



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





FONTA FLORA STATE TRAIL

LAKE JAMES TO MARION MASTER PLAN

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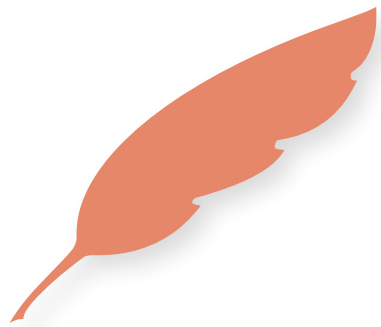
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INTRODUCTION AND BACKGROUND

THIS PLAN SERVES AS A ROAD MAP FOR ESTABLISHING A SECTION OF THE FONTA FLORA STATE TRAIL FROM LAKE JAMES TO MARION.

- The Fonta Flora State Trail (FFST) will extend from Morganton to Asheville when completed. 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 Marion, in McDowell County. 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 in the midst of constructing another 10 miles that will eventually encircle Lake James to complete Section 2 of the FFST.

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.

Also in 2017, Burke County opened a new trailhead featuring custom trail facilities and artistic signage. In 2018, the County spearheaded the development of a trail master plan for Section 1 from Lake James to Morganton

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 3 of the Fonta Flora State Trail from Lake James to Marion. This section is unique in that portions of the FFST coincide with the OVNHT.



PREVIOUS PLANNING EFFORTS

Fonta Flora State Trail: Lake James to Morganton

In 2018, Burke County developed a comprehensive trail master plan for the Section 1 of the FFST from Lake James to Morganton.



This section of the FFST overlaps with the OVNHT on the south side of Lake James as the trail extends from the Fonta Flora Whippoorwill Brewery along the Catawba River 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

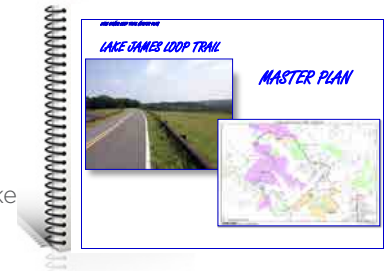
The *Fonta Flora State Trail Master Plan: Lake James Section* was completed in 2016. The plan provided a major update to the Lake James Loop Trail Master Plan published by



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

In early 2013, the Burke County Community Development Director began a new planning effort to jumpstart the Lake James Loop Trail initiative and promoted the project to the top of the department's priority list.



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.

Isothermal Regional Bicycle Plan

The Isothermal Regional Bike Plan, published in 2018, includes detailed recommendations for connecting Downtown Marion to the Catawba River Greenway and McDowell House.



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, Marion and the surrounding region.

PLAN GOALS

- 1 Specific Trail Routes.** Identify a specific and feasible trail route from Lake James to Marion.
- 2 Trail Character.** Develop designs and trail support facilities that incorporate both the OVNHT and FFST brands.
- 3 Visual Plan.** Create a visual plan that utilizes renderings and schematics to demonstrate trail character.

STATE TRAILS

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.

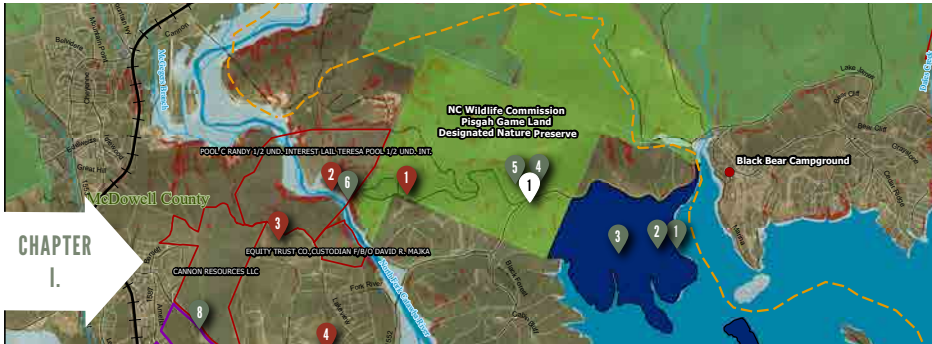
The Fonta Flora State Trail will anchor a host of recreation offerings. Foremost, this trail offers the unique opportunity to separate automobiles from cyclists to circumnavigate the Lake, thereby creating a safe and scenic destination for cycling enthusiasts. This plan also calls for a new boat launch, 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



CHAPTER 1.

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 discussion of the natural and built environments and their implications for trail suitability, trail design, permitting, and costs. This chapter concludes with a map and photographic series that highlights preliminary trail route alternatives.



CHAPTER 2.

TRAIL CHARACTER AND DESIGN GUIDELINES

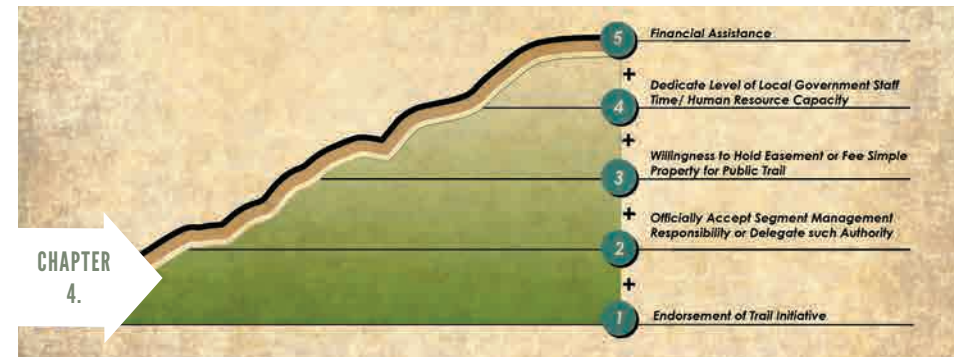
This chapter is dedicated to visually defining the various trail types to be used throughout the corridor. Design concepts are provided for trail user orientation signage, mile markers, and other support facilities. Social Media is explored as a mechanism for trail promotion and marketing.



CHAPTER 3.

RECOMMENDATIONS

This chapter is organized according to three (3) 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.



CHAPTER 4.

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

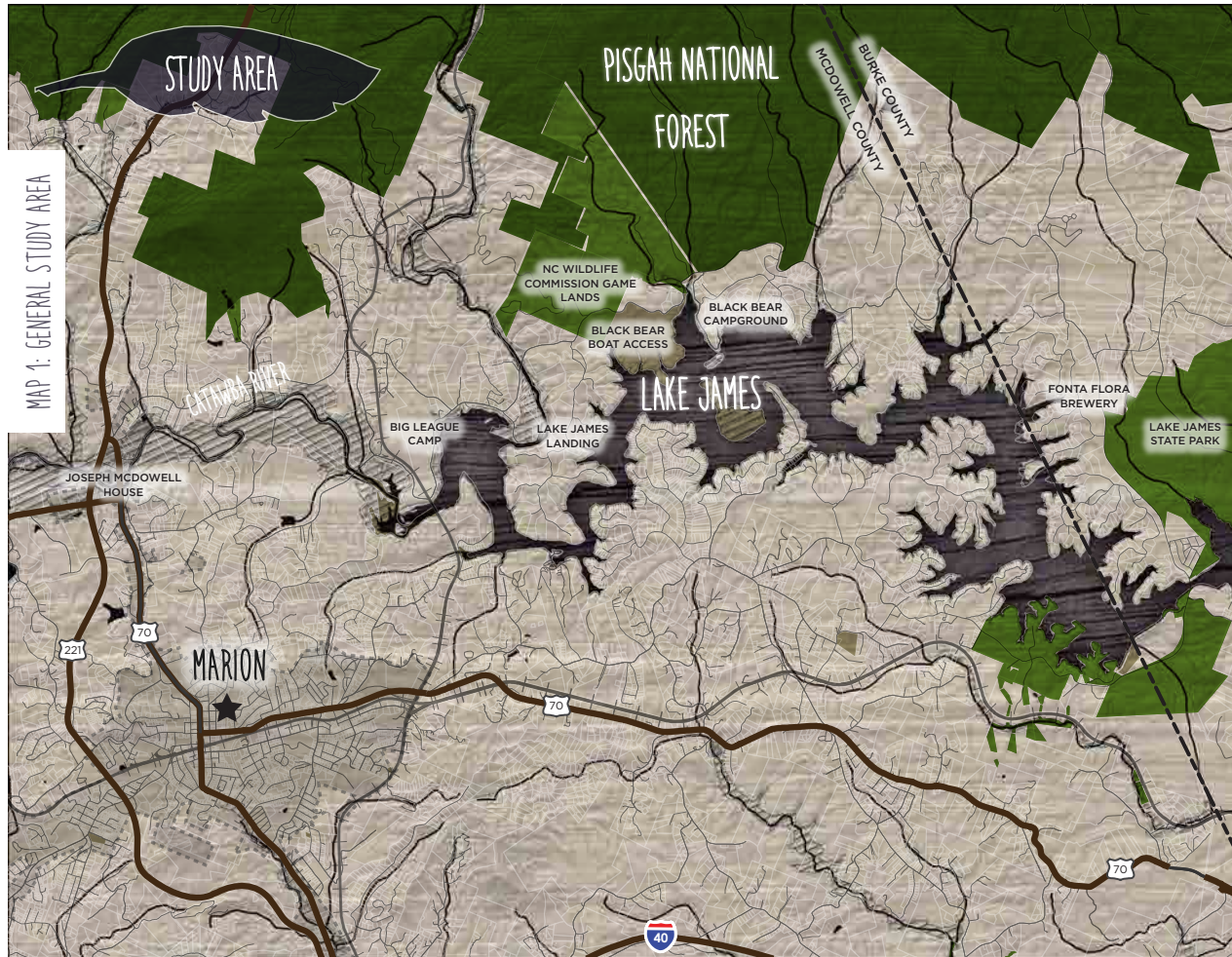
THIS SECTION OF THE FONTA FLORA STATE TRAIL HAS A SIGNIFICANT NATURAL AND CULTURAL HISTORY.

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



The Lake James to Marion FFST study area extends approximately 20 miles from the Fonta Flora Brewery at Whippoorwill Farm on Highway 126 to the Catawba River Greenway in Marion.

Starting at the Fonta Flora Brewery at Whippoorwill Farm adjacent to Lake James State Park, the corridor extends west on the north side of Lake James through the 1780 Community and continues into McDowell County through large wooded tracts.

The corridor includes Pisgah National Forest and NC Wildlife Resources Commission public lands as well as property held by Duke Energy which continues to partner with Burke County to provide easements and financial support for the FFST and OVNHT.

The planning corridor continues southwest through rural, wooded privately-owned land to the mouth of the Catawba River at Lake James. Land parcels become smaller as the corridor continues toward the City of Marion before extending north to reach the 1.6-mile Joseph McDowell Catawba River Greenway.

THE LAKE JAMES TO MARION FFST STUDY AREA EXTENDS APPROXIMATELY 20 MILES FROM THE FONTA FLORA BREWERY AT WHIPPOORWILL FARM TO THE JOSEPH MCDOWELL CATAWBA RIVER GREENWAY.

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 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.

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.

Portions of the FFST route proposed in this master plan share an alignment with the OVNHT. Currently, -5.5 miles of OVNHT are certified in Burke and McDowell Counties; This includes an -1.7-mile segment in the 1780 Community and an -1-mile segment near Black Bear Creek on NC Wildlife Resources land.

NATURAL ENVIRONMENT

STEEP SLOPES

Much of the corridor has gently rolling topography. The most challenging slopes are along the banks of the Catawba River, North Fork Catawba River, and shoreline of 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 trail 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 floodway¹

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 impacted².

STREAMS, LAKES, AND PONDS

The County, State, and Federal government regulate the many waterbodies found throughout the study area³. Lake James and the Catawba River are the dominant waterways within this corridor. .



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.

¹ **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 in cost but can range from \$2,500-\$15,000 depending on complexity.

² **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.

³ **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 DWD 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, permits² 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| Northern Long-eared Bat
- B| Carolina Northern Flying Squirrel
- C| Brook Floater (Catawba River, McDowell County)
- 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.



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.

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 Marion, including: 1) Land Use; 2) Existing Trails and Parks; 3) Utilities; and 4) Transportation.

LAND USE SNAPSHOT

Eastern Section

The eastern extent of the study area is anchored by a large private residential development that has provided easements for the FFST and OVNHT. Beyond this private development, the study area is typified by a rural wooded landscape with large tracts of land that includes Pisgah National Forest land.

Central Section

The central section of the corridor exhibits a mix of large tracts and small tracts. Several of the larger tracts are dedicated to public and private recreational uses including: NC Wildlife Resources Game Lands; Black Bear Campground; Black Bear boat access, provided by Duke Energy; and Big League Camp, a baseball training facility.

The City of Marion

The City of Marion's northeastern edge is typified by single-family residential growth. Private residential development and areas of steep terrain create a challenge for establishing a public trail connecting Lake James to the City. Marion and the McDowell Trails Association have successfully constructed 1.6 miles of the Joseph McDowell Catawba River Greenway which serves as the western terminus of the study area.



THE BUILT ENVIRONMENT

EXISTING PARKS AND GREENWAYS

Burke County, McDowell county and Marion 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 a significant linkage connecting FFST Sections 1, 2, and 3. Two miles of certified OVNHT are located along Paddy Creek in the state park.



OVNHT at the 1780 Community

The western terminus of the study area begins with a one-mile certified segment of the OVNHT that extends through the 1780 Community. The trail segment is an extension of the OVNHT in Lake James State Park. Previous FFST planning efforts provide recommendations for connectivity to a new trailhead at the nearby Fonta Flora Whippoorwill Brewery.



Black Bear Boat Access

This public boating access area is owned by Duke Energy, which has plans to further improve the site with camp sites and day-use amenities in partnership with McDowell County.



OVNHT at NC WRC Game Lands

Approximately 2 miles of the OVNHT extends through NC Wildlife Resources Commission Game Lands near Black Bear Creek. Trail parking and access is located at a gravel lot on Lake James Road.



Joseph McDowell Catawba River Greenway

Named for local Revolutionary War hero and member of the Overmountain Men, Marion's greenway extends for almost 2 miles along the Catawba River. The historic McDowell House serves as a trailhead for the greenway.



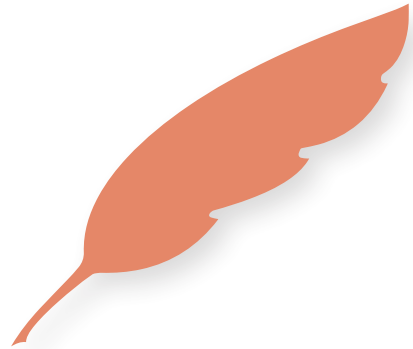
UTILITIES

The study area has a complex matrix of utilities that include transmission lines, utility towers, water lines, and sewer infrastructure. 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

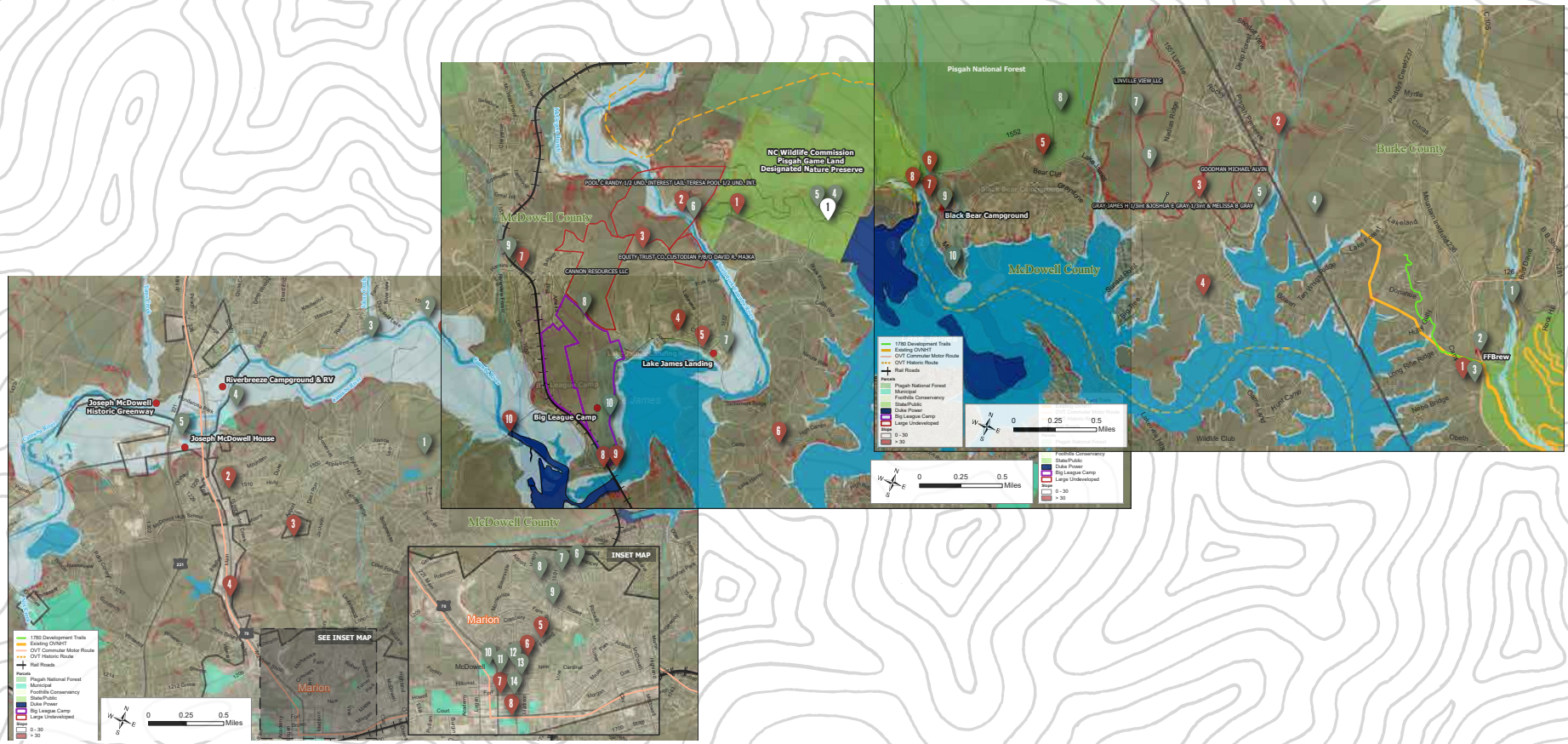
The study area analysis includes an extensive review of the existing transportation network including the North Carolina Department of Transportation (NCDOT) right-of-way (ROW), NCDOT plans, existing bike and pedestrian infrastructure (crosswalks, bike lanes, etc.), railways, and existing greenways. 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. CSX operates the former Clinchfield rail line on the west side of the North Fork 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.



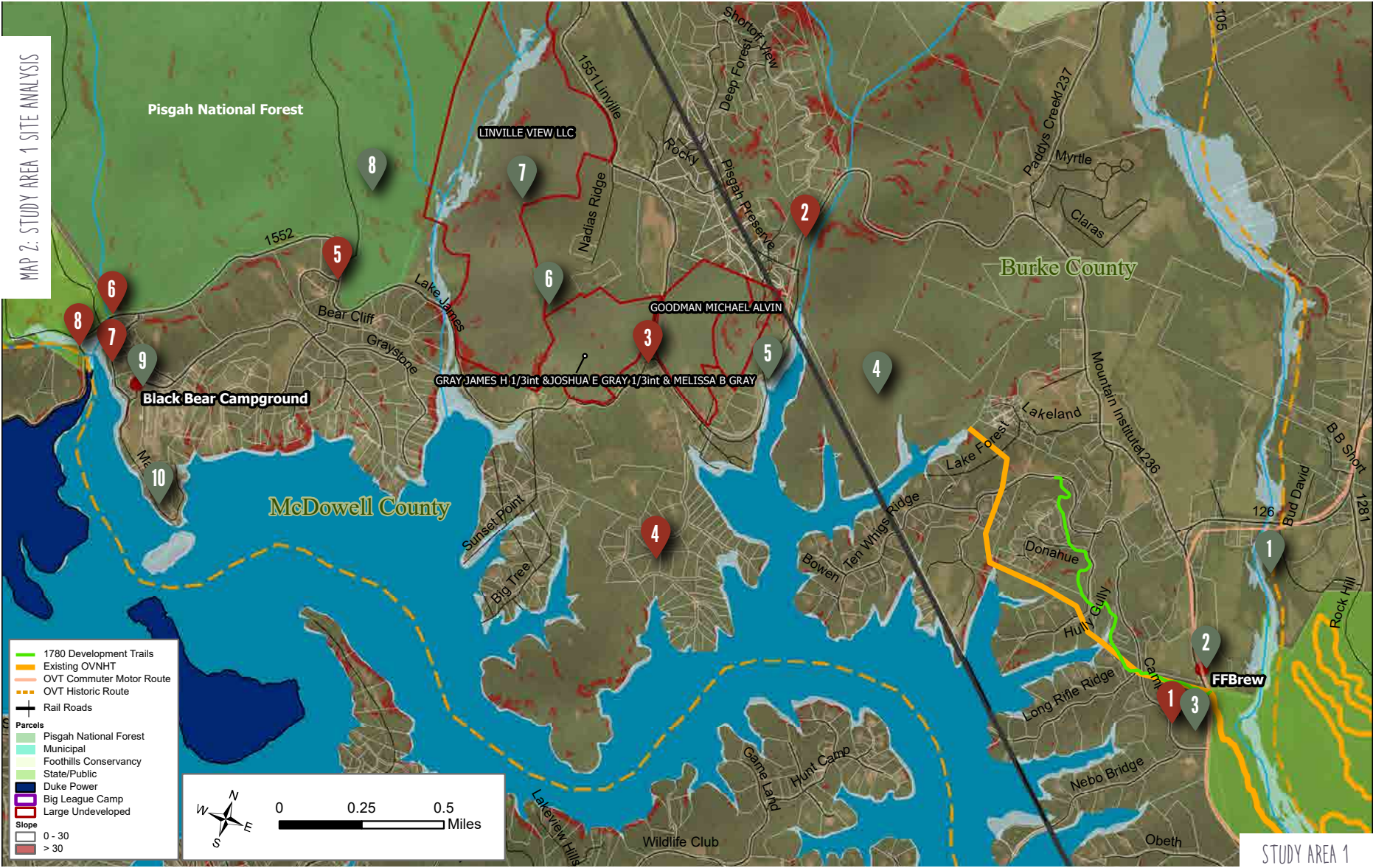


MAP AND PHOTO SERIES: PRELIMINARY TRAIL ROUTE ALTERNATIVES

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



STUDY AREA 1

STUDY AREA 1: OPPORTUNITIES AND CONSTRAINTS

Opportunities

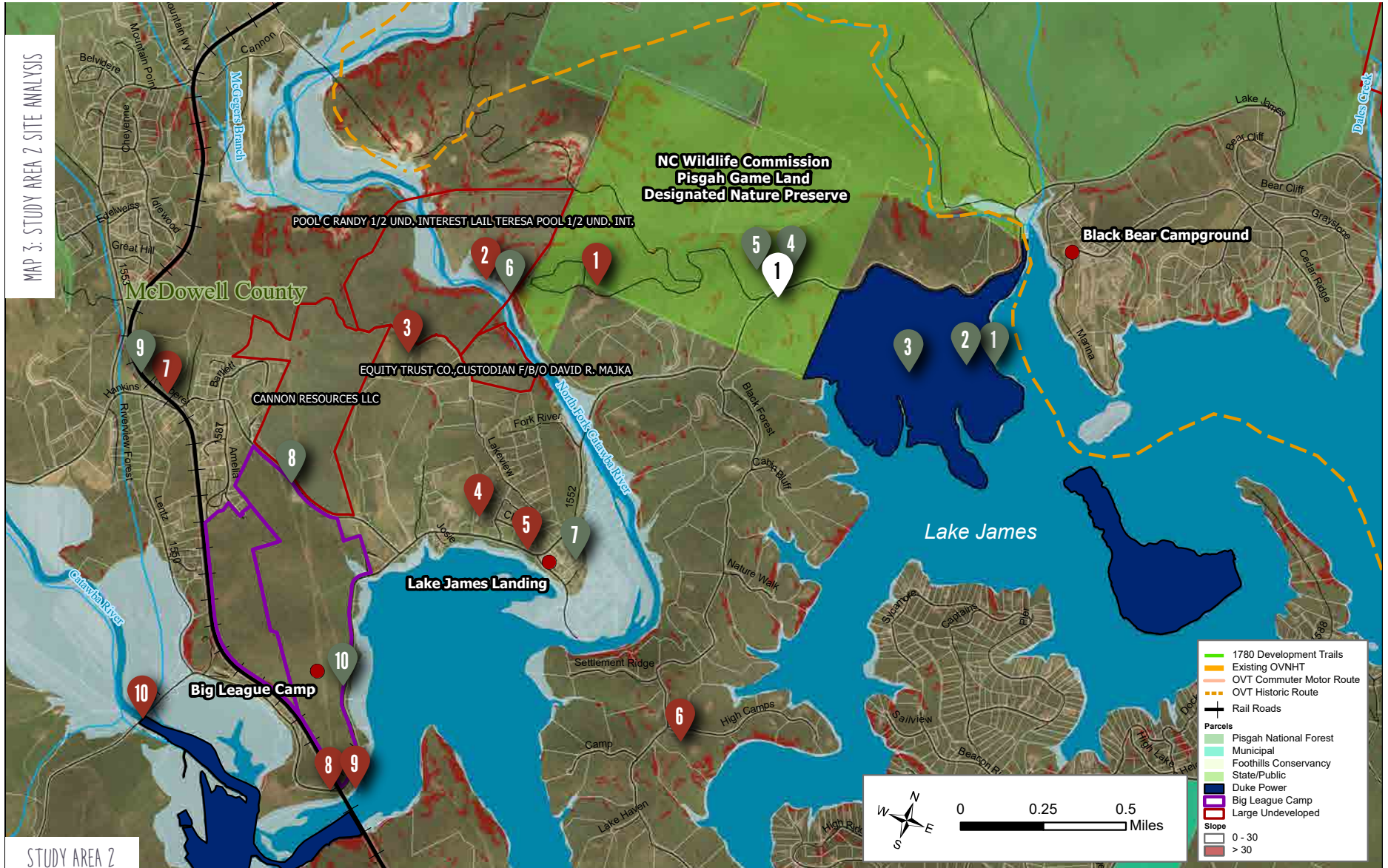
- 1 Connect existing OVNHT
- 2 Connect to Fonta Flora Brewery Trailhead
- 3 Positive landowner at Campbell's Trace
- 4 Subdivision potentially willing to allow trail
- 5 Potential for lakeside trail
- 6 Potentially willing landowners
- 7 Large, undeveloped tracts of land
- 8 Connection to Pisgah National Forest Game Lands
- 9 Connect to Black Bear Campground
- 10 Connect to Black Bear Boat Access

Constraints

- 1 Existing OVNHT requires improvements
- 2 Narrow road shoulder
- 3 Possible road crossing at Lake James Road
- 4 Parcelization at lakeside private developments
- 5 Private residential subdivisions
- 6 Narrow bridge over Bailey Creek
- 7 Lack of bicycle/pedestrian infrastructure at Bear Creek Marina & Campground
- 8 Narrow bridge over Bear Creek



STUDY AREA 2: SITE ANALYSIS



STUDY AREA 2: OPPORTUNITIES AND CONSTRAINTS

Opportunities

Constraints

- 1 Connect to Black Bear Boat Access
- 2 Future site improvements could include trailhead
- 3 Duke Energy property
- 4 Existing OVNHT at Pisgah Gameland
- 5 Opportunity for trail head at existing trail parking
- 6 Flat floodplain may be suitable for trailhead
- 7 Connect to Lake James Landing & RV Park
- 8 Connect to Cannon-Big League Camp at Hankins Rd.
- 9 Potential rail-with-trail
- 10 Opportunity for increased trail visibility at Big League Camp entrance

- 1 Steep terrain
 - 2 North Fork Catawba River bridge crossing
 - 3 Secluded private development
 - 4 Parcelization at lakeside private development
 - 5 Narrow/steep shoulder would require elevated trail infrastructure
 - 6 Small parcels with no easements
 - 7 Rail-with-trail requires coordination with CSX
 - 8 Elevated bridge would require significant fill to match grade
 - 9 Narrow road shoulder around blind curve
 - 10 Narrow shoulders on bridge
- 1 Control Point: Connection to Pisgah National Forest Gamelands Parking Area



4 Existing OVNHT and trail parking at Pisgah Game Land



1 Opportunity to connect Black Bear Boat Access to nearby Bear Creek Marina



8 Pinch point at CSX railroad overpass on Lake James Road

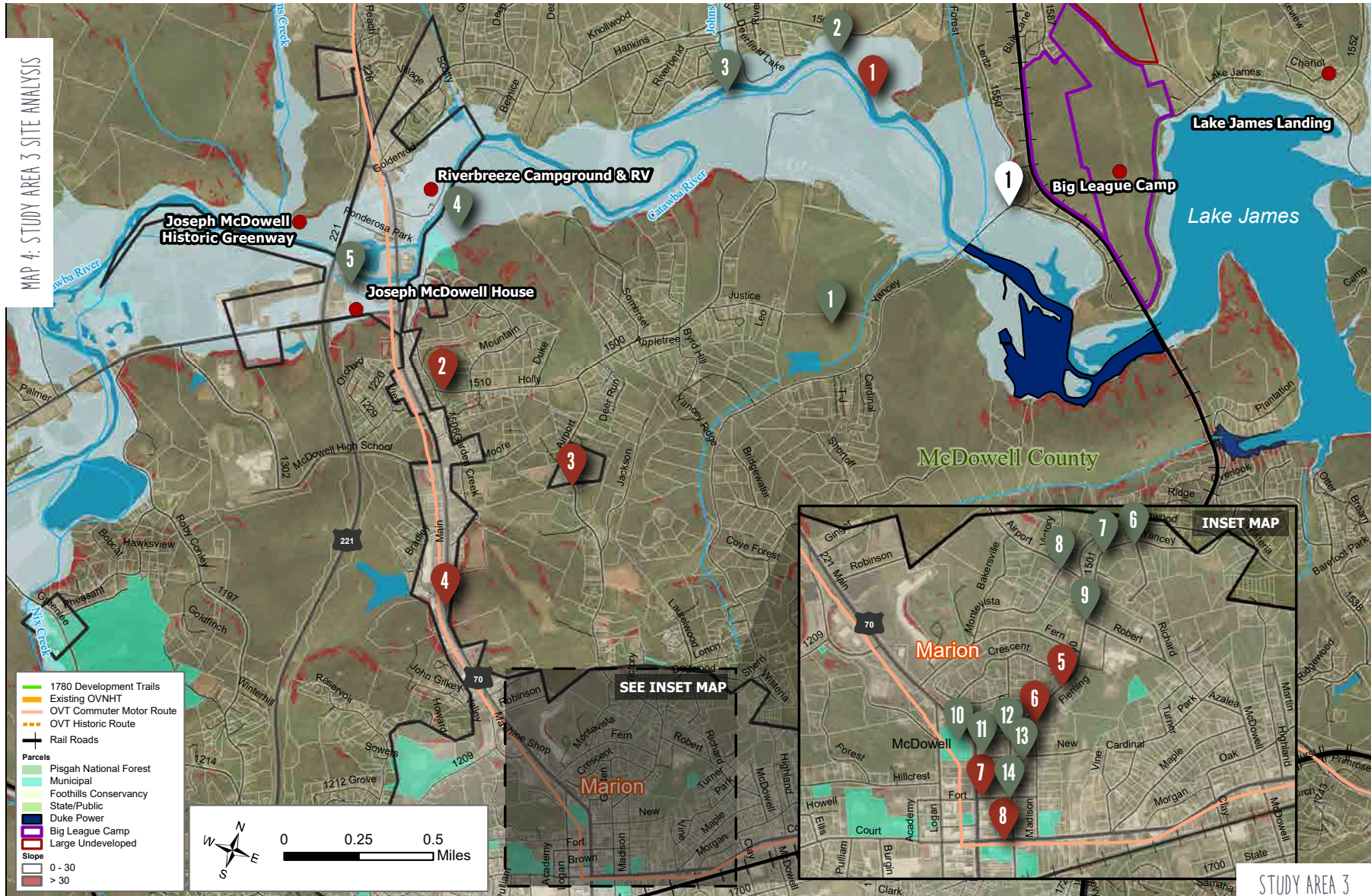


10 Narrow bridge



8 Connect to Cannon-Big League Camp at Hankins Road

STUDY AREA 3: SITE ANALYSIS



STUDY AREA 3

STUDY AREA 3: OPPORTUNITIES AND CONSTRAINTS

Opportunities

- 1 Large undeveloped parcels provide connectivity to Justice Road
- 2 Catawba River corridor is ideal trail setting
- 3 Utilize Catawba River floodplain corridor
- 4 Large parcels on south side of Catawba River
- 5 Connect to Catawba River Greenway
- 6 Existing sidewalk begins at Oakwood Drive
- 7 Retrofit existing sidewalk into multi-use path
- 8 Existing sidewalk begins at Monte Vista Avenue
- 9 Wide right-of-way on Fleming Avenue
- 10 Connect to Marion Community Building
- 11 Connect to Marion Town Hall
- 12 Double-loaded sidewalks on New Street
- 13 Existing sidewalk on south side of N. Garden St.
- 14 Existing parking on Fort Street could provide trail parking

Constraints

- 1 Catawba River crossing will require bridge
- 2 Narrow shoulders on Holly Street
- 3 Narrow shoulders on Airport Road
- 4 Narrow shoulders & high traffic volume on US 70
- 5 School turn lane utilizes Fleming St. right-of way
- 6 Steep slope along North Madison Street
- 7 On-street parking along Fort St. utilizes available right of way
- 8 Steep slope along Court St.
- 1 Control Point: Connection to Yancey Rd.



5 School turn lane utilizes Fleming St. right-of way



5 Connect to Joseph McDowell Catawba River Greenway



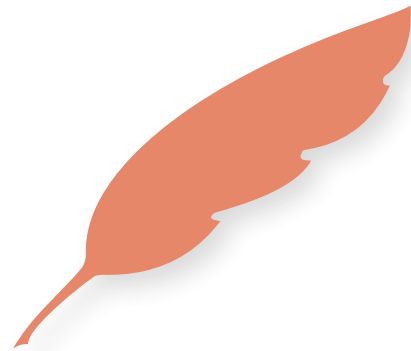
9 Wide right-of-way on Fleming Street provides opportunity for a sidepath



4 Narrow shoulders & high traffic volume on US 70



12 Double-loaded sidewalks on New Street near Town Hall





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

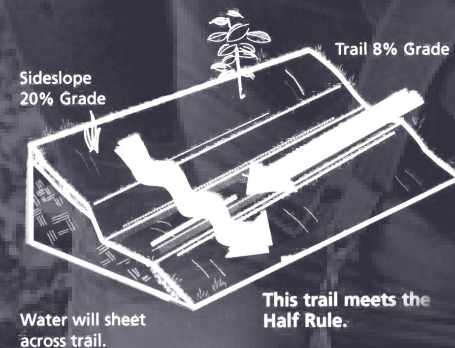
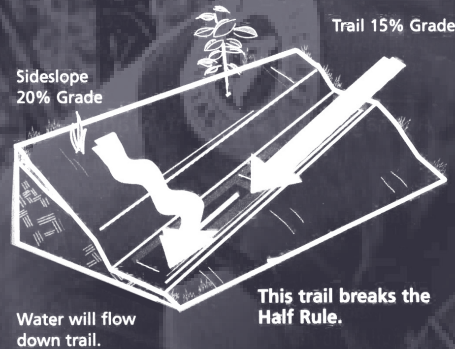
TRAIL CHARACTER

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."

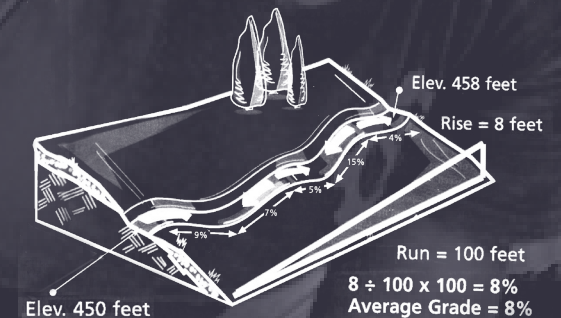
1. THE HALF RULE

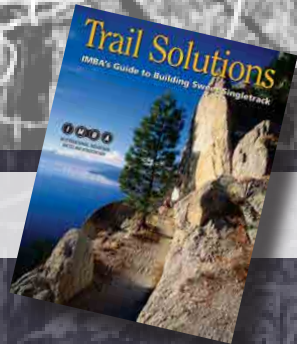
A trail's grade shouldn't exceed half the grade of the hillside or sideslope that the trail traverses. If the grade does exceed half the sideslope, it's considered a fall-line trail. Water will flow down a fall-line trail rather than run across it.



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.



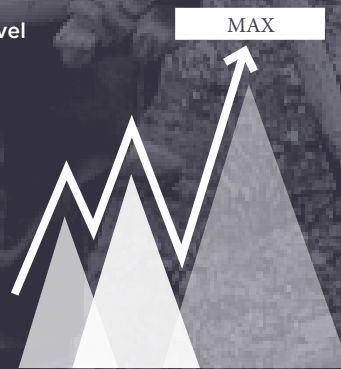


THE FIVE ESSENTIAL ELEMENTS OF SUSTAINABLE TRAILS

3. MAXIMUM SUSTAINABLE TRAIL GRADES

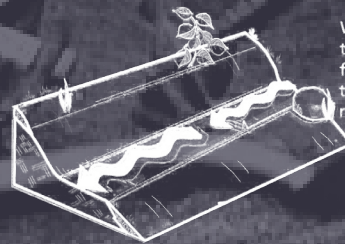
Maximum grade is the steepest portion of a trail that is more than approximately 10 feet in length. It's critical to determine what the maximum allowable trail grade will be prior to beginning construction. Several factors should be considered when determining the maximum sustainable trail grade which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

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

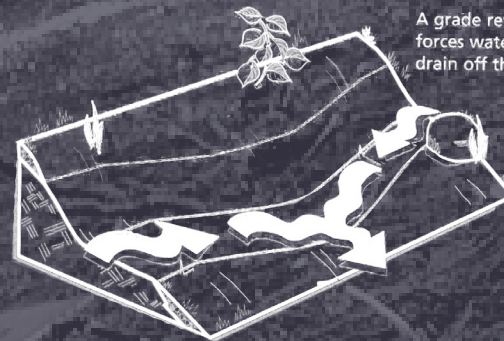


4. GRADE REVERSALS

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.



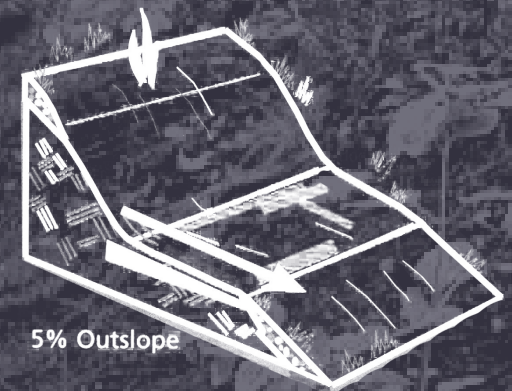
Water may become trapped on trail and flow long distances if there are no grade reversals:



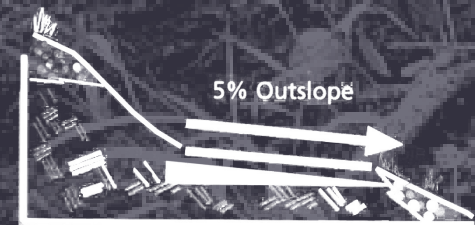
A grade reversal forces water to drain off the trail.

5. OUTSLOPE

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



5% Outslope

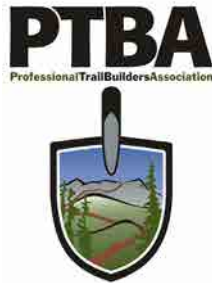


5% Outslope

TRAIL CHARACTER

TRAIL CONSTRUCTION

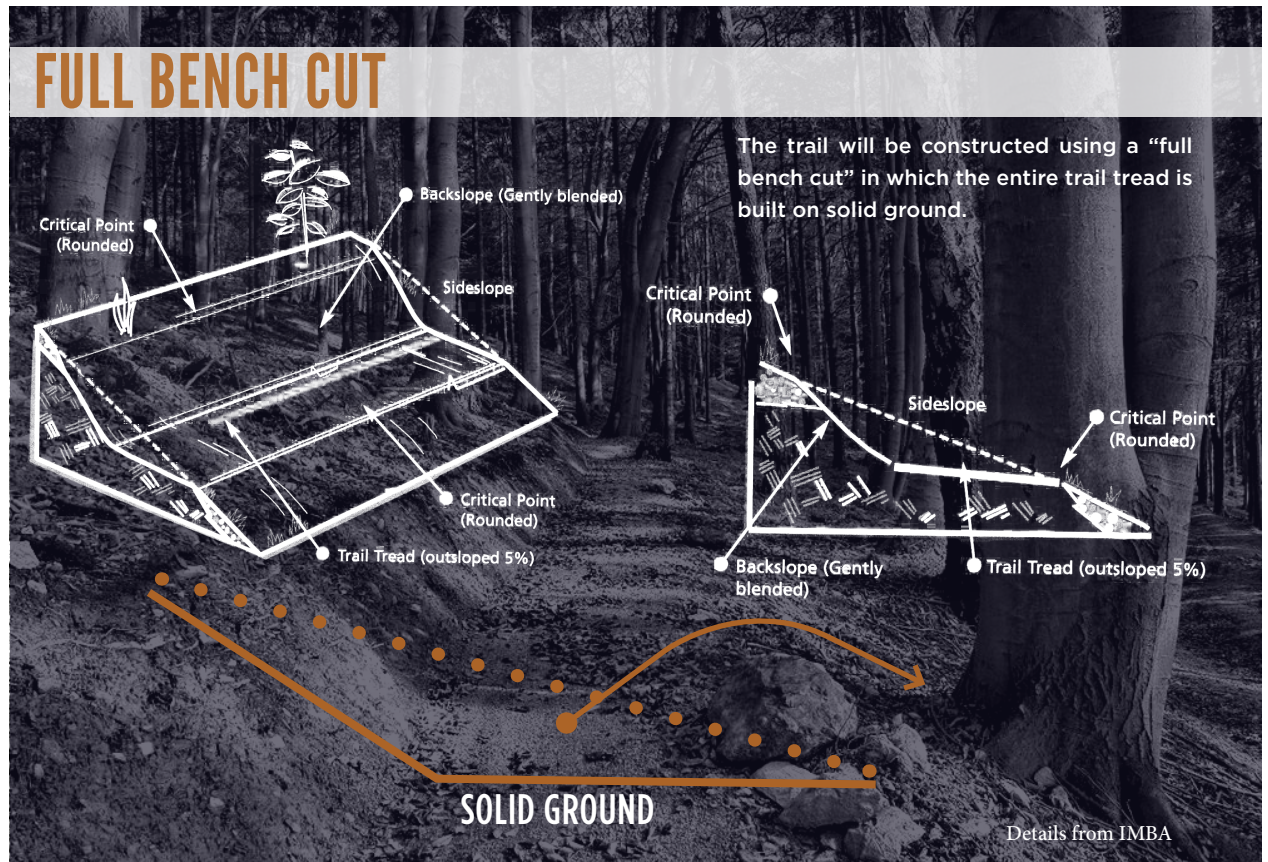
Members and associates of the Professional Trailbuilders Association (PTBA) should be preferred contractors for constructing the trail with mechanized equipment. These contractors have a thorough understanding of sustainable trail design and construction.



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

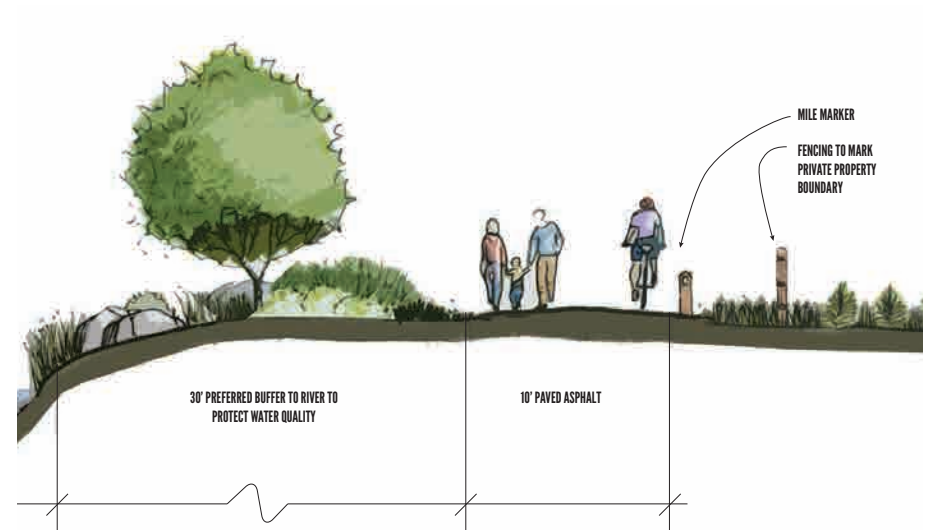
Four trail types are proposed along the preferred alignment. A specific trail type is proposed according to its surrounding environment, whether it is for safety along roadways or to enhance user experience.



THE JOSEPH MCDOWELL CATAWBA RIVER GREENWAY EXTENDS FOR 2 MILES ALONG THE CATAWBA RIVER IN MARION.

TYPICAL GREENWAY

10' PAVED ASPHALT



User Group: Multi-Use

Material: Paved Asphalt

Preferred Width: 10'

Average Construction Cost: \$90/ln. ft.

Preferred Easement Width: 50'

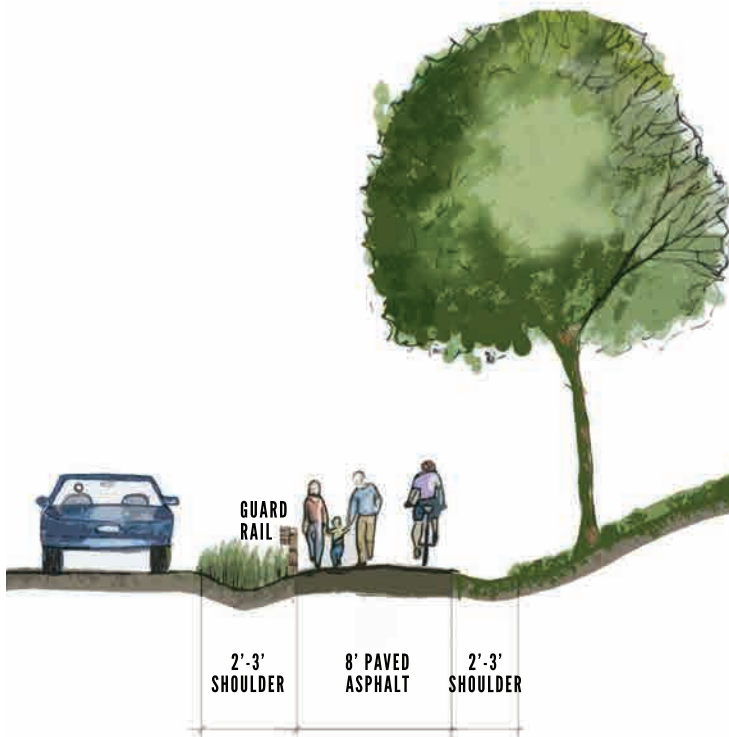
Minimum Easement Width: 20'

TRAIL CHARACTER

TRAIL TYPES

NCDOT SIDEPATH

8' PAVED ASPHALT



User Group: Multi-Use

Material: Paved asphalt

Preferred Width: 8'

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

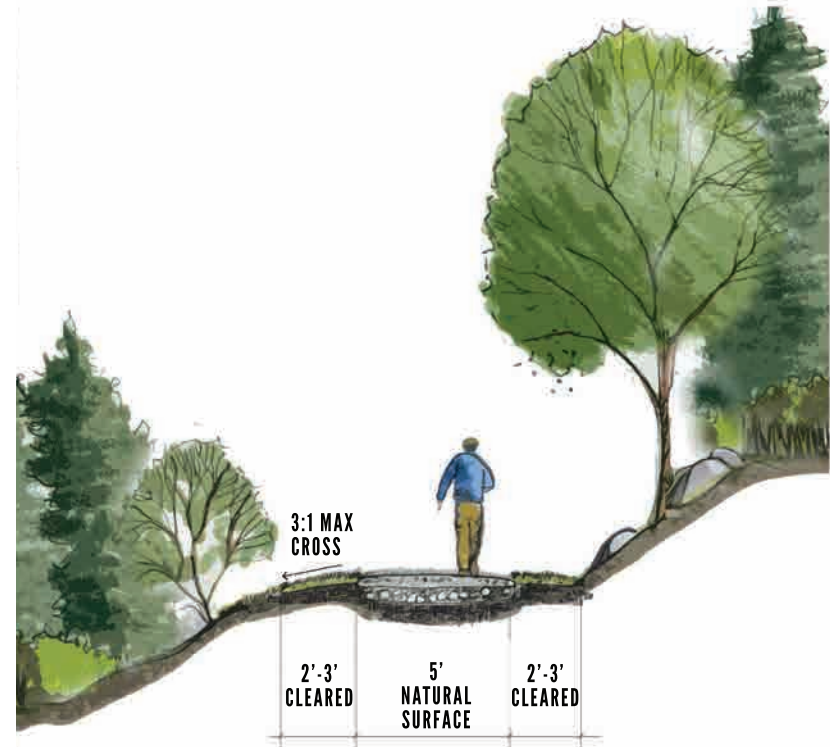
Average Construction Cost: \$120/ln. ft.

Preferred Easement Width: 25'

Minimum Easement Width: 25'

DUAL-USE TRAIL

5' NATURAL SURFACE



User Group: Hikers and Cyclists

Material: Native Soils

Preferred Width: 5'

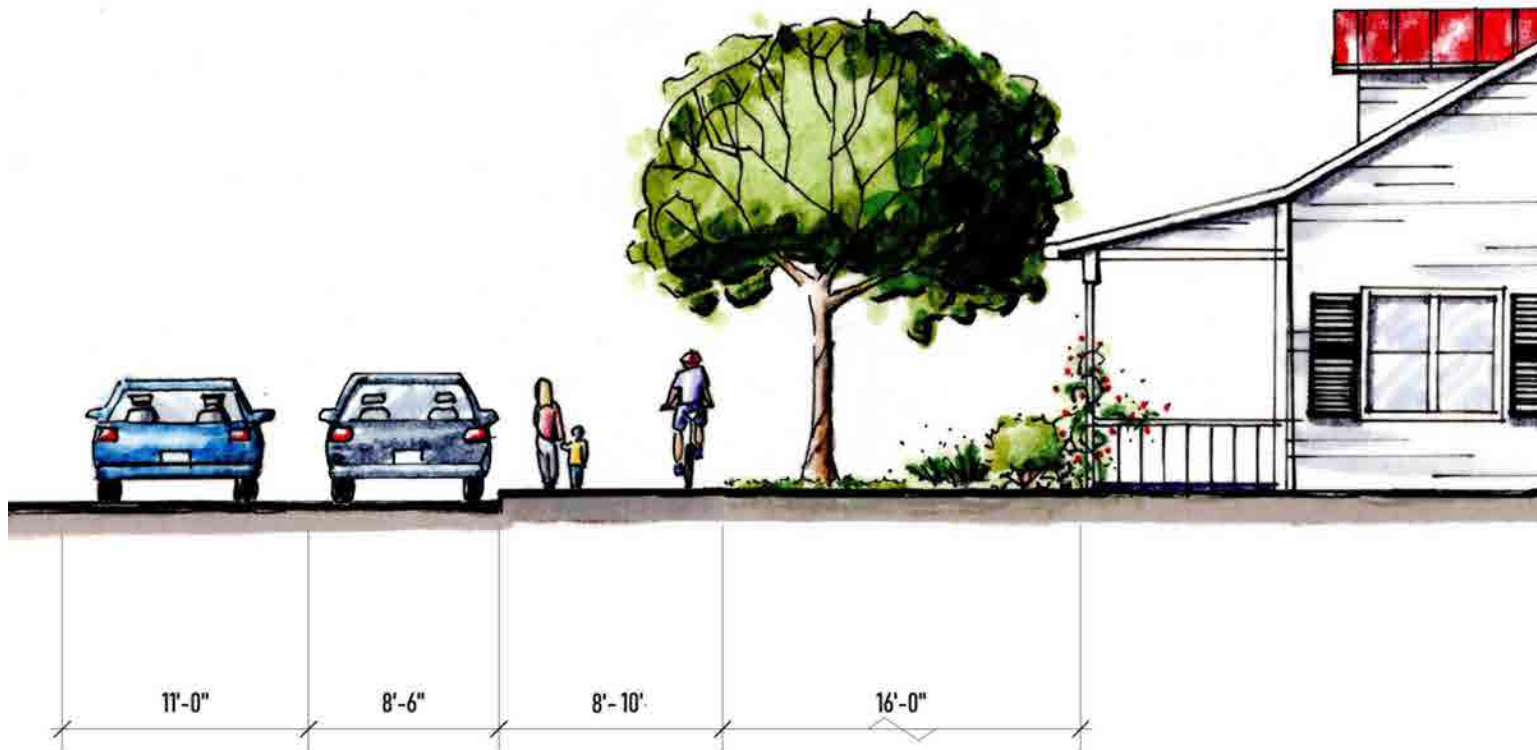
Average Construction Cost: \$6/ln. ft.

Preferred Easement Width: 50'

Minimum Easement Width: 10'

TOWN SIDE PATH

8' CONCRETE



User Group: Multi-Use

Material: Concrete

Preferred Width: 8'

Average Construction Cost: \$90/ln. ft.

Preferred Easement Width: 25' or in ROW

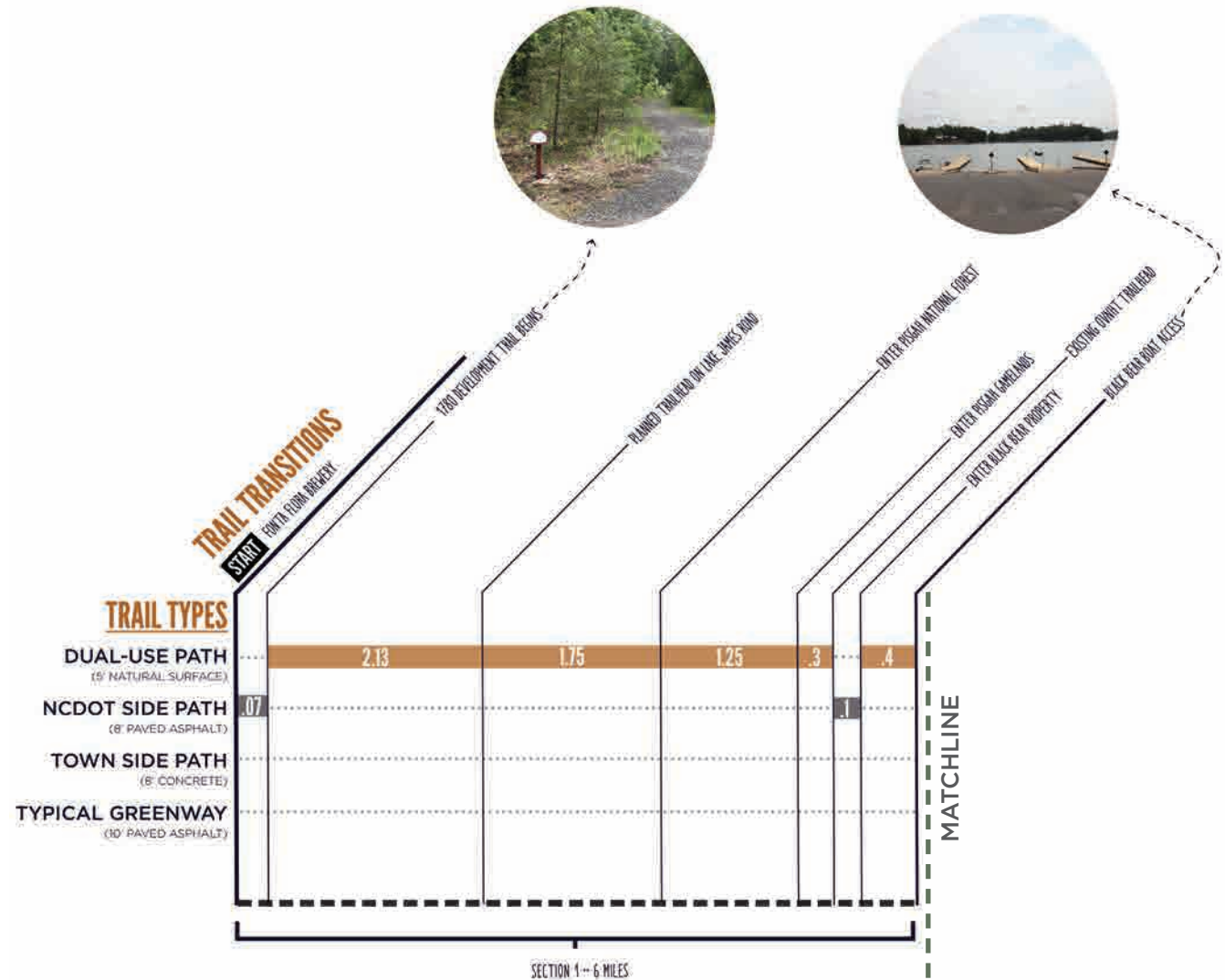
Minimum Easement Width: 25' or in ROW

TRAIL CHARACTER

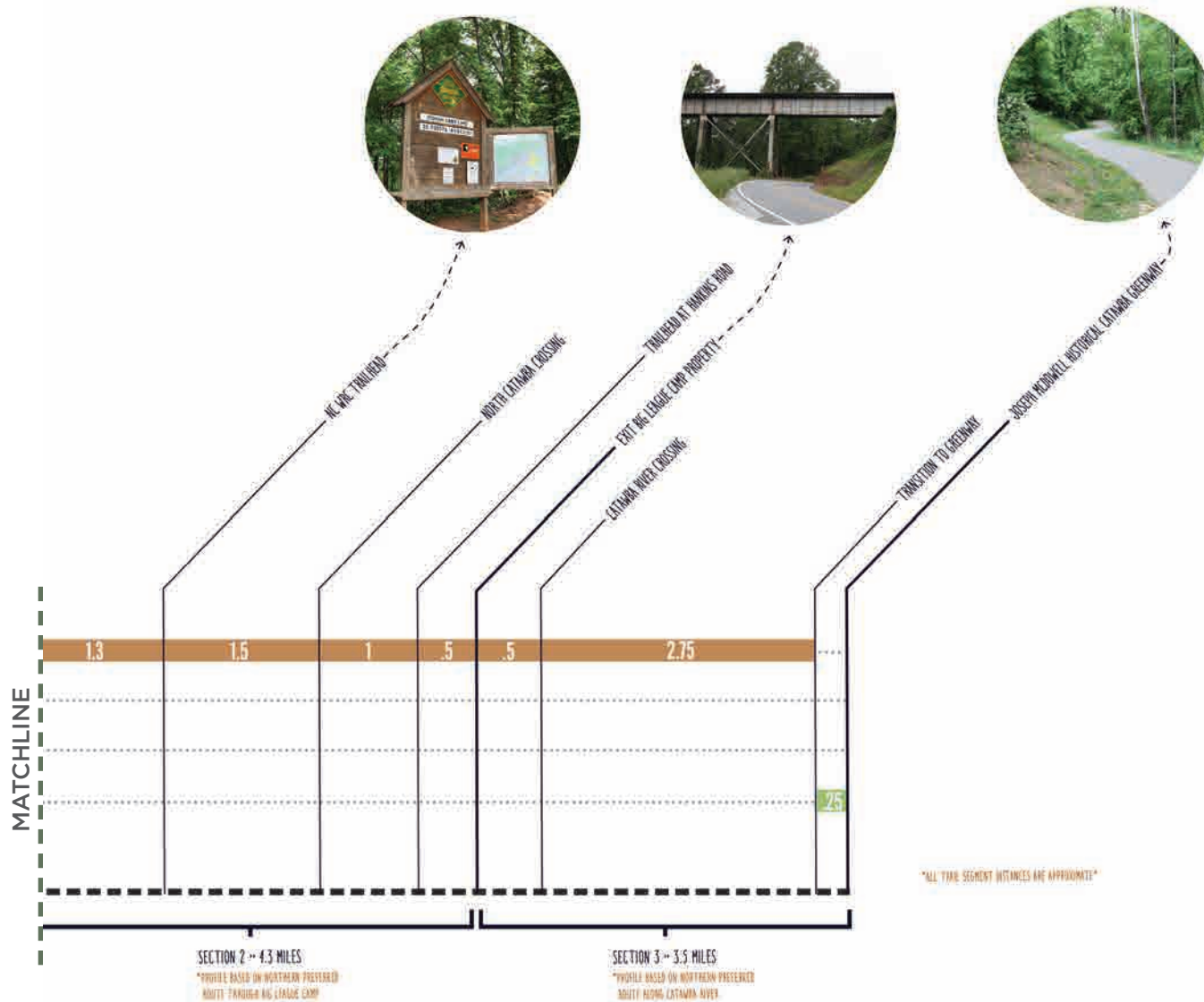
TRAIL TYPE PROFILE

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.

Profile depicts one of three preferred route options



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 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: SHARED ROUTE

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 POST

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

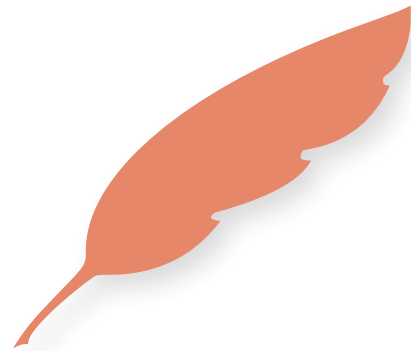
@NCParks

#LakeJames

#findyourpark

#trail2victory







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 three (3) planning sections.
- Trail recommendations are supported with renderings that demonstrate trail character at specific locations.

IN THIS CHAPTER:

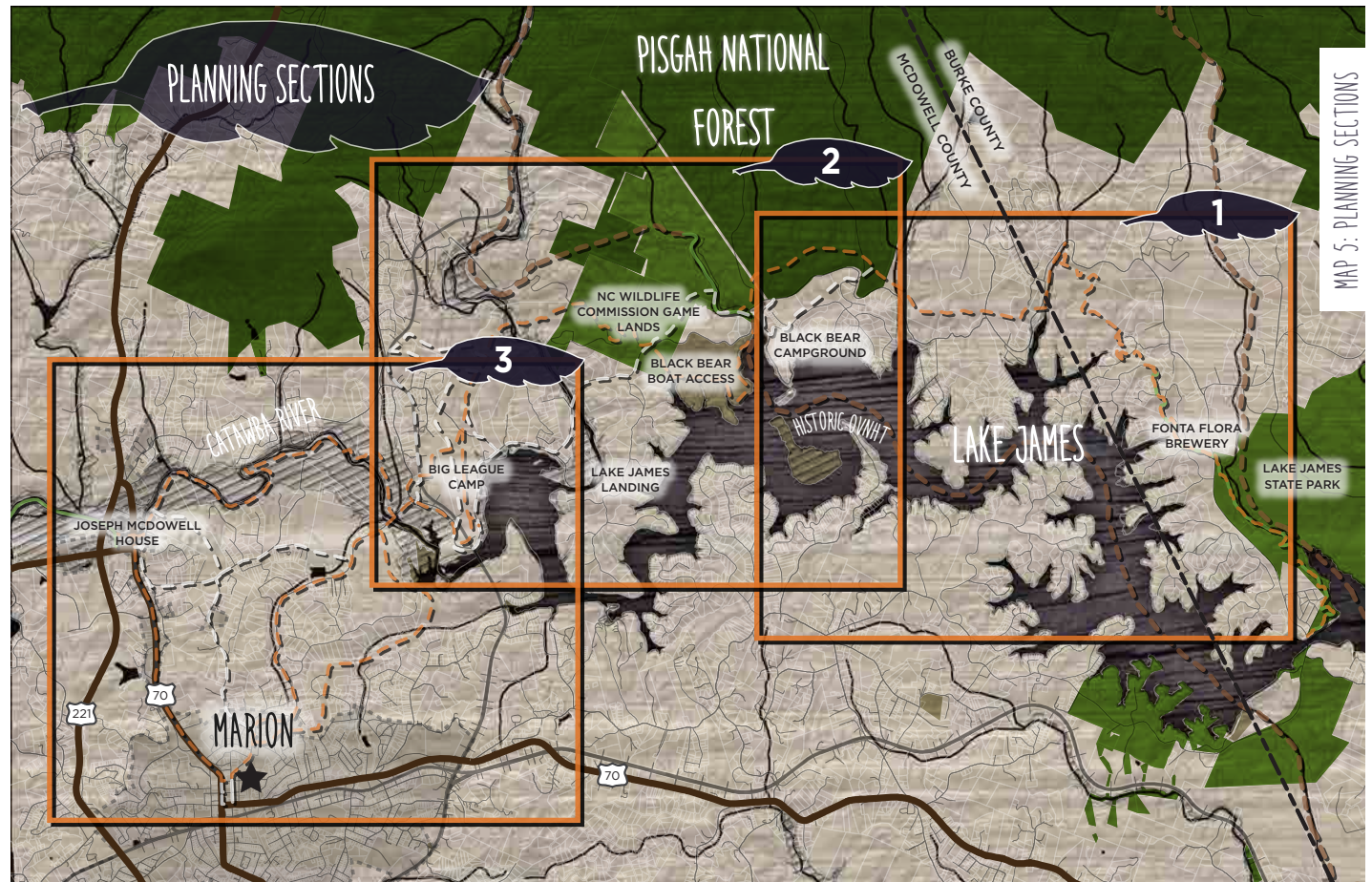
- A| PLANNING SECTIONS OVERVIEW
- B| TRAIL SECTION RECOMMENDATIONS

PLANNING SECTIONS

The 20-mile study area from Lake James to Marion is divided into three (3) 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 » BLACK BEAR BOAT ACCESS
- 2 BLACK BEAR BOAT ACCESS » BIG LEAGUE CAMP
- 3 BIG LEAGUE CAMP » MCDOWELL HOUSE



THE 20-MILE STUDY AREA FROM LAKE JAMES TO MARION IS DIVIDED INTO THREE (3) 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.

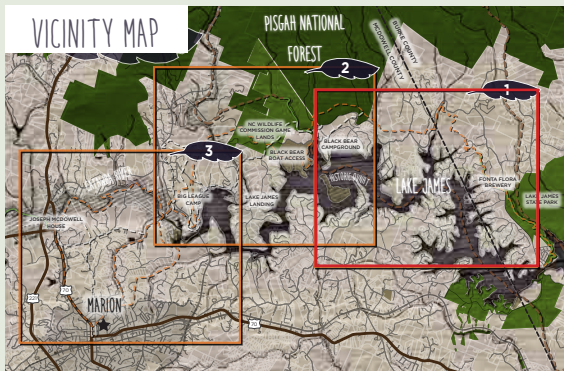
LAKE JAMES >> MARION: BY THE NUMBERS

23.5	>>	TRAIL MILES
3	>>	SHARED OVNHT MILES
9	>>	TRAILHEADS
16	>>	ROAD CROSSINGS
5	>>	MAJOR BRIDGES
\$6.25M	>>	APPROX. COST

☰ QUICK FACTS

Each planning section begins with a “quick facts” exhibit. This information includes the trail distance, trail type (see Chapter 2: Design Guidelines), and key features and assets associated with each section.

SECTION 1 FONTA FLORA BREWERY >> BLACK BEAR BOAT ACCESS



FONTA FLORA BREWERY >> BLACK BEAR BOAT ACCESS

TOTAL LENGTH: 6.0 MILES

TRAIL TYPE: NCDOT SIDEPATH
DUAL-USE TRAIL

ESTIMATED COST: \$362,530

POINTS OF INTEREST: FONTA FLORA BREWERY
POCKET PARK
OVNHT TRAILHEAD
BLACK BEAR CAMPGROUND

PROPOSED TRAILS

This planning section extends approximately six (6) miles from the Fonta Flora Brewery at Whip-poorwill Farm to Black Bear Boat Access on Lake



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

The OVNHT crosses Hwy. 126 just south of the Fonta Flora Brewery. After crossing Hwy. 126, a short NCDOT sidepath will connect to the one mile segment of certified OVNHT that extends through the 1780 Community at Campbell's Trace. This segment of existing OVNHT may require reconstruction and resurfacing to a native-soil tread that provides an ideal experience for bicyclists and hikers.

The trail segment extends through the 1780 Community to a pocket park near the lake shore.

From the 1780 Community, easements secured by Burke County will allow the dual-use trail to continue north for approximately one mile to a planned trailhead on Lake James Road.

From the trailhead, the route extends south into McDowell County turning west across Lake James Road. The trail continues west through large, undeveloped rural tracts for 1.25 miles, crossing Linville Road and Dales Creek. After crossing Dales Creek, the trail enters Pisgah National Forest Land and extends for another 1.25 miles to Bailey Creek before turning south into the Pisgah Game Lands. The route connects to an existing trailhead for the OVNHT then crosses to the east side of Lake James Road, transitioning to an NCDOT sidepath that extends for approximately 375 ft. to the existing vehicular bridge over Bear Creek. The trail will use the bridge shoulder then continue as a paved side-path for approximately 170 ft. before exiting NCDOT right-of-way to enter Black Bear Boat Access property and transitioning back to a natural surface dual-use trail.

An alternate route south of Lake James Road extends through undeveloped tracts to connect to the Black Bear Campground.



PHOTOS:

(1) THE FONTA FLORA BREWERY AT WHIPOORWILL PROVIDES A UNIQUE TRAILHEAD OPPORTUNITY. (2) EXISTING OVNHT CROSSING AT HWY. 126 WILL REQUIRE REDESIGN FOR BICYCLES.

SECTION 1: FONTA FLORA BREWERY >> BLACK BEAR BOAT ACCESS

TRAIL FEATURES

Trailheads

This planning section includes three (3) trailheads. The proposed trailhead located at Fonta Flora Brewery at Whippoorwill Farm serves as the eastern terminus of the study area. The brewery occupies eight acres of the historic dairy farm property while the remaining 40 acres have been conserved in perpetuity through a partnership between Foothills Land Conservancy and the NC Division of State Parks.

Burke County has secured an easement for a trailhead on the east side of Lake James Road located north of the Burke-McDowell County line. The trail connects to an existing NC Wildlife

Resources trailhead for the OVNHT located on Lake James Road across from the entrance to Black Bear Boating Access. The trailhead provides a small gravel parking area adjacent to Bear Creek that will require driveway improvements and signage to provide visibility from Lake James Road.

Crossings

Within this section there are four (4) significant road crossings and one (1) major bridge over Bailey Creek.

The FFST crosses NC Highway 126 south of the Fonta Flora Brewery. This is an existing crossing for the OVNHT that will require redesign to allow

bicycles to achieve road grade and cross the road where both trail users and vehicle drivers have a clear line of sight. 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 crosses Lake James Road twice in this planning section. The first crossing is located south of the planned trailhead. The second Lake James Road crossing occurs as the trail leaves the OVNHT trailhead to connect to Black Bear Boat Access.

The route also crosses Linville Road between the Lake James Road Trailhead and the OVNHT Trailhead. These crossings should include design measures to slow vehicular traffic and notify motorists of the trail crossing.

The trail crossing over Bailey Creek will require a significant bridge. A bridge will also be necessary to cross Dales Creek west of Linville Road.



PHOTOS:

(3) EXISTING NC WILDLIFE RESOURCES TRAILHEAD FOR THE OVNHT LOCATED ON LAKE JAMES ROAD. (4) ENHANCEMENTS CONSISTENT WITH OTHER NCDOT BRIDGES UTILIZED BY THE FFST, SUCH AS BRIDGEWATER, SHOULD BE APPLIED TO THE BEAR CREEK BRIDGE. THESE INCLUDE: CHANGE IN PAVEMENT COLOR, RAILING, AND USE OF THE FFST LOGO



SECTION 1 FONTA FLORA BREWERY >> BLACK BEAR BOAT ACCESS

PISGAH NATIONAL FOREST

LAKE JAMES



PLANNED BRIDGE CROSSING

PARKING AND TRAILHEAD FOR OVNHT

BLACK BEAR CAMPGROUND

BLACK BEAR BOAT ACCESS/
FONTA FLORA AND OVNHT SHARED TRAILHEAD

POCKET PARK

FONTA FLORA BREWERY/
SHARED TRAILHEAD WITH OVNHT

LAKE JAMES STATE PARK

FIELD NOTES

TRAILS	TRAIL FEATURES
PREFERRED TRAIL ROUTE	PLANNED TRAILHEAD
COMPLETED FFST	FEDERAL LAND
FFST ON PROPOSED LOCAL TRAIL	DUKE ENERGY PROPERTY
PROPOSED FFST ON EXISTING LOCAL TRAIL	STATE LAND
EXISTING LOCAL TRAIL	PARCELS OF INTEREST
HISTORIC OVNHT ROUTE	FLOOD PLAIN
ALTERNATE TRAIL ROUTE	

0 1/16 1/8 1/4 MI.





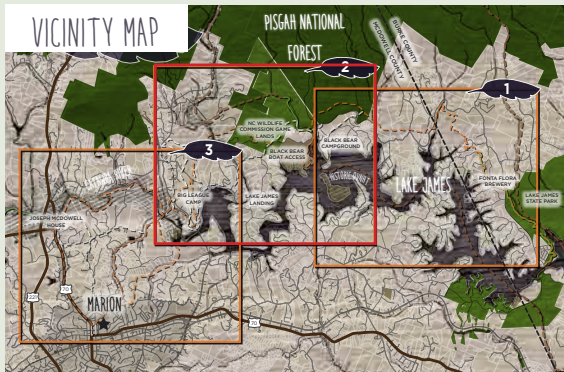
EXISTING

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.



SECTION 2 BLACK BEAR BOAT ACCESS >> BIG LEAGUE CAMP



BLACK BEAR BOAT ACCESS >> BIG LEAGUE CAMP

TOTAL LENGTH: 6.0 MILES

TRAIL TYPE: DUAL-USE TRAIL

ESTIMATED COST: \$2,456,580

POINTS OF INTEREST: BLACK BEAR BOAT ACCESS
PISGAH GAME LAND
BIG LEAGUE CAMP

PROPOSED TRAILS

This planning section extends six (6) miles from Black Bear Boat Access to Big League Camp.

The preferred route extends through Duke Energy's Black Bear Boat Access property. The route will connect to a planned internal trail system and new amenities to be designed and developed by McDowell County and Duke in the near future.

The trail enters the Pisgah Game Lands and crosses Lake James Road to connect to an NC WRC trailhead on the north side of the road. The route then utilizes a former access road that extends northwest through the game lands for approximately one mile.

The route exits the game lands and continues west across the North Fork of the Catawba River. After crossing the river, the trail turns south and extends through large, forested tracts to Hankins Road at the north end of Big League Camp, a baseball and softball training facility that includes log cabin lodging. Two preferred routes are suggested through Big League Camp to allow for a direct connection to the camp's main facilities or a more secluded route through the upper section of the property. Both preferred routes will cross an active section of the former Clinchfield rail line that is operated by CSX. The trail then extends west through the floodplain to the Catawba River and Yancey Road Bridge.

An alternate route extends from the OVNHT trailhead and utilizes the existing OVNHT before turning southwest to a NC WRC trailhead. The CSX rail-line provides an alternative if the opportunity for a rail-trail or rail-with-trail becomes available in the future.

TRAIL FEATURES

Trailheads

Three (3) trailheads are proposed within this planning section. The first trailhead is proposed at Black Bear Boat Access adjacent to the existing upper boat-trailer parking lot. See Exhibits 2 and 3 for details on the proposed and planned improvements to this site. The second trailhead is located at an existing NC WRC trailhead that provides access to Pisgah Game Lands on the north side of Lake James Road. The western-most trailhead is proposed on Hankins Road at the northern end of the Big League Camp property near the Hankins Northfork Volunteer Fire Department.

Crossings

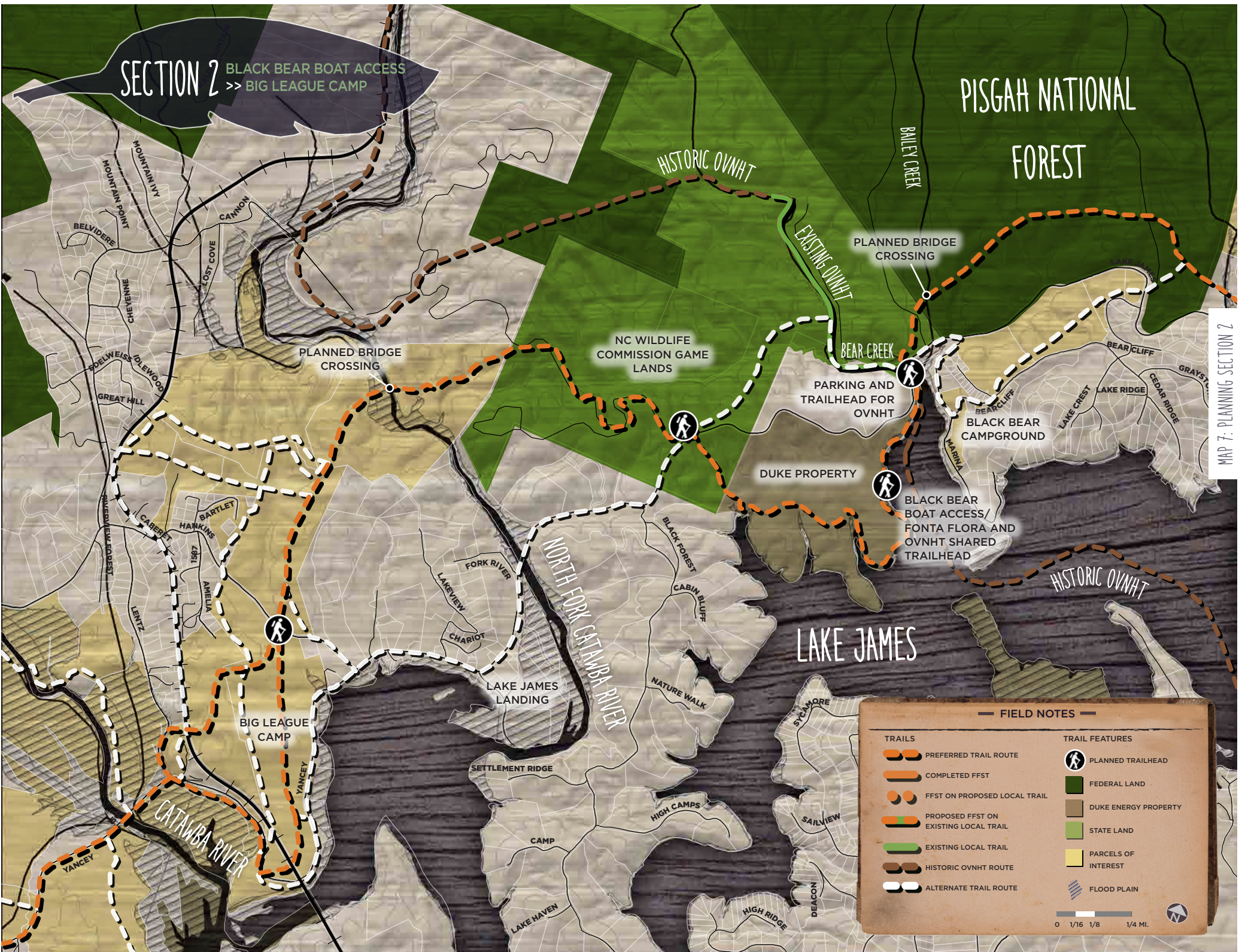
The preferred trail route will require three (3) road crossings, one (1) rail crossing, and one (1) major bridge.

The first road crossing is located at Lake James Road as the trail connects to an existing Pisgah Game Lands trailhead. The second road crossing is at Hankins Road. The northern preferred location for crossing the CSX rail line could allow for a trail bridge spanning from ridge to ridge over the railroad corridor. The southern preferred crossing location should be evaluated for the feasibility of a tunnel underpass for the trail. After crossing the rail line, the western preferred route crosses Lentz Rd while the eastern route crosses Yancey Rd.

A bridge is planned for the trail crossing over the North Fork of the Catawba River.

SECTION 2 BLACK BEAR BOAT ACCESS >> BIG LEAGUE CAMP

PISGAH NATIONAL FOREST



MAP 7: PLANNING SECTION 2

FIELD NOTES

TRAILS	TRAIL FEATURES
PREFERRED TRAIL ROUTE	PLANNED TRAILHEAD
COMPLETED FFST	FEDERAL LAND
FFST ON PROPOSED LOCAL TRAIL	DUKE ENERGY PROPERTY
PROPOSED FFST ON EXISTING LOCAL TRAIL	STATE LAND
EXISTING LOCAL TRAIL	PARCELS OF INTEREST
HISTORIC OVNHT ROUTE	FLOOD PLAIN
ALTERNATE TRAIL ROUTE	

0 1/16 1/8 1/4 MI.

LEGEND

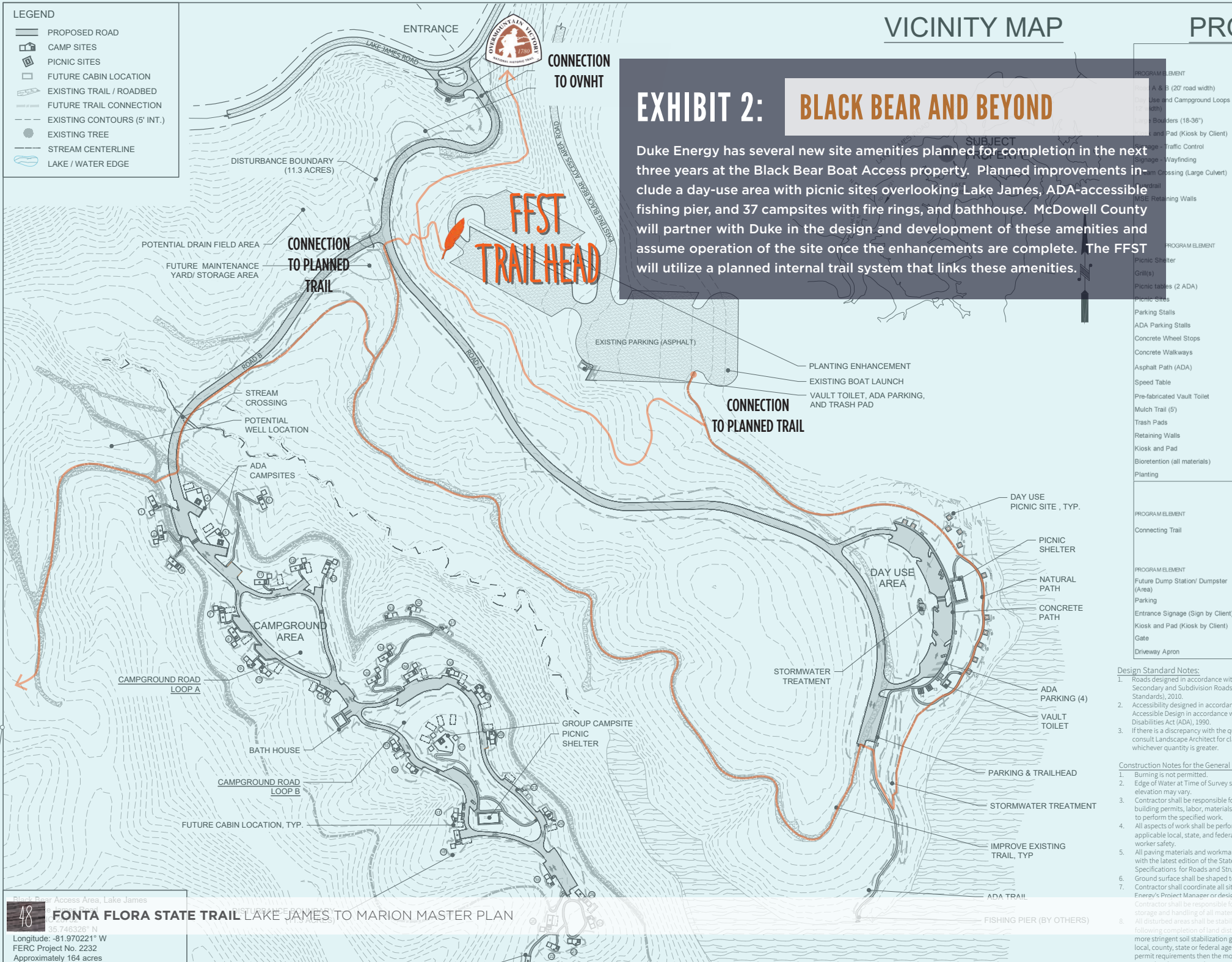
- PROPOSED ROAD
- CAMP SITES
- PICNIC SITES
- FUTURE CABIN LOCATION
- EXISTING TRAIL / ROADBED
- FUTURE TRAIL CONNECTION
- EXISTING CONTOURS (5' INT.)
- EXISTING TREE
- STREAM CENTERLINE
- LAKE / WATER EDGE

VICINITY MAP

PRO

EXHIBIT 2: BLACK BEAR AND BEYOND

Duke Energy has several new site amenities planned for completion in the next three years at the Black Bear Boat Access property. Planned improvements include a day-use area with picnic sites overlooking Lake James, ADA-accessible fishing pier, and 37 campsites with fire rings, and bathhouse. McDowell County will partner with Duke in the design and development of these amenities and assume operation of the site once the enhancements are complete. The FFST will utilize a planned internal trail system that links these amenities.



- PROGRAM ELEMENT**
- Loop A & B (20' road width)
 - Use and Campground Loops (10' width)
 - Boilers (18-36")
 - and Pad (Kiosk by Client)
 - Signage / Traffic Control
 - Signage / Wayfinding
 - Stream Crossing (Large Culvert)
 - Driveway
 - MSE Retaining Walls
- PROGRAM ELEMENT**
- Picnic Shelter
 - Grill(s)
 - Picnic tables (2 ADA)
 - Picnic Sites
 - Parking Stalls
 - ADA Parking Stalls
 - Concrete Wheel Stops
 - Concrete Walkways
 - Asphalt Path (ADA)
 - Speed Table
 - Pre-fabricated Vault Toilet
 - Mulch Trail (5')
 - Trash Pads
 - Retaining Walls
 - Kiosk and Pad
 - Bioretention (all materials)
 - Planting
- PROGRAM ELEMENT**
- Connecting Trail
- PROGRAM ELEMENT**
- Future Dump Station/ Dumpster (Area)
 - Parking
 - Entrance Signage (Sign by Client)
 - Kiosk and Pad (Kiosk by Client)
 - Gate
 - Driveway Apron

- Design Standard Notes:**
1. Roads designed in accordance with Secondary and Subdivision Roads (Standards), 2010.
 2. Accessibility designed in accordance with Accessible Design in accordance with Disabilities Act (ADA), 1990.
 3. If there is a discrepancy with the quantity of materials, the contractor shall consult Landscape Architect for clarification whichever quantity is greater.
- Construction Notes for the General Contractor:**
1. Burning is not permitted.
 2. Edge of Water at Time of Survey shall be used for all elevations unless otherwise noted. Elevation may vary.
 3. Contractor shall be responsible for obtaining all necessary permits, labor, materials, and equipment to perform the specified work.
 4. All aspects of work shall be performed in accordance with applicable local, state, and federal safety regulations.
 5. All paving materials and workmanship shall be in accordance with the latest edition of the State's Specifications for Roads and Structures.
 6. Ground surface shall be shaped to provide proper drainage.
 7. Contractor shall coordinate all site work with the Project Manager or design professional.
 8. All disturbed areas shall be stabilized and revegetated in accordance with the latest edition of the State's Specifications for Roads and Structures. Contractor shall be responsible for obtaining all necessary permits, labor, materials, and equipment to perform the specified work.

Black Bear Access Area, Lake James

48 FONTA FLORA STATE TRAIL LAKE JAMES TO MARION MASTER PLAN

35.748326° N
 Longitude: -81.970221° W
 FERC Project No. 2232
 Approximately 164 acres
 Total area: 11.3 acres

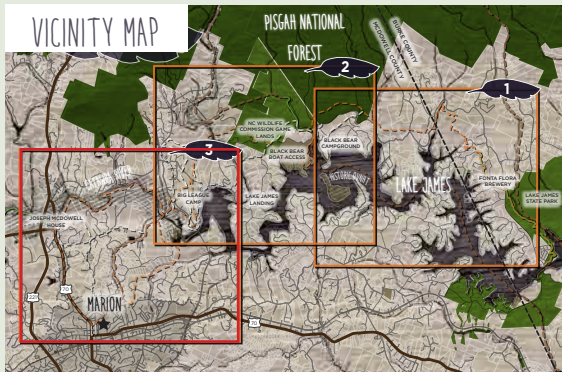


EXHIBIT 3: FFST TRAILHEAD @ BLACK BEAR

A trailhead with new parking spaces designated for the FFST is proposed adjacent to the existing upper boat-trailer parking lot. The FFST trailhead and route through the property are subject to approval by the Federal Energy Regulatory Commission which oversees site improvements and programming for Duke Energy property. Duke has expressed support for the FFST and trailhead at Black Bear.



SECTION 3 BIG LEAGUE CAMP >> MCDOWELL HOUSE



BIG LEAGUE CAMP >> MCDOWELL HOUSE

TOTAL LENGTH: 11.5 MILES

TRAIL TYPE: NCDOT SIDEPATH
DUAL-USE TRAIL
TOWN SIDEPATH
TYPICAL GREENWAY

ESTIMATED COST: \$3,435,580

POINTS OF INTEREST: DOWNTOWN MARION
MCDOWELL HOUSE
CATAWBA RIVER GREENWAY

PROPOSED TRAILS

This planning section presents three options for preferred routes that extend from Big League Camp to the McDowell House at the Catawba River Greenway.

The northern preferred route extends north as a dual-use path on the east side of the Catawba River for a half mile before turning west to cross the river. The trail continues west on the south side of the river for approximately 2.75 miles through agricultural land then transitions to a typical greenway before crossing a Catawba River tributary. The route then crosses Hwy. 70 and extends 700 feet to connect to the Joseph McDowell Catawba River Greenway.

The central preferred route crosses the Catawba River and extends as a sidepath along Yancey Road for approximately 2.2 miles to existing sidewalk in Marion. The existing sidewalk can be converted to a town sidepath that can accommodate both pedestrians and cyclists.

The eastern preferred route crosses the Catawba River and extends south and west as a dual-use trail for three miles through forested tracts of land, including property owned by the City of Marion. The trail transitions to a town sidepath on the south side of Robert Street, adjacent to Marion Elementary School, then turns west to Fleming Avenue. At Fleming, the preferred route will continue south on the east side of the road to Garden Street. Applying a “road diet” to Fleming Ave. narrows the vehicle travel lanes to provide for the trail as a concrete town sidepath. See Exhibit 4: Bringing

the Fonta Flora to Fleming. Additionally, the City of Marion should partner with McDowell County Schools and Marion Elementary stakeholders to develop a circulation plan for the school that will provide for the FFST while also facilitating a safe and efficient flow of traffic in and around the site.

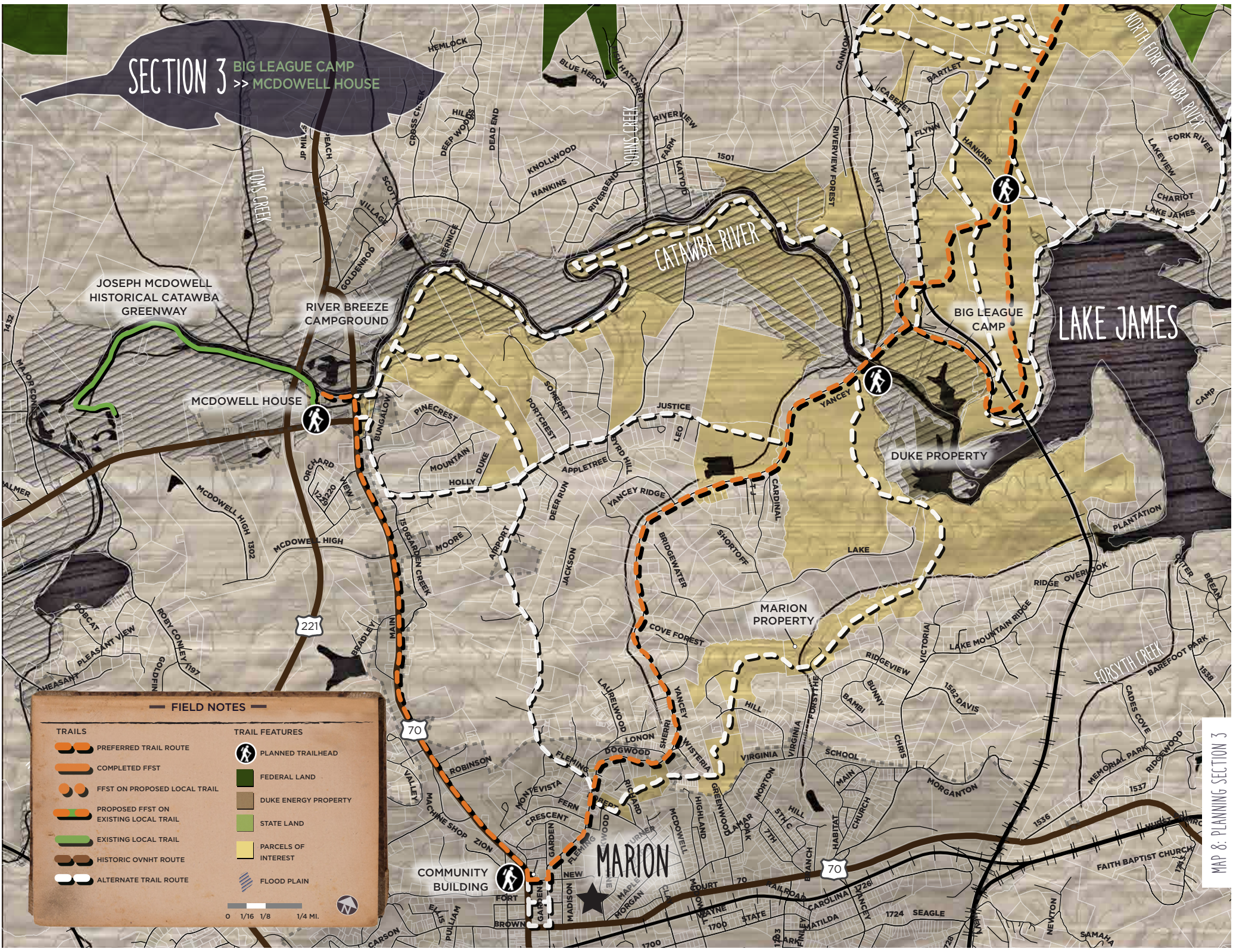
The preferred route will cross Garden Street and continue on the west side of the road, taking advantage of the wide, flat shoulder. The trail will then cross to the south side of New Street and continue west for one block to N. Main Street; The existing sidewalk on the south side of New Street should be expanded to an 8ft.-town sidepath to accommodate the trail.

The preferred route crosses to the west side of N. Main Street and connects to the Marion Community Building and park. The trail continues north on Main Street. The existing sidewalk and grass verge can be expanded to a multi-use town sidepath that extends for approximately 450 feet.

At the end of the existing sidewalk, the trail transitions to an NCDOT multi-use sidepath that continues for two miles on the west side of N. Main St. to the Catawba River. The Isothermal Bicycle Plan, completed in 2018, recommends a road diet for this section of N. Main Street. According to the plan, approximately 12ft. of the 64-66ft. wide roadway can be converted to provide for a multi-use sidepath with at least a 3ft. wide physical buffer from vehicle lanes. At the Catawba River, the trail turns east and transitions to a greenway to connect to Marion’s existing greenway.

SECTION 3

BIG LEAGUE CAMP
MCDOWELL HOUSE



FIELD NOTES

TRAILS		TRAIL FEATURES	
	PREFERRED TRAIL ROUTE		PLANNED TRAILHEAD
	COMPLETED FFST		FEDERAL LAND
	FFST ON PROPOSED LOCAL TRAIL		DUKE ENERGY PROPERTY
	PROPOSED FFST ON EXISTING LOCAL TRAIL		STATE LAND
	EXISTING LOCAL TRAIL		PARCELS OF INTEREST
	HISTORIC OVNHT ROUTE		FLOOD PLAIN
	ALTERNATE TRAIL ROUTE		

0 1/16 1/8 1/4 MI.

TRAIL FEATURES

Trailheads

This planning section includes three (3) trailheads. The eastern-most trailhead is proposed adjacent to Yancey Road near the Catawba River bridge. The trailhead could be constructed on either the southeast or northwest side of the Catawba River and Yancey Road, depending on the preferred route that is ultimately to be constructed. The Marion Community Building and existing parking lot is proposed as a centrally-located trailhead in downtown Marion. The existing Catawba River Greenway trailhead at the historic McDowell House serves as the western trailhead and terminus of this study area.



Crossings

There are three (3) significant road crossings and three (3) major bridges in this planning section. The trail will cross N. Main Street at an existing crosswalk that extends from the south side of New Street in downtown Marion.

As the route extends north from downtown Marion towards the Catawba River, it will cross U.S. Highway 70. This crossing is located at a busy three-way intersection. A signalized crossing will be necessary to facilitate safe passage for trail users.

The northern preferred route along the Catawba River will cross U.S. Highway 221 Business to connect to Marion's existing greenway. Upon initial visual inspection, steep slopes along the river and lack of adequate vertical clearance do not allow for a trail under pass at the Catawba River bridge. Stop signs for trail-users and pedestrian-activated beacons and should be considered to provide for a surface-crossing south of the Catawba River bridge. Other road crossings include Robert St., Fleming Avenue, Garden St., New St., Logan St., McDowell High School Road, and Peachtree St. as well as several driveway crossings on the west side of North Main Street. Installation of a stop sign for southbound traffic on Garden Street is recommended north of the Fleming Ave. intersection and trail crossing.



The northern preferred route will require two major bridges. A major bridge will be required to cross the Catawba River as the trail continues west. A second bridge will be necessary to cross a tributary of the Catawba River located approximately 250ft. east of Highway 221 Business.

The southern preferred routes will both cross the Catawba River near Yancey Road. The existing Yancey Road bridge deck does not have sufficient width to provide for the trail and would have to be widened to safely accommodate a sidepath. Currently, NCDOT does not have plans to replace this bridge. Alternately, a separate bridge for the trail could be constructed across the river.



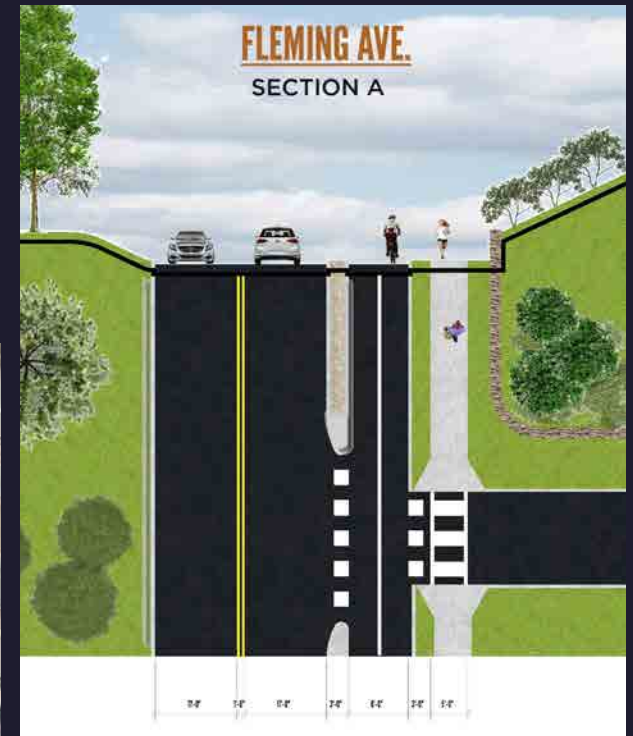
PHOTOS:

(5) MARION COMMUNITY BUILDING AND PARK PROVIDES OPPORTUNITY FOR DOWNTOWN TRAILHEAD. (6) THE HISTORIC MCDOWELL HOUSE SERVES AS A TRAIL HEAD FOR MARION'S EXISTING GREENWAY. (7) NARROW DECK ON THE YANCEY ROAD BRIDGE LIMITS ABILITY TO DEVELOP A TRAIL SIDEPATH.

EXHIBIT 4:

BRINGING THE FONTA FLORA TO FLEMING

A “road diet” on the east side of Fleming Avenue provides for the FFST as a concrete multi-use town sidepath. Fleming Avenue has sufficient pavement width to expand the existing sidewalk to an 8-10ft. wide path while maintaining 11 ft. wide lanes for vehicles.



9

DOWNTOWN MARION

EXHIBIT 5: ISOTHERMAL REGIONAL BICYCLE PLAN

Length: 2 miles

- City of Marion
- McDowell County

The Isothermal Regional Bicycle Plan, prepared for the Isothermal Planning & Development Commission, outlines the need for alternative transportation infrastructure to connect the downtown area to existing and proposed greenways near the McDowell House. This existing regional plan and the FFST provide unique connectivity opportunities that may bolster additional regional support.

- Businesses in north Marion
- Fonta Flora State Trail

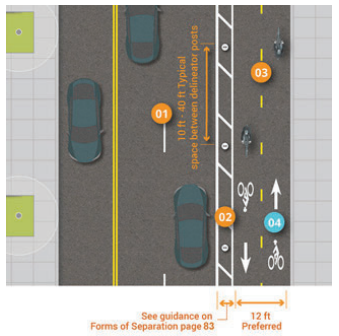
Estimated Construction Costs:

- \$ 560,000

Support in Other Plans:

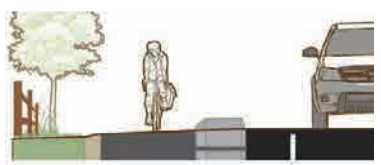
- Marion Bicycle Plan (2016)
- Isothermal Planning & Development Commission Trails Map (2014)
- Fonta Flora State Trail Master Plan (Ongoing)

DESIGN OPTIONS & CONSIDERATIONS



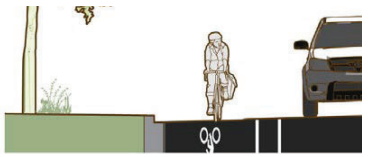
Physically Separated (Two-Way Cycle Track)
Example (used for cost estimate)

For design options and further detail, please see the Separated Bike Lane Planning and Design Guide at - https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page07.cfm#chapter5_dir.



Physically Separated Example

Several configurations are possible to create physical separation from automobile traffic. These options should be explored during the design phase. See example graphics to the left from the Small Town and Rural Multimodal Network Design Guide. Further detail can be found at - <http://ruralsdesignguide.com/physically-separated/separated-bike-lane>.



Visually Separated Example

While less ideal, construction of a bicycle lane with a painted buffer rather than a physical buffer can be a significant improvement for bicycle and motorist safety and comfort, while still reserving space for constructing a physical buffer in the future. Further detail regarding visually separated bike lanes can be found in the Small Town and Rural Multimodal Network Design Guide at <http://ruralsdesignguide.com/visually-separated/bike-lane>.

9

DOWNTOWN MARION TO CATAWBA RIVER GREENWAY - SEPARATED BICYCLE LANES

Finish the critical link to the Catawba River Greenway trailhead with a short shared use path.

North Main Street, from Viewpoint Drive to US 70 is a five-lane road with 64'-66' pavement width. Physical separation for bicyclists from automobile traffic is recommended, due to traffic volumes that are between 14,000 and 16,000 AADT with a 35-45 mph speed limit.

Improvements to this section should be further analyzed as part of a detailed corridor study, because of the pattern of development, number of businesses, driveway frequencies, and lack of shade trees along this roadway section.

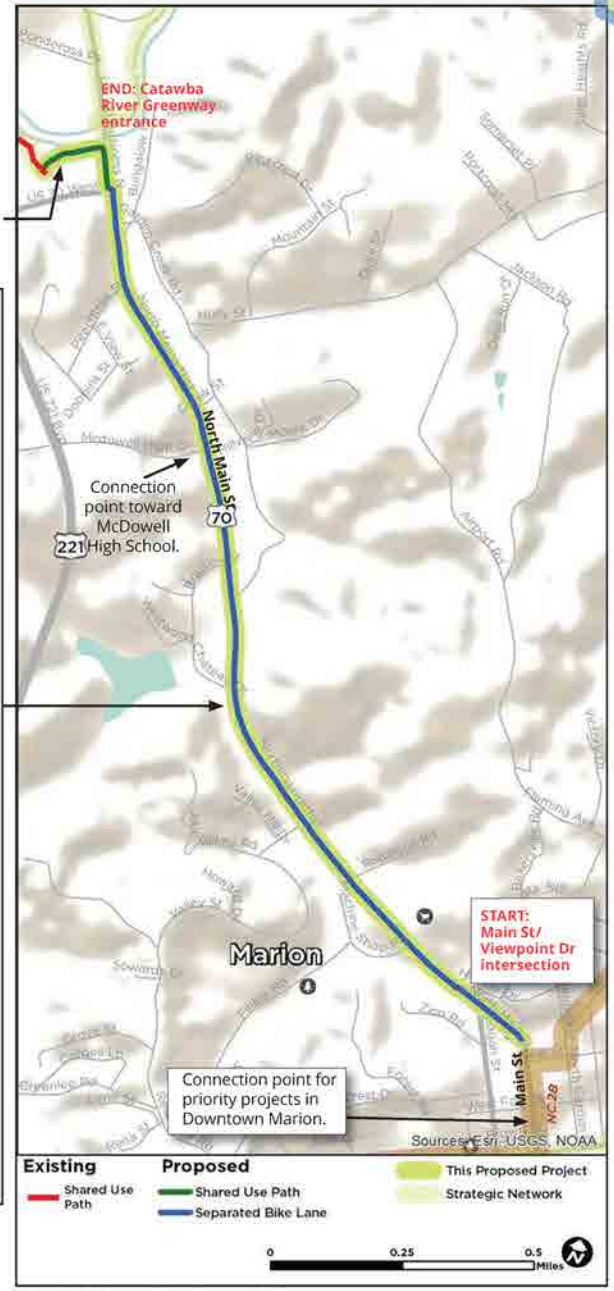
One alternative is to utilize the extra pavement width by constructing a two-way cycle track on the west side of the road, allowing 12'-14' for the cycle track operating space and buffer space, and 52'-54' feet for the five lanes of automobile travel. Additional buffer space is recommended and could be created by reconfiguring the roadway space from 5-lanes to 4.

Another option could include reconfiguring roadway space from 5-lanes to 4 or 3 lanes - this would allow for physically separated bike lanes on both sides of the street.

For either option, access management of driveways is recommended, due to the driveway frequency on the west side of the road.

Due to the speed and volume of traffic, a wide physical buffer space (3'-6') is recommended along with a vertical barrier to make this corridor significantly more comfortable for all users.

Note: This section should be considered as part of the Fonta Flora State Trail (Fonta Flora State Trail corridor study from Burke County to Marion underway at the time of this writing).



1. See Small Town and Rural Multimodal Network Design Guide, ruralsdesignguide.com



IMPLEMENTATION

THE CORE PURPOSE OF THIS CHAPTER IS TO HIGHLIGHT THE THREE (3) IMPLEMENTATION SECTIONS, INCLUDING THE MAJOR STEPS NECESSARY FOR COMPLETING THE TRAIL. THIS CHAPTER POSITIONS FFST AND OVNHT STAKEHOLDERS FOR ACTION.

• Burke County and the City of Marion will initially serve as lead agencies to manage the development of the FFST, but must work in partnership with McDowell County, the NC Division of State Parks, the National Park Service, Duke Energy, community stakeholders, and landowners to plan, construct, and maintain the trail across jurisdictional boundaries.

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 Fonta Flora Brewery to Black Bear Boat Access	6.0	Securing Landowner Trail Easements; Bailey Creek Bridge; Lake James Road Crossing and NCDOT sidepath to Bear Creek Bridge.	\$362,530.00	Burke County, McDowell County, NPS
SECTION 2 Black Bear Boat Access to Big League Camp	6.0	Securing Landowner Trail Easements; North Fork Catawba River Bridge; CSX Railroad crossing	\$2,456,580.00	McDowell County
SECTION 3 Big League Camp to Joseph McDowell House	11.5	Catawba River Bridge; Hwy. 70 Crossing; Securing Landowner Trail Easements	\$3,435,380.00	City of Marion; McDowell County
ALL SECTIONS TOTAL	23.5		\$6,254,490.00	

* 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, Marion, McDowell County, and their partners 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 in Planning Sections 1 and 3. 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 are imminent. At this point significant momentum and synergy would propel forward the completion of the FFST from Lake James to Marion.

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 Marion becomes imminent.

1. FONTA FLORA BREWERY TO BLACK BEAR



2. DOWNTOWN MARION TO MCDOWELL HOUSE



TRAIL RUBICON

PRIORITY IMPLEMENTATION AREAS AND RESPONSIBILITIES

IMPLEMENTING AGENCY	PRIORITY ONE	PRIORITY TWO
Burke County	Section 1: Re-design of OVNHT at Hwy. 126 and Hwy. 126 crossing	Section :1 Pocket Park to Lake James Road Trailhead
City of Marion	Section 3: N. Main Street road diet and multi-use side path from downtown to existing greenway	Section 3: Fleming Ave. road diet and multi-use town sidepath
McDowell County	Section 2: OVNHT Trailhead to Black Bear Boat Access	Section 1: Lake James Road Trailhead in Burke to OVNHT Trailhead at Pisgah Game Lands

TRAIL IMPLEMENTATION

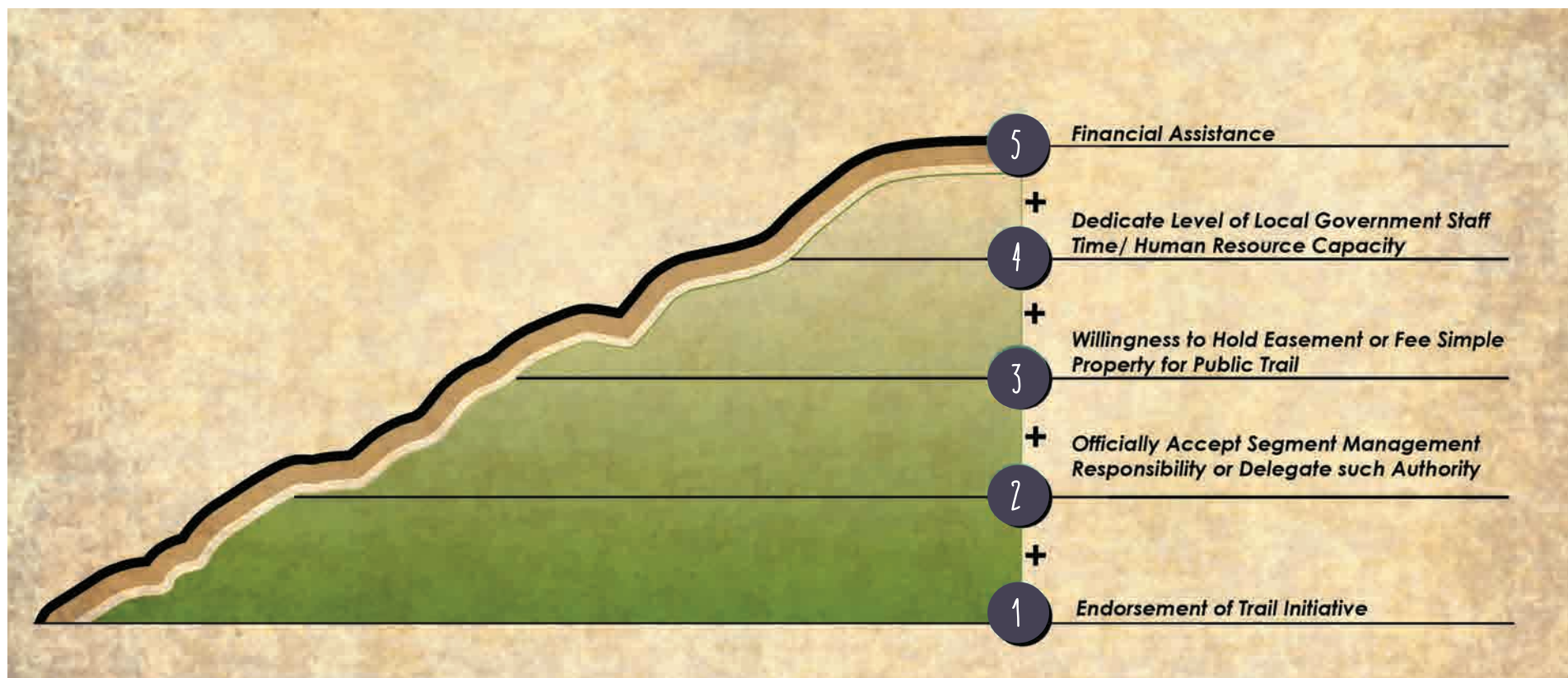
Creating a destination-quality trail system requires a significant commitment from local governments, including staff time, the holding of land and trail easements, and the dedication of local funding.

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 and Marion should 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. Local government partners 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 FFST lead agencies.

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 to the FFST comes directly from Duke Energy, as a result of the Comprehensive Relicensing Agreements (CRA) for the Catawba-Wataree 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. These funds will implement trail segments within the Lake James Planning Section of the FFST.

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, the City of Marion, McDowell County, and others to contribute financial resources to this project. A conservative estimate to construct the entire FFST and its associated trailheads from NC 126 in Burke County (Fonta Flora Brewery) to Marion is approximately \$6.25 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 annual budgets of Burke County, Marion, and McDowell County. 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.

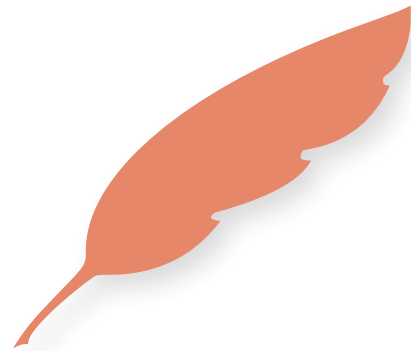
LEVERAGING FUNDS RELATED TO OTHER COMMUNITY GOALS

Lead trail agencies 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, Marion, and McDowell 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 Assistance 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 BLACK BEAR BOAT ACCESS	UNITS (LF)	UNIT COST	TOTAL COST
Dual Use Trail (5ft. Natural Surface)	25,855	\$6	\$ 155,130.00
NCDOT Sidepath (8ft. Paved Path)	545	\$120	\$ 65,400.00
Major Road Crossings	4	\$5,500	\$ 22,000.00
Major Bridge (Bailey Creek)	1	\$90,000	\$ 90,000.00
Bear Creek Bridge Enhancements	1	\$30,000	\$ 30,000.00
Total Section Cost			\$ 362,530.00
SECTION 2- BLACK BEAR BOAT ACCESS TO BIG LEAGUE CAMP	UNITS	UNIT COST	TOTAL COST
Dual Use Trail (5ft. Natural Surface)	31,680	\$6	\$ 190,080.00
Major Road Crossings	3	\$5,500	\$ 16,500.00
Major Bridge (North Fork Catawba River)	1	\$500,000	\$ 500,000.00
Rail Crossing (Bridge/Overpass Option)	1	\$750,000	\$ 750,000.00
Rail Crossing (Tunnel Option)	1	\$1,000,000	\$ 1,000,000.00
Total Section Cost			\$ 2,456,580.00
SECTION 3- BIG LEAGUE CAMP TO JOSEPH MCDOWELL HOUSE	UNITS	UNIT COST	TOTAL COST
Dual Use Trail (5ft. Natural Surface)	34,980	\$6	\$ 209,880.00
NCDOT Sidepath (8ft. paved path on Yancey Rd.)	11,616	\$120	\$ 1,393,920.00
NCDOT Sidepath (12ft. Paved Path w/3ft. physical buffer on N. Main St.)	10,560	\$53	\$ 560,000
Town Sidepath (8-10ft. Concrete on Yancey, Fleming, Garden, New, N. Main)	3900	\$90	\$ 351,000
Typical Greenway (10ft. Paved Path)	712	\$90	\$ 64,080.00
Major Road Crossings	3	\$5,500	\$ 16,500.00
Major Bridges (Catawba River)	2	\$750,000	\$ 750,000.00
Major Bridge (Catawba River Tributary)	1	\$90,000	\$ 90,000.00
Total Section Cost			\$ 3,435,380.00
TOTAL			\$ 6,254,490.00

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

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

* Includes all preferred routes.



(A-2) FUNDING SOURCES

PARTNERSHIP FUNDING AGENCY	ACTIVE LIVING/ BUILT- ENVIRONMENT IMPLICATIONS	MAXIMUM AMOUNT	MATCHING FUNDS REQUIRED	DEADLINE
BUILD	Construction, provided easements are secured	N/A (min. \$1 million)	\$0 (for rural counties)	May (typical)
Clean Water Management Trust Fund (www.cwmtf.net)	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
NC Water Resources (www.ncwater.org)	River access areas or greenways along rivers	N/A	50%	January 1st and June 1st
Recreation Trails Program (ncparks.gov/About/grants/main.php)	All types of trails and greenways	\$100,000.00	25%	February 1st
Parks and Recreation Trust Fund (ncparks.gov/About/grants/main.php)	All types of parks, trails, and recreation facilities	\$500,000.00	50%	February 1st
Bikes Belong Foundation	Trails and Greenways	\$10,000.00	20%	May 24th
NCDOT Transportation Plan For Bike and Pedestrian Projects	Bike and Pedestrian Projects- both engineering and construction	N/A (for major projects)	20% generally	N/A



