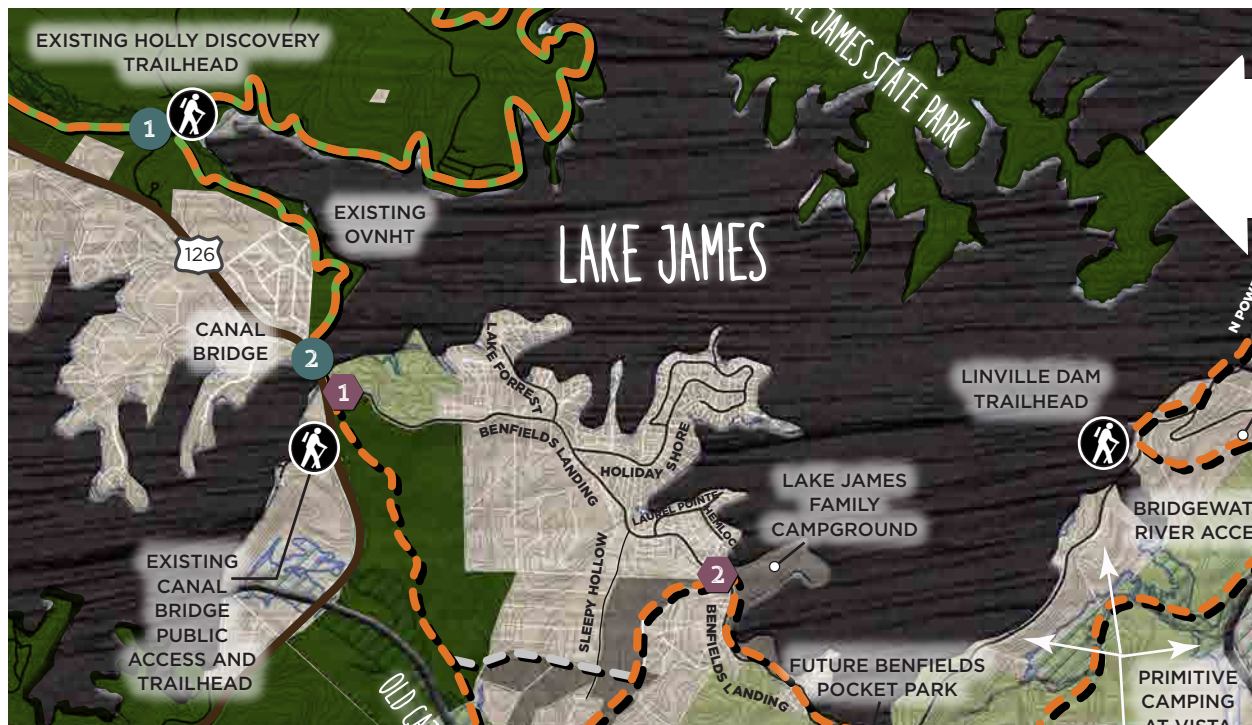
## The planning sections include:

- 1 FONTA FLORA BREWERY » POWERHOUSE ROAD
- 2 POWERHOUSE ROAD » WATERMILL RIVER ACCESS
- 3 WATERMILL RIVER ACCESS » CATAWBA RIVER GREENWAY
- 4 CATAWBA RIVER GREENWAY » DOWNTOWN MORGANTON



MAP 7: PLANNING SECTIONS

THE 20 MILE STUDY AREA FROM LAKE JAMES TO MORGANTON IS DIVIDED INTO FOUR (4) PLANNING SECTIONS; THIS CHAPTER IS ORGANIZED ACCORDINGLY.



EACH PLANNING SECTION IS ANCHORED BY A MAP THAT HIGHLIGHTS PROPOSED TRAIL ROUTES AND FEATURES.

## **i** ABOUT THE PLANNING SECTION MAPS

Each planning section is anchored by a map that highlights proposed trail routes, trail features, and landowner sentiment. The proposed routes are identified as either preferred, alternate, or spur. These trail alignments are the result of extensive analysis, including environmental feasibility, landowner willingness, and insights provided by local government and local trail development leaders.

Noted trail features include the physical infrastructure and facilities that support the proposed trail. These features are highlighted along the preferred route and provide critical information for developing an estimate of probable cost for each section.

These features include trailheads and crossings associated with either a road or water feature. Trailheads will provide for parking and trail user orientation. Road crossings indicate the need to provide for traffic calming measures and appropriate signage for both trail users and motorists. Major bridges indicate a significant stream or river crossing that requires a bridge greater than 20 feet in length.

## **#** LAKE JAMES >> MORGANTON: BY THE NUMBERS

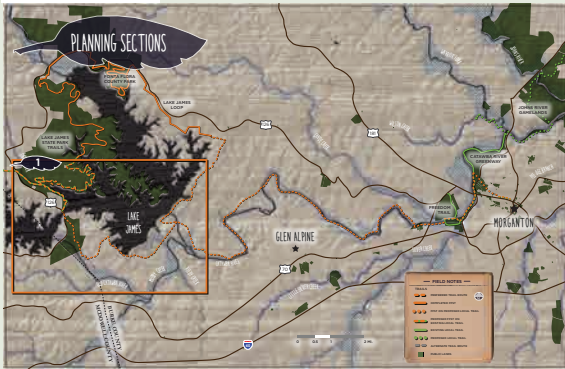
|                |    |                    |
|----------------|----|--------------------|
| <b>21.3</b>    | >> | TRAIL MILES        |
| <b>20</b>      | >> | SHARED OVNHT MILES |
| <b>11</b>      | >> | TRAILHEADS         |
| <b>7</b>       | >> | ROAD CROSSINGS     |
| <b>5</b>       | >> | MAJOR BRIDGES      |
| <b>\$2.3 M</b> | >> | APPROX. COST       |

## **☰** QUICK FACTS

Each planning section begins with a “quick facts” exhibit. This information includes the trail distance, trail type (see Chapter 3: Design Guidelines), and key features and assets associated with each section.

# SECTION 1 FONTA FLORA BREWERY >> POWERHOUSE ROAD

## VICINITY MAP



## FONTA FLORA BREWERY >> POWERHOUSE ROAD

### TOTAL LENGTH:

7.0 MILES

### TRAIL TYPE:

NCDOT SIDE PATH  
DUAL-USE TRAIL

### ESTIMATED COST:

\$515,476

### POINTS OF INTEREST:

FONTA FLORA  
BREWERY  
CANAL BRIDGE  
TRAILHEAD  
RAYS DAIRY  
TRAILHEAD  
BRIDGEWATER RIVER  
ACCESS  
LAKE JAMES FAMILY  
CAMPGROUND

## PROPOSED TRAILS

This planning section extends 7.0 miles from the Fonta Flora Brewery at Whippoorwill Farm to Powerhouse Road. The Fonta Flora Farmhouse Brew-

ery property provides a significant opportunity for a destination-quality trailhead. A short, paved spur trail, approximately 400 ft. long, will connect the brewery and trailhead to an existing segment of the OVNHT within Lake James State Park. This connection will require cooperation with a private landowner to cross an existing gravel driveway.

The OVNHT is not currently designed for dual-use and must be reconstructed and routed to provide for bicycles. This will require close cooperation with the NC Division of State Parks. Similarly, the OVNHT crossing at Hwy. 126 will require redesign to allow bicycles to achieve road grade and cross where sight lines are best. This can be achieved by utilizing an existing abandoned road bed with two to three moderate switchbacks. Currently, the OVNHT utilizes a set of stairs to achieve grade before continuing west through the 1780 Community.

The trail will utilize the OVNHT for two miles before reaching Canal Bridge. The transition from the OVNHT to road grade at Canal Bridge presents a challenge and will likely require a boardwalk or bridge system. At Canal Bridge, the FFST utiliz-



es NCDOT right-of-way until it reaches additional state-owned land south of Benfields Landing Road; approximately 1,050 feet of NCDOT Side Path trail type will be required along Canal Bridge and Hwy. 126 before reaching additional state property. The FFST will meander through the state's property for approximately 1.2 miles before reaching private property. The trail will extend along the south side of Hemlock Springs Rd. where county officials continue to work with landowners to secure trail easements. The trail

then connects to Lake James Family Campground. From there, the trail will parallel the north side of Benfields Landing Road before reaching a scenic vista and beach at the future site of a pocket park.

From the pocket park, the natural surface trail continues east for a short distance before crossing N. Powerhouse Road to connect to the proposed trailhead on Rays Dairy Road. From there, The trail continues east to another vista that provides an opportunity for primitive camping.

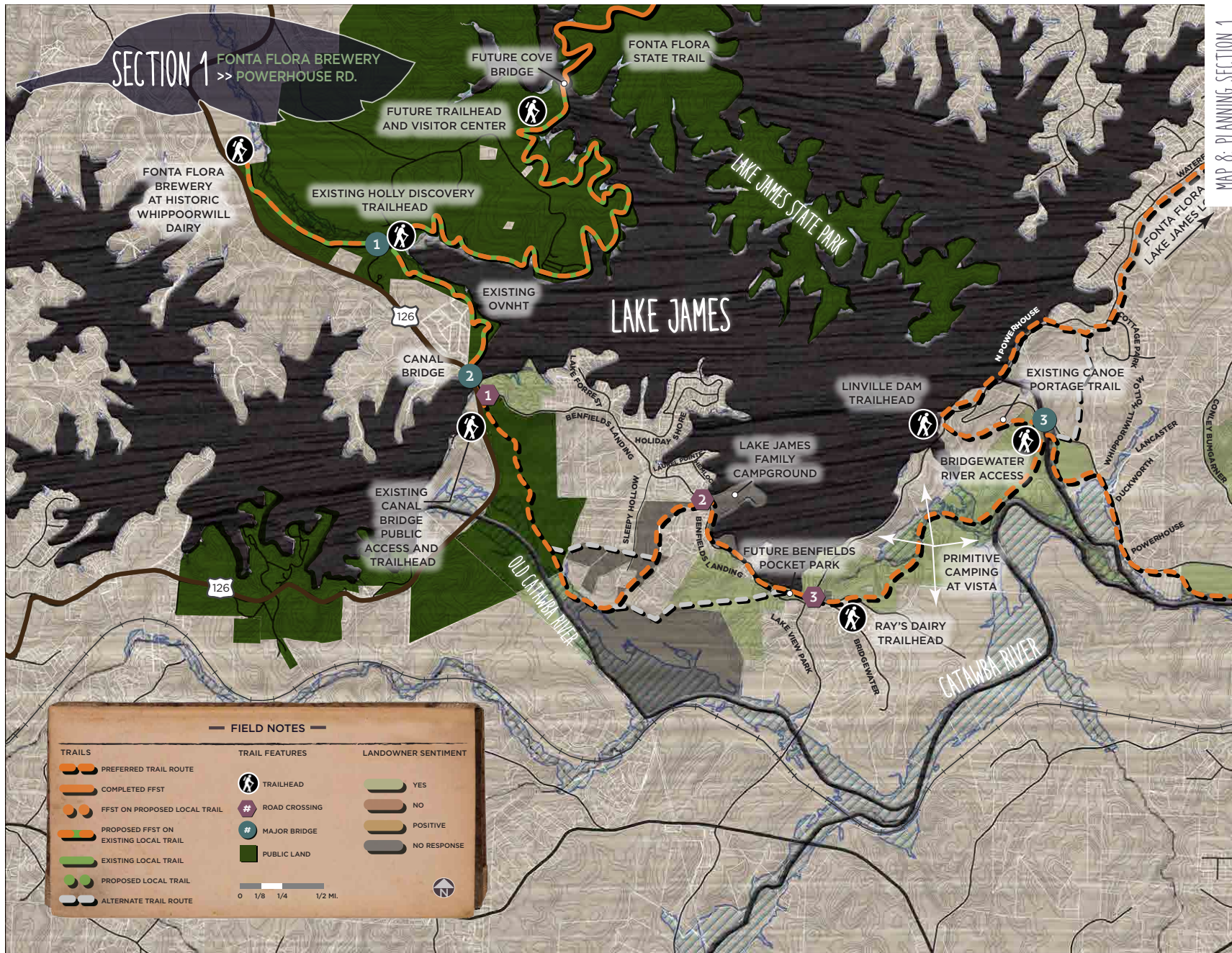
From the pocket park, the natural surface trail continues east for a short distance before crossing N. Powerhouse Road to connect to the proposed trailhead on Rays Dairy Road. From there, The trail continues east to another vista that provides an opportunity for primitive camping.



## PHOTOS:

(1) THE TRAIL CONNECTOR TO FONTA FLORA BREWERY WILL CROSS A PRIVATE DRIVEWAY. (2) EXISTING OVNHT WILL REQUIRE REDESIGN FOR BICYCLES.





MAP 8: PLANNING SECTION 1

# SECTION 1 FONTA FLORA BREWERY >> POWERHOUSE ROAD

The trail will utilize the existing Muddy Creek Bridge before connecting to the existing Bridgewater River Access, which is maintained by Duke Power and is programmed for further infrastructure improvements. At Bridgewater, the FFST: Lake James Loop branches east on the canoe portage trail to the Linville Dam Trailhead while the OVNHT and FFST continue east toward Morganton. This planning section ends where the trail leaves Powerhouse Road and connects to established trail easements that follow the Catawba River.

## TRAIL FEATURES

### Trailheads

This planning section includes five trailheads. The proposed trailhead located at Fonta Flora Brewery at Whippoorwill Farm serves as the western



#### PHOTO:

(3) THE TRANSITION FROM EXISTING OVNHT TO ROAD GRADE AT CANAL BRIDGE MAY REQUIRE ADDITIONAL BRIDGES. (4) BRIDGEWATER RIVER ACCESS IS A SIGNIFICANT CONNECTION POINT.

terminus of the study area. The brewery occupies eight acres of the historic dairy farm property. The remaining 40 acres have been conserved in perpetuity through a partnership between Foothills Land Conservancy and the NC Division of State Parks who incorporated the property into Lake James State Park.

The Holly Discovery Trailhead currently provides access to the Holly Discovery Trail and OVNHT within the State Park.

Canal Bridge and Bridgewater Trailheads utilize existing public water access facilities owned by Duke Energy. Duke has plans to significantly enhance the Bridgewater site, providing for additional parking and an enhanced boat launch area. The fifth trailhead in this section is proposed on Rays Dairy Road.

### Crossings

Proposed within this section are three (3) road crossings and three (3) major bridges.

The primary route crosses Benfields Landing Road twice in this section. The first crossing occurs south of Canal Bridge where Benfields Landing intersects Hwy. 126. At the second crossing, the trail crosses to the north side of Benfields Landing Road at Lake James Family Campground. Crossing #3, is located a short distance east of the pocket park where the trail crosses N. Powerhouse Road near its intersection with Benfields Landing Road. These crossings should include design measures to slow vehicular traffic and notify motorists of the trail crossing.

The three major bridge crossings utilize existing

bridges. Major Bridge #1 crosses Paddy Creek to connect the Holly Discovery Trail to the OVNHT in Lake James State Park. Major Bridges #2 and #3, utilize NCDOT bridges at Canal Bridge and the Powerhouse Road bridge located near the Bridgewater public river access. Both vehicular bridges will require appropriate treatments that alert motorists to possible trail users and distinguish the trail from the vehicular travel lane.





EXISTING

## EXHIBIT 1: BREWING UP ADVENTURE

The Fonta Flora Brewery at Whippoorwill Farm provides an opportunity for a destination-quality trailhead. A short connector path will link the brewery to the FFST/OVNHT in Lake James State Park near Paddy's Creek.







EXISTING

## EXHIBIT 2: CANAL BRIDGE

Enhancements to the Canal Bridge could include green pavement markings along with the FFST land OVNHT logos. A short railing should be attached to the bridge's wall to ensure trail user safety.



EXISTING

### EXHIBIT 3: CANAL BRIDGE TRAILHEAD

Canal Bridge Trailhead is located just south of the bridge at the intersection of Highway 126 and Benfields Landing Road. A crossing at Highway 126 will provide connectivity to a trailhead with FFST and OVNHT information and a shelter.





EXISTING

## EXHIBIT 4: LAKE JAMES FAMILY CAMPGROUND

The preferred alignment extends parallel to Benfields Landing Road and provides a direct connection to the Lake James Family Campground. This trail section will be notable to passing motorists and will create interest for those visiting the campground and Lake James area.





## EXHIBIT 5: N. POWERHOUSE CROSSING



EXISTING

East from Benfields Pocket Park the FFST will cross North Powerhouse Road. A traffic-calming study is suggested for this intersection. Potential improvements include green pavement treatment, FFST sign, and pedestrian-activated rapid flash beacons will signal motorists to reduce speeds and watch for trail users.





## EXHIBIT 6: BRIDGEWATER

The bridge near Duke Energy's Bridgewater River Access will serve as the third and final major NCDOT bridge crossing. A short railing should be attached to the bridge's wall to ensure trail user safety. This section is also part of the OVNHT.



SHARED

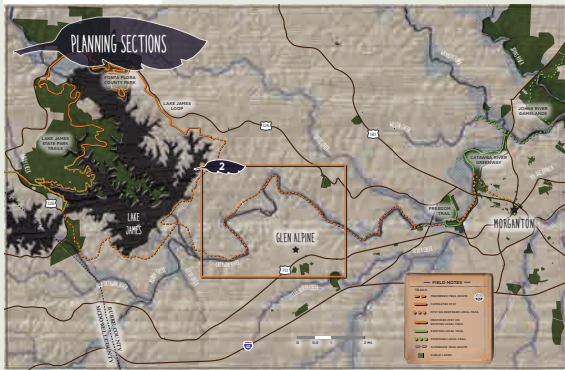
FONTA  
FLORA  
STATE TRAIL



ROUTE

# SECTION 2 POWERHOUSE ROAD >> WATERMILL RIVER ACCESS

## VICINITY MAP



## POWERHOUSE ROAD >> WATERMILL RIVER ACCESS

### TOTAL LENGTH:

5.7 MILES

### TRAIL TYPE:

DUAL-USE TRAIL  
MULTI-USE TRAIL

### ESTIMATED COST:

\$1,047,396.00

### POINTS OF INTEREST:

FUTURE NORTH  
BEND RIVER ACCESS  
WATERMILL RIVER  
ACCESS

## PROPOSED TRAILS

This planning section extends 5.7 miles from Powerhouse Road to Watermill River Access.

The preferred route continues along the north side of the Catawba River after crossing Powerhouse Road near the North Bend Access: a planned NC Wildlife Resources River Access. From North Bend, the trail continues along the river utilizing Duke Energy property. The trail crosses St. Paul's Church Road and will need to bridge the Catawba River to connect to secured trail easements within an equestrian community on the river's south side. From there, the trail will continue along the south side and connect to the existing Watermill River Access. Trail type within the Catawba River Club should expand to a multi-use tread that can accommodate existing equestrian use.

## TRAIL FEATURES

### Trailheads

Two trailheads are proposed within this planning section. The first is proposed along the Catawba River at Powerhouse Road where NC Wildlife Resources will ultimately construct a river access area. This access should provide for an FFST and OVNHT informational map kiosk to welcome users. The second trailhead is proposed at the existing Watermill River Access. The trail will need to extend under the Watermill Bridge to connect with this access area, which could benefit from minor enhancements to organize parking and orient users to area recreation opportunities.

## Crossings

There are three (3) road crossings and one (1) major bridge within this planning section.

The first major road crossing exists at Powerhouse Road where an initial visual inspection revealed that the trail will likely require a surface crossing of the road rather than an underpass. However, during the design and engineering phase or with the development of the river access planned in this vicinity, an opportunity for a trail underpass should be further explored. The second crossing is at Saint Paul's Church Road, a rural collector road that the trail will need to cross to reach the Catawba River. The final road crossing in this section is located at Watermill Bridge, which provides sufficient room to accommodate a trail underpass.

The only necessary major bridge (#4) is centrally located within the planning section. This bridge will allow the trail to avoid landowners located on the north side of the Catawba River that are unwilling to provide trail easements, while accessing existing trail easements located on the south side of the river within the Catawba River Club residential subdivision.

**SECTION 2** POWERHOUSE RD. >> WATERMILL RIVER ACCESS



MAP 9: PLANNING SECTION 2



## EXHIBIT 7: OFF THE ROAD AGAIN @ POWERHOUSE

After paralleling Powerhouse Road for approximately one mile, the preferred route leaves the roadside, extends south to the Catawba River, and takes advantage of trail easements provided by Duke Power.



## EXHIBIT 8: WATERMILL RIVER ACCESS ENHANCEMENTS

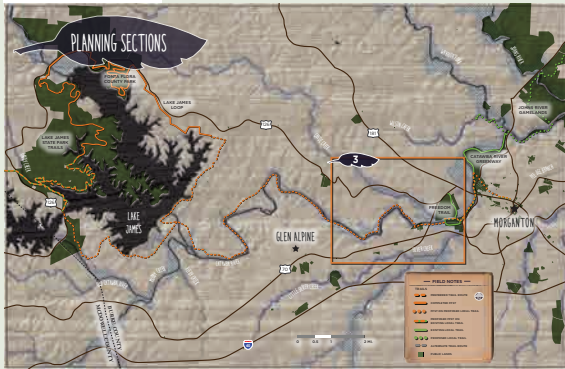
EXISTING

The existing Watermill River Access serves as an ideal location to organize and orient trail users. Future enhancements at this pocket park could include paved parking, a picnic shelter, and an information kiosk.



# SECTION 3 WATERMILL RIVER ACCESS >> CATAWBA RIVER GREENWAY

## VICINITY MAP



## WATERMILL RIVER ACCESS >> CATAWBA RIVER GREENWAY

|                            |  |
|----------------------------|--|
| <u>TOTAL LENGTH:</u>       | 4.6 MILES  |
| <u>TRAIL TYPE:</u>         | DUAL-USE TRAIL   |
| <u>ESTIMATED COST:</u>     | \$145,728  |
| <u>POINTS OF INTEREST:</u> | WATERMILL RIVER ACCESS<br>CATAWBA RIVER SOCCER COMPLEX<br>FREEDOM PARK |

## PROPOSED TRAILS

This planning section extends 4.6 miles from Watermill River Access to the Catawba River Greenway and Soccer Complex. This section is recognized as the most challenging area within the study area in regards to feasibility for implementation and will require additional landowner outreach. There are significant landowner challenges on both the north and south side of the Catawba River. Therefore, a preferred route is not provided; only alternative routes are identified in order to avoid alienation of area landowners.

Ideally, the trail would continue along the south side of the river from the Watermill River Access, crossing under Independence Boulevard, to the Catawba River Greenway and Soccer Complex, also located on the south side. However, development density and noted uninterested landowners represent significant challenges on the south side of the river. Along the north side of the river, the historic Swan Pond property would serve as a meaningful con-



nection as part of the NC Preservation Program. The Canoe Creek corridor also serves as an environmentally suitable location for a trail, but again, landowner challenges present a barrier.

## TRAIL FEATURES

### Trailheads

The trailheads proposed within this planning section currently exist at the Catawba River Soccer Complex and Freedom Park, which provides access to a certified section of OVNHT. Enhancements at these trailheads might involve incorporating trail signage and other trail features noted in Chapter 3.

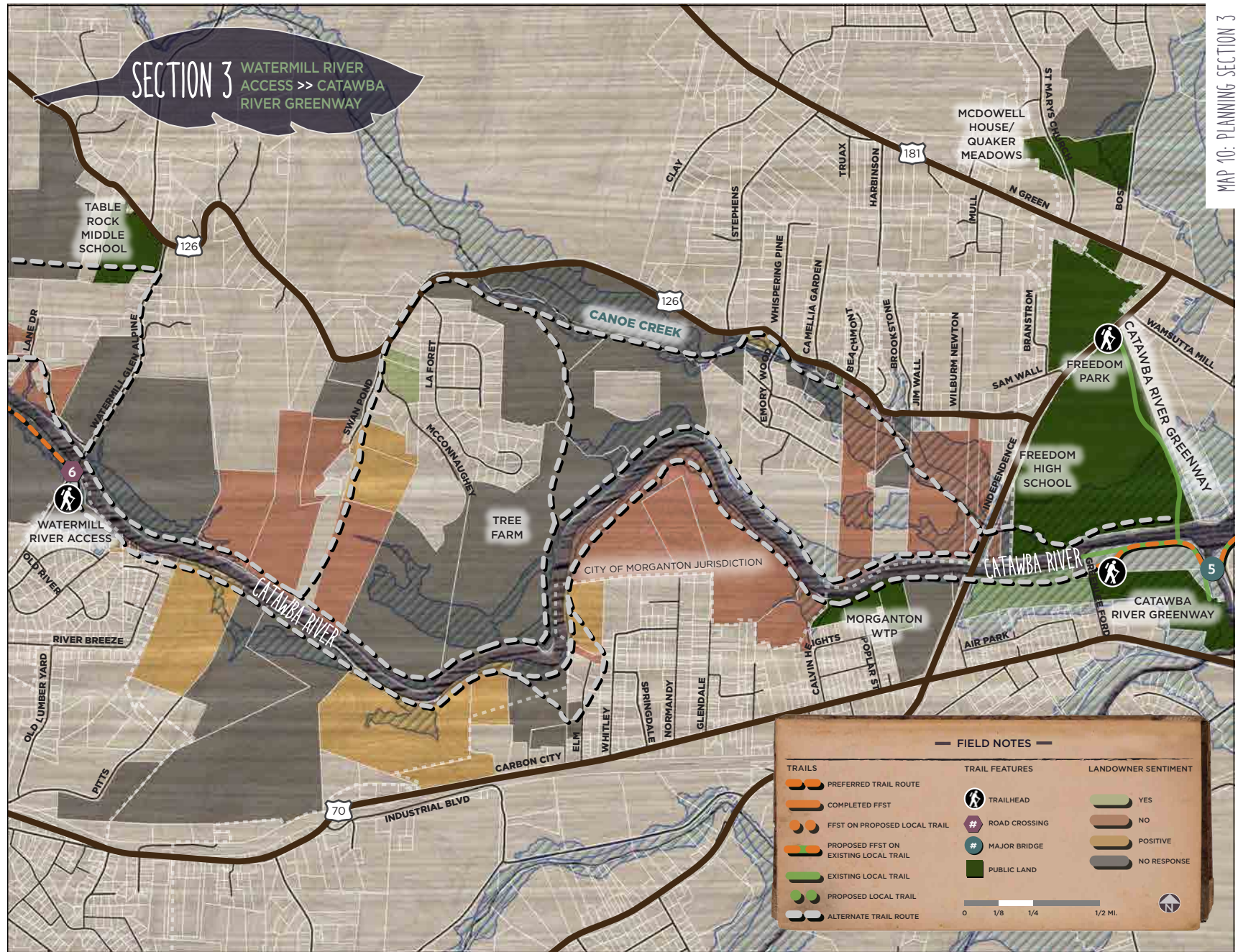


### PHOTOS:

(5) AN INFORMAL TRAIL EXISTS ALONG THE CATAWBA RIVER AT THE RIVERSIDE GOLF AND RV PARK. (6) A FOOTPATH LINKS THE CATAWBA RIVER GREENWAY TO JUDGE'S RIVERSIDE RESTAURANT.



**SECTION 3** WATERMILL RIVER ACCESS >> CATAWBA RIVER GREENWAY



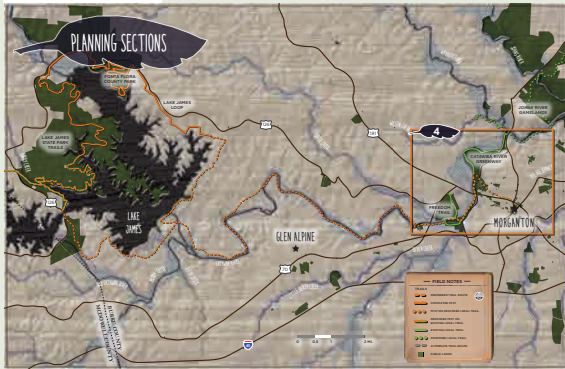
**FIELD NOTES**

| TRAILS                                | TRAIL FEATURES | LANDOWNER SENTIMENT |
|---------------------------------------|----------------|---------------------|
| PREFERRED TRAIL ROUTE                 | TRAILHEAD      | YES                 |
| COMPLETED FFST                        | ROAD CROSSING  | POSITIVE            |
| FFST ON PROPOSED LOCAL TRAIL          | MAJOR BRIDGE   | NO RESPONSE         |
| PROPOSED FFST ON EXISTING LOCAL TRAIL | PUBLIC LAND    |                     |
| EXISTING LOCAL TRAIL                  |                |                     |
| PROPOSED LOCAL TRAIL                  |                |                     |
| ALTERNATE TRAIL ROUTE                 |                |                     |

0 1/8 1/4 1/2 MI.

# SECTION 4 CATAWBA RIVER GREENWAY >> DOWNTOWN MORGANTON

## VICINITY MAP



## CATAWBA RIVER GREENWAY >> DOWNTOWN MORGANTON

|                            |   |
|----------------------------|---|
| <u>TOTAL LENGTH:</u>       | 4.0 MILES   |
| <u>TRAIL TYPE:</u>         | TYPICAL GREENWAY  |
| <u>ESTIMATED COST:</u>     | \$623,260   |
| <u>POINTS OF INTEREST:</u> | CATAWBA RIVER SOCCER COMPLEX<br>CATAWBA MEADOWS PARK<br>DOWNTOWN MORGANTON<br>FONTA FLORA BREWERY |

## PROPOSED TRAILS

This planning section extends 4.0 miles from the Catawba River Greenway and Soccer Complex to Downtown Morganton.

The FFST will utilize the Catawba River Greenway north for 1.5 miles. The greenway is a certified segment of the OVNHT. At the southern end of Catawba Meadows Park, the FFST and OVNHT will split. The OVNHT continues north along the river while the FFST extends east on a future greenway connector planned by the City of Morganton. The City has acquired the necessary parcels for the connector. Once complete, it will link the Catawba River Greenway to an existing greenway segment adjacent to North Green Street. The FFST terminates as the greenway transitions into a typical sidewalk in front of the Fonta Flora Brewery in downtown Morganton.

## TRAIL FEATURES

### Trailheads

Two existing trailheads are noted within this planning section. The River Village commercial center provides centrally-located greenway access. Trail users accessing the greenway from Catawba Meadows Park will travel south to the FFST.

### Crossings

This planning section features one (1) major road crossing and one (1) major bridge.

A surface crossing will be necessary at Sanford Drive just south of Bouchelle Street. There, Mor-

ganton's future greenway connector will cross from Catawba Meadows Park to the new Mountain View Elementary School and Morganton recreation and aquatic center. The Sanford Drive crossing will require treatment appropriate to signal motorists of trail users.

The only major bridge in this section is an existing greenway bridge over Silver Creek.

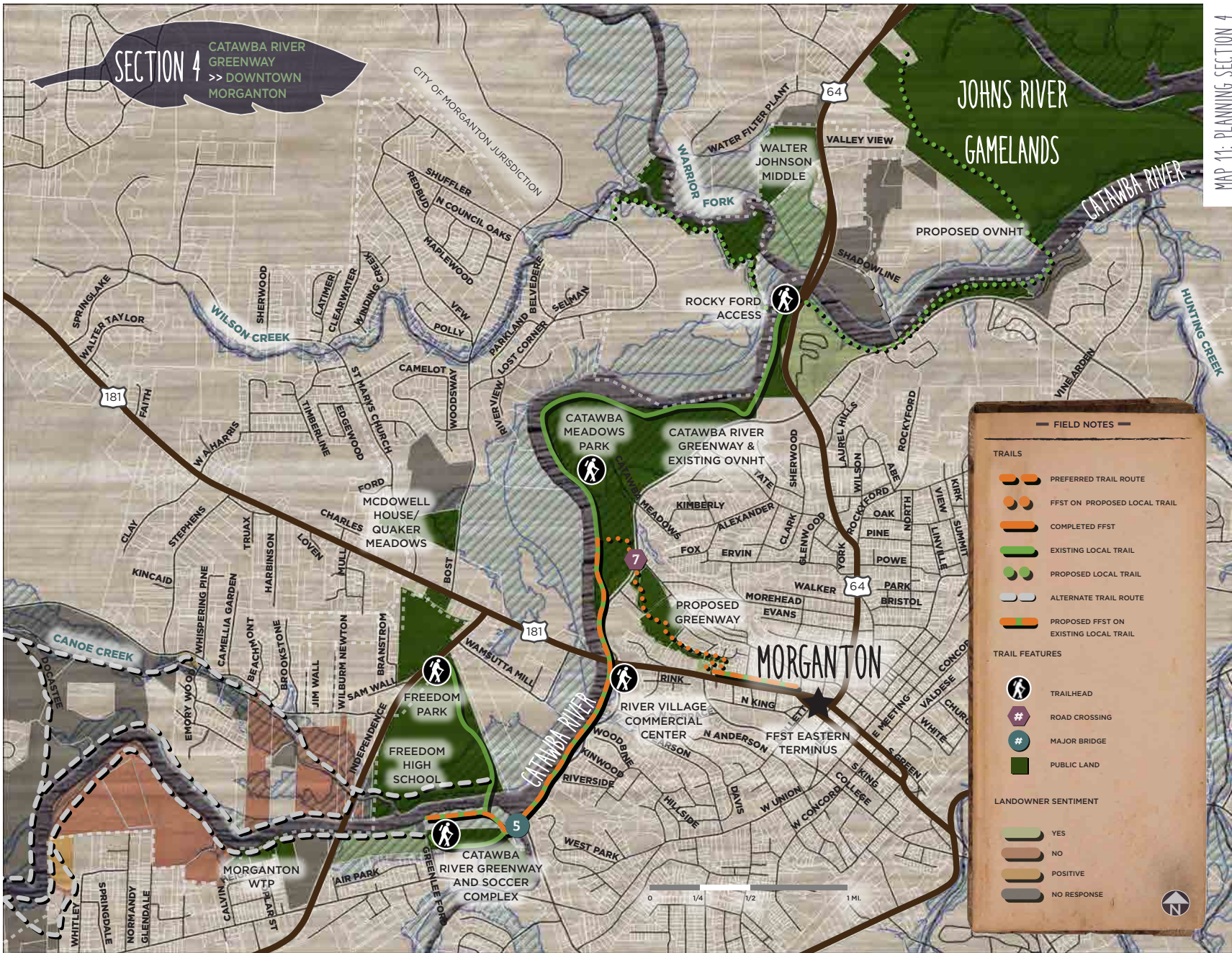


## PHOTOS:

(7) THE CATAWBA RIVER GREENWAY IS A CERTIFIED SEGMENT OF THE OVNHT. (8) DOWNTOWN MORGANTON IS THE EASTERN TERMINUS OF THE FFST.

# SECTION 4

CATAWBA RIVER GREENWAY  
 >> DOWNTOWN MORGANTON



MAP 11: PLANNING SECTION 4



  
**FONTA  
FLORA**  
STATE TRAIL



**WATCH  
FOR  
CARS**

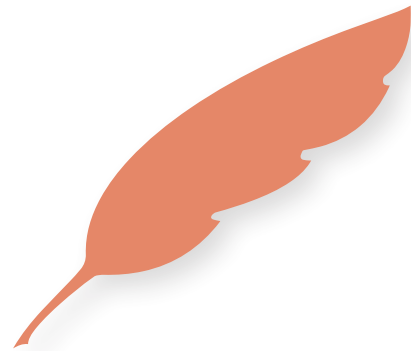


EXISTING

## EXHIBIT 9: GET DOWN WITH THE TRAIL TOWN

Downtown Morganton is the eastern terminus of the Fonta Flora State Trail. The trail utilizes an existing greenway segment that enters the northwest end of downtown where N. Green Street and N. Sterling Street diverge. In the near future, the City of Morganton will update this section of greenway in conjunction with new development. Cyclists must cross to merge with the flow of traffic.







## IMPLEMENTATION

THE CORE PURPOSE OF THIS CHAPTER IS TO HIGHLIGHT THE FOUR (4) IMPLEMENTATION SECTIONS, INCLUDING THE MAJOR STEPS NECESSARY FOR COMPLETING THE TRAIL. THIS CHAPTER POSITIONS FFST AND OVNHT STAKEHOLDERS FOR ACTION.

• Burke County will initially serve as the lead agency to manage the development of the FFST, but will work in partnership with NC Division of State Parks, the National Park Service and OVNHT leaders, the City of Morganton, community stakeholders, volunteers, land managers, and landowners as it pertains to planning, construction, management, and maintenance of the trail.

### IN THIS CHAPTER:

- A| IMPLEMENTATION BY SECTION AND RESPONSIBILITIES
- B| PRIORITY IMPLEMENTATION AREAS AND RESPONSIBILITIES
- C| TRAIL RUBICON
- D| TRAIL SUPPORT SPECTRUM
- E| TRAIL MANAGEMENT

# TRAIL IMPLEMENTATION

The table below provides key implementation information associated with each planning section. Key Challenges include a summary of the most difficult barriers for realizing each trail section. Many of these barriers include costly features or note the need to acquire trail easements from private landowners. Most importantly, this table assigns an Implementing Agency to each planning section.



## IMPLEMENTATION DETAILS BY SECTION AND RESPONSIBILITY

| SECTION  | DISTANCE | KEY CHALLENGES   | ESTIMATED BUDGET | IMPLEMENTING AGENCY             |
|--|----------|--|------------------|---------------------------------|
| SECTION 1<br>Fonta Flora Brewery to<br>Powerhouse Rd.            | 7.0      | Canal Bridge Crossing; NCDOT Side Paths along Benfields Landing Rd. and Powerhouse Rd; Benfields Landing Crossing; Muddy Creek Bridge Crossing; Securing Landowner Trail Easements | \$515,476.00     | Burke County                    |
| SECTION 2<br>Powerhouse Rd. to Watermill River Access            | 5.7      | Securing Landowner Trail Easements; Catawba River Bridge; Watermill Glen Alpine Rd. Underpass  | \$1,047,396.00   | Burke County                    |
| SECTION 3<br>Watermill River Access to<br>Catawba River Greenway | 4.6      | Securing Landowner Trail Easements   | \$145,728.00     | Burke County, City of Morganton |
| SECTION 4<br>Catawba River Greenway to<br>Downtown Morganton     | 4.0      | Sanford Drive Crossing   | \$623,623.00     | City of Morganton               |
| <b>ALL SECTIONS TOTAL</b>  | 21.3     |  | \$2,331,860.00   |                                 |

\* Estimated budget shown above pertains only to the completion of the preferred FFST route and does not include existing, constructed trail segments.



## PRIORITY IMPLEMENTATION AREAS & RESPONSIBILITIES

Burke County and Morganton must work in tandem to successfully realize the FFST. Trail implementation does not have to occur in a specific, linear order according to each planning section. In fact, the priority areas for implementation are merely suggestions and are in no way intended to hem creativity or necessary work in “lower” priority areas. Trail implementation is an art and requires the acumen to recognize and then seize opportunities, whether related to funding, landowner willingness, or politics.

The table below supports a trail development strategy that prioritizes areas west of Watermill River Access (sections 1 and 2). If these were to be fully developed, this would likely provide the formula for “Trail Rubicon,” the point in which the public, elected officials, and partnership funding agencies recognize that connectivity and complete implementation is imminent. At this point significant momentum and synergy would propel forward the completion of the FFST and OVNHT from Lake James to Morganton.

## TRAIL RUBICON: FINDING THE POINT OF NO RETURN

Think snowball effect. Development of these trail sections will result in widespread support and a collective energy, beyond that of the community’s traditional trail support base. These sections represent the Trail Rubicon: the point at which completion of the FFST from Lake James to Morganton becomes imminent.

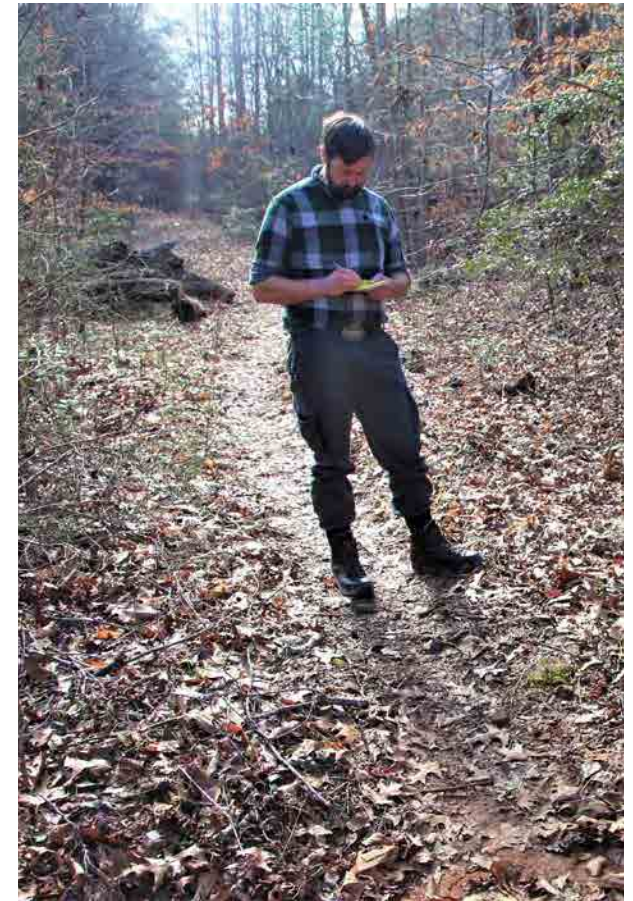
1. FONTA FLORA BREWERY TO POWERHOUSE ROAD



2. POWERHOUSE ROAD TO WATERMILL RIVER ACCESS



TRAIL RUBICON



## PRIORITY IMPLEMENTATION AREAS AND RESPONSIBILITIES

| IMPLEMENTING AGENCY | PRIORITY ONE   | PRIORITY TWO  |
|---------------------|--|---|
| Burke County        | Section 1:<br>Fonta Flora Brewery to Powerhouse Road | Section 2:<br>Powerhouse Road to Watermill River Access |
| City of Morganton   | Section 4:<br>Greenway connector to Downtown         | Section 4:<br>Enhancements to Eastern Terminus          |

# TRAIL IMPLEMENTATION

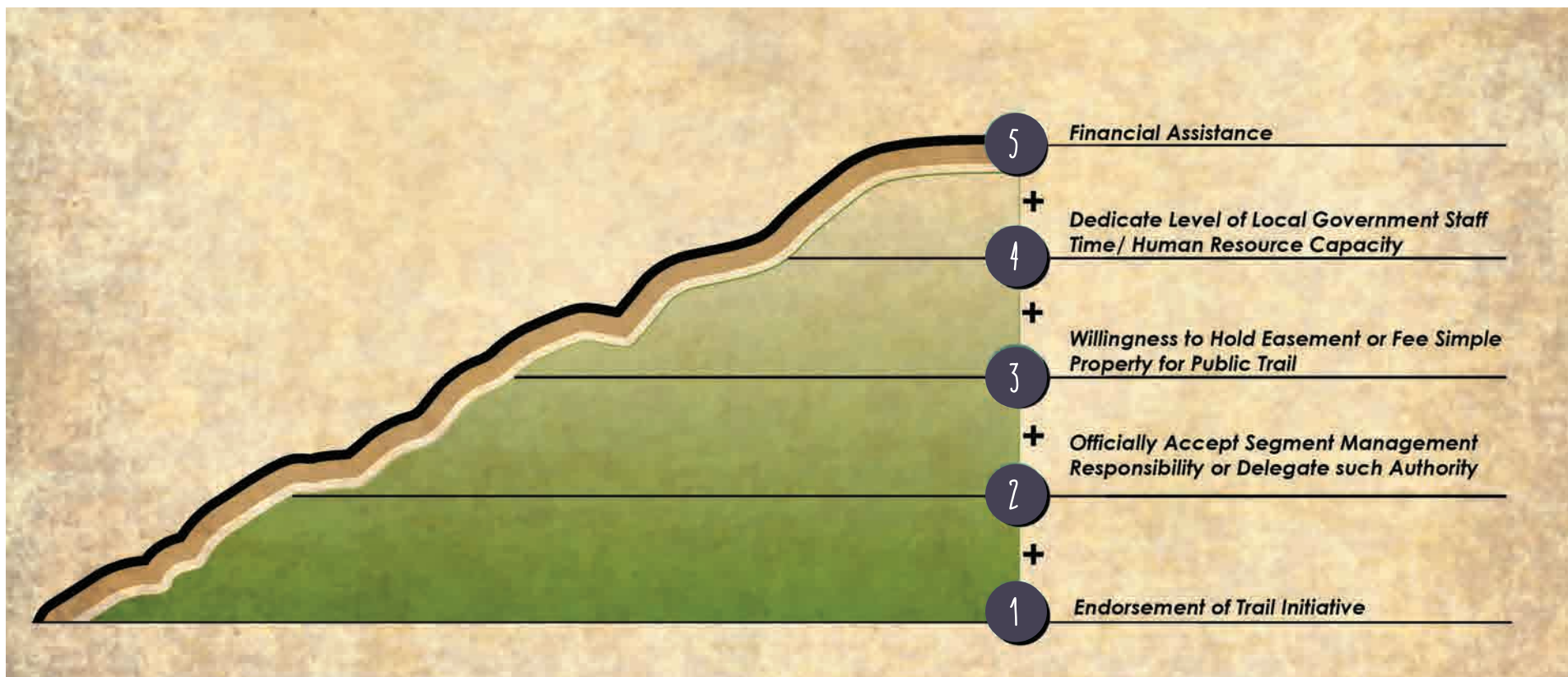
Creating a destination-quality trail system requires a significant commitment from local governments, including staff time, the holding of land and trail easements, and the dedication of local funding.

Local governments must evaluate the FFST in relationship to other priorities. However, a trail of this magnitude should be recognized as an economic development initiative that will provide a return on investment. Furthermore, each jurisdiction must not merely spend local funds, but instead must leverage their funds to obtain support from partnership funding agencies sympathetic to the creation of trails and the FFST.

The “Trail Support Spectrum” illustrates the steps local governments can take to support trail development.



# TRAIL SUPPORT SPECTRUM



# TRAIL MANAGEMENT

## MAINTENANCE

Trail maintenance is critical to provide for and sustain the trail users' experience. Trail maintenance will primarily consist of ensuring that the trail corridor is trimmed of brush and vegetation and that the natural surface trail is de-bermed and clear of fallen debris.

Volunteer training and participation is an important aspect of user group involvement. Burke County will explore trail building volunteer training with members of the Professional Trail Builders Association. Federal Recreational Trails Program (RTP) funding is often available for educational courses and may require matching funds. Burke County or a non-profit "Friends" group could sponsor these courses and provide the matching funds for interested volunteers. By training volunteers in this manner, it demonstrates a significant commitment by the participant and "Friends" group at great benefit to the landowners, land managers, and Burke County.

An adequate level of law enforcement should be provided to help maintain a safe and secure trail environment. Trail users should also be educated and encouraged to understand and obey trail rules, respect other users, and respect adjoining properties.



TRAIL RULES WILL BE POSTED AT EACH TRAILHEAD.

# TRAIL FUNDING

## FERC RELICENSING

Constructing and maintaining the various sections of the FFST will require leveraging funds from both public and private entities. At this time, the largest funding contribution comes directly from Duke Energy, as a result of the Comprehensive Relicensing Agreements (CRA) for the Catawba-Wateree Project.

Trail development funds are included in CRA 10.27.2.3 in the amount of \$500,000 for construction of the FFST. Another \$600,000 is included in CRA 10.27.4.3 for the OVNHT.

## EVERYONE WORKING TOGETHER

In addition to the contributions from Duke Energy, it will be necessary for Lake James State Park, NC Wildlife Resources Commission, NCDOT, NPS, Burke County, and others to contribute financial resources to this project. A conservative estimate to construct the entire FFST and its associated trailheads from Lake James to Morganton is approximately 1.75 million dollars.

## LOCAL LEADERSHIP

Implementing the recommendations of this plan will require a strong level of local support and commitment through a variety of local funding mechanisms. Perhaps most important is the addition of bicycle and greenway infrastructure as an item within the Burke County annual budget. These improvements should become a high priority and be supported through portions of the funding currently used for public safety, streets, parks and recreation, planning, community development, travel and tourism, and local bonds.

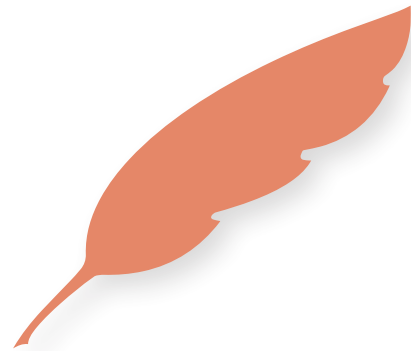
## LEVERAGING FUNDS RELATED TO OTHER COMMUNITY GOALS

Burke County and its municipalities should also seek a combination of funding sources that include local, state, federal, and private money. Fortunately, the benefits of protected greenways are many and varied. This allows programs in Burke County to access money earmarked for a variety of purposes including water quality, hazard mitigation, recreation, alternate transportation, wildlife protection, community health, and economic development.

Availability of funds targeted directly for trail use has decreased in recent years, so it is imperative that local governments work together to create multi-jurisdictional partnerships and to develop their own local sources of funding. These sources can then be used to leverage outside assistance.

For the past two decades, a variety of funding has been used throughout North Carolina to support the planning, design, and construction of urban and rural bicycle and greenway projects. The largest single source of funding for these projects has come from the Surface Transportation Act; the North Carolina Department of Transportation manages and distributes the majority of federal funds that are derived from the Act to support the development of bicycle/trail development.







# APPENDIX

# (A-1) IMPLEMENTATION BUDGET

| SECTION 1- FONTA FLORA BREWERY TO POWERHOUSE ROAD            | UNITS (LF) | UNIT COST | TOTAL COST             |
|--|------------|-----------|------------------------|
| Dual Use Trail (5ft. Natural Surface)                        | 35376      | \$6       | \$ 212,256.00          |
| NCDOT Sidepath (8ft. Paved Path)                             | 1056       | \$120     | \$ 126,720.00          |
| Typical Greenway - Brewery Trailhead Spur (10ft. Paved Path) | 400        | \$25      | \$ 10,000.00           |
| Road Crossings   | 3          | \$5,500   | \$ 16,500.00           |
| Major Bridges  | 2          | \$75,000  | \$ 150,000.00          |
| <b>Total Section Cost</b>                                    |            |           | <b>\$ 515,476.00</b>   |
| SECTION 2- POWERHOUSE ROAD TO WATERMILL RIVER ACCESS         | UNITS      | UNIT COST | TOTAL COST             |
| Dual Use Trail (5ft. Natural Surface)                        | 24816      | \$6       | \$ 148,896.00          |
| Multi-Use Path (8ft. Crushed Gravel Fines)                   | 5280       | \$25      | \$ 132,000.00          |
| Road Crossings   | 3          | \$5,500   | \$ 16,500.00           |
| Major Bridges  | 1          | \$750,000 | \$ 750,000.00          |
| <b>Total Section Cost</b>                                    |            |           | <b>\$ 1,047,396.00</b> |
| SECTION 3- WATERMILL RIVER ACCESS TO CATAWBA RIVER GREENWAY  | UNITS      | UNIT COST | TOTAL COST             |
| Dual Use Trail (5ft. Natural Surface)                        | 24288      | \$6       | \$ 145,728.00          |
| Road Crossings   | 0          | N/A       | N/A                    |
| Major Bridges  | 0          | N/A       | N/A                    |
| <b>Total Section Cost</b>                                    |            |           | <b>\$ 145,728.00</b>   |
| SECTION 4- CATAWBA RIVER GREENWAY TO DOWNTOWN MORGANTON      | UNITS      | UNIT COST | TOTAL COST             |
| Typical Greenway Connector (10ft. Paved Path)                | 6864       | \$90      | \$ 617,760.00          |
| Road Crossings   | 1          | \$5,500   | \$ 5,500.00            |
| Major Bridges  | 0          | N/A       | N/A                    |
| <b>Total Section Cost</b>                                    |            |           | <b>\$ 623,260.00</b>   |
| <b>TOTAL</b>   |            |           | <b>\$ 2,331,860.00</b> |

\* Does not include land acquisition, engineering, or design.

\* Does not include existing segments of trail or bridges on existing trails.





## (A2) FUNDING SOURCES

| PARTNERSHIP FUNDING AGENCY  | ACTIVE LIVING/<br>BUILT-<br>ENVIRONMENT<br>IMPLICATIONS  | MAXIMUM<br>AMOUNT        | MATCHING<br>FUNDS<br>REQUIRED         | DEADLINE                 |
|---|--|--------------------------|---------------------------------------|--------------------------|
| <b>BUILD</b>  | Construction, provided easements are secured   | N/A (min. \$1 million)   | \$0 (for rural counties)              | May (typical)            |
| <b>Clean Water Management Trust Fund<br/>(<a href="http://www.cwmtf.net">www.cwmtf.net</a>)</b>                                       | Land acquisition: fee simple or easement. Must protect floodplain areas. Greenway trails and other park areas are allowed. | N/A                      | Not specified, but 20% is competitive | February 1st             |
| <b>NC Water Resources (<a href="http://www.ncwater.org">www.ncwater.org</a>)</b>  | River access areas or greenways along rivers   | N/A                      | 50%                                   | January 1st and June 1st |
| <b>Recreation Trails Program<br/>(<a href="http://ncparks.gov/About/grants/main.php">ncparks.gov/About/grants/main.php</a>)</b>       | All types of trails and greenways  | \$100,000.00             | 25%                                   | February 1st             |
| <b>Parks and Recreation Trust Fund<br/>(<a href="http://ncparks.gov/About/grants/main.php">ncparks.gov/About/grants/main.php</a>)</b> | All types of parks, trails, and recreation facilities  | \$500,000.00             | 50%                                   | February 1st             |
| <b>Bikes Belong Foundation</b>  | Trails and Greenways   | \$10,000.00              | 20%                                   | May 24th                 |
| <b>NCDOT Transportation Plan For Bike and Pedestrian Projects</b>   | Bike and Pedestrian Projects- both engineering and construction  | N/A (for major projects) | 20% generally                         | N/A                      |



