



Fonta Flora State Trail

Black Mountain to Point Lookout Trail Feasibility Study
(Buncombe and McDowell Counties, NC)



November 2025

FONTA FLORA STATE TRAIL

Black Mountain to Point Lookout Trail Feasibility Study (*Buncombe and McDowell Counties, NC*)

November 2025



Fonta Flora State Trail
Black Mountain to Point Lookout Trail
Feasibility Study
(Buncombe and McDowell Counties, NC)

Prepared for:
Friends of the Fonta Flora State Trail
PO Box 698
Marion, NC 28752

Prepared by:
Kittelson & Associates, Inc.
702 Oberlin Road, Suite 410
Raleigh, NC 27605
919.926.1291

Project Manager:
Liz Byrom, PhD, PE
Senior Engineer

Project Principal:
Scott Curry, AICP, CNU-A
Associate Planner

November 2025



Thank you to our community champions on the Fonta Flora Paved Trail Feasibility Study Steering Committee and project team for their participation and support of this study. Your contributions to this project were invaluable, and they will play a key role in achieving the vision for this segment of the Fonta Flora State Trail.

**Fonta Flora State Trail
Black Mountain to Point Lookout Trail Feasibility Study – Project Management Team**

Michael Stafford | NCDOT Integrated Mobility Division

Hart Evans | NCDOT Integrated Mobility Division

Shelley McKechnie | Friends of the Fonta Flora State Trail

Angela Duff | Friends of the Fonta Flora State Trail

Julia Weatherford | Friends of the Fonta Flora State Trail

Chloe Donohoe | Buncombe County

Heather Cotton | City of Marion

CONTENTS

- Executive Summary..... 1
- Introduction.....4
- Existing Conditions5
 - Planning-Level Considerations6
 - Natural Environment Considerations 26
 - Human Environment Considerations 29
 - Previous Plan Review 33
 - Field Review..... 36
 - Key Takeaways..... 37
- Stakeholder and Public Outreach 38
 - Steering Committee 38
 - Public Engagement..... 40
- Alternatives & Evaluation..... 42
 - Alignment Alternatives Evaluation 43
- Recommendations 48
 - Primary Alignment 48
 - Secondary Recommendations 52
 - Concept Plan 54
 - Trailheads 54
 - Trail Amenities..... 54
- Next Steps for Implementation 56
 - Action Plan..... 56
 - Funding 60
 - Partnering..... 61
- Conclusion..... 63

Executive Summary

This feasibility study examined a proposed segment of the Fonta Flora State Trail connecting the Town of Black Mountain to the existing Point Lookout Trail. This roughly 2.7-mile segment of the Fonta Flora State Trail will connect to previously planned segments of the trail within the Town of Black Mountain, adjacent neighborhoods, and other key destinations. This study was conducted through a partnership of the Friends of the Fonta Flora State Trail, local agencies (Buncombe County, McDowell County, and the Town of Black Mountain), and the North Carolina Department of Transportation (NCDOT) Integrated Mobility Division (IMD). The study was informed through close collaboration with a Steering Committee comprised of local trail advocates, regional public agencies, and multimodal experts.

The following vision statement was developed by the Steering Committee to guide the feasibility study.

The Fonta Flora State Trail will connect Lake James to Asheville. We envision this section as an economic and recreational asset that is safe, family-friendly, and usable for all ages/ abilities.

Once the vision statement was confirmed, key project goals were developed in partnership with the Steering Committee. These goals included:

GOALS FOR THE TRAIL	GOALS FOR THE STUDY
<ul style="list-style-type: none"> • Improve pedestrian and bicycle mobility. • Provide more opportunities for recreation. • Improve safety. 	<ul style="list-style-type: none"> • Identify a trail alignment that has broad support of agency partners and stakeholders. • Deliver materials to equip partners for the next phases of engineering design and construction.

An analysis of the study area’s existing transportation network, community characteristics, and environmental conditions was first conducted to understand the type of multimodal facilities that would best serve residents of Black Mountain, Buncombe County, and McDowell County. A key takeaway from this analysis was that a trail alignment along Old US Hwy 70 and Mill Creek Road provided the most direct connection between the Town of Black Mountain and Point Lookout Trail while also facilitating outdoor recreation opportunities. This alignment also supports access to residential areas north of I-40 along Old US Hwy 70, while providing opportunity for future access to residential properties south of I-40 along Yates Road.

Recommended Alignment

Several alternatives for the paved trail were identified and evaluated to determine a recommended alignment for this future segment of the Fonta Flora State Trail. A diagram illustrating the recommended alignment is included on the next page (**Figure 1**). This is supported by typical sections, recommended design standards, and an implementation strategy that can be found in the body of the report.

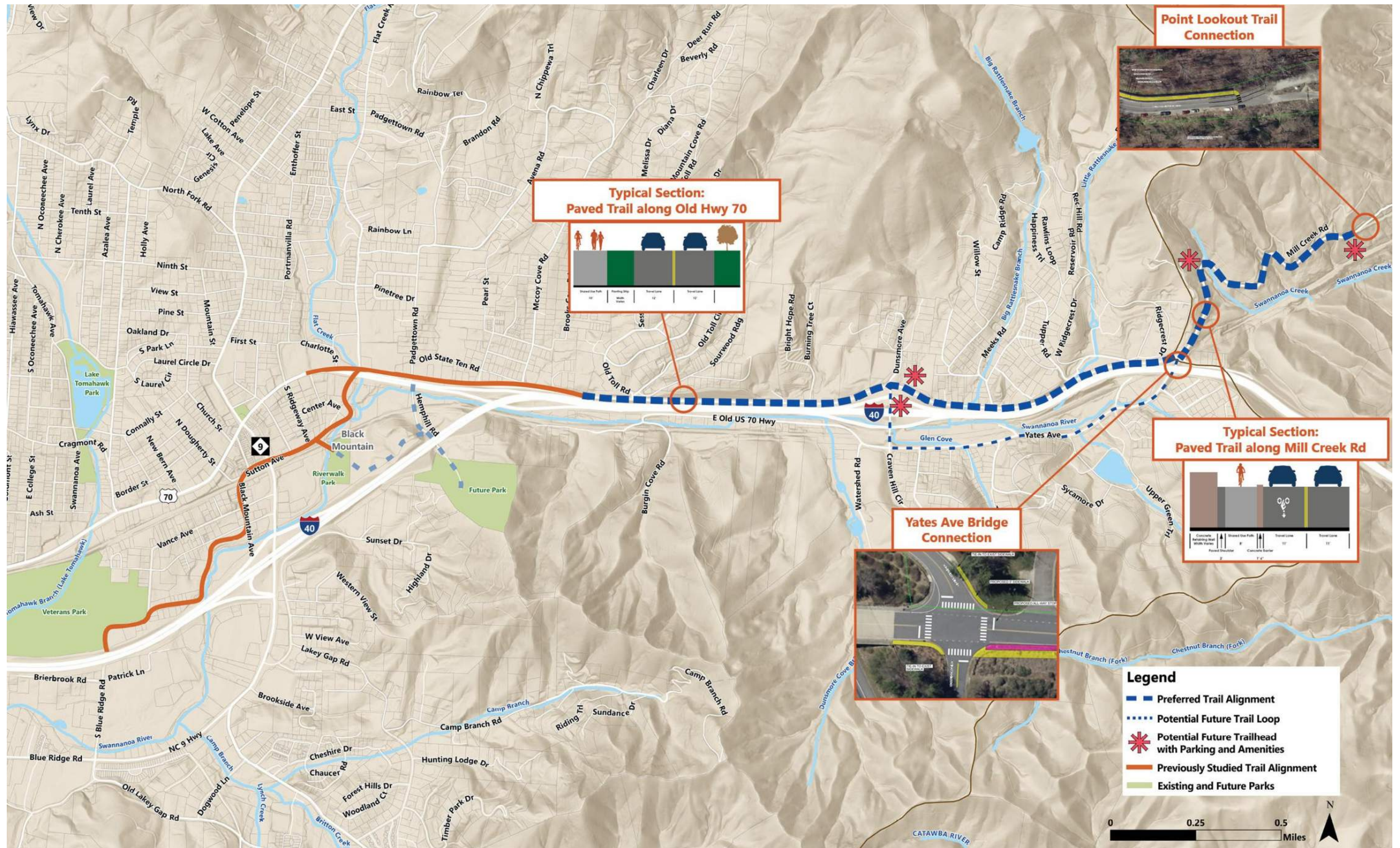


Figure 1. Fonta Flora State Trail – Black Mountain to Point Lookout Trail Recommended Alignment

This paved trail feasibility study is distinct from other, similar studies for 3 key reasons:

1. The Fonta Flora State Trail is a designated state trail;
2. The study was completed in the immediate aftermath of Hurricane Helene; and
3. There are unique considerations for planning/designing paved trails in the mountainous regions of western North Carolina.

Designated State Trails: The North Carolina General Assembly has authorized the creation of 15 State Trails throughout North Carolina. These are special trail corridors, distinguished from other regional and local trails by their statewide and cultural importance. Authorized in 2015, the Fonta Flora State Trail will be a 100-mile hiking and biking trail connecting Morganton to Asheville. The Fonta Flora State Trail is named after a local settlement of African American sharecroppers whose homes were flooded when the Catawba River was dammed to create Lake James. When complete, the trail will connect Lake James State Park, Pisgah National Forest, Fonta Flora County Park, the Overmountain Victory State Trail, the Mountains-to-Sea State Trail, and the communities of Morganton, Marion, Old Fort, Black Mountain, and Asheville. (*NC Trails. <https://trails.nc.gov/state-trails/fonta-flora-state-trail>*)

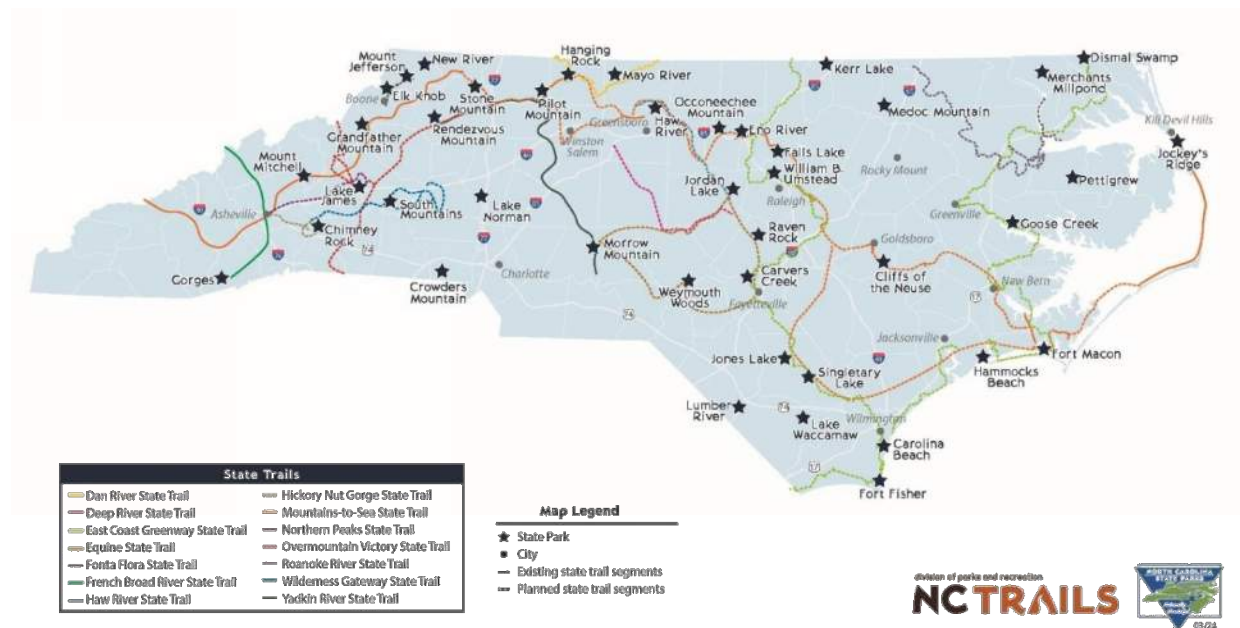


Figure 2. The NC State Trails System, including the 100-mile, Fonta Flora State Trail (see the purple line in western North Carolina between Lake James and Asheville).

Source: NC Trails. <https://trails.nc.gov/state-trails>

Hurricane Helene: This feasibility study began in August 2024. On September 26 and 27, 2024 Hurricane Helene hit western North Carolina. This was a catastrophic and tragic event, with 2-day rainfall totals between 12 and 20 inches over a large swath of western North Carolina (*National Weather Service*). The resulting flooding caused significant loss of life and property damage. Within the limits of this feasibility study, flooding along the Swannanoa River damaged River Walk Park, numerous buildings, roads, bridges, and culverts. The feasibility study was paused for roughly 3 months after Hurricane Helene as agency partners shifted focus to emergency response and coordinating with federal, state, and nonprofit aid agencies.

When the Fonta Flora State Trail feasibility study began again, it began with recognition of two important considerations.

- First, the conditions and context for planning the Fonta Flora State Trail alignment through Black Mountain had changed. Ongoing recovery and reconstruction efforts, FEMA floodplain property buyouts, and shifting floodplain/floodway areas will need ongoing monitoring and will have implications for future trail design and construction.
- Second, greenways (paved trails) are a key part of resilient transportation systems that support multiple modes of travel and multiple routes for critical access.

The body of this report includes specific recommendations and action steps for advancing this section of the Fonta Flora State Trail amid a lengthy Hurricane Helene recovery and reconstruction effort.

Unique Considerations for Paved Trails in Western NC: In addition to the unique considerations from Hurricane Helene, planning and designing paved trails in the mountainous topography of western North Carolina involves other unique considerations. These include:

- Challenging stormwater, topography, and soils issues;
- The need for detailed geotechnical analysis/soils survey as a part of trail design;
- The need for more grading and structures (retaining walls, culverts, etc.)
- Unique construction challenges, like more complex plans for site access and maintenance of traffic; and
- Unique maintenance implications.

In evaluating potential trail alignments and facility types, the design team was thoughtful about these special considerations based on the best available information. However, further study, geotechnical survey, and detailed design engineering are necessary to fully calibrate these recommendations and refine the preliminary concept design.

Next Steps for Implementation

Next steps for implementing the Black Mountain to Point Lookout Trail segment of the Fonta Flora State Trail include:

1. Coordinate with ongoing infrastructure, development, and Hurricane Helene recovery projects.
2. Generate public support and build champions.
3. Adopt the paved trail network alignment and reflect it in local land use plans and development ordinances.
4. Pursue design funding.
5. Complete survey and geotechnical analysis.
6. Complete 25% design.
7. Develop a property acquisition and maintenance strategy.
8. Complete final (100%) design plans and specifications.
9. Pursue construction funding.
10. Maintain communication between jurisdictions.
11. Submit the completed trail segment for NC State Trails official designation.
12. Have a good succession plan.

Each of these steps is discussed in greater detail in the **Next Steps for Implementation** section of the report.



Figure 3. Community Members Express Support for the Fonta Flora State Trail

Introduction

The Fonta Flora State Trail is a visionary regional greenway that aims to connect Morganton to Asheville, traversing the scenic foothills of the Blue Ridge Mountains and the shoreline of Lake James. This feasibility study focuses on a roughly 2.7-mile segment of the trail within Buncombe County and McDowell County. The study evaluates opportunities to complete the Fonta Flora State Trail between the existing Point Lookout Trail (a signature segment of the Fonta Flora State Trail with sweeping views over Royal Gorge and the Catawba River Valley) and the town limits for the Town of Black Mountain (where previously completed plans have established a preferred trail alignment). The study also includes an evaluation of potential connections between River Walk Park and a future park property recently donated to the Town of Black Mountain. See **Figure 4** on the next page.

This feasibility study was carried out in a series of structured phases designed to guide the planning process from vision to implementation. The initial phase focused on establishing a shared vision and project goals through collaboration with a Steering Committee composed of local agency staff, trail advocates, and multimodal transportation experts. These goals emphasized enhancing pedestrian and bicycle mobility, expanding recreational access, and improving safety. Following this, the study team conducted a comprehensive analysis of the existing transportation network, environmental conditions, and planning considerations to identify viable trail alignments. This analysis led to the identification of Old US Hwy 70 and Mill Creek Road as the most promising corridor for connecting Black Mountain to the Point Lookout Trail, while also serving nearby residential areas.

Building on this foundation, the study evaluated multiple trail alternatives and developed a concept plan for the recommended alignment. This plan includes detailed design standards, typical cross-sections, and a phased implementation strategy. Final recommendations are grounded in both technical analysis and local stakeholder input, and they outline a clear path forward for building the trail.

Existing Conditions

This study began with an evaluation of existing conditions around the study limits shown in **Figure 4**. The study team developed maps illustrating the key existing demographic, land use, and transportation considerations within the study area. The maps found in the following sections include planning-level, natural environment, and human environment considerations.

The study team reviewed previous plans, including adjacent trail planning studies, such as the Ridgecrest Trail Connector and US 70/Swannanoa River Greenway Feasibility Study, to understand where gaps needed to be filled along the planned Fonta Flora State Trail alignment.

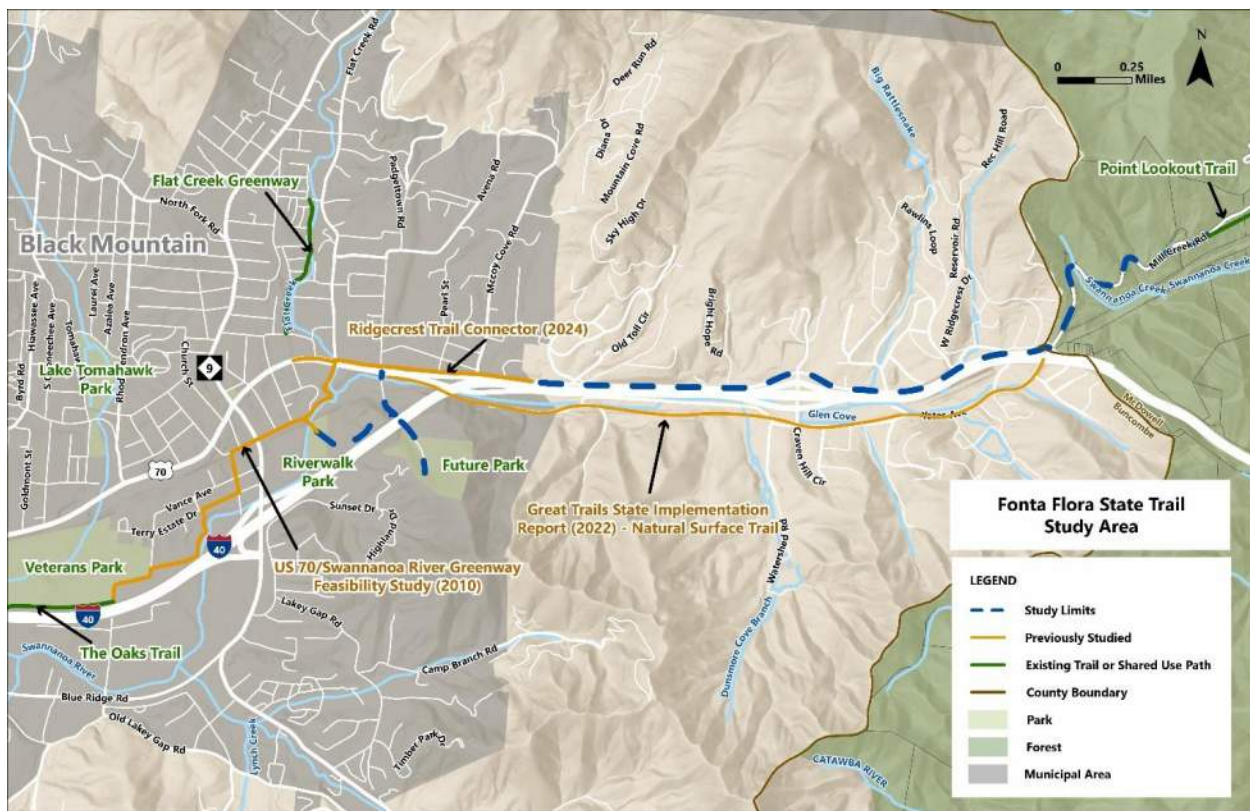


Figure 4. Fonta Flora State Paved Trail Feasibility Study Area

PLANNING-LEVEL CONSIDERATIONS

The evaluation of planning-level considerations reviewed key study area characteristics that might influence the recommended trail alignment and design. These characteristics include population distribution, transportation-disadvantaged households, land use, and the location of key destinations, among other factors.

Population Density

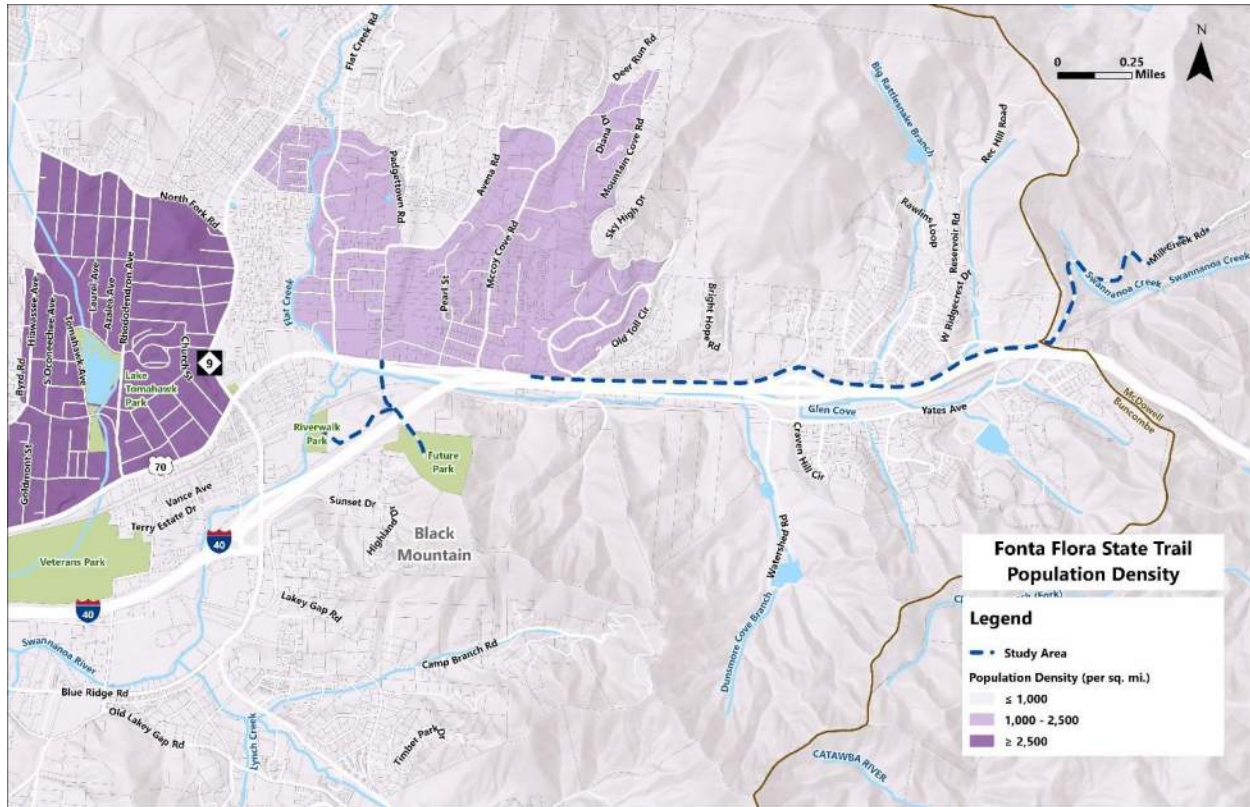


Figure 5. Population Density

Population density near the study area is concentrated in the Town of Black Mountain, as shown in **Figure 5**. The single-family home neighborhoods near downtown Black Mountain that surround Lake Tomahawk Park are the densest in the study area with over 2,500 residents per square mile. Population density decreases further east in Black Mountain and in the more rural areas of eastern Buncombe County and western McDowell County. Despite the decrease in density in the eastern portion of the study area, there are residential communities along most of the study corridor, especially near Ridgcrest. These communities would directly benefit from a multi-use path that connects to services and amenities in downtown Black Mountain.

Population Change

Over the past decade, population trends in the Town of Black Mountain and Buncombe County highlight consistent population growth, while McDowell County’s population has slightly decreased. Black Mountain’s population was approximately 8,000 in 2013, but that number has increased to over 8,500 in 2022 which is an approximately 6 percent increase in ten years (see **Figure 6**). Buncombe County’s population was approximately 247,000 in 2013 and has since increased to over 273,000 which is an approximate 11 percent increase in ten years (see **Figure 7**). While McDowell County is not experiencing the same population growth as Black Mountain or Buncombe County, its population has held steady, only decreasing by 1 percent in the last ten years (see **Figure 8**). Residents in Black Mountain, Buncombe County, and McDowell County would all benefit from increased access to a regional trail network for safe walking and biking.

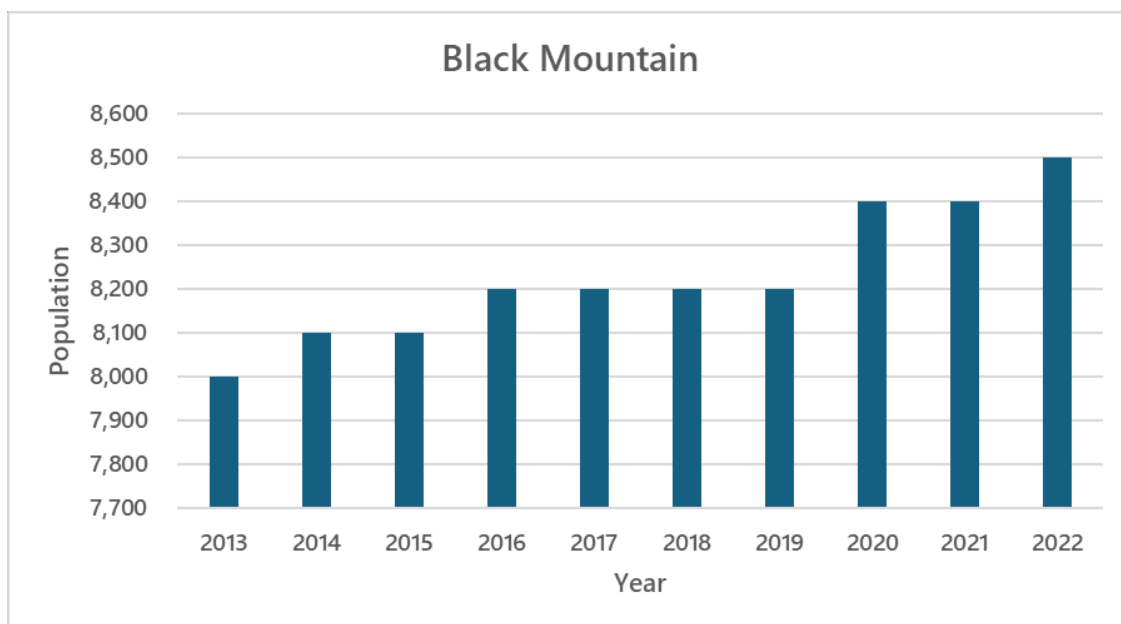


Figure 6. Population Change in Black Mountain (US Census Bureau)

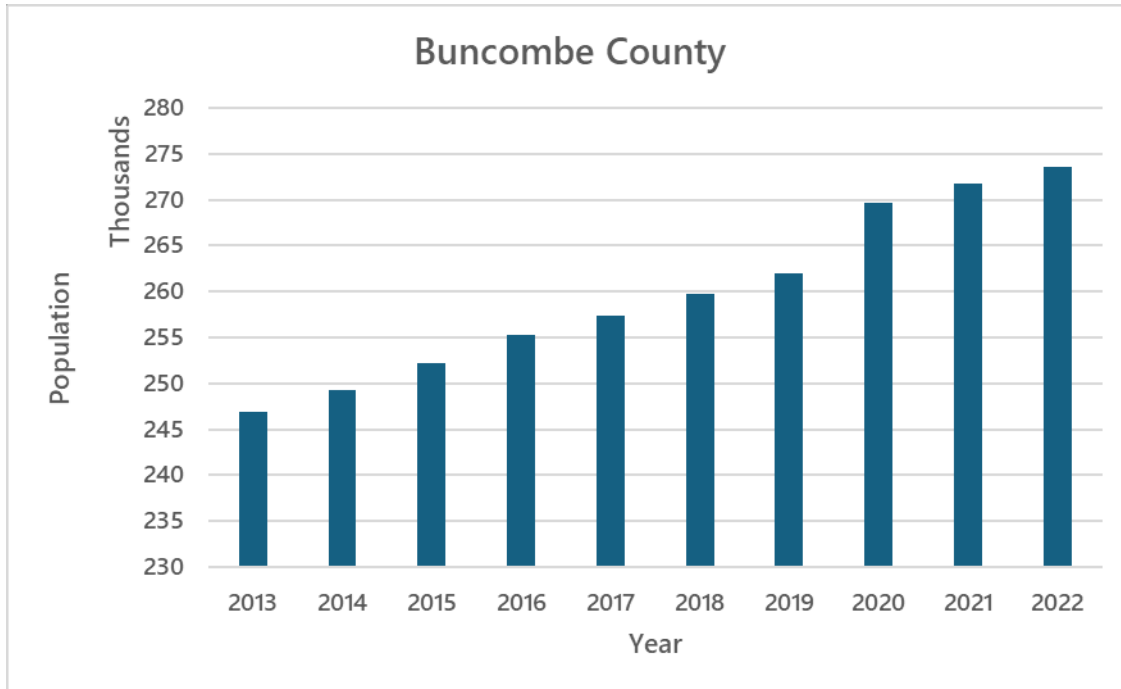


Figure 7. Population Change in Buncombe County (US Census Bureau)

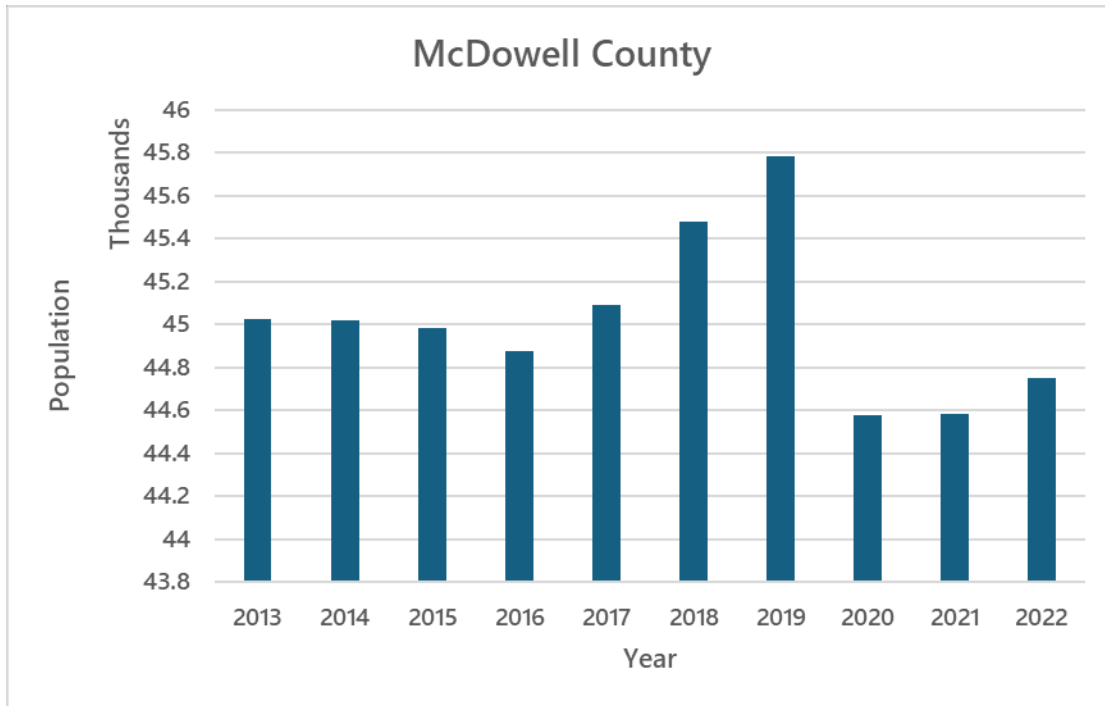


Figure 8. Population Change in McDowell County (US Census Bureau)

Race/Ethnicity

Black Mountain, Buncombe County, and McDowell County are majority White communities with all three jurisdictions being over 80 percent White. In Buncombe County, 5 percent of the population identifies as Black, and 7 percent identifies as Hispanic. In McDowell County, 4 percent of the population identifies as Black, and 6 percent identifies as Hispanic.

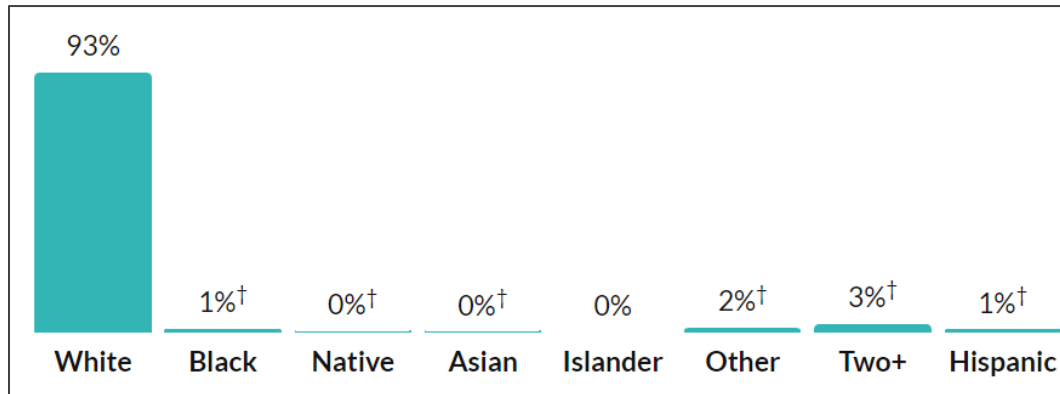


Figure 9. Race/Ethnicity in Black Mountain (Census Reporter)

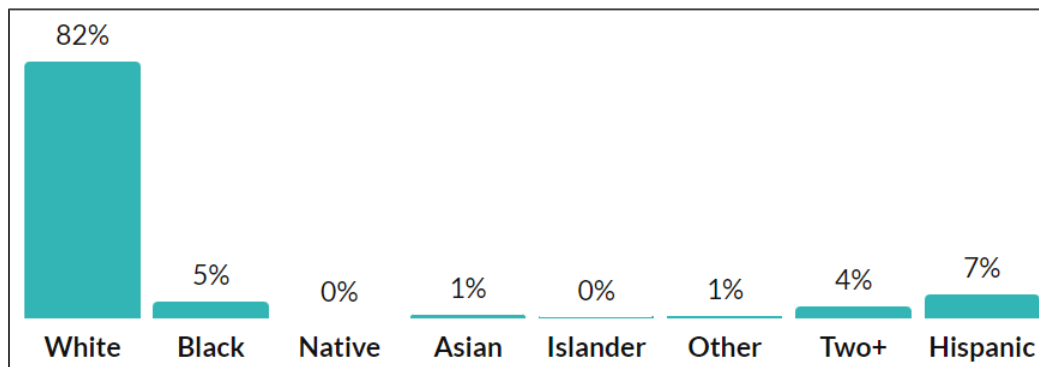


Figure 10. Race/Ethnicity in Buncombe County (Census Reporter)

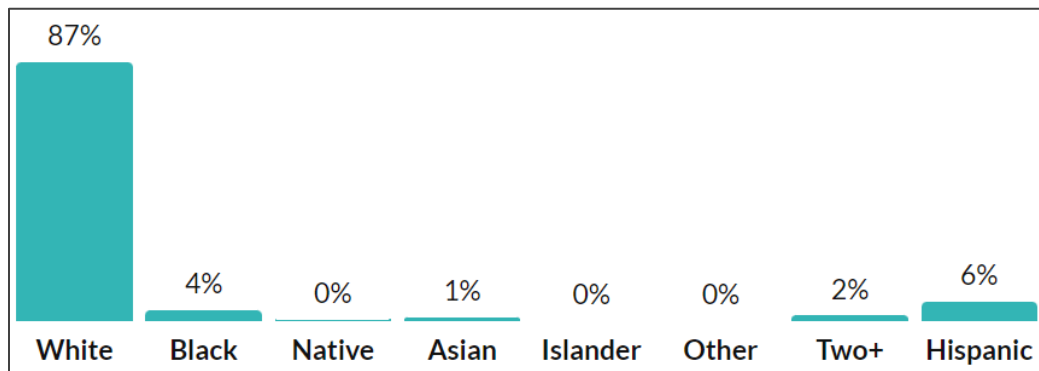


Figure 11. Race/Ethnicity in McDowell County (Census Reporter)

Household Type

In Black Mountain, the average household size is 2.1 persons per household which is considerably lower than the statewide average of 2.5. The average household size in Buncombe County (2.6) and McDowell County (2.4) is more in line with the North Carolina average. Households in all jurisdictions are primarily married couples, but there are more non-family households in the Town of Black Mountain.

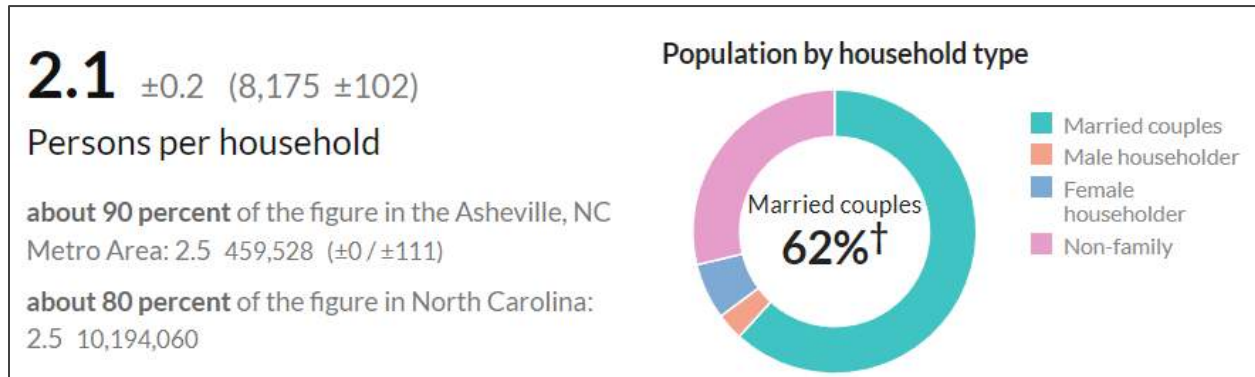


Figure 12. Household Type in Black Mountain (Census Reporter)

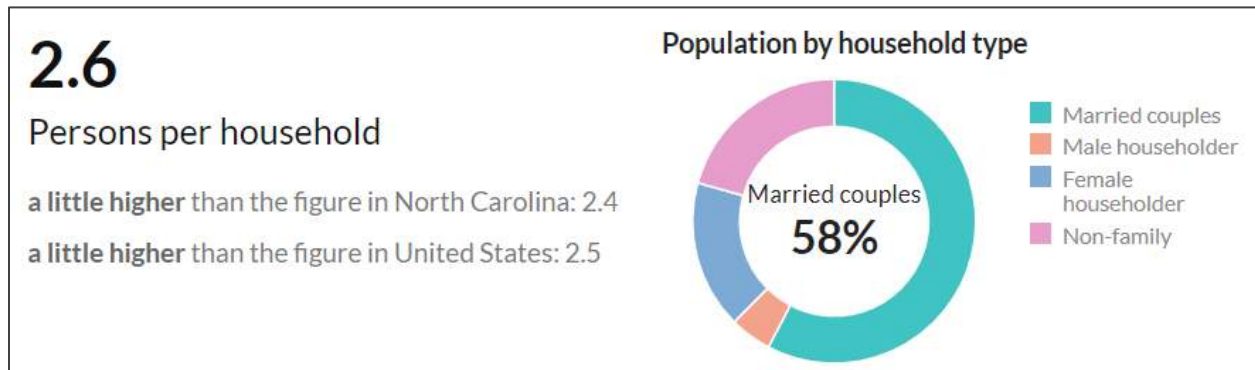


Figure 13. Household Type in Buncombe County (Census Reporter)

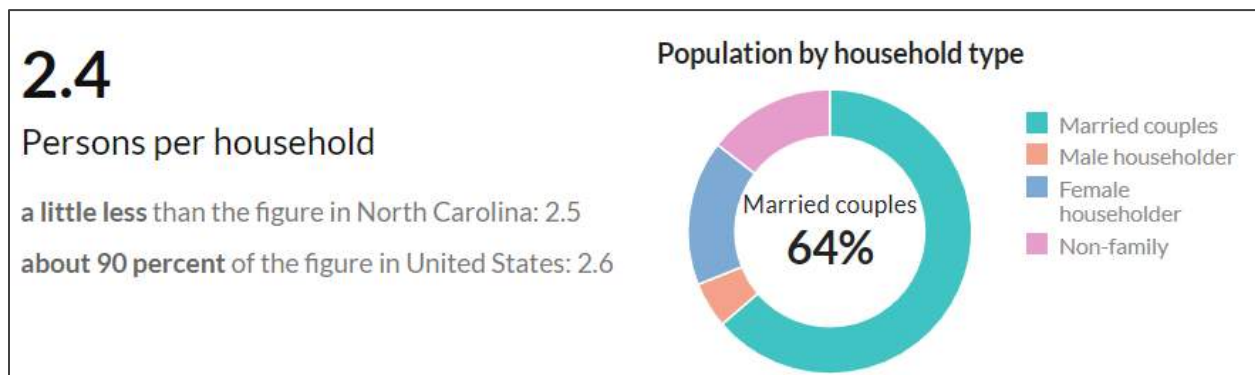


Figure 14. Household Type in McDowell County (Census Reporter)

Population by Age

The median age in Black Mountain is significantly higher relative to the median age in Buncombe County and McDowell County. The median age in Black Mountain is 60.4 years. This is approximately 50 percent older than the statewide median age of 39.1. The Median ages in Buncombe County (42.1) and McDowell County (44.3) are also higher than the statewide median, but lower relative to Black Mountain. Greenways and walking trails are important public health and recreational assets for people of all ages, including older adults.

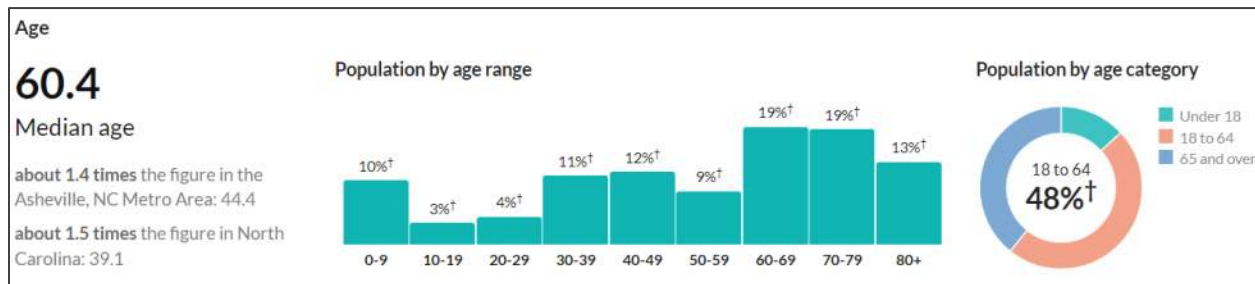


Figure 15. Population by Age in Black Mountain (Census Reporter)

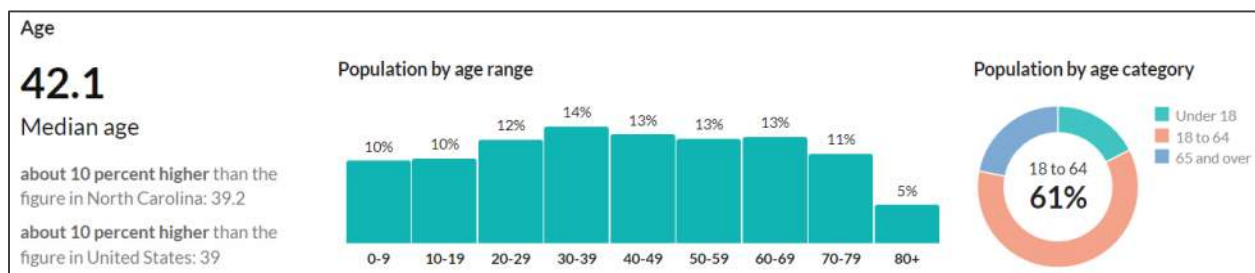


Figure 16. Population by Age in Buncombe County (Census Reporter)

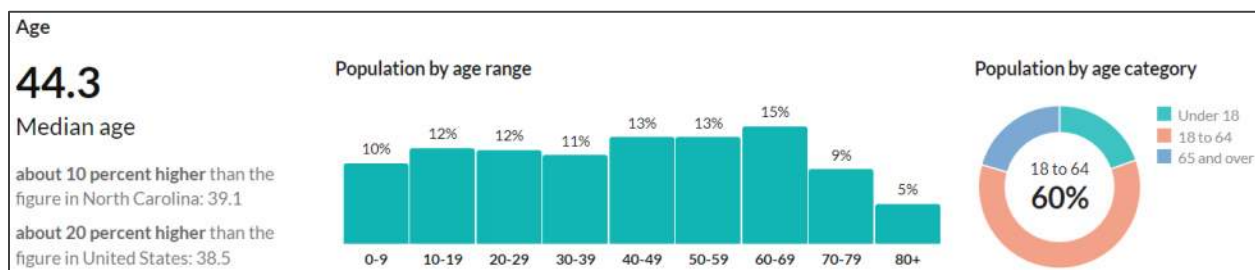


Figure 17. Population by Age in McDowell County (Census Reporter)

Median Household Income

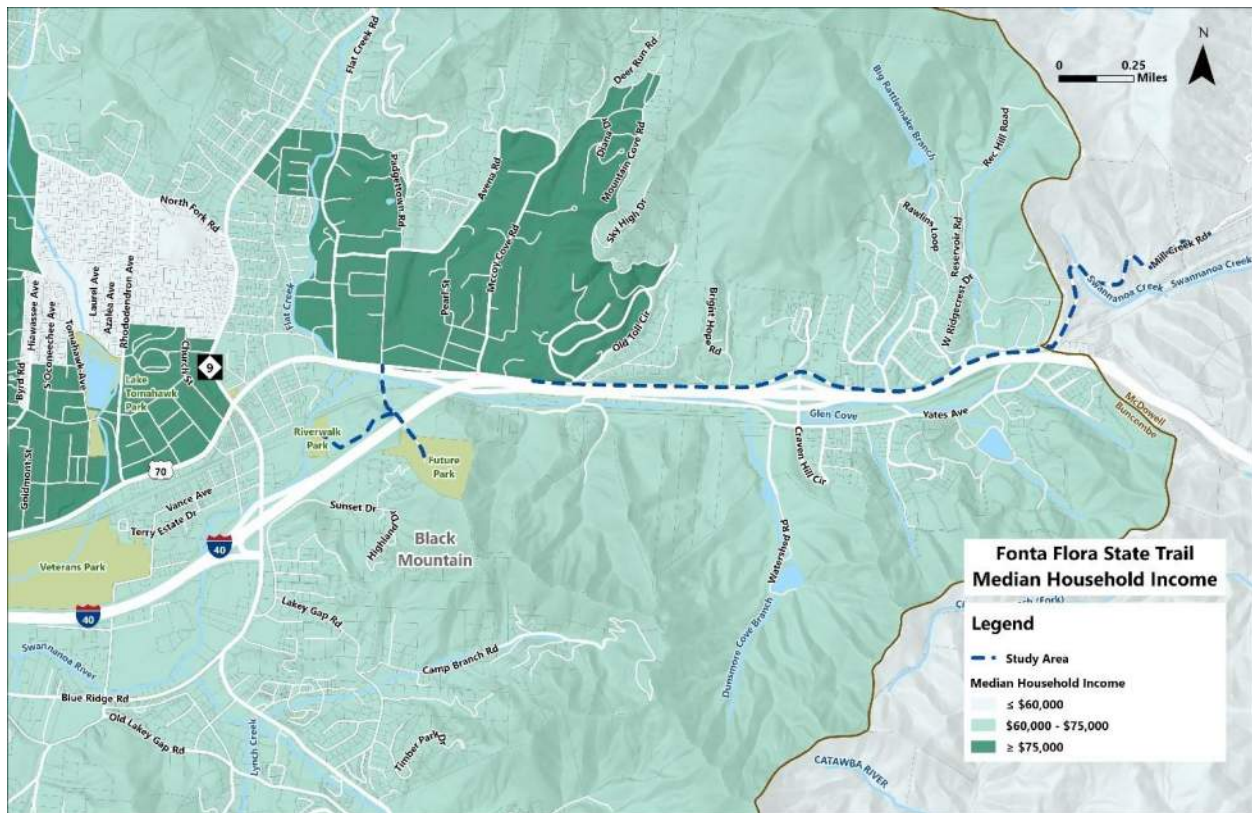


Figure 18. Median Household Income

Median household incomes in the project’s study area are highest in the Town of Black Mountain and lowest in McDowell County (**Figure 18**). The Census block group south of Lake Tomahawk Park and east of Flat Creek Road have median household incomes of at least \$75,000. Incomes in communities further east are lower as the block groups in McDowell County have median household incomes less than \$60,000. Most of Black Mountain and the area of Buncombe County within the study limits have median household incomes between \$60,000 and \$75,000.

Households Below the Poverty Level

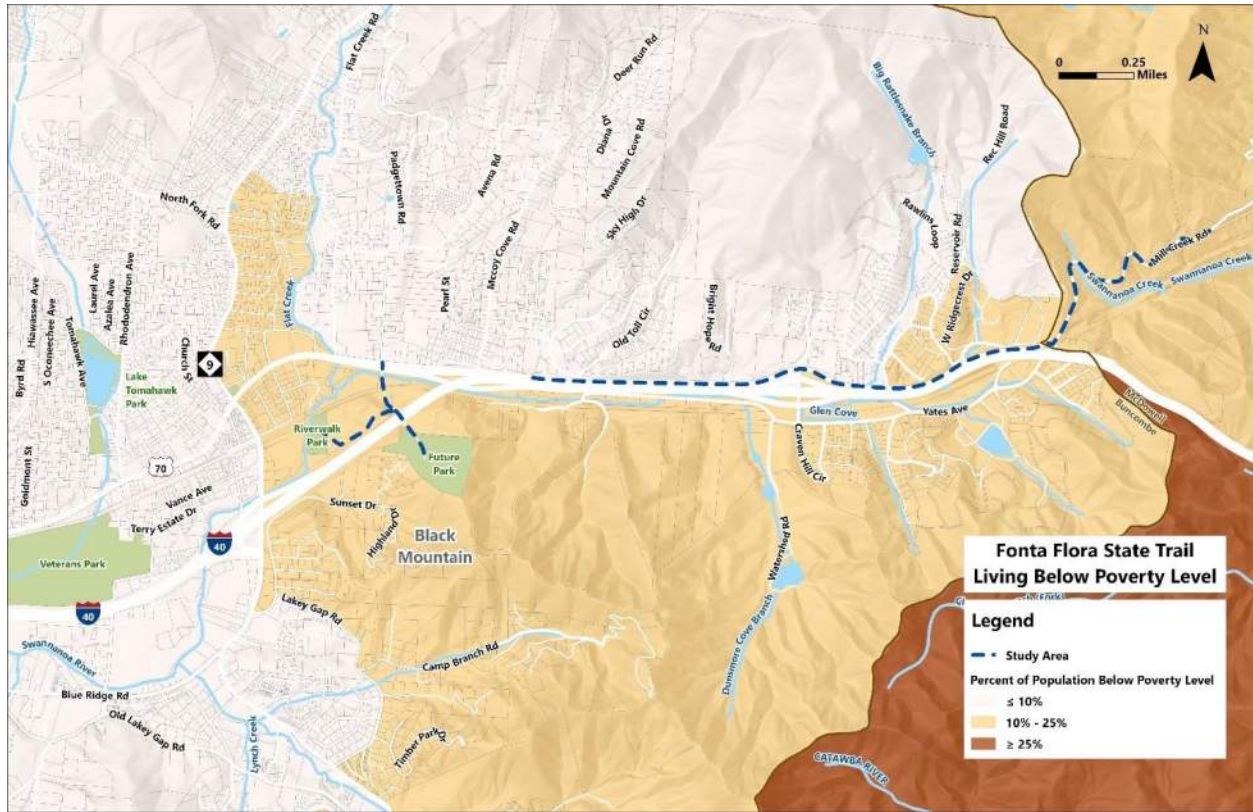


Figure 19. Population Living Below Poverty Level

Poverty rates near the Fonta Flora Paved Trail study area are generally low. However, these rates tend to increase further east into eastern Buncombe County and western McDowell County where they can exceed 25 percent. Within most of the Town of Black Mountain, poverty rates are below 10 percent (**Figure 19**). According to the US Census, the statewide poverty rate in North Carolina is 12.8 percent, indicating that much of the study area is less impoverished than the North Carolina average, especially near Black Mountain and north of I-40 in Buncombe County.

Population with a Disability

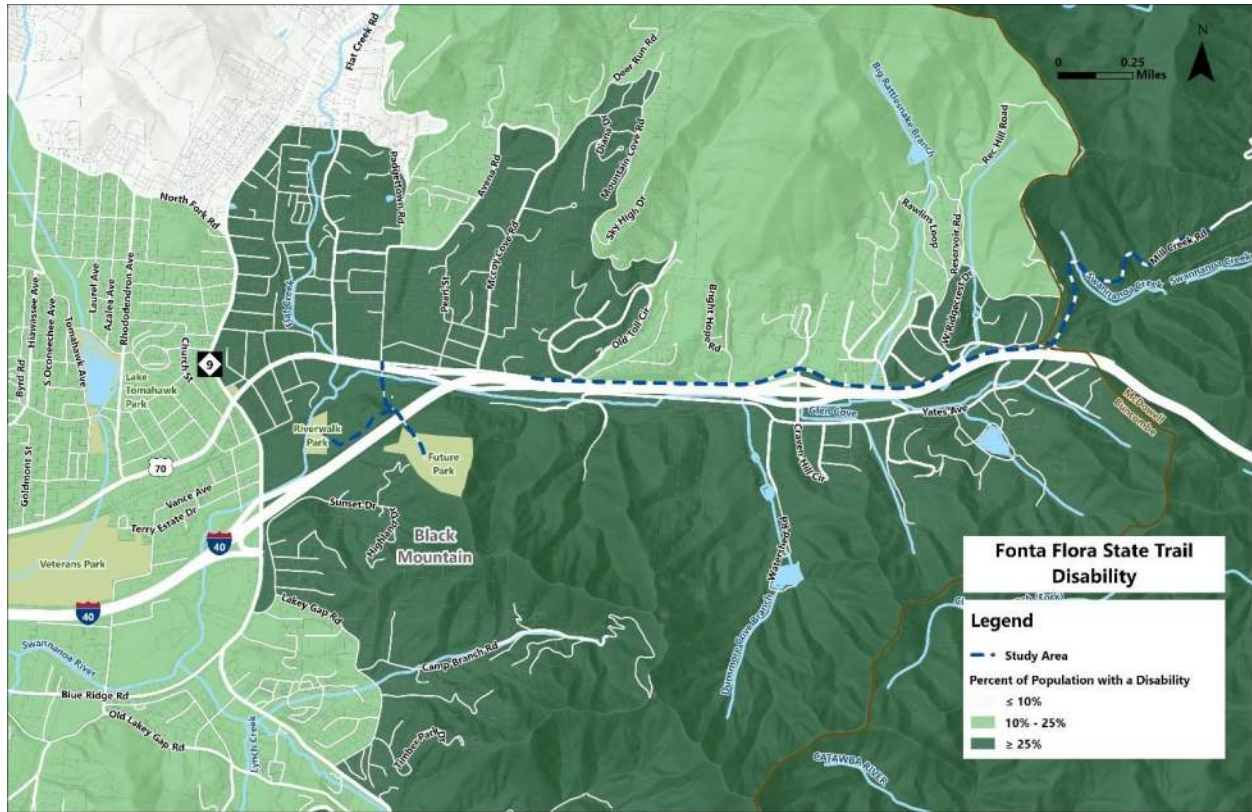


Figure 20. Population with a Disability

On average, Black Mountain area residents are older than the general Buncombe County and North Carolina populations. This older population likely contributes to the study area having a relatively high percentage of the population with at least one disability. Throughout most of the study area, at least 10 percent of the population is living with a disability. Areas of rural eastern Buncombe County and western McDowell County have higher rates of people with disabilities as at least 25 percent of the population living with at least one disability (**Figure 20**). Disabilities can limit access to mobility options, including driving. Providing access to safe and comfortable driving alternatives increases mobility options available to residents.

Youth Population

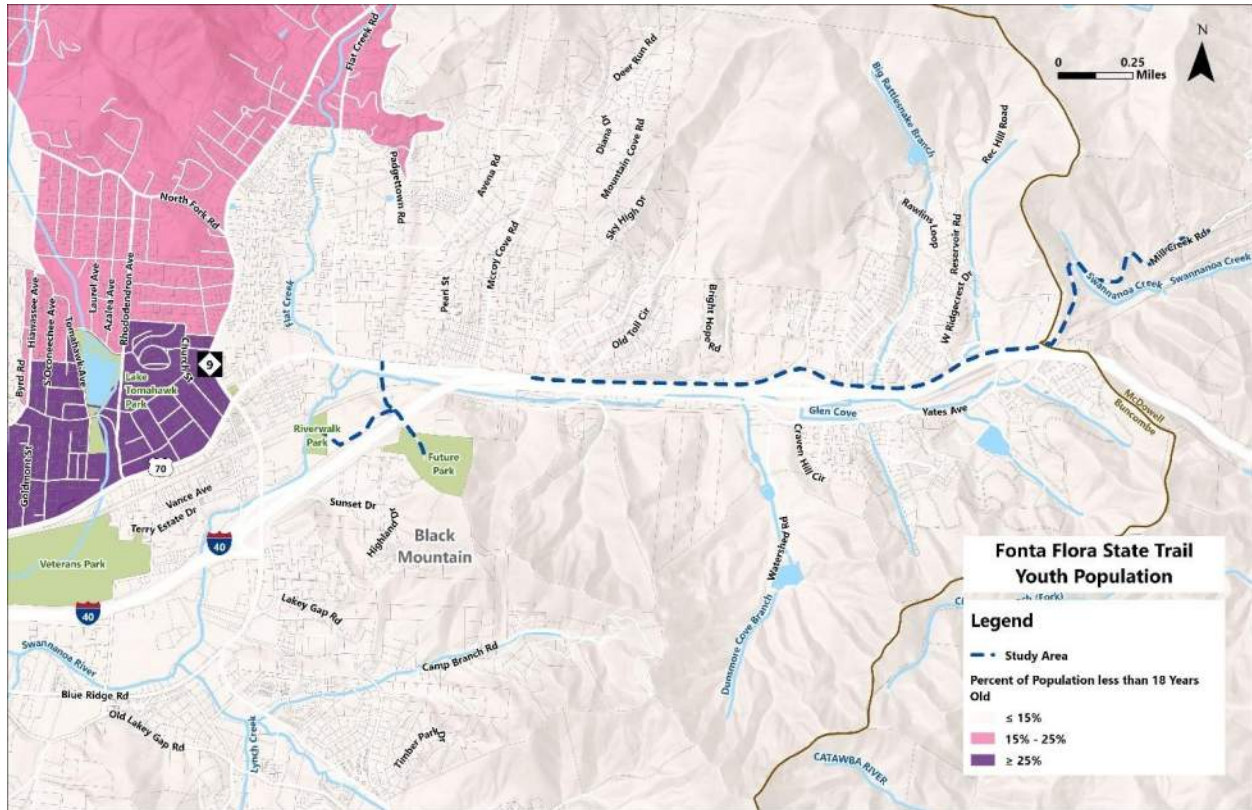


Figure 21. Youth Population

As discussed above, the study area population tends to be older than the rest of Buncombe County, McDowell County, and North Carolina as a whole. However, there are more youth living near downtown Black Mountain than in the rest of the study area. In the block group south of Lake Tomahawk Park at least 25 percent of the population is younger than 18 years old (**Figure 21**). Extending the Fonta Flora Paved Trail to the Town of Black Mountain would improve youth access to a safe multi-use trail facility that connects to recreation opportunities.

Zero Car Households

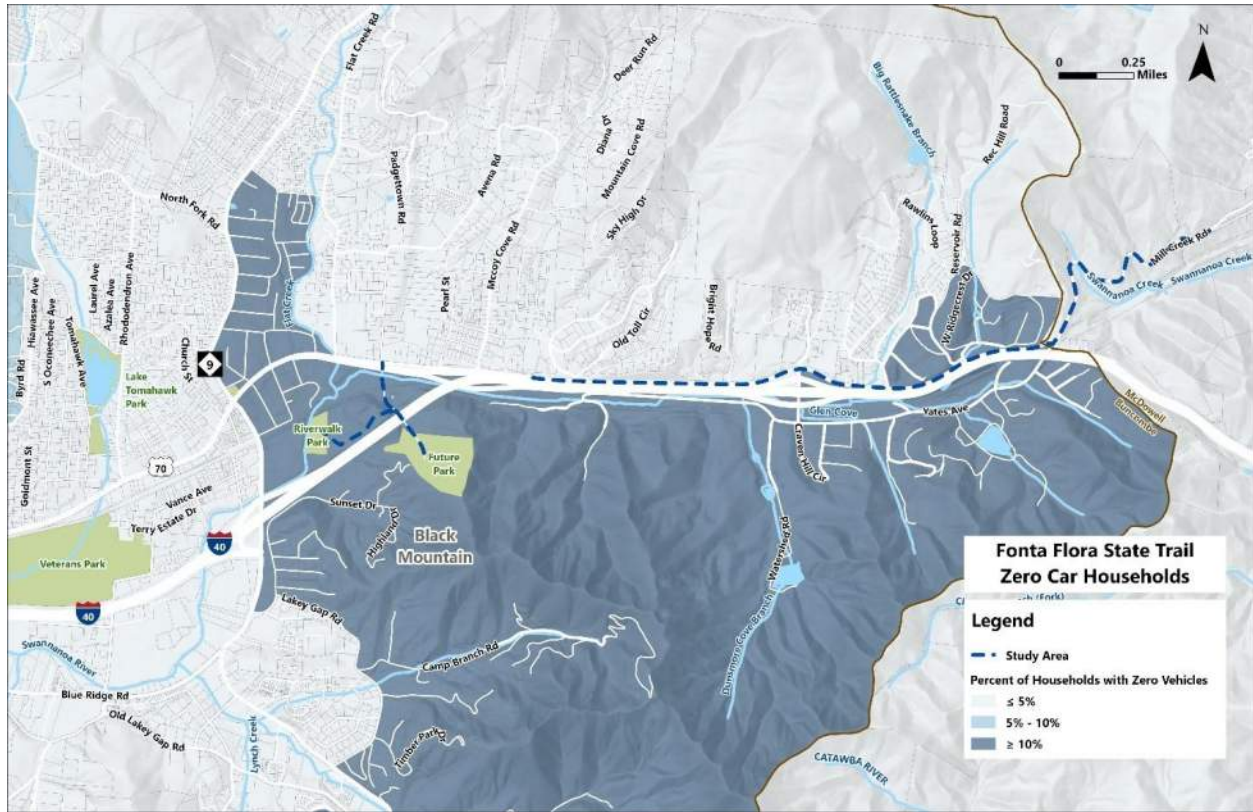


Figure 22. Zero Car Households

As shown in **Figure 22**, most households in the study area own at least one vehicle. However, there are some households that do not have access to a vehicle, especially southeast of Black Mountain. In the rural block group encompassing eastern Black Mountain and rural eastern Buncombe County, over 10 percent of households do not have access to a vehicle. Providing a safe multi-use trail in the study area would introduce a facility that improves mobility options for these zero car households.

Transportation Disadvantage Index

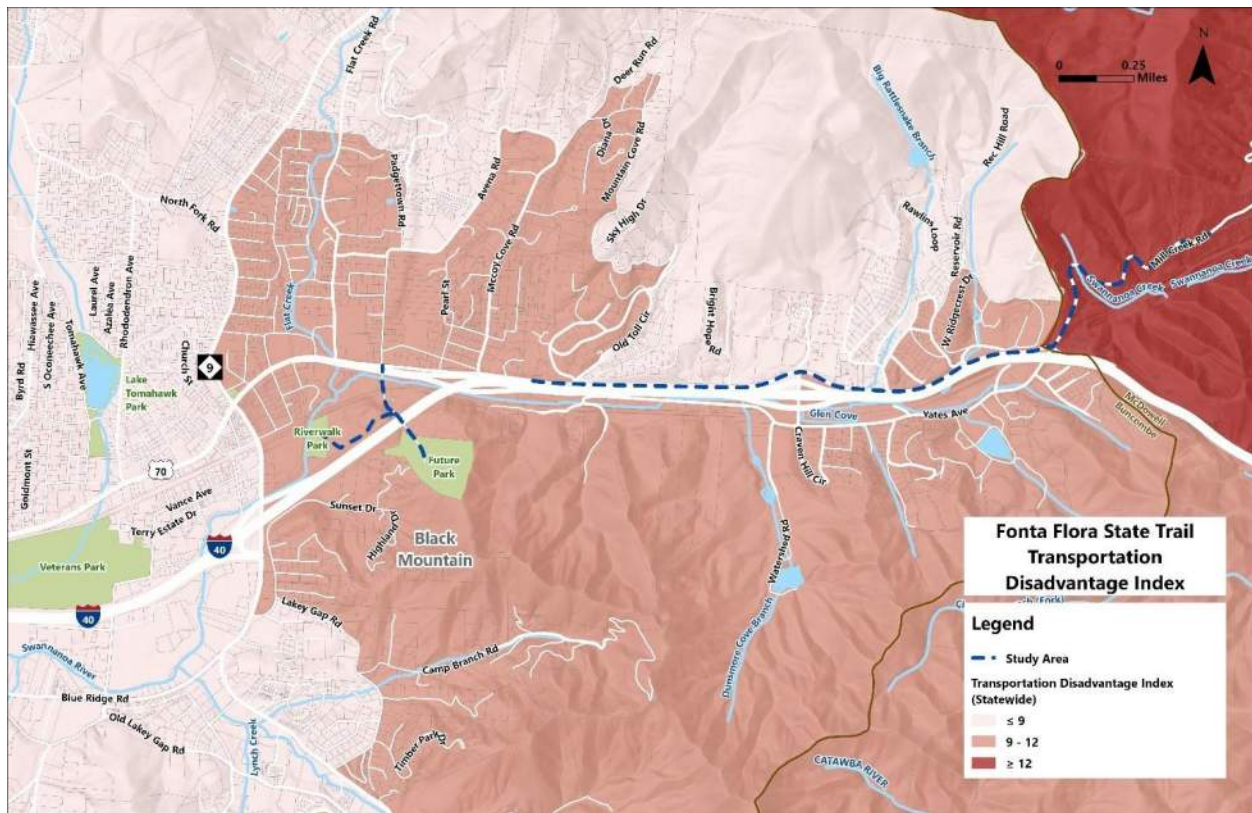


Figure 23. NCDOT Transportation Disadvantage Index (TDI)

Transportation Disadvantage describes the relative barriers that might limit access to transportation in a given area. NCDOT uses the Transportation Disadvantage Index (TDI) to understand how they can more equitably promote projects that better connect people to essential destinations. The TDI Score summarizes multiple indicators of transportation disadvantage (i.e., zero-vehicle ownership, poverty level, mobility impairments, and concentrations of Black, Indigenous and Persons of Color) to identify areas most in need of mobility improvements. In the study area, the TDI score is relatively low for most block groups, indicating reduced transportation disadvantage. However, the eastern portion of the study area, in eastern Buncombe County and western McDowell County, has higher TDI scores, indicating increased transportation disadvantage (**Figure 23**). The introduction of a multi-use path that connects transportation disadvantaged communities would reduce barriers to access and provide safe options for walking and biking.

Commuter Characteristics

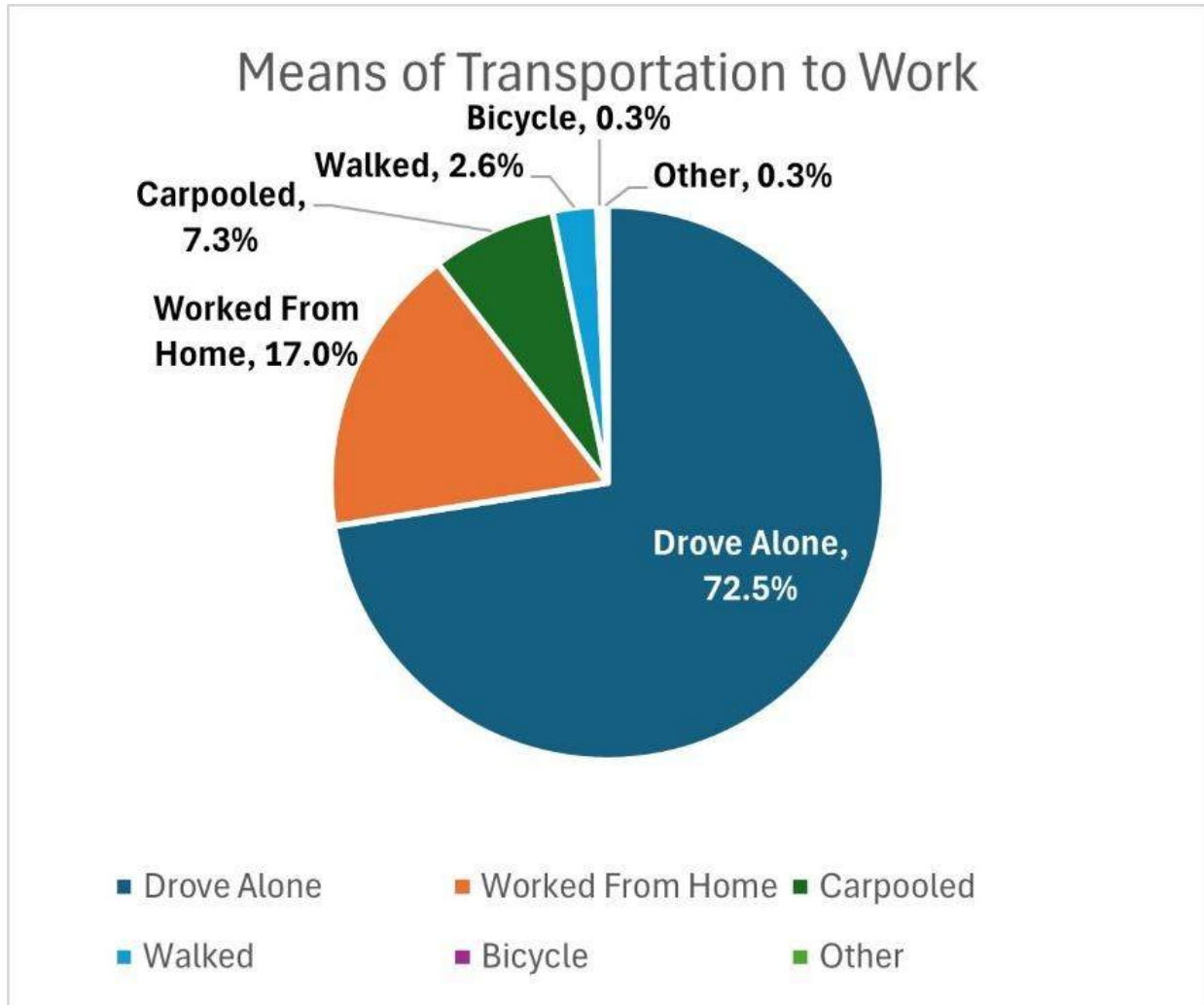


Figure 24. Town of Black Mountain Commuter Characteristics (Census ACS, 2023)

As shown in **Figure 24**, most workers in Black Mountain (72.5 percent) drive a single-occupancy vehicle to their place of work. Only 7.3 percent carpool with at least one passenger, while only 17 percent of workers work from home. In total, less than 3 percent of commuters walk or bike to work. The limited existing pedestrian and bicycle network beyond downtown Black Mountain limits the mode choice of local workers. The addition of a multi-use path along Old US Highway 70 would provide additional opportunities to safely walk or bike to employment opportunities.

Zoning

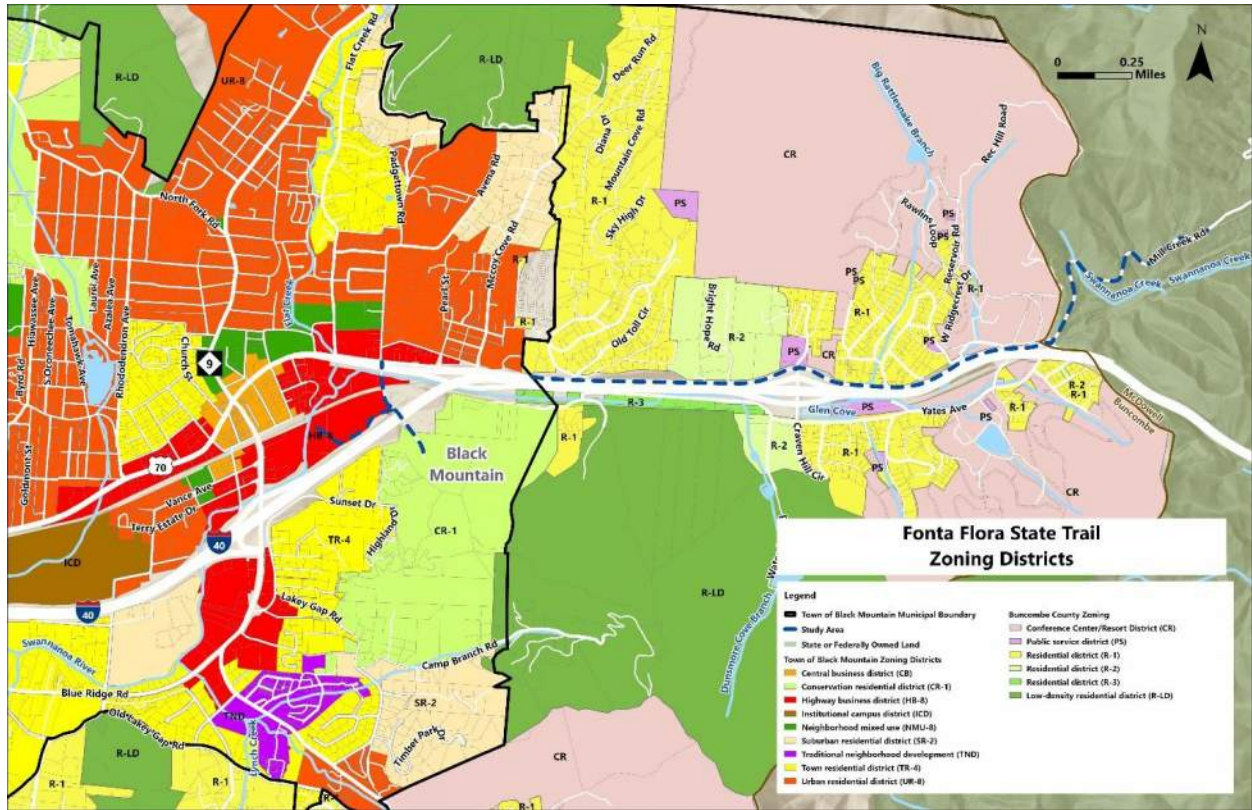


Figure 25. Zoning

Figure 25 displays zoning districts for both the Town of Black Mountain and Buncombe County. The study area primarily includes residential zoning districts of varying densities. The study area is also adjacent to Ridgecrest Camp and Ridgecrest Conference Center, which are both zoned as “Conference center/resort district” in Buncombe County. The far western extent of McDowell County near the study area is state- or federally- owned forest land. **Table 1** describes the key districts adjacent to the study area.

Table 1. Zoning Districts Adjacent to Fonta Flora Paved Trail Study Area

Town of Black Mountain¹	
Conservation Residential District (CR-1)	The Conservation Residential District is established to protect areas in which the principal use of the land is residential or agricultural and where steep slopes or other environmental features make it more suitable for large lot development, conservation development and the preservation of open space.
Urban Residential District (UR-8)	The Urban Residential District is established to provide a variety of housing types, promote density in the more urbanized and developable areas of town, and structure the orderly development of residential neighborhoods.
Highway Business District (HB-8)	The Highway Business District provides orderly growth along the Town's major thoroughfares; promotes access management and traffic safety for all modes of transportation, encourages the redevelopment of existing commercial sites; creates economic opportunities; promotes a safe, convenient and attractive environment for pedestrians to access good and services; creates gateways and entrances into the town along central corridors; and encourages residential development that blends with the commercial character of the District and enhances the variety of housing options provided in the town. Because of the objectives and characteristics of this District, it is located contiguous to major streets or within proximity to primary commercial districts.
Buncombe County²	
Conference Center/Resort District (CR)	The CR Conference Center/Resort District is intended to be a district that includes, but is not limited to, large tourist-related facilities, summer/day camp properties, and conference centers held in single ownership or held collectively by related entities. Facilities within this District may include housing, hotels, retail shops, religious or secular retreats, and associated accessory uses. Such uses should currently have public water and sewer services available or have a provision for internal supply of appropriate utilities.
Residential District (R-1)	The R-1 Residential District is primarily intended to provide locations for single-family and two-family residential development and support recreational, community service, and educational uses in areas where public water and sewer services are available or will likely be provided in the future. This District is further intended to protect existing subdivisions from encroachment of incompatible

¹ Town of Black Mountain Code of Ordinances: Section 4.6 Districts Established. March 2024. https://library.municode.com/nc/black_mountain/codes/code_of_ordinances?nodeId=COOR_APXALOUS_CO_CH4ZORE_S4.6DIES

² Buncombe County Code of Ordinances: Article VI. Buncombe County Zoning Ordinance. Jan 2024. https://library.municode.com/nc/buncombe_county/codes/code_of_ordinances?nodeId=COOR_CH78ZO_ARTVIBUCOZOOR

	land uses, and this District does not allow manufactured home parks.
Residential District (R-2)	The R-2 Residential District is primarily intended to provide locations for residential development and supporting recreational, community service and educational uses in areas where public water and sewer services are available or will likely be provided in the future. These areas will usually be adjacent to R-1 Residential Districts, provide suitable areas for residential subdivisions requiring public water and sewer services, and to help maintain the present character of R-1 Districts, will not allow manufactured home parks.
Residential District (R-3)	The R-3 Residential District is primarily intended to provide locations for a variety of residential development depending upon the availability of public water and sewer services. Some areas within the R-3 Residential District will have no public water and sewer services available and will thus be suitable primarily for single-family residential units on individual lots and mobile homes on individual lots. Other areas within the District will have public water and/or sewer service available and will thus be suitable for higher density uses such as multifamily residential units, planned unit developments, and mobile home parks. The R-3 District also provides for various recreational, community service and educational uses that will complement the residential development.
Low-Density Residential District (R-LD)	The R-LD Low-Density Residential District is primarily intended to provide locations for low-density residential and related-type development in areas where topographic or other constraints preclude intense urban development. These areas are not likely to have public water and sewer services available, and the minimum required lot area will be one acre unless additional land area is required for adequate sewage disposal. These are environmentally sensitive areas that are characterized by one or more of the following conditions: steep slopes, fragile soils, or flooding.

Future Land Use

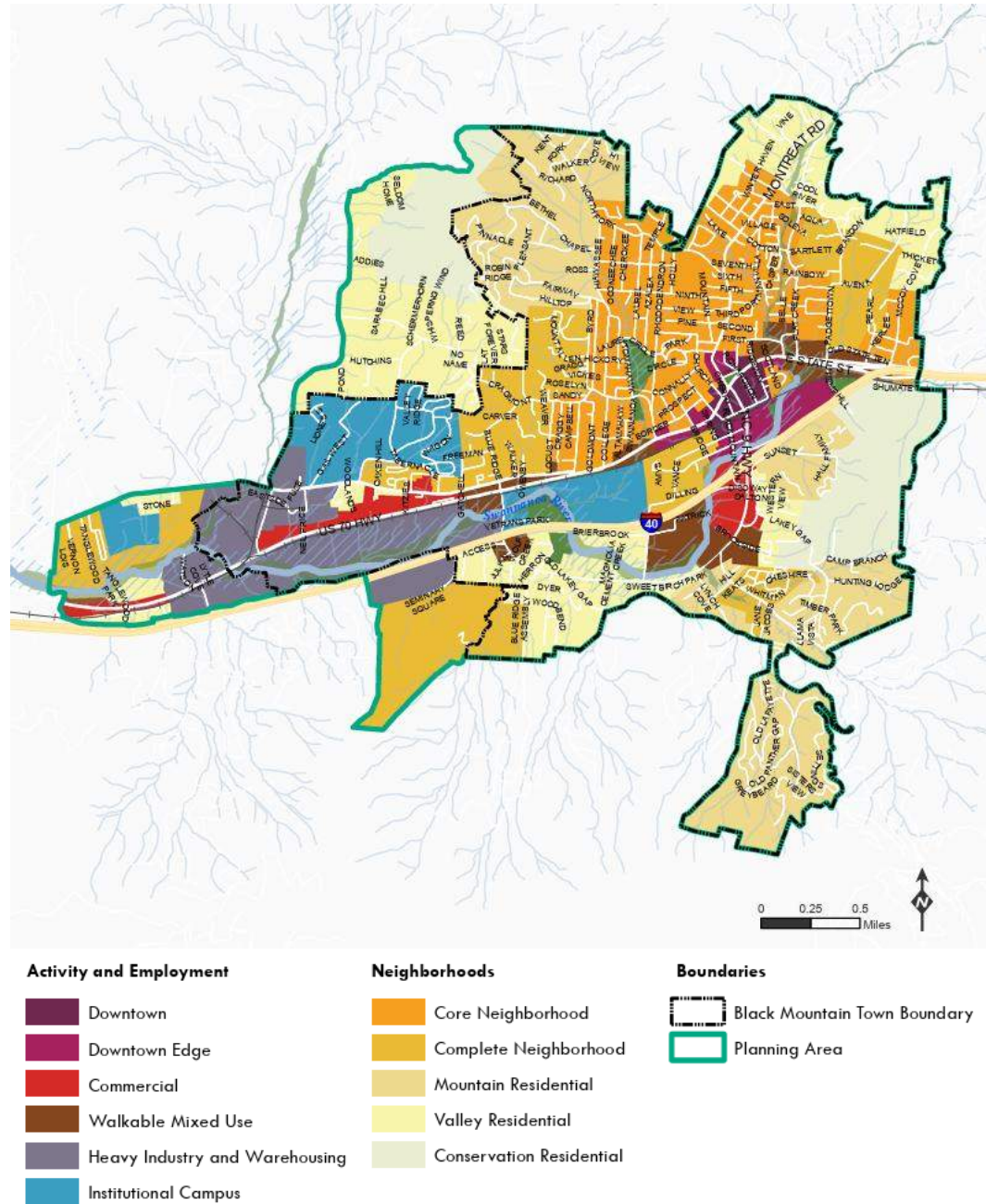


Figure 26. Future Land Use Map from Elevate Black Mountain Comprehensive Plan (2021)

Figure 26 displays the Town of Black Mountain’s Future Land Use Map that was developed for the Town’s most recent comprehensive plan in 2021. Future land use near the study area is primarily Conservation Residential, Downtown Edge, and Walkable Mixed Use. These land uses would support a more walkable and bikeable environment through the introduction of a multi-use trail, as described in **Table 2** below.

Table 2. Future Land Use Adjacent to Study Area³

Land Use	Description
Downtown Edge	Downtown Edge encompasses lands generally located adjacent to downtown and where there are opportunities to extend the pedestrian-oriented character of downtown and establish gateways. Development includes high quality building design that supports a mix of retail, restaurants, employment, and residential. Sidewalks are wide with street trees adjacent to the curb. First floors include ample windows and doors.
Walkable Mixed Use	Walkable Mixed Use areas are strategic nodes where the built environment should transition over time to walkable mixed use development. Buildings should be located adjacent to the sidewalk with translucent first floor frontages. A vertical mix of uses is encouraged, with retail or other residentially compatible uses on the first floor and residential or office uses on upper floors.
Conservation Residential	Conservation Residential areas include large contiguous tracts of land where conservation of open space and protection of the watershed is a priority. Various low impact economic opportunities are available, including conservation subdivisions with large amounts of dedicated open space. Where development occurs, it should use best practices in conservation and sustainable design.

³ Elevate: Town of Black Mountain Comprehensive Plan. June 2021.

Publicly-Owned Land



Figure 27. Public Parcels, Notable Developments, and Key Destinations

Figure 27 identifies the public parcels along the study area. These could provide opportunities to construct the paved trail without the need to acquire property easements or private right-of-way. The publicly owned parcels near River Walk Park as well as the future park south of I-40 could make the paved trail construction easier and more affordable near these parcels.

During the development of the Fonta Flora Paved Trail Feasibility Study, many property owners whose properties were impacted by Hurricane Helene were eligible for consideration of a flood buyout through the Federal Emergency Management Agency (FEMA) Hazard Mitigation Program. Local and state agencies continue to collaborate with FEMA and private property owners to determine where and how flood buyouts will occur. Flood buyout properties can potentially be used for public greenways and trails, so the location of these properties may be significant for the future alignment of the Fonta Flora Paved Trail. This is an evolving situation. Future project design efforts should reexamine the flood buyout parcels, in partnership with local agency partners, to determine if those parcels might provide opportunities to accommodate Fonta Flora State Trail connections.

Key Destinations

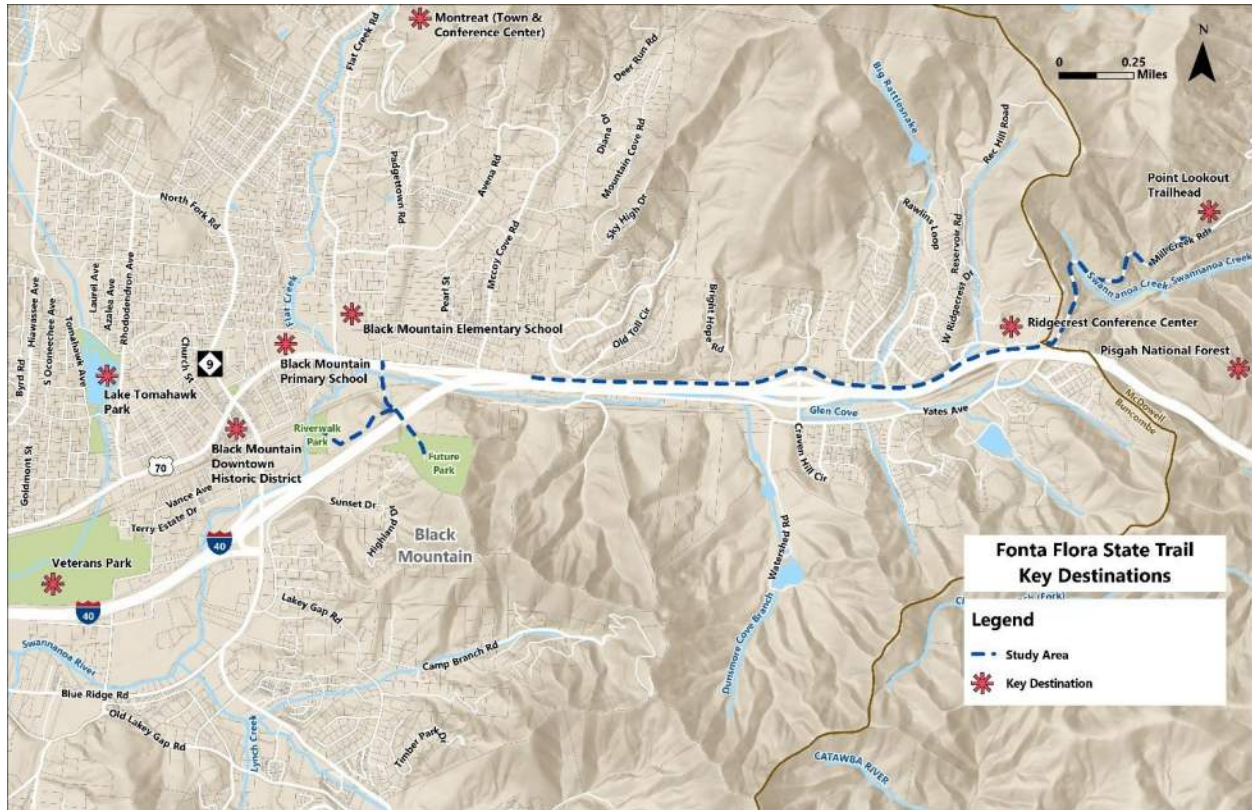


Figure 28. Key Destinations in Black Mountain

A future paved trail in Black Mountain, Buncombe County, and McDowell County would help to facilitate multimodal transportation trips to key destinations in the study area. **Figure 28** highlights multiple notable destinations that the paved trail could be connected to. One of these destinations is the Ridgecrest Conference Center, a 1,300-acre conference campus with lodging, trails, and a cafeteria. Additional destinations include two schools (Black Mountain Primary School and Black Mountain Elementary School) and the Black Mountain Downtown Historic District.

NATURAL ENVIRONMENT CONSIDERATIONS

Surface Waters and Floodplains

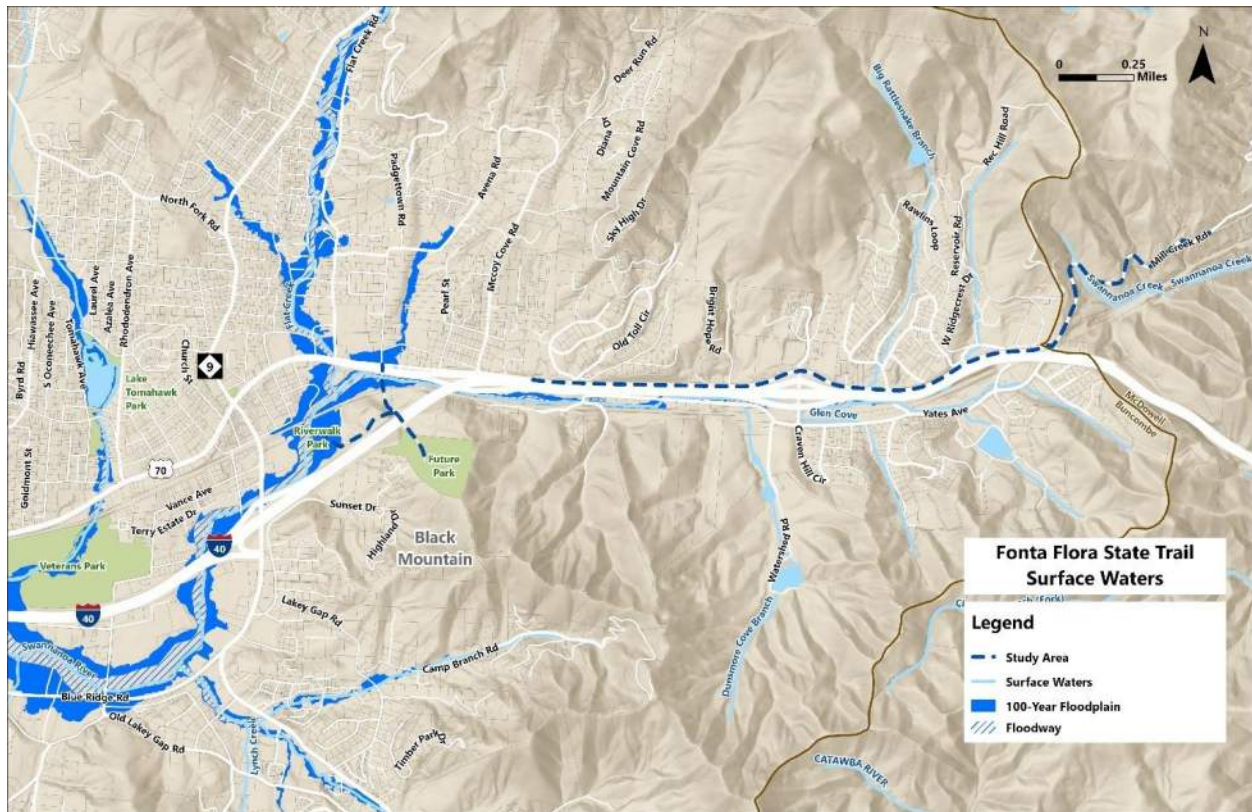


Figure 29. Surface Waters and Floodplains

Figure 29 shows the surface water conditions prior to Hurricane Helene in September 2024. During and after the hurricane, the alignment of some surface waters shifted, particularly along River Walk Park in Black Mountain. Hydrologic constraints tend to be more significant near downtown Black Mountain. River Walk Park is located fully within the 100-year floodplain of the Swannanoa River. Additionally, a future crossing for the paved trail at US 70 and I-40 would also require a crossing of the Swannanoa River. There are fewer hydrologic impacts in the study area outside of Black Mountain. A paved trail alignment on Old US Highway 70 north of I-40 has fewer direct interactions with surface waters and floodplain than an alignment south of I-40.

Managed Natural Areas

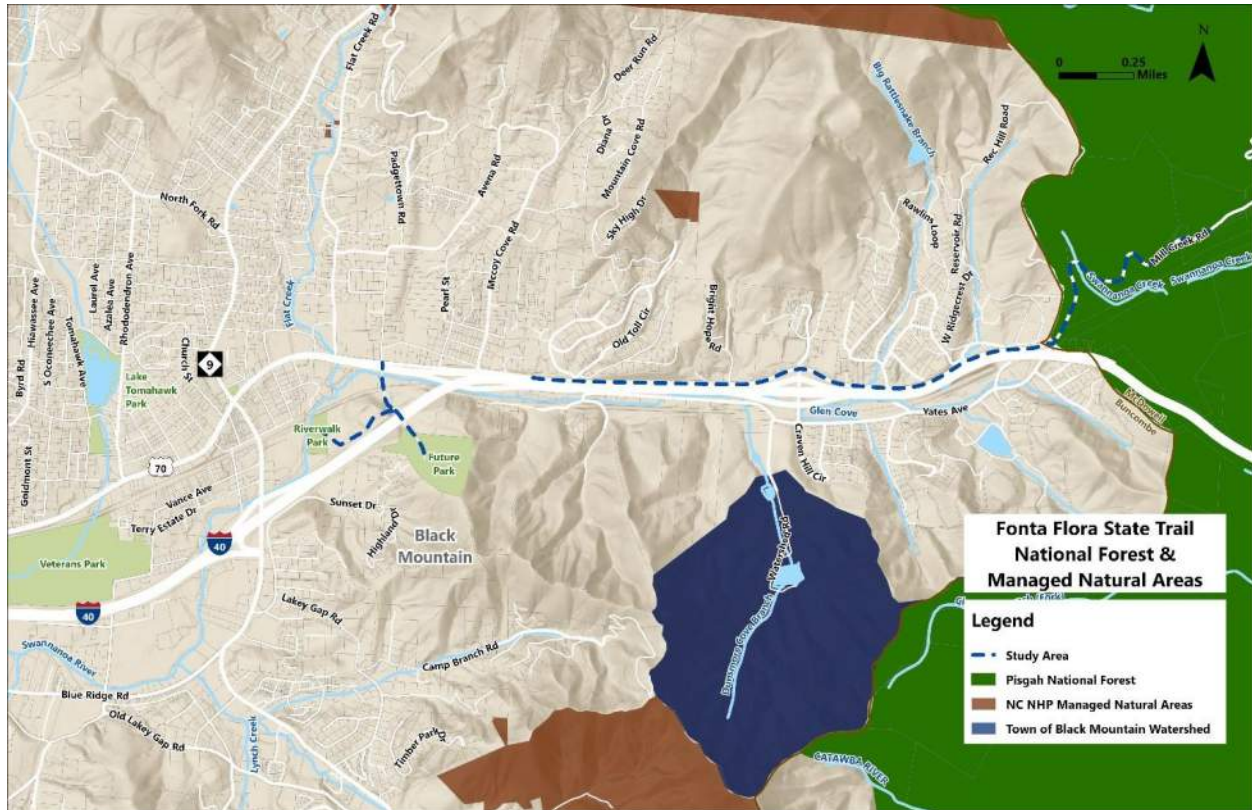


Figure 30. National Forest and Managed Natural Areas

The Pisgah National Forest covers the eastern extent of the study area in McDowell County along Mill Creek Road. Additionally, the North Carolina Natural Heritage Program (NHP) maintains data on “managed natural areas.” These lands are a collection of properties and easements where conservation of biodiversity and ecosystem function are a goal of the conservation land. There are no managed lands within the Town of Black Mountain or along the study area alignment. The forested areas south of Black Mountain and in western McDowell County have been identified by the National Forest Service and NC NHP as managed natural areas, as shown in **Figure 30**. Additionally, the reservoir south of the study area is located within the Town of Black Mountain Watershed. This land is also an NHP managed area owned by the Town of Black Mountain.

Topography



Figure 31. Topography

The topography, shown in **Figure 31**, along the study area is relatively flat along Old US Highway 70 and becomes steeper further east on Mill Creek Road. There are also steeper grades south of River Walk Park and I-40 toward the future park in Black Mountain. Paved trail design challenges and barriers related to steep slopes are more prevalent in the McDowell County portion of the study area along Mill Creek Road.

HUMAN ENVIRONMENT CONSIDERATIONS

Roadway Network

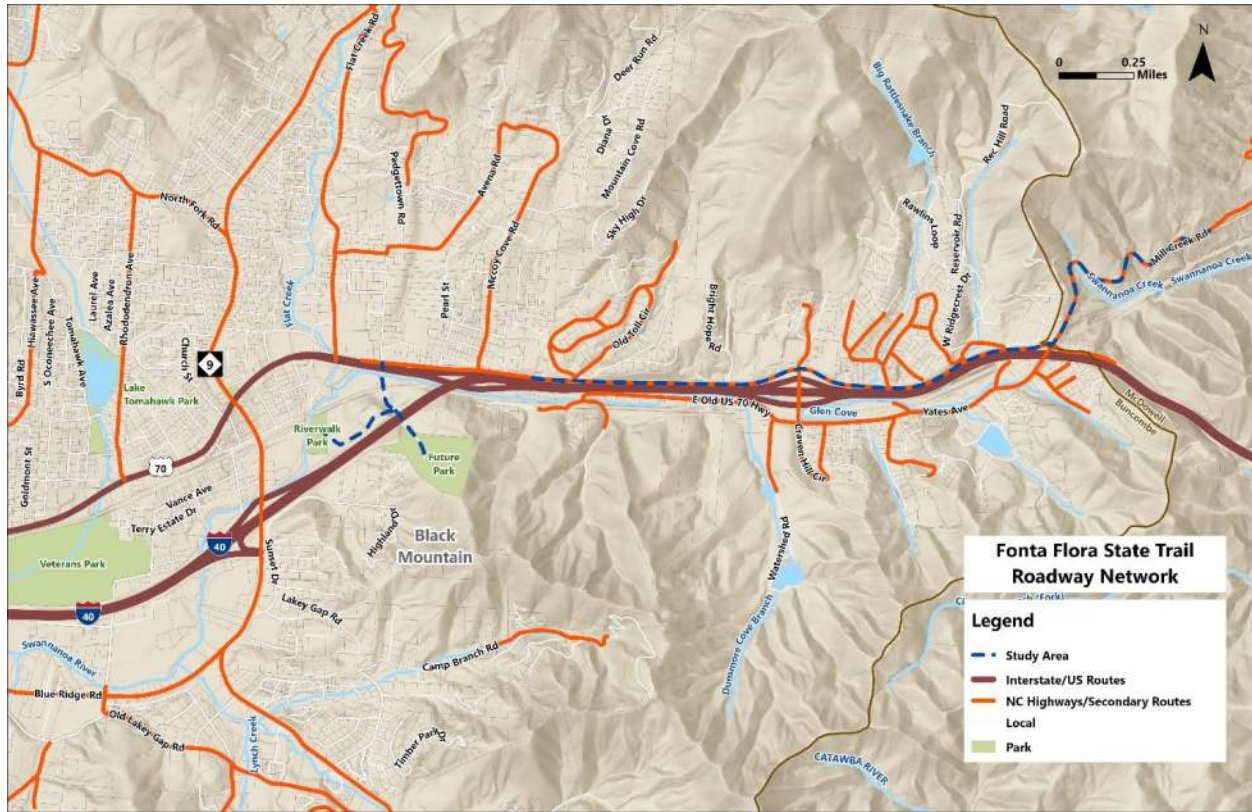


Figure 32. Roadway Classification

The study area alignment is adjacent to NCDOT-maintained roadways. In Buncombe County, the study area follows Old US Highway 70 (Secondary Route 2542) and Yates Avenue (Secondary Route 2531) which are both NCDOT-maintained roadways. In McDowell County, the study area follows Mill Creek Road (Secondary Route 1407), which is also maintained by NCDOT. The connections between River Walk Park, the future park in Black Mountain, and Old US Highway 70, do not follow NCDOT roadways. However, these segments will interact with NCDOT right-of-way at crossings with I-40 and US 70, as illustrated in **Figure 32**.

Traffic Volumes



Figure 33. Roadway Volumes (2022-2033)

Roadway volumes are available for Mill Creek Road and many roadways adjacent to the study area but are not available for the study area segments of Old US Highway 70 (NCDOT Average Annual Daily Traffic Map). Available data is provided in **Figure 33**. Mill Creek Road is a very low volume roadway with an average annual daily traffic (AADT) of approximately 200 vehicles per day. Traffic volumes are higher along the NCDOT-maintained roadways located within the Town of Black Mountain. These roadways include US 70/E State Street (approximately 10,500 AADT), NC 9/Montreat Road (approximately 7,700 AADT), and Flat Creek Road (approximately 2,200 AADT). While the multi-use path will run adjacent to I-40, there are potential interactions with the interstate at key crossings and interchanges. I-40 is the highest volume roadway in the study area with volumes near 33,000 AADT. The design of the future Fonta Flora paved trail should account for traffic volumes, when considering how to make the trail comfortable for pedestrians and cyclists of all ages and abilities.

Speed Limits

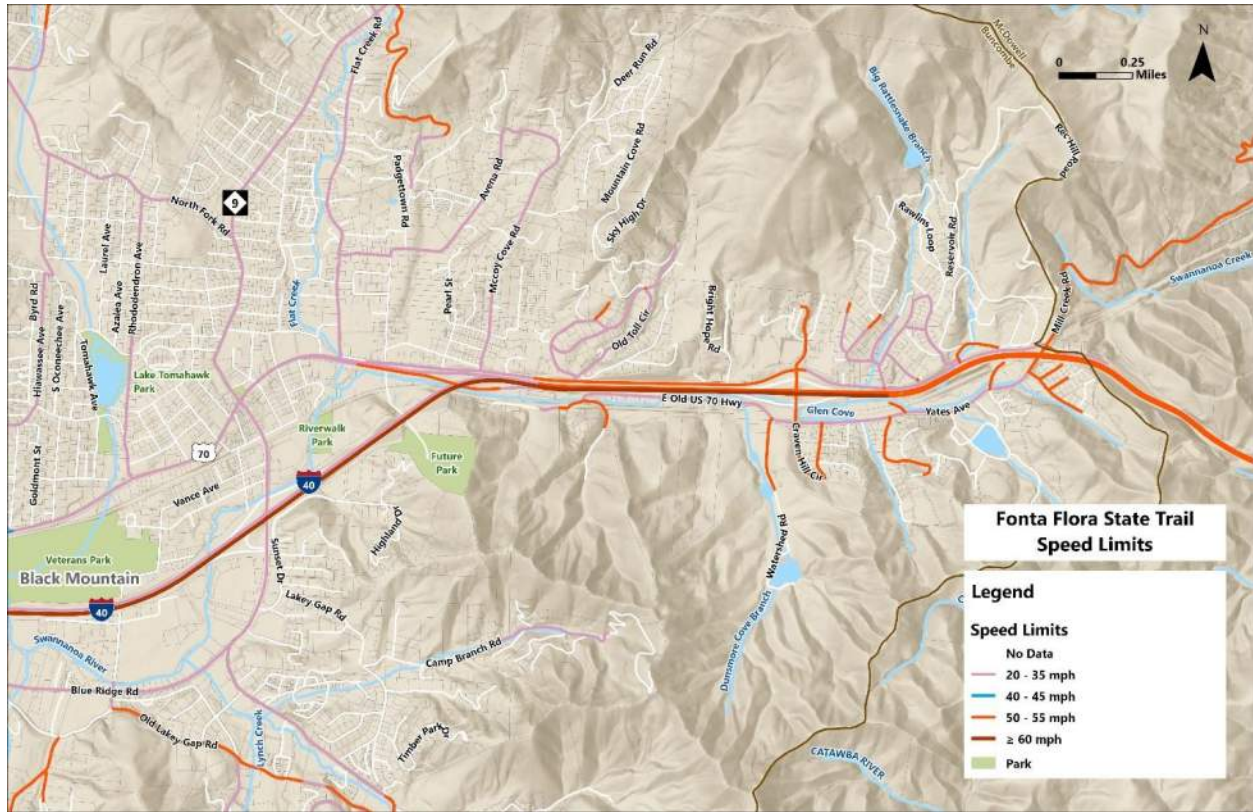


Figure 34. Speed Limits

As shown in **Figure 34**, speed limits vary between 55 miles per hour (mph) and 35 mph along the study corridor (NCDOT Speed Limits Map). The segment of Old US Highway 70 west of the I-40 interchange has a 55-mph speed limit, but the speed limit decreases to 35 mph east of the I-40 interchange. Mill Creek Road in McDowell County has a posted speed limit of 55 mph. The design of the future Fonta Flora paved trail should consider these speed limits, as well as observed speeds, when considering how to make the trail comfortable for pedestrians and cyclists of all ages and abilities.

Crash Data

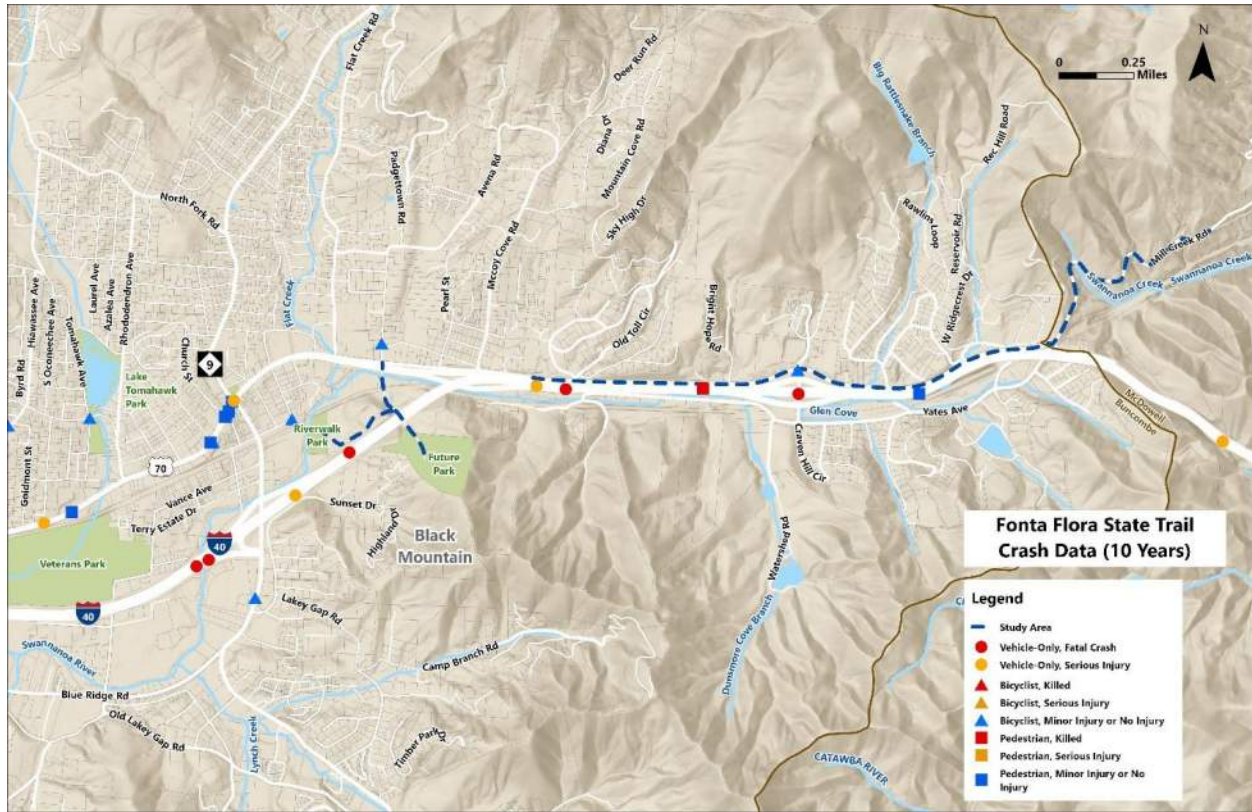


Figure 35. Crash Data

The project team reviewed crash data from January 1, 2014 to December 31, 2023 to evaluate safety for all users. In the last ten years, there was one pedestrian crash that occurred along Old US Highway 70 in the study area. This was a minor injury crash involving a pedestrian walking adjacent to the roadway. No fatal or severe bicycle/pedestrian crashes occurred along the study roadways in this timeframe. However, there are numerous crashes nearby that are notable for multimodal safety. As illustrated in **Figure 35**, bicyclist and pedestrian crashes are concentrated near downtown Black Mountain, an area where more people walk and bike to reach destinations. Fatal and severe injury crashes tend to be located along the higher volume and higher speed roadways like I-40 and US 70. The residential communities of eastern Black Mountain and Buncombe County, as well as Ridgecrest, would benefit from a safe walking and biking facility that would directly connect them to downtown Black Mountain and Point Lookout Trail.

PREVIOUS PLAN REVIEW

The project team reviewed previous trail plans near the study area to evaluate connections and alignment opportunities with this Fonta Flora Paved Trail Feasibility Study. Relevant plans are discussed below.

US 70/Swannanoa River Greenway Feasibility Study

The US 70/Swannanoa River Greenway Feasibility Study was conducted for the Buncombe County Greenways and Trails Commission in 2010. Funding for this multi-jurisdictional project came from the French Broad River Metropolitan Planning Organization (FBRMPO). The study was split into five geographical focus areas, including the Town of Black Mountain and Ridgecrest. Due to the many individual greenway projects taking place in the area, the study aimed to provide a “Map of Possibilities” for trail alignments.

The study recommended a 10-foot asphalt trail for the study area of the US 70/Swannanoa River Greenway but did not make side-of-street distinctions or provide typical sections.

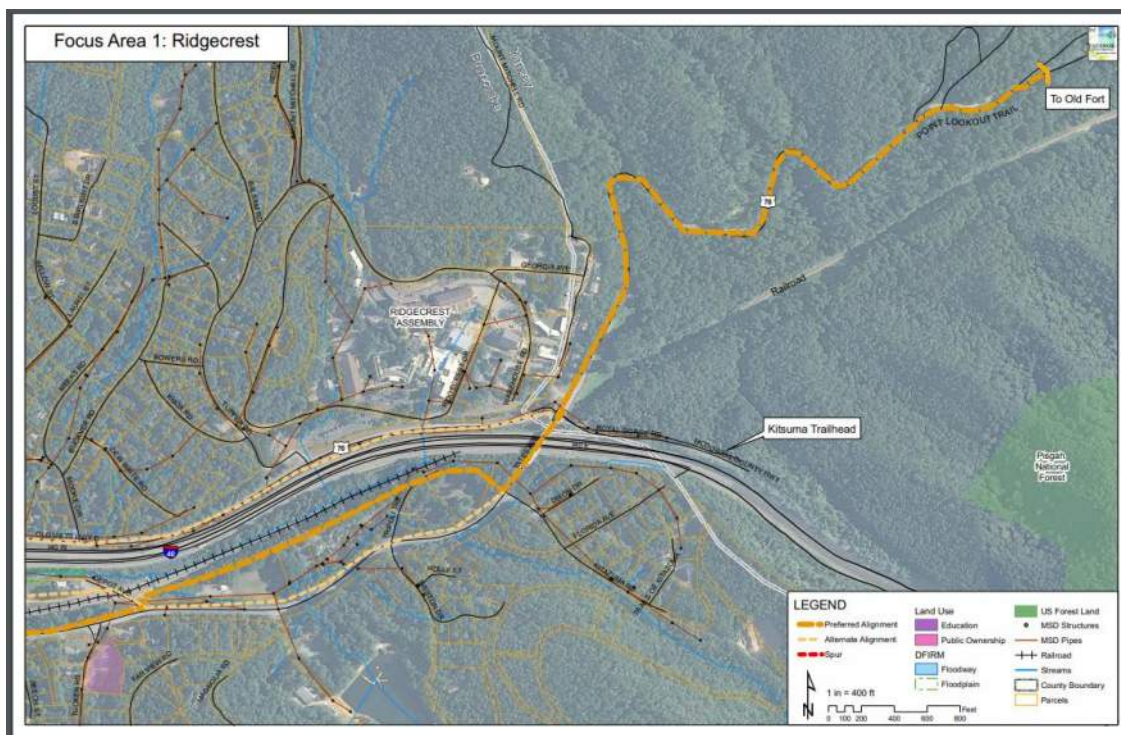


Figure 36. Proposed US 70/Swannanoa River Greenway Alignment near Ridgecrest (US 70/Swannanoa River Greenway Feasibility Study, 2010)

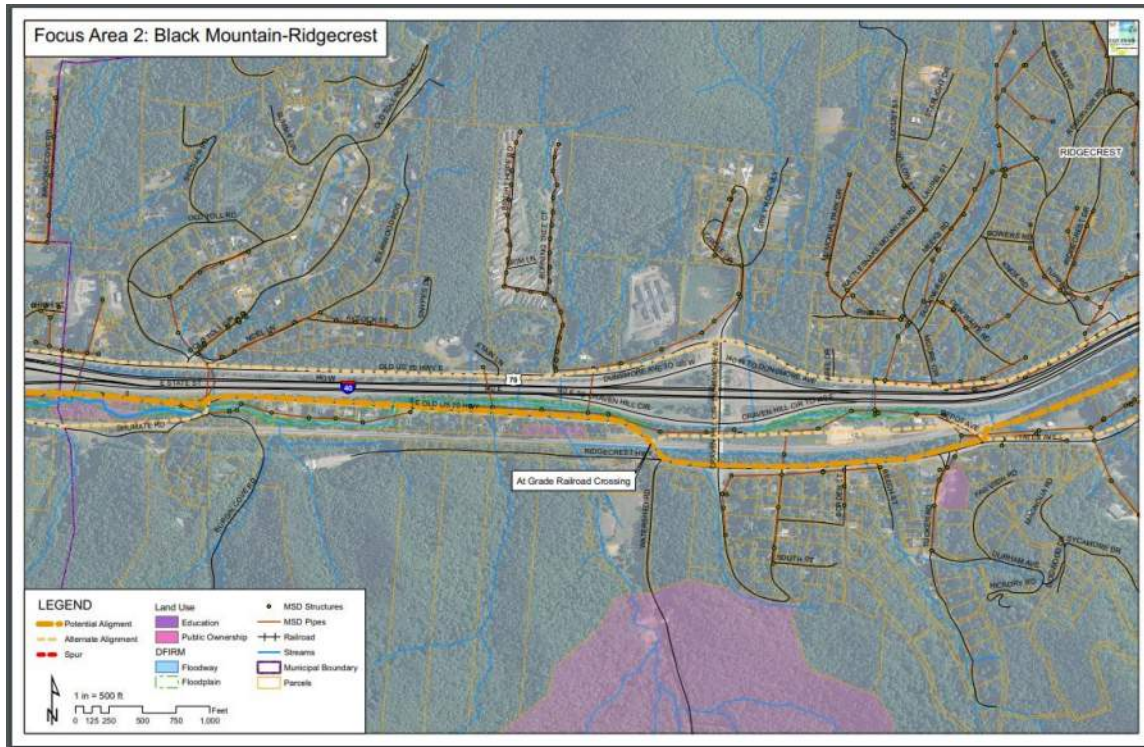


Figure 37. Proposed US 70/Swannanoa River Greenway Alignment between Black Mountain and Ridgecrest (US 70/Swannanoa River Greenway Feasibility Study, 2010)

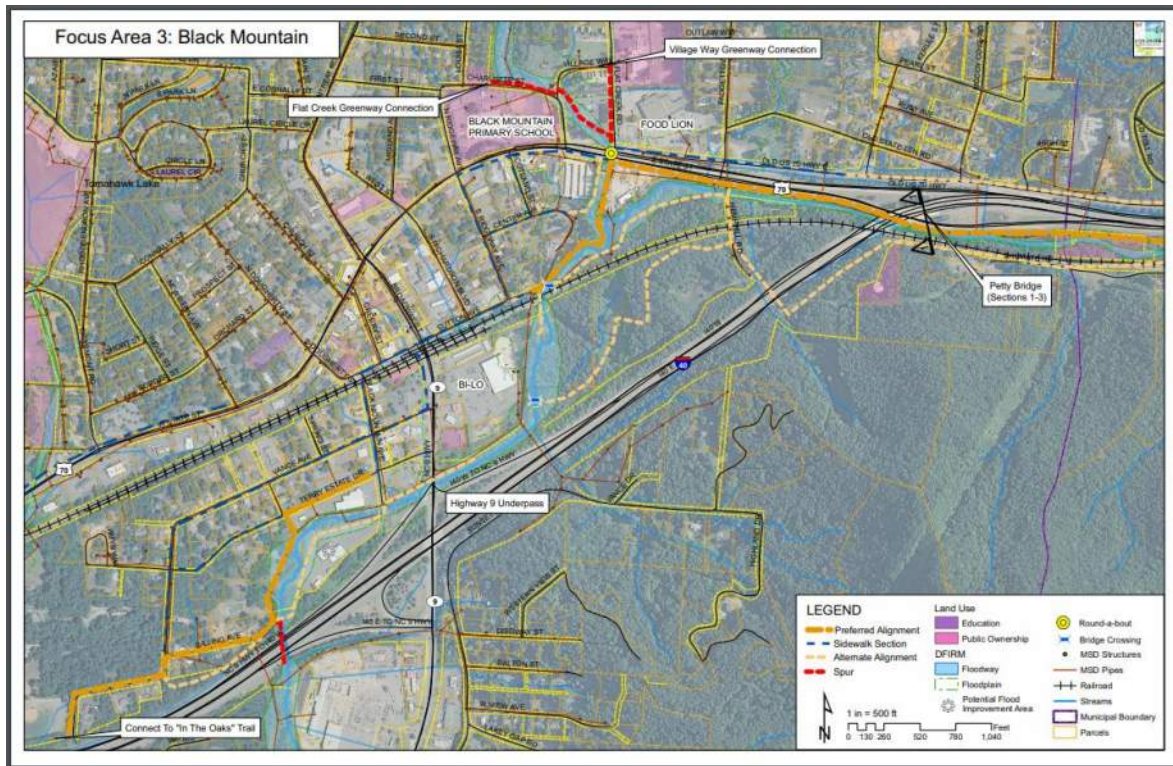


Figure 38. Proposed US 70/Swannanoa River Greenway Alignment near Black Mountain (US 70/Swannanoa River Greenway Feasibility Study, 2010)

Ridgecrest Trail Connector

The Ridgecrest Trail Connector Feasibility Study was completed in 2024 by the French Broad River MPO, NCDOT Integrated Mobility Division (IMD), and the Town of Black Mountain. This trail segment was previously identified in the Town of Black Mountain Greenway Master Plan (2019). The study evaluated options to provide a multi-use paved trail in the Town of Black Mountain from Scotland Street to the Town of Black Mountain boundary just east of High Street. The paved trail would run along US 70 and Old US Highway 70 East along the north side of the roadway. The study recommended two typical sections.

The first typical section is a 10-foot concrete multi-use path separated from Old US Highway 70 East by a planting strip and curb-and-cutter (shown in **Figure 39**). The 10-foot concrete path section runs from Scotland Street to Flat Creek Road. A trail with this typical section is likely feasible for this Paved Trail Feasibility Study and will be considered in subsequent tasks.

The second typical section is an in-street, 10-foot asphalt path with a 1.5-foot concrete monolithic island (**Figure 40**). This 10-foot in-street asphalt path section runs from Flat Creek Road to the Town of Black Mountain Boundary.

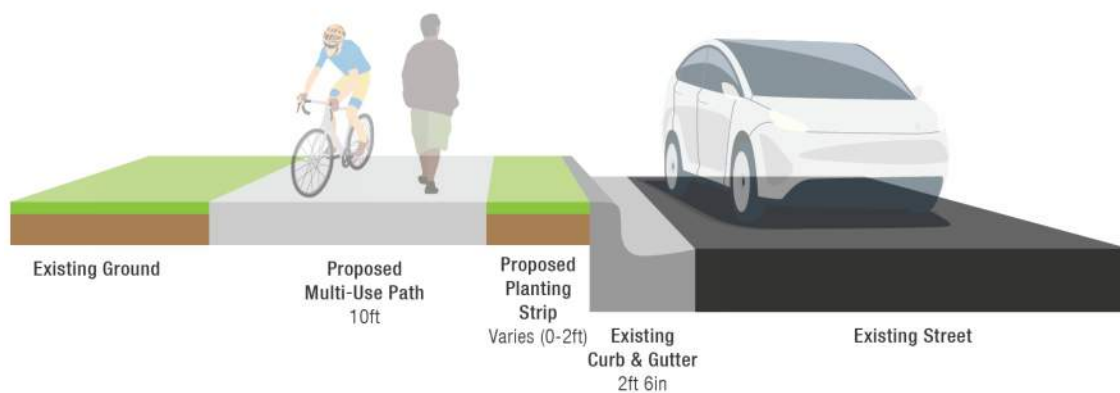


Figure 39. Ridgecrest Trail Connector Concrete Multi-Use Path Typical Section
(Ridgecrest Trail Connector Feasibility Study, 2024)

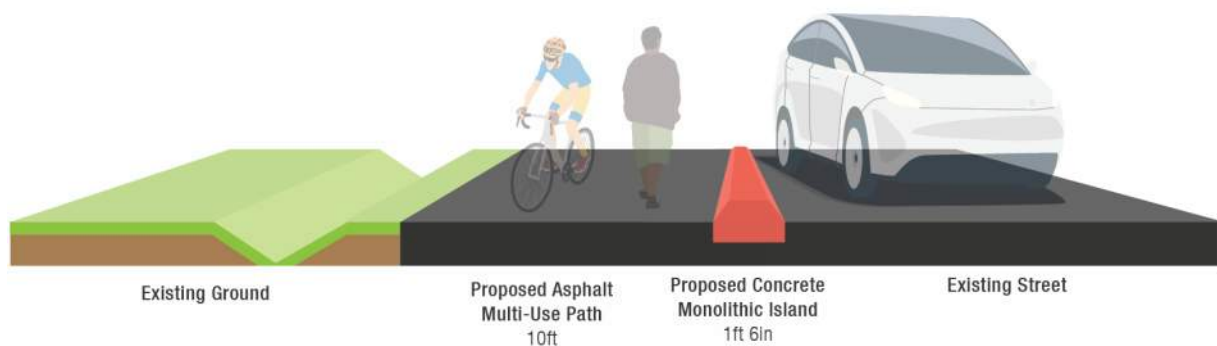


Figure 40. Ridgecrest Trail Connector In-Street Multi-Use Path Typical Section
(Ridgecrest Trail Connector Feasibility Study, 2024)

Comprehensive Parks and Recreation Master Plan

The Town of Black Mountain's Comprehensive Parks and Recreation Master Plan was adopted by Town Council in 2023. The plan outlines a set of recommendations related to future parks and recreational improvements throughout the Town. The plan recommends acquiring the Hemphill property (and two adjacent parcels) to expand River Walk Park and construct a new community park. The two parcels adjacent to River Walk Park were proposed to expand the existing trail network and serve as a link between River Walk Park and the proposed new community park on the Hemphill property.

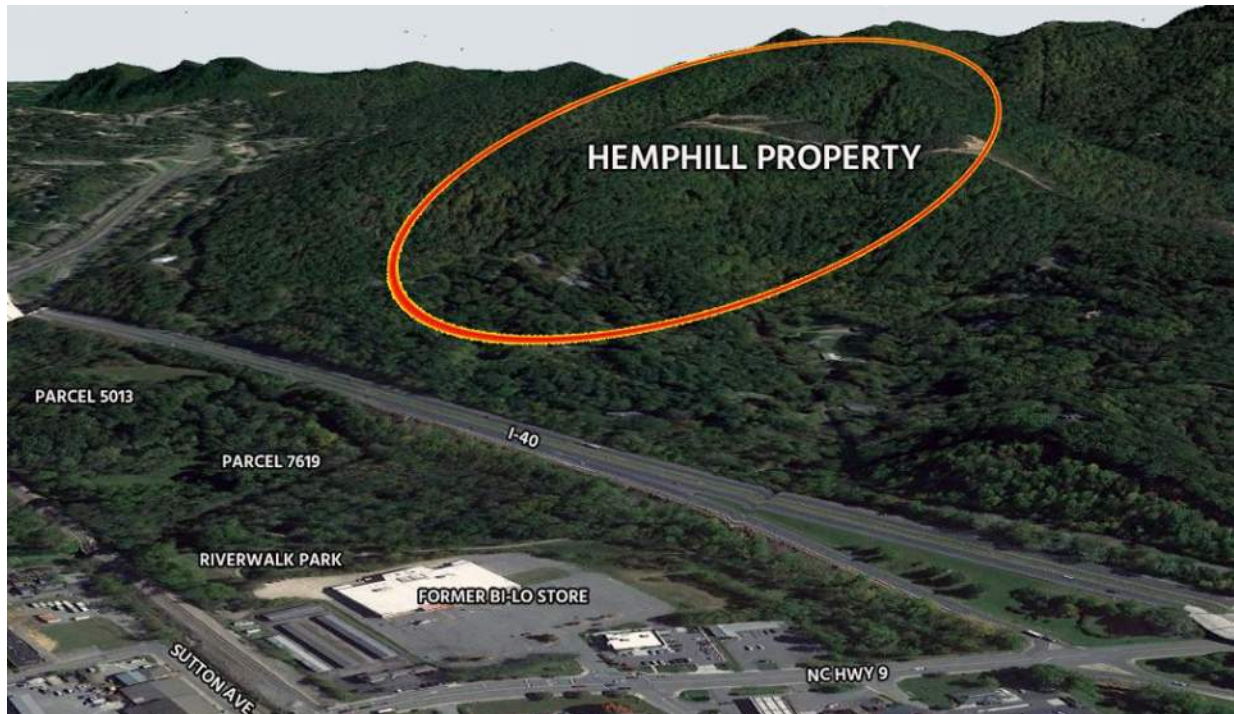


Figure 41. Hemphill Property and Parcels Adjacent to River Walk Park
(Comprehensive Parks and Recreation Master Plan, 2023)

FIELD REVIEW

The project team participated in a field review to better understand conditions along the study area following the impacts from Hurricane Helene in Fall 2024. Detailed notes from the field review are included in **Appendix A**.

Key findings from the field review included:

- There is noticeable property and infrastructure damage from Hurricane Helene, especially near River Walk Park, Hemphill Road, and Mill Creek Road.
- Access to the Hemphill property south of I-40 would require re-purposing the existing tunnel, railroad crossing, and Swannanoa River crossing.
- There are pedestrian and bicycle safety concerns at the US 70/Hemphill Road intersection.
- There is limited space south of Old US Hwy 70.
- There are steep slopes on both sides of Mill Creek Road.



Figure 42. Field Review Photos

(Clockwise from top left: steep slopes along Mill Creek Road; Flood debris from Hurricane Helene in the Swannanoa River; River Walk Park entry sign; Hemphill Road underpass beneath I-40)

KEY TAKEAWAYS

The review of existing conditions resulted in the following key takeaways that will play an important role in shaping the preferred alignment and design of this segment of the Fonta Flora paved trail.

- Previous trail feasibility studies provide useful guidance for the Fonta Flora paved trail alignment and design decisions.
- The preferred alignment should connect to the Ridgecrest Trail Connector in Black Mountain.
- The north side of Old US Hwy 70 has fewer space constraints than the south side that is adjacent to I-40.
- A 10-foot paved trail is an ideal width in locations without space constraints.
- There are more key destinations along the north side of Old US Hwy 70.
- Natural environment constraints, such as steep slopes and interactions with floodplains, are present throughout the study area.

Stakeholder and Public Outreach

This Fonta Flora Paved Trail Feasibility Study was informed by early and continuous engagement with community members through a variety of channels and opportunities. The engagement process occurred primarily in the Town of Black Mountain to promote local participation. A formal Steering Committee provided opportunity for local agency leaders, stakeholders, and community members to work directly alongside the project team to develop a project vision, goals, and final recommendations. Two additional outreach opportunities were conducted in July 2025 and October 2025 at the Black Mountain Tailgate Market. The project team came to this community event to discuss trail alternatives and collect public feedback on project's final recommendations.

STEERING COMMITTEE

The Steering Committee was comprised of a broad range of project stakeholders that represented a range of interests from local and regional government, trail advocacy, economic development, and state parks and trails. The organizations represented on the committee include:

- Town of Black Mountain
- Town of Marion
- Town of Old Fort
- Buncombe County
- McDowell County
- Land of Sky Regional Council
- Foothills Regional Commission
- North Carolina Department of Transportation (NCDOT) Integrated Mobility Division (IMD)
- North Carolina State Parks
- Friends of the Fonta Flora State Trail
- Local community members and trail advocates

March Steering Committee Meeting

Steering Committee members participated in the kickoff meeting for the Fonta Flora Paved Trail Feasibility Study on March 6th, 2025. The purpose of this kickoff meeting was to identify the values held by Black Mountain, Buncombe County, and McDowell County residents and stakeholders that should be reflected in a new paved trail. Project goals and a vision statement were drafted by the Steering Committee and later refined by the project team. These goals, and the project vision statement, guided the development of paved trail recommendations. See the "Executive Summary" for the project goals and vision statement.

Information used to inform paved trail recommendations:

- Project goals
- Project vision statement

May Steering Committee Meeting

The purpose of the second Steering Committee meeting (May 12, 2025) was to confirm the project vision statement and goals, review the existing conditions analysis, and discuss trail alignment alternatives. Steering Committee members offered input on the preliminary recommendations for each potential trail segment of the Fonta Flora Paved Trail. This discussion informed the trail alignment alternatives evaluation that was used to select a preferred trail alignment. The **Alternatives & Evaluation** section of this report details the segment evaluation process and findings.

Information used to inform paved trail recommendations:

- Confirmation of existing conditions analysis findings
- Feedback on the opportunities and challenges for each potential trail alignment

October Steering Committee Meeting

The purpose of the third Steering Committee meeting (October 17, 2025) was to revisit progress from previous phases of the project, collect feedback on final recommendations, and discuss next steps to implement this segment of the Fonta Flora State Trail. The committee discussed the recommended preferred alignment and preliminary concept design, including important side-of-street decisions, typical trail design, and trail amenities. Two key pieces of feedback were offered by the Steering Committee. First, the US Forest Service gate at the Point Lookout Trailhead should be upgraded to be ADA-compliant so that wheelchair users can access the trail. Second, the Fonta Flora paved trail could be a candidate for potential funding through NCDOT's Strategic Transportation Prioritization (SPOT) process. Finally, next steps to implement the trail were discussed with potential actions for government staff, NCDOT, and local trail advocates/residents.

Information used to inform paved trail recommendations:

- Confirmation of final recommendations
- Feedback on trail amenities and potential funding opportunities



Figure 43. Steering Committee Members at the October 17, 2025 Meeting

(From left Steve Pierce - Friends of the Fonta Flora State Trail Board; Hannah Bagli - Land of Sky Regional Council; Chloe Donohoe - Buncombe County)

PUBLIC ENGAGEMENT

The two community pop-up events in Black Mountain at the Black Mountain Tailgate Market allowed for residents and visitors to share their thoughts on the study and its recommendations.

July Community Pop-Up

The Fonta Flora Paved Trail Feasibility Study team visited the Black Mountain Tailgate Market on Saturday, July 5, 2025 to collect feedback on the existing conditions analysis and the preferred trail alignment. The pop-up engagement event was advertised via social media and flyers that were distributed to local businesses. In total, the project team spoke with over 160 people and collected significant feedback that led to several important takeaways.

These key takeaways directly influenced the final recommendations for the paved trail:

1. Community members and project stakeholders agree that a trail alignment along Old US Hwy 70 connects to more destinations (such as Ridgecrest Conference Center) and involves fewer challenges (such as railroad crossings, river crossings, and limited right-of-way) than other potential alignments.
2. Yates Avenue and additional neighborhood streets that connect to Old US Hwy 70 are frequently used as walking and biking routes. The trail should provide access and safe connections to these other routes.
3. Residents of Black Mountain, Buncombe County, and McDowell County want to be involved in the planning process and act as champions for the Fonta Flora Paved Trail.



Figure 44. July Pop-Up at Black Mountain Tailgate Market

October Community Pop-Up

The Fonta Flora Paved Trail Feasibility Study team visited the Black Mountain Tailgate Market on Great Trails State Day (Saturday, October 18, 2025) to share the final recommendations for a section of the Fonta Flora State Trail. The pop-up engagement event offered an opportunity for residents and visitors to learn more about the trail and ask questions directly to the design team. Over 100 people stopped by the booth during the market, demonstrating strong interest in the trail alignment. Attendees reviewed proposed improvements, discussed the feasibility study findings, and shared feedback on the proposed alignment. In general, feedback on the proposed alignment overwhelmingly confirmed support for the preferred alternative.



Figure 45. October Pop-Up at Black Mountain Tailgate Market

Alternatives & Evaluation

Informed by the existing conditions and community outreach, several alternatives for the paved trail were identified and evaluated to determine a recommended alignment for the Fonta Flora State Trail. Some initial ideas for potential trail alignments were submitted during the project’s application for funding to NCDOT IMD. These alignments were vetted by the project team with the project’s goals in mind. These initial alternatives were then refined to establish a preferred alternative based on a screening evaluation, community input, and consideration of potential costs.

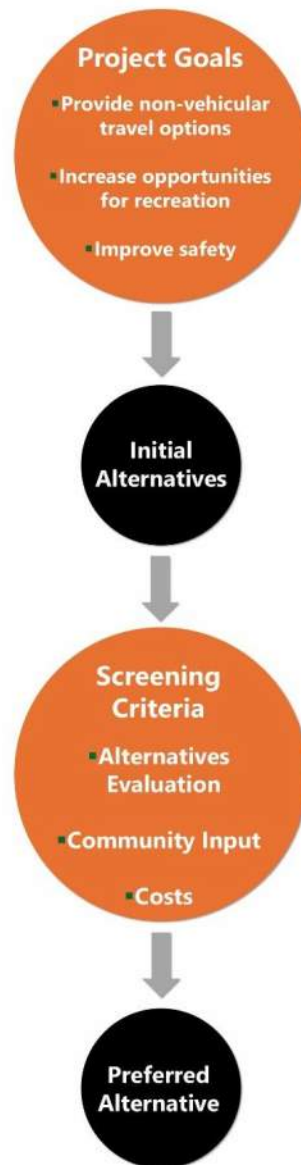


Figure 46. Development of Initial Alternatives and Selection of Preferred Alternative Process

ALIGNMENT ALTERNATIVES EVALUATION

The project team evaluated the various alignment alternatives based on a set of 13 criteria, then reviewed the results with the Steering Committee to confirm a recommended preferred alignment. Those criteria include:

- Structures required
- Impacts to existing curb
- Private property impacts
- Utility impacts
- Creek/river/tributary crossings
- Major street crossings
- Slopes
- Flood-way impact
- Access to destinations
- Access to employment centers
- User comfort
- Opportunity to leverage hurricane recovery projects
- Cost

Screening Segments

Six potential trail segments were evaluated as follows (See **Figure 47**):

- **Segment A:** River Walk Park connection from River Walk Park to Hemphill Road
- **Segment B:** Hemphill Road connection from future Town of Black Mountain Park to Ridgecrest Trail Connector
- **Segments C1 & C2:** Both sides of Old US Hwy 70 from Town of Black Mountain Limits (Old Toll Circle) to Mill Creek Rd/Yates Ave
- **Segments D1 & D2:** Both sides of Mill Creek Road from Old US Hwy 70/Yates Ave to the existing Point Lookout segment of the Fonta Flora State Trail

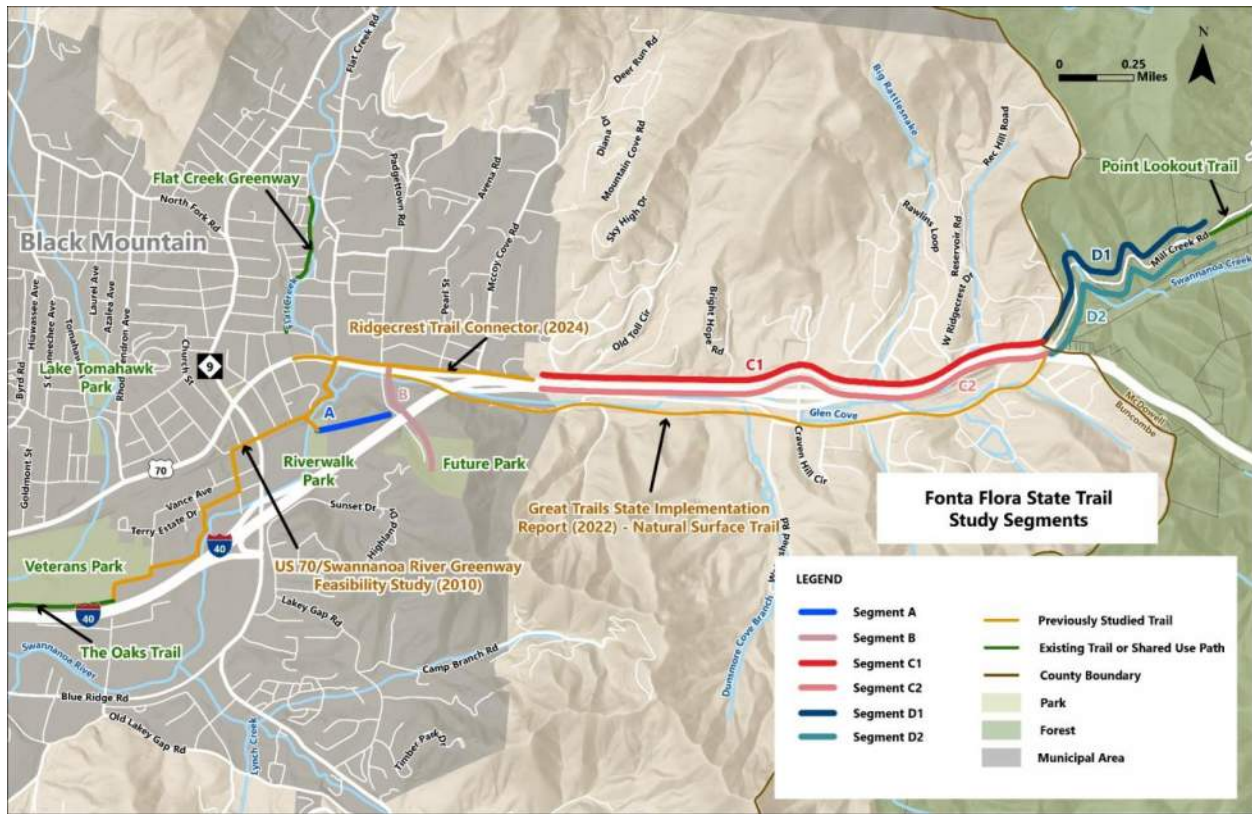


Figure 47. Fonta Flora Paved Trail Screening Segments

Segments A and B were evaluated as potential future connections to Town of Black Mountain park properties. For the purposes of this study, it was assumed that the primary route for the Fonta Flora State Trail would follow previously studied/designed alignments through the Ridgecrest Trail Connector and the US70/Swannanoa River Greenway Feasibility Study (see orange lines in **Figure 47**, above). Segments A and B are included as secondary recommendations and important connections to the mail trail alignment. Both segments will require further study. See “Secondary Recommendations” below.

Screening Criteria

Potential trail segments were screened against multiple criteria prioritizing user comfort, constructability, and alignment with NCDOT’s Strategic Transportation Investments (STI) process. The STI process establishes a formula which allocates available funding based on data-driven scoring and local input. Thirteen total criteria were used to screen six trail segments. This included a side-of-street evaluation for the Old US Hwy 70 and Mill Creek Road segments which considered major street crossings and access to destinations. Some criteria were quantitative (i.e. length, number of creek crossings, and number of structures required), while others were qualitative (access to destinations, user comfort, and roadway reconfiguration). **Table 3** highlights each of the criteria used to prioritize trail segments.

Table 3. Segment Screening Criteria

Criteria Category	Criteria	Measure
STI Prioritization	Structures required	Type, Length
	Impacts to existing curb	Yes/No
	Private property impacts	Right-of-Way Area (square feet)
	Utility impacts	None/Minor/Significant
Constructability	Creek/river/tributary crossings	Count
	Major street crossings	Count
	Slopes	Few/Some/Significant
	Flood-way impact	Yes/No
	Cost	Dollars
	Opportunity to leverage hurricane recovery projects	Maybe/No
User Experience	Access to destinations	Fair/Good
	Access to employment centers	Fair/Good/Excellent
	User comfort	Fair/Good/Excellent

The potential trail segments were evaluated by referencing available spatial data, findings from the field review, data collected during the existing conditions analysis, and other relevant resources provided by Black Mountain, Buncombe County, McDowell County, and NCDOT (

Table 4). The recommended preferred trail alignment was chosen after referencing evaluation matrix screening results and gathering feedback from the Steering Committee. See **Appendix B** for the full evaluation matrix.

Table 4. Segment Screening Evaluation

Segment	Field Review Findings	Evaluation Findings
A (River Walk Park Connection)	<ul style="list-style-type: none"> Significant damage from Hurricane Helene (River Walk park is currently closed) A greater than 100-foot bridge/boardwalk section will be required to cross the Swannanoa River 	<ul style="list-style-type: none"> No impact to private property Limited utility impacts Opportunity to expand and rebuild River Walk Park and tie into the River Walk Trail FEMA buyouts and recovery efforts are still in process
B (Hemphill Road)	<ul style="list-style-type: none"> Apparent damage from Hurricane Helene to structures along Hemphill Road 	<ul style="list-style-type: none"> Further study required to understand the feasibility of improving the narrow Swannanoa River bridge, at-grade crossing of Norfolk Southern railroad tracks, and single lane underpass beneath I-40

	<ul style="list-style-type: none"> ■ Intersection improvements would be required to support safe pedestrian and bicycle crossings at the intersection of US 70 and Hemphill Road 	<ul style="list-style-type: none"> ■ Topography challenges ■ Important connection between the future park south of I-40 and to the Fonta Flora State Trail / Ridgecrest Trail Connector
<p>C1 & C2 (Old US Hwy 70)</p>	<ul style="list-style-type: none"> ■ Limited space south of Old US Hwy 70 due to retaining the wall, guardrail, and fence between I-40 ■ Numerous residential driveways located close to the street on the north side ■ Dense vegetation/potential utility conflicts in areas 	<ul style="list-style-type: none"> ■ Important connection to the Ridgecrest Conference Center ■ Some potential impact to private property at Ridgecrest Conference Center ■ Many conflicts with driveways and minor streets
<p>D1 & D2 (Mill Creek Road)</p>	<ul style="list-style-type: none"> ■ Steep slopes throughout Mill Creek Rd ■ Opportunities to provide trail parking ■ Coordination with NCDOT needed to determine if road reconstruction efforts following Hurricane Helene may provide an opportunity to accommodate a paved trail. 	<ul style="list-style-type: none"> ■ Likely no impacts to private property – needs survey and geotechnical analysis to confirm extents of grading ■ Significant topography challenges ■ Important connections to both Point Lookout and Kitsuma Peak trailhead

Side-of-Street Considerations

Side-of-street options were evaluated for Segment C (Old US Hwy 70) and Segment D (Mill Creek Road).

Old US Hwy 70: For Segment C, the north side of Old US Hwy 70 was determined to be a more feasible alignment for its constructability, access to destinations, and connection to the Ridgecrest Connector Trail which is being advanced toward final design and construction by the Town of Black Mountain. Conversely, the south side of Old US Hwy 70 has limited space due to right-of-way constraints with I-40, would likely require roadway reconfiguration in some spots, would not connect directly to the Ridgecrest Connector Trail, and has greater concerns for user safety and comfort.

Mill Creek Road: For Segment D, the side-of-street considerations revolved around steep slopes adjacent to the mountainside and whether to place the trail along the upslope or downslope side of Mill Creek Road. On the upslope side, the trail would require construction of significant retaining wall structures. On the downslope side, the trail would require construction of a modular boardwalk.

The Steering Committee decided that cost should be used as the primary deciding factor between these two options. The project team completed a preliminary opinion of probable cost, with the upslope/retaining wall option determined to be less costly.

Upslope Trail Alignment (Segment D1)				Downslope Trail Alignment (Segment D2)			
TOTAL COST	Construction Cost	Private Property Impacts	Right-of-Way Cost	TOTAL COST	Construction Cost	Private Property Impacts	Right-of-Way Cost
\$9,473,430	\$9,379,680	20,000 SF	\$93,750	\$14,129,380	\$17,036,630	20,000 SF	\$93,750

NOTE – At this stage of concept development there are still significant project unknowns that limit the detail and accuracy of this preliminary opinion of probable costs. The construction line item costs were developed using broad per mile, per square foot, and/or per intersection assumptions for major design treatments. No survey or geotechnical analysis has been completed at this stage to calibrate right-of-way acquisition assumptions or to inform design development, materials quantities, utilities impacts, or other cost components. No appraisals have been completed to verify the potential real estate costs. The project costs include broad percentage assumptions for survey, design, and construction management. A significant contingency percentage has been assumed to account for the significant unknown project conditions that exist at this stage. Project costs were developed using 2025 dollars.

Figure 48. Diagram of Mill Creek Rd. Options – Segment D1 upslope trail alignment with cut and retaining wall structures (left) vs. Segment D2 downslope trail alignment with modular boardwalk (right)



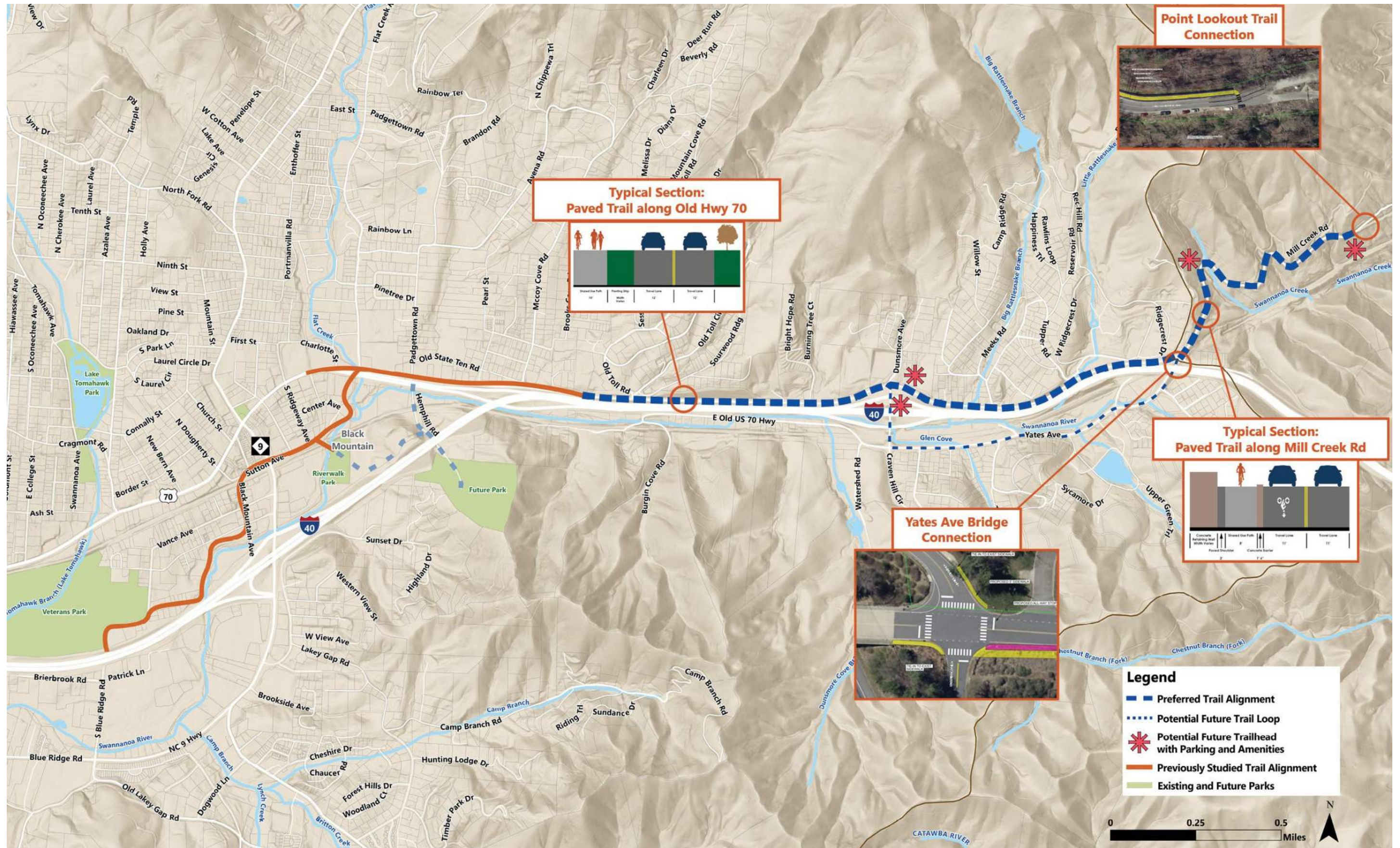
Recommendations

PRIMARY ALIGNMENT

The preferred alignment for the Black Mountain to Point Lookout Trail Segment of the Fonta Flora State Trail is illustrated in **Figure 49**. This alignment was selected based upon the screening evaluation and input from the study's Steering Committee and Black Mountain, Buncombe County, and McDowell County staff. This same figure (**Figure 49**) also illustrates potential locations for future trailheads that could be considered in partnership with Buncombe County or private sponsors (see the **Trail Amenities** section for more information on trailheads).

The preferred alignment for the trail is along the north side of Old US Hwy 70 and the upslope side (north/west side) of Mill Creek Road. Intersection safety improvements, such as adding stop bars and high visibility crosswalks, related to the trail, are recommended at Dunsmore Avenue and Yates Avenue. These intersection safety improvements will facilitate connections to residential areas as well as additional walking/biking routes that were identified while speaking to community members during the Black Mountain Tailgate Market pop-up engagement events. Potential trailhead and parking improvements should be considered at Dunsmore Avenue, Mill Creek Road, and the Point Lookout trailhead.

Figure 49. Preferred Alignment and Potential Trailhead Locations



Recommended Design Standards

For this Fonta Flora State Paved Trail Feasibility Study, typical design standards were established to facilitate the implementation of a paved trail that provides safe opportunities for outdoor recreation and connectivity between Black Mountain and Point Lookout Trail. The proposed design standards emphasize separation between vehicles and trail users. Two different typical sections were developed to accommodate the unique design challenges on Old US Hwy 70 and Mill Creek Road. Additionally, these design standards reflect the proposed 10-foot typical width for the Ridgecrest Trail Connector design. The 10-foot shared-use path recommended below will provide a consistent experience for Fonta Flora State Trail users.

The standard design criteria for elements of the paved trail are outlined below:

- The typical section along Old US Hwy 70 is a 10-foot paved trail separated from the roadway with a planting strip of varied widths (**Figure 50**). In most locations, the plating strip would function as a drainage swale.

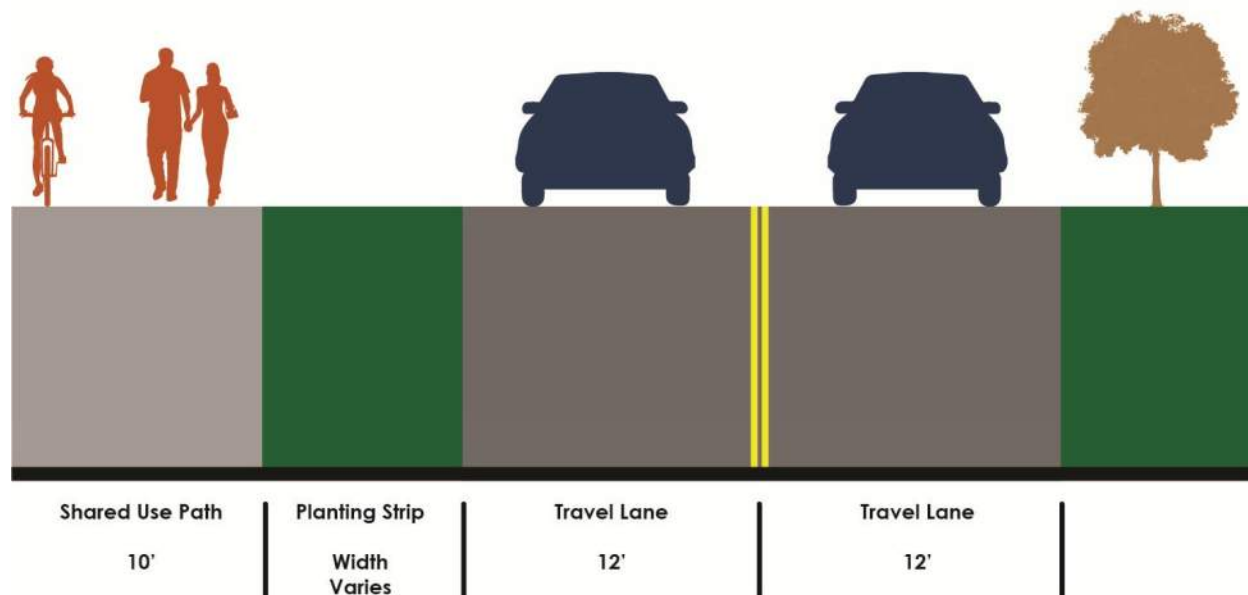


Figure 50. Old US Hwy 70 Typical Section – Recommended preferred alignment on the north side of the street

- The typical section along Mill Creek Road includes an 8-foot paved trail and a 2-foot paved shoulder (Figure 51). These may be paved in the same material to achieve a consistent 10-foot paving treatment. However, to account for shy distance from the necessary retaining walls on the upslope side, the usable width of the trail is still assumed to be 8 feet. A concrete barrier (1' 6" wide and curb height) is proposed to separate trail users from the roadway. The barrier could be modular curb / parking blocks or a cast in place curb with regular breaks to accommodate stormwater drainage. A sharrow (i.e., shared travel lane and bike lane) is proposed in the downhill direction. This provides another option for downhill cyclists that are comfortable riding in traffic with less speed differential between downhill cyclists and vehicles than cyclists riding in the uphill direction.

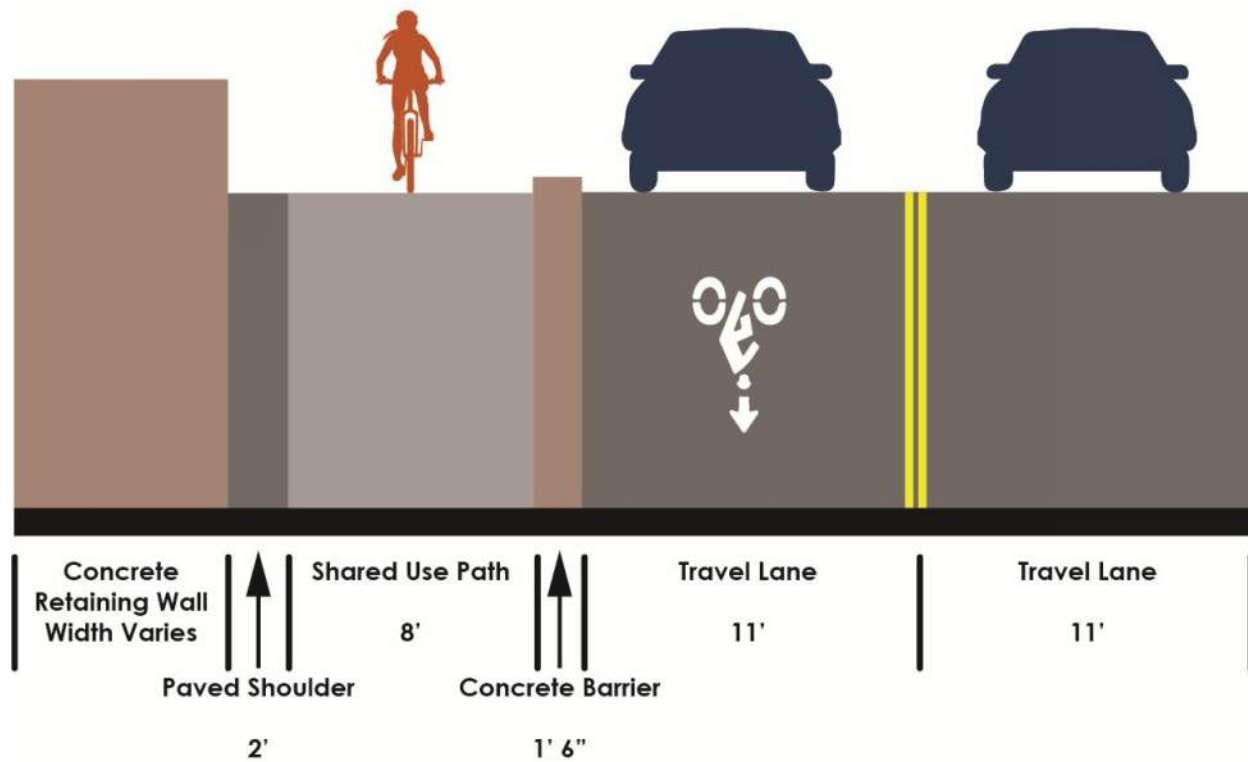


Figure 51. Mill Creek Road Typical Section – Recommended preferred alignment on the upslope (north/west) side of the street

SECONDARY RECOMMENDATIONS

In addition to the primary Fonta Flora State Trail alignment along Old US Hwy 70 and Mill Creek Road, there are several important opportunities for supporting improvements that were emphasized by the Steering Committee and the public for inclusion as secondary recommendations within this feasibility study.

Future Yates Avenue/Dunsmore Avenue Sidewalk Loop

A sidewalk loop along Yates Avenue between Dunsmore Avenue and Yates Avenue was identified as a potential future improvement to support access to the Fonta Flora State Trail. Field observations and discussions with community members at both pop-up events revealed that this is an existing route used by pedestrians and bicyclists in the region. This loop will also promote safer access for pedestrians and bicyclists to residential areas south of I-40.

The concept trail design provides crossing improvements at both the Yates Avenue and Dunsmore Avenue intersections with Old US Hwy 70 to support safe access to this future connection and to the Kitsuma Trailhead parking lot (**Figure 52**). Improvements at these intersections include extended sidewalks, high-visibility crosswalks, stop bars, and a potential all-way-stop conversion.

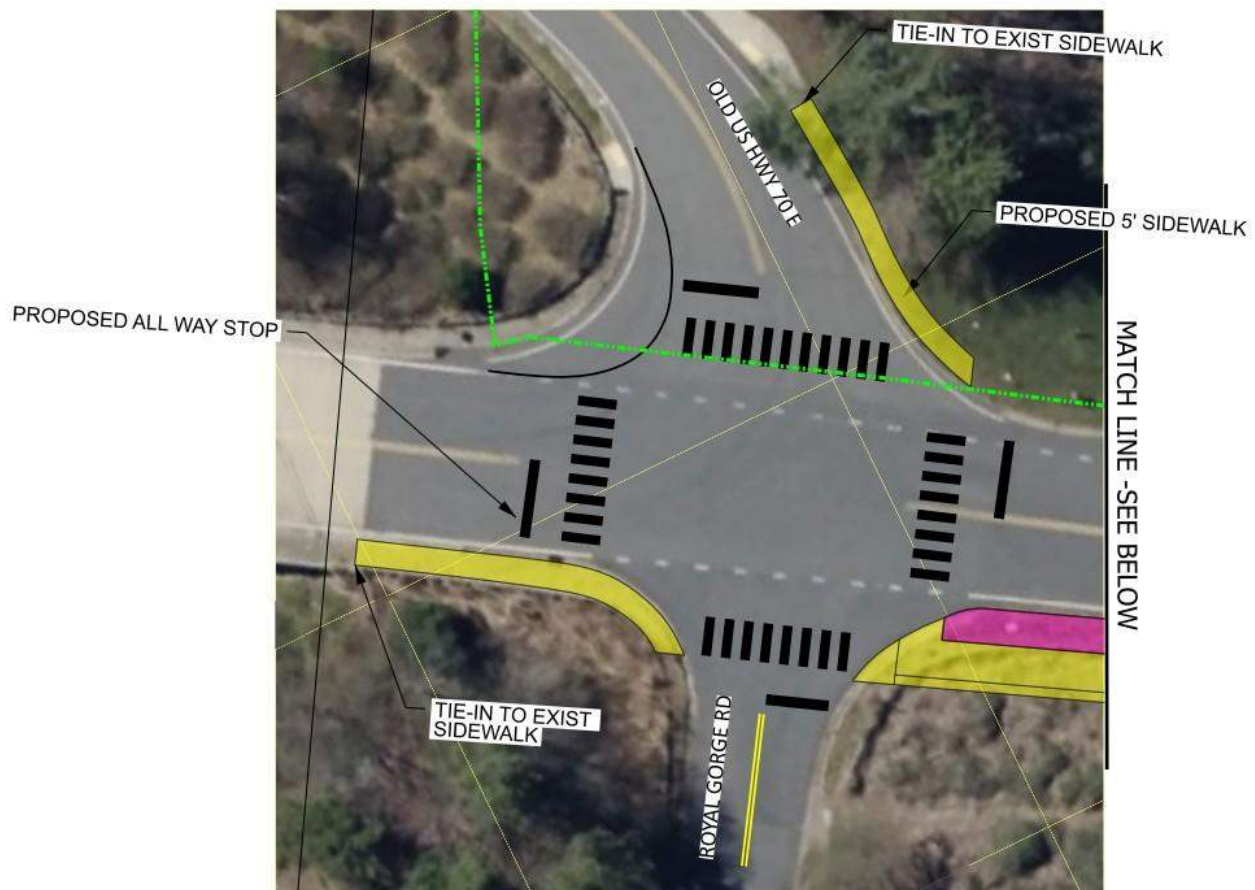


Figure 52. Concept Design for Intersection Improvements at Yates Avenue

Future River Walk Park and Hemphill Road Connections

River Walk Park (Segment A) and Hemphill Road (Segment B) were identified as key future connections to the primary Fonta Flora State Trail alignment.

Segment A (River Walk Park connection) would establish an important connection to the 2-acre River Walk Park. Prior to Hurricane Helene, the park included a small dog park, picnic tables, and a ½ mile walking trail along the Swannanoa River. These amenities were heavily impacted by flooding from Hurricane Helene. This proposed trail connection is entirely within the floodplain area and will require a new bridge over the Swannanoa River. It is also near potential FEMA flood buyout parcels that may accommodate the future trail. Due to uncertainty with ongoing FEMA flood buyouts and damage from Hurricane Helene, a specific alignment for this future trail segment was not identified.

Segment B (Hemphill Road connection) follows a privately maintained road between Old US Hwy 70 and property that was recently purchased by the Town of Black Mountain for a future park. Hemphill Road involves three significant challenges for future trail design and construction – a narrow existing bridge over the Swannanoa River, an at-grade crossing of the Norfolk Southern railroad tracks, and a single-lane underpass beneath I-40. All 3 of these locations may require costly improvements to accommodate a future paved trail.

These potential future improvements should continue to be studied/completed in association with the Town of Black Mountain Parks and Recreation's evaluation of a future park at the Hemphill property. There are numerous issues to consider related to access and usage of the routes between the Fonta Flora State Trail, the future town park at the Hemphill property, and River Walk Park:

- Anticipated park usage
- Future Hemphill Road maintenance
- Hemphill Road crossing of Norfolk Southern railroad tracks
- Single-lane underpass beneath I-40
- Future intersection improvements (likely to require a new traffic signal) at Hemphill Road/State Street/Old US Hwy 70 intersection
- Trail bridge crossing of Swannanoa River



Figure 53. River Walk Park and Hemphill Road

CONCEPT PLAN

A preliminary concept plan illustrating the project's recommended improvements can be found in **Appendix C**. Preliminary opinions of probable cost for the recommended phases of trail design and construction can be found in **Appendix D**. Project cutsheets for each of the paved trail network phases were developed to support future funding applications through NCDOT's Strategic Transportation Investments (STI) process, and can be found in **Appendix E**.

TRAILHEADS





Trailheads with parking were identified by the Steering Committee as a key amenity for the Fonta Flora State Trail. Trailheads play an important role in transforming a trail into a recreation destination by designating specific locations for beginning and ending trail trips. Vehicular and bicycle parking at trailheads provides an additional level of trail accessibility for residents and tourists who might be visiting from further distances. The following trailhead locations were recommended for this segment of the Fonta Flora State Trail.

- **Old US Hwy 70 at Dunsmore Avenue:** A trailhead location with parking at Dunsmore Ave would facilitate easy access to trail users traveling from I-40. It would support a key connection to residential areas north and south of I-40. This trailhead would also serve as one end of the future Yates Avenue/Dunsmore Avenue sidewalk loop discussed as a secondary recommendation for the trail. Two potential trailhead locations were identified at this intersection. Both are within NCDOT right-of-way. Establishing a trailhead here would require intersection safety improvements to accommodate pedestrian and bicycle crossings.
- **Mill Creek Road at Point Lookout Trail:** There is an existing informal trailhead with limited parking at this location. Parking and amenities should be upgraded to create a formal trailhead at this popular midpoint location along the Fonta Flora State Trail between Black Mountain and Old Fort. Space for additional parking and amenities here is limited by challenging topography.
- **Along Mill Creek Road:** While upgrading the existing informal trailhead at the Point Lookout Trail should be a greater priority, establishing another parking area along Mill Creek Road would be a welcome amenity on busy weekends when parking areas fill up. There is a flat area in a switchback along Mill Creek Road that could accommodate a small parking area and trail amenities, although slope stability and stormwater issues would need more detailed study.

TRAIL AMENITIES

Trail amenities play an important role in improving trail safety and comfort for all types of users. Amenities can improve trail access (neighborhood connections or trailhead parking), beauty (public art or landscaping gardens), comfort (benches or restrooms), and ease of use (wayfinding). Based on guidance from the Steering Committee, the project team prioritized a set of amenities that would be most beneficial for inclusion along the Fonta Flora Paved Trail (**Table 5**). These preferred amenities are in alignment with amenities on other segments of the Fonta Flora State Trail and would help support a consistent user experience.

Table 5. Preferred Trail Amenities

Trail Amenity	Example	Benefits	Costs (per unit)
<p>Trailheads/Parking</p>		<p>Designated locations to begin/end trail trips for recreation users</p>	<p>\$10,000 to \$1,000,000 (depending on amenities included)</p>
<p>Trail Signage / Wayfinding</p>		<p>Assist trail users with accessing key destinations throughout Buncombe County and McDowell County</p>	<p>\$500 to \$2,000 per wayfinding sign post</p>
<p>Trail Branding</p>		<p>Support trail identity and user awareness of State Trail system</p>	<p>\$500 to \$2,000 per sign (depending on size/type and foundation requirements)</p>
<p>Collapsible Bollards (or other ADA-compliant gate feature) at Point Lookout Trailhead</p>		<p>Prevent vehicle encroachment on Point Lookout Trail while providing access to maintenance vehicles and trail users with limited mobility</p>	<p>\$200 to \$400 per bollard (does not include installation labor)</p>

Next Steps for Implementation

ACTION PLAN

This section identifies actions that agency staff, the Friends of the Fonta Flora State Trail, and their partners should take to pursue the improvements recommended in this feasibility study.

1. Coordinate with ongoing infrastructure, development, and hurricane recovery projects.

The implementation of the Fonta Flora Paved Trail will benefit from coordination amongst ongoing infrastructure, development, and Hurricane Helene recovery projects.

The State of North Carolina's ongoing recovery efforts in the aftermath of Hurricane Helene focus on rebuilding safe housing, restoring infrastructure, and revitalizing the economy of impacted communities. Homes, businesses, roads, bridges, parks, and trails in the study area were impacted by flooding from Hurricane Helene. Staff at the Friends of the Fonta Flora State Trail should coordinate with state leaders on opportunities to leverage recovery funds to accelerate the design and construction of the Fonta Flora State Trail. In particular, FEMA flood buyouts near Riverwalk Park and Hemphill Road may provide new opportunities to accommodate trail Segments A & B, and any remaining improvements to Mill Creek Road may provide an opportunity to support trail Segment D.

A new 60-home affordable housing community is being developed by Mountain Housing Opportunities on an 8-acre property off Old US Hwy 70. This site will be developed in three phases, with some homes constructed by 2026. The paved trail will act as an important recreation and transportation asset for this community as it will improve access to amenities in Black Mountain such as grocery stores, schools, health services, and parks. Any frontage improvements along Old US Hwy 70 that are required from Mountain Housing Opportunities should be planned and designed to accommodate the future Fonta Flora State Trail.

The Ridgecrest Trail Connector is a future paved trail that is planned for construction and will be designated as part of the Fonta Flora State Trail. This segment of the Fonta Flora State Trail connects Downtown Black Mountain to the eastern town limit just past High Street. Staff with the Town of Black Mountain, NCDOT, and Friends of the Fonta Flora State Trail should coordinate to ensure the construction of this trail segment will provide an effective transition to the future planned segments of the Fonta Flora State Trail.

Finally, local government staff should coordinate with the French Broad River MPO (FBRMPO) and Foothills RPO to ensure that the Fonta Flora State Trail alignment is recognized in their transportation plans.

2. Generate public support and build champions.

To ensure long-term success and community ownership of the future trail, Friends of the Fonta Flora State Trail and local agency staff should proactively cultivate public enthusiasm through a well-crafted outreach

and engagement strategy. This effort should go beyond basic promotion by inviting residents, trail users, and local organizations to become vocal champions for the project. Public meetings, storytelling campaigns, and interactive mapping tools can help foster a sense of shared vision and uncover valuable local insights. Staff should remain open and responsive to community feedback, recognizing that meaningful input may lead to adjustments in the preferred trail alignment during future design and construction phases.

3. Adopt the paved trail alignment and reflect it in local land use plans and development ordinances.

Buncombe County, McDowell County, and the Town of Black Mountain should formally adopt the preferred alignment and publish it on their website. These jurisdictions should also integrate the plan into other planning studies, such as the Buncombe County pedestrian plan. Adoption by the Black Mountain Town Council and County Commissioners will put the trail in a better position to secure grant funding. To fully capitalize on an adopted alignment, the Black Mountain Town Council and County Commissioners should take the additional step of adopting updates to their local land use plan and development ordinances that require adjacent developers to allocate space and construct the paved trail.

4. Pursue design funding.

Local staff should begin pursuing funding support for the next phases of survey, geotechnical analysis, and design for the trail. Because this is a segment of a designated state trail, it is eligible for special funding through the NC Complete the Trails Program. The majority of funds through the NC Complete the Trails Program are administered by the NC Division of Parks and Recreation. Funds are available to support the planning, construction, promotion, and maintenance of state trails.⁴

Other state and federal funding should also be considered. Where necessary, local funds should be used as a match to pursue state and federal grant funding to support the design of the trail. The French Broad River MPO (FBRMPO) and Foothills RPO will be useful resources while applying for various state and federal funding opportunities. This should include coordination with the French Broad River MPO (FBRMPO), Foothills RPO, and NCDOT to include the paved trail in the State Transportation Improvement Program (STIP).

Potential funding sources for trail design are highlighted in the **Funding** section below.

5. Complete survey and geotechnical analysis.

Completing a detailed survey and geotechnical analysis will be necessary to calibrate impacts to utilities and private properties and to ensure structural integrity. As mentioned previously, a geotechnical analysis is especially important in mountainous terrain to inform the trail design, protect user safety, and support long-term performance of the paved trail.

⁴ NC Complete the Trails Program. NC Trails. <https://trails.nc.gov/state-trails/nc-complete-trails-program>

This phase should include detailed topography, geology, and soil classification, to understand slope conditions and potential hazards. An engineering analysis should be performed to evaluate slope stability and bearing capacity, especially along Mill Creek Rd. where significant grading and retaining wall structures are expected. This will require subsurface investigations, like boreholes and soil sampling, and a hydrologic study to reveal soil strength, permeability, drainage patterns, and erosion potential. All of this will inform pavement design and slope stability strategies.

The final survey and geotechnical analysis should offer clear design recommendations for subgrade preparation, pavement structure, retaining walls, and drainage systems, along with a constructability assessment that considers landslide risks, access limitations, and seasonal constraints.

6. Complete 25% design.

With the benefit of the survey and geotechnical analysis, it will be possible to advance the plans to the next phase of design, which may be referred to as 25% or 50% design plans, depending on the expected number of plan submittals/revisions. The focus of this plan set will be to use the survey and geotechnical analysis to refine the concept plan to avoid things that will make the trail more time-consuming, difficult, and expensive to build (e.g., utilities, private properties, unstable slopes, and shallow bedrock). This level of design helps to refine cost estimates and is typically the level of design necessary for more accurate capital planning and programming.

7. Develop a property acquisition and maintenance strategy.

Friends of the Fonta Flora State Trail should work with the Black Mountain, Buncombe County and McDowell County attorneys to confirm what the easement/property acquisition requirements are for segments of paved trail that will impact private property along existing utility easements. Completion of the survey will be important to understand what properties may be impacted. Friends of the Fonta Flora State Trail should also work with local public works departments to discuss a maintenance strategy for this segment of the trail.

8. Complete final (100%) design plans and specifications.

The final (100%) design plans for this segment of the Fonta Flora State Trail will include detailed grading plans and structural plans for the various retaining walls, culverts, and other structures necessary to support the trail. The final plans will include a final engineer's cost estimate for the paved trail. These are the construction plans that can be put out to bid and support any potential real estate acquisition phase.

9. Pursue construction funding.

Partnering with French Broad River MPO (FBRMPO) and Foothills RPO is a key opportunity to help local staff in Buncombe County and McDowell County pursue state and federal construction funds. Regional Planning Organizations (RPOs) and Metropolitan Planning Organizations (MPOs) are the bodies that funnel state and federal dollars toward locally identified projects like the Fonta Flora paved trail. FBRMPO

and Foothills RPO staff are best equipped to help get the paved trail onto the State Transportation Improvement Program (STIP) and to keep track of additional state trail grant funding sources that may be available.

There's a possibility that the two primary project segments could be submitted through the SPOT process as a single, combined project in the Division Needs tier. There's been recent precedent for the NCDOT Highway Division 13 submitting bike/ped projects at the Division Needs tier of the SPOT process. If NCDOT Highway Division 13 does not support this approach, the Old US Hwy 70 segment and Mill Creek Road segment should be submitted separately at the local needs tier by the MPO and the RPO.

Private funding may also be an option to support construction funding or local grant match requirements.

Pursuing funding is a step often completed before, or in conjunction with, the preparation of the Final (100%) design plans. Potential funding sources for construction are highlighted in the **Funding** section below.

10. Maintain communication between jurisdictions and key partners.

A standing agenda item on FBRMPO, Black Mountain Town Council, Buncombe County Commissioner, and McDowell County Commissioner meetings should be added to provide an update on implementation of the Fonta Flora State Trail. Additionally, maintaining relationships with key partners, especially with the Friends of the Fonta Flora State Trail and the North Carolina Trails Program, will help to both implement and maintain this segment of the Fonta Flora State Trail. The North Carolina Trails Program was developed to aid local agencies in planning, developing, and managing trails across the state. The staff of the program provide technical assistance, identify grant opportunities, and work to support partnerships with local conversation and recreation advocates.

11. Submit the completed trail segment for NC State Trails official designation.

Once the trail segments are constructed, local staff should apply through the North Carolina Trails Program to have those segments officially designated as part of the Fonta Flora State Trail. This North Carolina Trails Program is managed by the Division of Parks and Recreation, a division of the North Carolina Department of Natural and Cultural Resources (DNCR). A key component of the designation process is public notice and the opportunity to review any trail segments that are proposed for state trail designation.

12. Have a good succession plan.

The implementation of regional trail efforts often lasts longer than the service of the individuals charged with their implementation. Staff turnover, through career changes, retirement, or when elected officials finish their service can leave a gap in project coverage. It's important, in those instances, to make sure a successor picks up the baton. Without a concerted effort by all partners, it is easy for regional efforts to lose momentum through the normal professional/personal movement of people. Friends of the Fonta Flora State Trail may need to act as an important stopgap to make sure that momentum is not lost via agency turnover.

FUNDING

Implementing the recommended segments of the Fonta Flora State Trail will likely require various funding sources at the federal, state, and local levels. The tables below highlight potential funding sources.

Federal Funding

Table 6. Potential Federal Funding Sources

Source	Eligibility/Requirements/Purpose
Better Utilizing Investments to Leverage Development (BUILD) Grant Program	BUILD grants can be awarded to projects that connect communities and people to jobs, services, and education as well as to projects that anchor economic revitalization and job growth in communities. Project sponsors at state and local levels can obtain funding for multi-modal projects that are more difficult to support through traditional DOT programs. BUILD was previously known as Rebuilding American Infrastructure with Sustainability and Equity (RAISE) or Transportation Investment Generating Economic Recovery (TIGER) grants.
FHWA Recreational Trails Program (RTP)	The RTP provides states with funds to develop and maintain recreational trails and trail-related facilities. The program is authorized through Federal fiscal years 2022 through 2026 as a set-aside from the Transportation Alternatives Program (TAP) under the Surface Transportation Block Grant (STBG) Program. This program is administered by NC Trails in North Carolina.

State Funding

Table 7. Potential State Funding Sources

Source	Eligibility/Requirements/Purpose
NCDOT Strategic Transportation Investments (STI)	NCDOT STI requires 20 percent of total project cost be a non-federal match by local governments. STI includes adopted bicycle plans, greenway plans, pedestrian plans, Safe Routes to School action plans, comprehensive transportation plans (CTPs), and long-range transportation plans.
NC Complete the Trails Program	This is special funding earmarked by the NC General Assembly to support designated state trails, like the Fonta Flora State Trail. Funds are administered by NC Trails staff at the NC Division of Parks and Recreation. Funds can be used for the planning, construction, promotion, and maintenance of state trails.
Adopt-A-Trail Grants	Adopt-A-Trail allocates \$108,000 annually to government agencies, nonprofit organizations, and private trail groups for trail projects.
Great Trails State Program	The Great Trails State Program provides funding for new trail development and extension of existing trails anywhere in the state of North Carolina. This includes paved trails or greenways, natural surface trails, biking trails, equestrian trails, and any other type of trail recognized by the DNCR. The Great Trails State Program was a one-time allocation from the NC General Assembly, but it's possible the General Assembly may support future funding cycles.

Local Funding

Table 8. Potential Local Funding Sources

Source	Eligibility/Requirements/Purpose
<p>Buncombe County Community Recreation Grants</p>	<p>The purpose of the Buncombe County Recreation Services Grants Program is to provide funding to qualified organizations within Buncombe County interested in partnering with the Department to carry out their mission through the promotion of recreational fitness, health and wellness initiatives as well as community-based activities and capital improvements that increase recreational opportunities for the communities served.</p>
<p>Capital Improvement Plan (CIP) – Buncombe County and McDowell County</p>	<p>The Buncombe and McDowell County CIPs are typically 5-year plans that outline planned capital projects such as new construction and the maintenance of County assets. County funding to support the construction of paved trails would be coordinated through the CIP.</p>
<p>Town of Black Mountain Capital Improvement Plan (CIP)</p>	<p>The Town of Black Mountain CIP is a long-range plan that outlines one-time maintenance expenses, new projects, or other purchases exceeding \$25,000. Town funding to support the construction of paved trails would be coordinated through the CIP.</p>

PARTNERING

Leveraging Developments

Updating ordinances, such as the local and county zoning ordinance and related development policies, to place a greater emphasis on pedestrian and bicycle facilities can assist in encouraging future development to expand the multimodal network in Black Mountain, Buncombe County, and McDowell County. This is one avenue to support the implementation of the paved trail using a phased approach. Changes to development ordinances that would improve multimodal facilities could include:

- Specifically addressing pedestrian connectivity to neighborhoods by strengthening sidewalk construction requirements and updating sidewalk design standards. This would improve sidewalks county-wide and would therefore increase pedestrian access to the future paved trail network.
- Updating local development policy to further emphasize pedestrian and bicycle access as part of any trip mitigation strategies.
- Developing bicycle parking specifications and requirements to expand bike parking county-wide, including short-term and long-term facilities for both commercial and residential land uses.
- Confirming land use and zoning that support trailhead parking and economic development opportunities along the trail.

Employer Contributions/Sponsorships

Major employers in Black Mountain, Buncombe County, and McDowell County can act as partners in providing:

- funding to support the required local match for state and federal grants,
- funding to help construct the paved trail network or provide amenities such as trailheads or benches, or
- funding to support regular maintenance.

The Friends of the Fonta Flora State Trail's existing "Business and Corporate Sponsorships" program is well-suited to recruit private sponsorships that can play a key role in funding trail segments, amenities, or matching competitive trail grant funds.

Another regional example of leveraging sponsorships to help fund trail construction and maintenance is the Spanish Moss Trail in Beaufort County, South Carolina. The Spanish Moss Trail is supported by the Friends of the Spanish Moss Trail, a nonprofit founded to advance the development, enhancement, and maintenance of the Spanish Moss Trail in communities in Beaufort County. The organization manages two programs essential to support the trail's maintenance: "Adopt a Segment" and "Sponsor a Trail Amenity." The Adopt a Segment program allows individuals, civic organizations, and private businesses to sponsor a segment of the trail in exchange for signage along the trail that acknowledges the sponsorship. Additionally, sponsors are responsible for helping to maintain and beautify their adopted trail segments. Similarly, the Sponsor a Trail Amenity Program allows individuals, civic organizations, and private businesses to sponsor amenities along the trail such as benches, rest areas and water fountains. Funds raised from these sponsorships feed directly back into the construction, maintenance, and programming of the Spanish Moss Trail.⁵

Government Agencies

Local, regional, state, and federal government agencies play a significant role in funding, maintaining, and supporting trail projects. This may include departments of transportation, parks and recreation departments, environmental agencies, and economic development agencies. Continued involvement of agency leadership from Town of Black Mountain, Buncombe County, McDowell County, FBRMPO, Foothills RPO, and NCDOT will be crucial. Additional government agency partnerships include the NC Division of Parks and Recreation and the NC Department of Natural and Cultural Resources.

Non-Profit Organizations

Nonprofits and community organizations dedicated to outdoor recreation, conservation, or community development may provide funding or technical assistance for trail design studies. These organizations often have a vested interest in supporting trail projects that align with their missions. Partners who support outdoor recreation and conservation in the project area include the Great Trails State Coalition, BikeWalk NC, RiverLink, and ConnectBuncombe.

⁵ Spanish Moss Trail. Help Support the Spanish Moss Trail: <https://www.spanishmosstrail.com/support-us1>. 2024.

Conclusion

The Fonta Flora Paved Trail Feasibility Study examined the potential for a paved multi-use trail connecting Black Mountain to the Point Lookout Trail, evaluated alignment options, identified a preferred alignment, established design standards, prepared a preliminary concept plan, and developed an implementation strategy. The project delivered recommendations for the primary Fonta Flora State Trail alignment and important secondary connections to nearby parks and neighborhoods.

Throughout the planning process, community input played a central role in shaping the study’s direction. Local stakeholders, residents, and agency partners provided valuable insights that informed the vision, goals, and final recommendations. This collaborative approach fulfilled the project goals by ensuring that the proposed trail alignment reflects the goals of the community and the study materials equip project partners for the next phases of engineering design and construction.

GOALS FOR THE TRAIL	GOALS FOR THE STUDY
<ul style="list-style-type: none"> • Improve pedestrian and bicycle mobility. • Provide more opportunities for recreation. • Improve safety. 	<ul style="list-style-type: none"> • Identify a trail alignment that has broad support of agency partners and stakeholders. • Deliver materials to equip partners for the next phases of engineering design and construction.

The recommended Fonta Flora State Trail alignment supports active transportation, provides a recreational spine for the community, and addresses safety and mobility needs. Once implemented, the trail will serve as a vital transportation corridor, linking residential neighborhoods north and south of I-40 with the Town of Black Mountain and the Point Lookout Trail. It will provide safe, direct access for pedestrians and cyclists to key destinations along the alignment, improving local mobility and regional connectivity.



Appendix A Field Review

Legend

- Steep Slope
- ✱ Point Constraint
- ▬ Culvert/Creek Crossing
- Publicly owned parcels
- Major Street Crossing
- ▬ Sidewalk

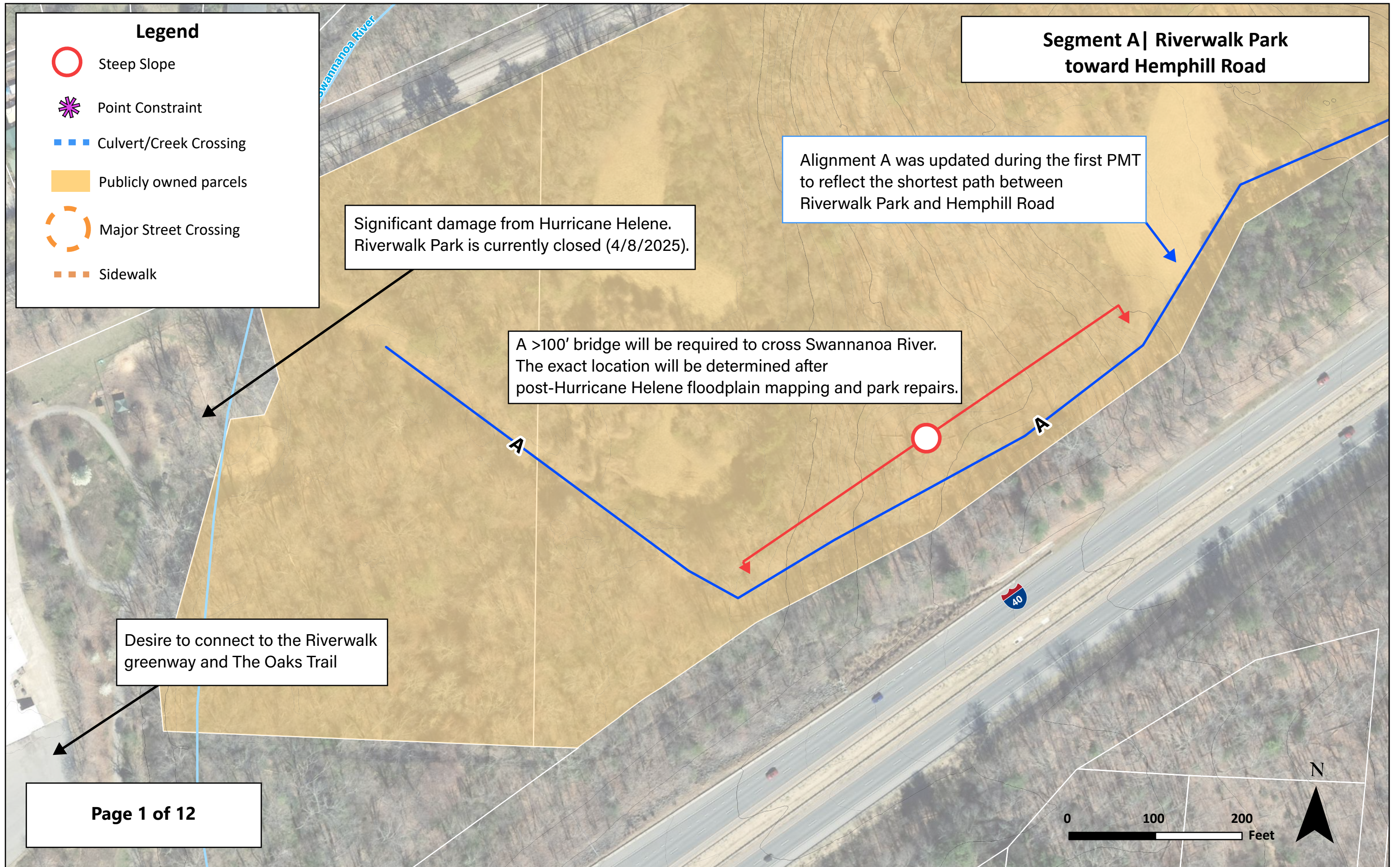
**Segment A | Riverwalk Park
toward Hemphill Road**

Alignment A was updated during the first PMT to reflect the shortest path between Riverwalk Park and Hemphill Road

Significant damage from Hurricane Helene. Riverwalk Park is currently closed (4/8/2025).







A >100' bridge will be required to cross Swannanoa River. The exact location will be determined after post-Hurricane Helene floodplain mapping and park repairs.

Desire to connect to the Riverwalk greenway and The Oaks Trail



Segment A & Segment B | Hemphill Road from I-40 to Future Park

Legend

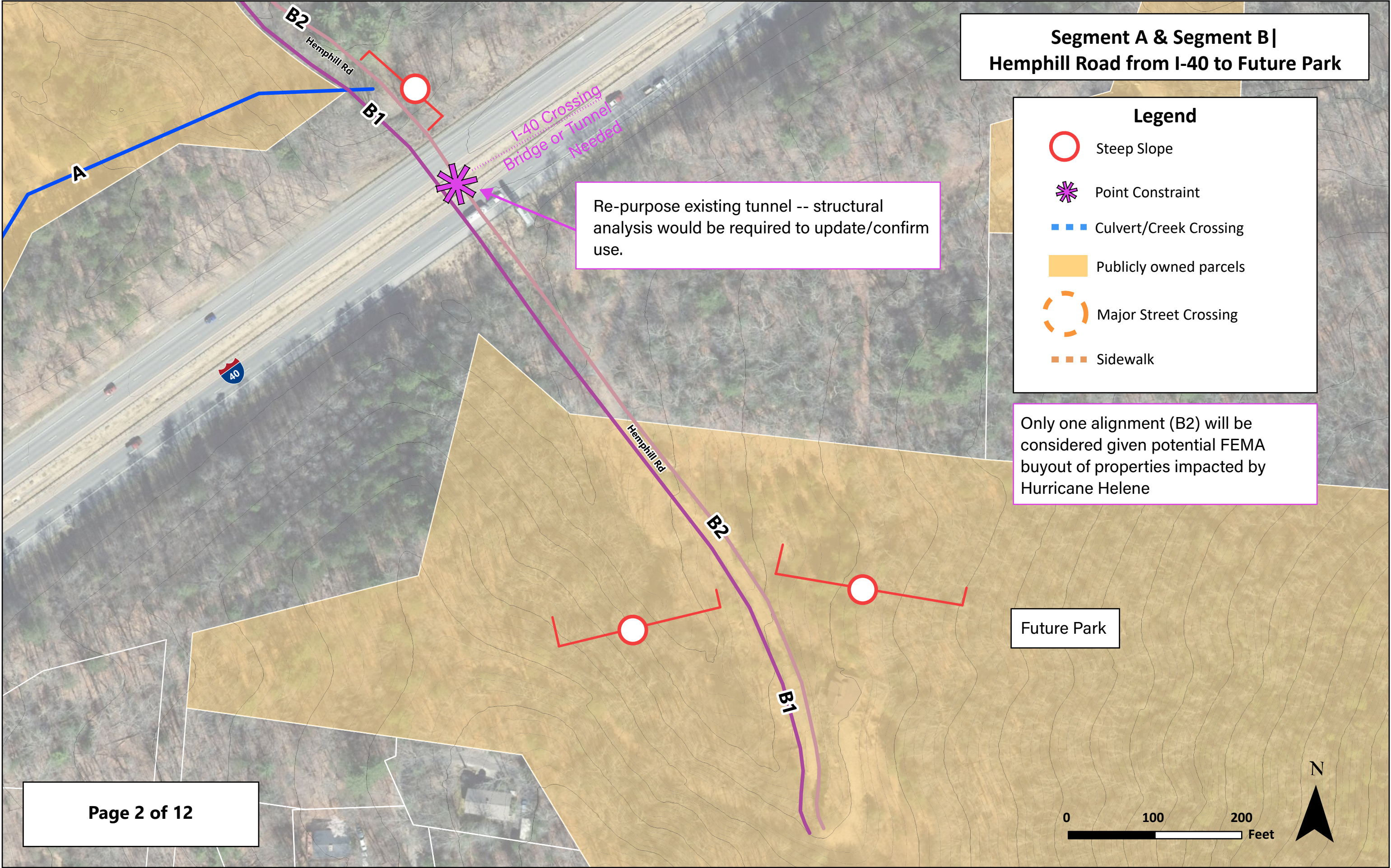
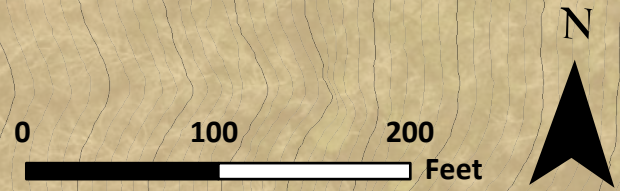
-  Steep Slope
-  Point Constraint
-  Culvert/Creek Crossing
-  Publicly owned parcels
-  Major Street Crossing
-  Sidewalk

Re-purpose existing tunnel -- structural analysis would be required to update/confirm use.







I-40 Crossing
Bridge or Tunnel
Needed

Only one alignment (B2) will be considered given potential FEMA buyout of properties impacted by Hurricane Helene

Future Park



Legend

-  Steep Slope
-  Point Constraint
-  Culvert/Creek Crossing
-  Publicly owned parcels
-  Major Street Crossing
-  Sidewalk

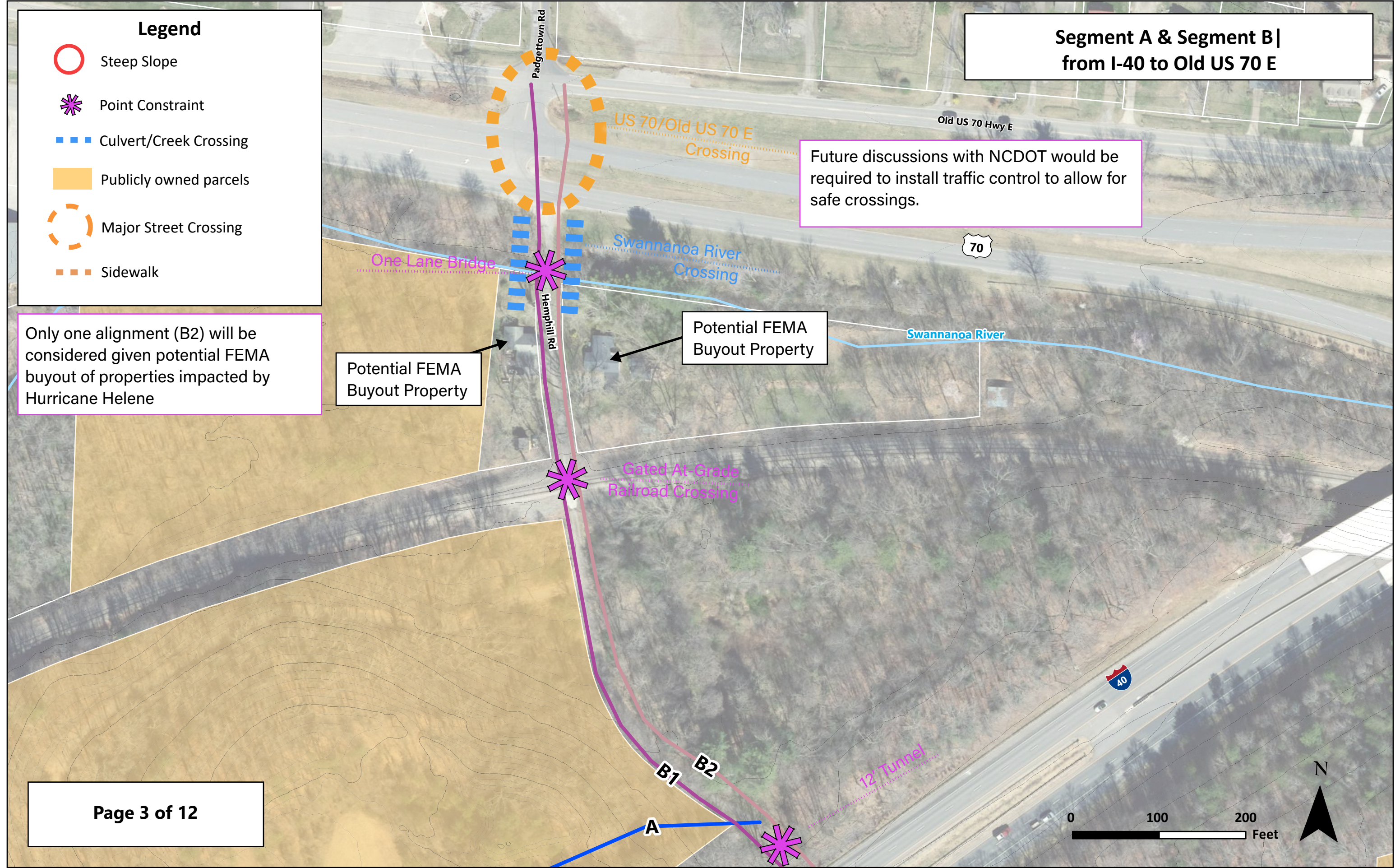
**Segment A & Segment B |
from I-40 to Old US 70 E**

Future discussions with NCDOT would be required to install traffic control to allow for safe crossings.

Only one alignment (B2) will be considered given potential FEMA buyout of properties impacted by Hurricane Helene

Potential FEMA Buyout Property

Potential FEMA Buyout Property

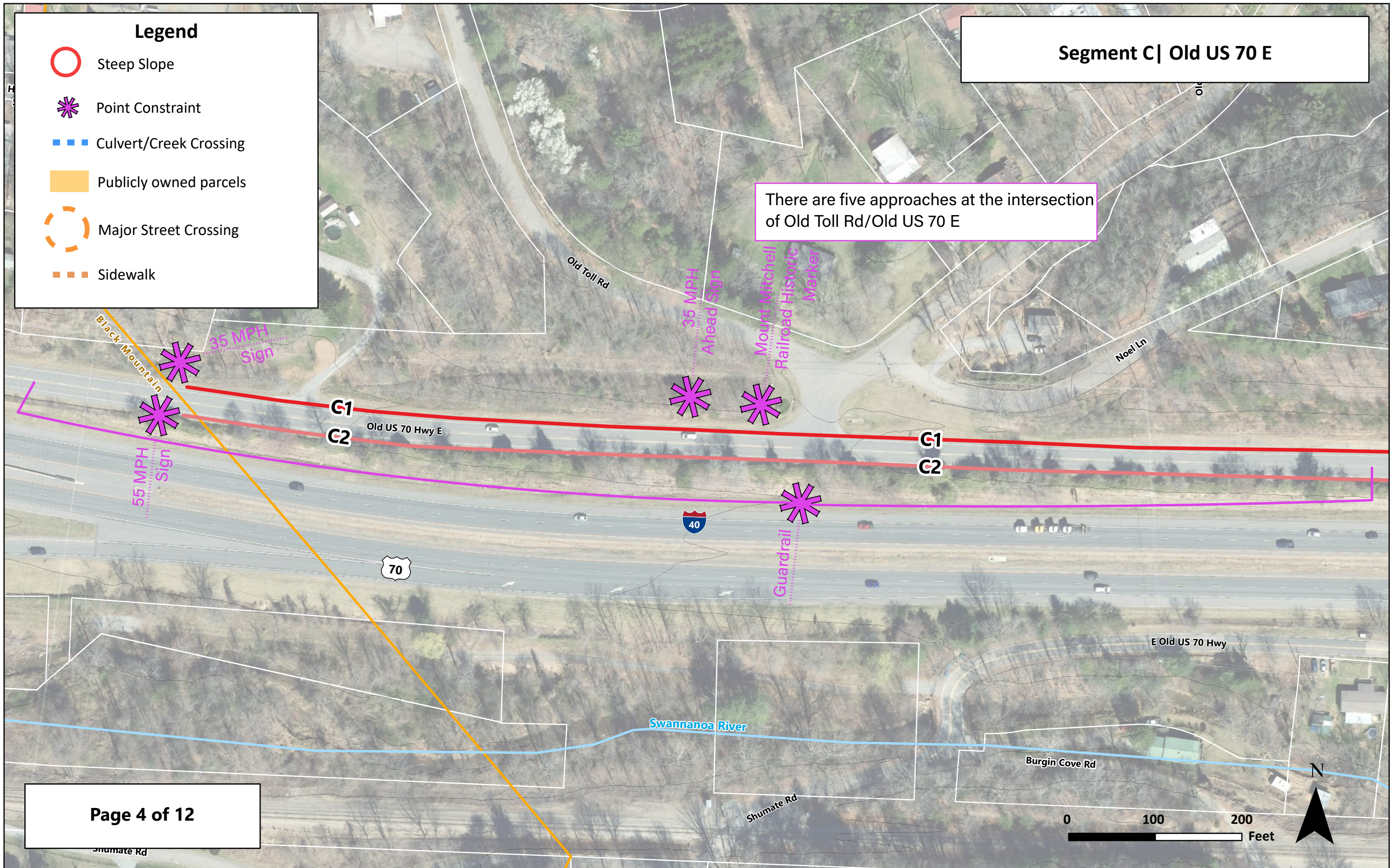


Legend







- Steep Slope
- ✱ Point Constraint
- ▬ Culvert/Creek Crossing
- Publicly owned parcels
- Major Street Crossing
- ▬ Sidewalk

Segment C | Old US 70 E

There are five approaches at the intersection of Old Toll Rd/Old US 70 E

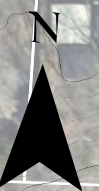


Legend

-  Steep Slope
-  Point Constraint
-  Culvert/Creek Crossing
-  Publicly owned parcels
-  Major Street Crossing
-  Sidewalk

Segment C | Old US 70 E

Slope is steeper up the hill with more manageable Grades closer to the road. Utilities and drainage Are present on this side of Old US 70 E.

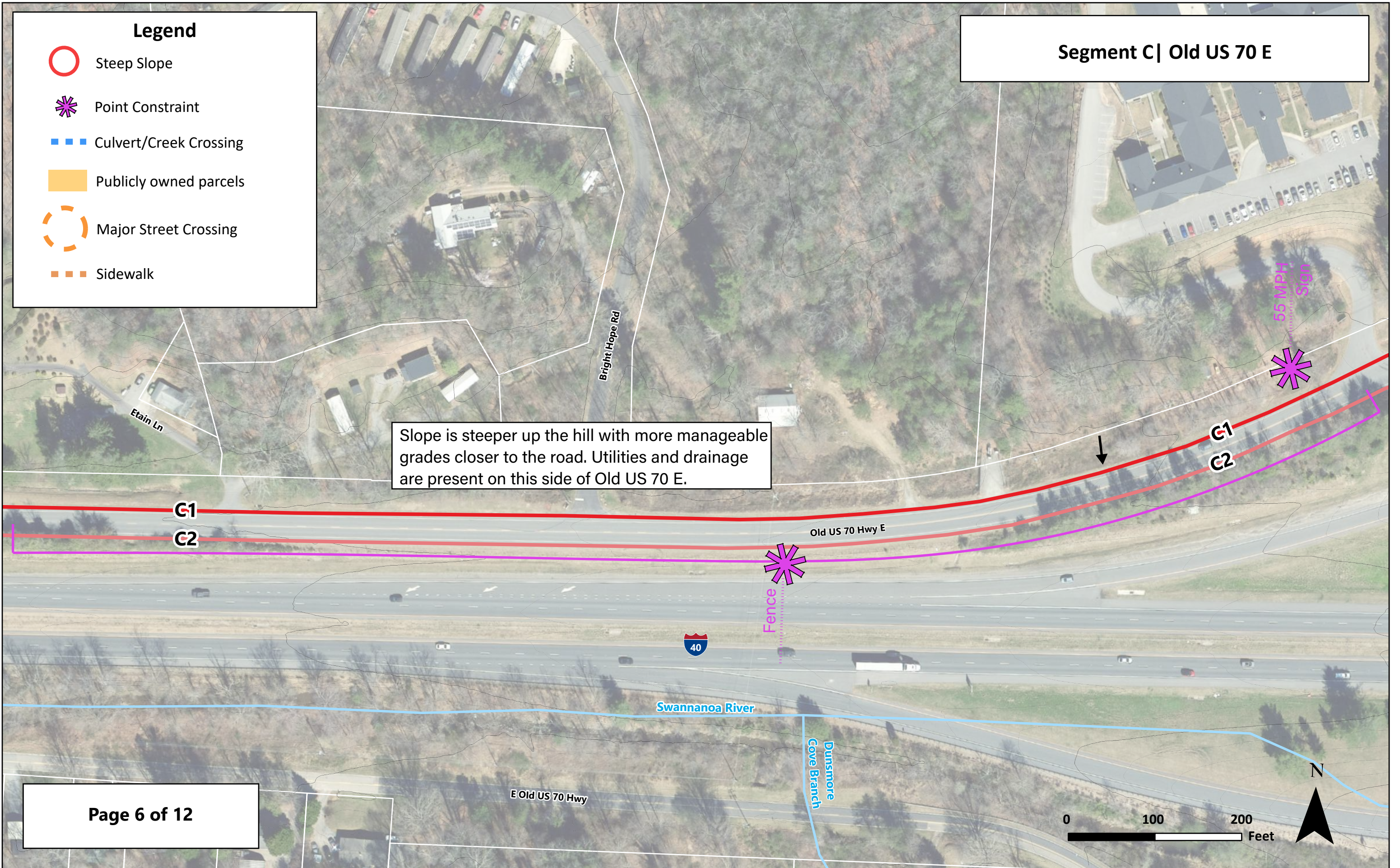


Legend

- Steep Slope
- ✱ Point Constraint
- ▬ Culvert/Creek Crossing
- Publicly owned parcels
- Major Street Crossing
- ▬ Sidewalk

Segment C | Old US 70 E

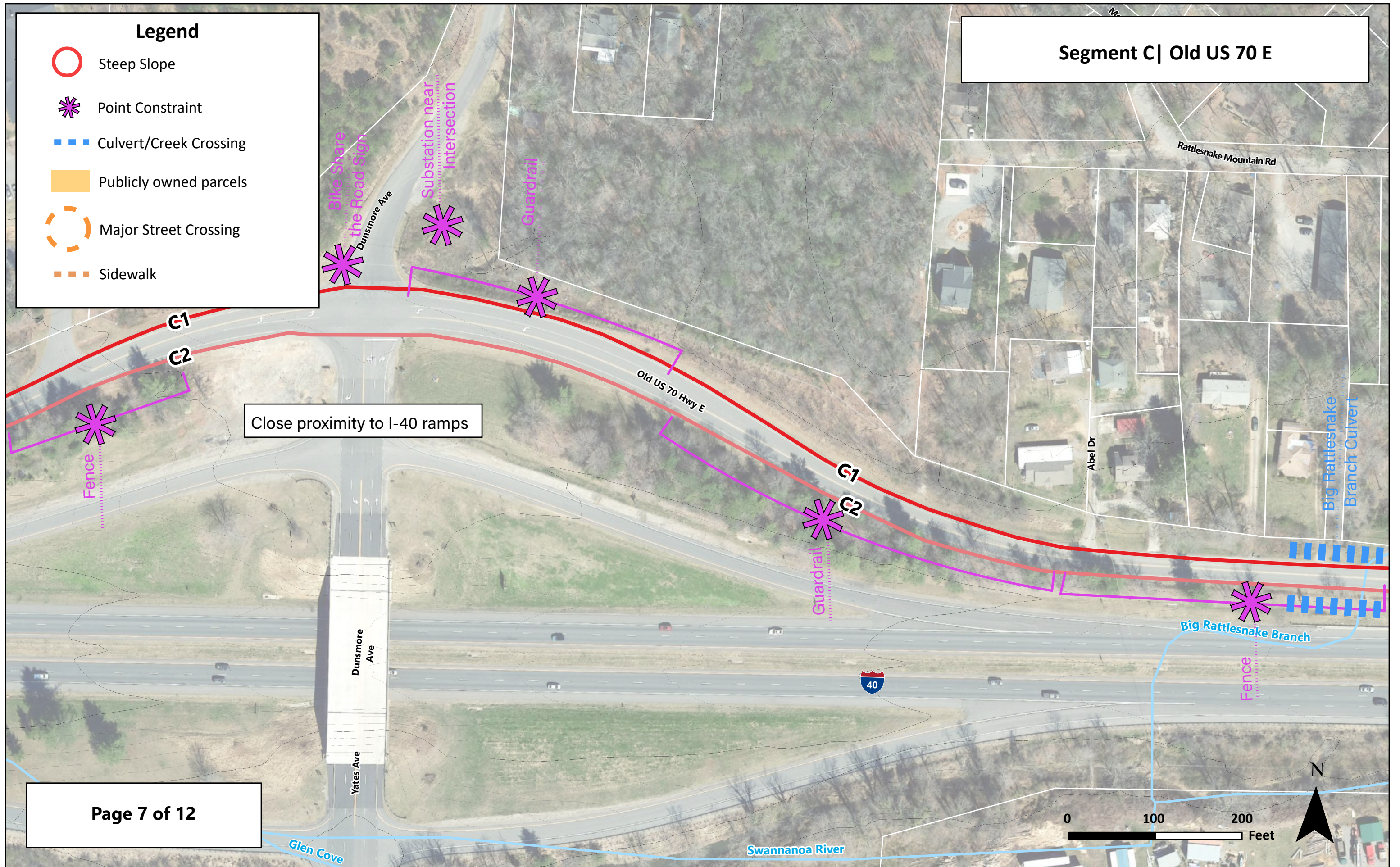
Slope is steeper up the hill with more manageable grades closer to the road. Utilities and drainage are present on this side of Old US 70 E.



Legend

- Steep Slope
- ✱ Point Constraint
- ▬ Culvert/Creek Crossing
- Publicly owned parcels
- Major Street Crossing
- ▬ Sidewalk

Segment C | Old US 70 E



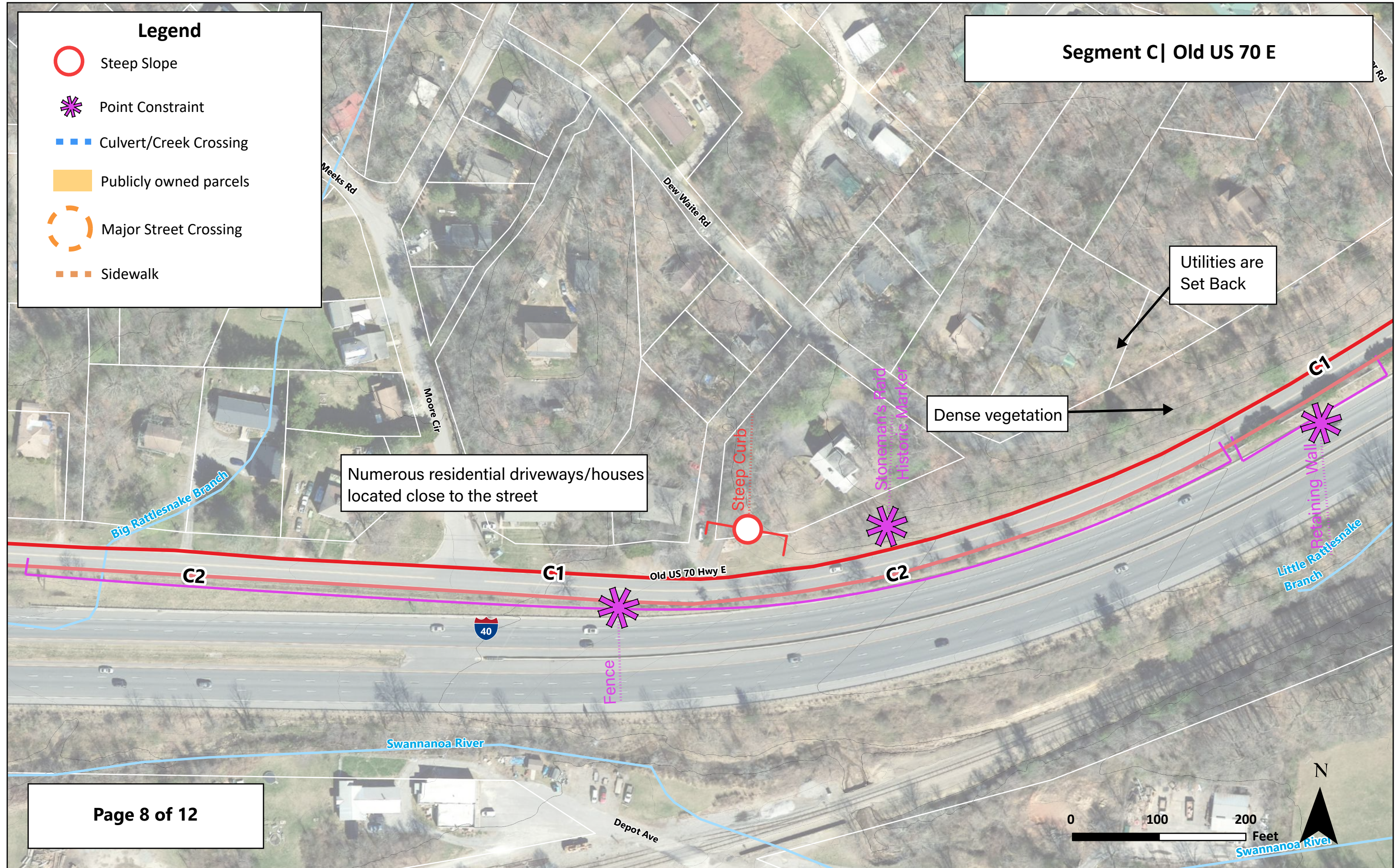
Close proximity to I-40 ramps



Legend

- Steep Slope
- ✱ Point Constraint
- ▬ Culvert/Creek Crossing
- Publicly owned parcels
- Major Street Crossing
- ▬ Sidewalk

Segment C | Old US 70 E



Numerous residential driveways/houses located close to the street

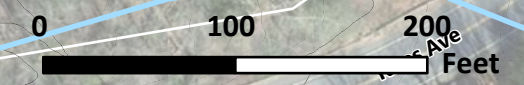
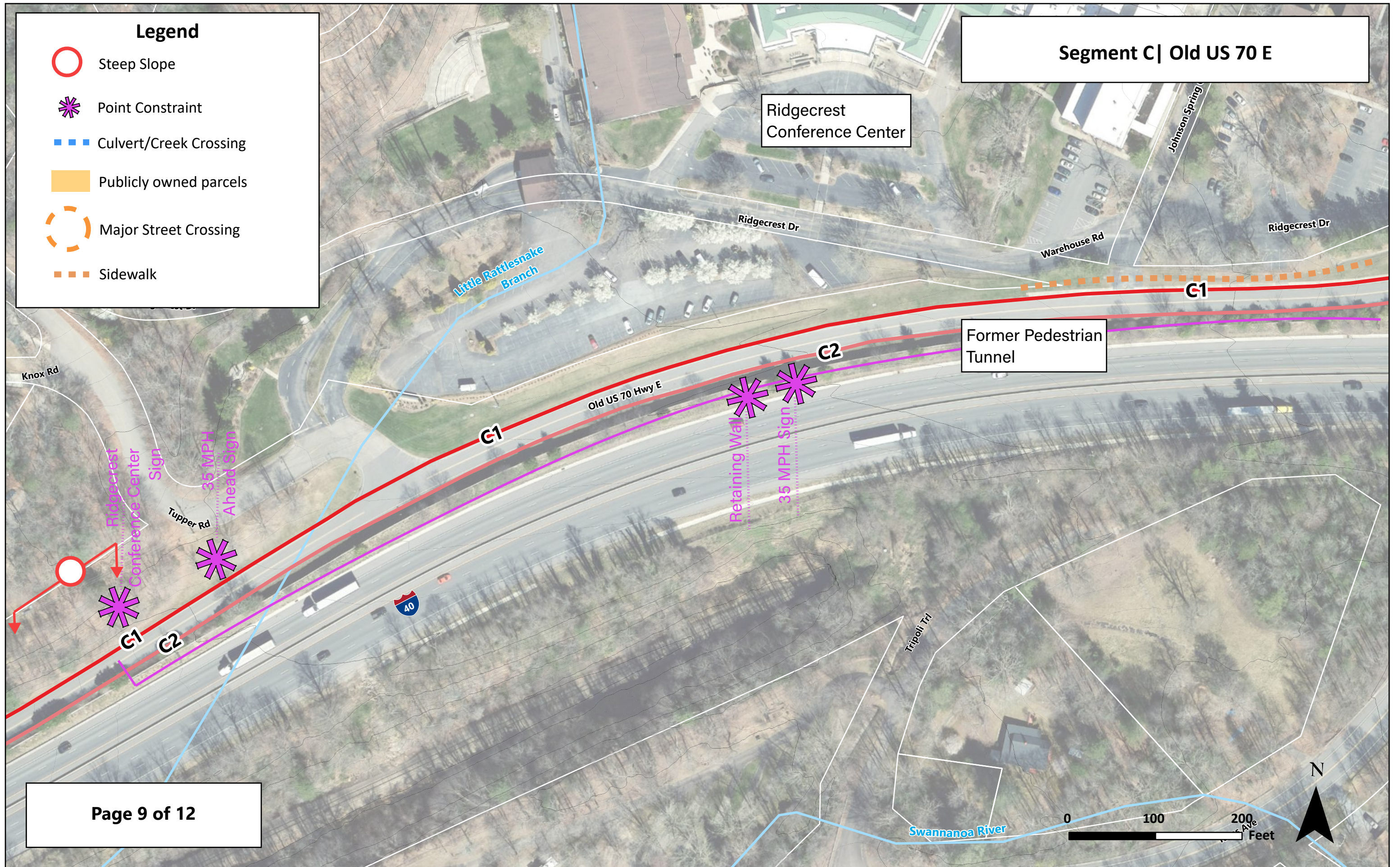
Utilities are Set Back

Dense vegetation







Legend

- Steep Slope
- ✱ Point Constraint
- ▬ Culvert/Creek Crossing
- Publicly owned parcels
- Major Street Crossing
- ▬ Sidewalk

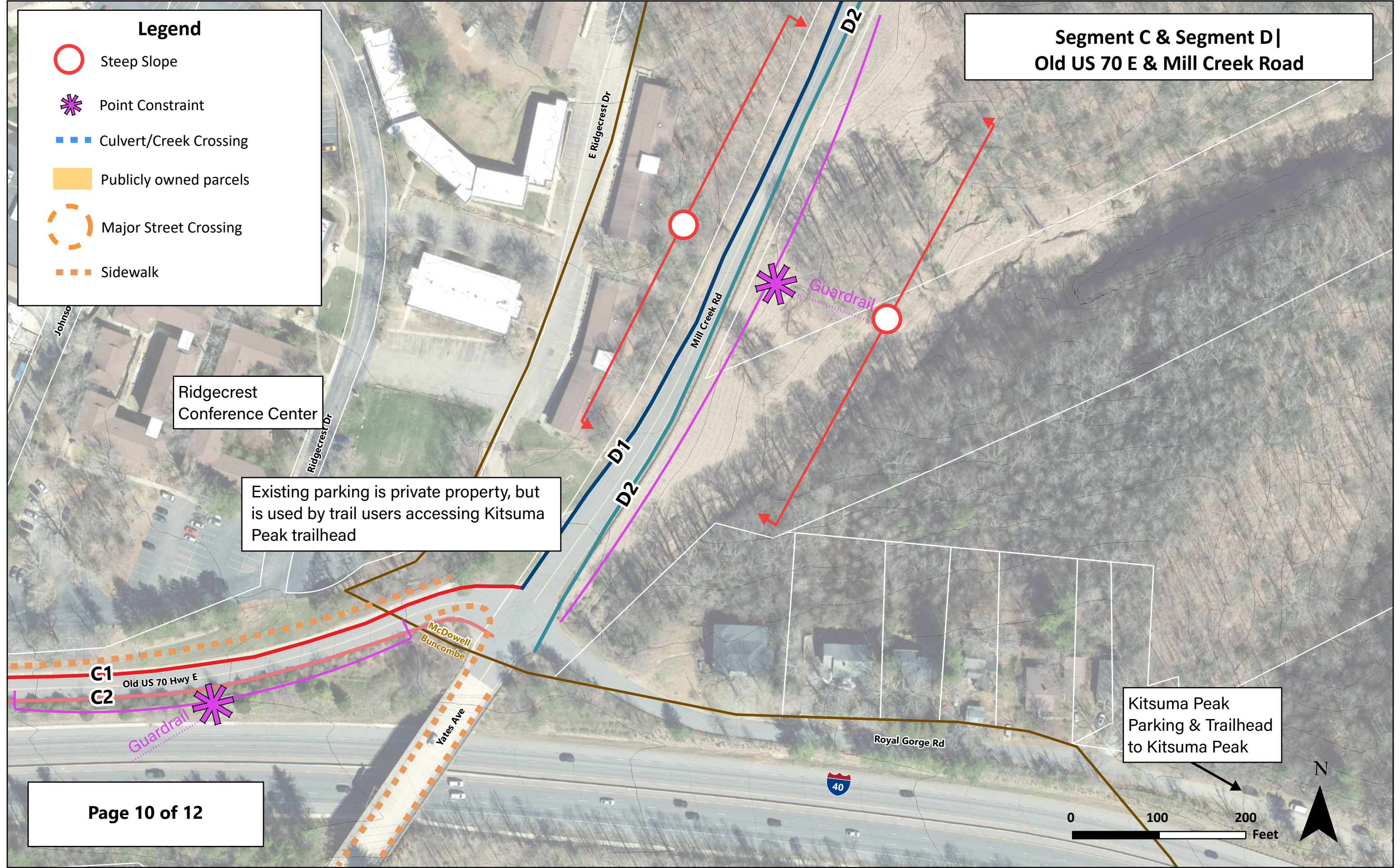
Segment C | Old US 70 E



Legend

-  Steep Slope
-  Point Constraint
-  Culvert/Creek Crossing
-  Publicly owned parcels
-  Major Street Crossing
-  Sidewalk

**Segment C & Segment D |
Old US 70 E & Mill Creek Road**









Ridgecrest
Conference Center

Existing parking is private property, but
is used by trail users accessing Kitsuma
Peak trailhead

Kitsuma Peak
Parking & Trailhead
to Kitsuma Peak

Legend

-  Steep Slope
-  Point Constraint
-  Culvert/Creek Crossing
-  Publicly owned parcels
-  Major Street Crossing
-  Sidewalk

Segment D | Mill Creek Road

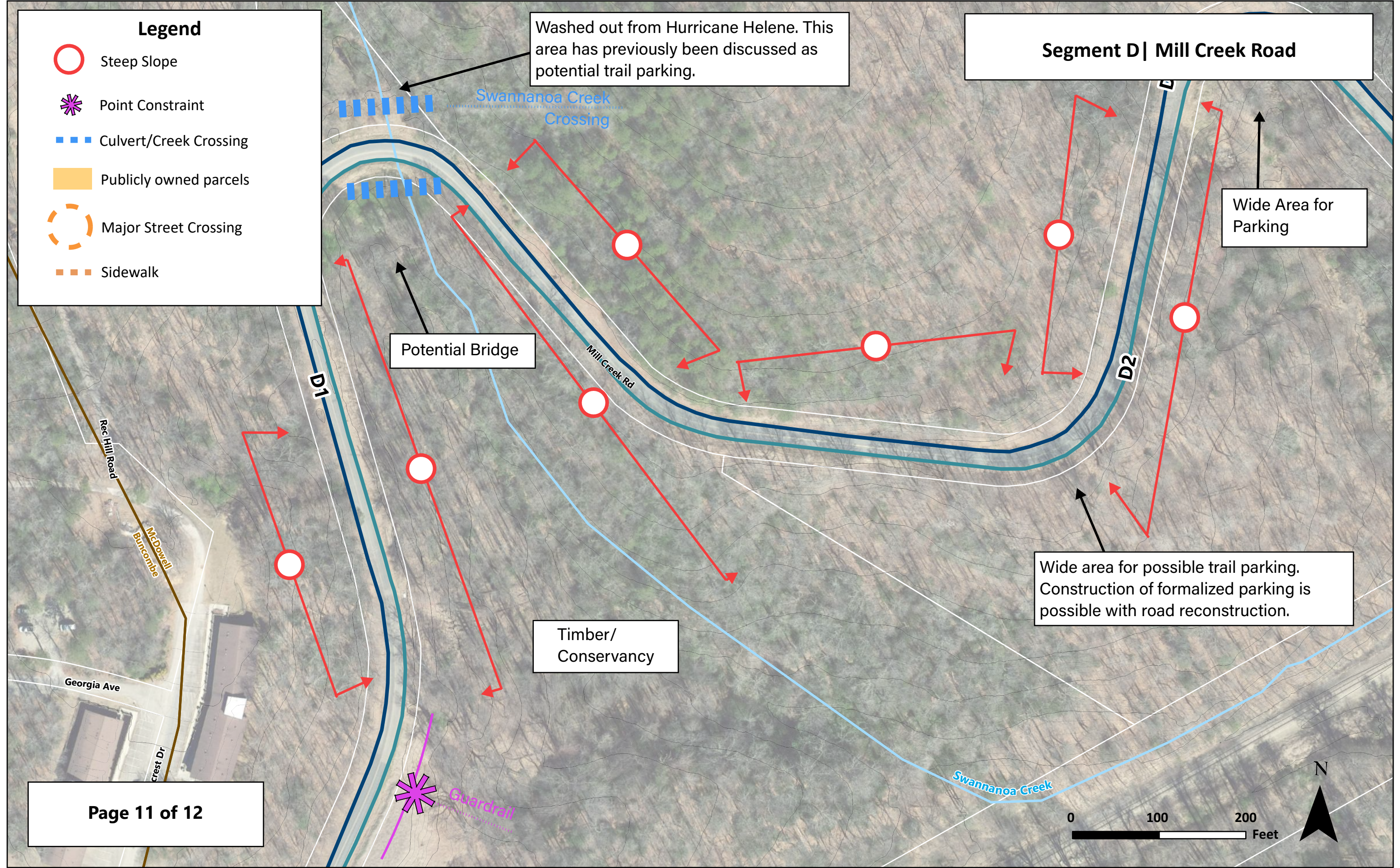
Washed out from Hurricane Helene. This area has previously been discussed as potential trail parking.

Wide Area for Parking

Potential Bridge

Wide area for possible trail parking. Construction of formalized parking is possible with road reconstruction.

Timber/
Conservancy



Legend

- Steep Slope
- ✱ Point Constraint
- ▬ Culvert/Creek Crossing
- Publicly owned parcels
- Major Street Crossing
- ▬ Sidewalk

Segment D | Mill Creek Road

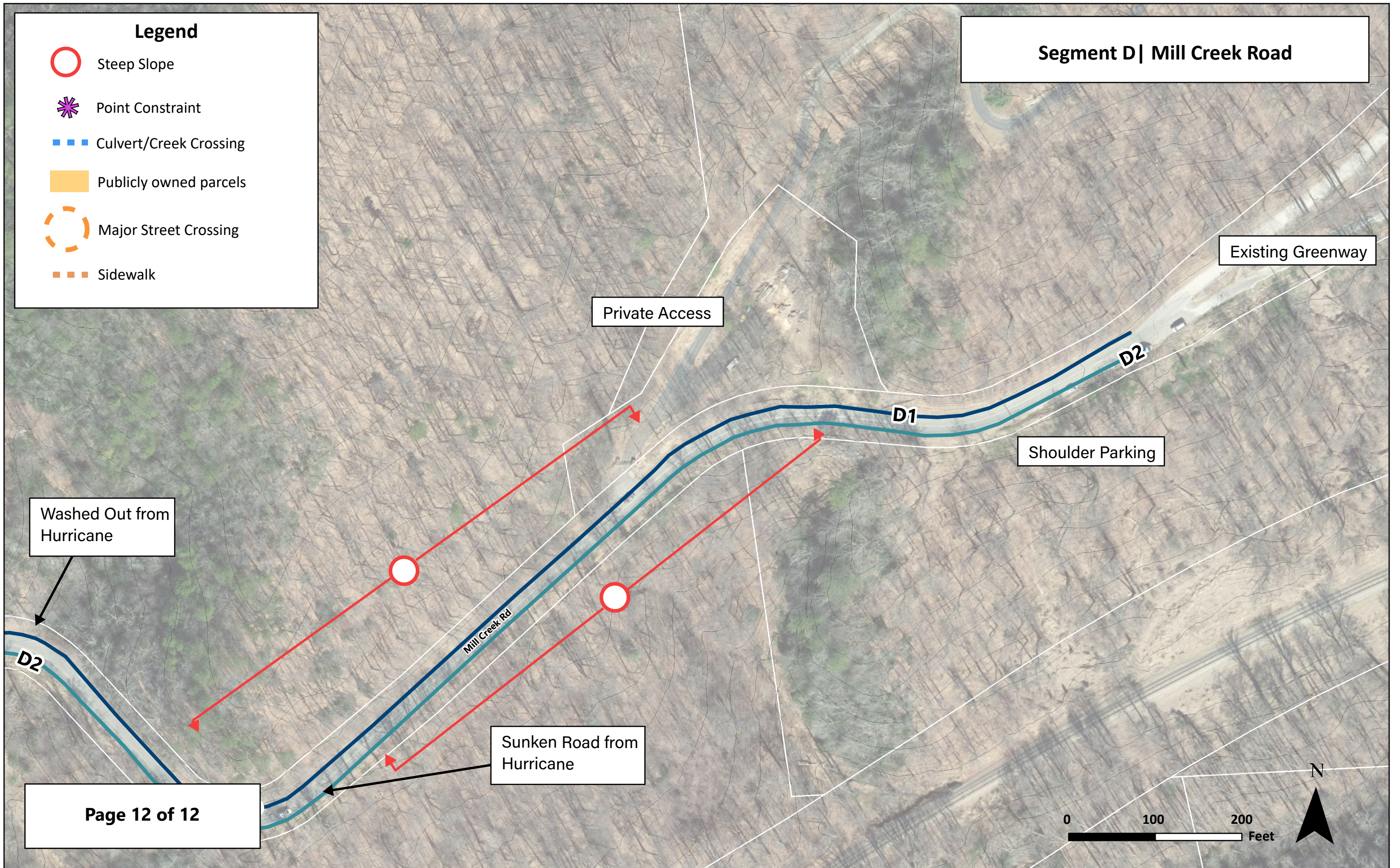
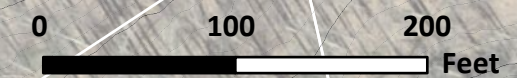
Existing Greenway

Private Access

Shoulder Parking

Washed Out from Hurricane

Sunken Road from Hurricane





Appendix B Segment Evaluation Matrix

Potential Trail Segments Evaluation Matrix

For this exercise, different potential trail segments were evaluated based on a variety of potential criteria. For segments where the potential trail alignment might be on either side of a street, both sides were evaluated individually (e.g. "Old US 70 North" and "Old US 70 South"). These evaluations are preliminary. They are based on a combination of field review notes, GIS measurements, and available mapping/environmental data. They are not based on survey data or a detailed parcel-level evaluation of potential construction impacts. For each primary criteria, a relative ranking was assigned – red (fair), yellow (good), green (excellent) – to help support at-a-glance review among potential trail segments. This matrix and the relative rankings are simply a tool to help support community conversations about a preferred trail alignment.

Potential Segments - see corresponding map

		A	B	C1	C2	D1	D2	
		Riverwalk Park Connection (Swannanoa River to Hemphill Rd.)	Hemphill Road (Old US 70 to Future Park)	Old US 70 (North Side - Black Mountain Town Limits to Yates Ave.)	Old US 70 (South Side - Black Mountain Town Limits to Yates Ave.)	Mill Creek Rd. (West/North Side - Old US 70 to Point Lookout Trail Connection)	Mill Creek Rd. (East/South Side - Old US 70 to Point Lookout Trail Connection)	
Criteria	Measure							
STI Prioritization	Length (i.e. Directness of Route)	1,500	2,000	9,600	9,600	4,700	4,700	
	Structures Required	- Swannanoa River Bridge, ~100 ft	- Rail Bridge, ~100 ft - May also require some modification to existing tunnel under I-40 Tunnel, ~200 ft	None	None	Significant retaining wall	Significant boardwalk required	
	Curb and Gutter Implications	No curb modifications required	Likely to be swale, minor curb and gutter implications	No	No	No	Boardwalk likely, no curb required	
	Total Private Property Impacts*	0 SF	0 SF	2,470 SF	891 SF	0 SF	0 SF	
	*Publicly owned parcel impacts	17,912 SF	5,372 SF	0 SF	0 SF	0 SF	0 SF	
	*Private parcel impacts	0 SF	0 SF	2,470 SF	891 SF	0 SF	0 SF	
Impacts to Railroad ROW	Yes/No	No	Yes; Requires improvements to 1 rail crossing	No	No	No	No	
Utility Impacts (wire-based, sewer, and water)	None/Minor/Significant	Minor	Minor	Minor	Minor	Minor	Minor	
Constructability	Creek, River, Tributary Crossings	1	1	2	2	1	1	
	Major Street Crossings	0	2	1	1	1	1	
	Total Major Driveways/Minor Streets	1	2	9	2	2	1	
	Slopes (anticipated grading)	Few Areas of Steep Slopes (only minor grading anticipated)/Some Steep Slopes/Significant Topo Challenges	Some Steep Slopes	Some Steep Slopes	Some Steep Slopes	Some Steep Slopes	Significant Topo Challenges	Significant Topo Challenges
	Flood-way Impact	Yes/No	Yes	Yes	No	No	No	No
	Reconfiguration of Existing Roadway	Minor/Some Reconfiguration of Curb and Stormwater Infrastructure/Significant Reconfiguration Required	N/A	Significant Reconfiguration Required	Minor	Significant Reconfiguration Required	Minor	Minor
User	Access to Destinations	Fair/Good	Good	Good	Fair	Fair	Fair	
	Access to Employment Centers	Fair/Good/Excellent	Good	Good	Fair	Fair	Fair	
	Opportunity to Leverage Hurricane Helene Rebuild/Recovery Projects	Maybe/No	Maybe	No	No	No	Maybe	
	User Comfort	Fair/Good/Excellent	Excellent	Good	Fair	Good	Good	
			Provides future connection to Downtown Black Mountain via Broadway St. Provides an opportunity to expand and rebuild the Riverwalk Park and tie into the Riverwalk Trail.	Connection to Future Park South of I-40, Connection to Ridgecrest Trail Connector to facilitate connections to Downtown Black Mountain, Black Mountain Primary School, and Black Mountain Elementary School	Provides direct connection to Ridgecrest and residential areas on the north side of Old US 70. Requires crossing Old US 70 to access the Yates Ave./ Old US 70 loop that is used by walkers in the area.	Requires crossing Old US 70 to access to Ridgecrest and residential areas on the north side of Old US 70. Provides more direct connection to the Yates Ave./ Old US 70 loop that is used by walkers in the area.	Provides connection between Ridgecrest and existing Point Lookout Trail. Likely to be an important recreational connection. Also ties in to the existing Yates Ave./ Old US 70 loop that is used by walkers in the area. This alignment would allow trail users to avoid crossing roads to get between Point Lookout and Kitsuma Peak parking.	
	Community-Based Opportunities	See notes						
Other Notes	Field Review Notes	Riverwalk Park -- including the adjacent rail bridge -- is currently closed due to damage from Hurricane Helene.	- An alignment on the east side might provide an easier crossing experience at US 70 and SR 2542 (Old Hwy 70 E). An east side alignment would not require an additional crossing across Padgettown Rd. - Need to consider vehicular access to Hemphill Road properties and alignment of trail to reduce potential conflicts. - The existing railroad has an agreement with the adjacent property owners, but it is otherwise gated off. - There is an existing tunnel under I-40. - The property on the east side of Hemphill Road is likely a FEMA buyout property.	- While many of the cross-street conflicts are minor, there are many driveways that would impact an alignment on the north side of Old US 70. - This segment would tie into the Ridgecrest Trail Connector and extend the sidewalk in front of the Ridgecrest Conference Center. - There are existing sidewalks on Yates Avenue that could be tied into the paved trail.	Locating the trail on the south side of Old US 70 would place trail users between I 40 and Old US 70. In several locations the physical distance/separation between these two facilities is very constrained. The major street crossings at Yates Ave and Dunsmore Ave are more impactful with an alignment on the south side. Locating the trail on the south side of Old US 70 would place trail users in conflict with vehicles accessing the on/off ramps of I 40 and the Yates Ave bridge over I 40. - D1 would require significant cut to construct a paved trail.	- There are washed out shoulders along the the East/South side of Mill Creek Road from the impacts of Hurricane Helene. Recovery efforts here may provide an opportunity to construct a paved trail. - D2 would require the construction of elevated bridges/boardwalk and/or fill to construct a paved trail.		



Appendix C Concept Plan

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FONTA FLORA TRAIL CONCEPTS
10/01/2025

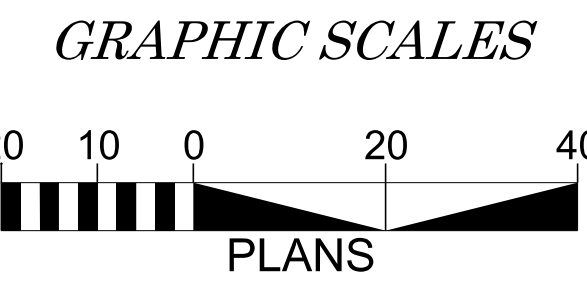
LOCATION: *BLACK MOUNTAIN, NC*
PAVED TRAIL

INDEX OF SHEETS

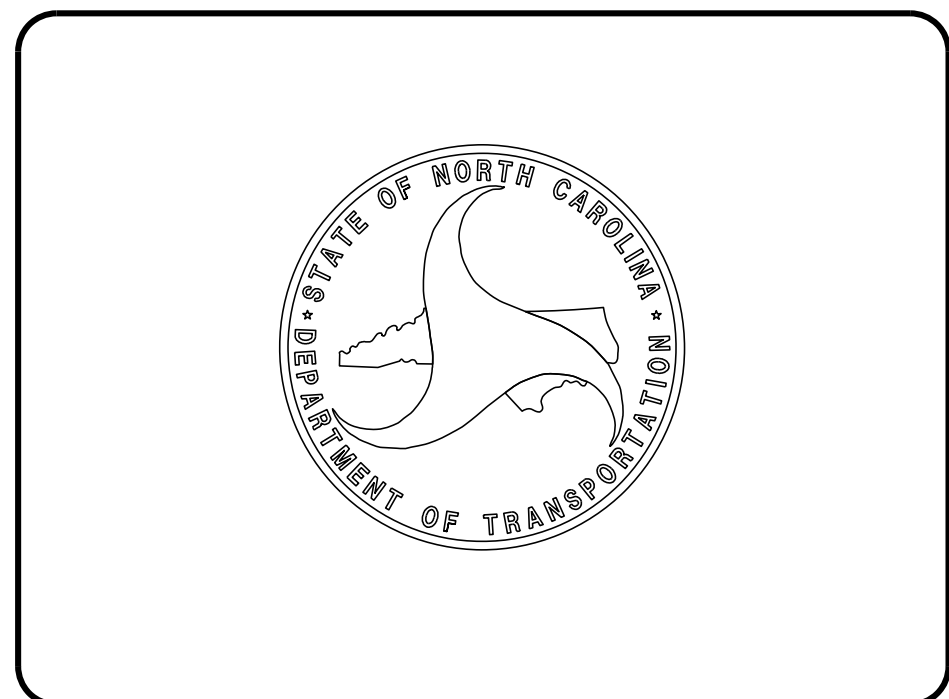
SHEET NUMBER	SHEET
1	TITLE SHEET
2A - 2C	TYPICAL SECTIONS
A001 - A018	C1 CONCEPT
A019 - A027	D1 CONCEPT
A028 - A036	D2 CONCEPT



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

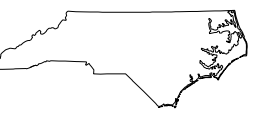


KITTELSON & ASSOCIATES
702 OBERLIN RD SUITE 410
RALEIGH, NC 27605



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



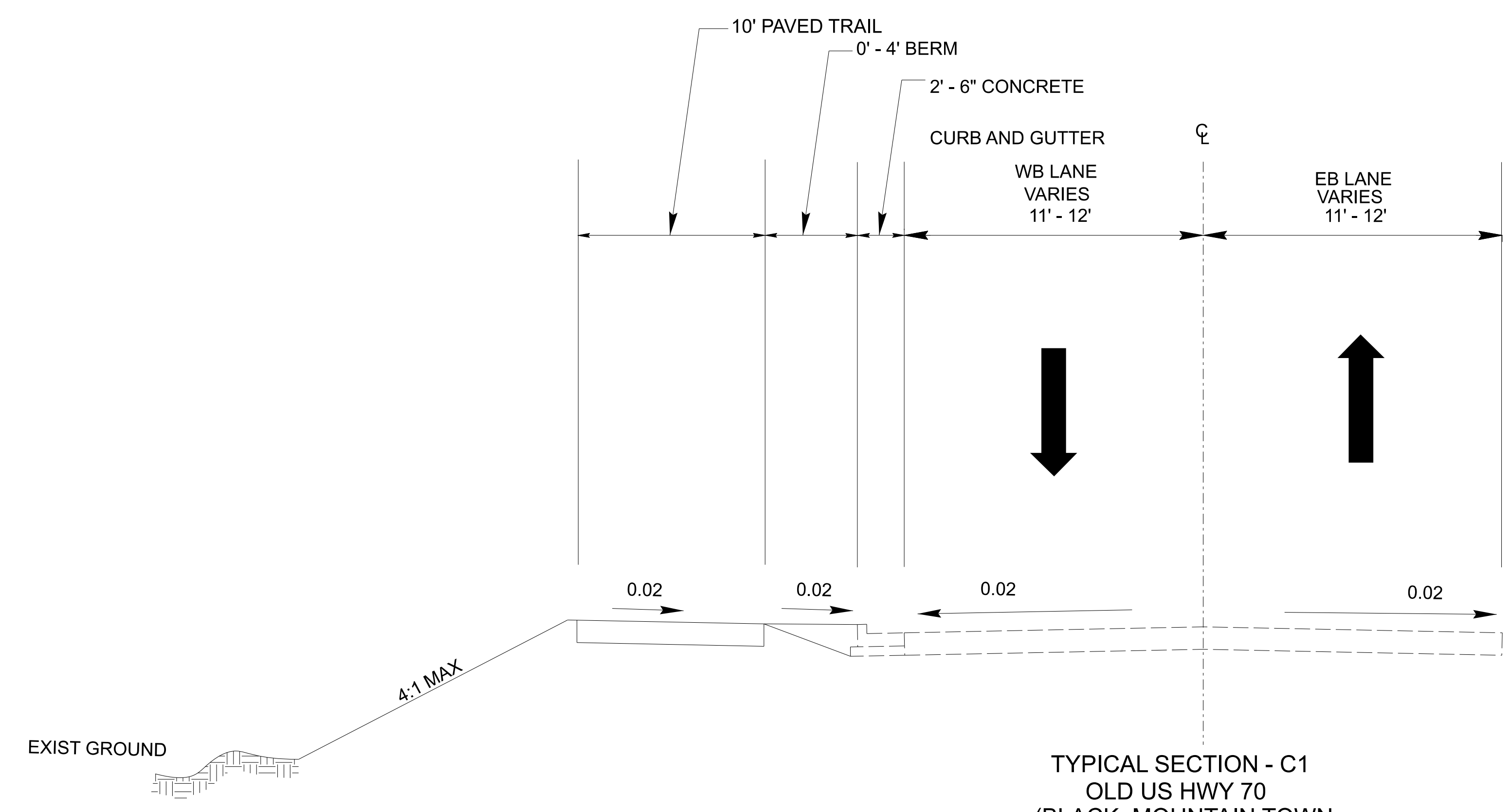
ROADWAY DESIGN UNIT

PREPARED BY

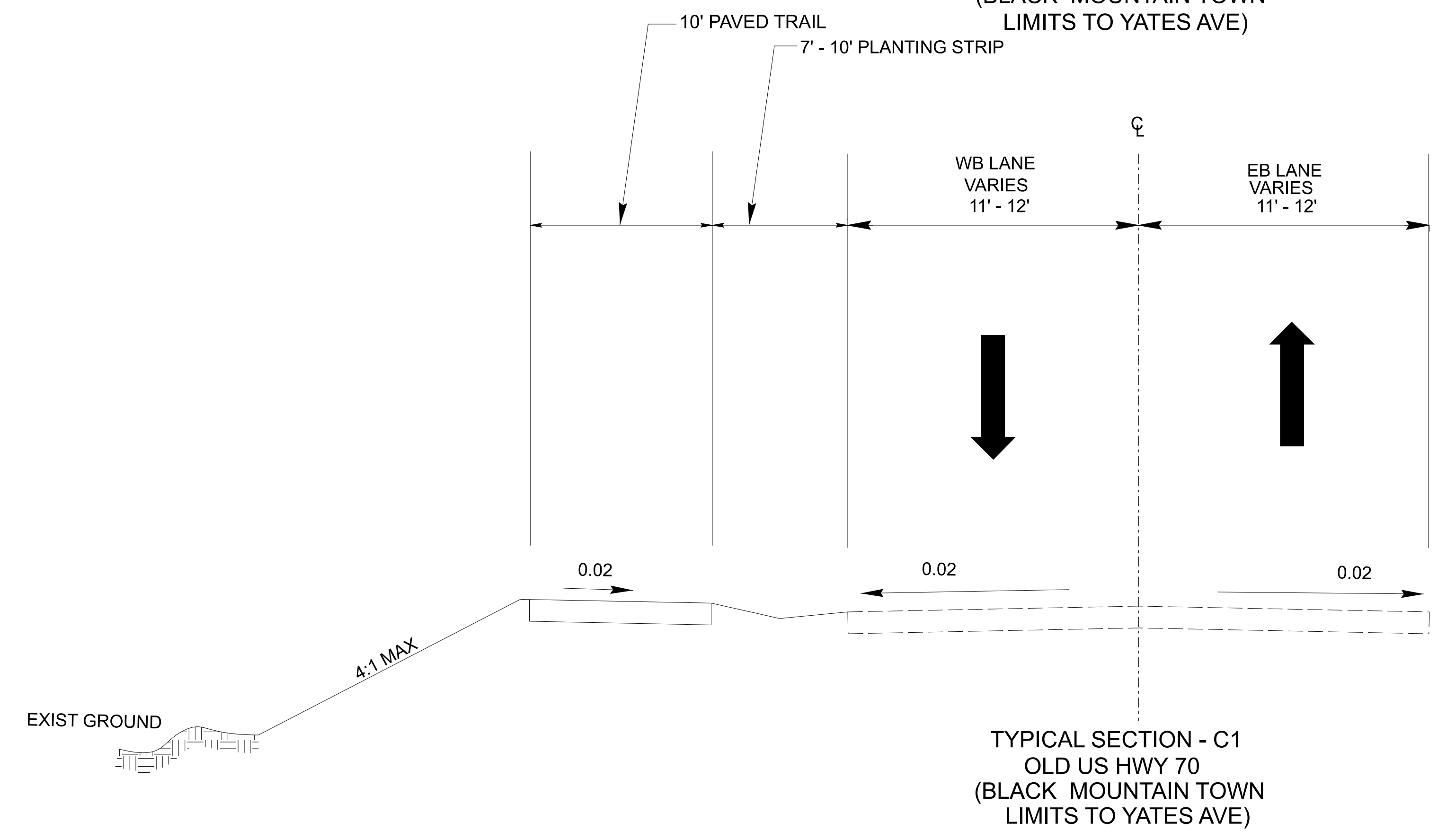


KITTELSON & ASSOCIATES
KITTELSON AND ASSOCIATES, INC.
710 COPENHAGEN RD., SUITE 410
RALEIGH, NC 27605

INCOMPLETE PLANS
DO NOT BE USED FOR CONSTRUCTION



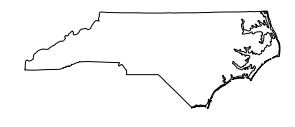
TYPICAL SECTION - C1
OLD US HWY 70
(BLACK MOUNTAIN TOWN
LIMITS TO YATES AVE)



TYPICAL SECTION - C1
OLD US HWY 70
(BLACK MOUNTAIN TOWN
LIMITS TO YATES AVE)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



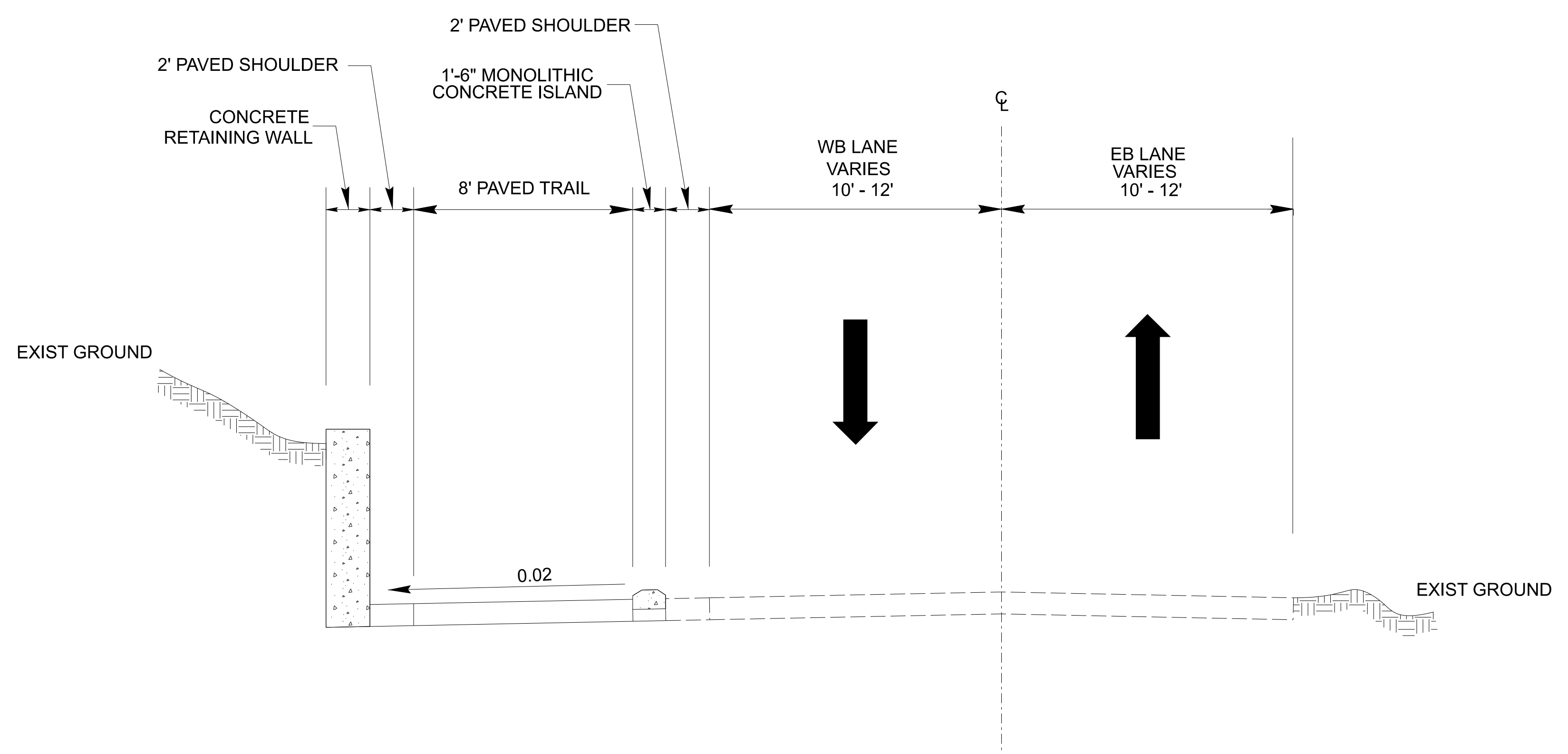
ROADWAY DESIGN UNIT

PREPARED BY

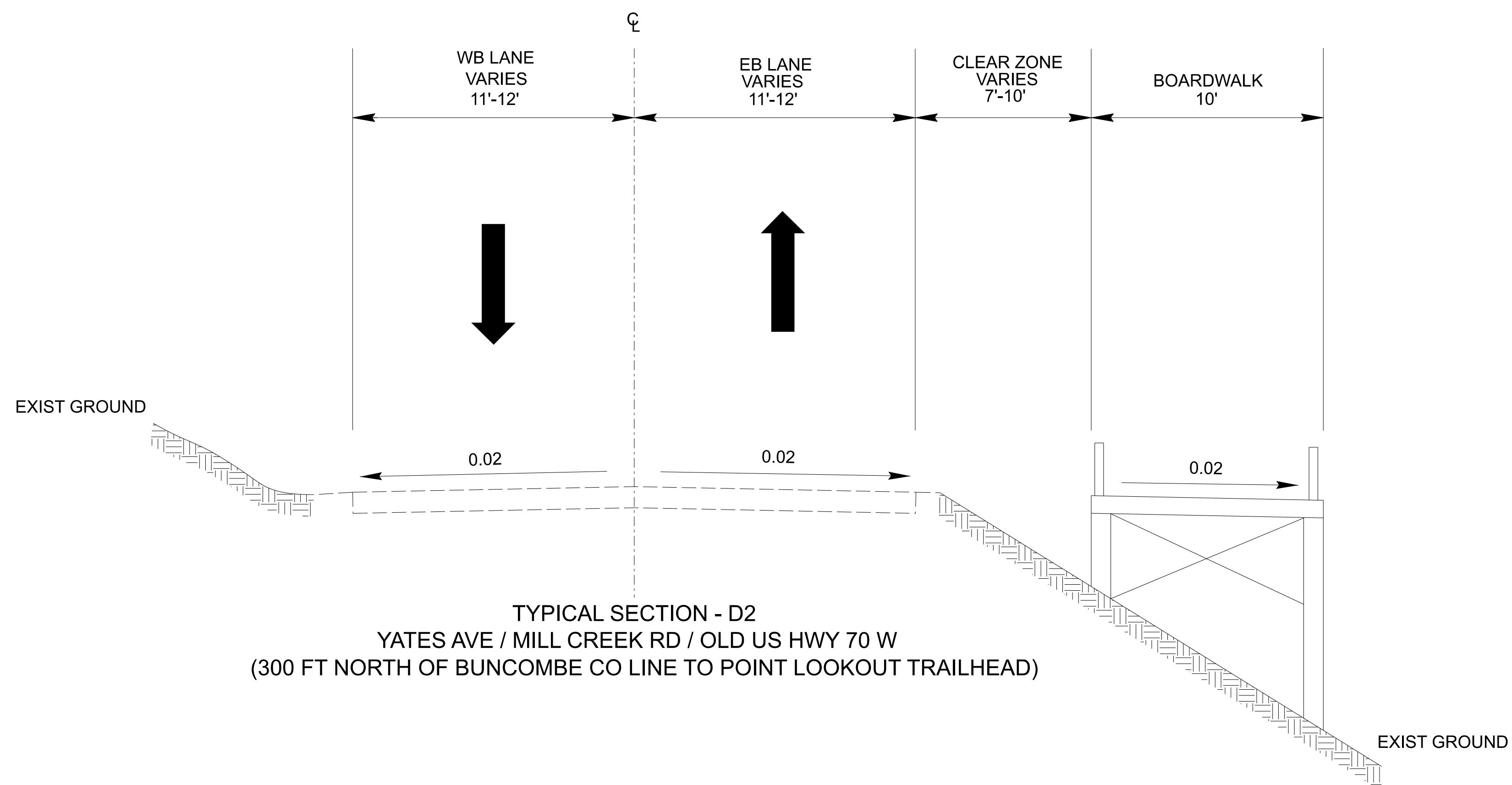
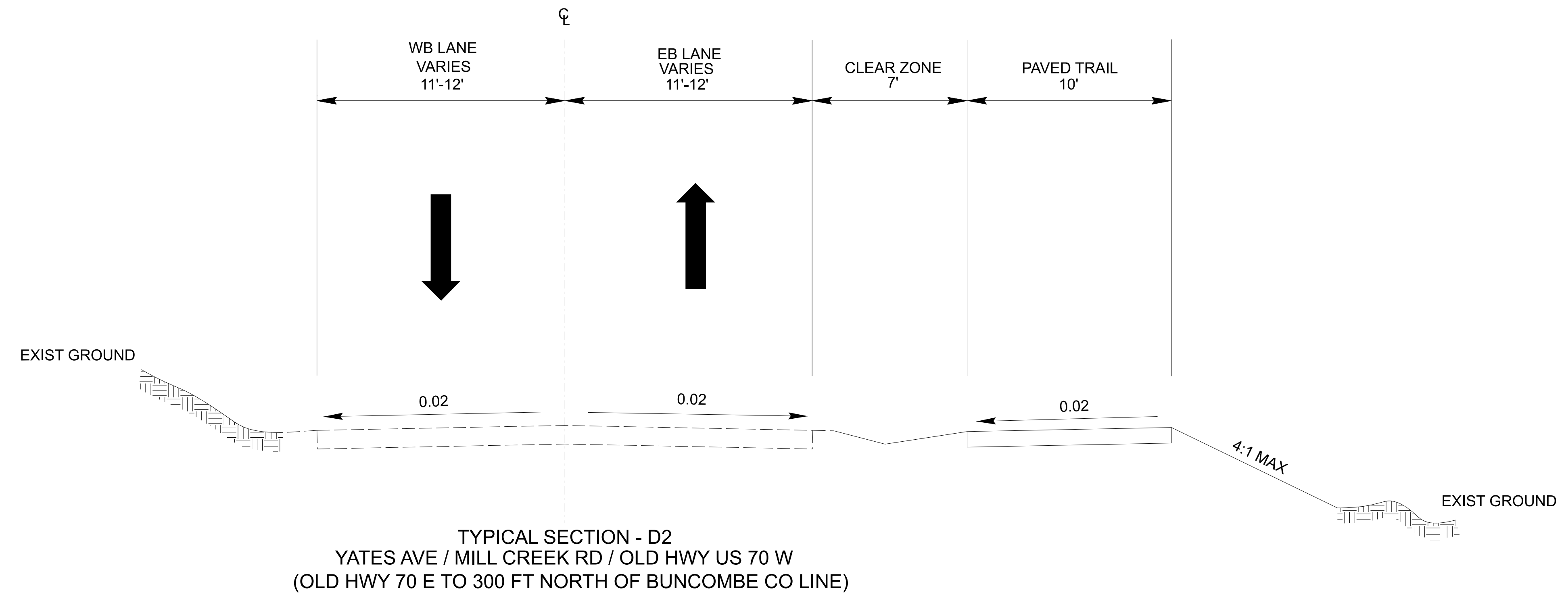
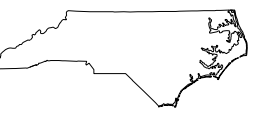


KITTELSON AND ASSOCIATES, INC.
702 OBERLIN RD, SUITE 410
RALEIGH, NC 27605

INCOMPLETE PLANS
FOR NORTH CAROLINA STATE HIGHWAY DESIGN



TYPICAL SECTION - D1
 YATES AVE / MILL CREEK RD / OLD US HWY 70 W
 (OLD HWY 70 E TO POINT LOOKOUT TRAILHEAD)



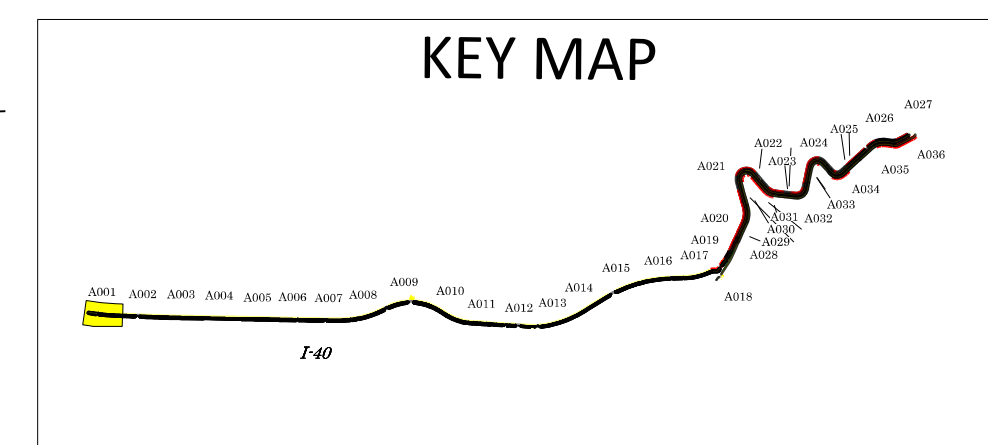


LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



A001
ROADWAY DESIGN ENGINEER
PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
STATE OF NORTH CAROLINA
ROADWAY DESIGN UNIT
PREPARED BY
KITTelson & Associates <small>KITTelson AND ASSOCIATES, INC. 702 OBERLIN RD, SUITE 410 RALEIGH, NC 27605</small>
INCOMPLETE PLANS <small>DO NOT USE FOR CONSTRUCTION</small>

MATCH LINE - SEE SHEET A002



MATCH LINE - SEE SHEET A001

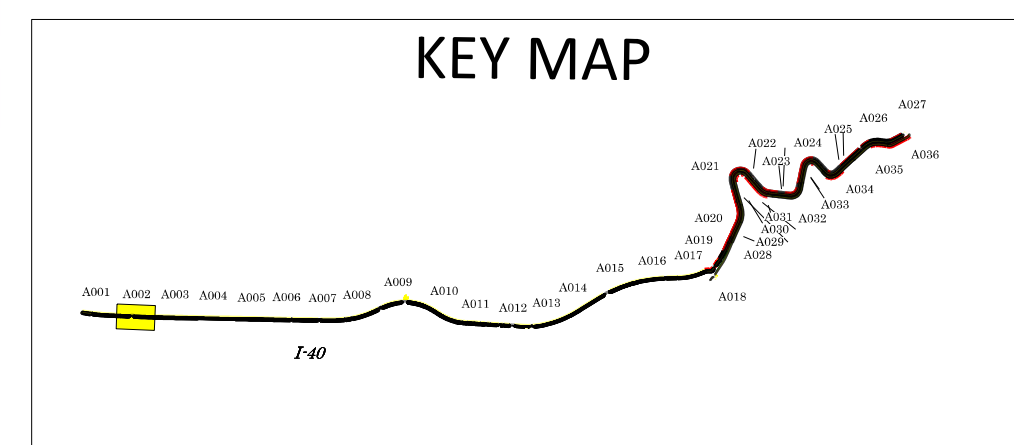
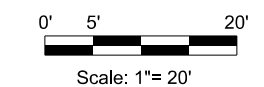
MATCH LINE - SEE SHEET A003

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



ROADWAY DESIGN UNIT

PREPARED BY



INCOMPLETE PLANS

DO NOT USE FOR CONSTRUCTION



MATCH LINE -SEE SHEET A002

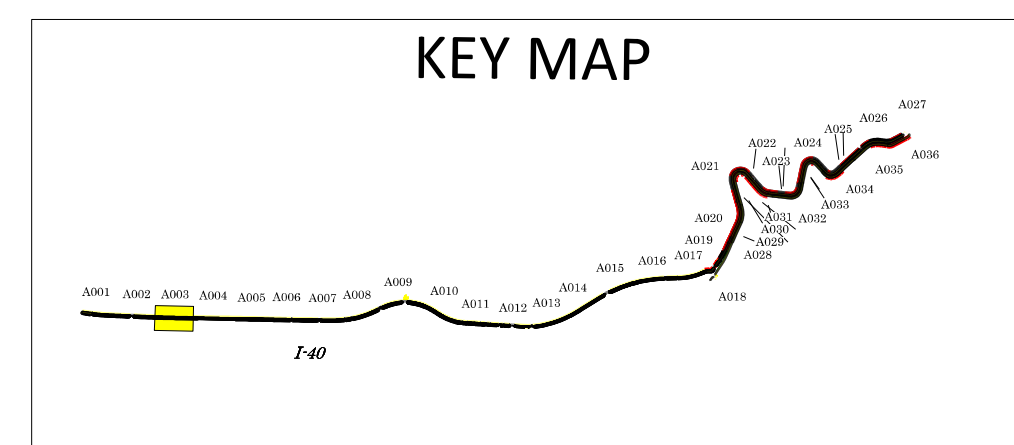
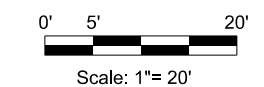
MATCH LINE -SEE SHEET A004

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



ROADWAY DESIGN UNIT

PREPARED BY



INCOMPLETE PLANS

DO NOT USE FOR CONSTRUCTION



MATCH LINE - SEE SHEET A003

MATCH LINE - SEE SHEET A005

10' PAVED TRAIL

8' PLANTING STRIP

OLD US HWY 70 E

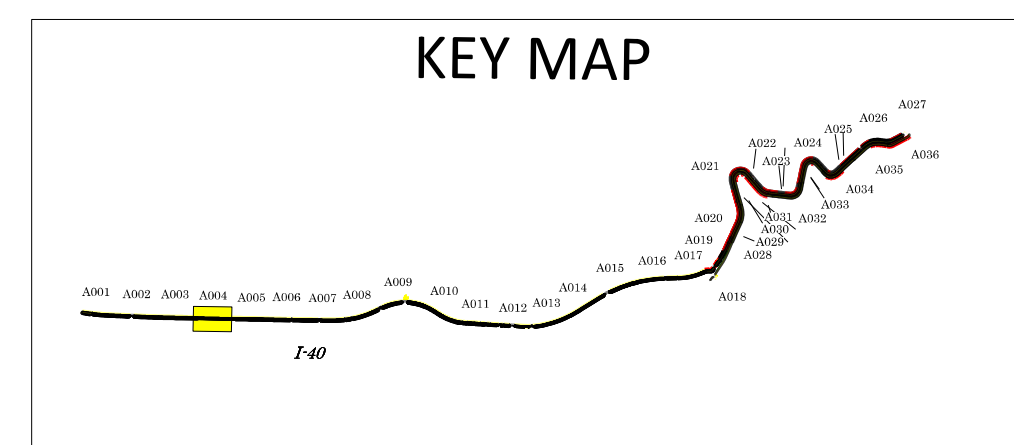
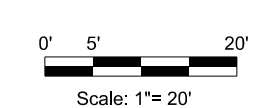
I-40

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





MATCH LINE -SEE SHEET A004

MATCH LINE -SEE SHEET A006

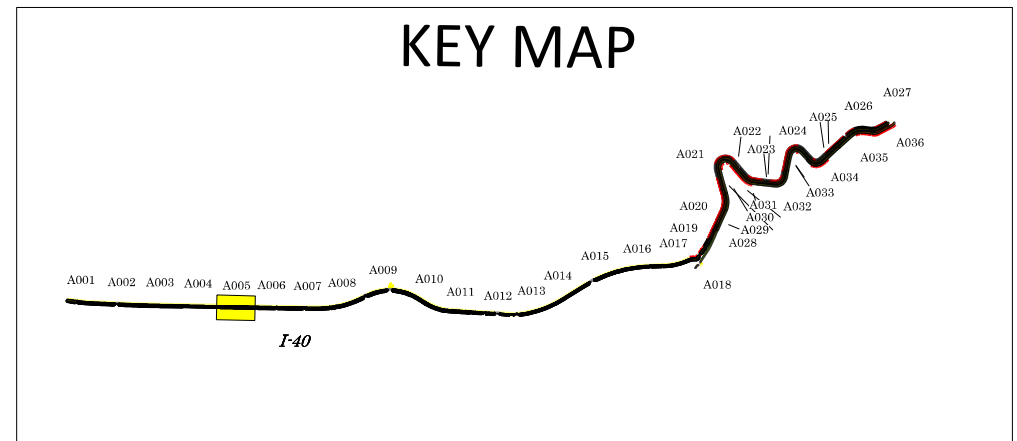
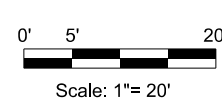


LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





MATCH LINE -SEE SHEET A005

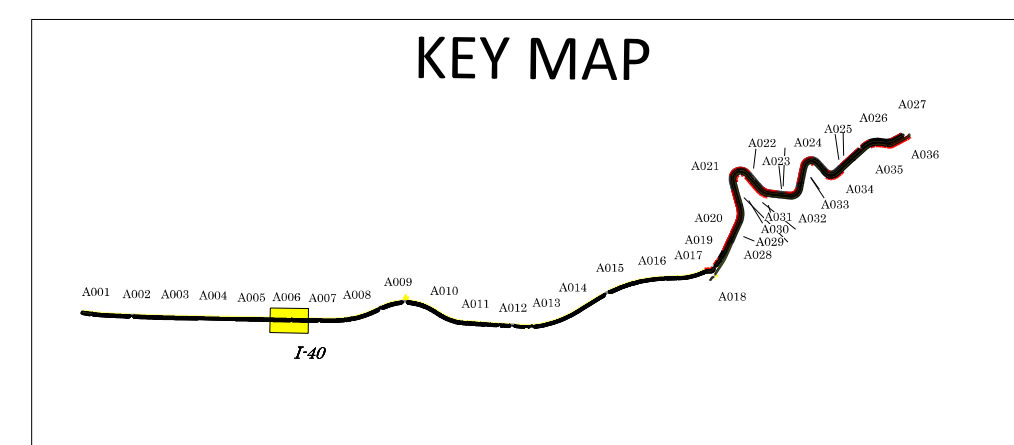
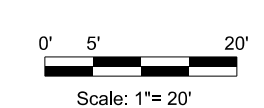
MATCH LINE -SEE SHEET A007

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE

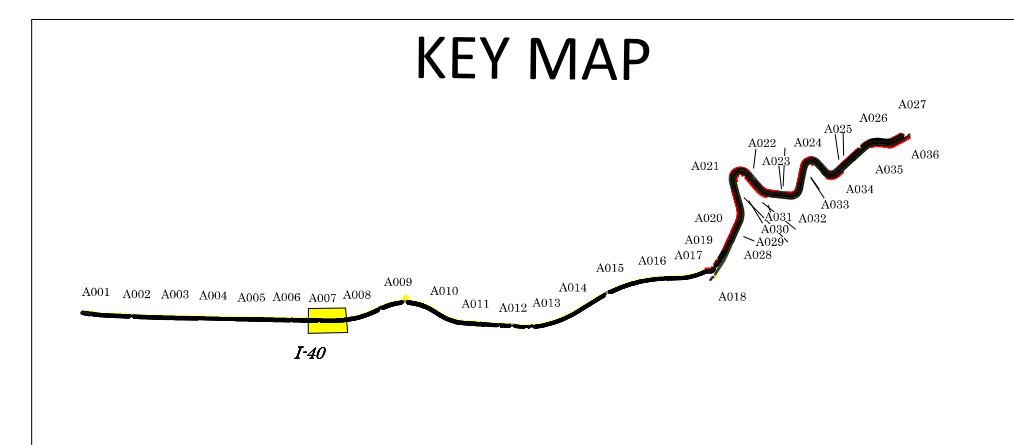
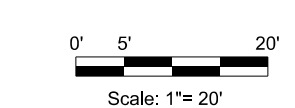


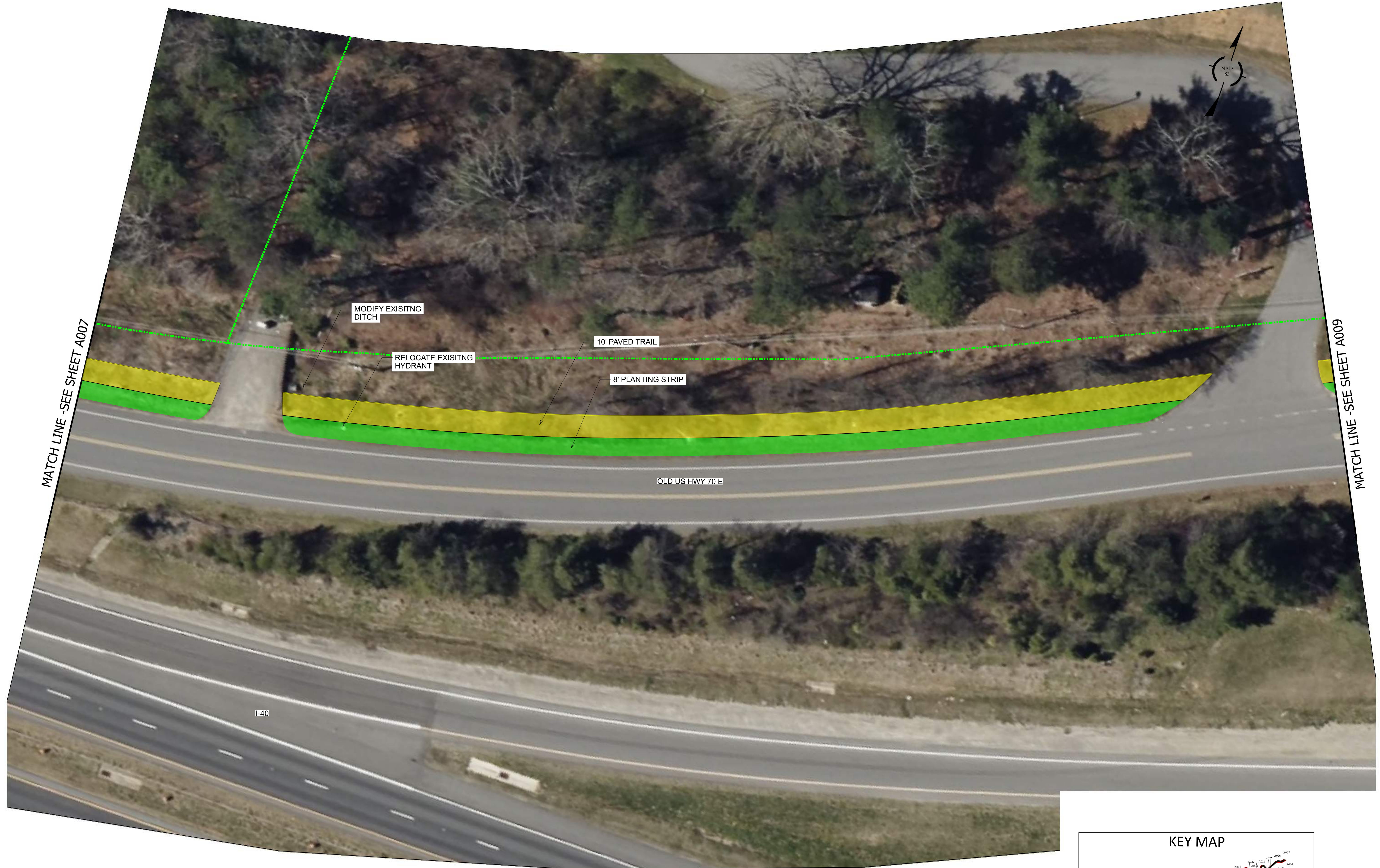


MATCH LINE - SEE SHEET A006

MATCH LINE - SEE SHEET A008

- LEGEND**
- PROPOSED TRAIL/BOARDWALK
 - PROPOSED PLANTING STRIP/DRAINAGE SWALE
 - PROPOSED CONCRETE MONOLITHIC ISLAND
 - PROPOSED CONCRETE SHOULDER
 - PROPOSED RETAINING WALL
 - PROPOSED RIGHT OF WAY
 - EXISTING PROPERTY LINE





A008

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

PREPARED BY

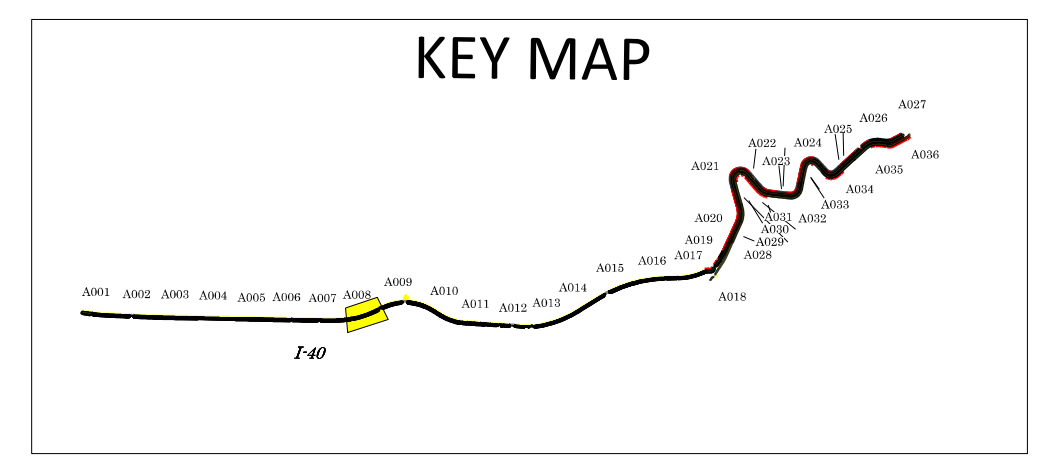
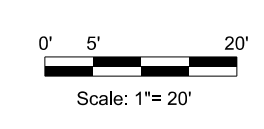
KITTELSON & ASSOCIATES
 KITTELSON AND ASSOCIATES, INC.
 702 OBERLIN RD, SUITE 410
 RALEIGH, NC 27605

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION

- LEGEND**
- PROPOSED TRAIL/BOARDWALK
 - PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



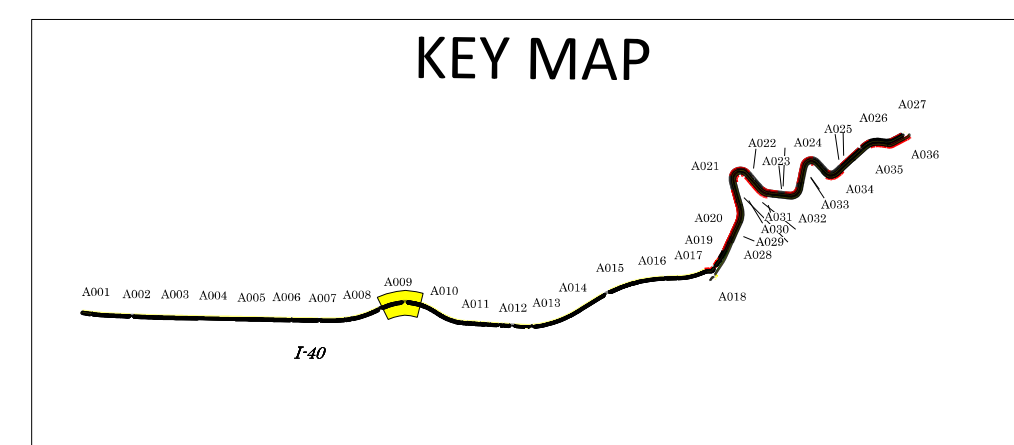
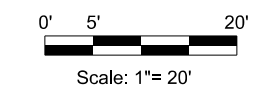


MATCH LINE - NONE - STA 44+80.00 SEE SHEET A008

MATCH LINE - NONE - STA 50+40.00 SEE SHEET A010

- LEGEND**
- PROPOSED TRAIL/BOARDWALK
 - PROPOSED PLANTING STRIP/DRAINAGE SWALE
 - PROPOSED CONCRETE MONOLITHIC ISLAND
 - PROPOSED CONCRETE SHOULDER
 - PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





MATCH LINE - SEE SHEET A009

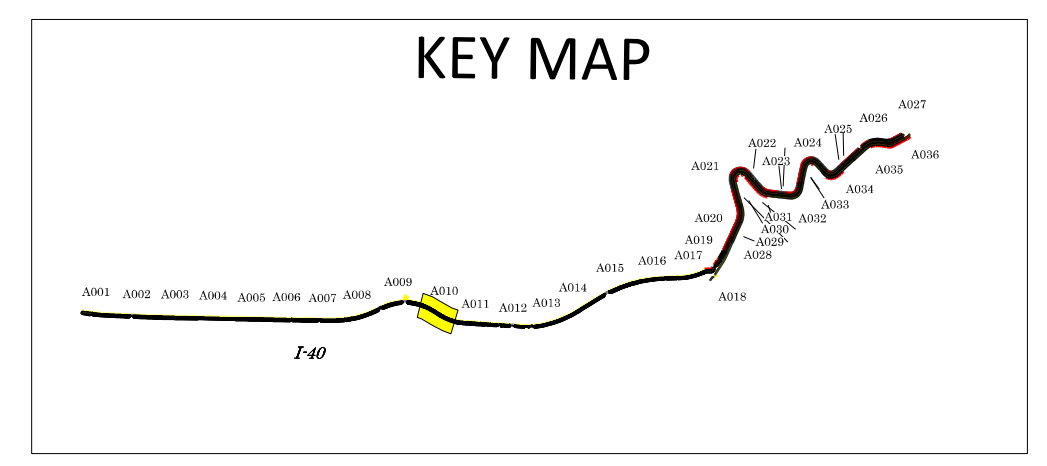
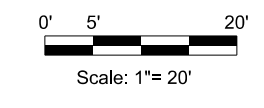
MATCH LINE - SEE SHEET A011

OLD US HWY 70 E

I-40

- LEGEND**
- PROPOSED TRAIL/BOARDWALK
 - PROPOSED PLANTING STRIP/DRAINAGE SWALE
 - PROPOSED CONCRETE MONOLITHIC ISLAND
 - PROPOSED CONCRETE SHOULDER
 - PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





MATCH LINE -SEE SHEET A010

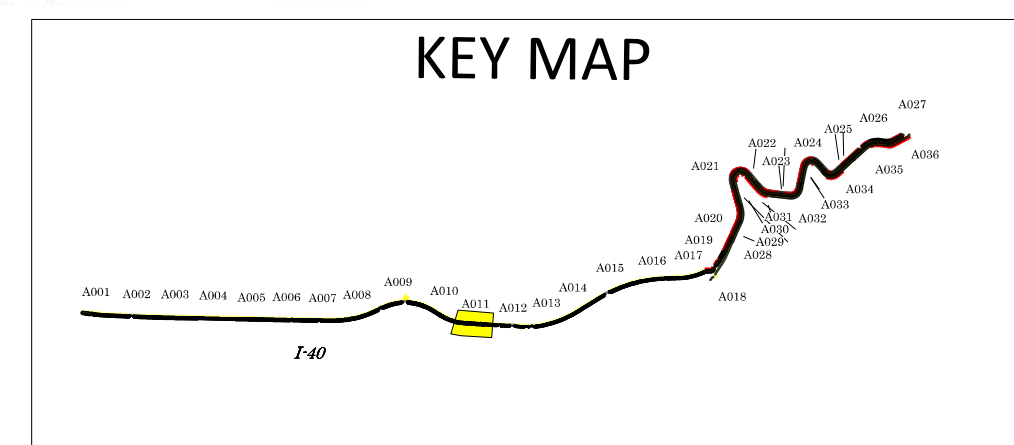
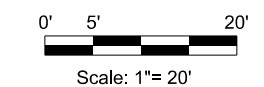
MATCH LINE -SEE SHEET A012

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



ADII
ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

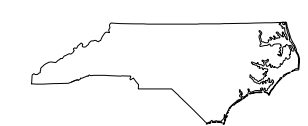
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

PREPARED BY
KITTELSON & ASSOCIATES
KITTELSON AND ASSOCIATES, INC.
702 OBERLIN RD, SUITE 410
RALEIGH, NC 27605

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION



MATCH LINE - SEE SHEET A011

MATCH LINE - SEE SHEET A013

10' PAVED TRAIL

4' BERM

MORE CIR

OLD US HWY 70 E

I-40

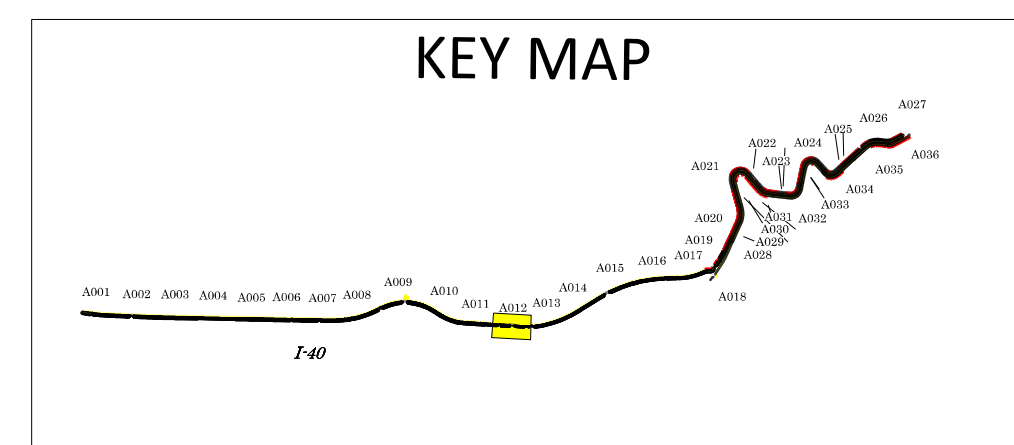
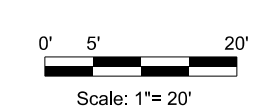


LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





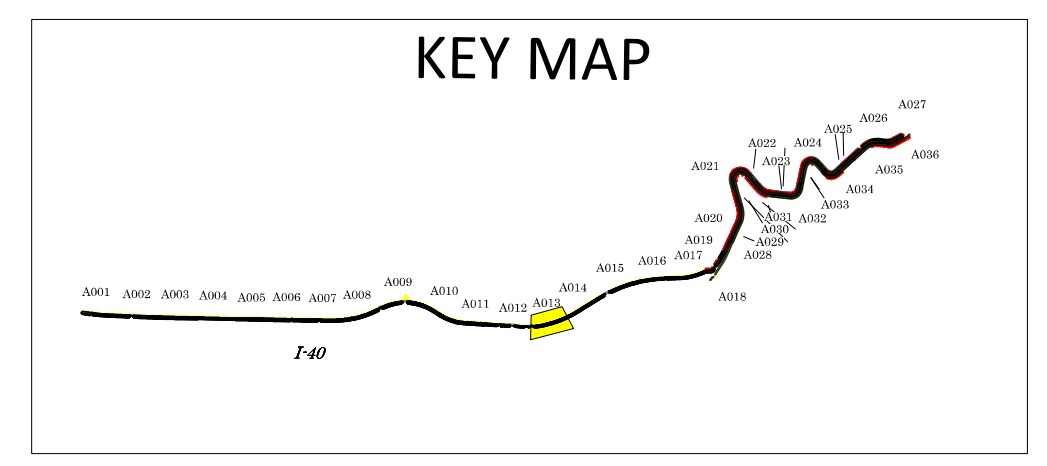
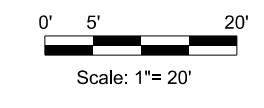
MATCH LINE - SEE SHEET A012

MATCH LINE - SEE SHEET A014

- LEGEND**
- PROPOSED TRAIL/BOARDWALK
 - PROPOSED CONCRETE MONOLITHIC ISLAND
 - PROPOSED CONCRETE SHOULDER
 - PROPOSED PLANTING STRIP/DRAINAGE SWALE
 - PROPOSED RETAINING WALL
 - PROPOSED RIGHT OF WAY
 - EXISTING PROPERTY LINE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





STEEP SLOPE; SOME CUT AND RETAINING WALL MAY BE REQUIRED

RESET RIDGECREST SIGN AND LIGHTING

10' PAVED TRAIL

4' BERM

MATCH LINE -SEE SHEET A013

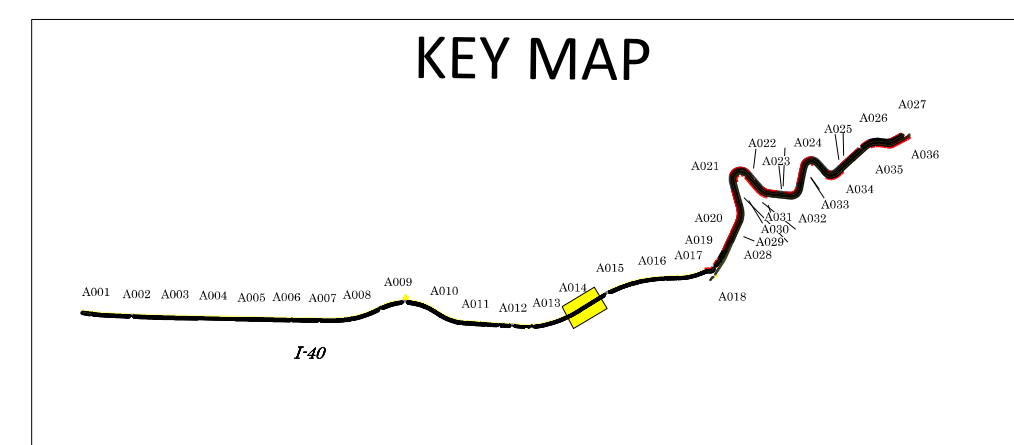
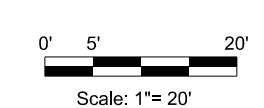
MATCH LINE -SEE SHEET A015

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





MATCH LINE - SEE SHEET A014

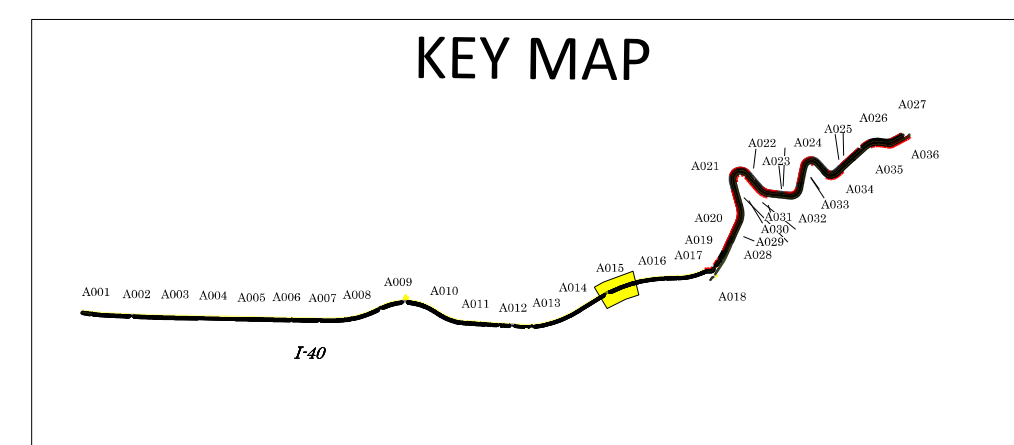
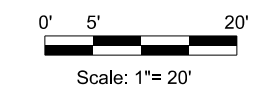
MATCH LINE - SEE SHEET A016

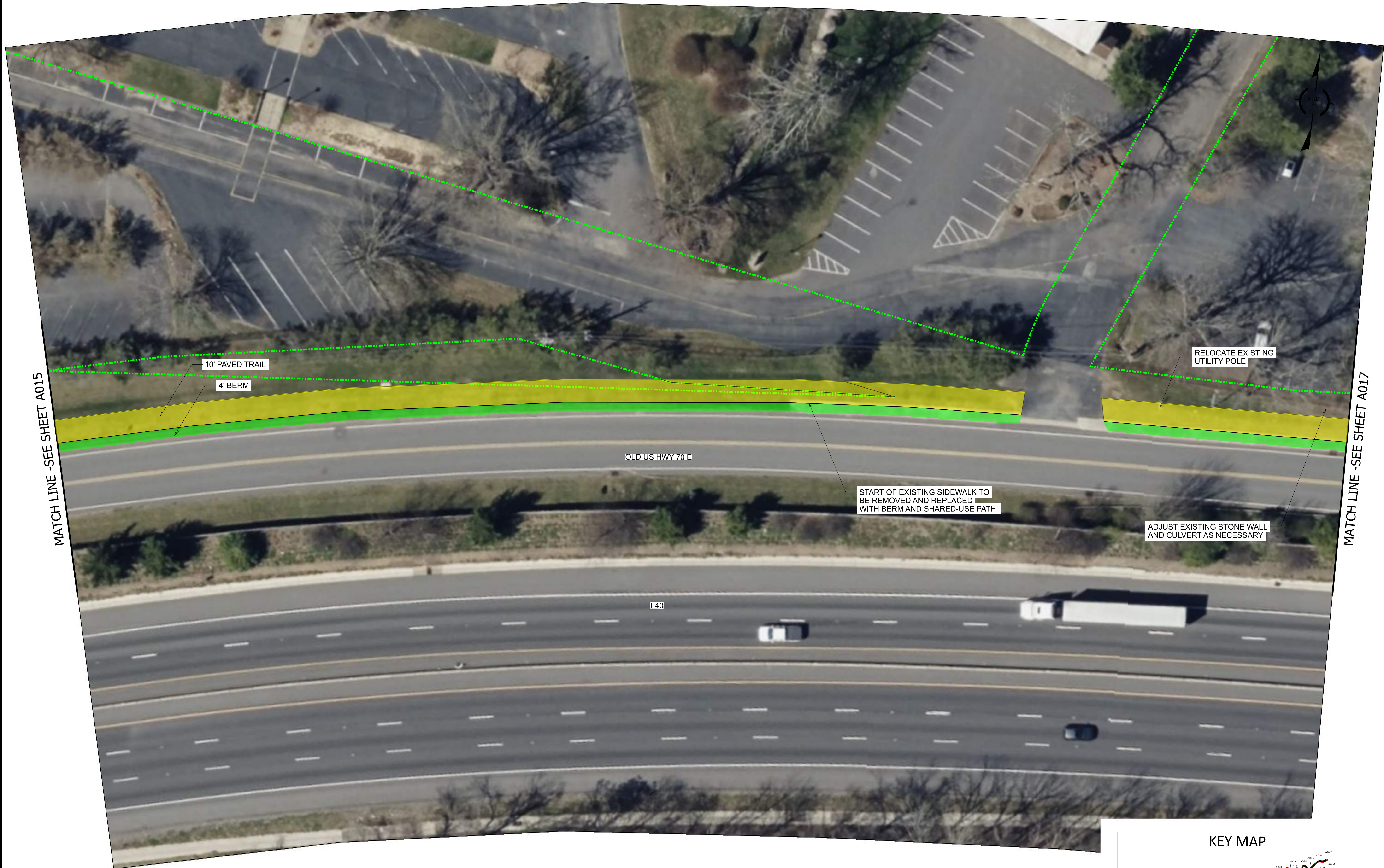
LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





A016

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

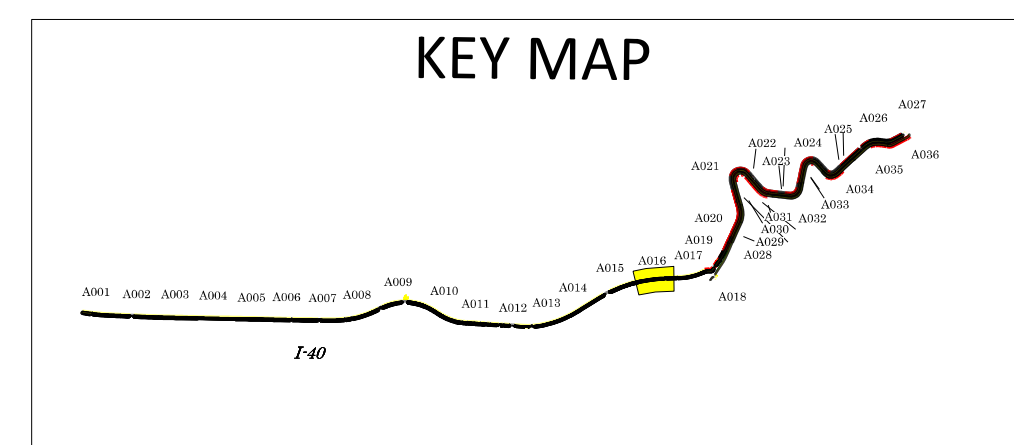
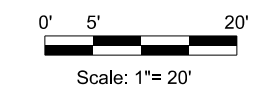
PREPARED BY

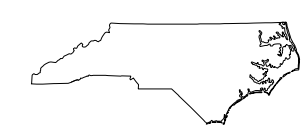
KITTELSON & ASSOCIATES
 KITTELSON AND ASSOCIATES, INC.
 702 OBERLIN RD, SUITE 410
 RALEIGH, NC 27605

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE
- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL
- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE

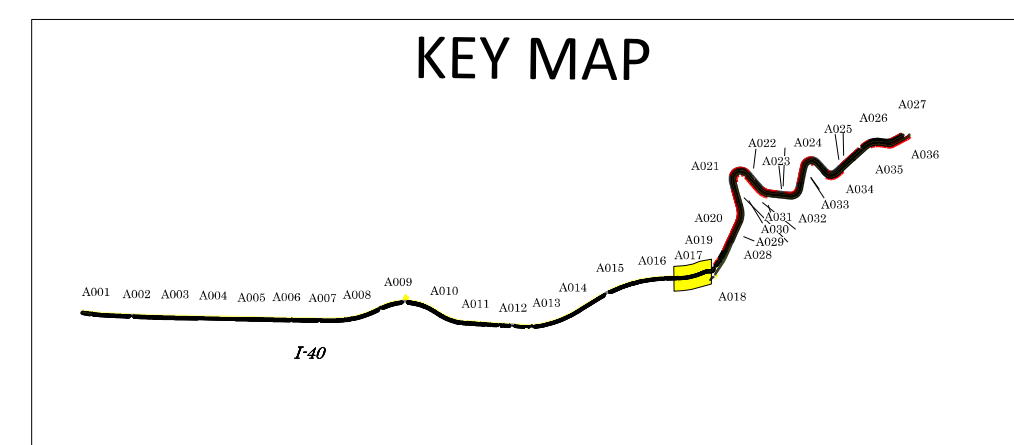
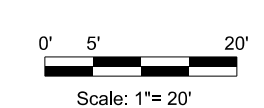




- LEGEND**
- PROPOSED TRAIL/BOARDWALK
 - PROPOSED PLANTING STRIP/DRAINAGE SWALE
 - PROPOSED CONCRETE MONOLITHIC ISLAND
 - PROPOSED CONCRETE SHOULDER
 - PROPOSED RETAINING WALL
 - PROPOSED RIGHT OF WAY
 - EXISTING PROPERTY LINE

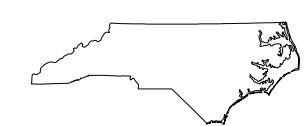
- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



ROADWAY DESIGN UNIT

PREPARED BY



INCOMPLETE PLANS (DO NOT USE FOR CONSTRUCTION)



MATCH LINE - SEE SHEET A017

4' BERM

10' PAVED TRAIL

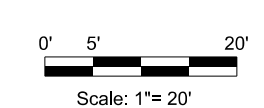
YATES AVE

LEGEND

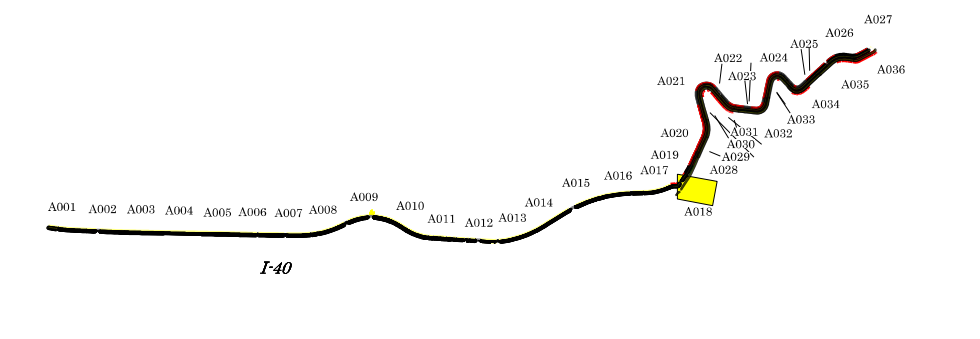
- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



KEY MAP





MATCH LINE - SEE SHEET A020

STEEP SLOPE: CUT AND RETAINING WALL REQUIRED BETWEEN THIS POINT AND NE PROJECT LIMIT

PLANTING STRIP WIDTH VARIES

10' PAVED TRAIL

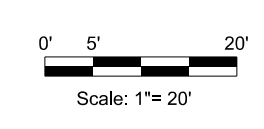
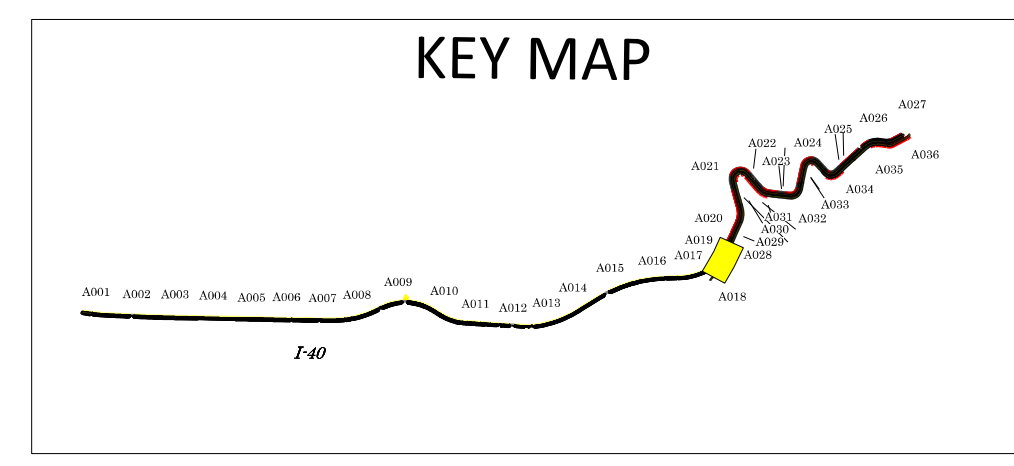
1'-6" MONOLITHIC CONCRETE ISLAND

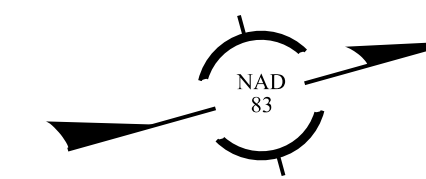
8' PAVED TRAIL

2' PAVED SHOULDER

CONCRETE RETAINING WALL

- LEGEND**
- PROPOSED TRAIL/BOARDWALK
 - PROPOSED PLANTING STRIP/DRAINAGE SWALE
 - PROPOSED CONCRETE MONOLITHIC ISLAND
 - PROPOSED CONCRETE SHOULDER
 - PROPOSED RETAINING WALL
 - PROPOSED RIGHT OF WAY
 - EXISTING PROPERTY LINE





1'-6" MONOLITHIC CONCRETE ISLAND
8' PAVED TRAIL
2' PAVED SHOULDER
CONCRETE RETAINING WALL

YATES AVE / MILL CREEK RD

MATCH LINE - SEE SHEET A019

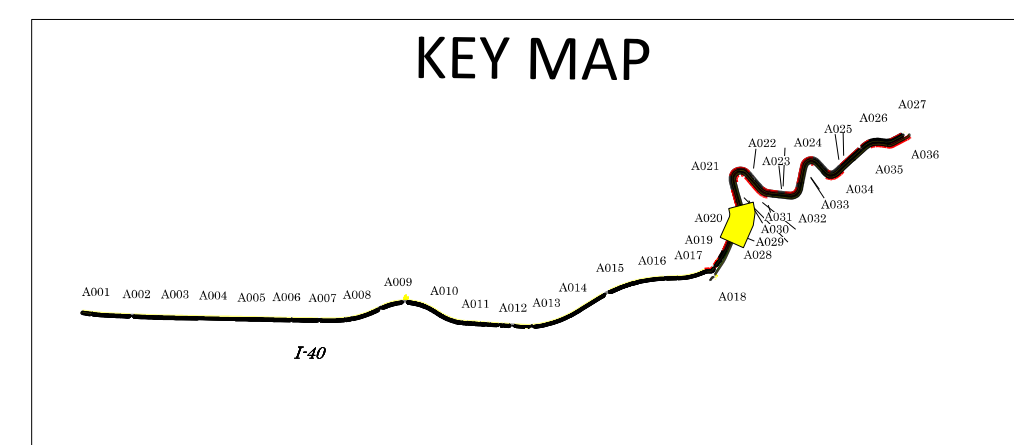
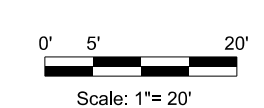
MATCH LINE - SEE SHEET A021

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





A021

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

PREPARED BY

KITTELSON & ASSOCIATES
 KITTELSON AND ASSOCIATES, INC.
 702 OBERLIN RD, SUITE 410
 RALEIGH, NC 27605

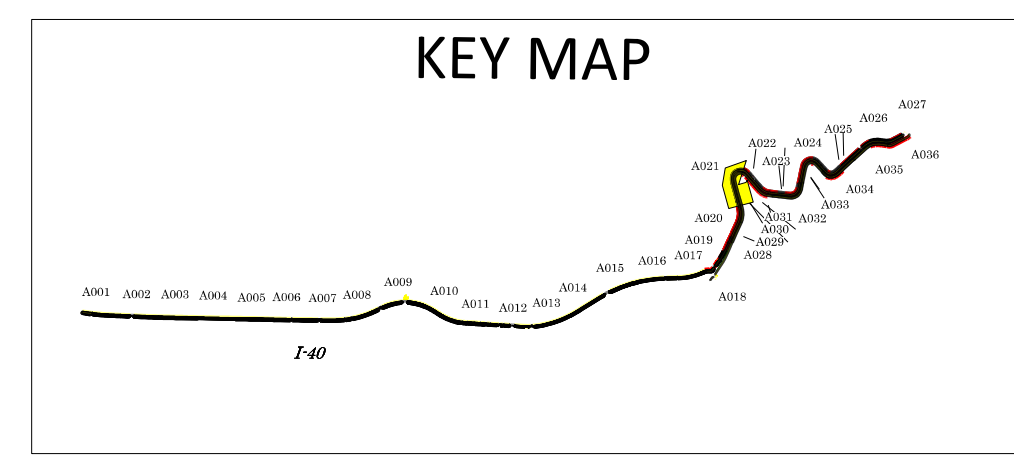
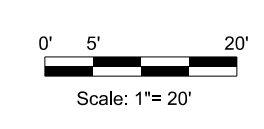
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION

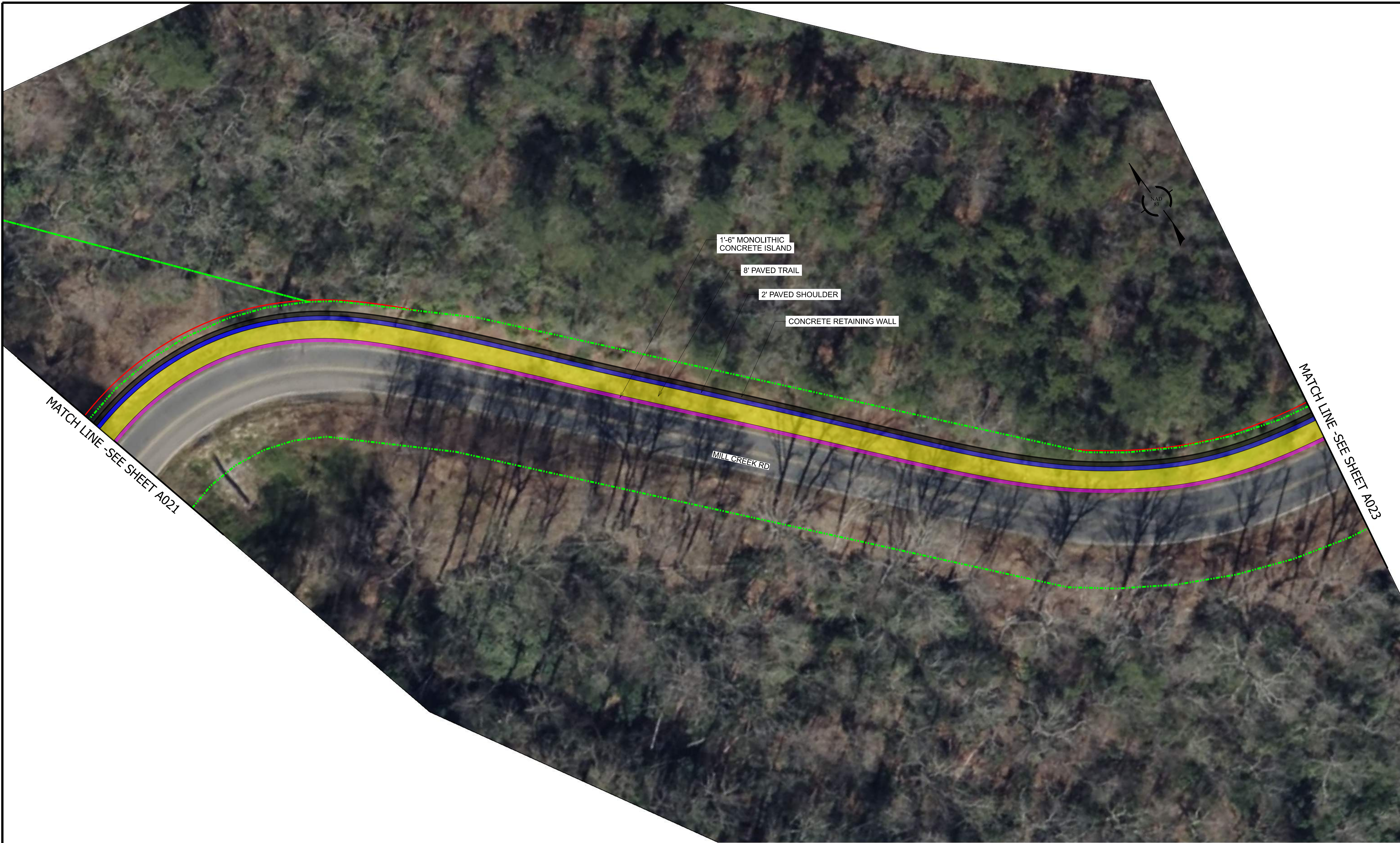
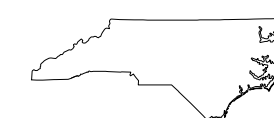
MATCH LINE -SEE SHEET A020

MATCH LINE -SEE SHEET A022

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE
- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL
- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



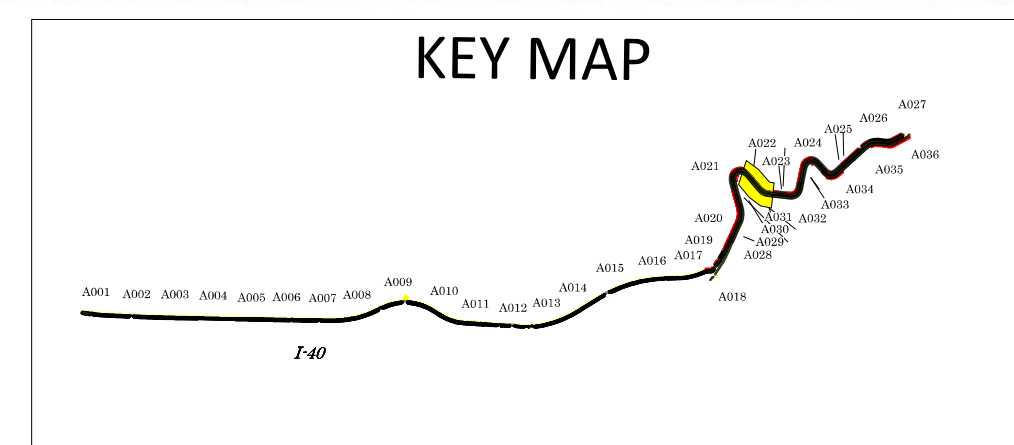
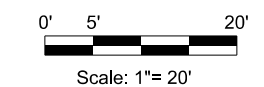


LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



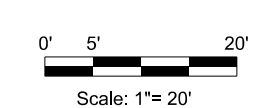


LEGEND

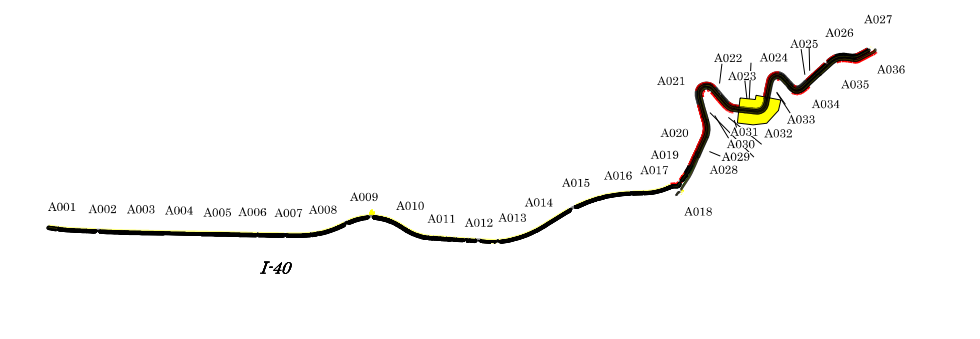
- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

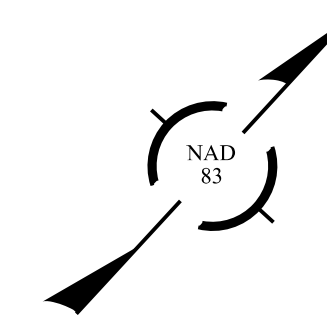
- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



KEY MAP





A024

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



ROADWAY DESIGN UNIT

PREPARED BY

KITTELSON & ASSOCIATES
KITTELSON AND ASSOCIATES, INC.
702 OBERLIN RD, SUITE 410
RALEIGH, NC 27605

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION



1'-6" MONOLITHIC CONCRETE ISLAND

8' PAVED TRAIL

2' PAVED SHOULDER

CONCRETE RETAINING WALL

MILL CREEK RD

MATCH LINE - SEE SHEET A023

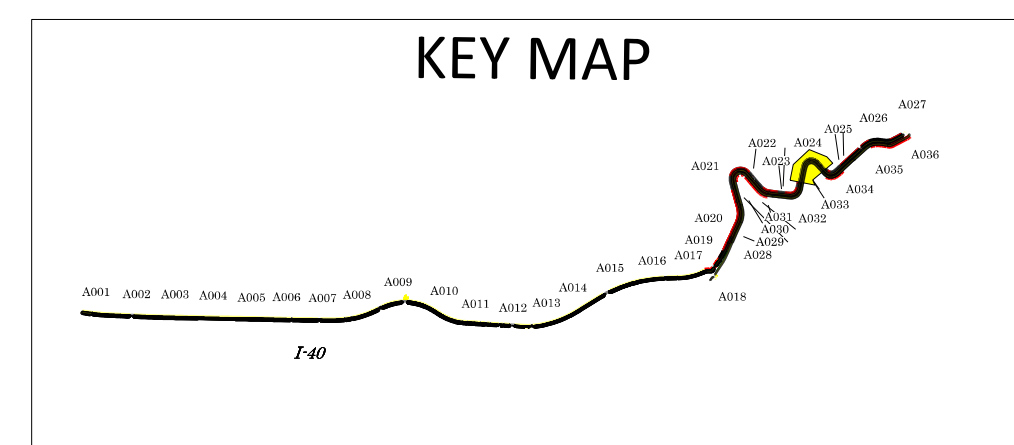
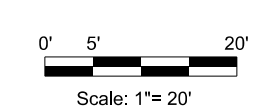
MATCH LINE - SEE SHEET A025

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





MATCH LINE - SEE SHEET A024

MATCH LINE - SEE SHEET A026

1'-6" MONOLITHIC CONCRETE ISLAND

8' PAVED TRAIL

2' PAVED SHOULDER

CONCRETE RETAINING WALL

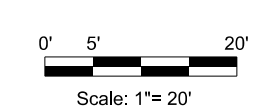
MILL CREEK RD

LEGEND

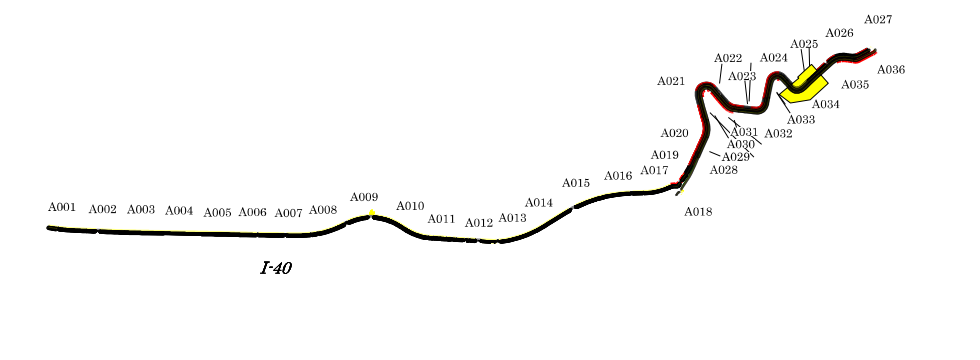
- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



KEY MAP





MATCH LINE - SEE SHEET A025

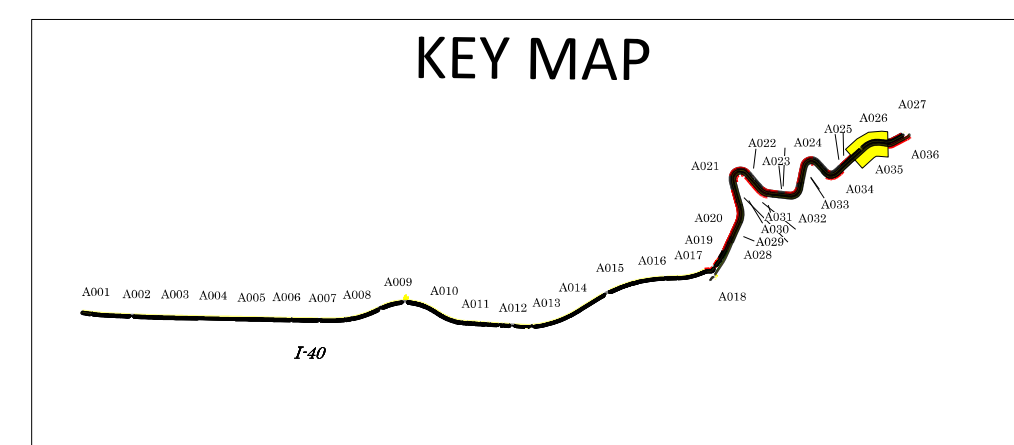
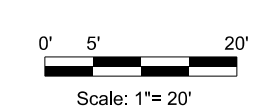
MATCH LINE - SEE SHEET A027

LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





MATCH LINE - SEE SHEET A026

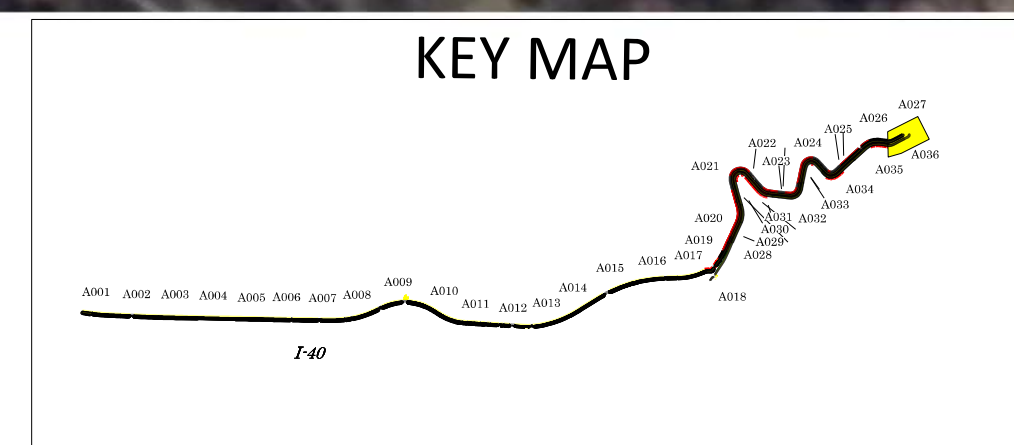
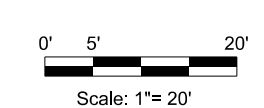
1'-6" MONOLITHIC CONCRETE ISLAND
8' PAVED TRAIL
2' PAVED SHOULDER
CONCRETE RETAINING WALL

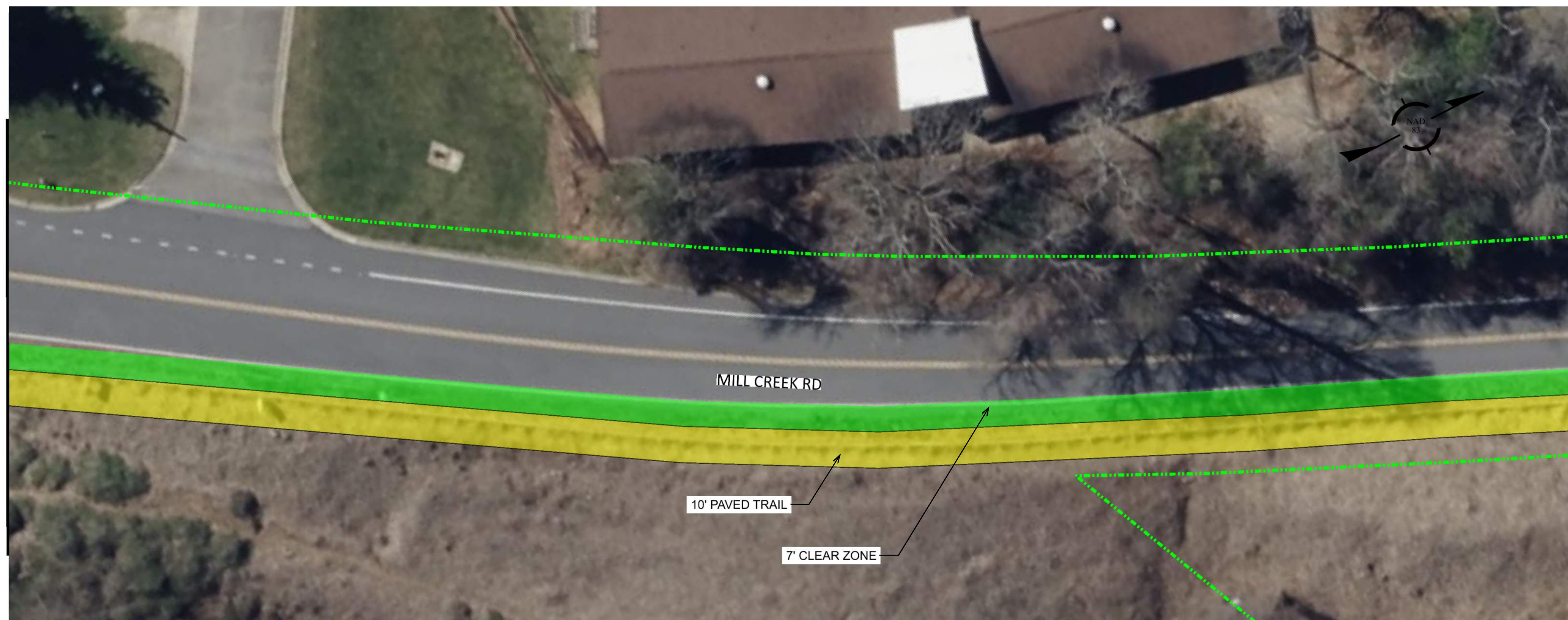
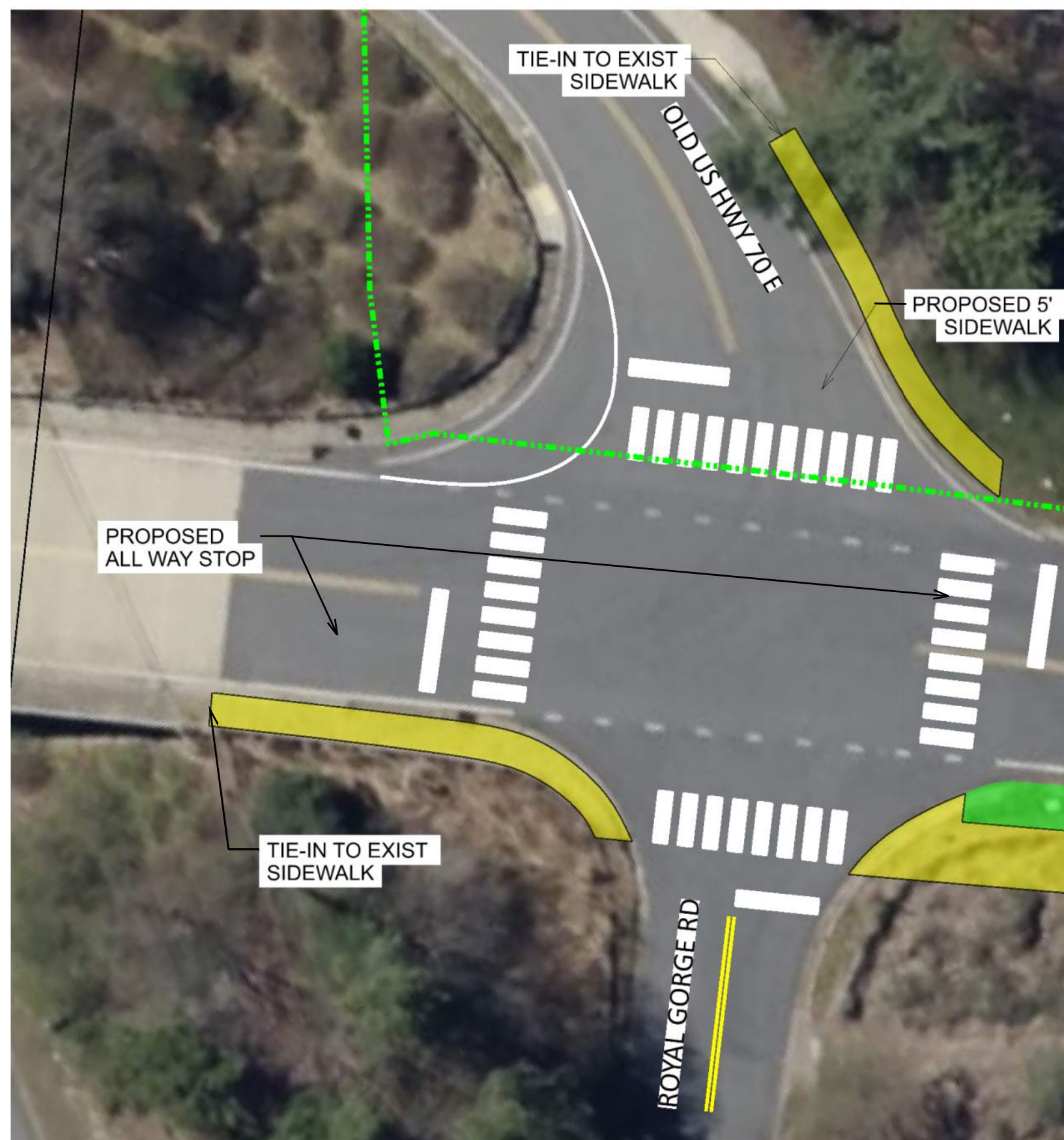
MILL CREEK RD

FORMALIZE AND IMPROVE PARKING AREA FOR FONTA FLORA TRAIL HEAD

- LEGEND**
- PROPOSED TRAIL/BOARDWALK
 - PROPOSED PLANTING STRIP/DRAINAGE SWALE
 - PROPOSED CONCRETE MONOLITHIC ISLAND
 - PROPOSED CONCRETE SHOULDER
 - PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



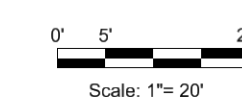


LEGEND

-  PROPOSED TRAIL/BOARDWALK
-  PROPOSED PLANTING STRIP/DRAINAGE SWALE

-  PROPOSED CONCRETE MONOLITHIC ISLAND
-  PROPOSED CONCRETE SHOULDER
-  PROPOSED RETAINING WALL

-  PROPOSED RIGHT OF WAY
-  EXISTING PROPERTY LINE



KEY MAP



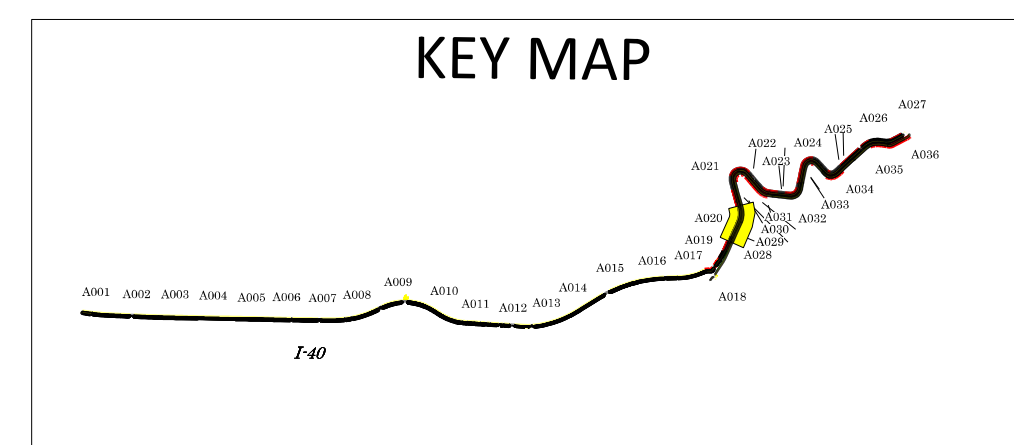
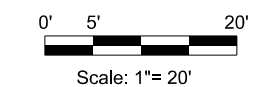


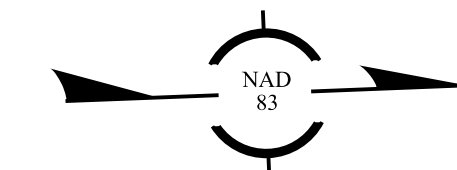
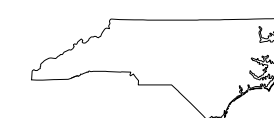
LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

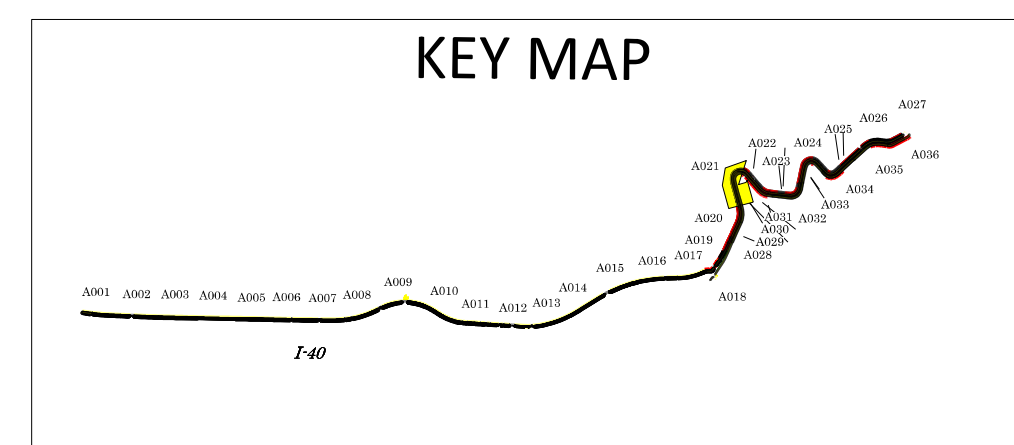
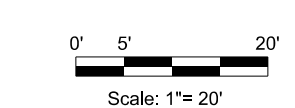
- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE
- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL
- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



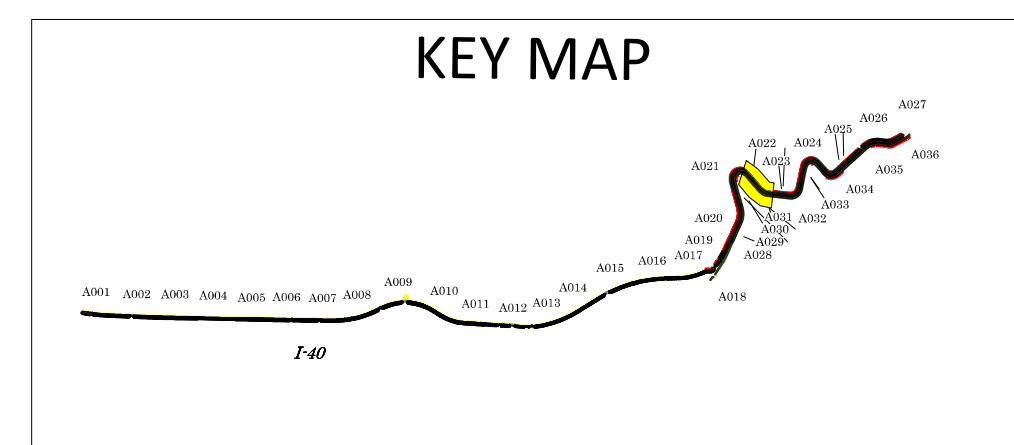
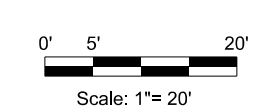


LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



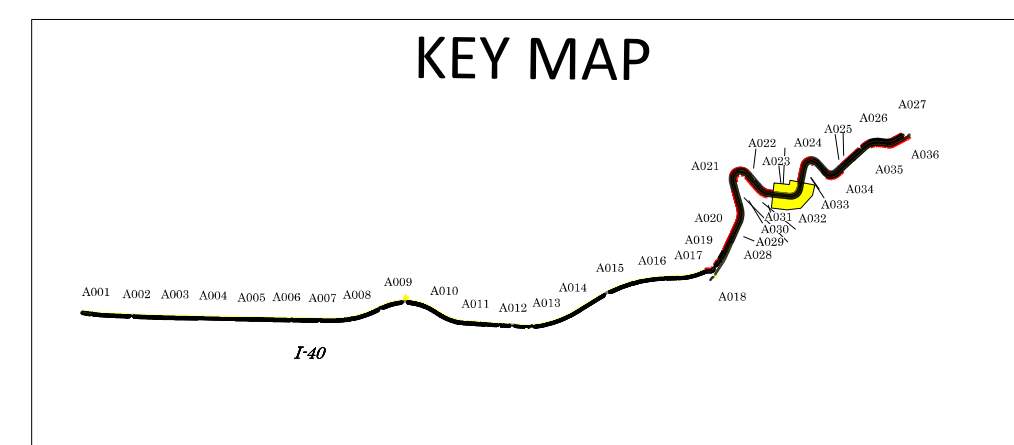
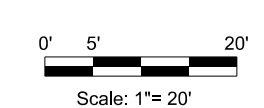


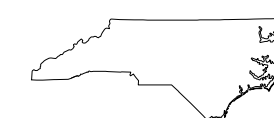
LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE



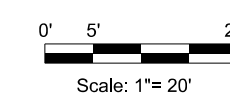


LEGEND

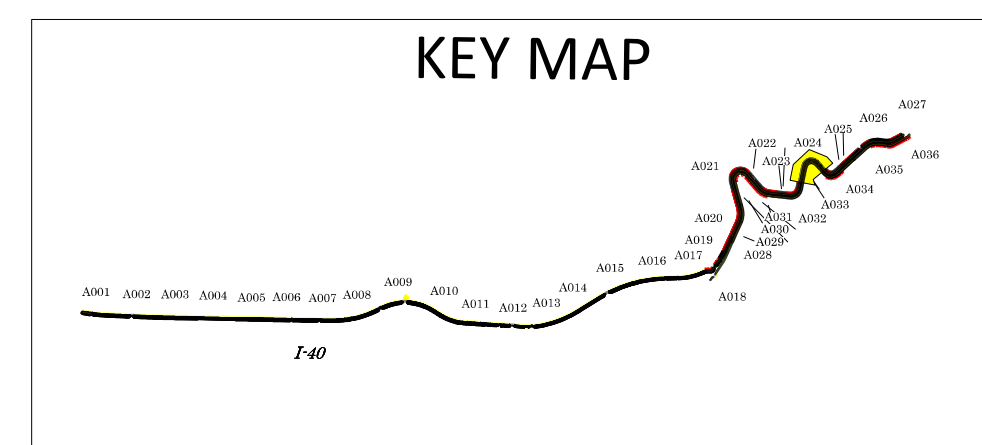
-  PROPOSED TRAIL/BOARDWALK
-  PROPOSED PLANTING STRIP/DRAINAGE SWALE

-  PROPOSED CONCRETE MONOLITHIC ISLAND
-  PROPOSED CONCRETE SHOULDER
-  PROPOSED RETAINING WALL

-  PROPOSED RIGHT OF WAY
-  EXISTING PROPERTY LINE



KEY MAP





MATCH LINE - SEE SHEET A033

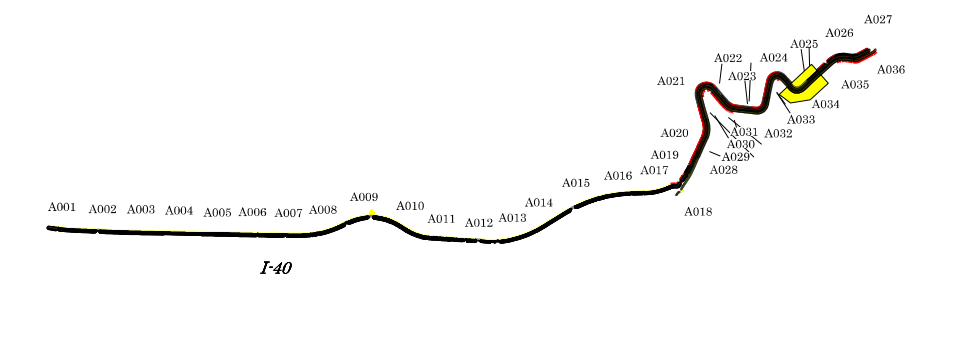
MATCH LINE - SEE SHEET A035

CLEAR ZONE (WIDTH VARIES)

10' BOARDWALK

MILL CREEK RD

KEY MAP

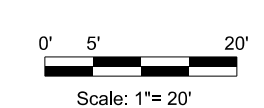


LEGEND


- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

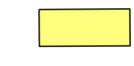

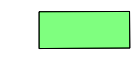



- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE

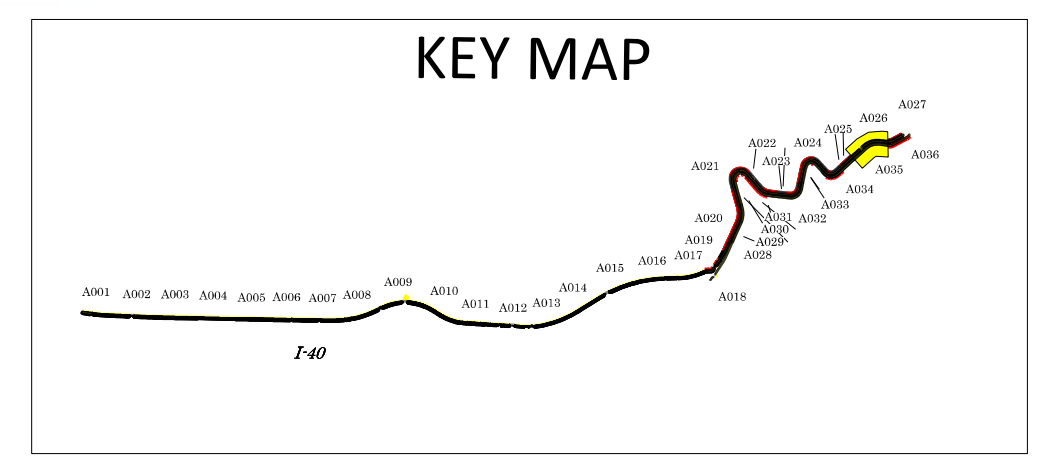
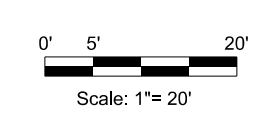


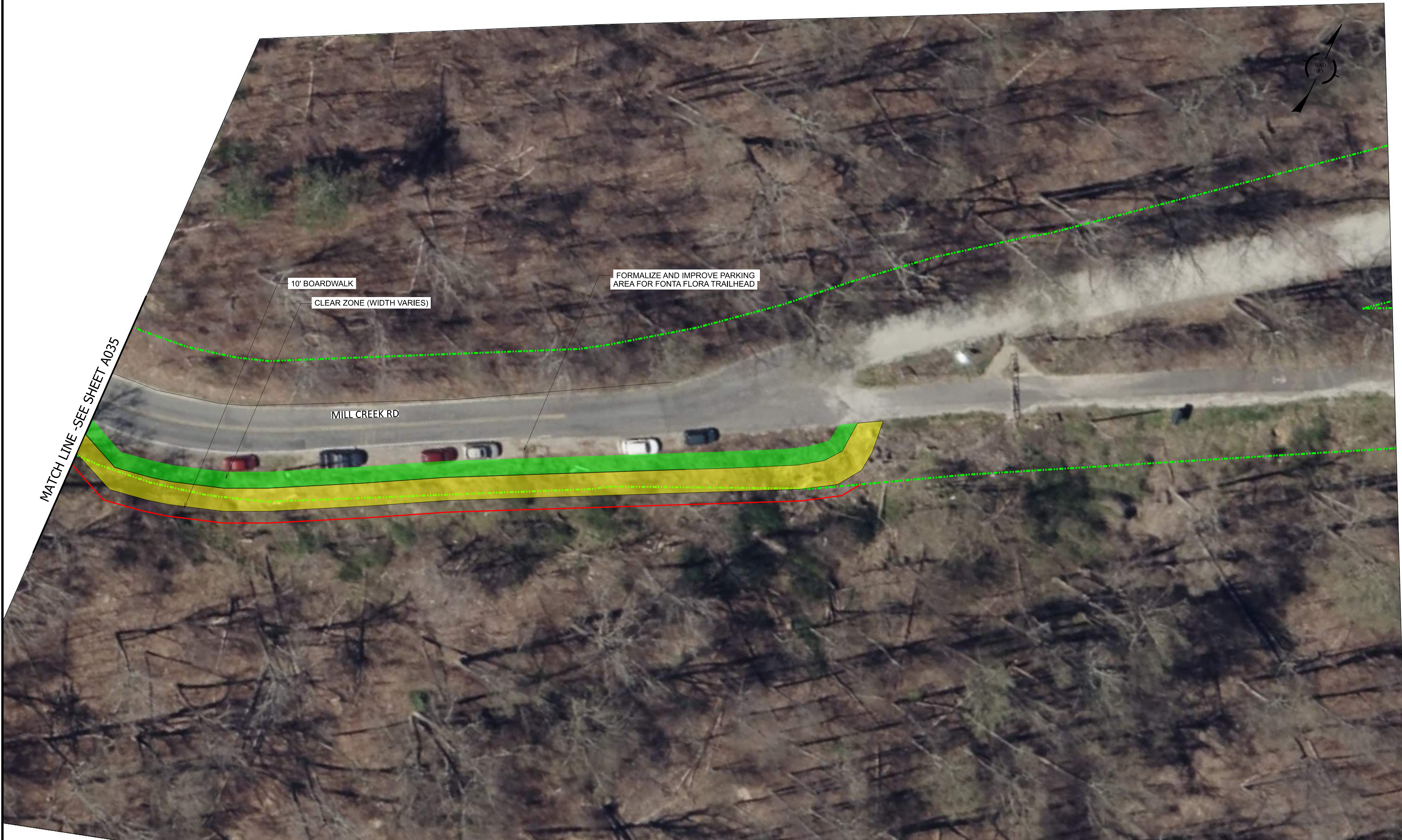


A035
ROADWAY DESIGN ENGINEER
PAVEMENT DESIGN ENGINEER
<small>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</small> STATE OF NORTH CAROLINA  ROADWAY DESIGN UNIT PREPARED BY KITTELSON & ASSOCIATES <small>KITTELSON AND ASSOCIATES, INC. 702 OBERLIN RD, SUITE 410 RALEIGH, NC 27605</small>
<small>INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION</small>

LEGEND

- | | | |
|--|---|--|
|  PROPOSED TRAIL/BOARDWALK |  PROPOSED CONCRETE MONOLITHIC ISLAND |  PROPOSED RIGHT OF WAY |
|  PROPOSED PLANTING STRIP/DRAINAGE SWALE |  PROPOSED CONCRETE SHOULDER |  EXISTING PROPERTY LINE |
| |  PROPOSED RETAINING WALL | |



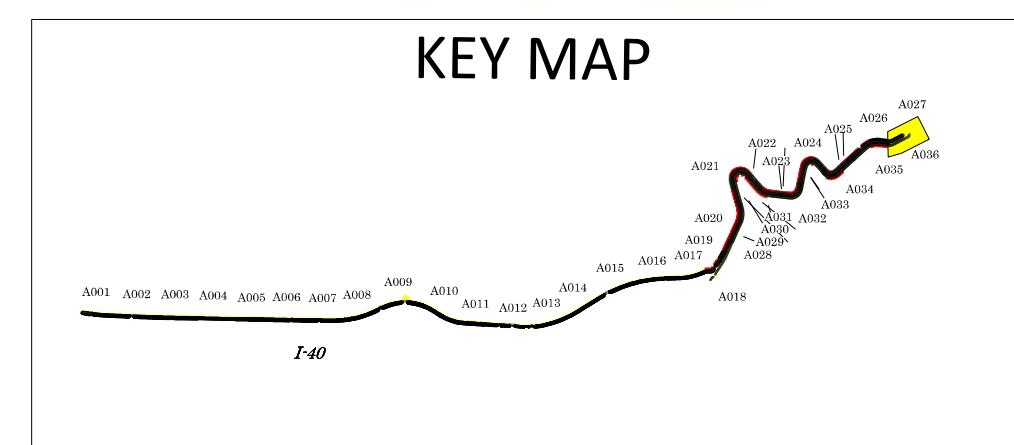
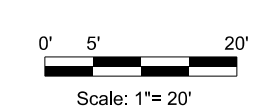


LEGEND

- PROPOSED TRAIL/BOARDWALK
- PROPOSED PLANTING STRIP/DRAINAGE SWALE

- PROPOSED CONCRETE MONOLITHIC ISLAND
- PROPOSED CONCRETE SHOULDER
- PROPOSED RETAINING WALL

- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE





Appendix D Cost Estimates

Fonta Flora Trail
Segment C1 Concept
 NCDOT



Engineer's Conceptual Estimate

Prepared By: Josh Hurst, PE, PTOE Date: August 22, 2025

Reviewed By: --

This Estimate has a Rating of: **3C** (See rating scale guide below.)

ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
Mobilization	LS	ALL	\$403,000.00	\$403,000.00
Traffic Control	LS	ALL	\$171,000.00	\$171,000.00
Construction Staging	LS	ALL	\$171,000.00	\$171,000.00
Erosion Control	AC	4.8	\$10,000.00	\$48,000.00
Removal of Structures and Obstructions	LS	ALL	\$72,000.00	\$72,000.00
Clearing and Grubbing	LS	ALL	\$96,000.00	\$96,000.00
General Earthworks	CY	3,100	\$65.00	\$201,500.00
Concrete Curbs - Standard Curb & Gutter	LF	0	\$55.00	\$0.00
Separated Multi-Use Path - Concrete	SF	95,000	\$10.20	\$969,000.00
Detectable Warnings	EA	40	\$500.00	\$20,000.00
Extra for Pedestrian Ramps	EA	40	\$2,250.00	\$90,000.00
Residential Driveway Reconstruction	EA	12	\$2,000.00	\$24,000.00
Commercial Driveway Reconstruction	EA	6	\$4,000.00	\$24,000.00
Retaining Walls, Gravity	SF	10,400	\$75.00	\$780,000.00
Bridge Structure, Complete	SF	0		\$0.00
Guardrail System, Complete	LF	300	\$55.00	\$16,500.00
Storm Water Conveyance System, Complete	LS	ALL	\$385,000.00	\$385,000.00
Permanent Landscaping	SF	114,000	\$4.00	\$456,000.00
Pavement Markings, Complete	LS	ALL	\$39,000.00	\$39,000.00
Signage, Complete	LS	ALL	\$52,000.00	\$52,000.00
Illumination System, Complete	LS	ALL	\$128,100.00	\$128,100.00
TOTAL CONSTRUCTION COST \$				4,146,100

Fonta Flora Trail
Segment C1 Concept
 NCDOT



Engineer's Conceptual Estimate

Prepared By: Josh Hurst, PE, PTOE			Date: August 22, 2025		
Reviewed By: --					
This Estimate has a Rating of:			3C (See rating scale guide below.)		
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST	
RIGHT-OF-WAY COSTS					
Residential Right-of-Way Acquisition	SF	0	\$15.00	\$0.00	
Residential Permanent Easement	SF	0	\$11.25	\$0.00	
Residential Temporary Construction Easement	SF	0	\$2.25	\$0.00	
Commercial Right-of-Way Acquisition	SF	2,500	\$30.00	\$75,000.00	
Commercial Permanent Easement	SF	0	\$22.50	\$0.00	
Commercial Temporary Construction Easement	SF	0	\$4.50	\$0.00	
Permanent Drainage Easement	SF	0	\$15.00	\$0.00	
RIGHT-OF-WAY SUBTOTAL				\$	75,000
ENGINEERING SUPPORT					
Engineering & Construction Management	LS	ALL	\$1,037,000.00	\$1,037,000.00	
Right-of-Way Support	EA	0	\$18,000.00	\$0.00	
ENGINEERING SUPPORT SUBTOTAL				\$	1,037,000
TOTAL PROJECT SUBTOTAL				\$	5,258,100
				30% Contingency	\$ 1,577,430
TOTAL ESTIMATED PROJECT COST				\$	6,835,530

Fonta Flora Trail
Segment D1 Concept
 NCDOT



Engineer's Conceptual Estimate

Prepared By: Josh Hurst, PE, PTOE Date: August 22, 2025

Reviewed By: --

This Estimate has a Rating of: **3C** (See rating scale guide below.)

ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
Mobilization	LS	ALL	\$551,000.00	\$551,000.00
Traffic Control	LS	ALL	\$231,000.00	\$231,000.00
Construction Staging	LS	ALL	\$369,000.00	\$369,000.00
Erosion Control	AC	1.5	\$10,000.00	\$15,000.00
Removal of Structures and Obstructions	LS	ALL	\$253,000.00	\$253,000.00
Clearing and Grubbing	LS	ALL	\$127,000.00	\$127,000.00
General Earthworks	CY	2,100	\$65.00	\$136,500.00
Asphalt Roadway - Full Depth	SF	0	\$12.60	\$0.00
Concrete Curbs - Standard Curb	LF	4,800	\$62.50	\$300,000.00
Concrete Curbs - Standard Curb & Gutter	LF	0	\$55.00	\$0.00
Separated Bicycle Facility - Asphalt	SF	48,000	\$5.80	\$278,400.00
Concrete Walks	SF	0	\$10.20	\$0.00
Separated Multi-Use Path - Concrete	SF	0	\$10.20	\$0.00
Separated Multi-Use Path - Asphalt	SF	0	\$4.20	\$0.00
Detectable Warnings	EA	6	\$500.00	\$3,000.00
Extra for Pedestrian Ramps	EA	6	\$2,250.00	\$13,500.00
Residential Driveway Reconstruction	EA	0	\$2,000.00	\$0.00
Commercial Driveway Reconstruction	EA	2	\$4,000.00	\$8,000.00
Retaining Walls, Gravity	SF	38,700	\$75.00	\$2,902,500.00
Bridge Structure, Complete	SF	0		\$0.00
Guardrail System, Complete	LF	0	\$55.00	\$0.00
Storm Water Conveyance System, Complete	LS	ALL	\$403,000.00	\$403,000.00
Permanent Landscaping	SF	9,600	\$4.00	\$38,400.00
Pavement Markings, Complete	LS	ALL	\$22,000.00	\$22,000.00
Signage, Complete	LS	ALL	\$30,000.00	\$30,000.00
Illumination System, Complete	LS	ALL	\$73,200.00	\$73,200.00
TOTAL CONSTRUCTION COST \$				5,754,500

Fonta Flora Trail
Segment D1 Concept
 NCDOT



Engineer's Conceptual Estimate

Prepared By: Josh Hurst, PE, PTOE			Date: August 22, 2025		
Reviewed By: --					
This Estimate has a Rating of:			3C (See rating scale guide below.)		
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST	
RIGHT-OF-WAY COSTS					
Residential Right-of-Way Acquisition	SF	0	\$15.00	\$0.00	
Residential Permanent Easement	SF	0	\$11.25	\$0.00	
Residential Temporary Construction Easement	SF	0	\$2.25	\$0.00	
Commercial Right-of-Way Acquisition	SF	7,500	\$10.00	\$75,000.00	
Commercial Permanent Easement	SF	0	\$7.50	\$0.00	
Commercial Temporary Construction Easement	SF	12,500	\$1.50	\$18,750.00	
Permanent Drainage Easement	SF	0	\$15.00	\$0.00	
RIGHT-OF-WAY SUBTOTAL				\$	93,750
ENGINEERING SUPPORT					
Engineering & Construction Management	LS	ALL	\$1,439,000.00	\$1,439,000.00	
Right-of-Way Support	EA	0	\$18,000.00	\$0.00	
ENGINEERING SUPPORT SUBTOTAL				\$	1,439,000
TOTAL PROJECT SUBTOTAL				\$	7,287,250
				30% Contingency	\$ 2,186,180
TOTAL ESTIMATED PROJECT COST				\$	9,473,430

Fonta Flora Trail
Segment D2 Concept
 NCDOT



Engineer's Conceptual Estimate

Prepared By: Josh Hurst, PE, PTOE Date: August 22, 2025

Reviewed By: --

This Estimate has a Rating of: **3C** (See rating scale guide below.)

ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
Mobilization	LS	ALL	\$825,000.00	\$825,000.00
Traffic Control	LS	ALL	\$345,000.00	\$345,000.00
Construction Staging	LS	ALL	\$552,000.00	\$552,000.00
Erosion Control	AC	3.0	\$10,000.00	\$30,000.00
Removal of Structures and Obstructions	LS	ALL	\$146,000.00	\$146,000.00
Clearing and Grubbing	LS	ALL	\$259,000.00	\$259,000.00
General Earthworks	CY	5,000	\$65.00	\$325,000.00
Asphalt Roadway - Full Depth	SF	0	\$12.60	\$0.00
Concrete Curbs - Standard Curb	LF	0	\$62.50	\$0.00
Concrete Curbs - Standard Curb & Gutter	LF	0	\$55.00	\$0.00
Separated Bicycle Facility - Asphalt	SF	0	\$5.80	\$0.00
Concrete Walks	SF	0	\$10.20	\$0.00
Separated Multi-Use Path - Concrete	SF	10,000	\$10.20	\$102,000.00
Separated Multi-Use Path - Asphalt	SF	0	\$4.20	\$0.00
Detectable Warnings	EA	2	\$500.00	\$1,000.00
Extra for Pedestrian Ramps	EA	2	\$2,250.00	\$4,500.00
Residential Driveway Reconstruction	EA	0	\$2,000.00	\$0.00
Commercial Driveway Reconstruction	EA	2	\$4,000.00	\$8,000.00
Retaining Walls, Gravity	SF	0	\$75.00	\$0.00
Bridge Structure, Complete	SF	38,000	\$150.00	\$5,700,000.00
Guardrail System, Complete	LF	0	\$55.00	\$0.00
Storm Water Conveyance System, Complete	LS	ALL	\$173,000.00	\$173,000.00
Permanent Landscaping	SF	52,800	\$1.50	\$79,200.00
Pavement Markings, Complete	LS	ALL	\$9,000.00	\$9,000.00
Signage, Complete	LS	ALL	\$18,000.00	\$18,000.00
Illumination System, Complete	LS	ALL	\$43,300.00	\$43,300.00
TOTAL CONSTRUCTION COST \$				8,620,000

Fonta Flora Trail
Segment D2 Concept
 NCDOT



Engineer's Conceptual Estimate

Prepared By: Josh Hurst, PE, PTOE			Date: August 22, 2025		
Reviewed By: --					
This Estimate has a Rating of:			3C (See rating scale guide below.)		
ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST	
RIGHT-OF-WAY COSTS					
Residential Right-of-Way Acquisition	SF	0	\$15.00	\$0.00	
Residential Permanent Easement	SF	0	\$11.25	\$0.00	
Residential Temporary Construction Easement	SF	0	\$2.25	\$0.00	
Commercial Right-of-Way Acquisition	SF	7,500	\$10.00	\$75,000.00	
Commercial Permanent Easement	SF	0	\$7.50	\$0.00	
Commercial Temporary Construction Easement	SF	12,500	\$1.50	\$18,750.00	
Permanent Drainage Easement	SF	0	\$15.00	\$0.00	
RIGHT-OF-WAY SUBTOTAL				\$	93,750
ENGINEERING SUPPORT					
Engineering & Construction Management	LS	ALL	\$2,155,000.00	\$2,155,000.00	
Right-of-Way Support	EA	0	\$18,000.00	\$0.00	
ENGINEERING SUPPORT SUBTOTAL				\$	2,155,000
TOTAL PROJECT SUBTOTAL				\$	10,868,750
				30% Contingency	\$ 3,260,630
TOTAL ESTIMATED PROJECT COST				\$	14,129,380



Appendix E Project Cut Sheets

FONTA FLORA PAVED TRAIL: OLD HWY 70 E

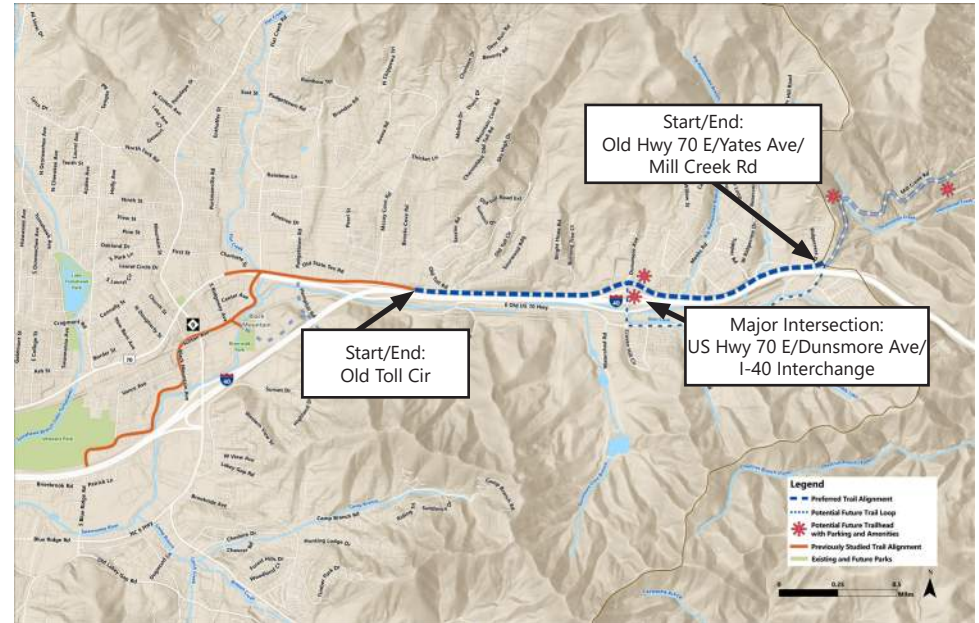
Old Hwy 70 E between Old Toll Cir and Mill Creek Rd

Description:

This segment of the Fonta Flora Paved Trail will run along the north side of Old Hwy 70 E from the Town of Black Mountain boundary to Mill Creek Road. This alignment connects residential areas and the Ridgecrest community to Black Mountain. The alignment on the trail on the north side of Old Hwy 70 E also provides direct access to residential neighborhoods without needing to crossing the road.

The typical section along Old Hwy 70 E is for a 10-foot paved trail separated from the roadway by a planting strip buffer.¹

Phase Alignment:



Length: 1.8 Miles

Estimated Total Cost²: \$6,835,530

- Construction & Engineering Support Cost: \$5,183,100
- Right-of-Way Cost: \$75,000

Impacts to Existing Curb: No

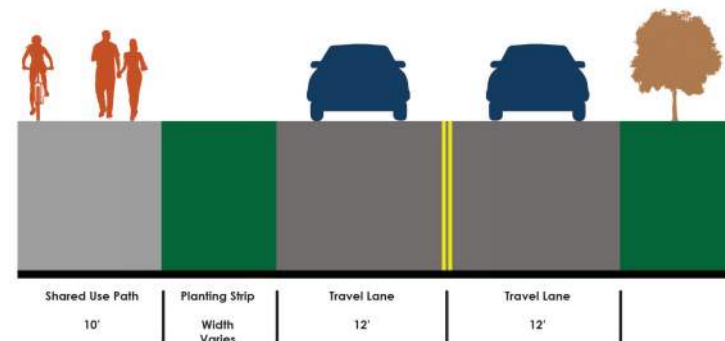
Private Property Impacts (SF)³: 2,470

Impacts to Railroad Right-of-Way: No

Utility Impacts³: Minor utility pole impacts

Structures Required⁴: None

Typical Section:



¹ Typical drainage swale dimensions need to be verified in the next phase of design.

² At this stage of concept development there are still significant project unknowns that limit the detail and accuracy of this preliminary opinion of probable costs. Costs were developed using broad per mile, per square foot, and/or per intersection assumptions for major design treatments. No survey has been completed to calibrate right-of-way acquisition assumptions or to inform other cost components.

³ Private property and utility impacts should be verified through future survey and design.

⁴ Structural analysis should be completed to verify the structural requirements during the next phase of design.

FONTA FLORA PAVED TRAIL: MILL CREEK ROAD

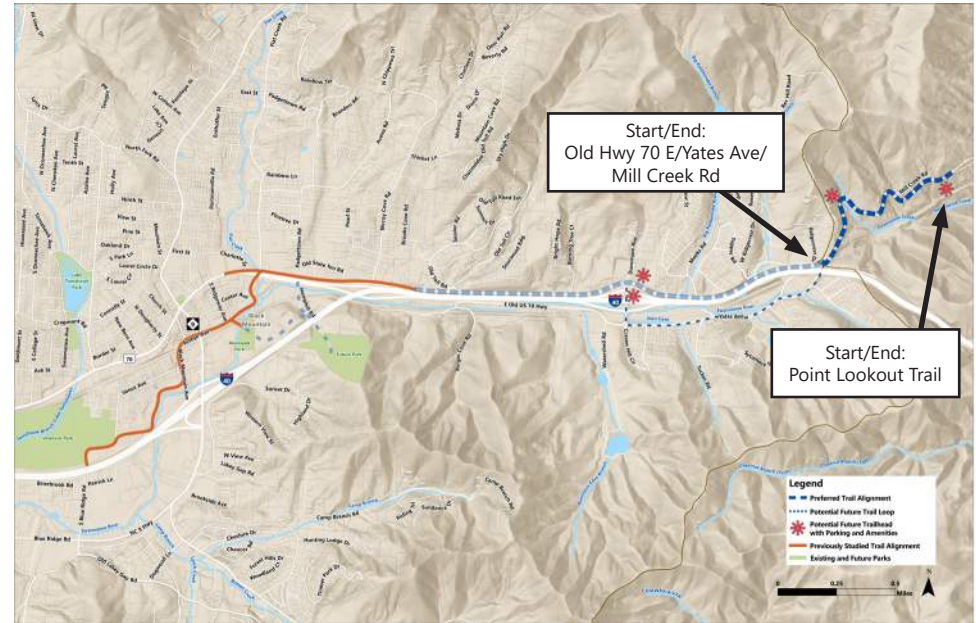
Mill Creek Rd between Old Hwy 70 E to Point Lookout Trail

Description:

This segment of the Fonta Flora Paved Trail will run along the west side of Mill Creek Road from Old US 70 E to Point Lookout Trail. This alignment facilitates a connection amongst Point Lookout Trail, Ridgecrest, and the Town of Black Mountain.

The typical section along Mill Creek Road is an 8-foot paved trail separated from the road by a 1'6" raised concrete barrier. A 2-foot paved shoulder provides separation from a concrete retaining wall. A painted sharrow provides an option for bicyclists traveling downhill from Point Lookout Trail. ¹

Phase Alignment:



Length: 4,700 Feet

Estimated Total Cost²: \$9,473,430

- Construction & Engineering Support Cost: \$7,193,500
- Right-of-Way Cost: \$93,750

Impacts to Existing Curb: No

Private Property Impacts (SF)³: 0

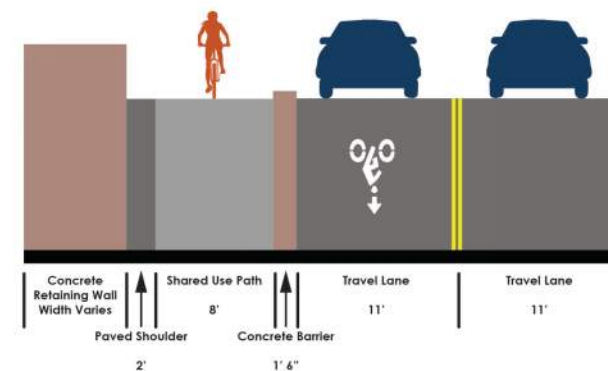
Impacts to Railroad Right-of-Way: No

Utility Impacts³: Minor utility pole impacts

Structures Required⁴:

- Concrete retaining wall between mountainside and paved trail

Typical Section:



¹ Typical drainage swale dimensions need to be verified in the next phase of design.

² At this stage of concept development there are still significant project unknowns that limit the detail and accuracy of this preliminary opinion of probable costs. Costs were developed using broad per mile, per square foot, and/or per intersection assumptions for major design treatments. No survey has been completed to calibrate right-of-way acquisition assumptions or to inform other cost components.

³ Private property and utility impacts should be verified through future survey and design.

⁴ Structural analysis should be completed to verify the structural requirements during the next phase of design.