2024

Fairview School Pedestrian Connectors

Feasibility Study

JACKSON COUNTY
NORTH CAROLINA

ACKNOWLEDGMENTS

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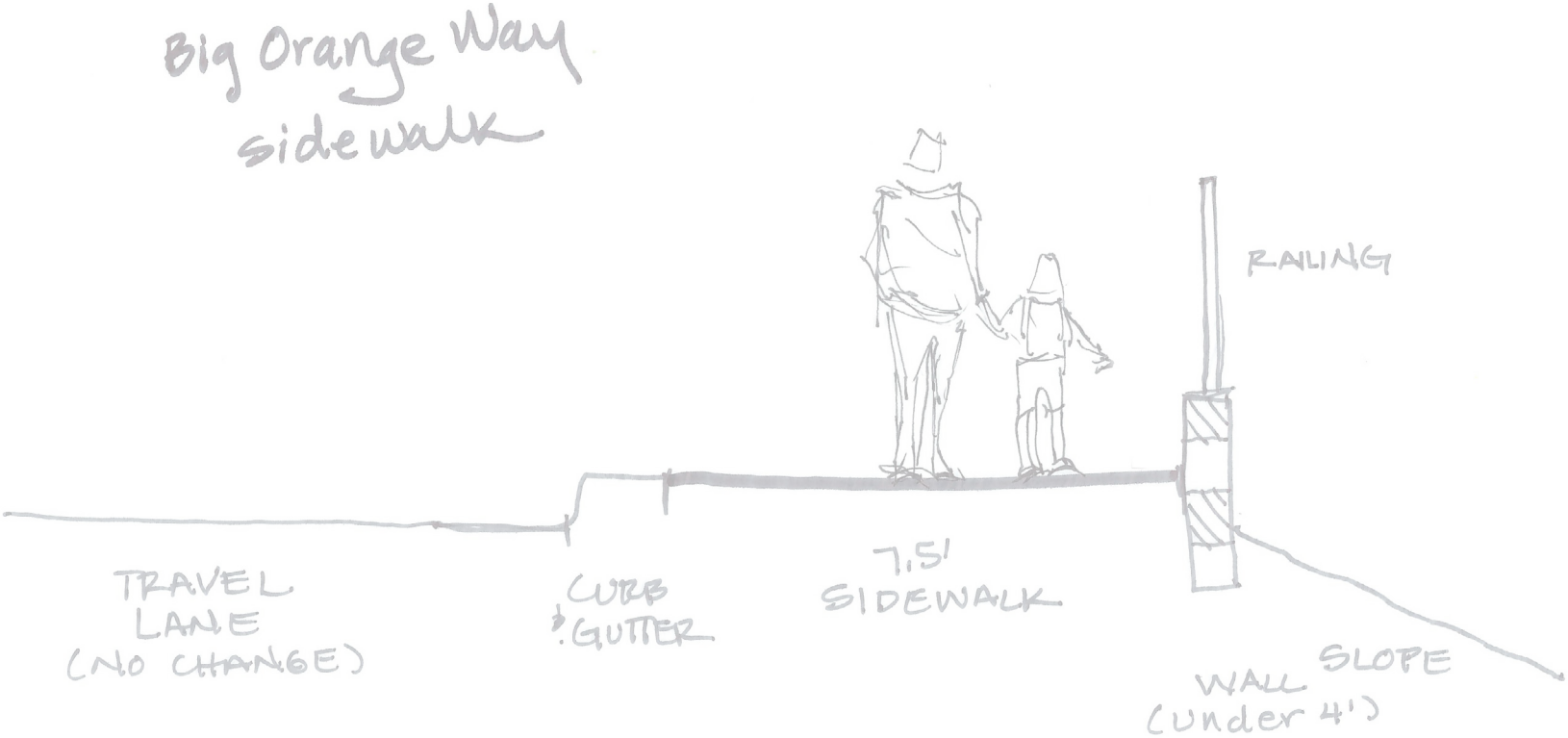
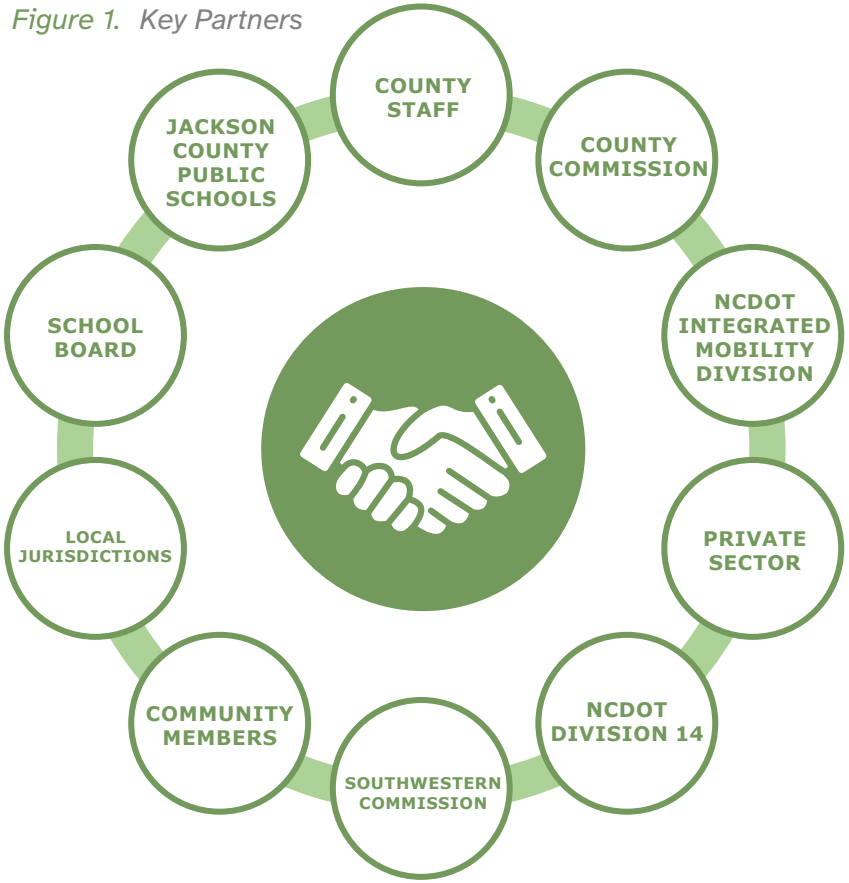


00 Executive Summary

EXECUTIVE SUMMARY

The proposed Fairview School Pedestrian Connectors will create a safer, more accessible way to walk and bike to school, offering a broader range of transportation choices for students, parents, faculty, and staff, helping people reach this key destination in the community. It serves as a crucial connection within Jackson County's active transportation network and serves residents of both Webster and Sylva. Led by the North Carolina Department of Transportation's Integrated Mobility Division and Jackson County, the Fairview School Pedestrian Connectors Feasibility Study examines potential route options along Fairview Road, Cliffside Drive, and Big Orange Way to determine the optimal path for an intuitive, accessible pedestrian route. The study provides cost estimates and implementation strategies to facilitate the transition from conceptual plan to construction.

Figure 1. Key Partners



RECOMMENDED ROUTES

The project steering committee, comprised of local government officials and stakeholder groups, played a significant role in shaping the preferred alignments for the Fairview School Pedestrian Connectors. These partners work for various agencies that advance Jackson County's transportation system by funding, planning and implementing projects to provide safe, efficient, and accessible facilities that benefit the community. As a result of the transportation investigations for this study, Alternative A and Alternative B were both chosen as recommended routes. Together, they provide a more comprehensive transportation network since each alternative serves a different link.

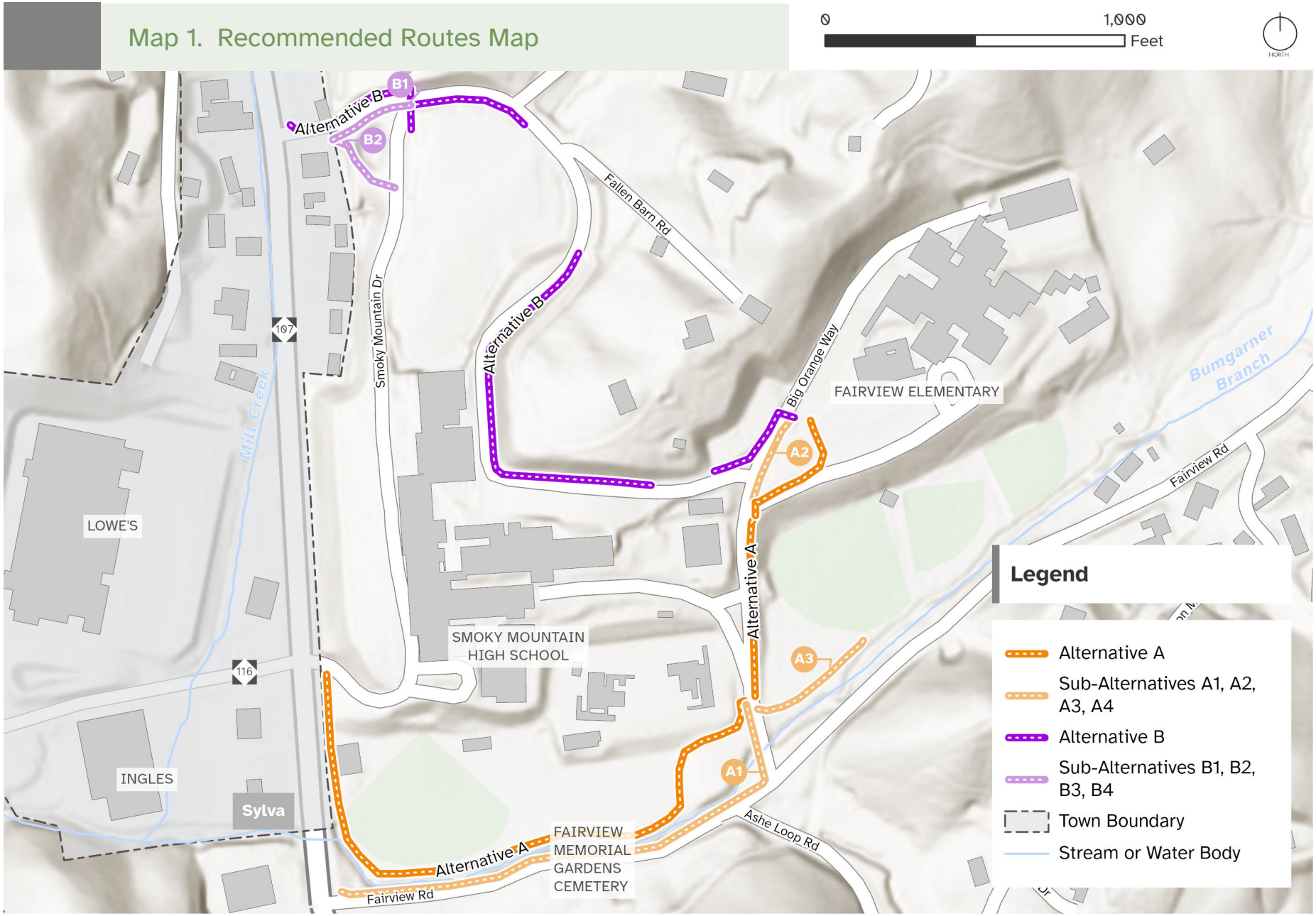
ALTERNATIVE A

Alternative A offers an accessible route from the intersection of NC 107 and Smoky Mountain Drive along edge of the ballfields to Big Orange Way. The recommended option is for a shared use path along the ballfields and a wide sidewalk on Big Orange Way, with crossing treatments to improve visibility for people walking and bicycling. This would create a direct link to Fairview School from the existing sidewalk network on NC 107 and crosswalk at Webster Road (NC 116). It would also enable people to walk or bike to the Smoky Mountain High School ballfields.

ALTERNATIVE B

Alternative B completes the sidewalk connection along Cliffside Drive, making it possible to walk on a dedicated pedestrian facility from NC 107 to Smoky Mountain High School and Fairview School. This provides a much-needed link for students, teachers, and staff to the future pedestrian facilities on NC 107. Coupled with Alternative A, the school campus would have a complete pedestrian loop for people walking.

Map 1. Recommended Routes Map



ALT A

One segment of Alternative A is a paved shared use path at the edge of the ballfields along Bumgarner Branch Creek. The typical cross-section is recommended to include a 10’ wide asphalt trail with 2’ gravel shoulders. The cross-section for Alternative A changes to a sidewalk along Big Orange Way due to steep grades and other site constraints. The typical cross-section along Big Orange Way includes a 7.5’ wide sidewalk with curb and gutter. This cross section also includes a retaining wall and pedestrian railing to address the steep grades.

Image 1. Bumgarner Branch Creek Shared Use Path Cross-Section

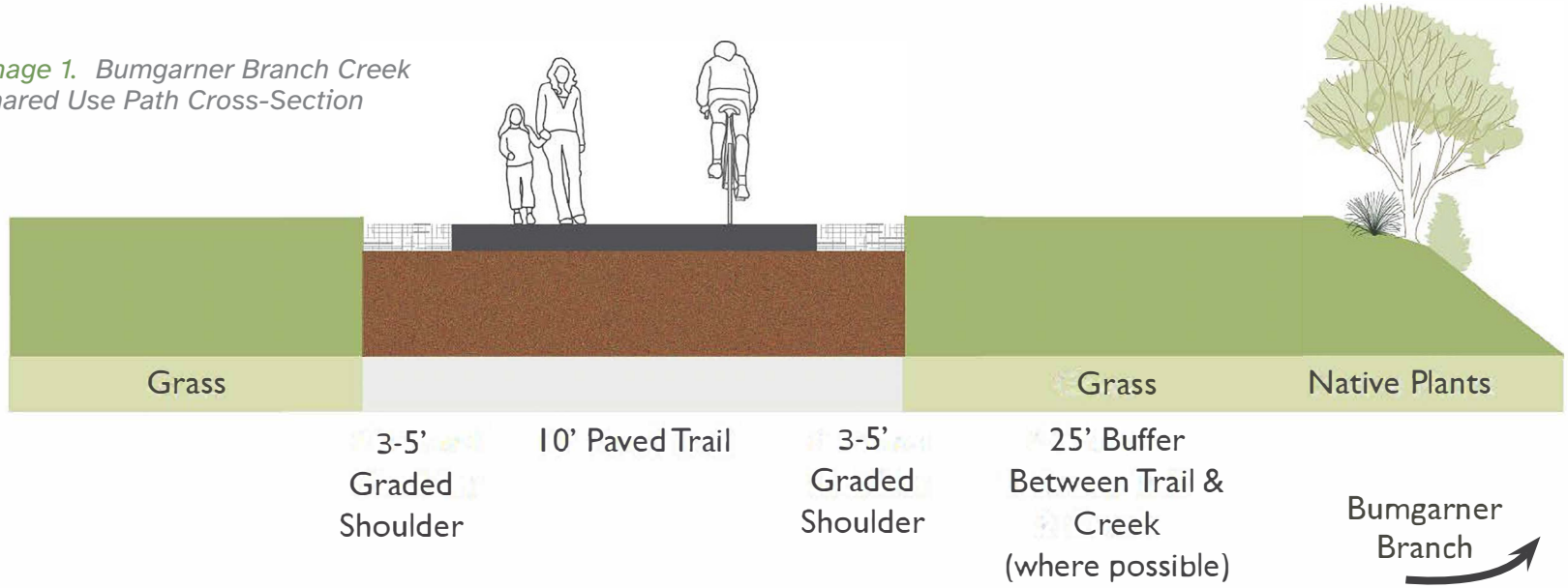
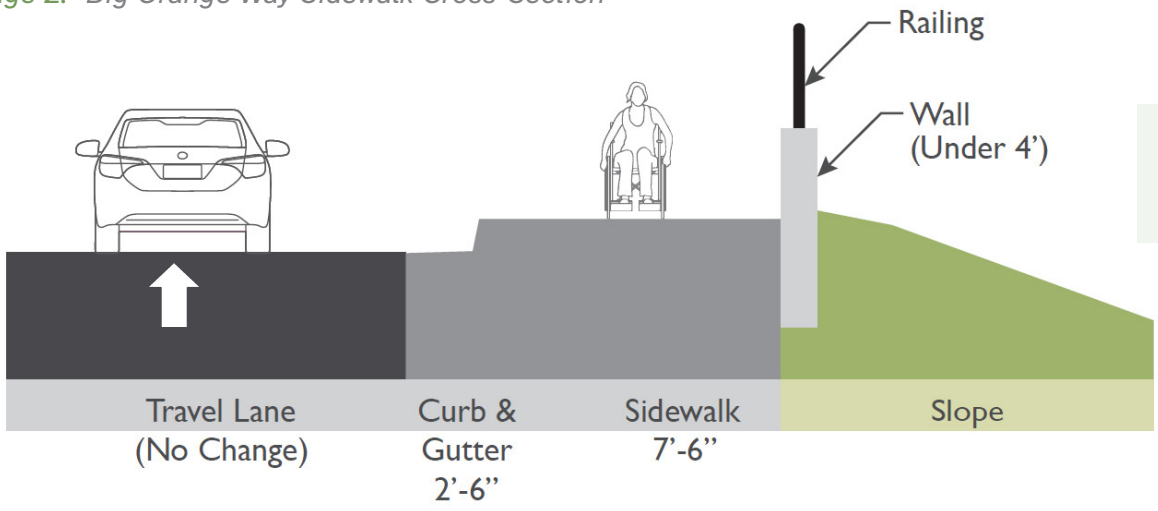


Image 2. Big Orange Way Sidewalk Cross-Section

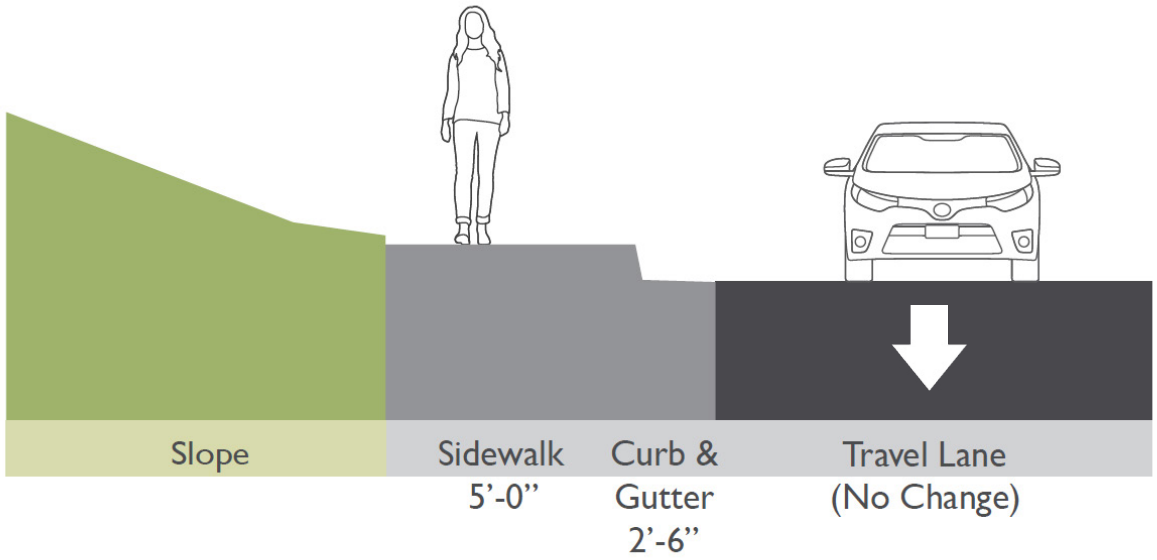


A short retaining wall (less than 4’) will be required on the slope side with a railing.

ALT B

Alternative B is a standard sidewalk with curb and gutter adjacent to Cliffside Drive. Except in a few locations, the sidewalk will be adjacent to the roadway as the adjacent steep slopes prevent the sidewalk from being setback from the road. This is illustrated in the following typical cross-section.

Image 3. Cliffside Drive Cross-Section



IMPLEMENTATION HIGHLIGHTS

Successful implementation will require a coordinated and consistent effort with a range of community partners at the local, regional, and state levels. Key agencies and partners include Jackson County Public Schools, NCDOT, Southwestern Commission RPO, Jackson County, advocacy organizations, private partners, and members of the community. Additional implementation considerations outlined in Chapter 5 include:

- Action plan detailing prioritized implementation of the project including defined actions, lead responsible for completing the action, partners to assist with completing the action, timeframe for completing the action, and defined performance measures for the action.
- A summary of funding sources including NCDOT funding opportunities, federal grant funding opportunities, public/private partnerships to leverage grant funding and volunteer support that may be used to complete the sidepath.
- Considerations for developing a maintenance plan including example maintenance tasks, task type and recommended frequency.
- Associated roles for key partners to support project implementation.

01 Introduction

Source: Smoky Mountain News

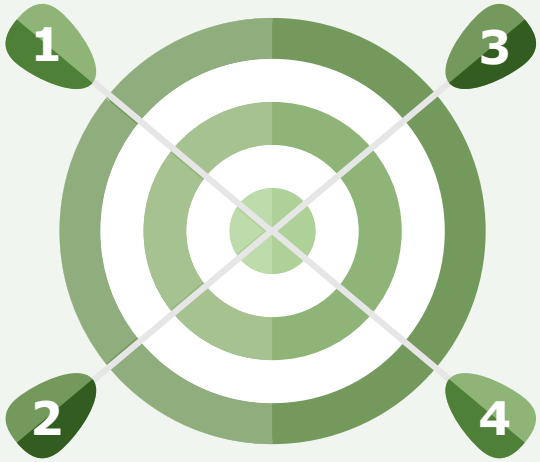
Figure 2. Project Goals

IMPROVE SAFETY

Fairview School is located at a major employment and commuter crossroads in Jackson County. Traffic volumes and movements are high along NC 107 and this project will identify ways to enhance safety for people of all ages and abilities.

PROVIDE MOBILITY AND TRANSPORTATION CHOICE

Give people an option to walk or roll to the campus and provide a facility for those who do not want to or cannot own a vehicle.



ELEVATE EQUITY

Fairview School is a Title I school with a 19% BIPOC student population and 40% of students meeting eligibility for free and reduced lunch. The current campus street design is for those who drive or ride the bus. While a few families walk or bike to school, improved pedestrian access elevates the need of those most disadvantaged by our transportation system.

REDUCE TRAFFIC CONGESTION

School-related traffic is a large portion of daily trips taken on our roadways, with long queues in the morning and afternoon. Providing alternative transportation options can reduce congestion and improve efficiency.

OVERVIEW & STUDY GOALS

The purpose of this project is to determine the best route alternative and facility type to provide a pedestrian connection from NC 107 to Fairview School. In Jackson County, schools play a vital role in the community both as places of learning and places of gathering. Fairview School in Jackson County sits on a campus adjacent to Smoky Mountain High School, and together both schools act as an anchor to youth/young adults and their families and caretakers. This project is led by North Carolina Department of Transportation's Integrated Mobility Division (NCDOT IMD) and Jackson County. Supporting agencies in this study are the Southwestern Commission and Jackson County Public Schools.

WHAT IS A FEASIBLITY STUDY?

A feasibility study is a technical investigation of physical and environmental constraints that may impact the ability and/or cost to construct new or upgraded transportation facilities. A feasibility study is an important step in the delivery of infrastructure projects such as multiuse paths or sidewalks.

The goal of a feasibility study is to identify the need, alignments, cost factors, constructability, and implementation steps for new facilities. These studies bridge the gap between high-level planning studies and design. They also assist with project prioritization and programming.

The study includes detailed investigations into the following project components:

- Input from local stakeholders and community members
- Environmental features (e.g. wetlands, threatened and endangered species, waterways)
- Physical constraints (e.g. steep slopes, buildings, and private property impacts)
- Right-of-way availability (e.g. property ownership or the ability to acquire property for facilities)
- Utilities and railroad lines
- Costs
- Permitting requirements
- Implementation steps

Once completed and equipped with a feasibility study, local jurisdictions and their partners can identify funding partners and willing property owners to determine the final design and path towards construction.

OUTCOMES

The specific outcomes of this feasibility study include the following:

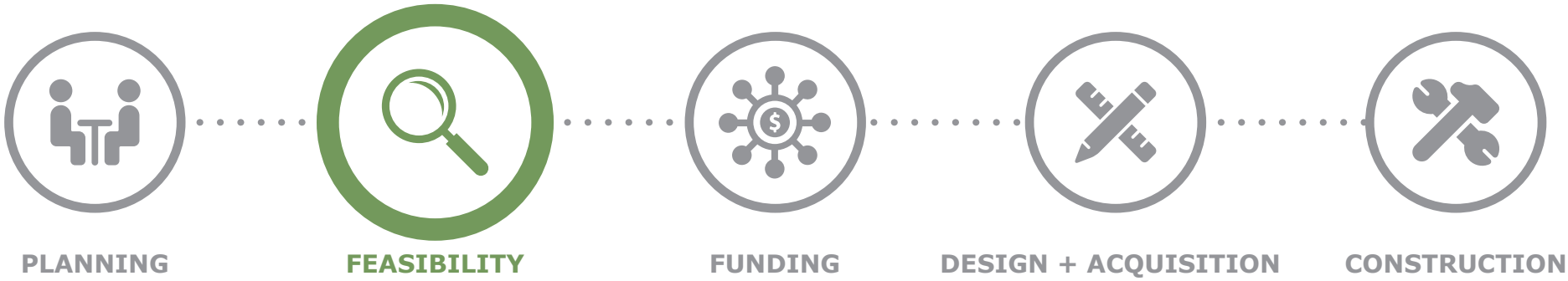
ASSESS POSSIBLE ROUTE ALTERNATIVES: Analyze site conditions to uncover potential opportunities and constraints to formulate route alternatives for the identified transportation connection.

IDENTIFY KEY STAKEHOLDERS: Seek input from project stakeholders to guide study recommendations, and to establish a relationship which will continue as the project moves towards design.

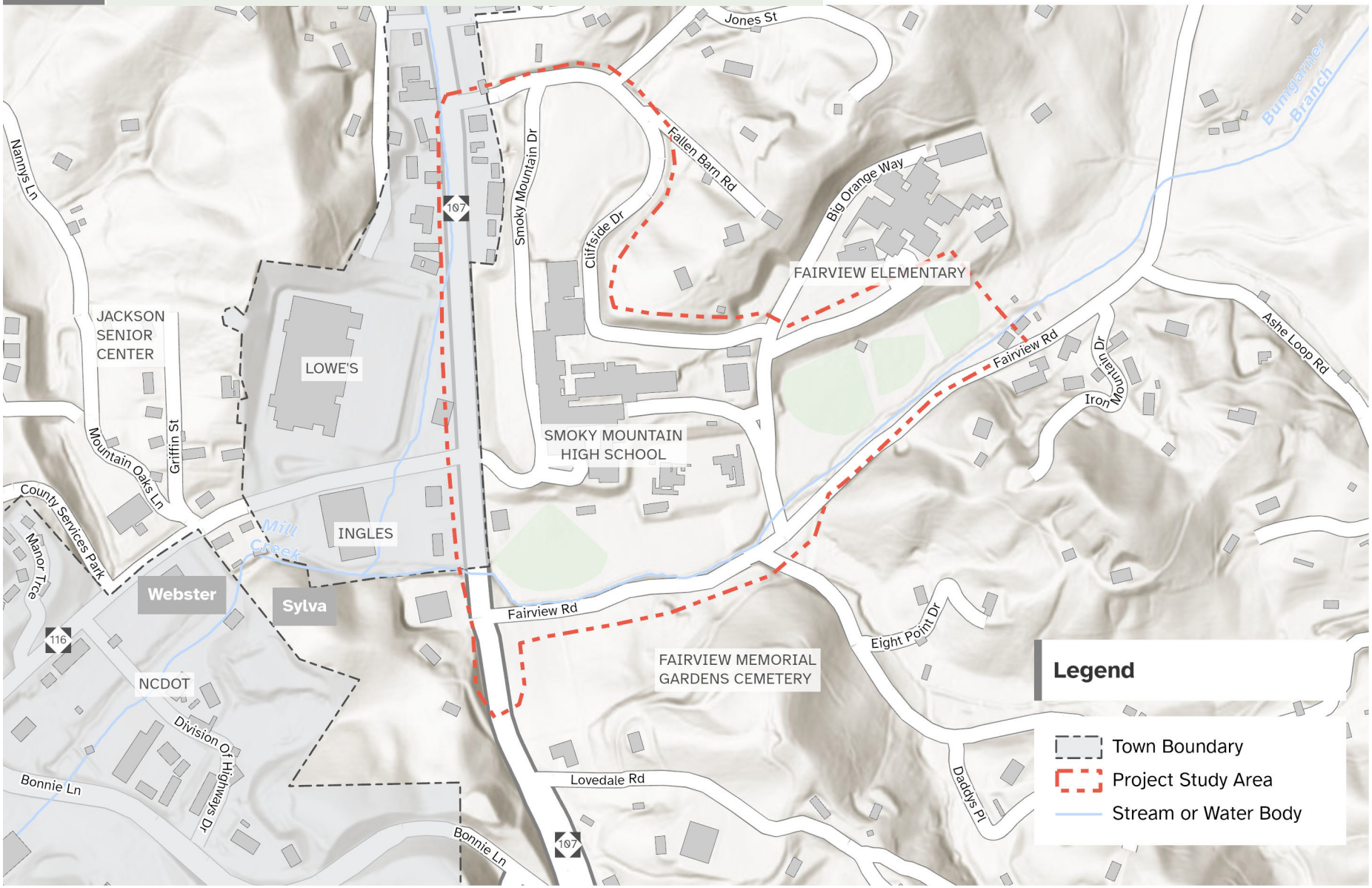
ESTIMATED PROJECT COSTS: Calculate the anticipated costs related to the design and construction of the recommended facility to facilitate a project funding plan and future project programming.

PLAN OF ACTION: Provide informed recommendations for the preferred route alternatives and outline potential implementation scenarios and funding sources.

Figure 3. What is a Feasibility Study?



Map 2. Project Study Area



BACKGROUND & SITE HISTORY

This project was first identified in the Town of Sylva Pedestrian Plan and the Jackson County Comprehensive Transportation Plan; later it was included in the Jackson County 2040 Land Use Plan and was investigated as a part of the 2021 Jackson County Pedestrian Plan. The school campus is located in Jackson County, nearby (but not within) the towns of Sylva and Webster.

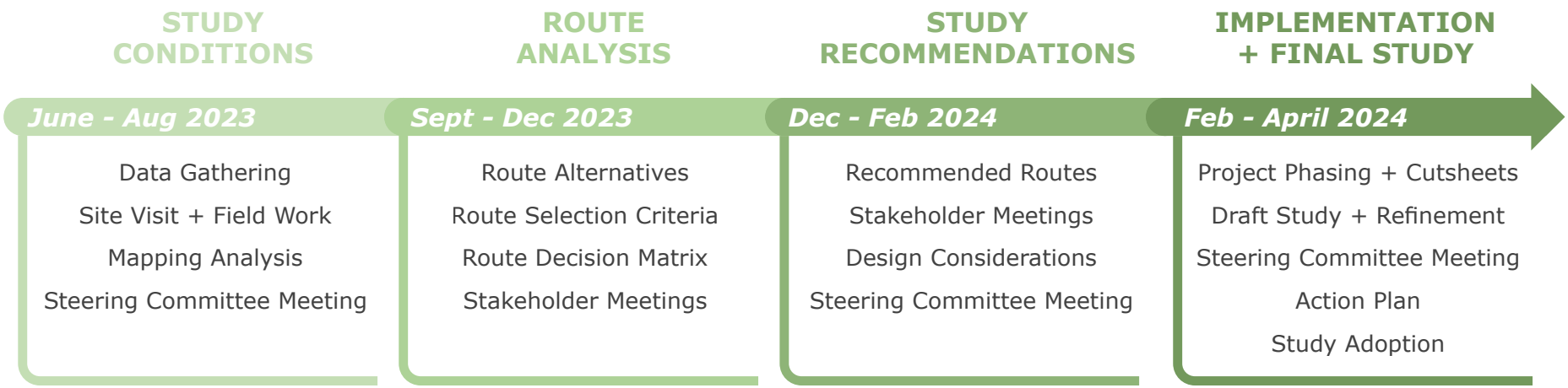
This feasibility study is an analysis to determine an appropriate pedestrian connection to Fairview School from the NC 107 corridor. The school sits on a hill above NC 107, a high-volume roadway that serves as a major artery of Jackson County's transportation network. The school campus is accessed by lower-volume roads including Fairview Road, Cliffside Drive, and Big Orange Way. Under the existing conditions, there are no complete sidewalk connections from NC 107 to the school.

The project study area is illustrated in **Map 2 - Project Study Area**, where pedestrian connections are being investigated on the northern area along Cliffside Drive and on the southern area along Fairview Road and Big Orange Way.

PROCESS & SCHEDULE

This project began with stakeholder engagement and existing conditions analysis, which informed the development of route alternatives and recommendations. The study began in June of 2023 and concluded in April of 2024. A project Steering Committee was formed to guide the project with their local knowledge, and this committee of individuals was consulted at key points in the schedule.

Figure 4. Project Schedule



EXISTING PLANS & POLICIES REVIEW

Reviewing previously adopted plan documents in a community is helpful to understand desires and project ideas. Appendix C provides the full review of relevant plans. The plans reviewed as a part of this feasibility study are the following:

- NCDOT Roadway Design Manual (2023)
- Jackson County Walks: Pedestrian & Greenway Plan (2021)
- Jackson County Unified Development Ordinance (2019)
- NCDOT Complete Streets Policy (2019)
- Jackson County Land Use Plan 2040 (2017)
- Jackson County Comprehensive Transportation Plan (2017)
- NC 107 Corridor Study Report (2012)
- Sylva Comprehensive Pedestrian Plan (2011)

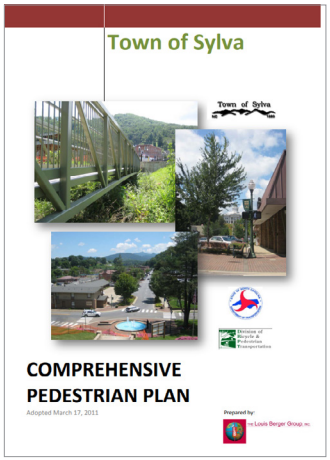
Jackson County and its local/regional partners have a strong legacy of planning for pedestrians as evidenced by the number of plan documents that relate to pedestrian issues in the area, all of which are described in Appendix C. These plan documents offer a basis on which to develop the Fairview School Pedestrian Connection Feasibility Study. The idea for this project originated from the Town of Sylva Pedestrian Plan; from there, it was recommended in the Comprehensive Transportation Plan and the County Land Use Plan. Finally, the 2021 Pedestrian Plan advanced the recommendation as a priority project. Having this project in an adopted plan is an important step towards implementation and is required by NCDOT before multimodal facilities can be implemented in conjunction with an NCDOT led transportation project. *(see the NCDOT Complete Streets Policy)*

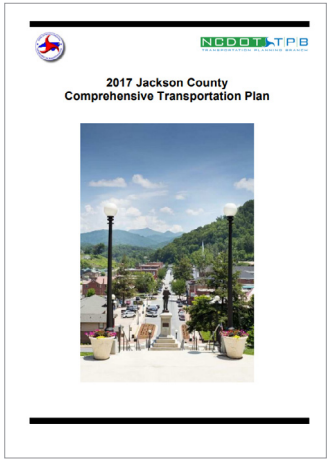
PROJECT BENEFITS

Pedestrian connectivity to Fairview School and Smoky Mountain High will enhance mobility and transportation choice in how the community can access the schools and recreation amenities, as well as connectivity to the Towns of Sylva and Webster. Dedicated spaces for pedestrians, such as a sidewalk or sidepath, enhance the quality and safety for this mode of travel. In addition, the opportunity for children to walk and bike to school has innumerable health benefits. The connection may also help to reduce traffic congestion at the school campus.

The following further describes how walking and biking benefits our safety, health, economy, and community.

Image 4. Existing Plan Cover Pages





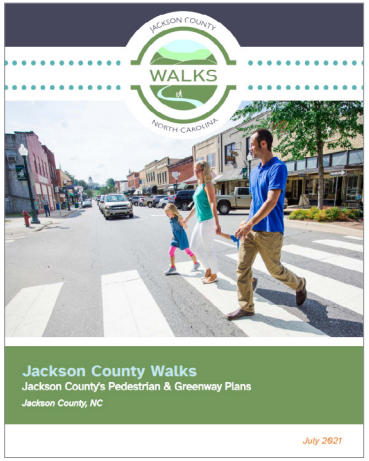


Figure 5. The Benefits of Bicycle & Pedestrian Infrastructure

The positive impact of
WALKING & BIKING

SAFETY

Estimated 60,000 pedestrians
were injured nationwide in 2021.[2]

More than 7,388 people
(an average of nearly 21 per day)
nationwide were struck and killed while walking in 2021.[2]

Approximately 17%
of all traffic fatalities in the U.S. in 2021 were pedestrians, a rate that has been increasing over time *(up from 14% in 2012).*[3]

265

People killed while walking
in North Carolina in 2022
(a 3% increase from 2021).[4]

While the COVID-19 pandemic upended many aspects of daily life, including how people get around, one long-term trend was unchanged: the increase in people being struck and killed while walking. Even though the amount of driving went down in 2020 due to the pandemic, deaths of people walking increased 4.7% over the previous year.

While walking may represent a smaller portion of total trips compared to other modes of transportation, pedestrians bear a disproportionate burden when it comes to traffic fatalities.

Individuals who choose to walk are often referred to as vulnerable users of our streets due to the increased risk of severe injury they face when struck by an automobile. They often lack dedicated infrastructure, forcing them to navigate in unsafe conditions, such as along a shoulder or a road shared with much faster vehicles. These conditions can make walking intimidating or even dangerous, leading to decreased levels of active transportation and a greater reliance on private vehicles for those who can drive, or increased isolation / unmet needs for who cannot.

By investing in dedicated infrastructure and promoting road safety education, communities can work towards reducing the risks pedestrians face. By providing a transportation system that serves our most vulnerable users, studies have show that other users also benefit.[1] Investments in sidewalk and greenway infrastructure often result in positive safety benefits for all roadway users because they create separate spaces for different modes of travel, minimizing speed differentials and conflicts.[1]

The positive impact of
WALKING & BIKING

+ HEALTH

5 Reasons to Walk

Walking for as little as 20 minutes a day has been found to show significant improvements in your overall health. Walking can:

- **Improve heart health**
- **Strengthen muscles & bones**
- **Increase focus, mood & memory**
- **Boost immune system function**
- **Prevent & manage common health problems**

Regular physical activity is known to improve overall health and has numerous benefits regardless of age, sex, race, ethnicity, or current fitness level. However, according to the CDC's National Health Interview Survey, only twenty percent of individuals report meeting the recommended guidelines for aerobic and muscle-strengthening activities.[5]

Studies have emphasized that adults can achieve substantial health benefits with just 20-25 minutes of physical activity per day, equivalent to walking about one mile.[6] Walking has been demonstrated to provide a wide range of long-range health benefits for the brain, pulmonary function, circulation, and overall physical well-being and has been associated with a reduction in chronic diseases, heart disease, and certain types of cancer. Walking has short-term benefits, too. The U.S. Department of Health and Human Services (HHS) highlights that a single session of moderate-to-vigorous physical activity can yield immediate benefits such as reduced blood pressure, improved insulin sensitivity, better sleep, reduced anxiety symptoms, and enhanced cognitive function. Finally, regular physical activity in children has also been shown to improve attention, memory, and reduce the risk of depression.[7]

"To improve walking and walkability, communities need to be designed to make walking safer and easier; programs and policies need to be available to support and encourage walking; and individuals and families need to support each other to become and stay active."

- US Surgeon General

The positive impact of
WALKING & BIKING

ECONOMY

In NC, trail users' annual expenditures supported an additional **43 jobs, $1.3 million in employee compensation,** and **$4.9 million** in gross business revenues.[12]

A recent NC study estimated that **every $1.00 invested** in trail construction resulted in approximately **$1.72 in annual benefits**, including local business revenue, sales tax revenue, and health and transportation-related benefits.

1.5X to 3X MORE

Economic benefit found in NC
generated for a dollar spent at an independent business compared to spending that same dollar at a retail chain.[13]

13:1

13:1 benefits vs cost
Recent UK studies on the economic benefits of walking interventions show an average benefit-to-cost ratio of 13:1.[14]

Multiple studies conducted in North Carolina have highlighted the substantial economic benefits of investing in bicycle and pedestrian facilities. For instance, a study conducted by the Institute for Transportation Research and Education (ITRE) revealed that the construction of a bicycle and pedestrian bridge led to additional economic benefits. In 2018, ITRE conducted another study evaluating the economic impacts of four shared-use paths in North Carolina, one of which was in Brevard. These studies have document the economic advantages of greenways, including enhanced property values and increased spending on recreational activities such as equipment, dining, and accommodations.[8]

Other studies have demonstrated that well-designed non-motorized transportation enhancements can increase customer visits and local business activity.[9] Pedestrians are more likely to notice window displays, explore multiple stores, and spend more time, which ultimately has the potential to boost sales. By prioritizing and promoting walkable communities, we create an environment that fosters the success of independent businesses, stimulates economic growth, and strengthens the overall local economy.[10]

Robust active transportation networks also have the potential to boost tourism by attracting visitors who seek outdoor recreational opportunities and walkable downtowns. Investing in greenways and trails directly contributes to job creation, higher wages, and increased business output for outdoor recreation-related industries and nearby establishments.[11]

The positive impact of
WALKING & BIKING

COMMUNITY

+3.1 friends per person
Residents of a street with 2,000 vehicles per day have three times as many friends as one with 16,000 vehicles.[16]

Residents of highly walkable, mixed use neighborhoods exhibited at least **80% greater levels of four indicators of social capital** (knowing neighbors, sociability, trust and political participation) than those in less walkable neighborhoods.[17]

Enhancing walking and biking in communities improves quality of life. It ensures that everyone, regardless of their circumstances or preferences, has access to essential services and opportunities. Prioritizing and supporting a variety of transportation options gives individuals the freedom to choose how they get around and contributes to a vibrant and inclusive community where everyone can thrive. Living in walkable neighborhoods has been associated with various positive social outcomes. National and international studies have shown that individuals living in walkable communities tend to have higher levels of trust in their neighbors, actively engage in community projects, and volunteer more compared to those in non-walkable areas.[15]

Shifting more trips from a motor vehicle to walking also helps reduce traffic and parking congestion in our communities. With a reduction in traffic, conditions for walking and biking also improve.

Greenways play a crucial role in supporting the natural environment. They contribute to improving air quality, which effectively eliminates harmful pollutants like ozone, sulfur dioxide, carbon monoxide, and airborne heavy metal particles. Greenways enhance water quality by serving as natural buffer zones, shielding streams, rivers, and lakes from pollutants, preventing soil erosion, and filtering out pollution resulting from agricultural and road runoff. Additionally, greenways serve as a protective barrier against natural disasters like flooding, acting as a line of defense.

> **“If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places.”**
>
> *- Fred Kent, Project for Public Spaces*

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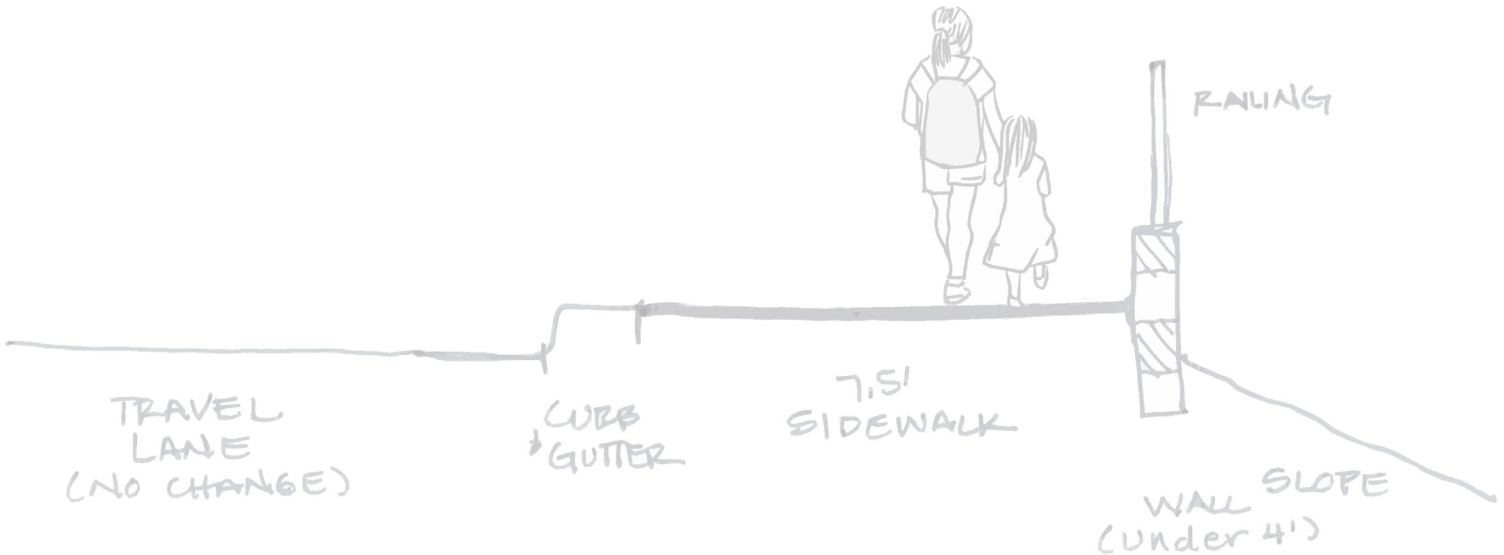
16 *Livable Streets, by Donald Appleyard, M. Sue Gerson, Mark Lintell. 1981. University of California Press*

17 *Making the case for investment in the walking environment: A review of the evidence, by Danielle Sinnett, Katie Williams, Kiron Chatterjee and Nick Cavill. 2011*



02 Study Considerations & Alternatives Development


SCHOOL BUS
SCHO

INTRODUCTION

The focus of this chapter is on the natural environment, human environment, and planning considerations within the study area. The natural environment includes water bodies (such as streams and floodplains) and land features (like steep slopes), while the human environment encompasses human-made settings like urban areas and agricultural lands. Planning considerations entail the specifics that characterize the community and its inhabitants. Understanding this framework is important because these elements impact project feasibility, costs and implementation recommendations.

Figure 6. Planning Considerations

PLANNING LEVEL CONSIDERATIONS

The planning level considerations studied in the development of the Fairview Road pedestrian project include:

- Community demographics
- Employment information
- Planned and programmed projects

Community Demographics

To understand the current profile of the community, this study retrieved data from the U.S. Census Bureau 2020 Decennial Census and 2017-2021 American Community Survey. The data retrieved was from a two-mile buffer from the intersection of Fairview Road and NC 107. In some cases, the analysis involved comparing data from the study area to the County and state. These findings helped shape the project's focus areas and route alternative evaluation criteria. A variety of demographics are detailed in the following sections.

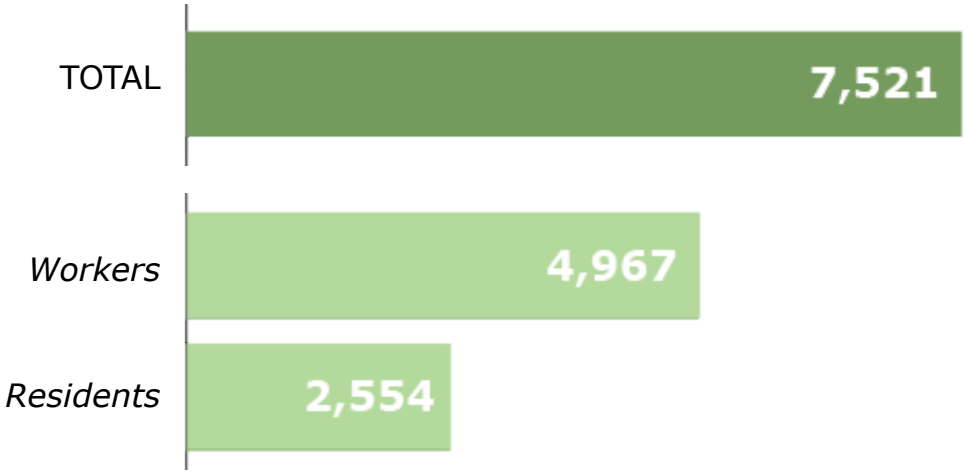
Population

Since 2010, the population in the study area increased to 4,775 people. An ESRI forecast projects the 2023 daytime population to be 7,521 people, with 4,967 workers and 2,554 residents.

Figure 7. Study Area Population Growth

Data Source: U.S. Census 2020 Decennial Census

Figure 8. 2023 Daytime Population Forecast



Data Source: 2023 ESRI

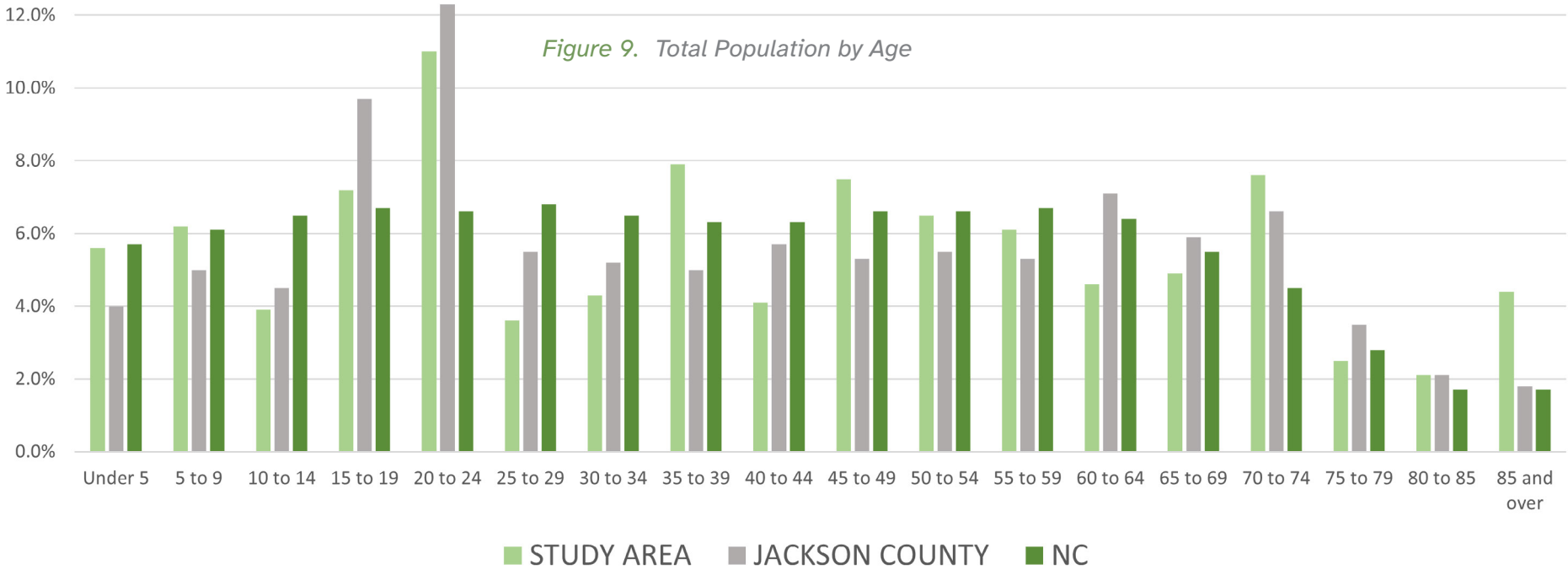
Age Groups

Comparing by age, the population of the study area roughly follows the population of the County except for the 15 to 24 age group which is greater than the County. This number likely reflects the presence of Southwestern Community College and Western Carolina University. The distribution of ages across North Carolina is much more even when compared to the study area and County where there are more youth and people ages 70 to 74 years old. Understanding these demographics can be useful for tailoring transportation and pedestrian infrastructure to meet the mobility needs of different age groups, including providing safe routes to schools for youth and accessible pathways for older adults.

Image 5. Nearby Southwestern Community College

Source: Southwestern Community College

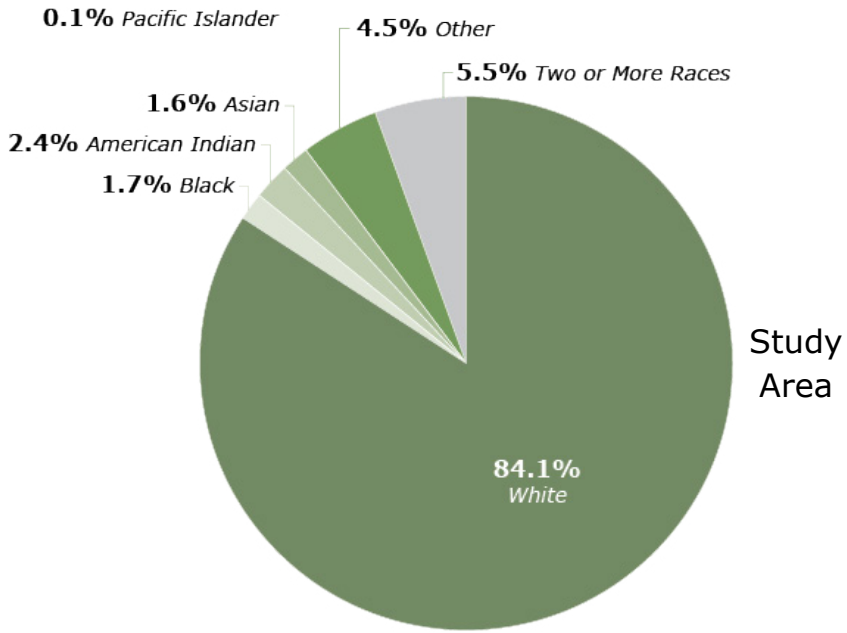
Figure 9. Total Population by Age

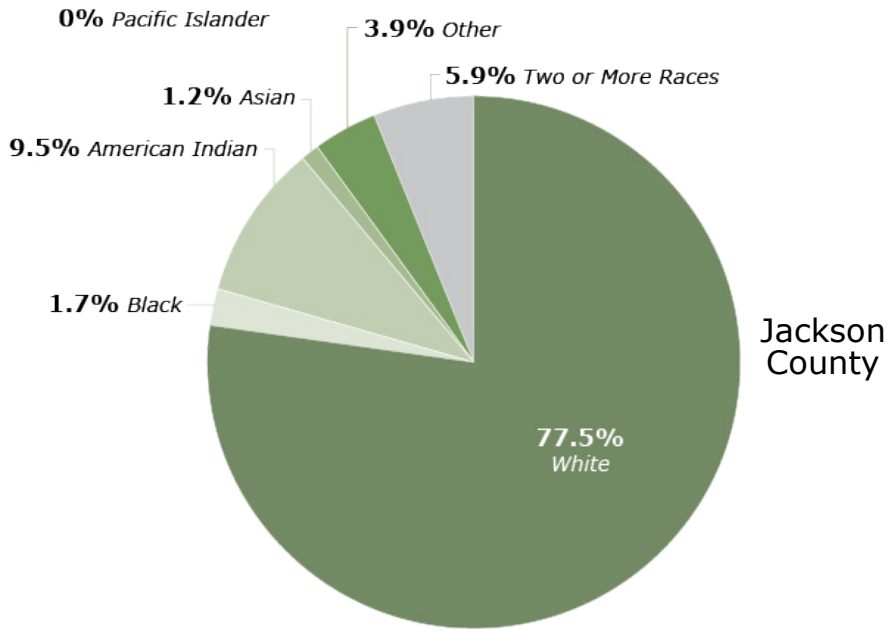


Data Source: U.S. Census 2017-2021 American Community Survey 5-Year Estimates

Diversity

The ethnic and racial diversity in the study area is less than the County, which is less diverse than the state. The study area has a population that is 15.9% non-white, compared to 22.5% non-white in the County and 37.8% non-white in the state. One hundred sixty-seven people identified as Hispanic or Latino in the study area.





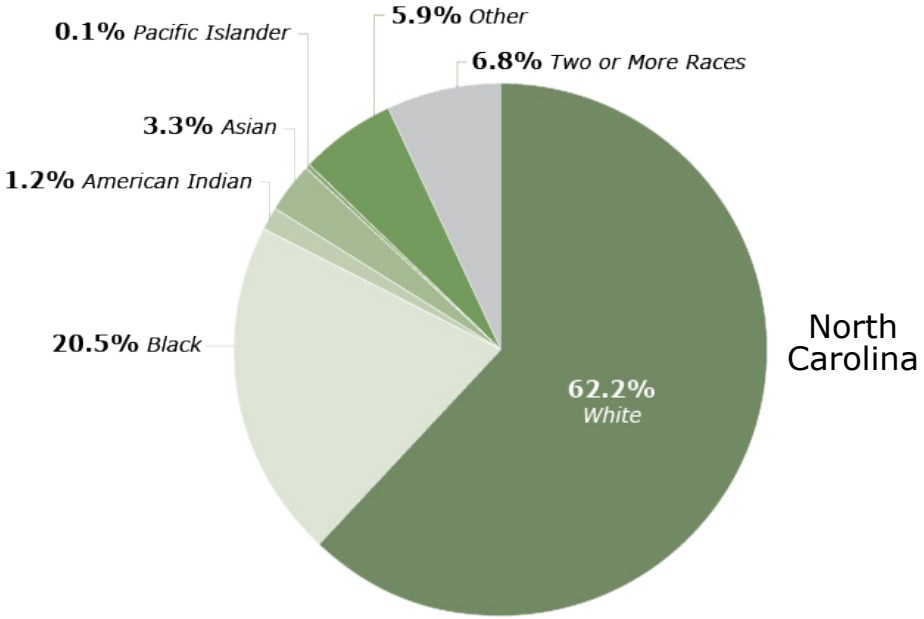


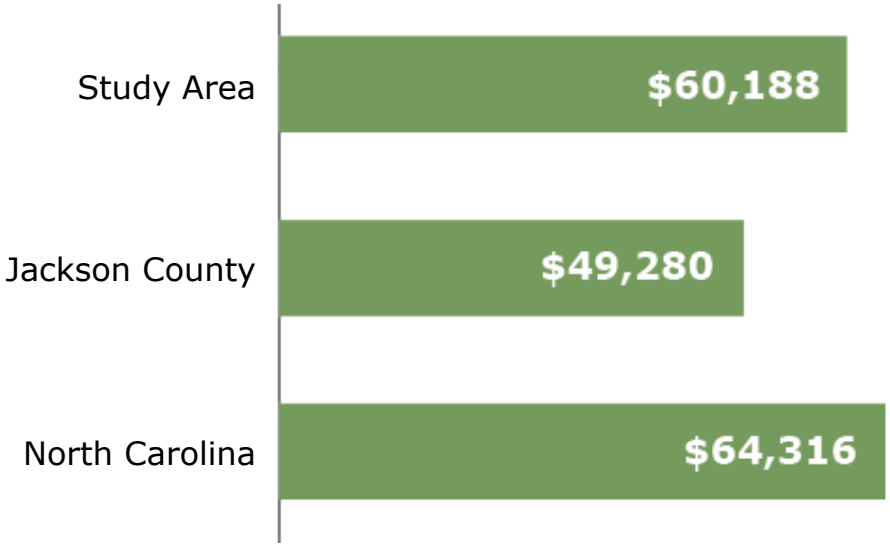
Figure 10. Racial Composition

Data Source: U.S. Census 2017-2021 American Community Survey 5-Year Estimates

Household Income & Poverty

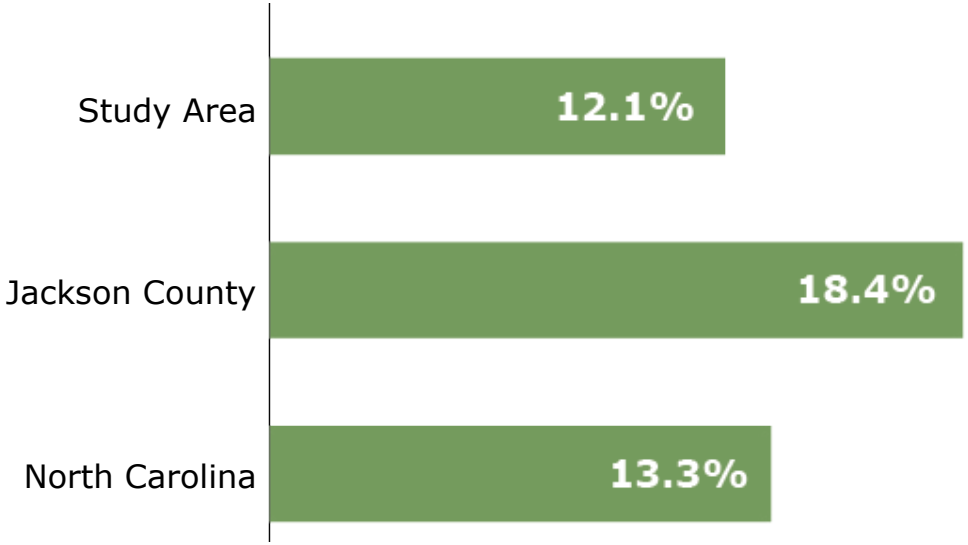
The population in the study area, with a median household income of $60,188, has more wealth than the County ($49,280) but less than the state ($64,316). The population of households with income below the poverty line is lowest in the study area when compared to the other geographies: at 12.1% of households living below the poverty line, the study area is less than the County (18.4%) and marginally less than the state (13.3%).

Figure 11. Median Household Income



Data Source: U.S. Census 2017-2021 American Community Survey 5-Year Estimates

Figure 12. Households Below the Poverty Level

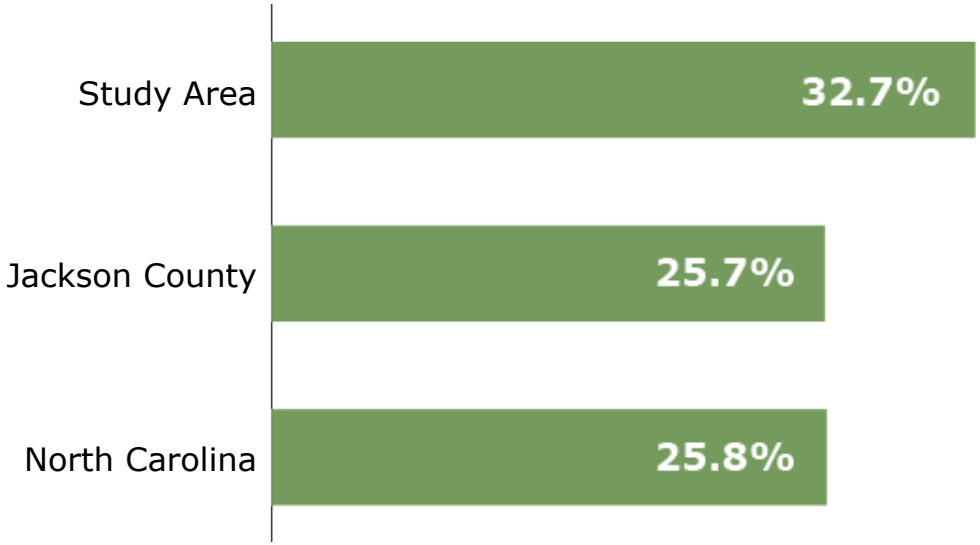


Data Source: U.S. Census 2017-2021 American Community Survey 5-Year Estimates

Disability Status

The share of households with at least one person with a disability is higher in the study area (32.7%) than the County (25.7%) and the state (25.8%). The higher percentage of households with individuals with disabilities in the study area suggests a greater demand for accessible transportation infrastructure. This includes sidewalks, curb ramps, crosswalks, and other pedestrian facilities designed to accommodate individuals with varying mobility needs.

Figure 13. Disability Status

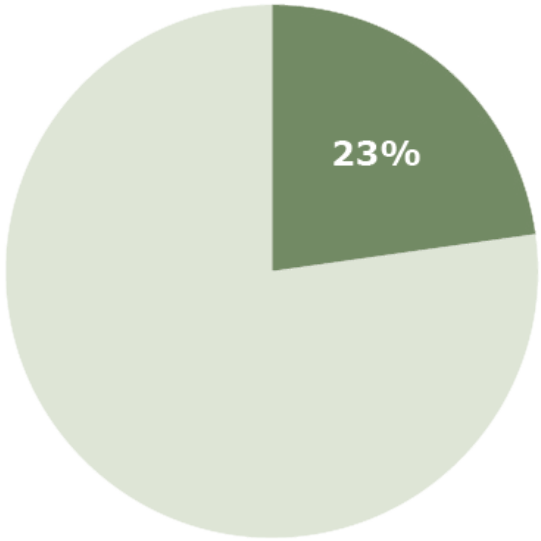


Data Source: U.S. Census 2017-2021 American Community Survey 5-Year Estimates

Households with Children

Twenty-three percent (23%) of households in the study area have children under the age of 18. With a significant portion of households having children, there is a need for safe routes to schools. Pedestrian and multiuse path improvements become crucial for ensuring the safety of children walking or biking to school.

Figure 14. Households with Children



Data Source: U.S. Census 2017-2021 American Community Survey 5-Year Estimates

Commuting & Access to Vehicles

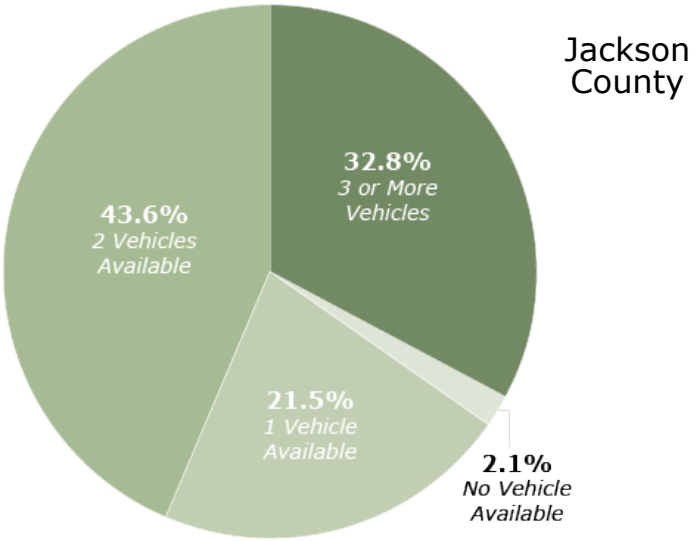
In the study area, 96% of the population drove to work, with the majority – 89.2% – of those driving alone. A very small percentage, 0.3% of people, rode the bus; 1% walked; and 2.5% worked from home.

In Jackson County, 32.8% of households have access to three or more vehicles. Given that this area of Fairview Road is lined with several businesses that are within walking distance from residences, families with limited commuting options (2.1% do not have access to a vehicle and 21.5% have access to only one vehicle) may benefit from an option to get around without a car.

Employment Information

The U.S. Census Bureau's web-based mapping and reporting application, OnTheMap, was used to retrieve employment information for a one-mile radius from the intersection of Fairview Road and NC 107.

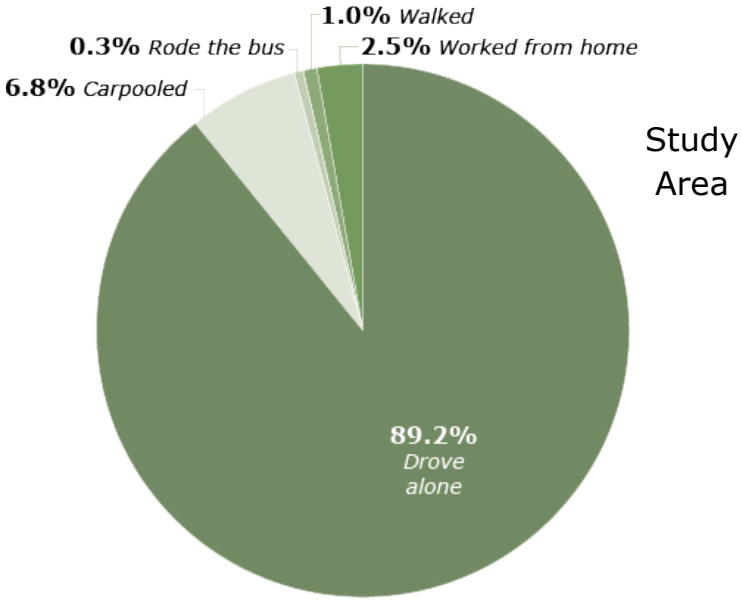
Figure 15. Access to Vehicles



Data Source: U.S. Census 2017-2021 American Community Survey 5-Year Estimates

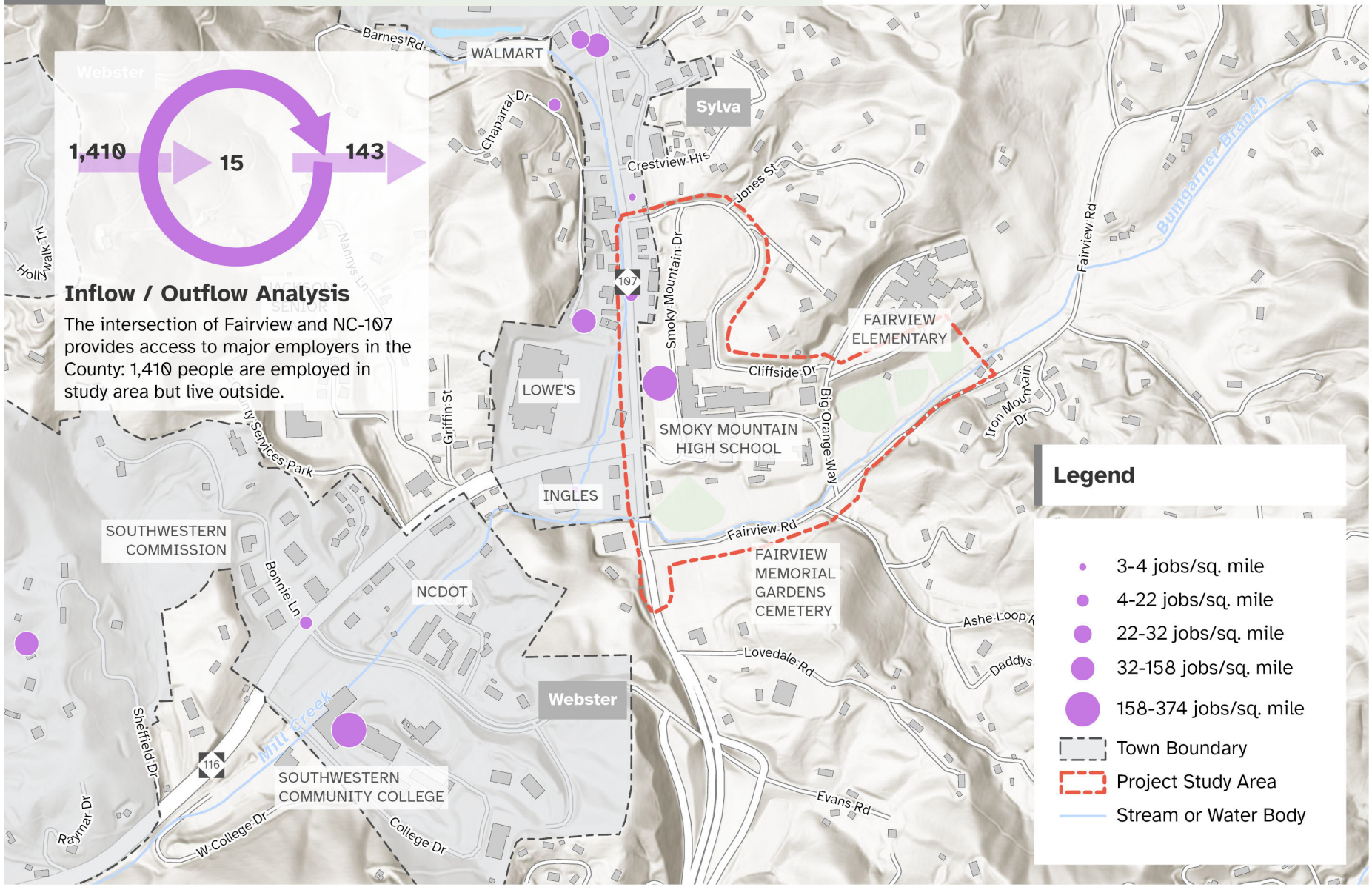
Map 3 - Employment Density & Inflow/Outflow Analysis illustrates both employment density as points and an inflow/outflow analysis, which indicates how people are moving about for work trips. The employment density points suggest that the study area is a major crossroads for commuters; the map suggests employment nodes of activity located at the intersection of NC 107 and Webster Rd, around the Southwestern Community College campus, and along NC 107 north of Webster Rd. This is logical as these are the locations of either large employers in the County or intense commercial land uses that offer employment (e.g., Ingles). This data is further expanded in the inflow/outflow analysis: significantly more people travel to the study area to work than those that live in the study area. In total 1,410 people are employed in the study area but live outside.

Figure 16. Commute to Work



Data Source: U.S. Census 2017-2021 American Community Survey 5-Year Estimates

Map 3. Employment Density & Inflow/Outflow Analysis

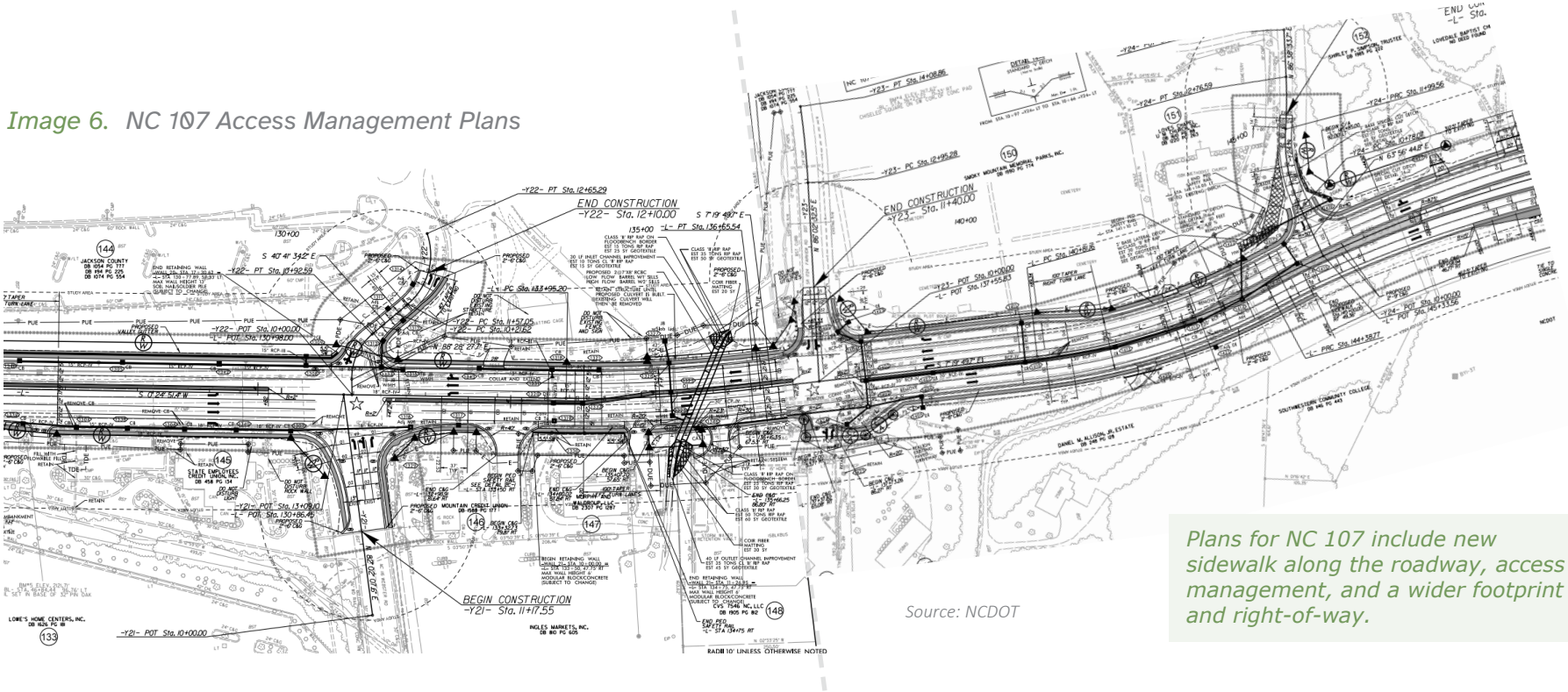


Planned & Programmed Projects

The previous chapter and Appendix C describe the many planning projects that have come before this study. A successful plan requires local knowledge to avoid duplicating previous project development efforts. Many of these projects are illustrated in **Map 4 - Planned Projects**, which is comprised of linear projects from the State Transportation Improvement Program (STIP), the State Highway Maintenance Improvement Program (HMIP), and the 2021 Jackson Walks Pedestrian Plan:

- NC 107 is identified in the STIP as project R-5600, which will construct access management improvements from Fairview Road to US 23 Business. Construction is expected in 2025. (*See Image 6 below).*
- Lovedale Road and Mountain Oaks Lane are identified on the HMIP as needing pavement preservation in 2026.
- The Jackson Walks Pedestrian Plan recommends the following:
  - Sidewalks throughout the study area, most notably along Fairview Road and Cliffside Drive.
  - A connector along Smoky Mountain Drive to the Smoky Mountain High School and Fairview School campus; however, the recommendation is identified as "needing further study."
  - A crossing need at the intersection of NC 107/Fairview Road and Mountain Oaks Lane/Webster Road.

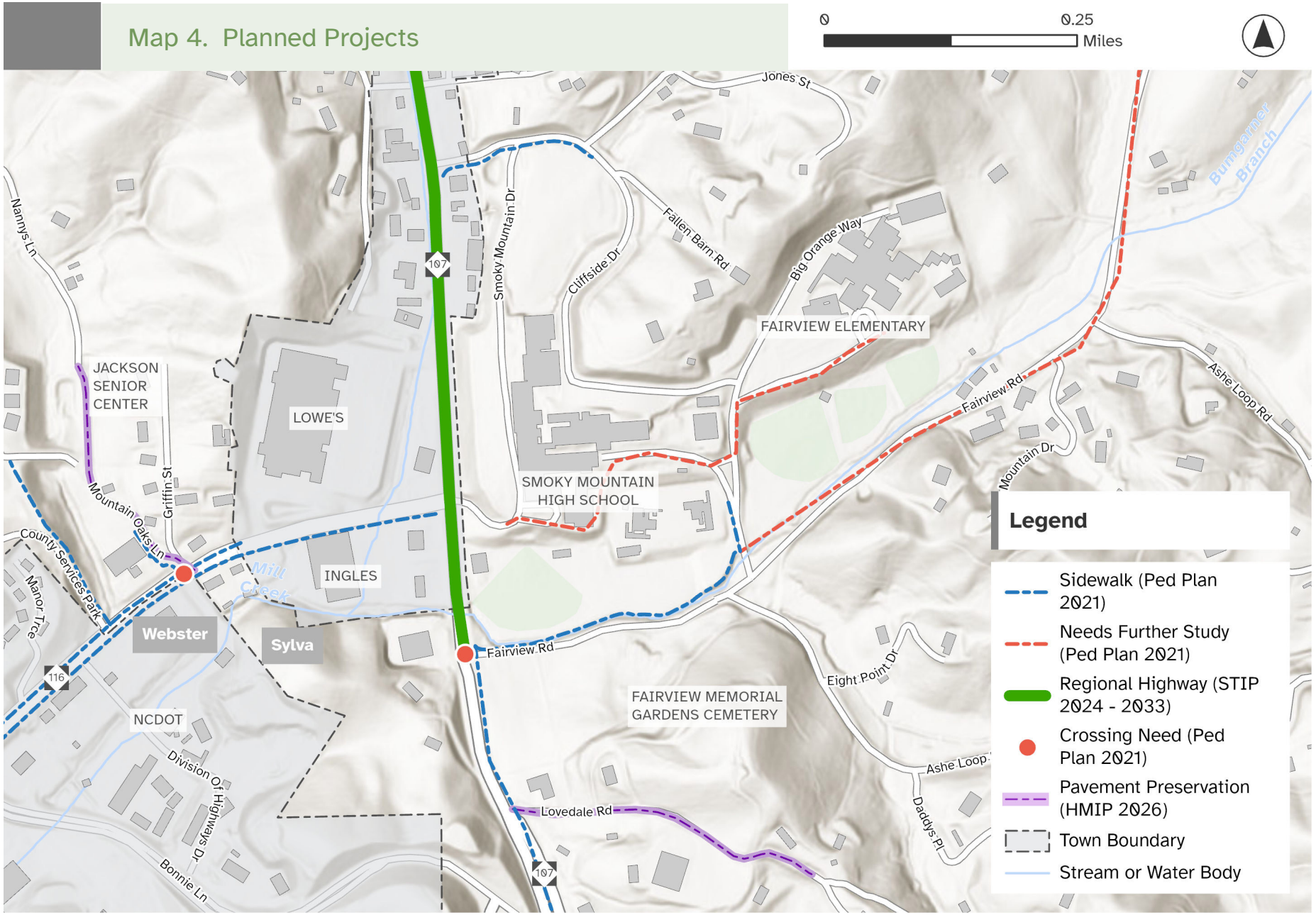
Image 6. NC 107 Access Management Plans



Source: NCDOT

Plans for NC 107 include new sidewalk along the roadway, access management, and a wider footprint and right-of-way.

Map 4. Planned Projects



Data Source: NCDOT & Jackson County Pedestrian Plan

NATURAL ENVIRONMENT CONSIDERATIONS

The natural world shapes the way that we connect with and shape the human environment. Much of the natural land encompassed by this project study area has been shaped by humans – hillsides and slopes have been graded, streams piped and relocated, and structures and roads built. As this project looks to further shape the natural environment, it is important to consider floodplain and topography.

Floodplains

Map 5 - Floodplain illustrates the 100-year floodplain, data retrieved from NC One Map, an online resource for geospatial data. This floodplain designation is also known as the 1% chance of annual flood, meaning that the land has a 1% chance of being flooded in any given year during a 100-year storm. Within the study area, a few structures fall within the floodplain, as do the ballfields along Fairview Road. When water flows over the banks of Bumgarner Branch Creek, these areas are periodically inundated. There is not a flood hazard zone (mapped floodway) in the project study area.

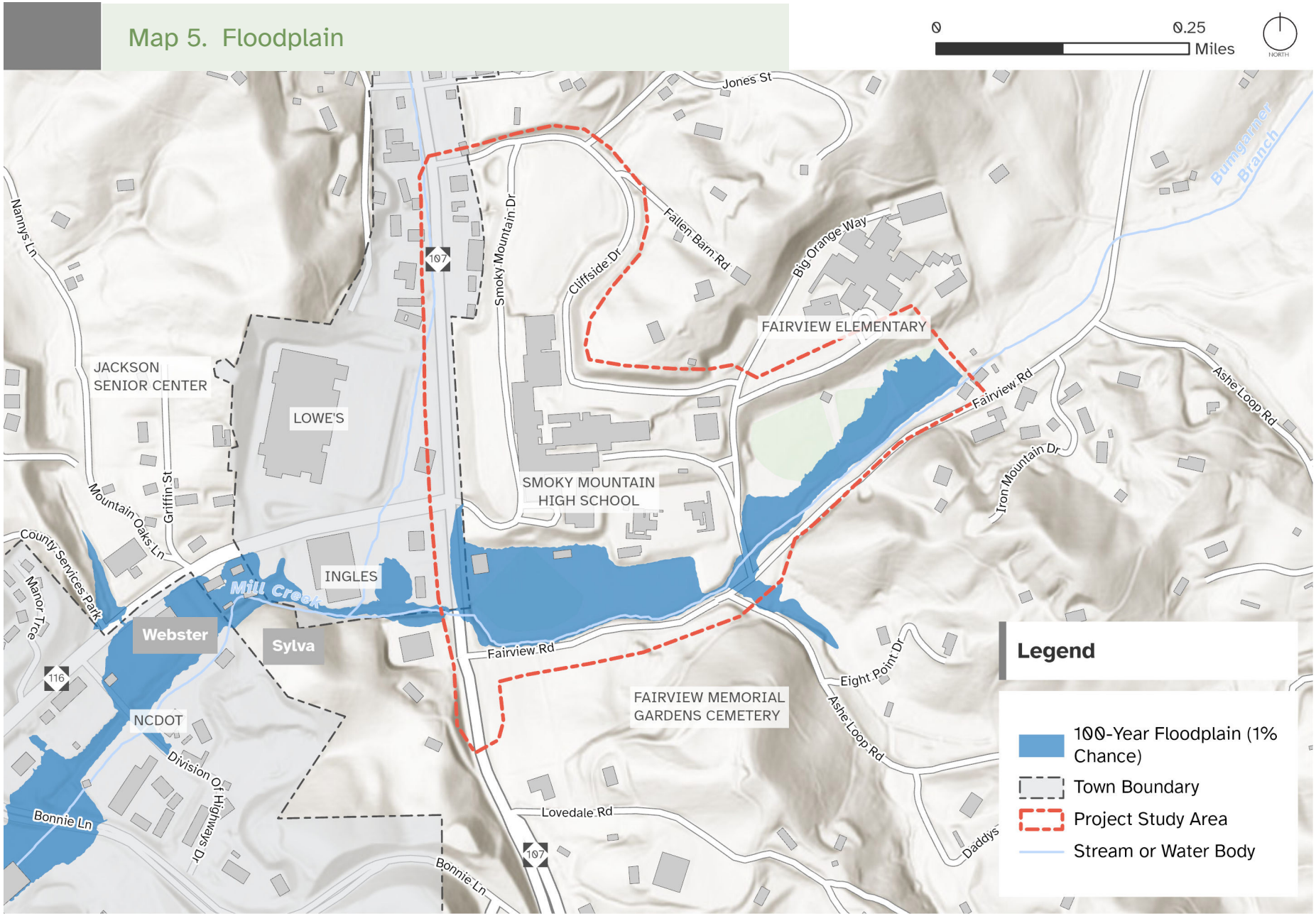
Many jurisdictions regulate development within the floodplain, including sidewalk or sidepath construction, as any development impacts the ability of the floodplain to store and slow floods. Jackson County's flood development ordinance requires any development in a flood hazard zone be regulated with a permit and a study if needed. Trails can typically be built in a floodway so long as no fill material is used in the construction of the trail. Nothing along the trail, such as signage or structures, can be placed in a flood zone if it will cause a rise in the base flood elevation (BFE). These regulations apply to all special flood hazard areas identified in the most recent Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM).

Image 7. Bumgarner Branch Creek along Fairview Road

Bumgarner Branch Creek has undergone modifications over time due to the presence of ballfields, the Fairview Road retaining wall and drainage system, and its passage beneath NC 107.

Source: TPD

Map 5. Floodplain



Topography

NC One Map data was consulted for 4-foot contour data for the study area, as shown in **Map 6 - Contours (4-Foot)**. It is clearly visible where the floodplain and waterways exist, and where grading has occurred to construct the schools. Positioned atop a hill overlooking NC 107, the school campus presents a topographical obstacle for establishing pedestrian pathways connecting the arterial road to the schools. Negotiating the steep inclines of the landscape poses a considerable logistical challenge, necessitating careful planning and innovative engineering solutions to ensure safe and accessible connections for students, faculty, and visitors alike.

Topography was evaluated during the development of project alternatives and identifying elements such as retaining walls that impact project costs.

Endangered Species

The project team requested rare and endangered species data for the study area from the NC Natural Heritage Program. The result was no known occurrences of rare or endangered species were found. However, further investigation may be needed during the construction phase.

Image 8. Steep Grade along Cliffside Drive

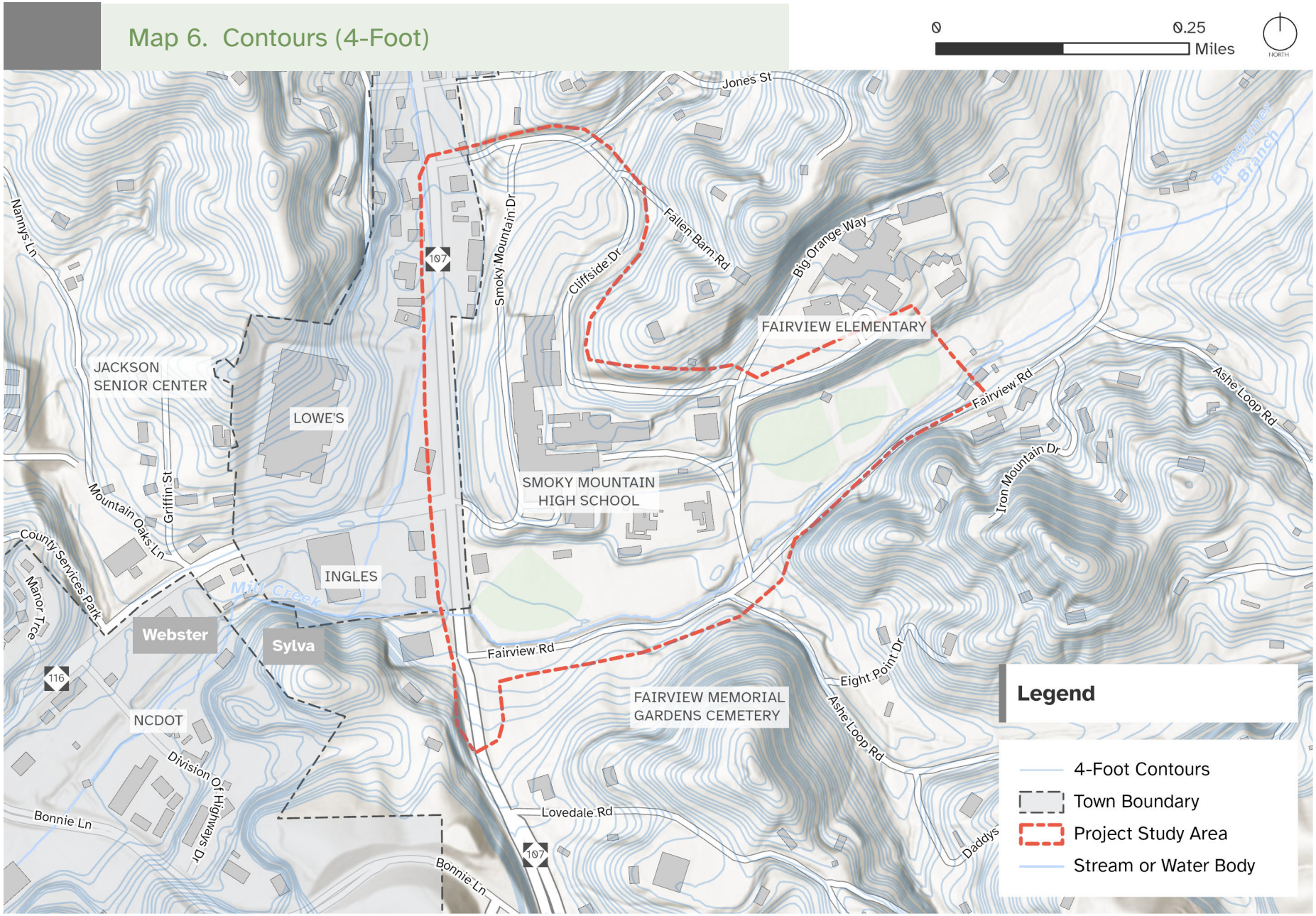
Source: TPD

Image 9. Steep Grade near the Ballfield

Source: TPD

The school campus is situated on various levels, with changes in elevation and steep grades.

Map 6. Contours (4-Foot)



HUMAN ENVIRONMENT CONSIDERATIONS

The study area is in an urban area of Jackson County just outside of the Sylva town limits. The following aspects explore considerations of the human environment:

- Existing network
- Points of interest
- Annual Average Daily Traffic (AADT)
- Posted speed limit
- Pedestrian crash history and corridor safety scores

Existing Network

Map 7 - Existing Pedestrian Network illustrates the existing sidewalks, crosswalks, and traffic signals in the Fairview connector study area. The goal of the proposed project is to connect the existing sidewalk along NC 107 to existing sidewalk in the school complex and to sidewalk in the Town of Webster. All sidewalk sections, except those on the school campus, are within NCDOT right-of-way. The intersections of Fairview Road, Webster Road, and Cliffside Drive are all signalized and owned/ maintained by NCDOT.

Image 10. Crosswalk on Cliffside Drive

Source: TPD

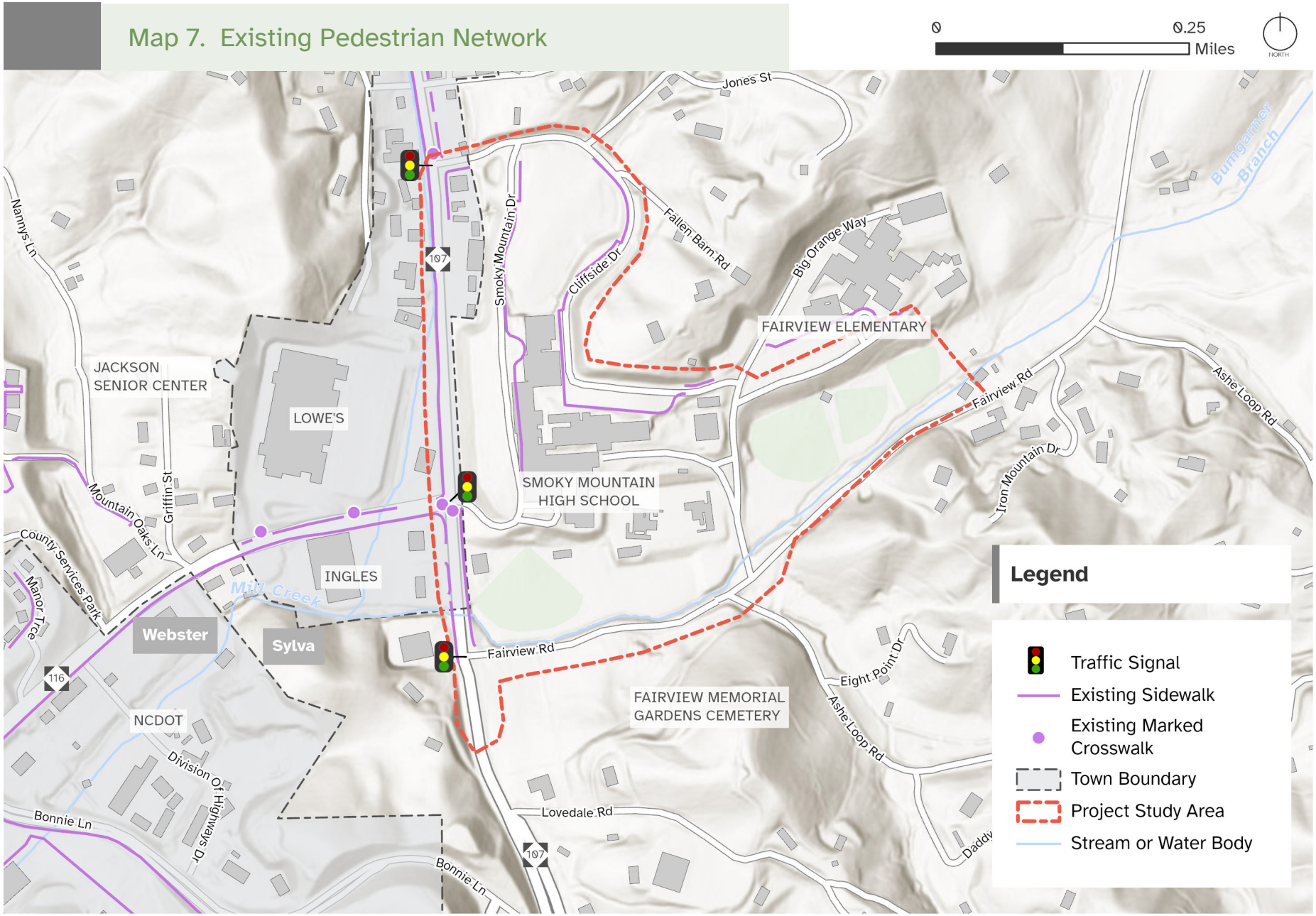
The school campus has some marked crossing areas that connect pedestrian infrastructure on opposite sides of the roadway, like here on Cliffside Drive.

Image 11. Crosswalk at Webster Road

Source: TPD

People can access the school campus using crosswalks and signals at Webster Road, but not Fairview Road.

Map 7. Existing Pedestrian Network



Points of Interest

The study area is located among several hubs of activity, as shown in **Map 8 - Points of Interest**:

- Higher education: Southwestern Community College and Jackson County Early College
- Government: Southwestern Commission and NCDOT Division 14 Offices
- Social services: Jackson County Department on Aging and Social Services Office
- Affordable housing: Havens At Mountain Oaks and Reedwood Manor
- Commercial destinations: Wal-Mart, Lowes, Ingles, CVS
- Early childhood education: Fairview Head Start Child Development and Heritage Christian Preschool
- Cemeteries and memorial gardens

These destinations would all be well-served by a more connected pedestrian network where people may be able to walk to go shopping, to go to school, to receive services, or to go to work.

Image 12. Jackson County Department on Aging

Source: Jackson County

Image 13. CVS Pharmacy on NC 107

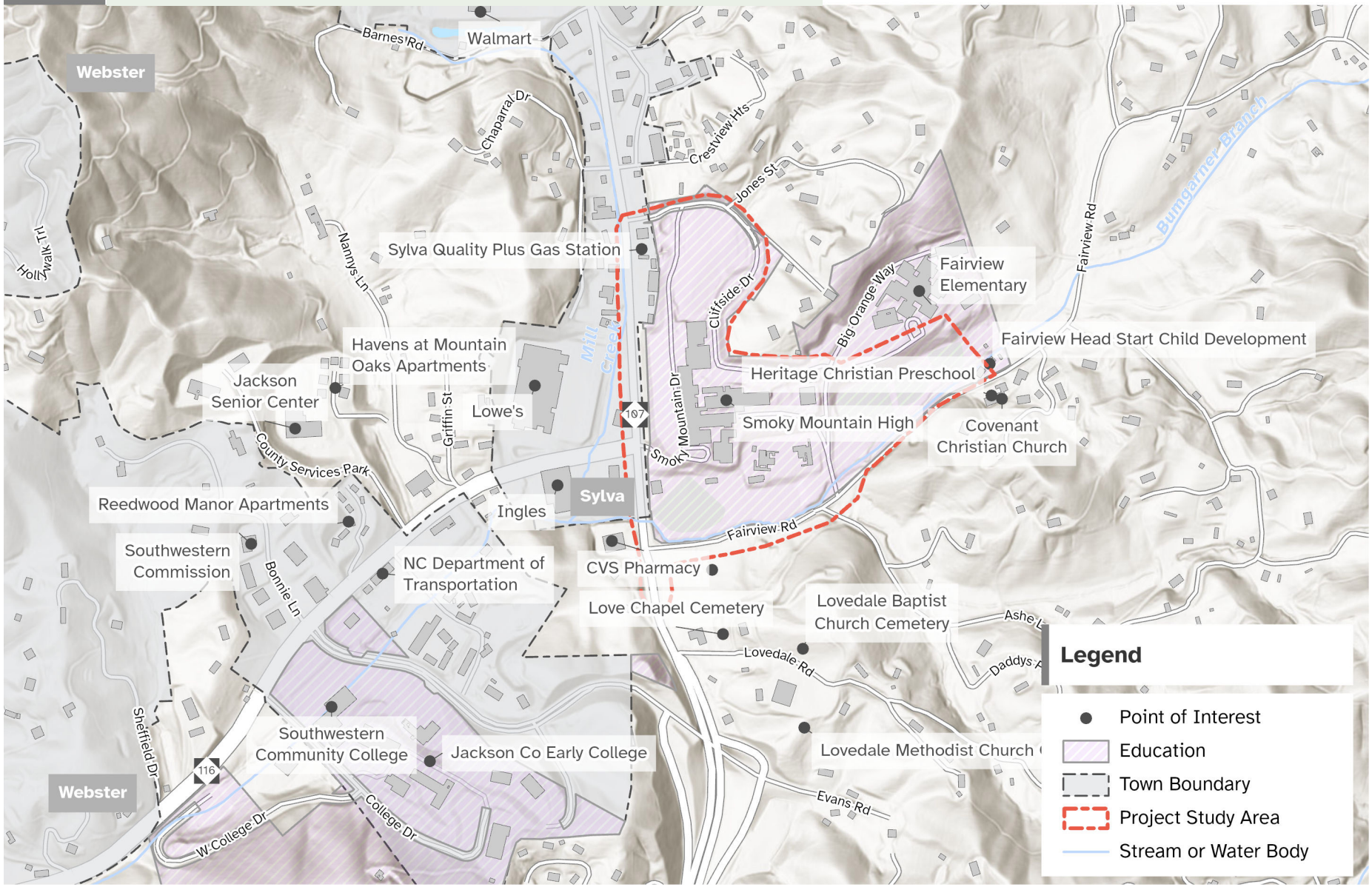
Source: Google

Image 14. Fairview Memorial Gardens

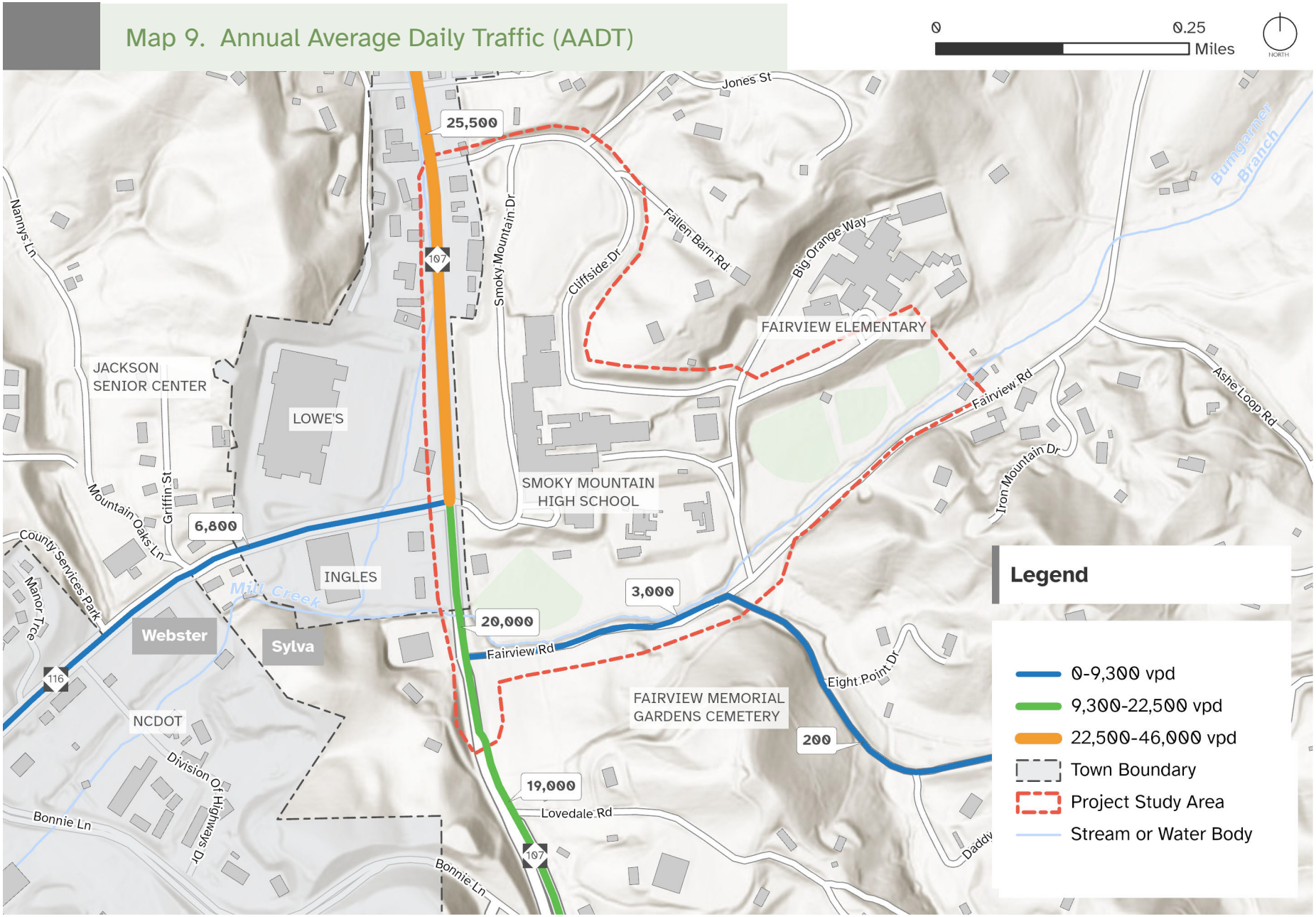
Source: Google

This study area includes many diverse points of interest that are important to the community, including churches, social services destinations, commercial businesses, banks, housing developments, and childcare centers.

Map 8. Points of Interest



Map 9. Annual Average Daily Traffic (AADT)



Traffic Volumes

Leveraging data from NCDOT (2021), we can understand the traffic volume on key corridors influencing the study area. **Map 9 - Annual Average Daily Traffic (AADT)** illustrates how NC 107 north of Webster Road carries the most volume at 25,500 vpd. South of Webster Road, NC 107 carries between 19-20,000 vpd. Webster Road at NC 107 carries around 6,000 vpd which explains the difference in traffic volumes on NC 107 north and south of this intersection – some people are choosing to use Webster Road (6,800 vpd) and others possibly are accessing the school campus (Fairview Road volume is 3,000 vpd). Note that the NCDOT data is only available for these select NCDOT-managed roads.

Image 15. School Traffic Exiting onto NC 107

Source: TPD

Traffic volumes in the study area are affected by weekday school drop-off and pick-up queues.

Posted Speed Limit

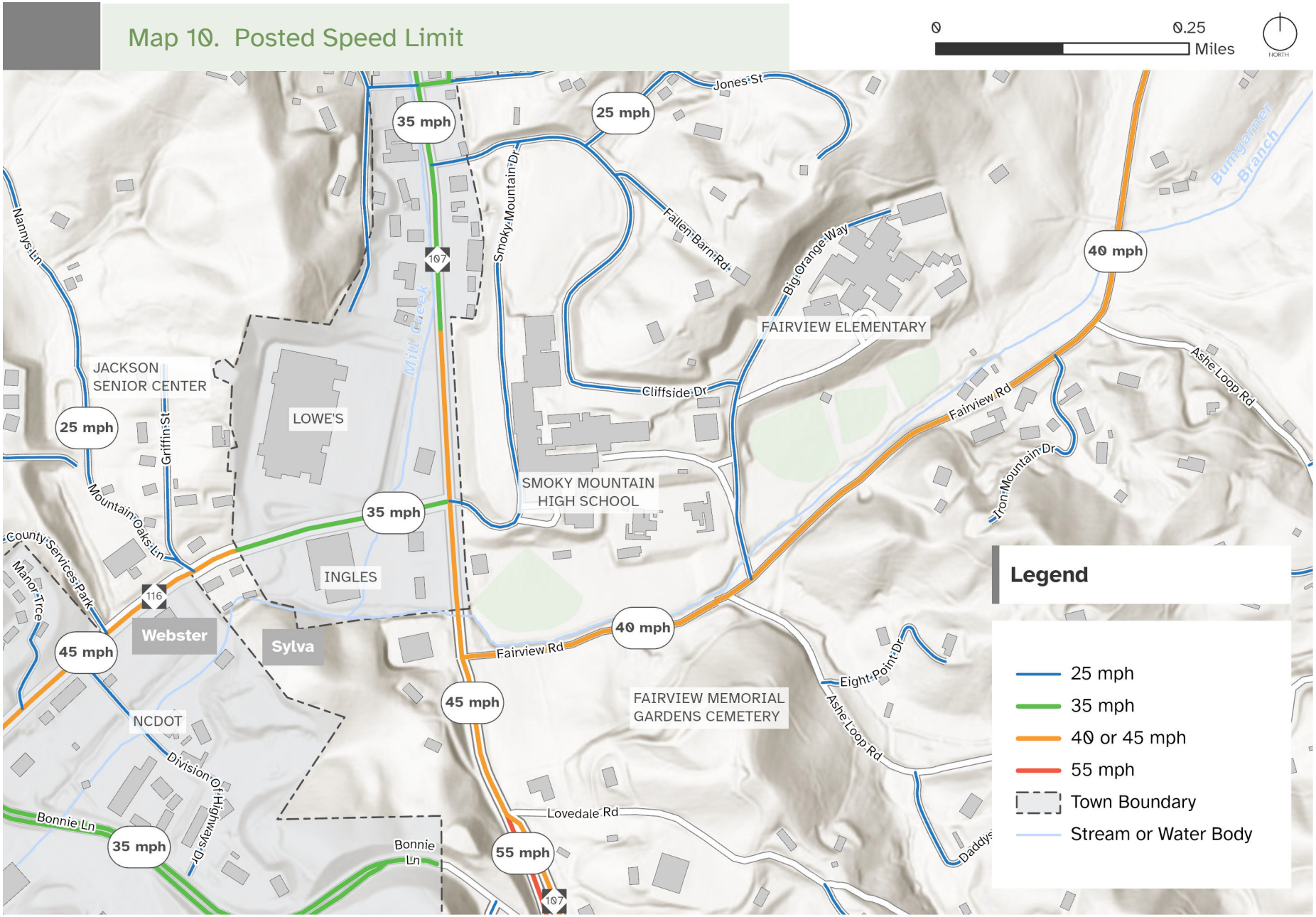
Tapping into additional data from NCDOT (2021), **Map 10 - Posted Speed Limit** illustrates the varying posted speed limit on segments throughout the study area. This includes both state-maintained and non-state-maintained roads. In general, the roadways carrying most of the traffic (including NC 107, Webster Road, Fairview Road) have higher posted speed limits. The streets with a lower posted speed limit are those internal to the school campus and other areas like County and NCDOT services.

Image 16. Speed Limit Signs

Source: Google

Fairview Road's speed limit is lower during drop-off and pick-up hours on school days.

Map 10. Posted Speed Limit



Pedestrian Crash History and Corridor Safety Scores

Map 11 - Pedestrian Crash History & Safety Scores shows the one reported pedestrian-involved crash (2017-2021) and the NCDOT Corridor Section Safety Scores within the study area. The single reported pedestrian crash is not a clear indication of safety, as crashes can be unique events. Rather, the lack of crashes suggests that there is very limited pedestrian activity given the lack of a dedicated pedestrian network. Indicators such as number of travel lanes, AADT, and posted speed limits provide a better understanding of crash risk and perception of safety for people walking.

The NCDOT Section Safety Scores provide summarized crash and safety data by intersections or sections of road for all users, including motorized vehicles. The data is intended to be used for high-level prioritization and network programming. Points are assigned to the road segments based on three areas: 1) density of crashes in the study area versus the average crash density of similar facilities; 2) crash severity index; and 3) the actual crash rate for the study area versus the critical crash rate. Segments with a higher score are more problematic and include NC 107 south of Webster Road and Webster Road west of Mountain Oaks Lane.

Image 17. NC 107 Sidewalk Near Ballfield

Source: TPD

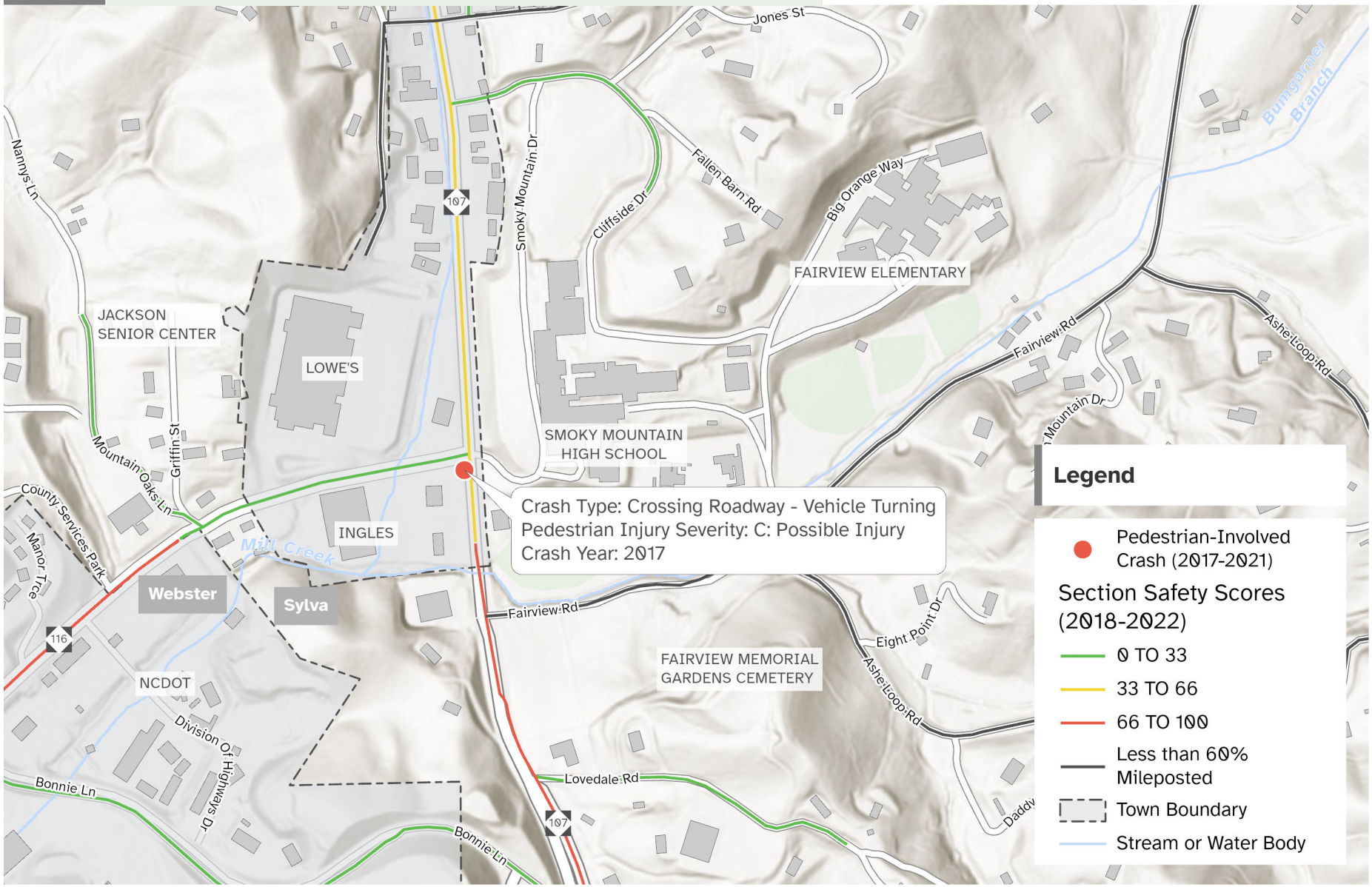
This sidewalk is relatively narrow and does not have a buffer from high speed traffic, making it uncomfortable for families to access the school campus on foot.

Image 18. NC 107 & Cliffside Drive Intersection

Source: TPD

The only sidewalk link to a school entrance is along Smoky Mountain Drive. However it is possible to cross NC 107 here at Cliffside Drive.

Map 11. Pedestrian Crash History & Safety Scores



FIELD OBSERVATIONS

To fully understand a project, it is necessary to visit the site to document existing conditions including photographs, measurements, and observations of the natural/human environment. On August 24, 2023, the project team visited the study area during school dismissal hours to observe the transportation network in relation to school activities and other nearby land uses. The team also reviewed the following items that impact the development of alternatives:

- Municipal boundaries
- Topography
- FEMA Floodway and Floodplain
- Structures (retaining walls, bridges)
- Roadway environment (AADT, posted speed, traffic control, guardrail, sidewalks, crossings, parking)
- Driveways and access
- Right-of-Way and property impacts
- Building setbacks
- Utilities
- Drainage
- Cemeteries
- New developments

These opportunity and constraint considerations are illustrated in the following maps and photographs, which are grouped geographically throughout the study area.

The Project Team in the field.

Source: TPD

Map 12. Webster Rd to Big Orange Way Opportunities

OPPORTUNITIES (WEBSTER ROAD TO BIG ORANGE WAY)

Webster Road intersection needs a Leading Pedestrian Interval (LPI) and additional signs.

Potential route alternative on the school property along NC 107. This would require adjustments to fencing and utilities.

Potential route alternative along the west side of Bumgarner Branch Creek.

The old bandstand can be removed to create additional space along the west side of Bumgarner Branch Creek.

Map 13. Webster Rd to Big Orange Way Opportunities

OPPORTUNITIES (WEBSTER ROAD TO BIG ORANGE WAY)

A potential connection to the ballfields from Big Orange Way.

Wide gravel shoulder for pedestrian ramps and crossing on Big Orange Way.

Pedestrian crossing location on Big Orange Way (to connect sidewalk on Big Orange to multiuse path along Bumgarner Branch Creek).

Map 14. Webster Rd to Big Orange Way Constraints

CONSTRAINTS (WEBSTER ROAD TO BIG ORANGE WAY)

Steep grades adjacent to the school driveway.

Constraints at this area (culvert, fencing). Route alternative may be restricted to the area between the ballfield and creek.

Signs of streambank erosion along the Fairview Road side of Bumgarner Branch Creek.

Stream and utilities constraints at the northeast corner of Fairview Road and NC 107.

Map 15. Webster Rd to Big Orange Way Constraints

CONSTRAINTS (WEBSTER ROAD TO BIG ORANGE WAY)

Existing drainage and erosion constraints limit location of potential route alternative.

The school practice fields may limit spacing for paved shared use path alternative along the west side of Bumgarner Branch Creek.

There is a topographical constraint between the school parking lot down to the field.

Map 16. Big Orange Way Opportunities & Constraints

NOTE: Numbers are allocated based on area and type, so may not appear sequentially on the map.

OPPORTUNITIES & CONSTRAINTS (BIG ORANGE WAY)

Pinch point along potential spur to the east of Big Orange Way.

Potential area for stream improvements to mitigate and prevent future erosion and sendimentation.

Potential option for a trail spur to additional ballfields. A minor adjustment to the existing parking lot would be needed.

Map 17. Big Orange Way Opportunities & Constraints

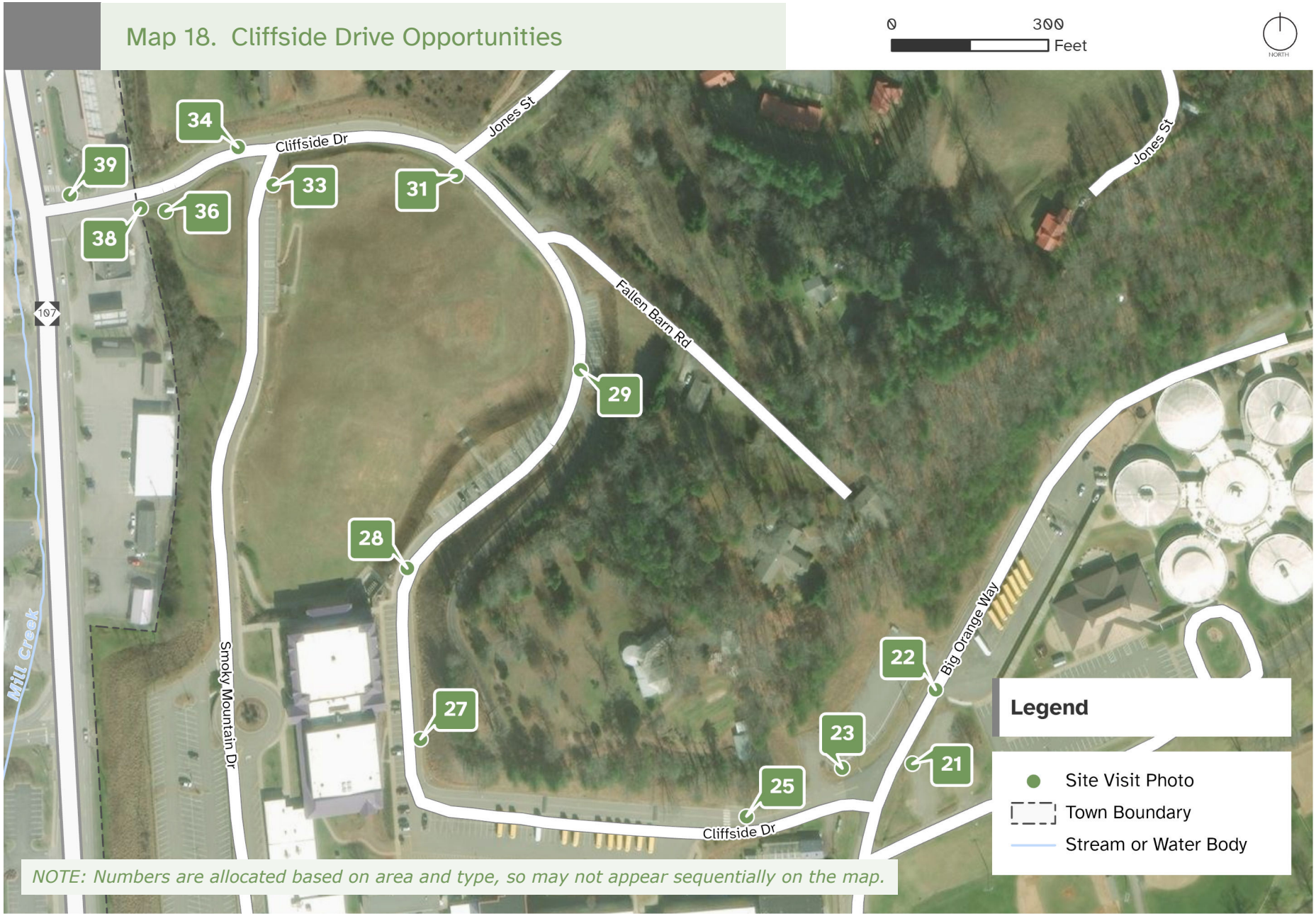
OPPORTUNITIES & CONSTRAINTS (BIG ORANGE WAY)

Potential for an 8-foot wide sidewalk exists on the shoulder of Big Orange Way.

Parent pick-up traffic along Big Orange Way.

Potential pedestrian crossing location.

Map 18. Cliffside Drive Opportunities



OPPORTUNITIES (CLIFFSIDE DRIVE)

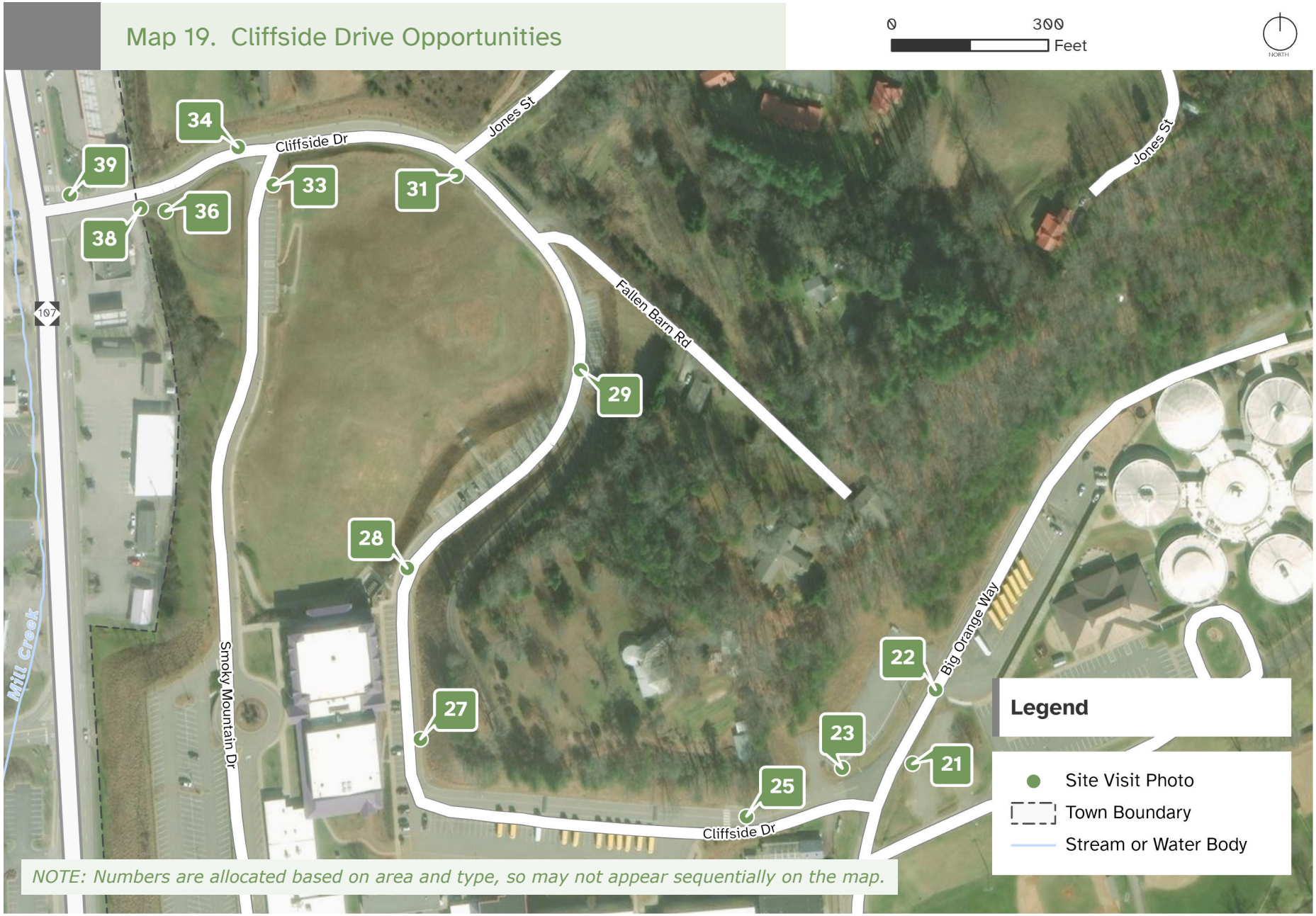
Potential pedestrian crossing and sidewalk connection.

Potential crossing location between school parking and existing sidewalks.

Possible sidewalk route alternative at existing parking lot.

Existing sidewalk and crossing.

Map 19. Cliffside Drive Opportunities



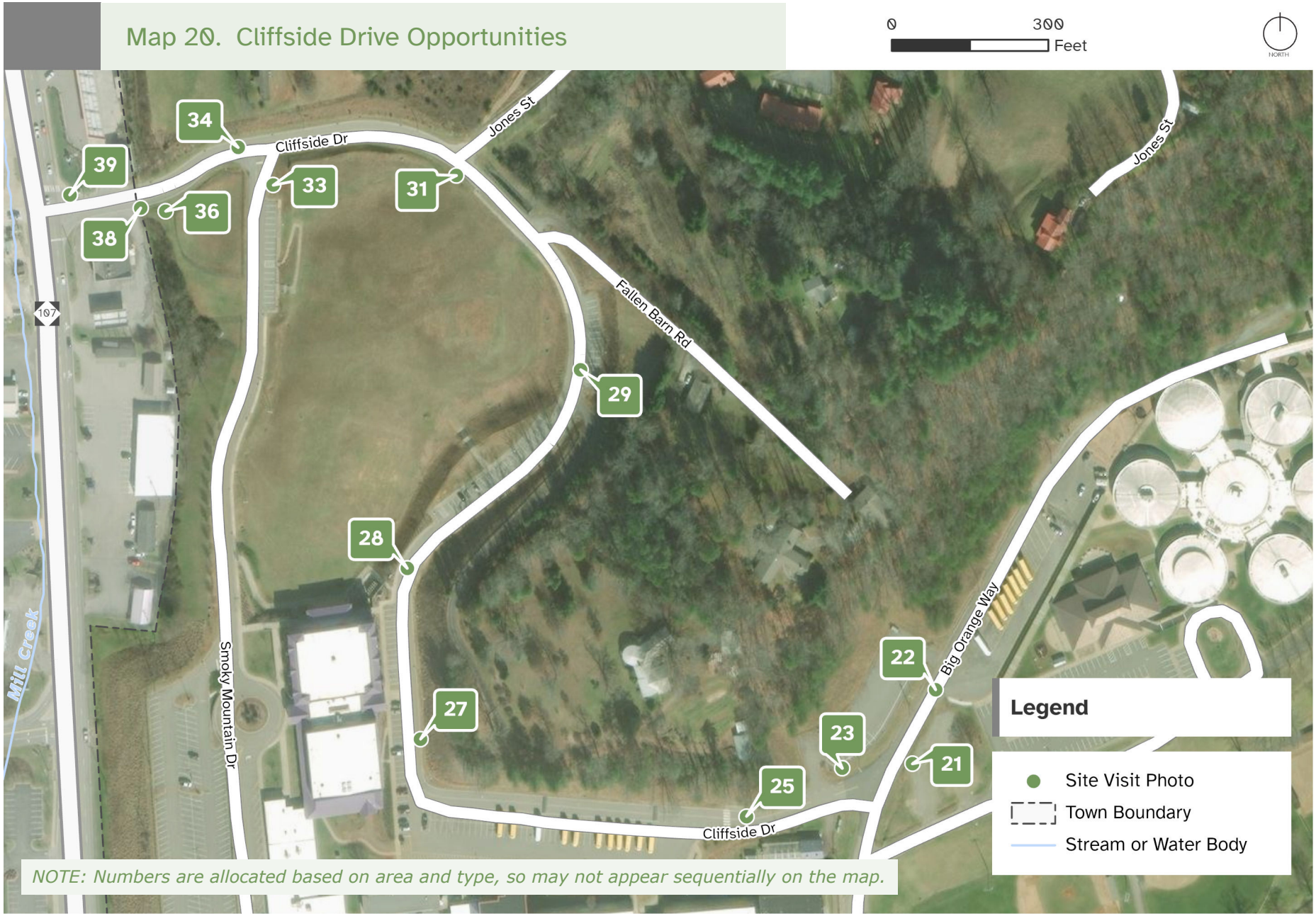
OPPORTUNITIES (CLIFFSIDE DRIVE)

Potential crossing location at secondary school entrance.

Potential crossing location to connect existing and proposed sidewalks.

Southern limit of sidewalk slignment connects to existing school parking area.

Map 20. Cliffside Drive Opportunities



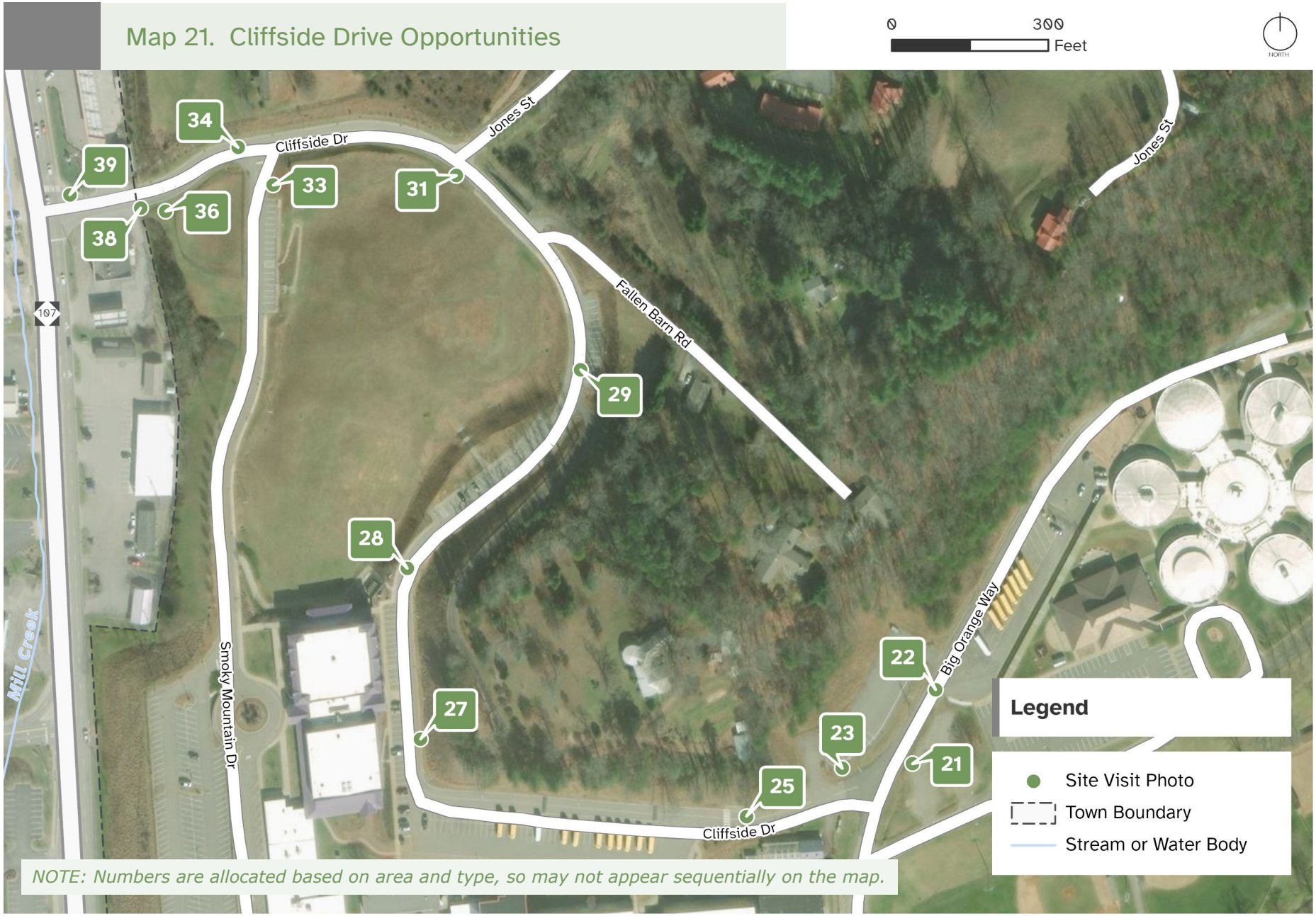
OPPORTUNITIES (CLIFFSIDE DRIVE)

End of existing sidewalk on Cliffside Drive near Jones Street.

End of existing sidewalk in school parking area (on Smoky Mountain Drive).

Potential sidewalk route alternative and crossing location (Cliffside Drive) east of Smoky Mountain Drive.

Map 21. Cliffside Drive Opportunities



NOTE: Numbers are allocated based on area and type, so may not appear sequentially on the map.

OPPORTUNITIES (CLIFFSIDE DRIVE)

Graded area from Cliffside Drive existing sidewalk to Smoky Mountain Drive.

New sidewalk at NC 107 and Cliffside Drive.

Opportunity for new sidewalk and crossing with NCDOT's pending NC 107 project.

Map 22. Cliffside Drive Constraints

NOTE: Numbers are allocated based on area and type, so may not appear sequentially on the map.

CONSTRAINTS (CLIFFSIDE DRIVE)

Cliffside Drive bus access route for Fairview School.

Utilities along potential sidewalk route alternative.

Culvert, fence, and guardrail along the northeast side of Cliffside Drive near Jones Street.

Map 23. Cliffside Drive Constraints

NOTE: Numbers are allocated based on area and type, so may not appear sequentially on the map.

CONSTRAINTS (CLIFFSIDE DRIVE)

Vehicle queue to exit the school campus (Smoky Mountain Drive at Cliffside Drive). Crosswalk will be needed.

Drainage conditions along Cliffside Drive (west of Smoky Mountain Drive).

No existing sidewalks on either side of Cliffside Drive.

ALTERNATIVES DEVELOPMENT

Design Criteria

Design criteria are engineering design standards established early in the process to define the desired facility type, width, grades etc. These criteria drive the development of alignment alternatives. Based on project team and steering committee feedback, this project seeks to develop a pedestrian-focused design solution that minimizes impact to school property, is capable of being implemented in phases, and does not preclude campus master planning goals.

To achieve a solution that meets these goals, the project team established the following design criteria:

- Paved sidewalk (minimum 5-foot width) or paved shared use path (minimum 10-foot width for bi-directional use).
- Cross-slopes of 2-percent or less.
- Longitudinal slopes of 5-percent or less.
- High visibility crossings for all roadway crossings.

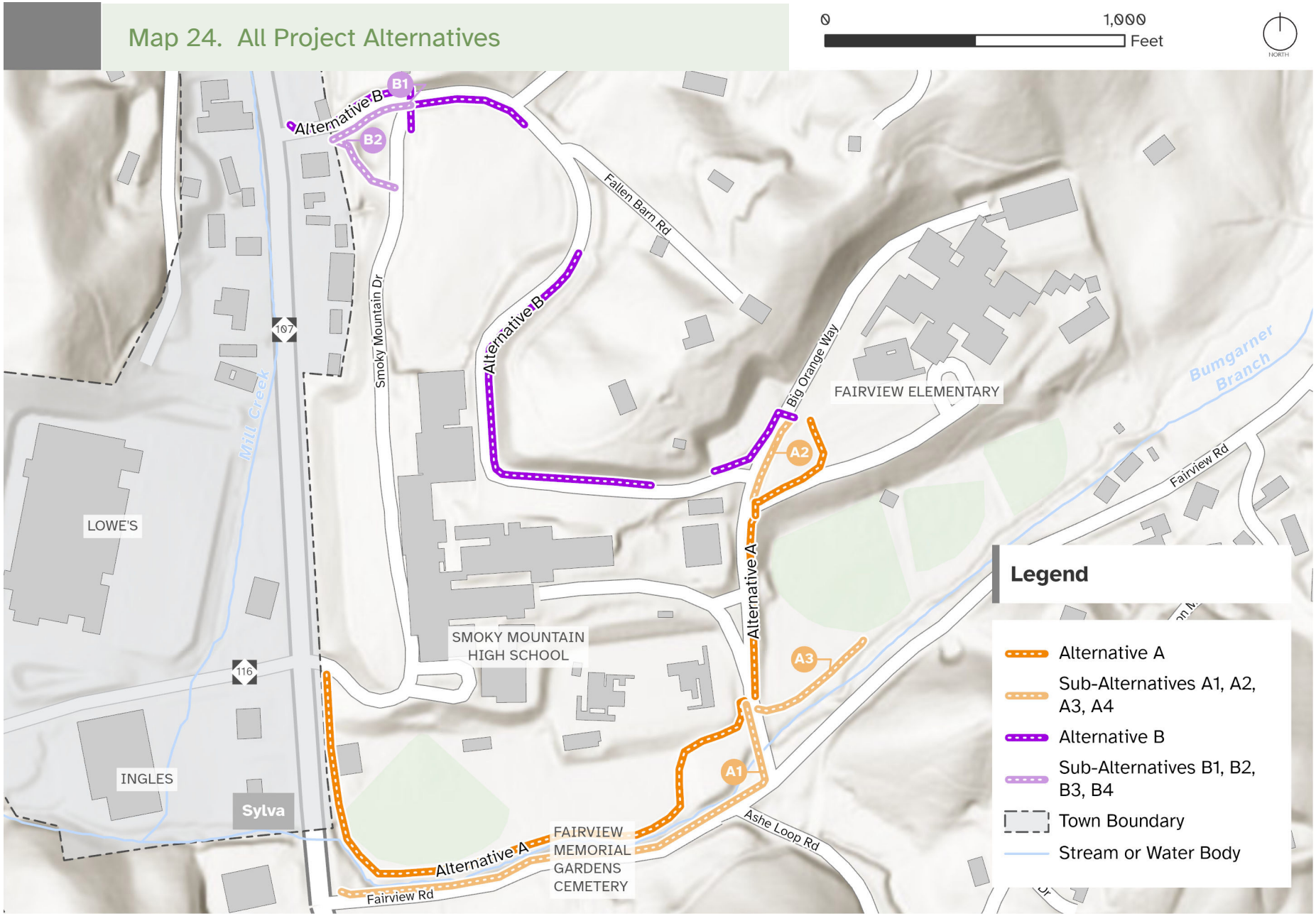
Segment Alternatives

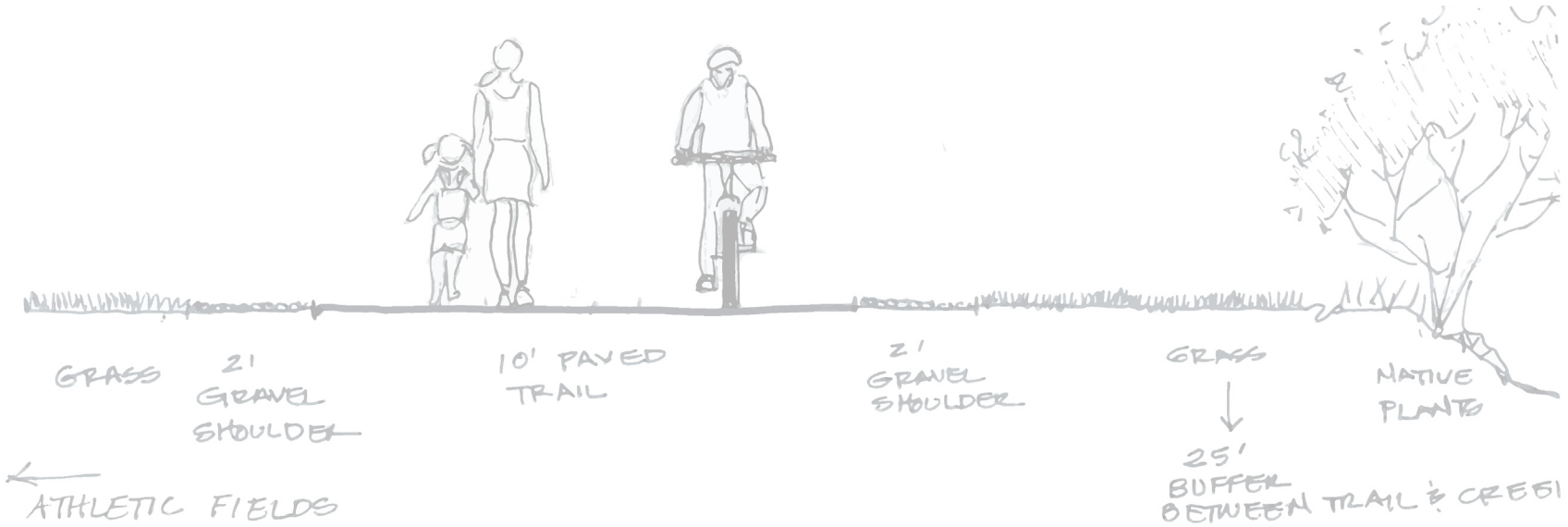
All possible routes were explored to provide pedestrian connectivity to and throughout the school campus. These routes are summarized in **Table 1 - Segment Alternatives**, with more detailed and a preferred route alternative provided in Chapter 4. **Map 24 - All Project Alternatives** illustrate these connections.

Table 1. Segment Alternatives

ID	Description	Crossings	Length	Relative Cost Range	Challenges/ Constraints
A	Combination of a shared-use trail from NC-107 to Big Orange Way and a sidewalk from Big Orange Way to Fairview School.	2	~2,170 Linear Feet	MEDIUM	Topography; School property impacts
A1	Sidewalk on north side of Fairview Road and west side of Big Orange Way.	1	~1,232 Linear Feet	HIGH	Topography; Stream buffer impacts
A2	Sidewalk on east side of Big Orange Way.	1	~290 Linear Feet	MEDIUM	Not pedestrian desire path
A3	Spur trail along Bumgarner Branch Creek east of Big Orange Way.	-	~400 Linear Feet	LOW	One (1) parking space impact
B	Sidewalk from NC 107 on Cliffside Drive and Big Orange Way to connect with existing sidewalk segments.	2	~2,730 Linear Feet	MEDIUM	Topography
B1	Sidewalk on southside of Cliffside Drive to Smoky Mountain Drive.	1	~2,700 Linear Feet	MEDIUM	High-volume pedestrian crossing
B2	Shared use trail from NC 107 at Cliffside Drive to Smoky Mountain Drive.	1	~2,970 Linear Feet	MEDIUM	Limited connectivity; High-volume pedestrian crossing

Map 24. All Project Alternatives





03 Community Engagement

Source: Jackie Moore, Safe Routes to Schoo

OVERVIEW

Active involvement from the community is integral to every planning endeavor. Quality community involvement can inform transportation professionals of the local needs and observations and can lead to a better project designs. In addition, it can be useful in communicating clear project goals and outcomes and in managing expectations. This section summarized efforts and input gathered from various stakeholders including community members, members of working groups, supportive agencies, and non-profit organizations to shape the Fairview Road Sidewalk Feasibility Study.

PREVIOUS ENGAGEMENT EFFORTS

Past engagement initiatives provide valuable insights into the needs, preferences, and concerns of various stakeholders, including residents, advocacy groups, local businesses, and governmental organizations. By acknowledging and building upon these previous efforts, this study can leverage insights to refine the project based on the community's input and feedback. The goal of this effort is to foster informed decision-making and the development of transportation solutions that better serve the needs of all road users.

Walk Audit

A walk audit was conducted on September 28, 2021 by community partners, including Safe Routes to School, NCDOT engineers, Jackson County Public Schools and School Board, and staff members from the Town of Sylva, Town of Webster, and Jackson County. This event was sponsored by AARP in support of a Safe Routes to School (SRTS) initiative to identify opportunities for improving safe access to schools in the region. The goal was to plan for future connectivity and safety features in light of the R-5600 project to redesign NC 107 as a superstreet, as this project will include new sidewalks and bike lanes. The group looked at crosswalks at Cliffside Drive, NC 116, and Fairview Road.

KEY FINDINGS AND RECOMMENDATIONS:
(directly from the walk audit summary)

- There are approximately twenty-eight Smoky Mountain High School students that cross NC 107 daily and at least three who ride bikes to and from Fairview School. School foot traffic counts (SMHS/FV students crossing NC 107) between 3:15-3:40 pm.
  - Completed 9/21/21-**32**
  - Completed 9/23/21-**28**
  - Completed 9/27/21-**26**
- One issue is how to enable people riding bicycles to access Fairview School. Currently, most people cross NC 107 and use the main High School entrance sidewalk, going through the courtyard area and over to the Elementary School. The intersection at Fairview Road has too much traffic and is not feasible without improvements.

Image 19. Participants of the Walk Audit

Source: Sylva Herald

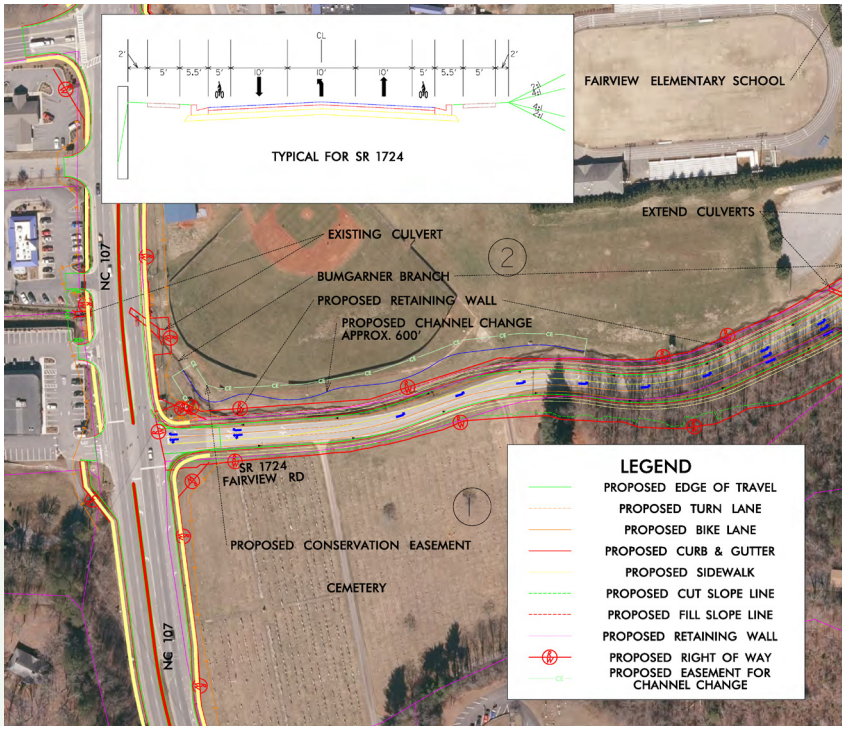
Improving access to the school campus has been a priority for the community.

- Filling vacancies in school bus driver is challenging, which makes walk to school/bike to school even more attractive as an option.
- The County Commissioners have indicated a need to improve pedestrian safety in Jackson County.
- The new Snappy Lube at the corner of NC 107 and Cliffside Drive will have a sidewalk constructed (outside the footprint of the NC 107 widening project), which is helpful – though only a short segment.
- Cliffside Drive is on school property. A sidewalk would have to be on the right side and would need to extend approximately ¼ mile to connect to the sidewalk at the high school.
- Fairview Road was deemed cost prohibitive to add bicycle and pedestrian infrastructure.
- Cliffside Drive was deemed the best approach for bicycle access. And a sidewalk connection to the existing sidewalk near the high school gym was recommended.
- Restripe the crosswalk in front of the high school (NC 107 at Smoky Mountain Drive) for greater visibility. Supplemental school zone signage or flashing lights during school drop-off and pick-up hours could help. Or a crossing guard who manages the pedestrian signal and helps students cross NC 107.
- Explore the feasibility of a shared use path along the practice fields and up to Big Orange Way (for bicycle and pedestrian access to both schools).

Fairview Road Conceptual Design

Identified as a division need during NCDOT's SPOT 5.0 project prioritization process, improvements to Fairview Road did not advance to the State Transportation Improvement Program (STIP). The proposal was for modernization, including extending turn lanes (for school traffic) and adding bicycle lanes and sidewalks to Big Orange Way. NCDOT provided a cost estimate and conceptual design in 2020, encouraging further exploration of ways to improve multimodal access along the corridor to the schools. These initial investigations served as a springboard for continued dialogue and exploration of solutions to improve transportation infrastructure and pedestrian safety in the area.

Image 20. Preliminary Concept for Fairview Road



Source: NCDOT

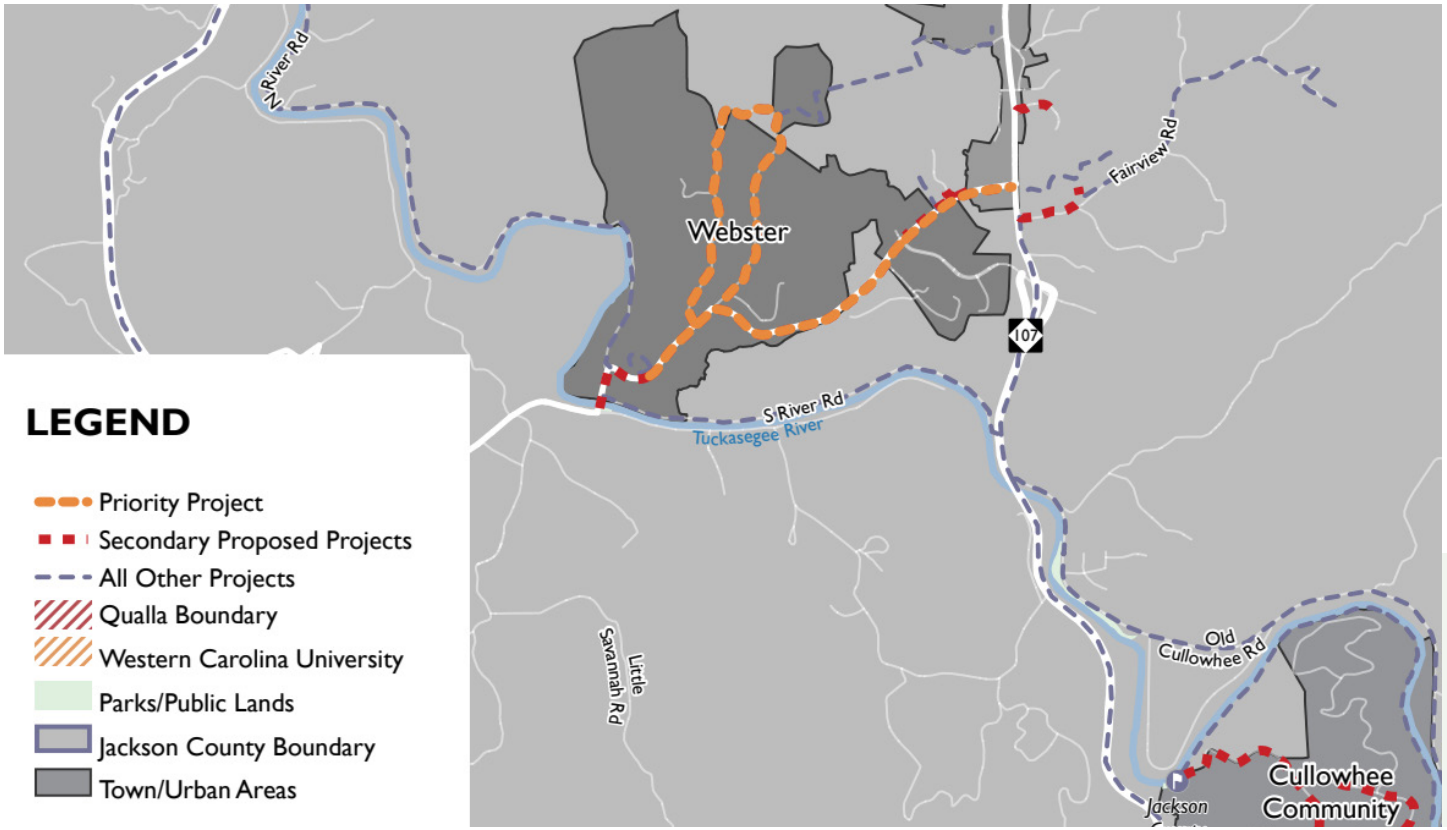
This preliminary design for Fairview Road shows 5-foot sidewalks and 5-foot bike lanes on both sides.

Jackson Walks Pedestrian Plan

The idea of connecting Fairview School and Smoky Mountain High School to NC 107 was explored in the 2021 Jackson Walks Pedestrian Plan, as described in Chapter 2. The specific projects identified in the Plan include sidewalks throughout the study area, a connector along Smoky Mountain Drive, and improved crossings of NC 107.

The Plan's public engagement included five meetings with the steering committee, 12 focused meetings with targeted interest groups, two public meetings and two online surveys.

Image 21. Jackson Walks Pedestrian Plan Project Map



Source: NCDOT

Fairview Road pedestrian improvements were included as a secondary project in the Jackson Walks Pedestrian Plan. Other nearby projects include filling the sidewalk gaps on Webster Road and on the school campus.

COMMUNITY ENGAGEMENT PLAN

At the outset of the feasibility project, the project team crafted a Public Involvement Plan (PIP) to delineate forthcoming outreach activities and ensure fair public engagement throughout the project's duration. The PIP functions as a dynamic document throughout the project's life cycle, aiming to:

- Provide an overview of past community involvement and planning efforts.
- Assess public interest in the planning process and consider opportunities for stakeholder input.
- Determine where the community seeks multimodal connections.
- Identify how to phase and prioritize project segments for future investment and development.

1 KICKOFF MEETING

2 STAKEHOLDER GROUP PRESENTATIONS

2 STEERING COMMITTEE MEETINGS

1 SITE VISIT

SUMMARY OF PROJECT MEETINGS

Kickoff Meeting

This meeting was held virtually on July 21, 2023, to launch the project and begin discussing important tasks, milestones, and goals. Attendees were able to add notes directly to maps of the study area during the meeting using the online platform ConceptBoard.

KEY FINDINGS:

- A better understanding of any future school campus planning to gauge if a trail could be an option.
- There is a need to connect to the elementary school sidewalks, not just to the edge of the school campus.
- Topographic data will be helpful in determining where retaining walls might be needed.
- School drop-off (morning) queuing is more of an issue than pick-up (afternoon).
- The cemetery is not likely to be a feasible route for the sidewalk because of the proximity of graves and crossing Fairview Road would present a challenge.
- Bumgarner Branch Creek presents a challenge. However, it is a Class C stream and not a listed trout stream with the associated restrictions to the buffer.
- There are utilities and signage at the intersection of Fairview Road and NC 107.

Steering Committee Meeting #1

The first meeting of the Steering Committee was held on October 30, 2023. It was a virtual meeting and included a presentation of study area mapping and demographic data, opportunities and constraints, and preliminary route alternatives. The project team shared concept plans for possible alternatives in the northern and southern sections of the study area, with alternative routes and facility types.

KEY FINDINGS:

- Final approval of route alternatives might benefit from waiting until after the NC 107 project (NCDOT STIP R-5600) is completed.
- The school board may have concerns about security with an on-campus trail that is accessible to the public (a fence could be considered between the trail and the practice fields; however, if the trail were to be limited to only school use, then that could limit potential funding of such a project).
- Possible stakeholder groups to gather feedback from:
  - Jackson County Commissioners
  - Jackson County Parks Director, Rusty Ellis
  - Jackson County School Board
  - Chris Lee with NCDOT Division 14

Jackson County Board of Commissioners Work Session Presentation

The project team presented findings from this study to the Jackson County Board of Commissioners at a work session on January 9, 2024. This overview provided information about the study area, route alternative options and comparative costs, considerations regarding use of the campus ballfield, and next steps.

The Board of Commissioners, as elected officials representing the community, holds significant influence and responsibility over local infrastructure projects, making them an essential stakeholder group. Their role involves decision-making on matters pertaining to public safety, transportation, and community development, aligning closely with the objectives of the pedestrian connection project. As stewards of public trust, commissioners have a vested interest in promoting safe and accessible environments for constituents, including students attending the school in question. It is recommended that they have continued involvement to ensure that the project reflects community needs and priorities while adhering to broader strategic goals and policies set forth by local government. Additionally, the board's endorsement and support will be essential for securing funding, navigating regulatory processes, and garnering community acceptance. The Board ultimately contributes to the successful implementation and sustainability of the pedestrian connection project.

STEERING COMMITTEE

The steering committee was comprised of key local government staff, with representation from the school district, the Rural Planning Organization (RPO), Jackson County, Town of Sylva, and NCDOT. The steering committee convened three times throughout the project's duration, offering guidance by reviewing and providing feedback on pertinent data, community engagement initiatives, route alternative suggestions, and implementation strategies.

MEMBERS

- *Paige Dowling, Town of Sylva*
- *Jake Scott, Town of Sylva*
- *Rose Bauguess, Southwestern Commission RPO*
- *Jake Buchanan, Jackson County Public Schools*
- *Mike Poston, Jackson County*
- *Darcy Downs, NCDOT Integrated Mobility Division*

Jackson County School Board Presentation

The project team gave a presentation to the school board on January 23, 2024, to explain the project, explore different possible route alternatives (and cost comparison), show some preliminary renderings and design concepts, and share a successful example of a nearby school campus with a public trail on the grounds.

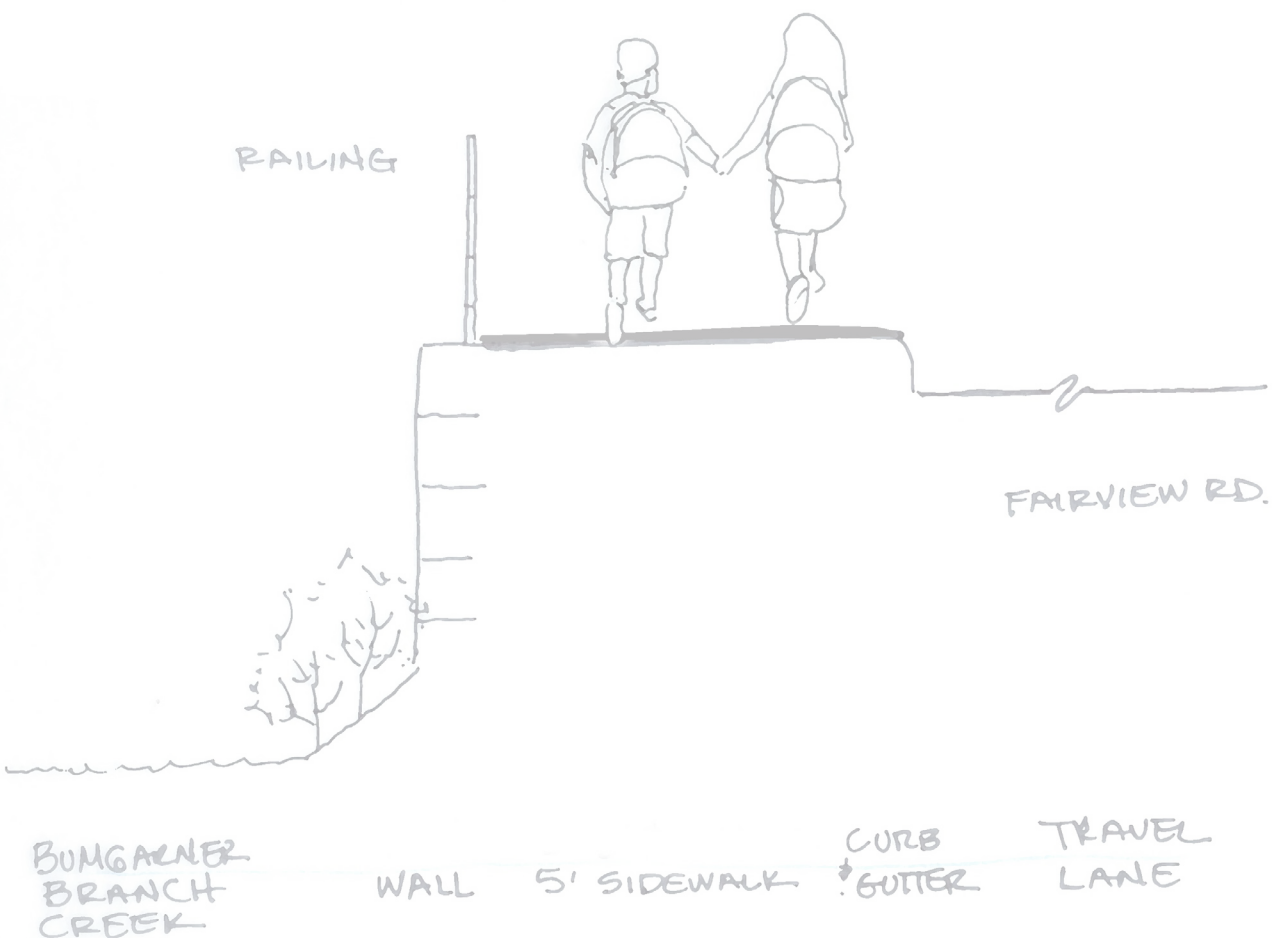
As the governing body responsible for overseeing the policies, finances, and strategic direction of the schools in the study area, the Jackson County School Board is a key stakeholder group, with significant influence over decisions impacting campus infrastructure. Their involvement is essential for aligning the project with the educational objectives and safety standards of the school. Additionally, the school board represents the interests of various stakeholders, including students, parents, faculty, and the broader community, thereby serving as a liaison for gathering feedback, addressing concerns, and fostering collaboration throughout the project's planning and implementation phases.

Steering Committee Meeting #2

The second Steering Committee was held on February 19, 2024.This meeting was an opportunity to review a summary of stakeholders, discuss criteria for scoring route alternatives, overall alternative evaluation, preliminary costs, and how recommendations will be made.

KEY FINDINGS:

- The Jackson County School Board's facilities plan may impact final decision-making about which pedestrian route to choose, because they are weighing different options for location of new ballfields (soccer, track, baseball, and softball). The facilities plan can be found in Appendix D.
- A property owner is tentatively considering developing a parcel of land adjacent to Jones St/Cliffside Drive, which may affect the right-of-way and feasibility of sidewalk construction. A new driveway may align with Smoky Mountain Drive.
- The Jackson County School Board was in support of the project overall.
- Advancing both A and B route alternates was seen as a good option; a pedestrian system in and around the schools.
- The School Board was supportive of the ballfield shared use path as the safest (off-street) segment, pending future decisions about ballfield location. There could be an opportunity to combine construction of new ballfields with the multiuse path. This will take close communication and coordination between the School Board and the County Commissioners.
- Visibility and awareness for pedestrian crossings is important, before and after these new facilities are built.



04 Evaluation & Recommendations

ROUTE ALTERNATIVES FOR EVALUATION

The following pages detail two route alternatives - Alternative A and B. Each alternative has a primary route recommended, with possible options for slight variations. All considerations have opportunities and constraints, which require careful consideration.

ALTERNATIVE A

Shared Use Path to Fairview School

This alternative would connect from the sidewalk on NC 107 near NC 116 to a paved shared use path between the baseball field and Bumgarner Branch Creek on the campus of Smoky Mountain High School. The trail would traverse an existing access driveway to cross Big Orange Way at an at-grade crossing with high visibility crossing treatments. A concrete sidewalk wider than a traditional 5' sidewalk is proposed on the east side of Big Orange Way. Another high visibility crossing is proposed on Big Orange Way where the road turns to the right. From this second crossing the sidewalk would run on the north side of the road and connect with the existing sidewalk leading to Fairview School.

Alternative A Description

- Paved off road shared use path along between Bumgarner Branch and ballfields
- Transition to a wide concrete sidewalk along Big Orange Way to Fairview School
- Two high visibility at-grade pedestrian crossings on Big Orange Way

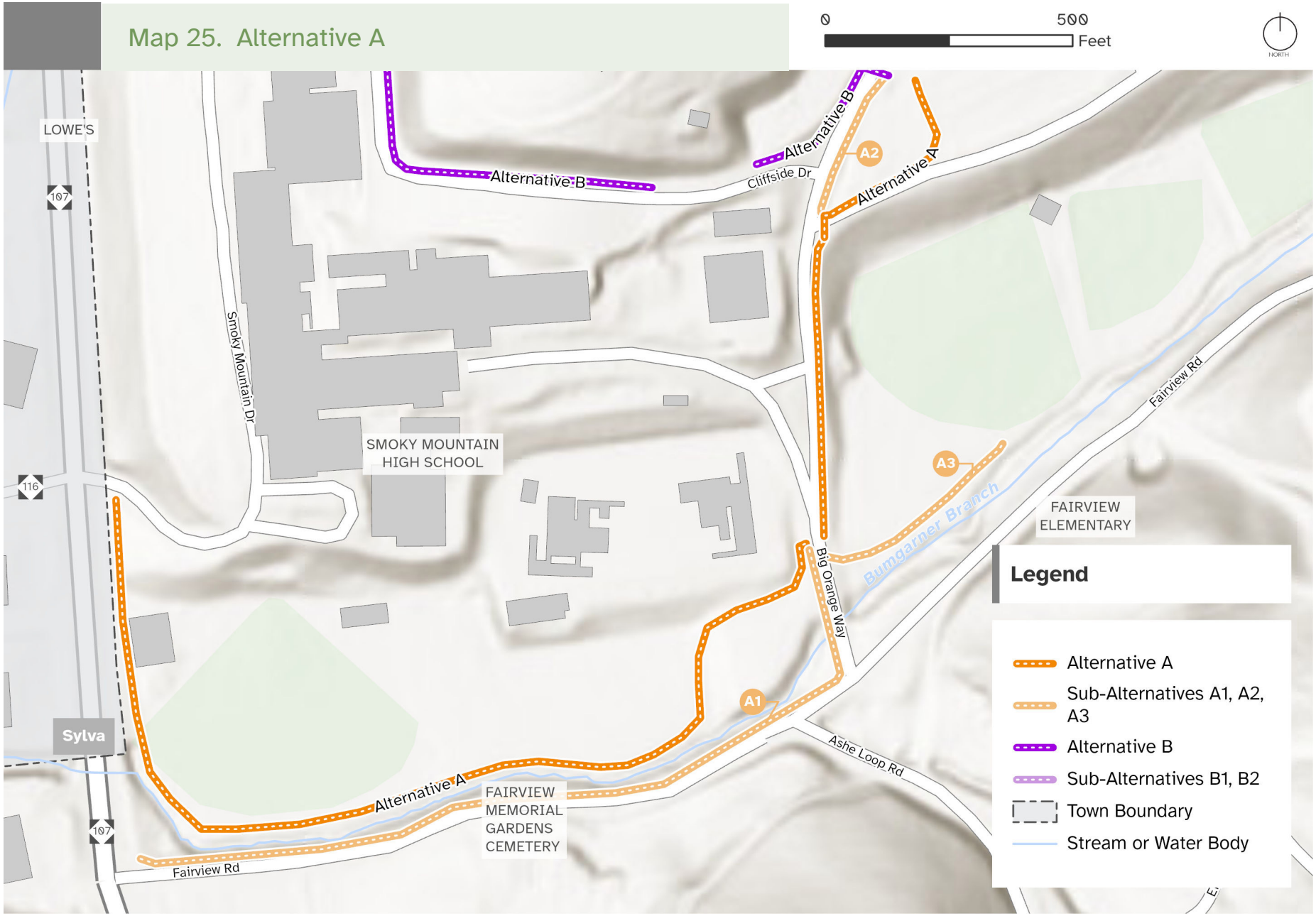
Alternative A Pros

- Provides a path that can be used for bicycling and walking
- Provides an internal connection for high school students within the campus to access fields from the stadium
- Separation from vehicular traffic on the off-road section and with a curb on Big Orange Way
- This route alternative may be eligible for additional funding opportunities for streambank restoration

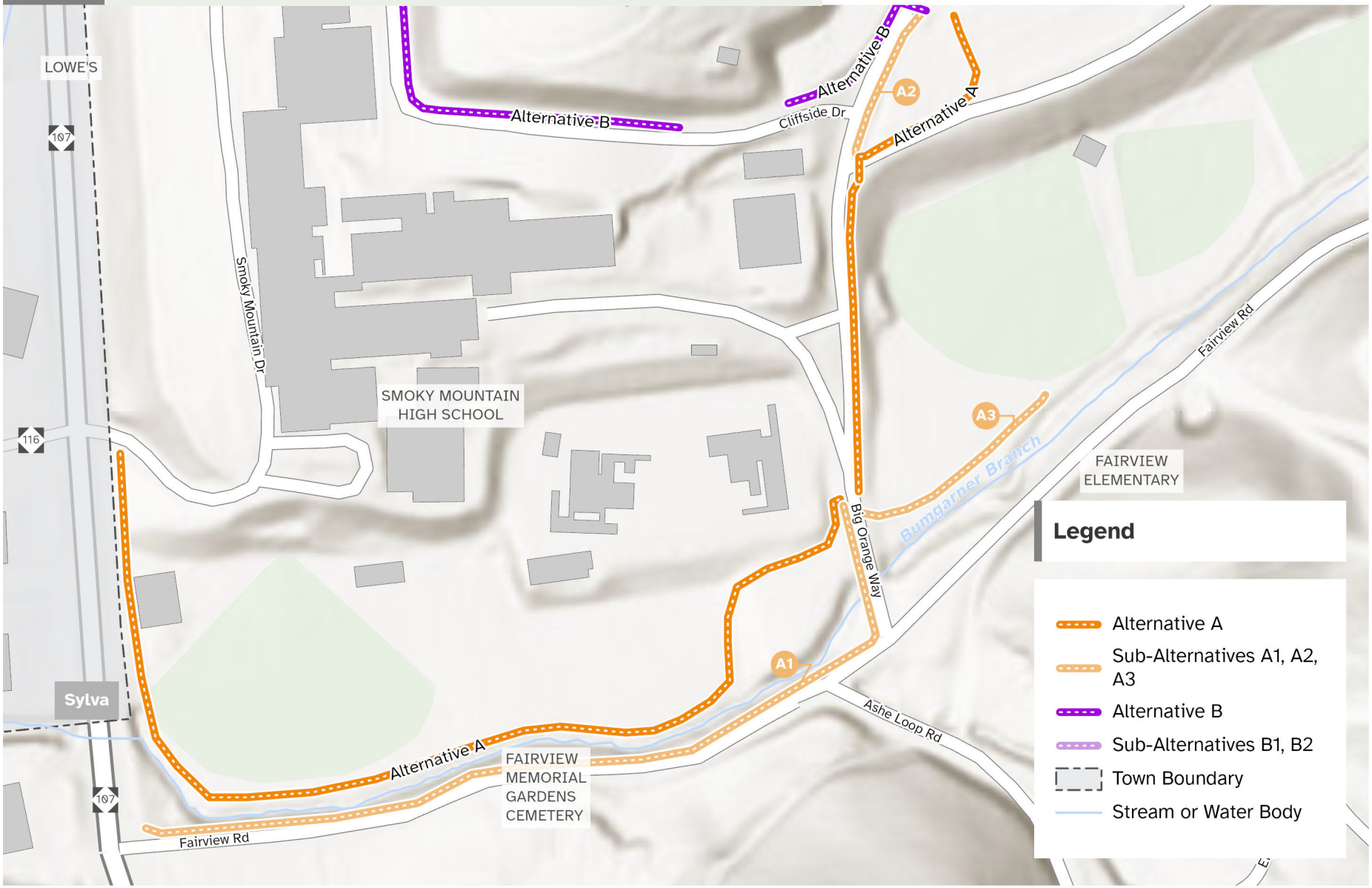
Alternative A Cons

- A fence may be needed between the ballfields and the trail
- Due to steep grades along Big Orange Way, there is not sufficient room for a multi-use sidepath
- The sidewalk on Big Orange Way will require a retaining wall and fencing due to grades to the east of Big Orange Way

Map 25. Alternative A



Map 26. Alternative A



ALTERNATIVE A1

Alternative A1 Description

- Sidewalk on north side of Fairview Road
- Short section of sidewalk on west side of Big Orange Way

Alternative A1 Pros

- Provides pedestrian connection to Big Orange Way from NC 107

Alternative A1 Cons

- Constrained for space due to Bumgarner Branch Creek and would require retaining walls
- High construction cost due to retaining walls and railings needed

ALTERNATIVE A2

Alternative A2 Description

- Sidewalk continues up the east side of Big Orange Way instead of diverting to the right
- Connects with existing sidewalk into Fairview School

Alternative A2 Pros

- Fills a gap in the sidewalk network

Alternative A2 Cons

- Does not follow the likely path that pedestrians would take

ALTERNATIVE A3

Alternative A3 Description

- A spur paved trail along Bumgarner Branch Creek east of Big Orange Way
- Between parking lot and creek

Alternative A3 Pros

- Provides a shared use path to access lower ballfields and outdoor classroom
- Positive user experience

Alternative A3 Cons

- This spur trail would not connect to Fairview Elementary School
- Would remove one parking space from the parking lot

ALTERNATIVE B

Complete Sidewalk Connection on Cliffside Drive to Fairview School

This alternative would connect from the sidewalk along NC 107 at Cliffside Drive and add new sidewalk on the north side of Cliffside Drive until after Smoky Mountain Drive (a higher volume driveway for the High School). A high visibility at-grade pedestrian crossing is proposed on Cliffside Drive, to the east of Smoky Mountain Drive, to connect to both the existing Smoky Mountain Drive sidewalk and also to the continuation of Alternative B. From the crossing, the sidewalk continues up Cliffside Drive (on the south side) to connect with existing sidewalk at the back of the school. From there, another high visibility crosswalk will be added and the sidewalk will continue to Big Orange Way and Fairview School along the north side of Cliffside Drive. This alternative includes a supplemental sidewalk section near Fallen Barn Road to connect the school to parking with a new sidewalk on the east side of Cliffside Drive.

Alternative B Description

- Sidewalk from NC 107 on north side of Cliffside Drive until Smoky Mountain Drive
- High visibility crossing with flashing warning devices on Cliffside Drive east of Smoky Mountain Drive to connect with sidewalk to Smoky Mountain High School
- Sidewalk on the south side of Cliffside Drive to connect with existing sidewalk
- Additional sidewalk section north of the intersection of Cliffside Drive and Big Orange Way
- High visibility crossing to connect with existing sidewalks at Fairview School
- Supplemental new section of sidewalk on east side of Cliffside Drive to connect parking area near Fallen Barn Road to existing sidewalks

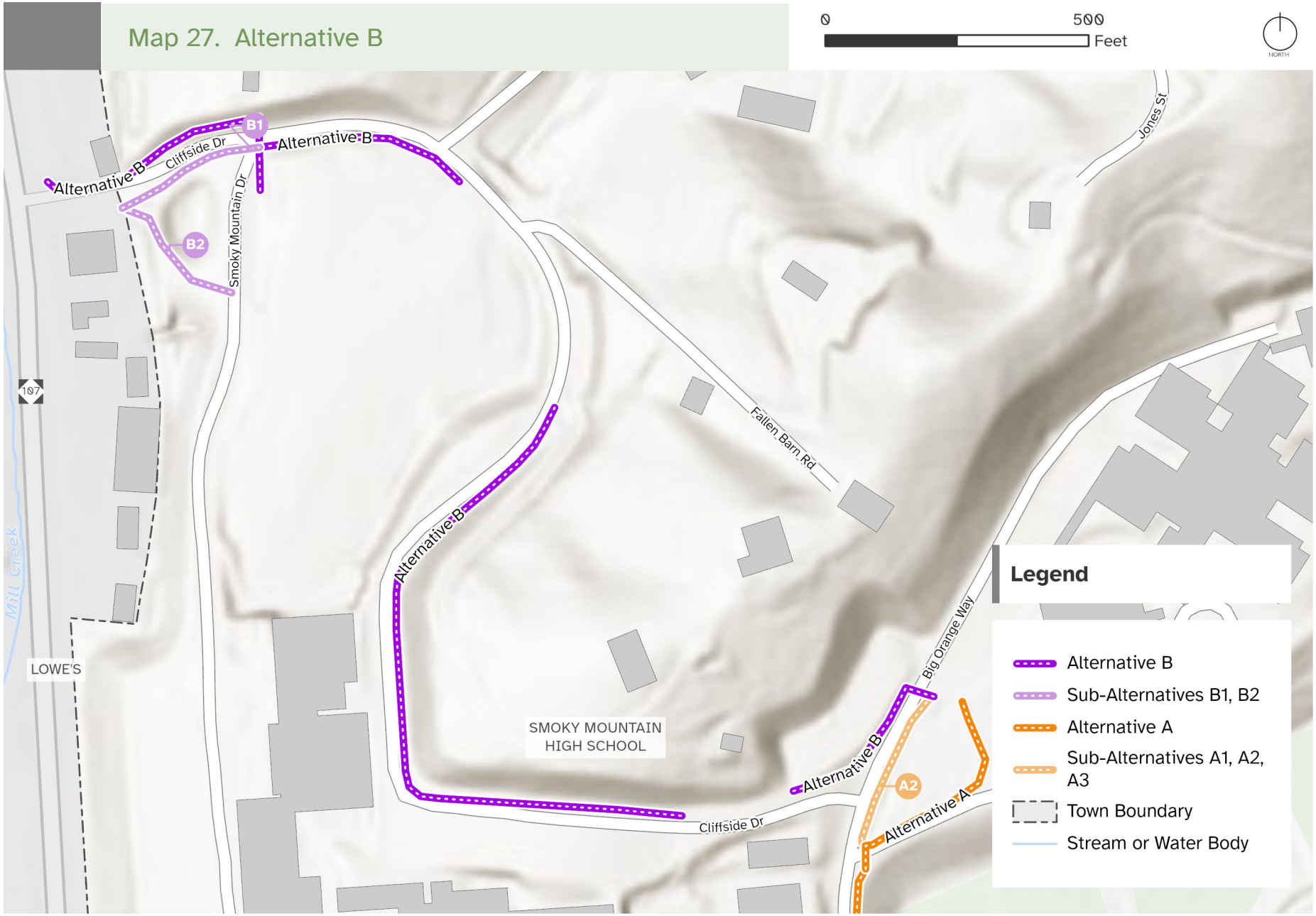
Alternative B Pros

- Completes sidewalk connections to Smoky Mountain High School and Fairview School
- Provides high visibility crossings at intersections and avoids conflicts with traffic leaving Smoky Mountain High School
- Provides separation from vehicles with sidewalk and curb

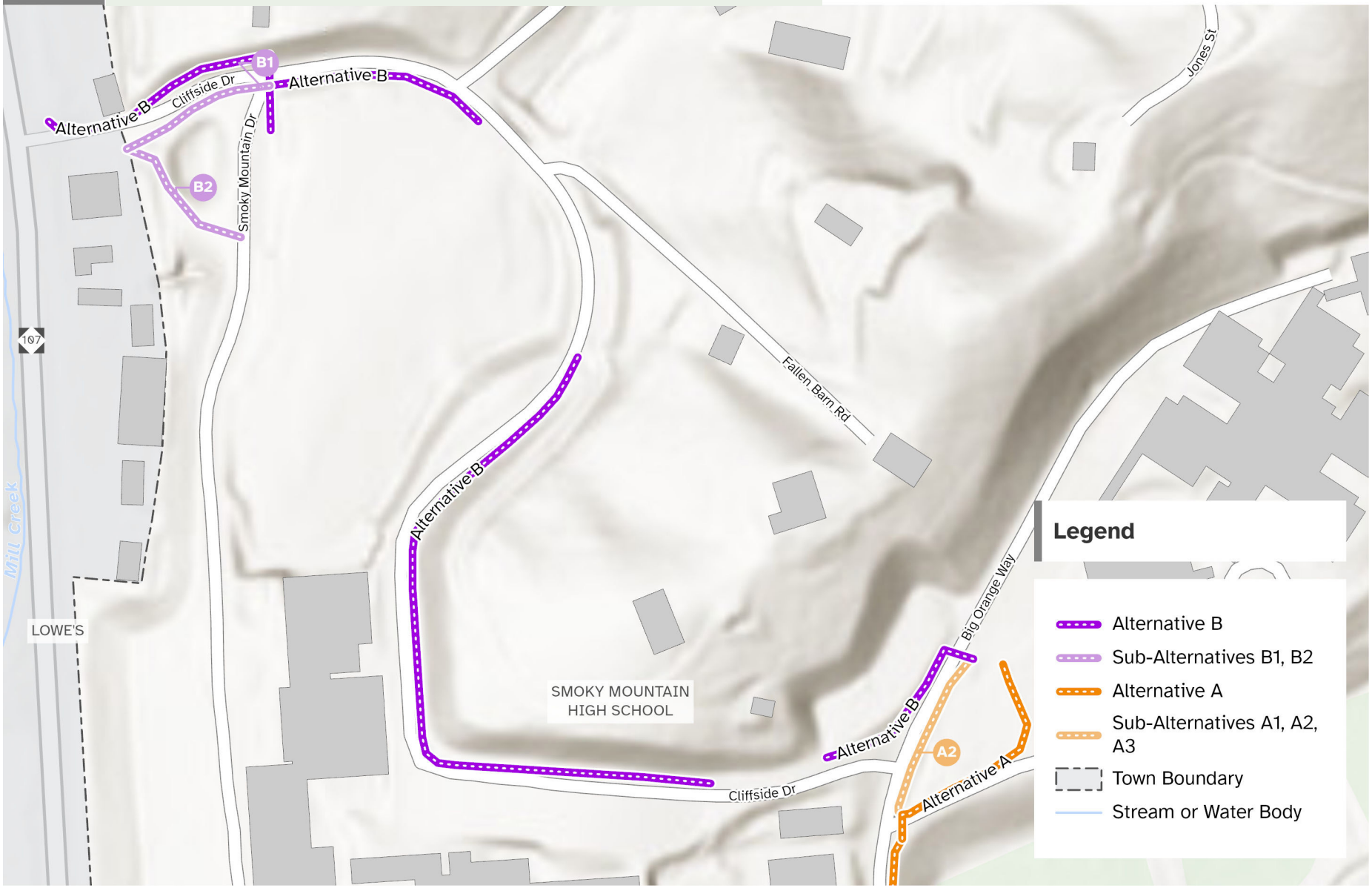
Alternative B Cons

- Accommodates pedestrians, but not those bicycling to school
- Due to topography, the sidewalks proposed are limited to a width of 5’ with no grass buffer to separate pedestrians from traffic

Map 27. Alternative B



Map 28. Alternative B



ALTERNATIVE B1

Alternative B1 Description

- Sidewalk on south side of Cliffside Drive to Smoky Mountain Drive
- Crossing at Smoky Mountain Drive where school traffic enters and exists.

Alternative B1 Pros

- Provides sidewalk to existing sidewalk for Smoky Mountain High School

Alternative B1 Cons

- Crossing would be on Smoky Mountain Drive which has high volume of vehicle traffic turning into and out of Smoky Mountain Drive before and after school
- Constrained area between Cliffside Drive and detention basin

ALTERNATIVE B2

Alternative B2 Description

- Shared use path from NC 107 at Cliffside Drive to Smoky Mountain Drive
- South of the detention basin to connect with sidewalks to Smoky Mountain High School

Alternative B2 Pros

- Would provide a walking and bicycling connection from NC 107 to high school campus

Alternative B2 Cons

- Would require crossing Smoky Mountain Drive which has high vehicle traffic volume before and after school
- Does not provide a connection to Fairview School

EVALUATION CRITERIA

By considering all possible segments that could comprise a pedestrian connection to Fairview School, the project team could then determined the preferred route alternatives. To arrive at those preferred alternatives, a prioritization strategy was necessary. Evaluation criteria aid this decision-making process by assigning a value to each criteria and route alternative. The evaluation criteria considered for the school connectors include those in **Table 2 - Evaluation Criteria**.

Table 2. Evaluation Criteria

FAIRVIEW SCHOOL CONNECTOR EVALUATION CRITERIA	
	**DIRECTNESS OF CONNECTION** Based on a comparison of alternatives, how direct is this route for users to get from NC 107 to Fairvew School?
	**ABILITY TO ACQUIRE ENVIRONMENTAL PERMITS** Based on known natural and human environmental impacts (e.g. flood zones), how likely is it that this option can be permitted?
	**QUALITY OF USER EXPERIENCE** What level of user experience does this route alternative provide (e.g. visual surroundings, separation from hazards, personal safety, connection to nature and topography (accessible grades))?
	**AVAILABILITY OF RIGHT-OF-WAY/ANTICIPATED PROPERTY OWNER COOPERATION** To what degree is right-of-way available or held by cooperative property owners?
	**SECONDARY BENEFITS** Beyond the primary project goal, how well does this project provide opportunity for secondary benefits such as access to underserved populations (equity), economic development, secondary connections to community resources, sense of place, etc.?
	**SEPARATION FROM MOTORIZED TRAFFIC CONFLICTS** How well does this alternative separate users from motorized traffic conflicts to provide more comfort and to limit traffic impacts?

FAIRVIEW SCHOOL CONNECTOR EVALUATION CRITERIA	
	**ABILITY TO CONSTRUCT** Based on an investigation of physical obstacles and constraints (e.g. roads, utilities, topography, buildings, waterways, etc.), how likely is it that this alternative can be built?
	**ALIGNMENT WITH COMMUNITY GOALS** Based on community leadership, public feedback, adopted planning efforts and stated local goals and objectives, what is the anticipated level of community support for this alternative?
	**COST EFFECTIVENESS** Based on a comparison of alternatives, what is the cost effectiveness of this alternative?
	**POTENTIAL FOR FUNDING** Compared to other route alternatives how likely is this route to qualify for known grant and funding opportunities?
	**POTENTIAL FOR TIMELY IMPLEMENTATION** How likely will this project be able to be funded, designed, permitted, and constructed as compared to other alternatives?

DECISION MATRIX & SCORING

The project team developed a systematic scoring methodology to assist in identifying preferred route alternatives that will contribute to the overall goals of the project. Based on a comparison of alternatives, the two primary alternatives (and their four sub-alternatives) were assigned the following qualitative ranking based on how it meets the criteria:

1 – Below Average

2 – Average

3 – Above Average

4 – Highest

The outcome of this scoring is illustrated phase 1 and phase 2 of **Table 3 - Evaluation Criteria Scoring**.

After the phase 1 ranking was completed, the route alternatives were presented to the committee. The phase 1 highest ranked route alternatives were also advanced for additional evaluations and cost estimating. After this additional information was developed, the second phase of scoring was applied to the projects.

Also of note is that Alternative A3 was not ranked. As a spur trail, it is not central to the goals of this project. However, the connection is one that may be explored as future funding and opportunities arise.

Table 3. Evaluation Criteria Scoring

CRITERIA	ALTERNATIVE/SCORE						
	ALT A	ALT A1	ALT A2	ALT A3	ALT B	ALT B1	ALT B2
Directness of connection (both schools)	3	3	2		4	4	1
Ability to acquire environmental permits	3	3	3		4	4	3
Quality of user experience	4	2	4		3	2	4
Availability of right-of-way *(anticipated property owner cooperation)*	3	4	3	SPUR NOT RANKED	4	4	4
Secondary benefits	4	2	4		3	3	2
Separation from motorized vehicle conflicts	4	2	4		3	1	3
Phase 1 SUBTOTAL	**21**	**16**	**20**		**21**	**18**	**17**
Ability to construct	4	3	4		4	3	3
Alignment with community goals	4	2	2		4	3	1
Cost effectiveness	4	1	4		4	4	4
Potential for funding	3	2	2		2	2	2
Potential for timely implementation	4	2	4		4	4	4
Phase 2 SUBTOTAL	**19**	**10**	**17**		**18**	**16**	**14**
TOTAL	**40**	**26**	**37**	**--**	**39**	**34**	**31**

RECOMMENDATIONS

Table 3 suggests that there are two high scoring alternatives to connect to Fairview School: Alternative A and B, with total scores of 40 and 39, respectively. Both route alternatives ranked the highest (a value of 4) for constructability, alignment with community goals, cost effectiveness, and potential for timely implementation. Alternative A ranked the highest for quality of user experience, as possessing secondary benefits, and given the separation from motor vehicles. Alternative B ranked the highest for directness, ability to acquire environmental permits, and availability of right-of-way. This suggests that while Alternative A provides a superior user experience, Alternative B can likely move through design more quickly.

Given the high scores of both projects and how each provides a benefit that is unique from the other, both alternatives are recommended as a part of this study. Chapter 5 presents a phasing strategy that will enable both to be implemented as funding becomes available. Individually, Alternative A or B would provide a much-needed pedestrian connection to Fairview School; together, Alternative A and B will create a more comprehensive network for people walking and biking.

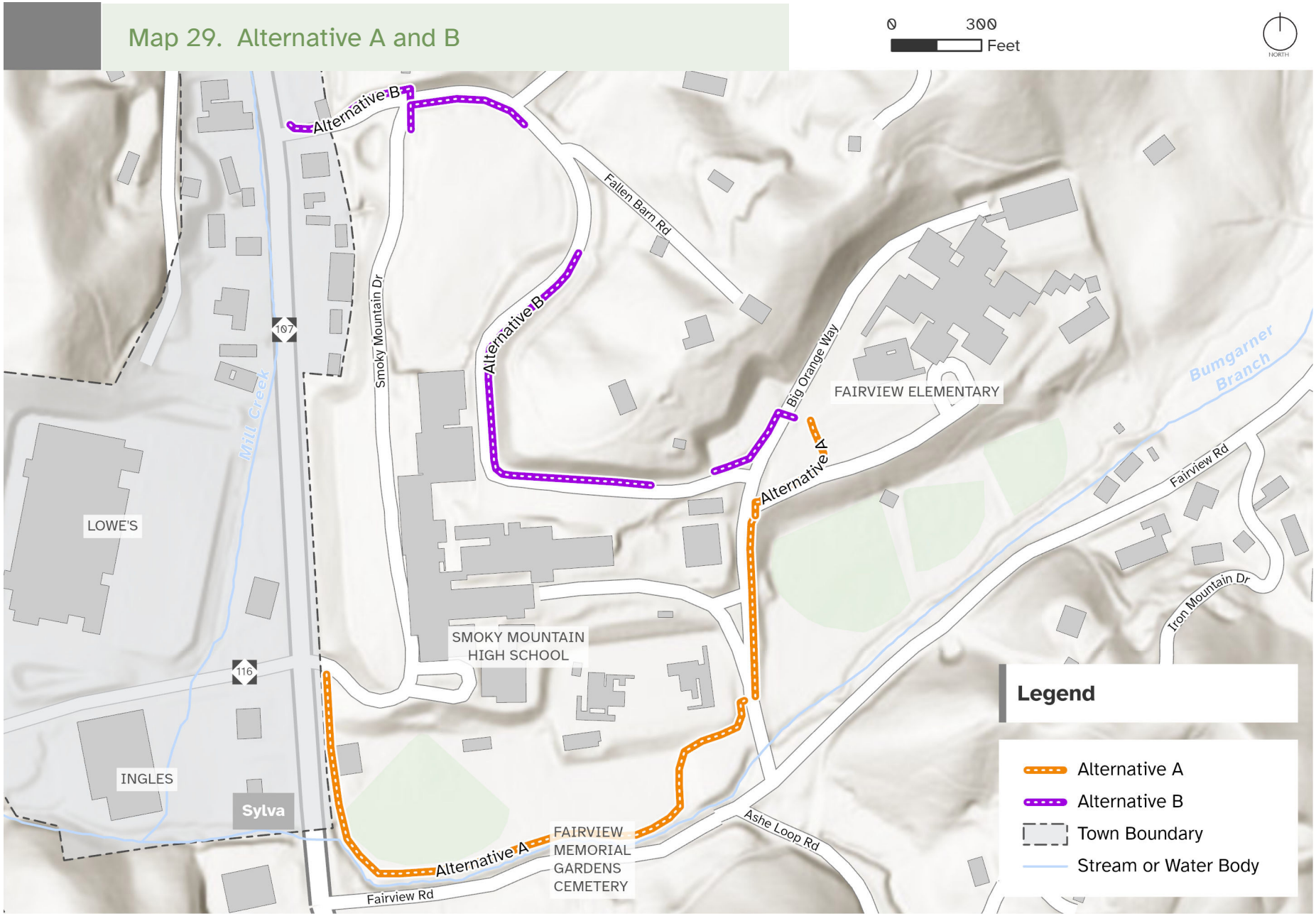
Conceptual Designs

In the following pages, typical cross-sections, renderings, and concept designs illustrated on aerial imagery describe the shared use path and sidewalk connections of route alternative A and B. These include various design considerations for the connections.

Table 4. Evaluation Criteria Scoring (Top Scoring Alternatives)

CRITERIA	ALTERNATIVE/ SCORE	
	ALT A	ALT B
Directness of connection (both schools)	3	4
Ability to acquire environmental permits	3	4
Quality of user experience	4	3
Availability of right-of-way *(anticipated property owner cooperation)*	3	4
Secondary benefits	4	3
Separation from motorized vehicle conflicts	4	3
Ability to construct	4	4
Alignment with community goals	4	4
Cost effectiveness	4	4
Potential for funding	3	2
Potential for timely implementation	4	4
TOTAL	**40**	**39**

Map 29. Alternative A and B



Typical Cross-Section

ALT A

One segment of Alternative A is a paved shared use path at the edge of the ballfields along Bumgarner Branch Creek. The typical cross-section is recommended as 10’ wide asphalt paved shared use path. The AASHTO Guide for the Development of Bicycle facilities will be followed for detailed design criteria such as unpaved grass shoulders and guidance for railings where there are drop off locations (such as next to the stream).

Image 22. Bumgarner Branch Creek Shared Use Path Cross-Section

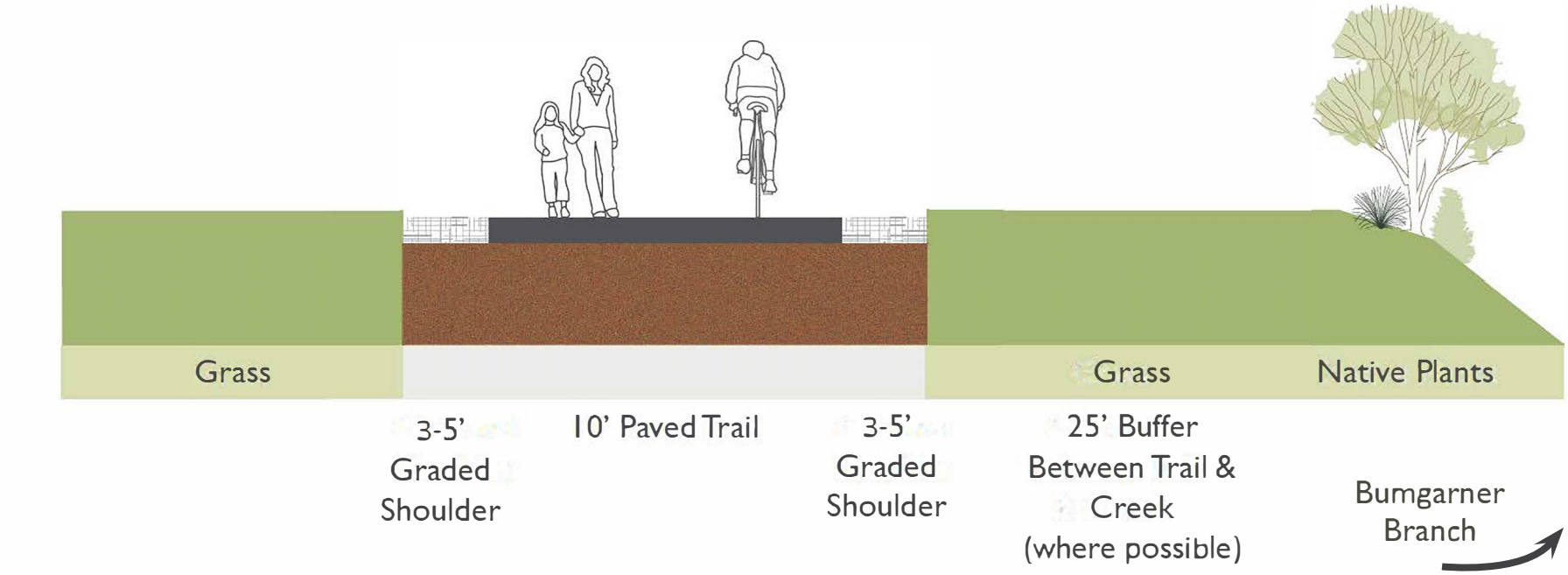


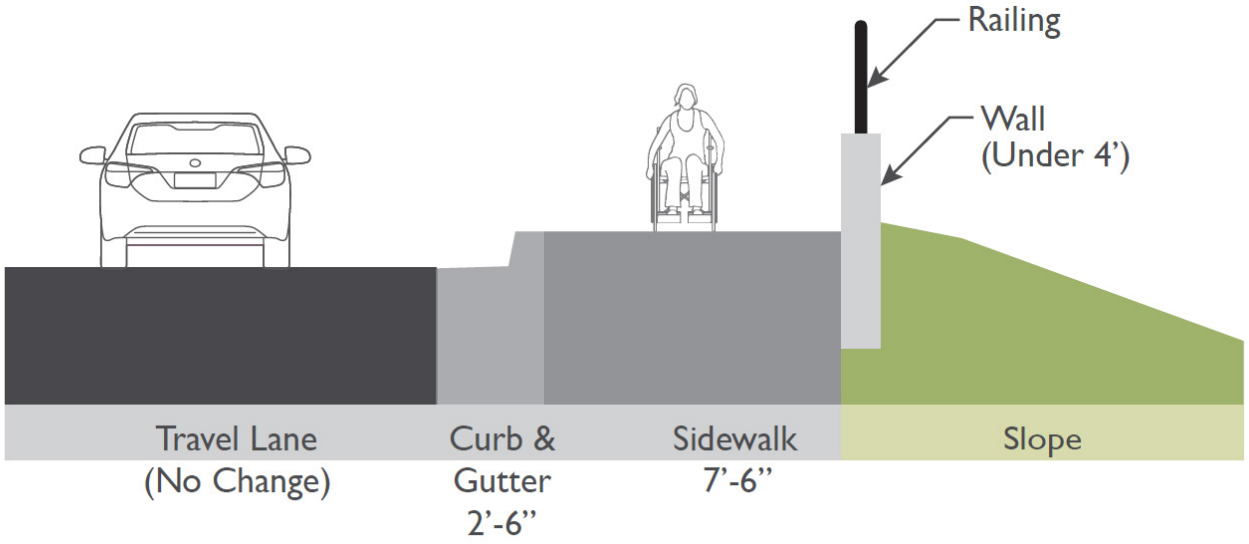
Image 23. Bumgarner Branch Creek Greenway Rendering

Typical Cross-Section

ALT A

One segment of Alternative A is a sidewalk along Big Orange Way. The typical cross-section is recommended as a 7.5’ wide sidewalk with curb and gutter. Given the steep slopes, this cross section also requires a retaining wall and pedestrian railing.

Image 24. Big Orange Way Sidewalk Cross-Section



A short retaining wall (less than 4’) will be required on the slope side with a railing.

Image 25. Big Orange Way Sidewalk Rendering

Typical Cross-Section

ALT B

Alternative B is a standard sidewalk with curb and gutter adjacent to Cliffside Drive. Except in a few locations, the sidewalk will be adjacent to the roadway as the slope prevents the sidewalk from being setback from the road. This is illustrated in the following typical cross-section.

Image 26. Cliffside Drive Cross-Section

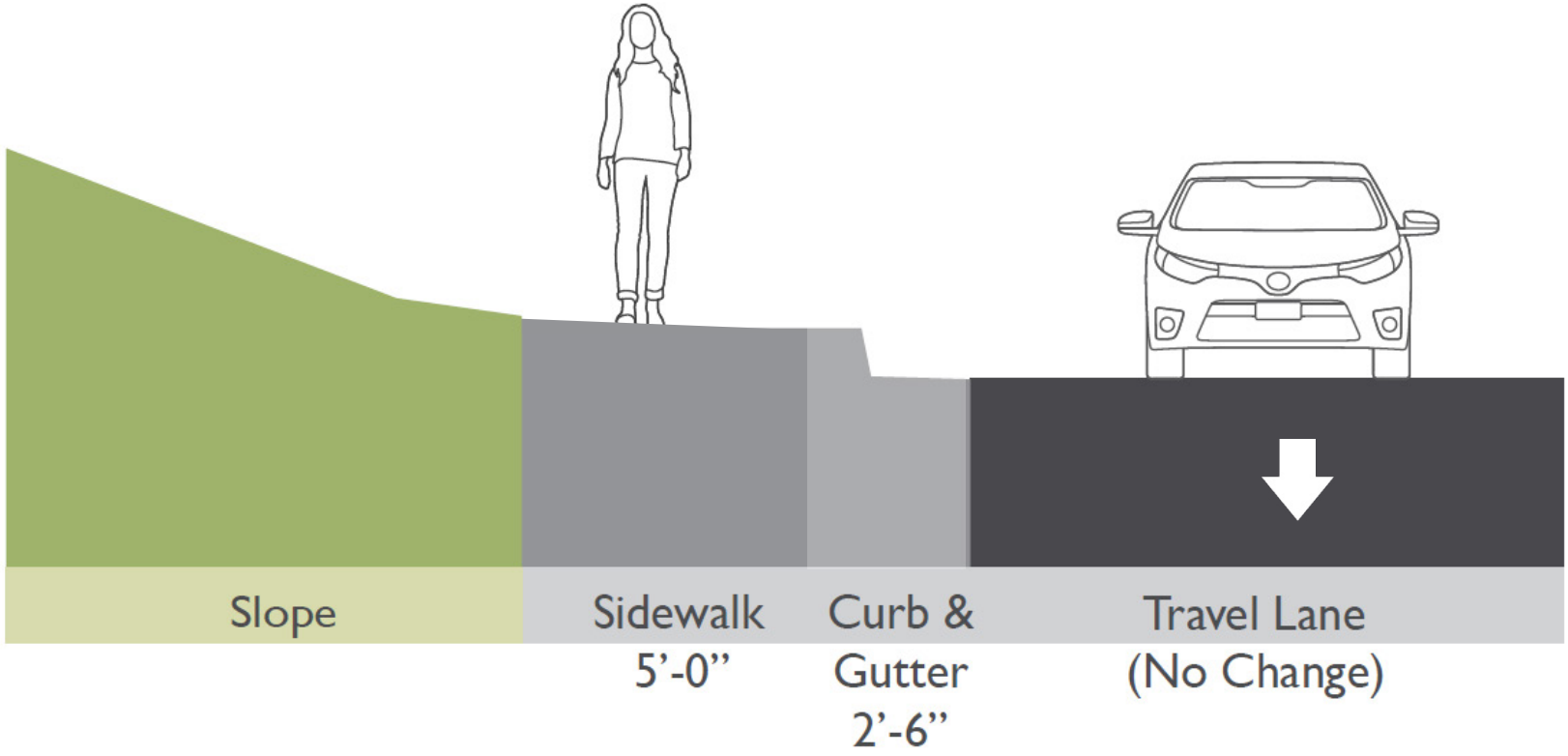


Image 27. Pedestrian Connection Concept Plan (Cliffside Drive & Smoky Mountain Drive)

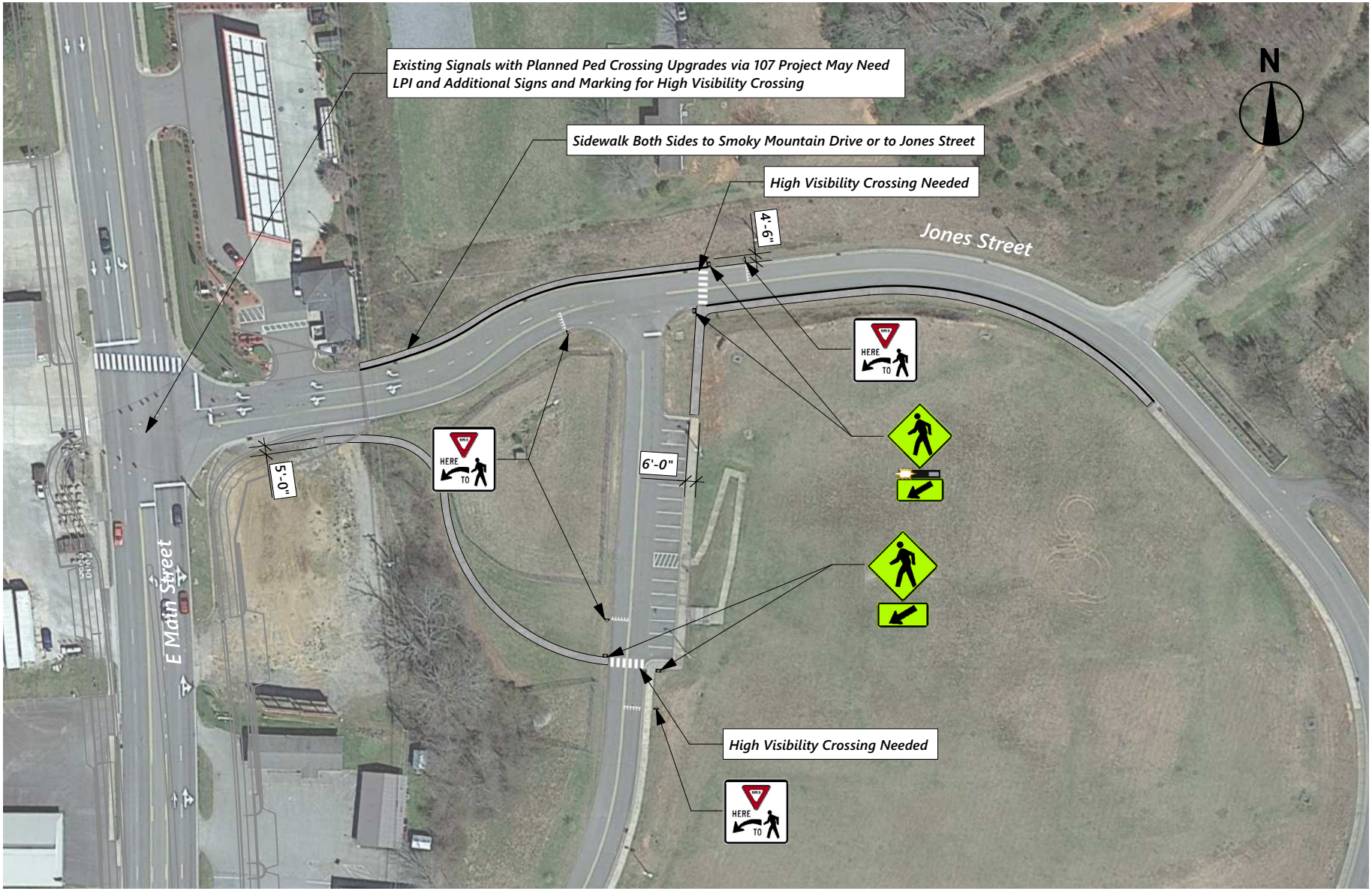


Image 28. Pedestrian Connection Concept Plan (Cliffside Drive)

Image 29. Pedestrian Connection Concept Plan (Cliffside Drive at Big Orange Way)

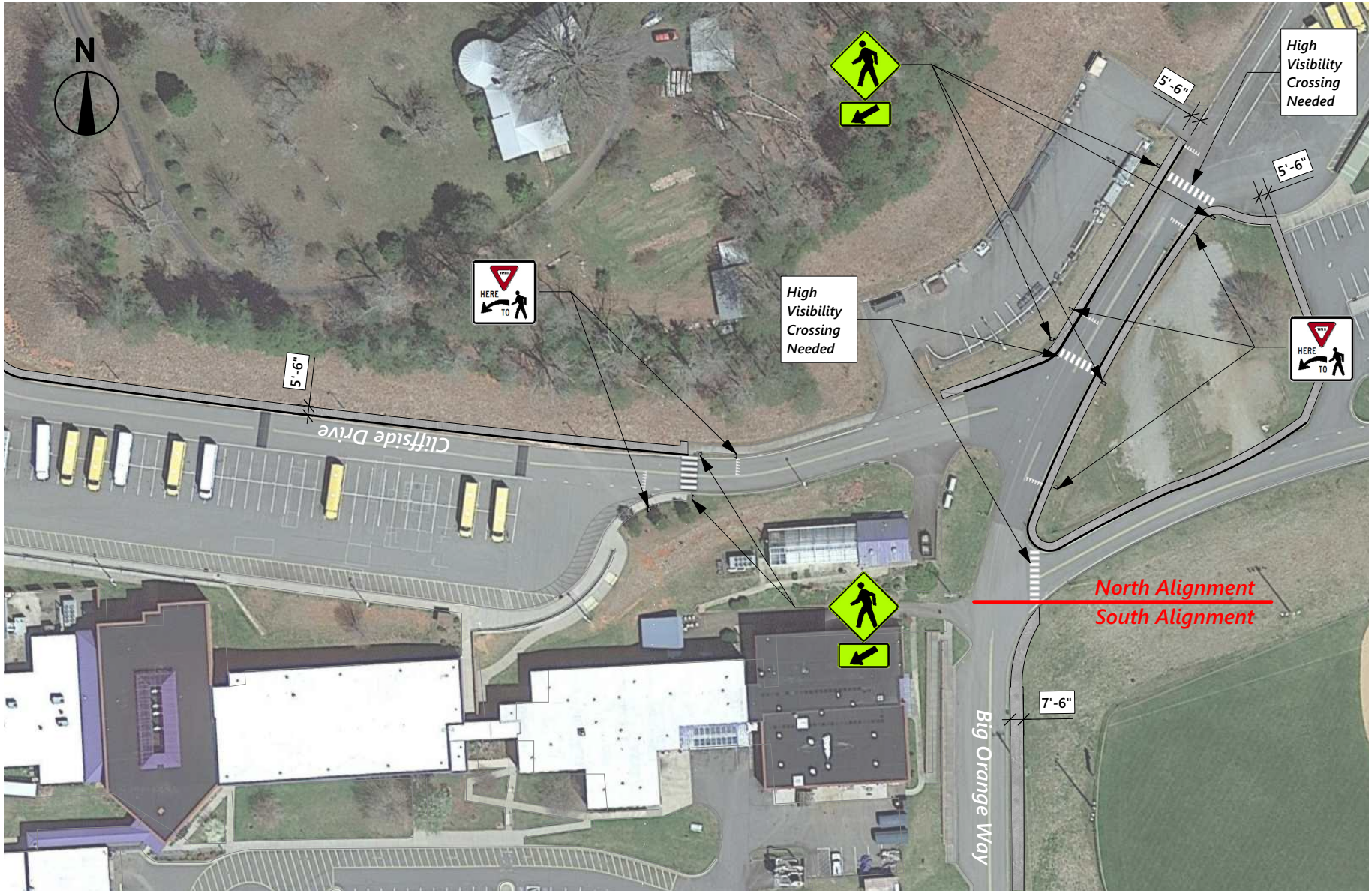


Image 30. Pedestrian Connection Concept Plan (Paved Trail)

Image 31. Bumgarner Branch Creek Shared Use Path Concept Plan

MATERIALS SELECTION

Considerations for materials selection in pedestrian projects include facility type uses, user demographics, environmental factors, cost, maintenance, and funding requirements. Options for surfaces include:

Paved Surfaces

For paved surfaces, asphalt and concrete are common options. Asphalt is popular due to its cost-effectiveness and suitability for various trail types. On the other hand, concrete offers greater durability but comes with a higher initial cost. Concrete surfaces are often preferred for urban settings or areas prone to heavy flooding, where resilience to a lot of use and water damage is essential.

Natural Surfaces

Natural surface options include compacted aggregates and compacted native soil. Compacted aggregates, typically using granite fines, offer a durable and affordable alternative to paved trails. However, proper compaction and drainage management are crucial to prevent erosion and maintain accessibility. Compacted native soil is another economical choice but requires careful compaction and drainage control to maintain trail integrity and accessibility requirements. Both options necessitate annual maintenance, including re-compaction and potential soil additions in erosion-prone areas.

Image 32. Asphalt Trail Example

Source: Martin Johnson

Image 33. Concrete Trail Example

Source: High Line Network

Image 34. Aggregate Trail Example

Source: Vermont Rail Trails

Image 35. Native Soil Trail Example

Source: Green Circle Trail

Retaining Wall Considerations

Retaining wall design offers a multitude of approaches and a variety of retaining systems, each tailored for specific applications in soil retention and slope stability. It is crucial to comprehend the intricacies of each design approach, including construction methods and the conditions under which they are used. This understanding is vital for achieving successful and cost-efficient design and construction outcomes.

Streambank Stabilization

Streambanks naturally erode and re-align over time, adjusting to changing conditions within the channel and its watershed. Due to development along a corridor, the stream can no longer access its floodplain and becomes incised with near vertical banks. Lack of adequate vegetation and roots to hold the soil in place makes erosion worse over time. This can be seen clearly along Bumgarner Branch Creek in the study area. Increasing paved areas or removing vegetative ground cover in the watershed will reduce the infiltration of rainfall and cause more runoff from the land. This leads to higher stream flows with an increased capacity to scour streambeds and undercut streambanks.

Alternative A is proposed to run parallel to Bumgarner Branch Creek in an area where erosion is observed. Construction of the trail will necessitate stream bank stabilization. Repair and restoration projects can help stabilize the banks and mitigate the severity of erosion, creating a healthier and more sustainable vegetative buffer and stream. A streambank planted with native shrubs and trees will not only protect the health of the stream, but will also help prevent further erosion and protect investments in trails and athletic fields. A plan to stabilize the streambank needs to be considered with plans to provide any new infrastructure in this area. Generally, there are four approaches to streambank protection, including the use of vegetation, soil bioengineering, the use of rock work in conjunction with plants, and conventional bank armoring.

Image 36. Retaining Wall Example

Source: HM Distribution

Image 37. Erosion along Bumgarner Branch Creek

Source: TPD

Pedestrian Crossing Design

As outlined in the introduction of this Plan, pedestrians bear a disproportionate impact from traffic accidents. Their potential exposure to such risks occurs notably at intersections and crossings where pedestrian movements intersect with motor vehicle paths. The concept designs here offer several crossing treatments that may be considered for the Fairview School connector. These include the following:

To foster an inclusive community accommodating various transportation modes, infrastructure should prioritize safety not only along corridors but also at sites where pedestrians interact with street crossings, trails, and access points such as driveways.

Note that the images used in the description of these treatments are from across the United States and specific design details vary from those used by NCDOT.

At the state and national level, many advances have been made in developing guidance and standards for pedestrian safety. The following resources represent some of the best practices and should be considered in the planning and design of pedestrian facilities for the Fairview School connector.

Source: Portland Bureau of Transportation

Crosswalks

Designated areas where pedestrians have the legal right to cross the street. These crossings can be found at intersections or mid-block locations. They may feature accompanying signage, pavement markings, and traffic control measures such as stop signs, traffic lights, or flashing devices.

Source: City of San Francisco

Curb Ramps

Sloped surfaces that facilitate the transition between the sidewalk and the street. When designed in compliance with ADA regulations, ramps enable individuals using mobility devices to easily access and leave the sidewalk curbs.

Source: New York Post; Maricopa Association of Governments

Pedestrian Signal Heads & Push Buttons

Installed at signalized intersections, these allow pedestrians to activate the walk/don't walk pedestrian signal, indicating whether it is safe to cross the street. A countdown timer is helpful for people to gauge remaining time to cross.

Source: City of Long Beach

Leading Pedestrian Intervals

A traffic signal feature that affords pedestrians the chance to step into the crosswalk at an intersection 3-7 seconds prior to vehicles receiving a green light indication. This enables pedestrians to establish their presence in the crosswalk before vehicles are granted priority to make right or left turns.

Source: FHWA

Rectangular Rapid Flash Beacons (RRFB)

Pedestrian visibility enhancement at a midblock crossing that accompanies a pedestrian warning sign and consists of two, rectangular-shaped yellow indicators each with an LED light that flash with an alternating high frequency.

North Carolina Pedestrian Crossing Guidelines (2018) provides guidance on when to consider marking crosswalks at uncontrolled approaches for pedestrians, when to install pedestrian signal heads at existing signalized intersections and when to provide supplemental treatments at a crossing location. More information can be found **HERE**.

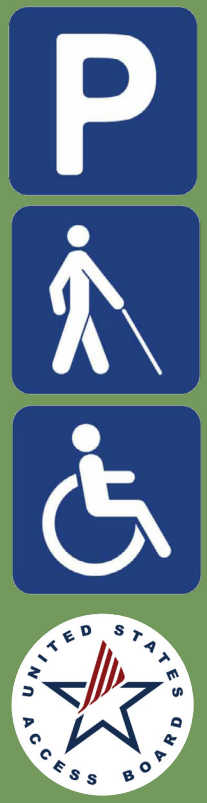
FHWA's Proven Safety Countermeasures Initiative is the culmination of over 15 years of safety work available in an online tool that can be used to address a variety of areas that impact pedestrian crossing safety including:

- Crosswalk visibility enhancements and lighting
- Leading pedestrian intervals
- Medians and pedestrian refuge islands
- Rectangular Rapid Flashing Beacons (RRFBs)
- Pedestrian Hybrid Beacons (PHBs)

More information can be found **HERE.**

FHWA's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations provides crossing guidance for uncontrolled crossings to help local and state agencies "address significant national safety problems and improve quality of life for pedestrians of all ages and abilities." The guide includes a process for evaluating crossings and determining appropriate countermeasures for specific crossing conditions based on engineering which includes data collection, site condition analysis and crash history review. More information can be found **HERE.**

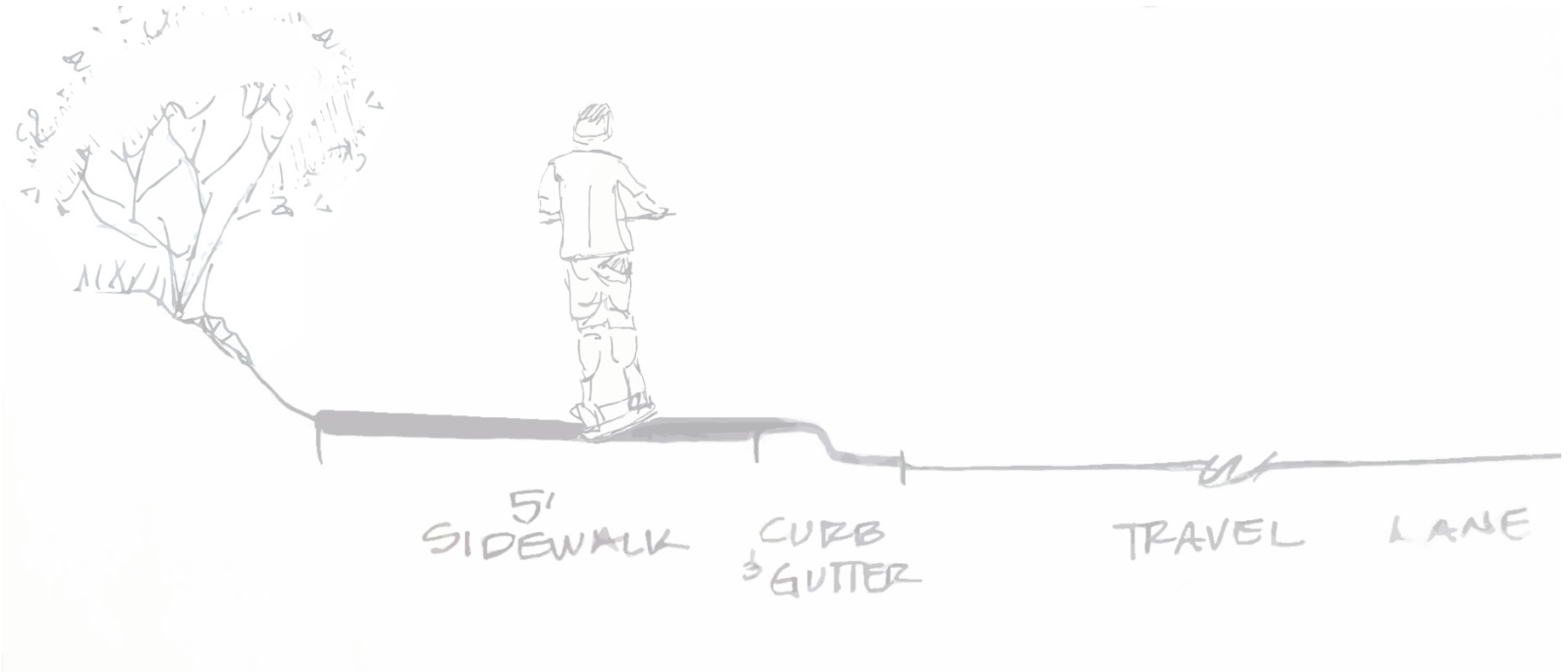
FHWA's Improving Visibility at Trail Crossings presents a systemic approach to reviewing existing crossings or planning for improved at-grade trail crossings with engineering countermeasures, such as enhanced signs and traffic controls. More information can be found **HERE.**



What is the ADA?

The Americans with Disabilities Act (ADA) is a federal civil rights law that prohibits discrimination and enables people with disabilities to participate fully in all aspects of society. The ADA requires that people with disabilities have and equal opportunity in employment, access to local and state government programs and services, access to businesses that serve the public, accessible telecommunications, and accessible transportation.

On August 8, 2023, the U.S. Access Board issued a final rule on accessibility guidelines for pedestrian facilities in the public right-of-way (PROWAG). These guidelines inform federal, state, and local government agencies on how to make their pedestrian facilities, such as sidewalks, crosswalks, shared use paths, and on-street parking, accessible to people with disabilities.



05 Implementation

Source: Jackie Moore, Safe Routes to Schoo

OVERVIEW

The findings presented in this report offer an implementation plan for multimodal investments that will connect NC 107 with Fairview School and Smoky Mountain High School, providing an important connection between residential neighborhoods, municipalities, and businesses with the school campus. This chapter presents project cutsheets, which provide a project snapshot and enable the County and its partners to advance these projects. The cutsheets are standalone features that provide route alternative descriptions, phasing options, cross-sections, maps, visual representations, and planning-level cost estimates. Also essential to project advancement are key local and regional partnerships, which are outlined in this chapter. Finally, this chapter contains an action plan, delineating tasks, designating lead agencies and primary partners, establishing an implementation timeline, and defining metrics for gauging success.

PHASING STRATEGIES

In developing an implementation and phasing plan, certain factors are reviewed that may impact the timing of project implementation. During this analysis, we often split projects into phases based on the following factors:

- Availability of right-of-way and property ownership.
- Permitting challenges including NCDOT coordination, flood impacts, environmental impacts etc.
- Project Need. For example, segments with known safety and crash history or key network gaps may be prioritized for safety.
- Project cost.
- Potential funding and matching funds.
- Project partnerships.

However, phasing and prioritization strategies are relatively simple for this project. Since there are two recommended alternatives (Alternative A and B) that serve different connections yet work together for a more complete pedestrian network, phasing is largely a matter of timing for funding availability. The alternatives can move forward together or each as a stand-alone project. The order of implementation is not critical. This allows for an implementation plan that is nimble and can be modified based on opportunities for funding and partnerships.

As an example, if the high school moves forward with improvements to their campus. Alternative A could be implemented in conjunction with any ball field modifications. This presents an opportunity to merge the projects to coordinate the design efforts and to utilize school efforts as a possible match for other grants or funding opportunities as well as save costs during design and construction. This may also open opportunities for streambank stabilization funding that could supplement partner efforts.

Alternatively, if an opportunity for sidewalk funding on local streets becomes available, Alternative B could advance first.

Note that the lower ranked Alternative A1 remains as a possible implementation project. It would provide a sidewalk connection within the public road right-of-way along Fairview Road in the event that the road is widened or modernized by NCDOT. As such, a cutsheet has also been included for this option as well.

PREFERRED ALTERNATIVE CUTSHEETS

In order to evaluate phasing strategies, project cutsheets were developed for both Alternative A and B. These cutsheets, presented on the following pages, include implementation details such as:

- Project map and description of improvements
- Right-of-way availability and property acquisition needs
- Permitting needs
- Cost estimates for survey, design and construction

Explanation of Cost Estimate Items

The project costs presented on the cutsheet pages are described as follows:

Baseline Construction

This value reflects an opinion of the probable cost for a contractor to construct the described improvements during the current calendar year and is based on recent bid prices for similar projects. These detailed estimates for various project elements are included in Appendix E.

Survey / Design Services

This value reflects an opinion of the cost for consulting firms to obtain survey, design the project for permitting and approvals and to provide construction documents to be used in bidding the project for construction. Note that various funding sources can impact the necessary approvals, design formats/standards and permitting requirements. In addition, certain environmental items that can be found during preliminary design, can escalate costs. As such, this cost should be revisited as funding is identified. In addition, we recommend completion of design work in stages with an evaluation of project cost and permitting needs to be revisited after preliminary design.

Right-Of-Way (ROW) Acquisition

Many projects have impacts on properties that are outside of the public right-of-way (ROW). Before construction can begin, there are various ROW tasks that must be completed. These range from purchasing property to obtaining permanent or temporary easements for the facility and related construction impacts. Depending on the type of ROW task, there is a cost associated with property purchase and/or easements as well as the cost for legal work and right-of-way survey and exhibits. If federal transportation funds are utilized for the project, the ROW negotiations must be in line with the Federal Relocation Assistance and Real Property Acquisition Policies Act of 1970 (aka Uniform Act). Accurate ROW costs require current market research, appraisals and have varying factors; as such, a special right-of-way firm may need to be hired to navigate the process.

Any ROW costs should be calculated at a later date after additional investigation, as individual segments of the preferred route move into design and implementation. The cost estimates for this project did not include ROW costs given that the project will be primarily on public ROW or within the school site.

Escalated Construction

The baseline construction estimate is based on current year costs. Given that it will take time to get a project through funding, ROW, design and permitting stages, there is a need to escalate costs to account for inflation that will occur between now and the estimated year of construction.

Construction Engineering + Inspection Services

Depending on the funding source, varying levels of construction engineering and inspection (CEI) services are expected. CEI services are typically a percentage of the estimated construction cost based on the project size and elements of construction. This study assumes 7.5% for preliminary engineering and another 7.5% for final engineering.

Total Budget Estimates

At the planning level or project cost estimating, there are always detailed items that may be necessary that are unforeseen at the planning stage. As such, a project contingency is assumed to help address these unknown and unforeseen costs. Contingency percentages can vary depending on how advanced the design of the project is and the likelihood of unknowns. At the planning level, a higher contingency is often used to ensure that the project is not underfunded. A 25% contingency was assumed for this project given that no actual design has been completed.

The final budget for the project is based on the sum of the above items. The values were rounded to the nearest dollar to reflect the planning phase* of the project.

**Cost estimates are not based on actual survey and design. As such, these planning level costs should be revisited as the project details and preliminary design investigations are completed.*

ALTERNATIVE A

Shared Use Path to Fairview School

This alternative proposes a paved path connecting the baseball field and Bumgarner Branch Creek at Smoky Mountain High School. It utilizes an existing access driveway to cross Big Orange Way, featuring a wide concrete sidewalk on the east side. A high visibility crossing treatment is planned at this point. Another crossing is proposed as Big Orange Way turns right, leading to a sidewalk on the north side, connecting with the existing sidewalk to Fairview School.

PROJECT SNAPSHOT

Location: Fields of Smoky Mountain High School Campus and Big Orange Way

Facility Type(s): Paved path and sidewalk with curb and gutter

Total Length: 745 linear feet of sidewalk; 1,425 linear feet of paved shared use path

Structures: Low retaining wall on Big Orange Way

At-Grade Road Crossings: One (1) at Big Orange Way

Pedestrian Network Connections: Northern alignment along Cliffside Drive; sidewalk on NC 107

Destinations Served:

- Fairview School
- Smoky Mountain High School

POTENTIAL REAL ESTATE ACQUISITION NEEDS

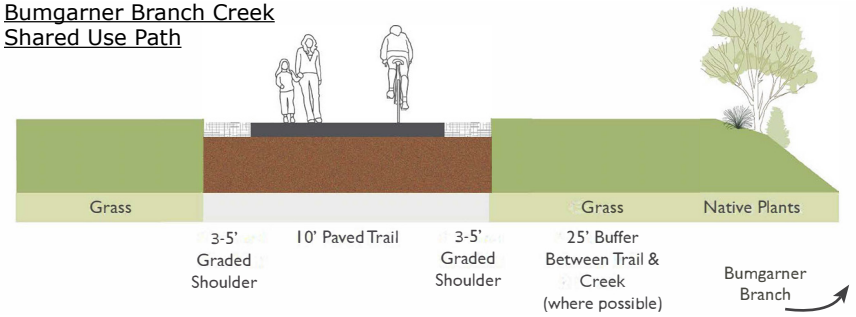
- None

POTENTIAL PERMITTING NEEDS

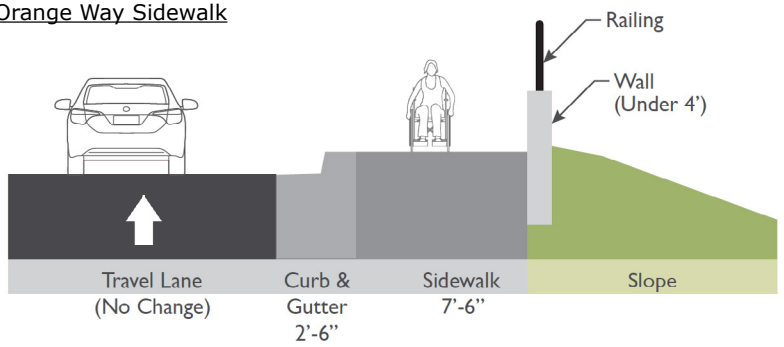
- Erosion and sedimentation control permit
- County floodplain development permit

PRIMARY TYPICAL SECTIONS

Bumgarner Branch Creek Shared Use Path



Big Orange Way Sidewalk

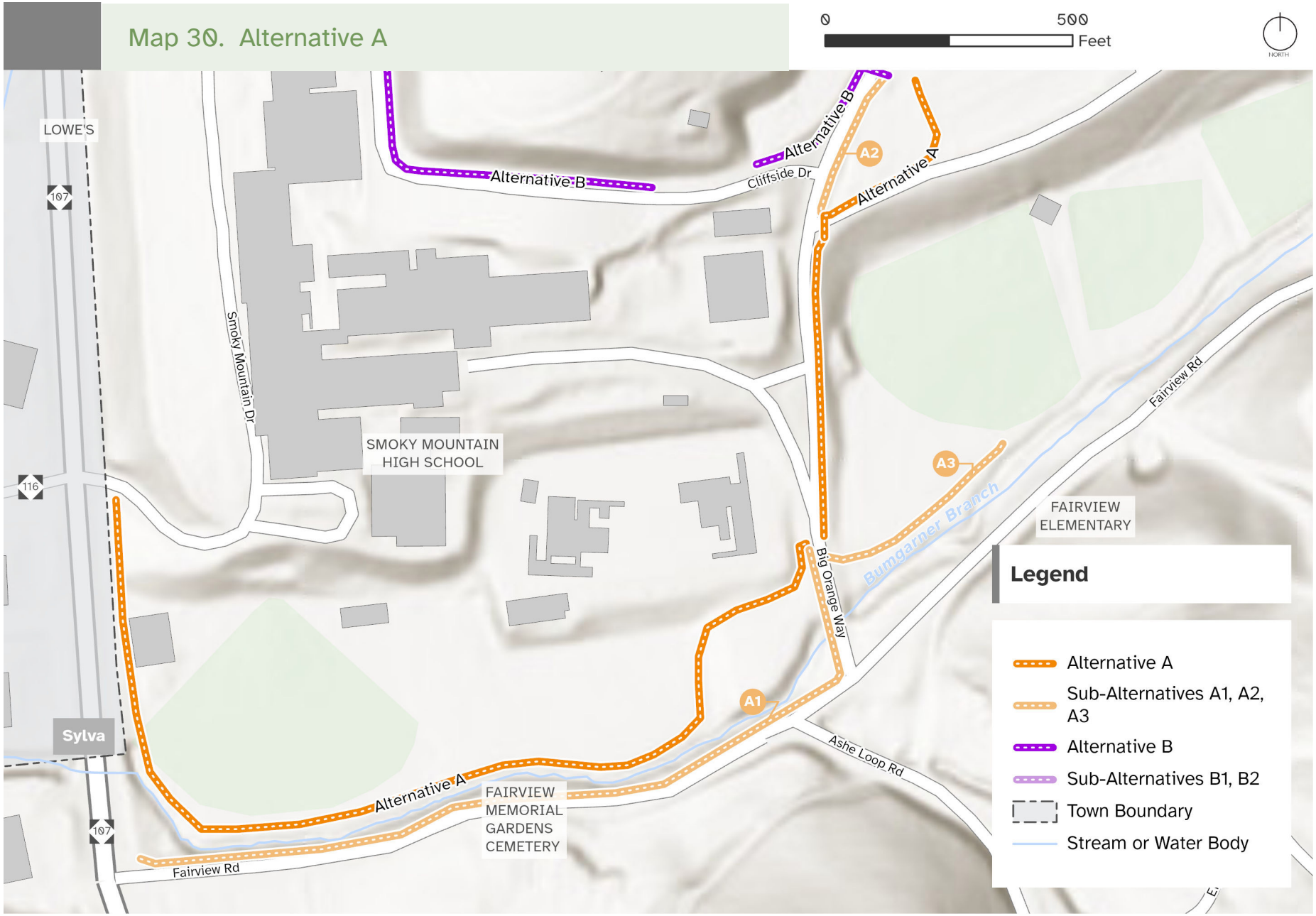


COST ESTIMATE

Baseline Construction	$334,970
Escalation *(3% for 3 Years)*	$31,061
Additional Contingency *(25%)*	$91,508
Survey & Design Fee	$74,406
Total Estimated Budget Recommendation	**$531,944**

**See Cost Estimate Summary in Appendix for breakdown, assumptions, and exclusions.*

Map 30. Alternative A



ALTERNATIVE A1

Sidewalk Connection on Fairview Road to Fairview School

This alternative proposes a sidewalk along the north side of Fairview Road from NC 107 to Big Orange Way, then crossing to the east side of Big Orange Way and continuing to the Fairview School entrance.

PROJECT SNAPSHOT

Location: Fairview Road from NC 107 to Big Orange Way and Big Orange Way from Fairview Road to Fairview School

Facility Type(s): Sidewalk with curb and gutter

Total Length: 1,977 linear feet

Structures: Low retaining wall on Big Orange Way

At-Grade Road Crossings: One (1) at Big Orange Way

Pedestrian Network Connections: Northern alignment along Cliffside Drive; sidewalk on NC 107

Destinations Served:

- Fairview School
- Smoky Mountain High School

POTENTIAL REAL ESTATE ACQUISITION NEEDS

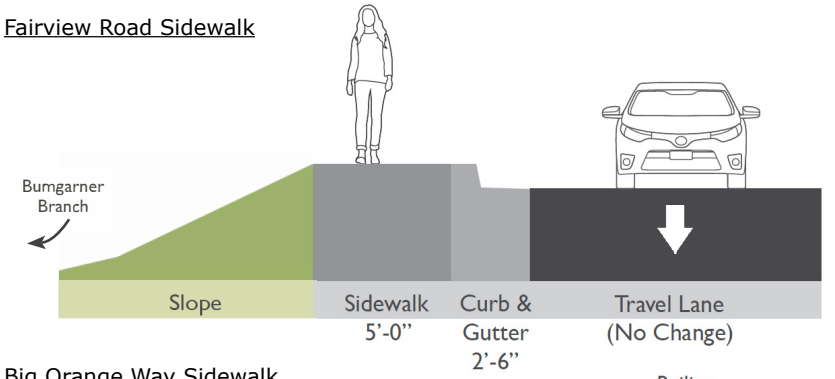
- None

POTENTIAL PERMITTING NEEDS

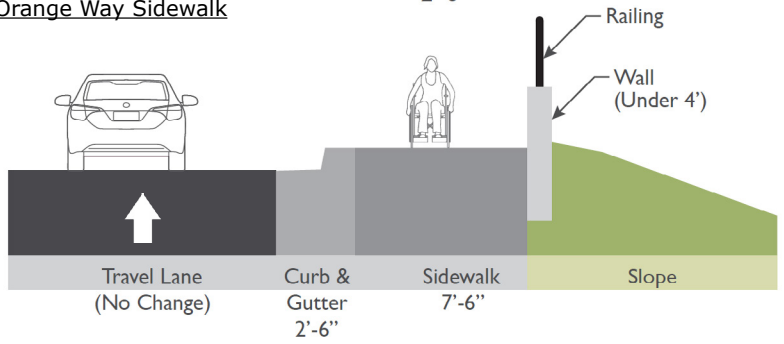
- Erosion and sedimentation control permit
- County floodplain development permit
- NCDOT encroachment agreement

PRIMARY TYPICAL SECTIONS

Fairview Road Sidewalk



Big Orange Way Sidewalk

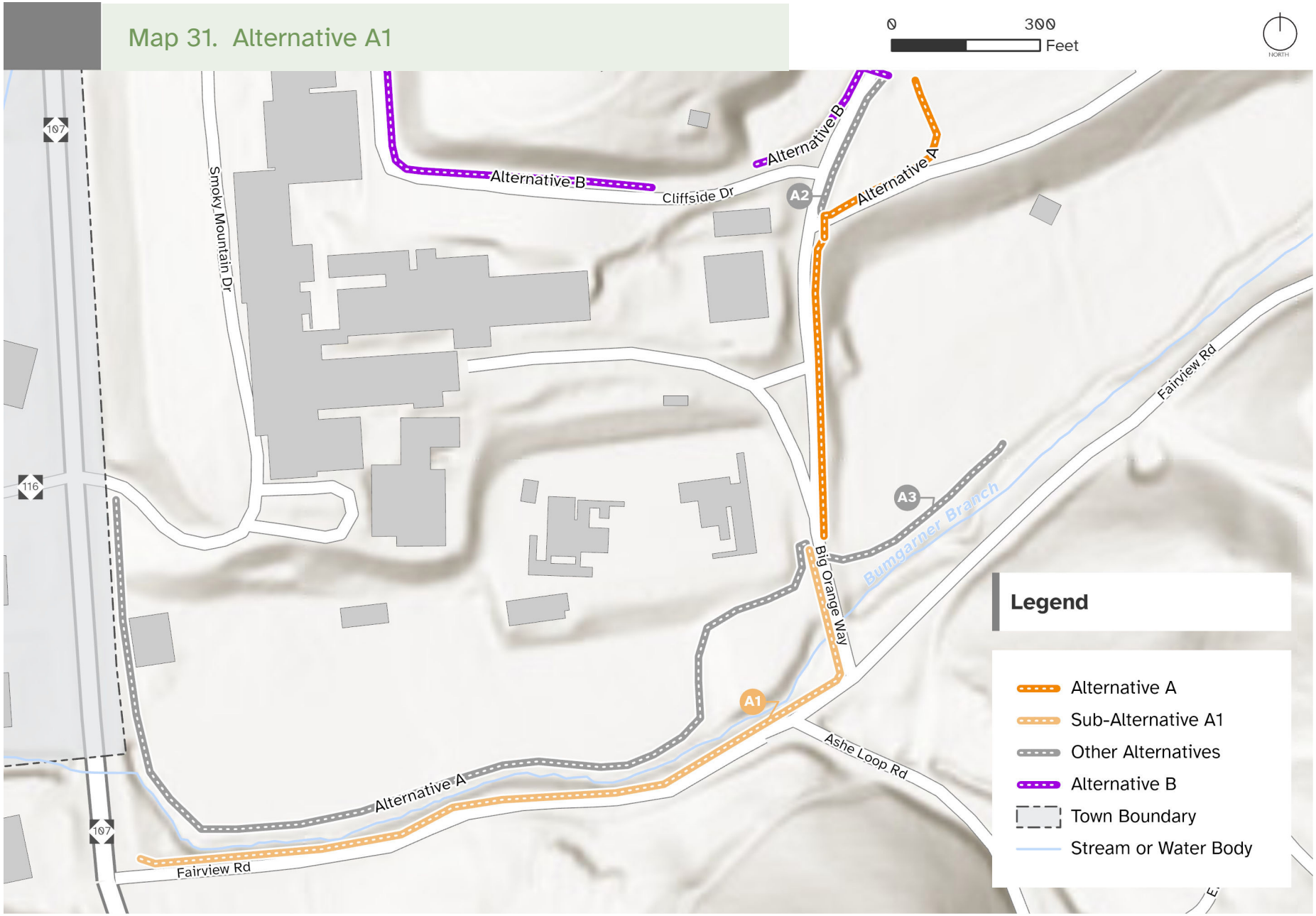


COST ESTIMATE

Baseline Construction	$1,801,113
Escalation *(3% for 3 Years)*	$167,012
Additional Contingency *(25%)*	$492,031
Survey & Design Fee	$380,669
Total Estimated Budget Recommendation	**$2,840,825**

**See Cost Estimate Summary in Appendix for breakdown, assumptions, and exclusions.*

Map 31. Alternative A1



ALTERNATIVE B

Sidewalk Connection on Cliffside Drive to Fairview School

This alternative proposes adding new sidewalk sections on Cliffside Drive to improve pedestrian access from NC 107 to Fairview School. The sidewalk would extend on the north side of Cliffside Drive, passing Smoky Mountain Drive, which is frequently used by High School traffic. A high visibility crossing with flashing warning devices would be installed to link to the existing Smoky Mountain Drive sidewalk and connect with a continuation of Alternative B. From the crossing, the sidewalk continues along the south side of Cliffside Drive towards the back of the school. Another crossing would be added there, continuing the sidewalk to Big Orange Way and Fairview School along the east/north side of Cliffside Drive.

PROJECT SNAPSHOT

Location: Cliffside Drive

Facility Type(s): Sidewalk with curb and gutter

Total Length: 2,730 linear feet

Structures: None

At-Grade Road Crossings: Two (2) needed (plus additional crossings proposed)

Pedestrian Network Connections: Southern alignment along Big Orange Way; sidewalk on NC 107

Destinations Served:

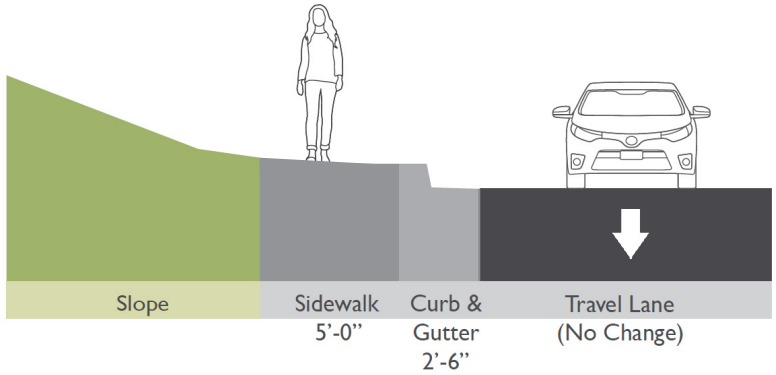
- Fairview School
- Smoky Mountain High School

POTENTIAL REAL ESTATE ACQUISITION NEEDS

- None

PRIMARY TYPICAL SECTIONS

Cliffside Drive Sidewalk



POTENTIAL PERMITTING NEEDS

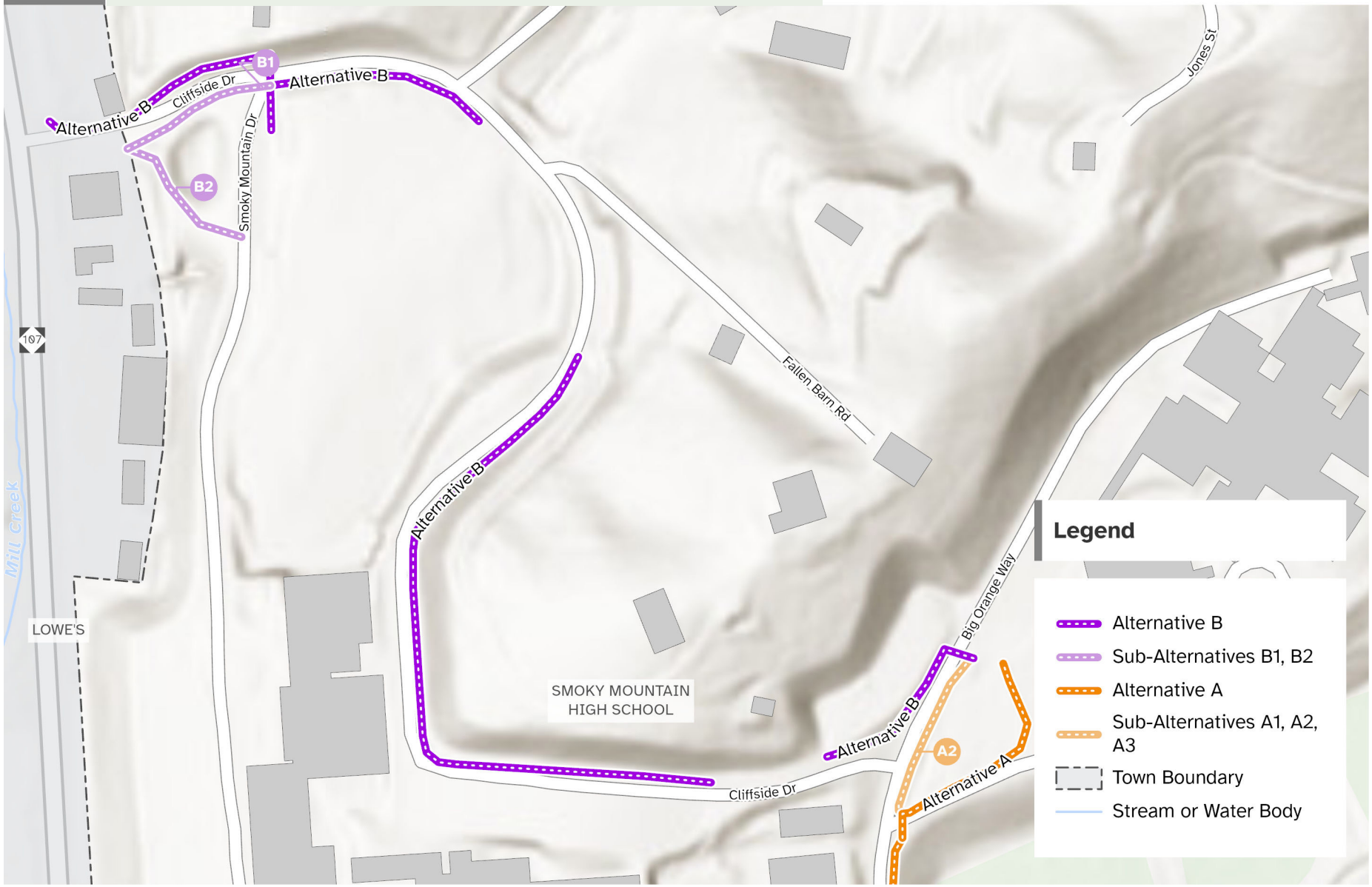
- Erosion and sedimentation control permit

COST ESTIMATE

Baseline Construction	$498,677
Escalation *(3% for 3 Years)*	$46,241
Additional Contingency *(25%)*	$124,669
Survey & Design Fee	$110,770
Total Estimated Budget Recommendation	**$791,917**

**See Cost Estimate Summary in Appendix for breakdown, assumptions, and exclusions.*

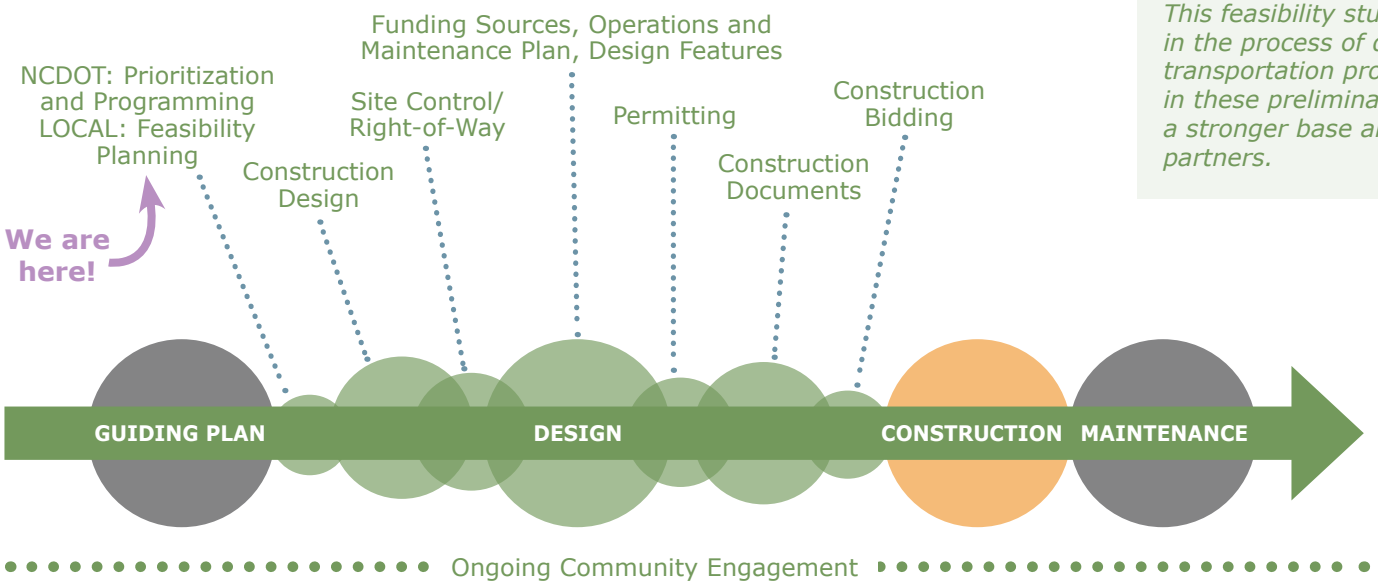
Map 32. Alternative B



LIFECYCLE OF A PROJECT

One of the most asked questions in the work of building pedestrian and bicycle networks is "when will the project be finished so I can take a walk or bike?" While seemingly straightforward, the answer is complex. **Figure 17 - Lifecycle of a Transportation Project** illustrates the typical lifecycle of an active transportation project. The time it takes to implement a project depends on the project's complexity, managerial oversight (whether by local authorities or NCDOT), the type of funding involved, how much land is needed, and the scale (size) of the project. This pedestrian connector project represents the 'Feasibility Planning' stage of projects, and from there it will move into the subsequent stages of funding (programming), design, construction, and then maintenance. The cutsheets will enable these projects to be well-presented for funding opportunities, facilitating their advancement through the lifecycle stages.

Figure 17. Lifecycle of a Transportation Project

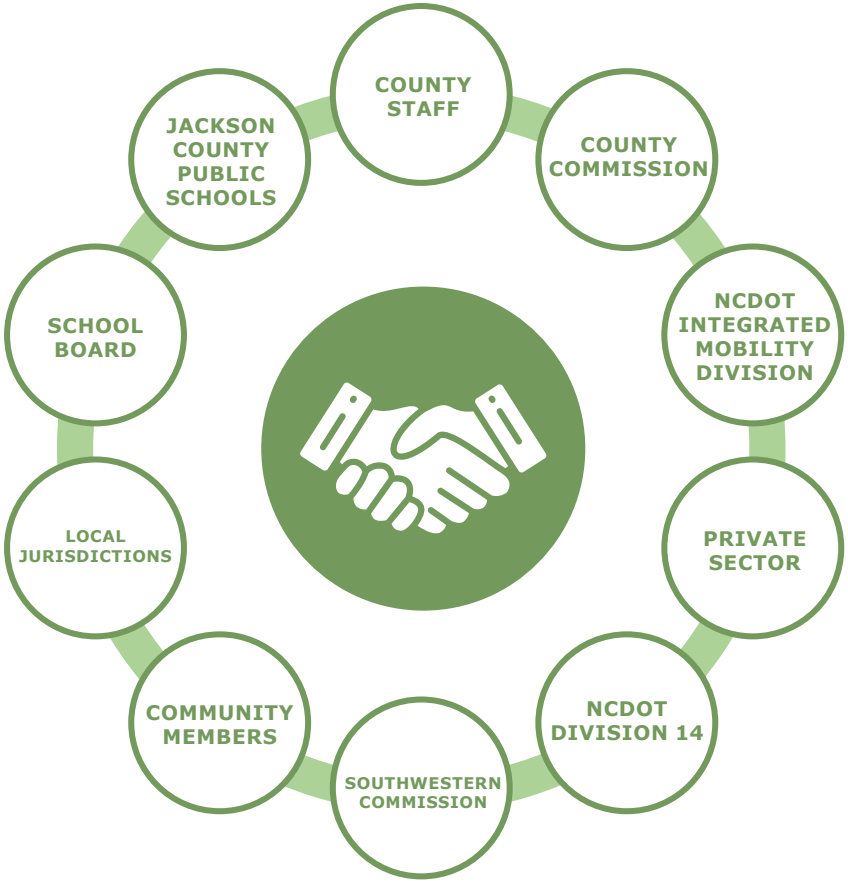


This feasibility study is one step in the process of developing a transportation project. Investing in these preliminary phases builds a stronger base and engages key partners.

KEY PARTNERS FOR IMPLEMENTATION

After the funding is determined for this project, an eligible agency (depending on funding type) will take the lead on managing the project. However, success will involve collaboration with regional and state agencies, local partners, the private sector, and non-profit organizations. **Figure 18 - Key Partners for Implementation** indicates the key partners whose roles are described below.

Figure 18. Key Partners for Implementation



Jackson County Commission

Adopting and implementing this study, affirming their support of walking and bicycling, and coordinating with the Southwestern Commission RPO and NCDOT.

Jackson County Staff

Pedestrian and bicycle planning at the county-level is not very common in North Carolina. However, this is the case in Jackson County, where urbanized areas extend beyond municipal boundaries. Population and land use in these areas of Jackson County are such that sidewalks are needed; however, there is a lack of a governing authority to plan, build, and maintain this infrastructure. The County has filled this gap by assuming pedestrian planning responsibilities. As such, the Jackson County Planning department is the likely lead implementation agency for this project, playing a pivotal role in seeing it forward.

Jackson County School Board

Overall support of the implementation of the pedestrian and bicycling connection project and allowing possible route alternatives to advance on campus property.

Jackson County Public Schools (JCPS) Staff

- Coordinating with the County and other partners on project implementation.
- Acting as a liaison to the School Board and campus staff, faculty, and students.

Local Jurisdictions (Town of Sylva)

- Coordinating on funding opportunities.
- Seeking plan expansion and connection opportunities.
- Adopting development regulations to deliver elements of the pedestrian and bicycle network to connect to this project and maximize the community benefit.

Southwestern Commission RPO

Supporting project development through funding opportunities and coordination with NCDOT.

NCDOT Integrated Mobility Division

- Guidance on bicycle and pedestrian policy / Complete Streets.
- Coordinating with local division offices.
- Funding and grant opportunities.
- Updating the Pedestrian and Bicycle Infrastructure Network (PBIN) mapping database.

NCDOT Division 14

- Coordinating on funding opportunities.
- Coordinating with the pedestrian and bicycle upgrades associated with the R-5600 project.

Community Members (faculty/staff/students, residents, visitors, business owners)

- Advocating to elected officials or others for funding and project advancement.
- Using the new infrastructure.
- Generating public support for walking and bicycling.

Private Sector (developers, other funders such as non-profit)

- Funding opportunities (grants, sponsorships) to provide additional connections to this project to maximize the benefits.
- Expertise and consultation services.
- Advocacy and volunteer engagement

What is an RPO?

Rural Planning Organizations (RPOs) conduct local transportation planning in rural areas - forums where both local and state governments collaborate to make decisions concerning transportation planning. This partnership is essential for fulfilling planning mandates set forth by federal legislation governing transportation funding allocations within rural areas.

The Southwestern Commission Council of Governments

A part of the Southwestern Commission Council of Governments, the RPO provides transportation planning and mapping support to Cherokee, Clay, Graham, Jackson, Macon, and Swain counties, along with their respective municipalities. It serves as a platform where local representatives and residents engage with NCDOT personnel regularly, providing localized feedback on transportation initiatives. The Southwestern Commission played a pivotal role in this project's Steering Committee and supported the grant application to initiate this study.

ACTION PLAN

For this Feasibility Study to be effective, it needs a clear action plan that identifies the next steps to achieving its vision. The following action plan indicates a timeframe to implementation, lead agency, key partners, and performance measures to evaluate success. This approach will allow the County to be strategic yet flexible as opportunities arise.

Table 5. Action Plan

TASK #	DESCRIPTION	LEAD	PARTNER	TIMEFRAME	HOW WILL SUCCESS BE MEASURED
1	Adopt this plan, which allows the study to become the official planning document for the Fairview School connector and shows intention to support implementation over time.	County Commission	County Staff, JCPS, School Board, NCDOT IMD and Division 14, RPO, Local Jurisdictions	Summer 2024	Adopted plan.
2	Ensure that the preferred route alternatives from this study are incorporated into regional plans, such as the CTP and future County Comprehensive Plans.	NCDOT, RPO	County Staff, County Commission, NCDOT IMD and Division 14	Winter 2024	Amendments to Plan documents.
3	Consider the creation of an annual work plan to guide the development of this study. The work plan may include key milestones, timelines, and roles.	County Staff	RPO, JCPS, Local Jurisdictions, NCDOT Division 14	Ongoing	Annual work plan document.
4	Coordinate with NCDOT Division 14 on the R-5600 project to understand project design and timeline.	NCDOT Division 14, County Staff	RPO, Local Jurisdictions	Winter 2025	Coordination notes/meeting minutes.
5	Coordinate with NCDOT and the RPO on submitting the project to the NCDOT SPOT process. All project segments, except for the shared use path through the ballfield, would be eligible for funding.	RPO, County Staff	NCDOT Division 14	2024	SPOT submittal.
6	Coordinate with key project partners to evaluate and advance phasing options based on the scenarios presented in Chapter 5.	County Staff	NCDOT Division 14, RPO, JCPS	Ongoing, Winter 2025	Coordination notes/meeting minutes.
7	Seek future funding opportunities for facility construction.	County Staff, RPO	JCPS, NCDOT Division 14 and IMD	Summer 2025	Funding sources identified.
8	Develop a maintenance plan for the project.	County Staff	JCPS, NCDOT Division 14	Summer 2026	Maintenance plan document.

FUNDING RESOURCES

The following provides possible funding sources to advance the design and development of this project. For additional funding sources, see Appendix A.

TRAIL FUNDING RESOURCES
[ALTERNATIVE A - BALLFIELD]

Recreation Trails Program (RTP)

In North Carolina, the Division of Parks and Recreation, part of the North Carolina Department of Natural and Cultural Resources, administers the Recreation Trails Program under the approval of the Federal Highway Administration. The goal of the program is to help states provide and maintain recreational trails for both motorized and nonmotorized recreational trail use. A 25% local match is required for funding, and funding is provided on a reimbursement basis. The minimum grant amount for on-the-ground trail projects is $10,000 with a maximum of $100,000. This would be a good source for both the trail development portion and streambank stabilization. More **HERE** and **HERE**.

Streamflow Rehabilitation Assistance Program

The Streamflow Rehabilitation Assistance Program (StRAP) provides funds to organizations working on projects that help reduce flooding, restore streams, and protect the integrity of drainage infrastructure across North Carolina's waterways. More **HERE**.

Water Resources Development Grant Program

The purpose of this program is to provide cost-share grants and technical assistance to local governments throughout the state. Applications for grants are accepted for seven eligible project types, which include: water management, stream restoration, Natural Resources Conservation Service Environmental Quality Incentives Program (EQIP) stream restoration projects and feasibility/engineering studies. More **HERE**.

NC Parks & Recreation Trust Fund (PARTF)

Since 1994, the North Carolina Parks and Recreation Trust Fund (PARTF) has been granting matching funds to local governments for the enhancement of parks, public beach access, and upgrades within state parks. This statewide initiative aids local governments in achieving their objectives related to parks and public access, ultimately enhancing the overall quality of life in their respective communities. PARTF offers matching grants on a dollar-for-dollar basis to local governments for the acquisition and/or development of park and recreational projects aimed at serving the broader public. Each application from a local government can seek a maximum of $500,000 in funding. More **HERE**.

SIDEWALK FUNDING RESOURCES
[ALL OTHER ALTERNATIVES]

There may be a number of avenues to complete the sidewalk and pavement markings and signage along Cliffside Drive. The following options may be the most promising:

NCDOT State Transportation Improvement Program (STIP)

Enter Cliffside Drive as a standalone sidewalk development project into the NCDOT Project Development Process by submitting through NCDOT's strategic prioritization process. The window for submitting new projects to Prioritization 7.0 at the time of this report has closed. This project would be submitted with Prioritization 8.0. The current STIP identifies transportation projects that will receive funding from 2024-2033. More **HERE**.

NCDOT Highway Maintenance Improvement Plan (HMIP)

NCDOT's Highway Maintenance Improvement Plan (HMIP) a rolling four-year list of scheduled maintenance improvement projects. HMIP projects include roadway resurfacing, which presents an opportunity to incorporate pavement marking and other improvements. While Cliffside Drive is currently

not on the HMIP, Jackson County, with help from the RPO and NCDOT, should monitor the ever-changing HMIP. When Cliffside Drive is included on the HMIP, Jackson County can begin early conversations with NCDOT to identify how portions of the Cliffisde Drive project can be achieved through a resurfacing project. More **HERE**.

The Active Transportation Infrastructure Investment Program (ATTIP)

With help from the RPO, continue to monitor emerging federal transportation funding such as the recently released Active Transporation Infrastructure Investment Program (ATIIP). More **HERE**.

Jackson County Schools Board of Education

As Jackson County Schools develop options to expand their athletic fields, identify opportunities to incorporate Cliffside Drive improvements with the overall athletic field capital improvement project.

ADDITIONAL FUNDING SOURCES

Jackson County Community Foundation

This private source funds projects to meet local needs that include education, human services, basic needs, arts, historical preservation, health, recreation, youth development, environment, and animal welfare. The Jackson County Community Foundation is an affiliate of the North Carolina Community Foundation. Grants typically range from $1,500 - $3,000. More **HERE**.

The Community Foundation of WNC

The Community Foundation makes grants and works with fundholders to support promising projects across Western North Carolina. They provide grants to 501(c)3 organizations that may be willing partners to support bicycle, pedestrian, and greenway projects. More **HERE**.

MAINTENANCE CONSIDERATIONS

Proper maintenance is critical to ensure that the infrastructure we build can be safely accessed well into the future. Sidewalks, crosswalks, and paths should be kept clear of debris and damage so that their surfaces are traversable; and curb ramps should be ADA accessible. Maintenance not only extends the life of a project, but it also reduces long-term facility costs. The following includes maintenance considerations for the long-term viability of this pedestrian connector project:

- Acquire the final ADA inspection checklist from the contractor prior to project acceptance.
- Establish a maintenance plan and funding resources for repairs to sidewalks, paths, and curb ramps. More details on development of a maintenance plan are provided in the FHWA 2013 publication, *A Guide for Maintaining Pedestrian Facilities for Enhanced Safety.*
- After streets are plowed following a snow storm, focus sidewalk clearing on areas near schools, transit stops and business districts. This would include a pedestrian facility at Fairview School.

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pharmacy

APPENDIX

2024

Fairview School Pedestrian Connectors

Feasibility Study

JACKSON COUNTY
NORTH CAROLINA

TABLES

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Cover Image: Nick Breedlove, Jackson County TDA

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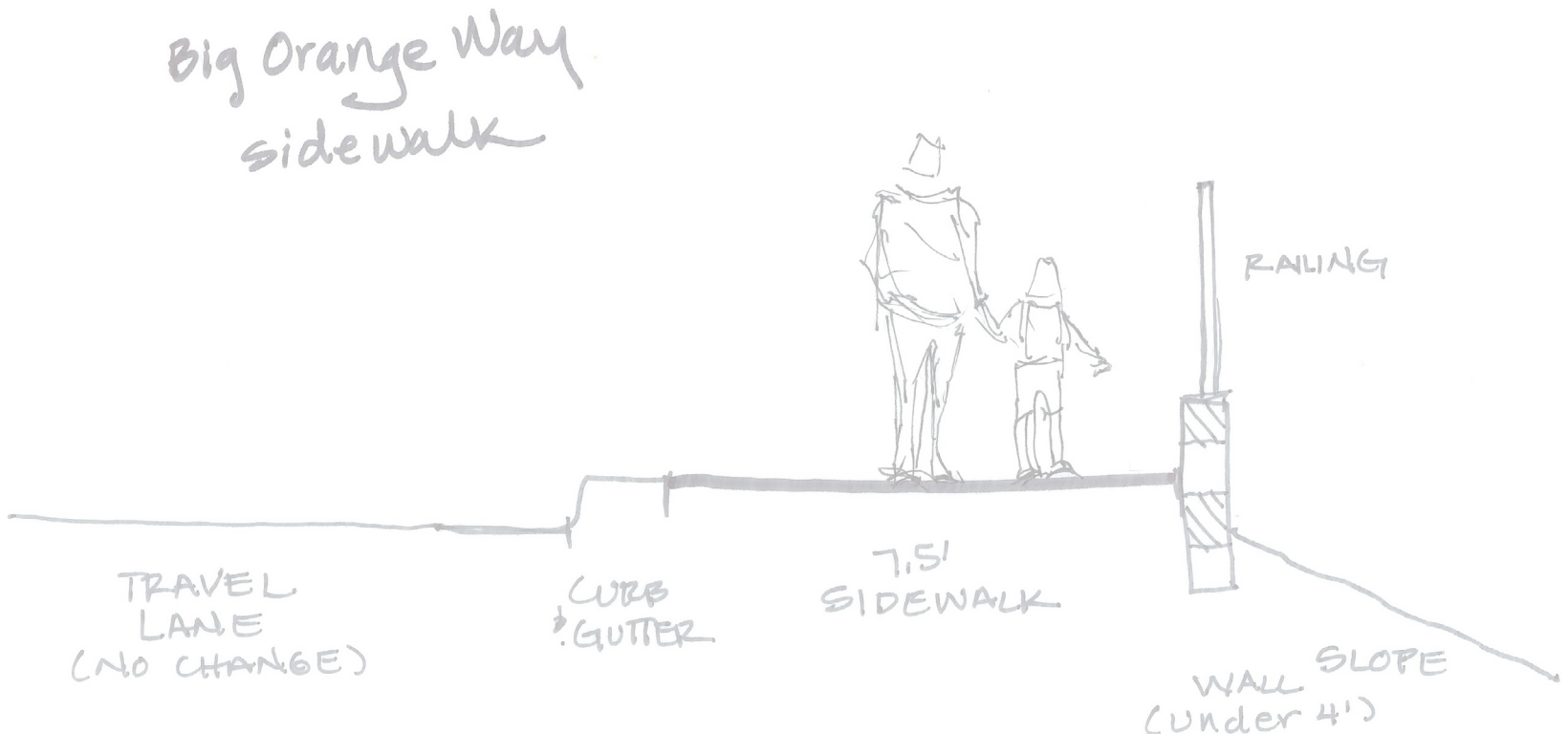

APPENDIX A

Funding Resources

OVERVIEW

This resource lists major eligible funding sources for walking and bicycling infrastructure in North Carolina at all levels: local, state and federal. This resource can be used to advance projects through planning, design, construction and maintenance. Each funding source has unique eligibility requirements related to applicants, projects, and costs that are not detailed in this document. Note that many of these funding requirements, eligibility, amounts or programs may change, so the information provided is accurate at the time of publication of this Plan.

LOCAL SOURCES

An advantage to local sources of funding is that they involve fewer restrictions that dictate how or when the funds must be used. However, it should be noted that many of these funding sources are tied to the NC Code and thus are subject to change based on legislative changes to local government law. The Southwestern Commission, UNC School of Government and NCDOT are available to provide the latest information on these funding options.

Capital Reserve Funds

Funds: capital projects.

Any municipal government or public authority can establish a capital reserve fund to issue bonds for authorized capital projects. The governing board creates this fund through a resolution or ordinance that outlines the purpose, the approximate timeframe, and the amount to be saved. This fund enables the governing body to set aside money for future capital expenditures, which must be identified as specific capital projects. These projects can then be incorporated into a municipality's Capital Improvement Plan (CIP).

Tourism Product Development Fund

Funds: community projects like parks, theaters, greenways and bicycle/pedestrian infrastructure projects.

Overnight visitors to Jackson County pay a lodging tax that generates occupancy tax revenue and supports the Tourism Product Development Fund. This revenue is administered by the Jackson County Tourism Development Authority, who then in turn provide the funding as grants to the community. The intent of the funding is to encourage more tourism related activities, attracting people to the County to stay overnight and spend more money.

https://www.discoverjacksonnc.com/tda-docs/funding/

STATE SOURCES

There are a variety of funding sources that can be used towards bicycle and pedestrian projects in North Carolina. These funds can be used as matching sources or to fully fund standalone projects. Various funding at the state level originates from the Federal Government.

NCDOT Statewide Project Funds

NCDOT has division-led funding opportunities that are sourced from statewide funds. Division 14 can provide more information about these opportunities, which may include:

Small Construction Funds

Established to fund small projects in and around cities and towns which could not be funded in the STIP Provisions that currently allow for use on a variety of transportation projects for municipalities, counties, schools throughout the state.

- Funds allocated equally to each Division
- $250,000 maximum amount per project per Fiscal Year, unless otherwise approved by the Secretary of Transportation
- Right-of-way should be provided at no cost to NCDOT
- Utility relocations should be accomplished at no cost to NCDOT
- Requests received from municipalities, counties, businesses, schools and industrial entities, and NCDOT staff
- Request should be submitted to the Division Engineer

providing technical information such as location, improvements being requested, timing, etc. for thorough review

Statewide Contingency Funds

Created for statewide rural or small urban highway improvements and related transportation enhancements to public roads/public facilities, industrial access roads, and spot safety projects.

- Project requests from this fund are sponsored by the President Pro Tempore of the Senate, the Speaker of the House and the Secretary of Transportation
- $12 million fund administered by the Secretary of Transportation
- Requests received from municipalities, counties, businesses, schools, citizens, legislative members, and NCDOT staff
- Request should include a clear description and justification of the project

Public Access Funds

Created to assist in attracting new industry and/or relocating or expanding industry. Funding for public school bus driveways, access roads to airports or medical facilities, driveways for rural fire district and rescue squad facilities.

- Requests received from schools, volunteer fire departments, and industrial entities
- $50,000 limit per public school site
- $25,000 limit for Fire Department & Rescue Squad driveway projects
- Industrial access project limit $1,000 per employee for new or expanding industry
- Requests should be submitted to the Division Engineer or Chief Engineer's Office

Economic Development Funds

Created to expedite transportation projects that promote commercial growth as well as either job creation or job retention.

- $2,500 per job (new & retained) allowed unless waived by the Secretary of Transportation
- $400,000 maximum amount per project, unless otherwise approved by the Secretary of Transportation

High Impact/Low Cost Funds

Established to provide funds to complete low cost projects with high impacts to the transportation system including intersection improvements, minor widening projects and operational improvements..

- Funds allocated equally to each Division
- Each Division is responsible for selecting their own scoring criteria for determining projects funded in this program
- $1.5 million maximum per project unless otherwise approved by the Secretary of Transportation
- Projects are expected to be under contract within 12 months of funding approval from the Board of Transportation

NCDOT Strategic Transportation Investment (STI)

Funds: Infrastructure projects.

The NCDOT Strategic Transportation Investment law was passed in 2013, and it establishes a strategic framework for prioritizing transportation projects in the state. The STI law allocates available revenues based on data-driven scoring and local input, including analysis of the existing and future conditions, the benefits the project is expected to provide, the project's multi-modal characteristics and how the project fits in with local priorities. This prioritization process is called the Strategic Transportation Prioritization (SPOT), the outcome of which is the Draft State Transportation Improvement Program (STIP). The process involves scoring all roadway, public transportation, bicycle, pedestrian, rail, and aviation projects on several criteria; the projects are submitted into three different funding categories based on facility and project types (Statewide Mobility, Regional Impact, Division Needs). Metropolitan Planning Organizations

(MPOs), Rural Planning Organizations (RPOs), and the NCDOT Divisions also contribute to the final project score by assigning local priority points to projects.

The current STIP identifies transportation projects that will receive funding from 2024-2033. Currently, the round of prioritization referred to as "P7.0" is underway to update the 2026-2035 STIP.

Note that Federal funding requires a 20% local match, and NC law prohibits state match of standalone bicycle and pedestrian projects. In this case, Jackson County would need to supply the 20% match from other sources for any bike/ped projects being pursued from the Town.

https://www.ncdot.gov/initiatives-policies/Transportation/stip/Pages/strategic-transportation-investments.aspx

NCDOT Spot Safety Program

Funds: Among other activities, improvements for pedestrians including signals, crosswalks and curb ramps.

The Spot Safety Program is a program of the NCDOT that is intended to fund smaller improvement projects that address safety, potential safety, and operational issues. The program is funded with state funds; however, any bike/ped projects are funded with Federal Transportation Alternatives Program funds. Other monetary sources (such as Small Construction or Contingency funds) can assist in funding Spot Safety projects, however, the maximum allowable contribution of Spot Safety funds per project is $400,000. A Safety Oversight Committee (SOC) reviews and recommends Spot Safety projects to the Board of Transportation (BOT) for approval and funding. Criteria used by the SOC to select projects for recommendation to the BOT include but are not limited to: the frequency of correctable crashes, severity of crashes, delay, congestion, number of signal warrants met, effect on pedestrians and schools, division and region priorities, and public interest. Staff from the NCDOT Division 14 office can be consulted for the status of this Program.

https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx

NCDOT Highway Hazard Elimination Program

Funds: Larger projects that address safety issues.

The Hazard Elimination Program is used to develop larger improvement projects to address existing and potential safety issues. The program is funded with 90% federal funds and 10% state funds. The cost of Hazard Elimination Program projects typically ranges between $400,000 and $1 million. Similar to the Spot Safety Program, the SOC reviews and recommends Hazard Elimination projects to the state BOT for approval and funding. These projects are prioritized for funding according to a safety benefit to cost (B/C) ratio, with the safety benefit being based on crash reduction. Once approved and funded by the BOT, these projects become part of the department's STIP.

https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx

NC Land and Water Fund (NCLWF)

Funds: Among other activities, planning grants for greenways.

The NCLWF is a non-regulatory organization whose focus is on protecting and restoring the State's land and water resources. They award annual grants to non-profit and governmental organizations for the following purposes: land acquisition, stream restoration, innovative stormwater, planning and donated property mini-grants. Bike/ped projects are eligible for funding under their planning grants, which funds efforts that:

- Enhance or restore degraded waters
- Protect unpolluted waters
- Contribute to a network of riparian buffers and greenways for environmental, education and recreational benefits
- Provide buffers around military bases
- Acquire land that represents the ecological diversity of the state or that contributes to the development of a balanced State program of historic properties
- Facilitate efforts to improve stormwater treatment

https://nclwf.nc.gov/

NC Parks and Recreation Trust Fund (PARTF)

Funds: Construction and renovation of facilities in parks and to purchase land for new and existing parks.

Managed by the North Carolina State Parks, PARTF provides dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the public. PARTF is the primary source of funding to build and renovate facilities in the state parks as well as to buy land for new and existing parks. North Carolina counties and incorporated municipalities are eligible for PARTF grants. Public authorities, as defined by N.C. General Statute 159-7, are also eligible if they are authorized to acquire land or develop recreational facilities for the general public. The maximum allowable grant request is $500,000. The Parks and Recreation Authority, a 9-member board appointed by the Governor and the General Assembly, selects which applicants will receive funding.

https://www.ncparks.gov/more-about-us/parks-recreation-trust-fund/parks-and-recreation-trust-fund https://rrs.cnr.ncsu.edu/partf/

FEDERAL SOURCES

In November 2021, Congress passed the $1.2 trillion Infrastructure Investment and Jobs Act (IIJA) which now governs federal transportation policy and funding through 2026 and replaces the FAST Act. The following section describes pedestrian and bicycle funding opportunities available through existing programs (some with new eligibility and significant increase in funding amounts) and new programs of the IIJA. Those new programs under IIJA are indicated as such in the following. The DOT Discretionary Grants Dashboard can also be used to navigate USDOT sourced grants: https://www.transportation.gov/grants/dashboard.

Transportation Alternatives Program (TAP)

Funds: Pedestrian and bicycle facilities, streetscaping projects.

The Transportation Alternative Program (TAP) projects are federally-funded community-based projects, provided on a reimbursement basis. Under IIJA, funding increased by 60%. TAP is the leading source of federal funding for bicycling and walking projects, accounting about half of federal funding for walking and bicycling. There have been many changes to the program under IIJA, including the fact that it will now grow in proportion to other surface transportation spending (rather than being a fixed amount).

https://www.fhwa.dot.gov/environment/transportation_alternatives/

Active Transportation Infrastructure Investment Program (ATIIP) *NEW*

Funds: "Active transportation" networks (within communities) and spine (between communities) projects.

Discretionary program to fund the building of active transportation networks and spines.

https://www.fhwa.dot.gov/environment/bicycle_pedestrian/atiip/

Healthy Streets Program *NEW*

Program to address urban heat island effect, lack of tree cover and flooding in low-income communities and communities of color.

Safe Streets and Roads for All *NEW*

Funds: Vision Zero Plans and implementation projects.

Safe Streets and Roads for All (SS4A) discretionary program will provide $5-6 billion in grants over the next 5 years. Funding supports regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries. The SS4A program supports Secretary of Transportation Pete Buttigieg's National Roadway Safety Strategy and a goal of zero deaths and serious injuries on our nation's roadways. The funding can be used to:

- Develop or update a Comprehensive Safety Action Plan.
- Conduct planning, design, and development activities in support of an Action Plan
- Carry out projects and strategies identified in an Action Plan.

Who is Eligible:

- Metropolitan planning organizations
- Counties, cities, towns, other special districts that are subdivisions of a State, and transit agencies
- Federally recognized Tribal governments
- Multijurisdictional groups comprised of the above entities

https://www.transportation.gov/grants/ss4a/nofo

Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) **NEW**

Funds: Extreme weather resilience and emergency response infrastructure.

Provide evacuation and recovery mobility to all road users. Build biking, walking, and rolling infrastructure into all resiliency plans and evacuation routes. The PROTECT discretionary program offers two types of awards: planning grants and Competitive Resilience Improvement Grants.

https://www.transportation.gov/rural/grant-toolkit/promoting-resilient-operations-transformative-efficient-and-cost-saving

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

Funds: Projects to build or repair transportation systems nationally.

This grant opportunity funds road, rail, transit, and port projects that promise to achieve national objectives. Previously known as BUILD or TIGER Discretionary Grants, Congress has dedicated nearly $9.9 billion to fund 700 projects that have a significant local or regional impact.

https://www.transportation.gov/rural/grant-toolkit/rebuilding-american-infrastructure-sustainability-and-equity-raise

Recreation Trails Program (RTP)

Funds: Recreational trails and trailhead facilities that are open to the public.

In North Carolina, the Division of Parks and Recreation, part of the North Carolina Department of Natural and Cultural Resources, administers the Recreation Trails Program under the approval of the Federal Highway Administration. The goal of the program is to help states provide and maintain recreational trails for both motorized and nonmotorized recreational trail use. A 25% local match is required for funding, and funding is provided on a reimbursement basis. The minimum grant amount for on-the-ground trail projects is $10,000 with a maximum of $100,000. RTP funding flows through the TAP program.

https://www.fhwa.dot.gov/environment/recreational_trails/

https://trails.nc.gov/trail-grants

Highway Safety Improvement Program (HSIP)

Funds: Safety projects for bike and pedestrian infrastructure, educational programs and evaluation programs.

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP received major updates in the IIJA along with a 24% increase in funding. The updated HSIP is based on four pillars: VRU Safety Assessment, Safe Systems Approach, VRU Special Rule and FHWA Research.

https://highways.dot.gov/safety/hsip

Safe Routes to School (SRTS)

Funds: Active transportation and complete streets projects, plus education or enforcement activities that allow students to walk, bike, and roll to school safely.

The BIL codifies SRTS into the current law, increased funding by 60%, and expands programming to high schools. Other updates under the IIJA include SRTS infrastructure becoming

an eligible use of HSIP and funds may be used for staffing of local coordinators. SRTS does remain under the Transportation Alternatives Program and is not a standalone program.

https://www.fhwa.dot.gov/environment/safe_routes_to_school/

Rural and Tribal Assistance Pilot Program *NEW*

Funds: Financial, technical, and legal assistance to states and rural and Tribal communities.

This Pprogram is intended to advance transportation infrastructure projects in rural and Tribal communities by supporting development-phase activities for projects reasonably expected to be eligible for certain DOT credit and grant programs. The grants are intended to increase organizational capacity in communities that may not have resources available to evaluate and develop projects that qualify for federal funding and financing programs. Grants reimburse expenses incurred to hire staff or procure third-party advisory firms to assist with project development. No financial match is required.

https://www.transportation.gov/rural/grant-toolkit/rural-and-tribal-assistance-pilot-program

Rural Surface Transportation Grant Program *NEW*

Funds: Highway, bridge, tunnel, or highway freight projects.

The Rural Surface Transportation Grant Program (Rural) supports projects that will improve and expand the surface transportation infrastructure in rural areas to increase connectivity, improve the safety and reliability of the movement of people and freight, generate regional economic growth, and improve quality of life.

https://www.transportation.gov/rural/grant-toolkit/rural-surface-transportation-grant-program-rural

Thriving Communities Program *NEW*

Funds: Technical assistance, planning, or capacity building services to help disadvantaged communities.

The Thriving Communities Program (TCP) aims to ensure that disadvantaged communities adversely or disproportionately affected by environmental, climate, and human health policy outcomes have the technical tools and organizational capacity to compete for federal aid and deliver quality infrastructure projects that enable their communities and neighborhoods to thrive. The program will provide 2 years of deep-dive assistance and 3 years of facilitated peer learning support to selected communities to help them plan and develop a pipeline of comprehensive transportation, housing, and community revitalization activities.

https://www.transportation.gov/rural/grant-toolkit/thriving-communities-program

Land and Water Conservation Fund (LWCF)

Funds: Acquisition or development of land for public outdoor recreational use purposes.

North Carolina Department of Environment and Natural Resources administers these funds. This is a 50-50 match program that is disbursed on a reimbursement basis. LWCF creates an outdoor recreation legacy by requiring perpetual park management. Grant funding cannot exceed $250,000 and is awarded every other year to county governments, incorporated municipalities, public authorities and Indian tribes.

https://www.lwcfcoalition.com/

https://www.ncparks.gov/more-about-us/grants/lwcf-grants

PRIVATE & NON-PROFIT FUNDING SOURCES

Jackson County Community Foundation

Funds: A broad range of purposes to meet local needs that include education, human services, basic needs, arts, historical preservation, health, recreation, youth development, environment, and animal welfare.

The Jackson County Community Foundation is an affiliate of the North Carolina Community Foundation. Grants typically range from $1,500 - $3,000.

https://www.nccommunityfoundation.org/communities/western/jackson-county

Robert Wood Johnson Foundation (RWJF) Grants and Grant Programs

Funds: Among other activities, planning and demonstration projects, community engagement, and public education.

The RWJF grant programs have three objectives: to discover and explore bold ideas with transformational potential; to spread model interventions that have a meaningful impact on health; and to conduct research and evaluation. Types of projects they fund include, but are not limited to:

- Planning and demonstration projects
- Research and evaluations
- Policy and statistical analysis
- Learning networks and communities
- Public education and strategic communications
- Community engagement and coalition-building
- Training and fellowship programs
- Technical assistance

The foundation typically issues a competitive call for proposals which defines the challenges, activities to achieve desired outcomes, and eligibility criteria. They also provide funding through open calls for ideas and different types of challenges and prize competitions, as well as direct solicitations for projects in support of specific programmatic objectives.

https://www.rwjf.org/en/grants.html

The Community Foundation of Western North Carolina

Funds: Various activities in the 18 counties of Western NC.

The Community Foundation issues grants and works with fundholders to support promising projects across Western North Carolina. They provide grants to 501(c)3 organizations that may be willing partners to support bicycle, pedestrian and greenway projects.

https://cfwnc.org/

Blue Cross Blue Shield of North Carolina Foundation Grants

Funds: Programs related to improving health outcomes.

BCBSNC Foundation funds organizations that improve the health and well-being of all North Carolinians in communities big and small throughout the state. Their grants are a commitment by the foundation to invest in organizations for an established period of time to further the work of organizations, collaborations, and communities across the state. They do not have a traditional grant cycle, but rather announce opportunities to apply for grant funding on a periodic basis. Available grants range from small-dollar grants to larger, multi-year partnerships. They fund initiatives that align with their values, which include:

- Transforming the health care system (including oral health)
- Expanding access to healthy food
- Supporting a healthy start for children
- Improving the places where people live
- Strengthening the ability of communities to improve their own health

http://www.bcbsncfoundation.org/

Duke Energy Foundation

Funds: Programs and projects supporting conservation and access.

The Duke Energy Foundation is committed to making strategic investments to build powerful communities where nature and wildlife thrive, students can excel and a talented workforce drives economic prosperity for all. They fund projects in strategic areas, including programs supporting conservation and access.

https://www.duke-energy.com/community/duke-energy-foundation

America Walks Community Change Grants

Funds: Programs and projects supporting physical activity and active communities.

This grant program will work to provide support to the growing network of advocates, organizations, and agencies using innovative, engaging, and inclusive programs and projects to create change at the community level. This program will award grantees $1,500 in community stipends for projects related to creating healthy, active, and engaged places to live, work, and play. Funded projects should:

- Increase physical activity and active transportation in a specific community
- Work to engage people and organizations new to the efforts of walking and walkability
- Demonstrate a culture of inclusive health
- Create and support healthy, active, and engaged communities

https://americawalks.org/community-change-grants/

National Safety Council Community Traffic Safety Grants

Funds: Projects supporting programs, research and infrastructure to achieve Vision Zero goals.

The focus of the Road to Zero Community Traffic Safety Grant Program is focused on supporting innovative and promising approaches for implementing evidence-based countermeasures, supporting a Safe System approach, and performing necessary research to address traffic fatalities, disparities in mobility safety and access, and overall improve traffic safety.

https://www.nsc.org/road-safety/get-involved/road-to-zero/grants

Dogwood Health Trust Immediate Opportunities and Needs Grant

Funds: One-time immediate pressing needs or opportunities for non-profit organizations and tribal governments.

Grants ranging from $500-$25,000 are available to help with one-time pressing needs or new opportunities. Immediate Opportunities and Needs grants are not available for ongoing programmatic or general operating expenses. Organizations may submit one grant application for each round of funding. Once a request is funded, organizations may not apply again during the next cycle.

https://dogwoodhealthtrust.org

AARP Community Challenge

Funds: "Quick-action" projects that can help communities become more livable for people of all ages.

The AARP Community Challenge provides small grants to fund "quick-action" projects that can help communities become more livable for people of all ages. Applications are accepted for projects to improve housing, transportation, public space, technology ("smart cities"), civic engagement and more. AARP Community Challenge grants can be used to support the following types of projects:

- Permanent physical improvements in the community
- Temporary demonstrations that lead to long-term change

https://www.aarp.org/communitychallenge

Jackson County Community Foundation

Funds: A broad range of purposes to meet local needs that include education, human services, basic needs, arts, historical preservation, health, recreation, youth development, environment and animal welfare.

The Jackson County Community Foundation is an affiliate of the North Carolina Community Foundation. Grants typically range from $1,500 - $3,000.

https://www.nccommunityfoundation.org/communities/western/jackson-county

APPENDIX B

Design Resources


SCHOOL
STOP
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NORTH CAROLINA PUBLIC
JACKSON COUNTY

DESIGN GUIDELINE RESOURCES

Planners, engineers, and project designers need standards and guidance to implement pedestrian and bicycle facilities that prioritize safety, consistency, and predictability. Previously, resources for designing these multimodal facilities were limited, and existing guidelines often focused on specific street types or geographic contexts, lacking sufficient detail for certain conditions. However, the past 15 years have seen significant advancements in design guidance, providing valuable resources that encourage innovation and draw on successful projects from other communities and countries. These developments have led to more inclusive multimodal designs that accommodate people of all ages and abilities while allowing customization to local urban or rural contexts.

Designing effective pedestrian and bicycle facilities depends on factors like connectivity, comfort, continuity, and convenience. To achieve these goals, the following state and national design guideline resources have been compiled. Together, these resources provide essential guidance for planners and designers in Jackson County to create a transportation system that meets the needs of multimodal users and promotes a shift in transportation modes.

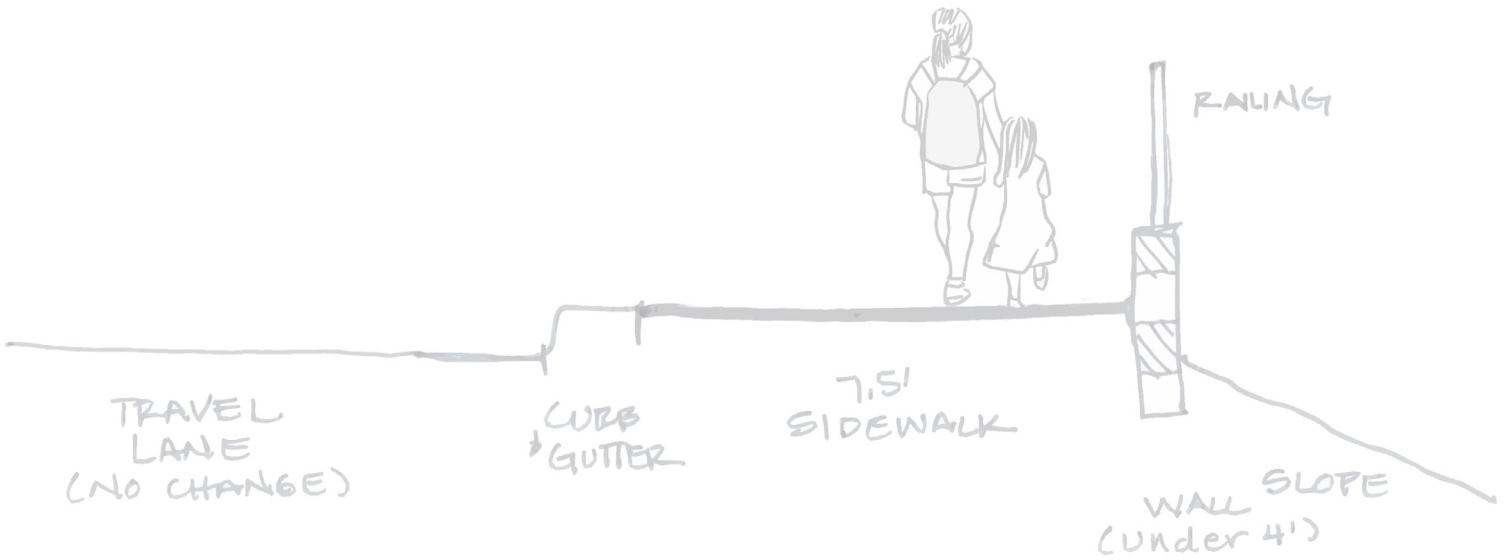
Pedestrian and bicycle design is an evolving field with ongoing innovation. Therefore, it is advisable to seek updates to the following resources after this Plan's publication. Due to the complexity of design considerations, treatments must be tailored to specific situations and contexts. Practitioners should use sound engineering judgment and carefully document decisions throughout the design process.

Table 1. Design Resources

North Carolina Department of Transportation	
Roadway Design Manual	2021
Complete Streets Policy A.09.0106	2019 (2022 update to methodology)
Evaluating Temporary Accommodations for Pedestrians	2018
Pedestrian Crossing Guidelines	2018
Greenway Accommodations Guidelines	2015
WalkBike NC: The Statewide Pedestrian and Bicycle Plan	2013
Manual on Uniform Traffic Control Devices (MUTCD)	
MUTCD 11th Edition Guidance and Supplemental Information (including NC Supplement)	2024
American Association of State Highway and Transportation Officials (AASHTO)	

Table 1. Design Resources (Cont'd)

Guide for the Development of Bicycle Facilities	2012
Guide for the Planning, Design and Operation of Pedestrian Facilities	2004
Federal Highway Administration (FHWA)	
Strategies for Accelerating Multimodal Project Delivery	2019
Bikeway Selection Guide	2019
Guide for Improving Pedestrian Safety at Uncontrolled Crossing Intersections	2018
Small City and Rural Multimodal Networks Design Guide	2016
Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts	2016
Guidebook for Developing Pedestrian and Bicycle Performance Measures	2016
Separated Bike Lane and Planning Design Guide	2015
US Access Board	
Proposed Public Rights-of-Way Accessibility Guidelines (PROWAG)	2011
Guide to the Standards	2010
USDOT/Department of Justice	
USDOT ADA Standards for Transportation Facilities	2006
DOT/DOJ Joint Technical Assistance Memos	Varies
ADA Standards	2010
National Association of City Transportation Officials (NACTO)	
Transit Street Design Guide	2016
Urban Street Design Guide	2013
Urban Bikeway Design Guide	2013



APPENDIX C

Plan Document Review


SCHOOL BUS
SCHO

OVERVIEW & TAKEAWAYS

Hendersonville, the County, and its regional partners have a strong legacy of multimodal planning as evidenced by the number of plan documents that relate to multimodal topics in the city, all of which are described below. These plan documents offer a basis on which to develop the Above the Mud Greenway. Frequent themes throughout the plan documents are connecting parks, neighborhoods, and destinations; expansion of existing greenway systems; and connecting to a regional system of greenways. The Above the Mud Greenway was specifically identified in the Mud Creek Greenway Feasibility Study, in the City's 2022 RAISE grant proposal, and in the Hellbender Trail Plan. Together, these recommendations make this project eligible for the NCDOT Complete Streets Policy whereby NCDOT would be responsible for the full cost of the project.

NCDOT Roadway Design Manual (2023)

The Roadway Design manual offers general design information and design criteria for NCDOT roadways. It is intended to provide information required to prepare a detailed roadway design. Guidance on multimodal design elements can be found in sections 4.14 (Pedestrian Facilities) and 4.15 (Bicycle Facilities).

TAKEAWAY: The NCDOT Roadway Design Manual was most recently updated in November 2023, and with it came many updates to multimodal design guidance. These resources will be critical to Jackson County as the Manual currently serves as the County's reference manual for design.

Jackson County Walks Pedestrian Plan (2021)

The purpose of this Plan is to provide a framework for the County, residents, NCDOT, developers and other partners to create the vision of a multimodal pedestrian network, and supporting the policies that help that vision become a reality. The Pedestrian Plan was developed over a 2-year process involving community engagement, field reviews, existing conditions evaluation, and project development to arrive at a set of top projects for advancement by the NCDOT, County and local municipalities. The intent of these projects is to build stronger multimodal connections within the County's urban areas and to better link community assets like schools. One such priority project was a sidewalk connection along Fairview Rd as well as a better connection to the Fairview School campus.

TAKEAWAY: This plan document is the most recently developed plan that addresses multimodal needs in the County, and it reaffirms the need to better connect Fairview School with the surrounding municipalities and communities.

Jackson County Unified Development Ordinance (2019)

Jackson County's Unified Development Ordinance (UDO) is intended to fulfill the goals, objectives, and action items from the County Land Use Plan 2040, thereby promoting land development patterns that support and address growth needs in the County. Specific to pedestrian needs, the UDO addresses several key elements.

Subdivision Design:

- Developers of major subdivisions in Jackson County are required to set aside a portion of the development for open space (UDO Section 4.3.2 Open Space—Major Subdivisions (Sec. 28-66)). Developers of major subdivisions (8 or more lots) and conservation subdivisions may build sidewalks, greenways, or trails to meet open space requirements.
- A property owner may elect to pay a fee-in-lieu of open space instead of providing the required open space and a development's fee-in-lieu revenue is to be used for greenway and park-like projects.

Cashiers Regulated District: The District has two zoning districts, the Village Center District (VC) and the General Commercial District (GCD). The purpose of the VC is to "enhance the traditional core of the village." Enhancing the village includes development that is sensitive to pedestrians. Examples of district standards that are sensitive to pedestrians include: street trees, landscaped parking lots, limited property access points (no more than two) and encouraged shared access points.

Cullowhee Community Planning District: Several districts in the Cullowhee Community Planning District explicitly require pedestrian facilities:

- All streets and road frontages
- Multifamily Residential – High Density District and Multifamily Residential – Low Density District
- Single Family Residential District and the Single Family Residential – Manufactured Home District

US 441 Gateway District: in general, many of the standards work to create an overall pedestrian friendly environment. Included in this district are connectivity standards.

TAKEAWAY: When it comes to zoning and development regulation, Jackson County is an unusual county in Western NC. Jackson County has three areas with individual zoning ordinances to guide growth and development. The areas include the Cashiers Regulated District, the US 441 Regulated District, and the Cullowhee Community Planning District. The UDO contains sidewalk and greenway development specifications in the un-zoned areas in Jackson County, as well as the three regulated districts. This guidance can be used to guide the development of a pedestrian connection to Fairview School.

NCDOT Complete Streets Policy (2019)

NCDOT adopted a Complete Streets policy in 2009, which was updated in 2019. The policy directs transportation engineers and planners to consider and incorporate multimodal facilities in the design and improvement of all appropriate transportation projects in North Carolina. A 2022 update to the policy offers additional methodology and guidance for Complete Streets review.

This policy sets forth the protocol for the development of multimodal transportation networks. The purpose of the policy is to guide existing decision making and design processes to ensure that all users are included during the planning, design, construction, funding, operation, and maintenance of North Carolina's transportation network, and will not create barriers or hazards to the movements of those users. Consideration of multimodal elements will begin at the inception of the transportation planning process. The 2022 updates introduce a Project Evaluation Methodology, which provides planners and designers with additional guidance on facility selection and balancing needs within the public right-of-way.

The process for project advancement under the new policy is through Strategic Prioritization and the local Comprehensive Transportation Plan (CTP). The importance of this new policy to local governments like Jackson County cannot be understated; it reduces or eliminates cost-sharing requirements by the local government, which has been a burden and barrier for many towns to implement multimodal projects. Jackson County may coordinate with their local NCDOT Division Planning Engineer or Corridor Development Engineer to understand how a complete street project is moving through the project development process.

TAKEAWAY: With the Fairview Road Pedestrian Connector project identified in several County and NCDOT plans, the project is eligible for NCDOT to cover the full cost of the project.

Jackson County Land Use Plan 2040 (2017)

The purpose of this Plan was to create a guiding policy document for the County in addressing the impacts of growth over the next 25 years. Each municipality in the County has goals for the Comp Plan; in Sylva, goals include encouraging multimodal transportation connectivity between neighborhoods and destinations and building out the sidewalk system. Webster will integrate transportation choices to achieve maximum efficiency and mobility. More specifically, the Plan identifies the following goals and strategies that directly relate to this feasibility study:

- Expand sidewalks, bike lanes, and greenways to housing and community centers.
- Encourage the towns to continue to require sidewalks for developments.
- Continue to partner with Southwestern RPO to identify multi-modal transportation projects.

- **Provide bicycle and pedestrian connection between Fairview Elementary School and NC 107.**
- Designate funds in the budget for local match requirements and maintenance for infrastructure projects.
- Encourage municipalities to designate funds for local match requirements and maintenance for infrastructure projects.
- Partner with NCDOT and municipalities to upgrade signs at high hazard locations for pedestrian safety.
- Identify and prioritize high hazard locations for pedestrians and bicyclists.
- Provide public service announcements (radio, newspaper, text, email and/or social media) about cyclist safety, pedestrian safety, and associated health benefits.
- Partner with Active Routes to School, Mountain Wise, public school and homeschool associations to educate on alternative modes of transportation and bike and pedestrian safety.

TAKEAWAY: The Comprehensive Plan identifies goals and objectives that are closely aligned with this Feasibility Study, providing the specific project recommendations for Fairview School as well as the policy and program support to realize such a project. This framework will enable the success of such a project to move through design, construction, and ongoing maintenance.

Jackson County Comprehensive Transportation Plan (2017)

The Comprehensive Transportation Plan (CTP) is the region's multi-modal transportation plan that seeks to identify needed improvements. The CTP represents a community's consensus on the future transportation system needed to support anticipated growth and development over a 25- to 30-year timeframe. When a CTP is adopted by NCDOT, it represents the state's concurrence with the identified transportation needs and proposed recommendations.

The CTP contains the key recommendation that was a large part of the development of this feasibility study: sidewalk from NC 107 to Smoky Mountain High School and Fairview Elementary School access road.

TAKEAWAY: The CTP specifies the need for the Fairview School Pedestrian Connection feasibility study, which represents the state's concurrence with the project need.

NC 107 Corridor Study Report (2012)

This study examined the existing conditions of NC 107 to assist the community with developing a more unified vision of the corridor and to create a list of strategies to improve transportation, economic viability, and preserve natural resources. Key goals and objectives were identified as a part of the study, including improving NC 107 for all modes and improving access management. The Study identified needed improvements to the corridor. From a pedestrian perspective, there is sidewalk only on one side of NC 107, it is an unpleasant environment, and there are many driveway cuts. The report acknowledges that the corridor is largely occupied by commercial land uses, however it provides access to several institutional uses such as schools. The report also references Fairview School as one of several major traffic generators along the corridor.

The report provides key recommendations for the State Transportation Improvement Program (STIP), the Town, and the County. Relevant to this study:

- Implement access management techniques to assist with access and mobility issues, to increase the multi-modal safety of the road.
- Accept a lower Level of Service.
- Add sidewalk to the east side of the corridor.
- Reduce the 85th percentile speed of the corridor.
- NCDOT/Town of Sylva to work together on streetscaping to reduce speed and increase safety.
- Provide pedestrian crossings at all traffic signals and at least every quarter mile.

- Prepare new development standards and land use plan in Sylva that create a denser pattern of development.

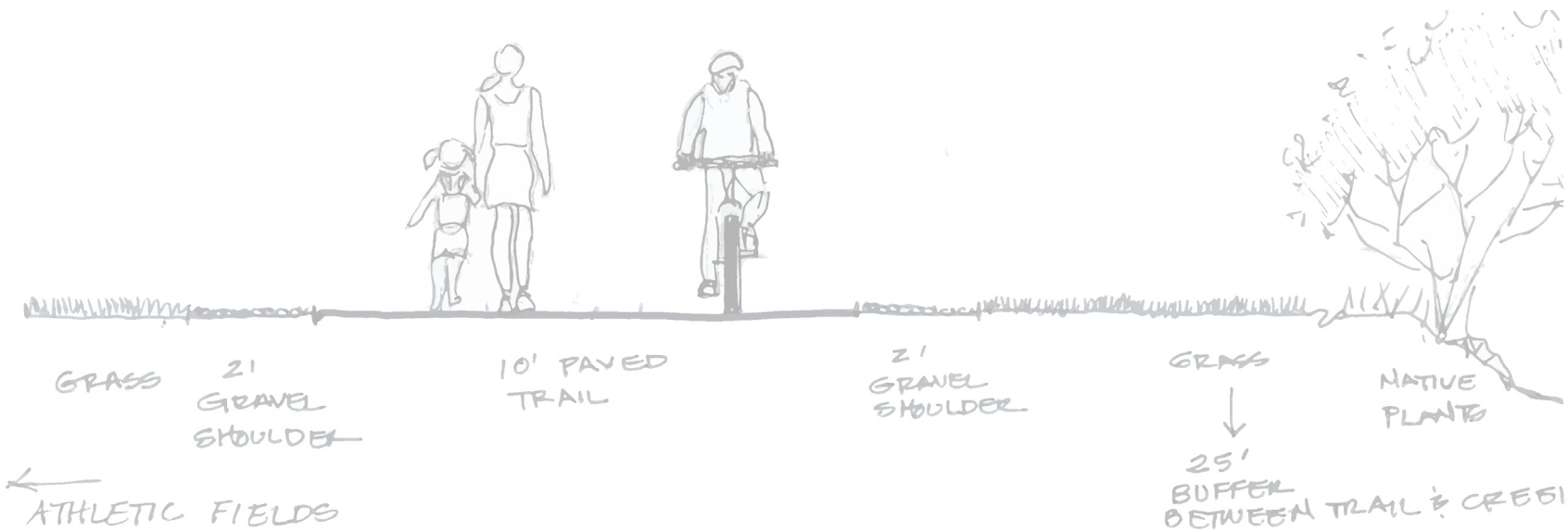
TAKEAWAY: Improvements to NC 107, as specified in this report, will improve pedestrian connectivity to Fairview School from adjacent municipalities. These improvements include physical infrastructure (crossings and sidewalks) as well as policy and land use changes to ensure that Fairview School is better integrated into the corridor and the entire system operates better for all users

Sylva Comprehensive Pedestrian Plan (2010)

The intent of Sylva's Pedestrian Plan is to provide a framework for the Town to become a more pedestrian-friendly community. The Plan provides infrastructure recommendations, programs, and policies in short-, mid- and long-term priorities. Two project recommendations are relevant to this feasibility study:

- Fairview Ave sidewalks to connect the ballfields and school to NC 107.
- Pedestrian improvements to the NC 107 and NC 116 intersection, with Fairview School and the high school being a major influence.

TAKEAWAY: Sylva's Pedestrian Plan also identifies the need for this connection and improvements to the intersection with NC 107.



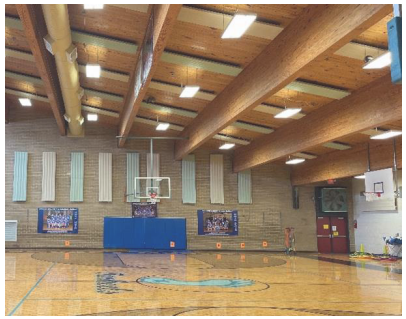
APPENDIX D

Jackson County School Board Facility Plan

Source: Jackie Moore, Safe Routes to Schoo

Facilities Assessments







CLARKNEXSEN

Jackson Co.

Smokey Mountain Elementary

Jackson Community School

Scotts Creek Elementary

Smoky Mountain High

Fairview Elementary

Cullowhee Valley

Blue Ridge School

Blue Ridge Early College

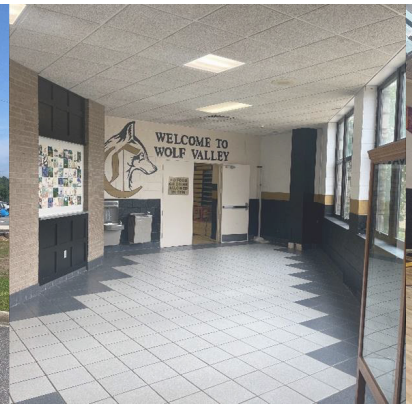
CLARKNEXSEN

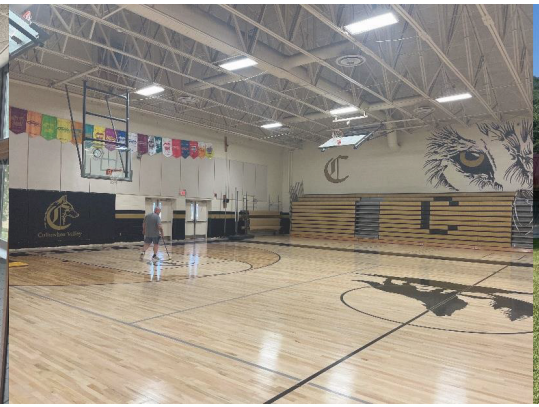
Overview

- Schools evaluated using the DPI site and building analysis tool
- Utilization was done (where possible) to compare number of students per space profile
- JC Community School and Blue Ridge don’t have DPI model for comparison
- Recommendation for Schools and Smoky Mtn High Athletics

CLARKNEXSEN

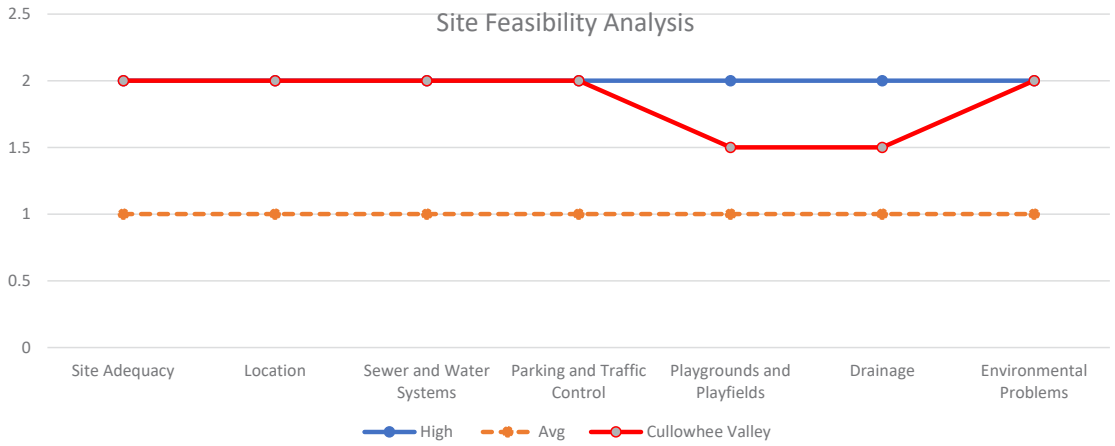
Cullowhee Valley School





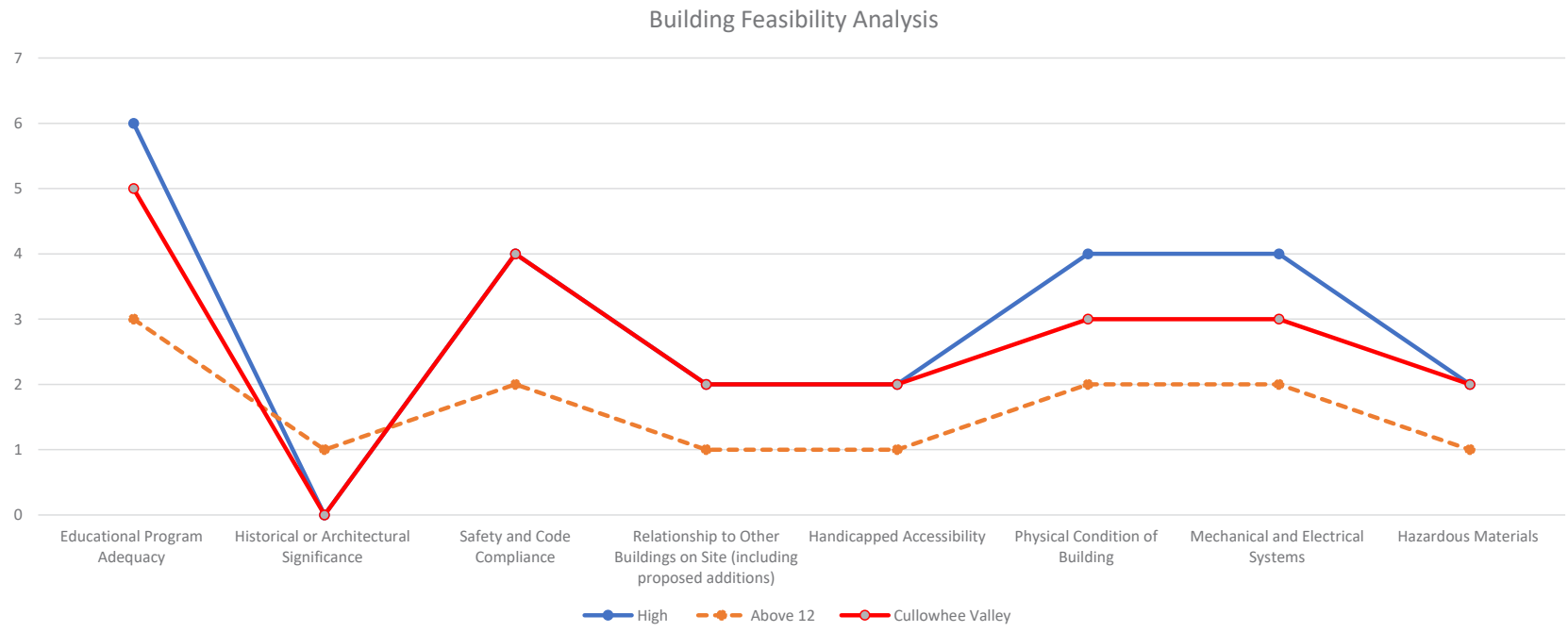
CLARKNEXSEN

Site



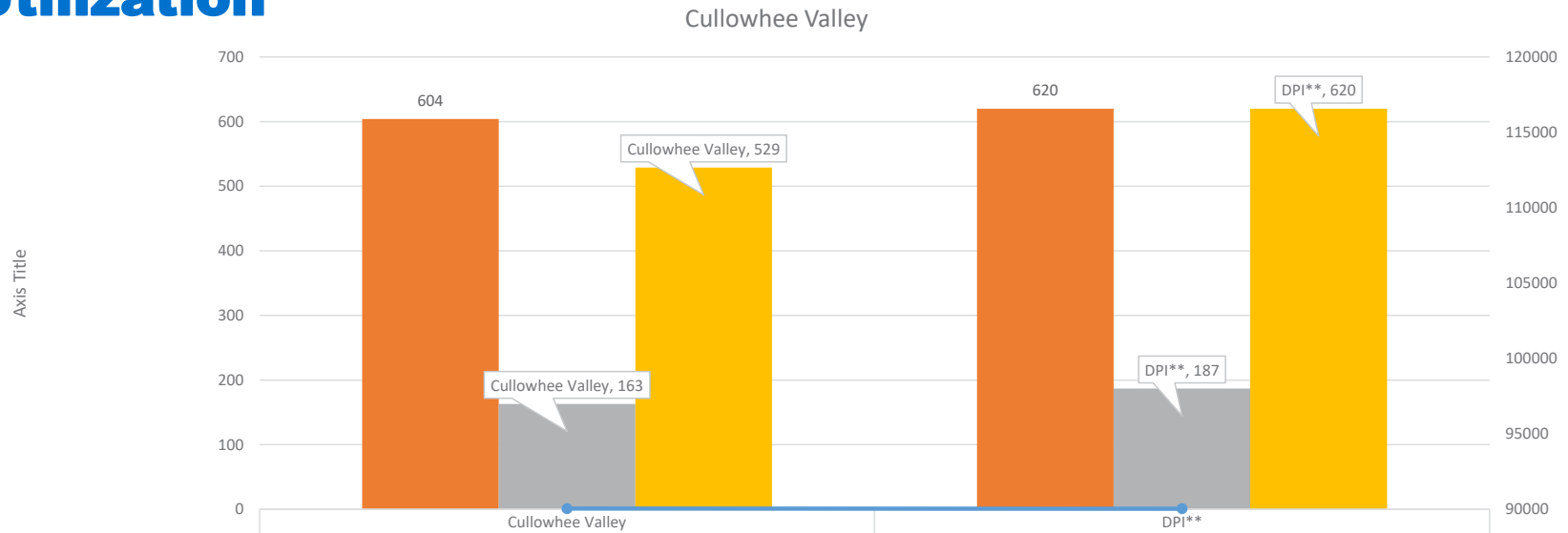
CLARKNEXSEN

Building



CLARKNEXSEN

Utilization



	Cullowhee Valley	DPI**
Current Student Enrollment	604	620
SF/Student	163	187
Available Capacity	529	620
% Utilized	114%	100%
Total Building Sf	99030	116040

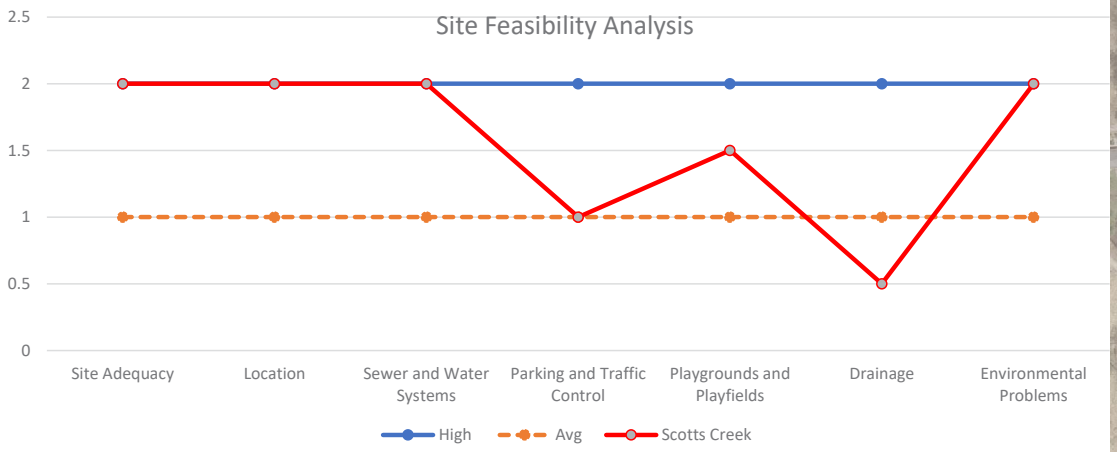
CLARKNEXSEN

Scotts Creek Elementary




CLARKNEXSEN

Site



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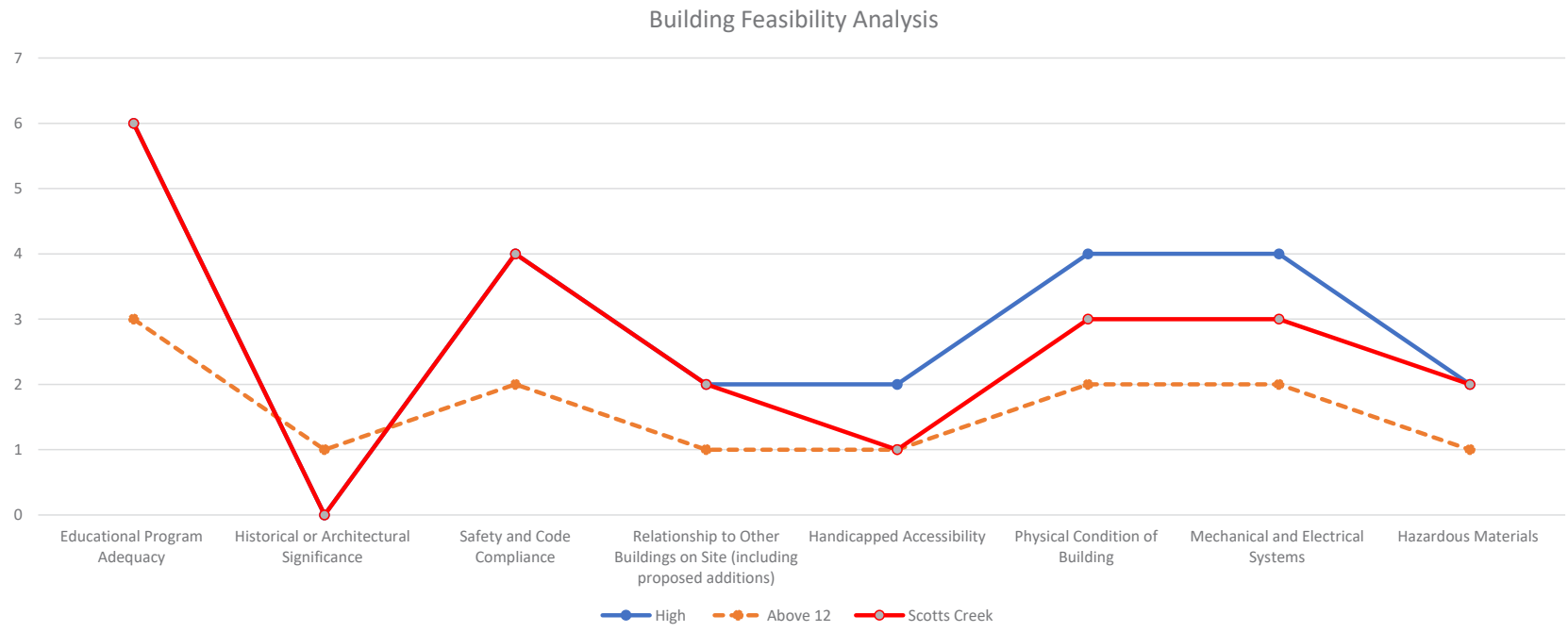
Building



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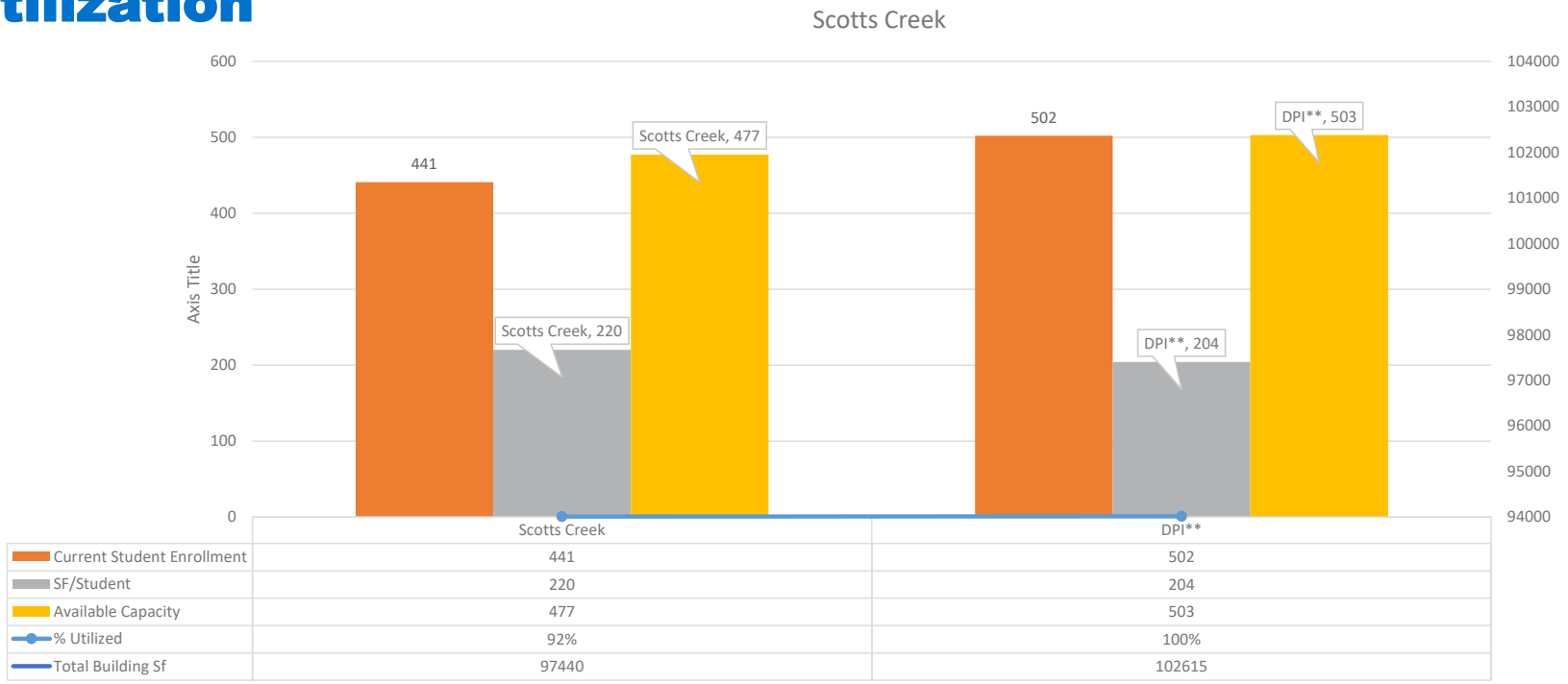
Utilization

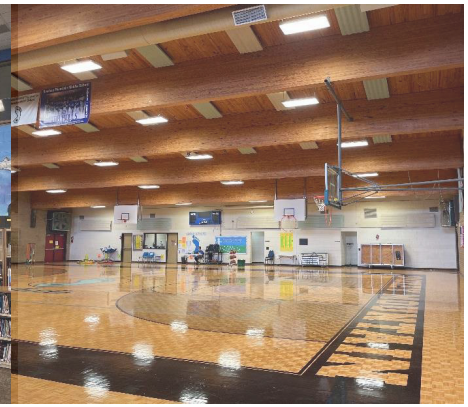


	Scotts Creek	DPI**
Current Student Enrollment	441	502
SF/Student	220	204
Available Capacity	477	503
% Utilized	92%	100%
Total Building Sf	97440	102615

CLARKNEXSEN

Smokey Mtn Elementary



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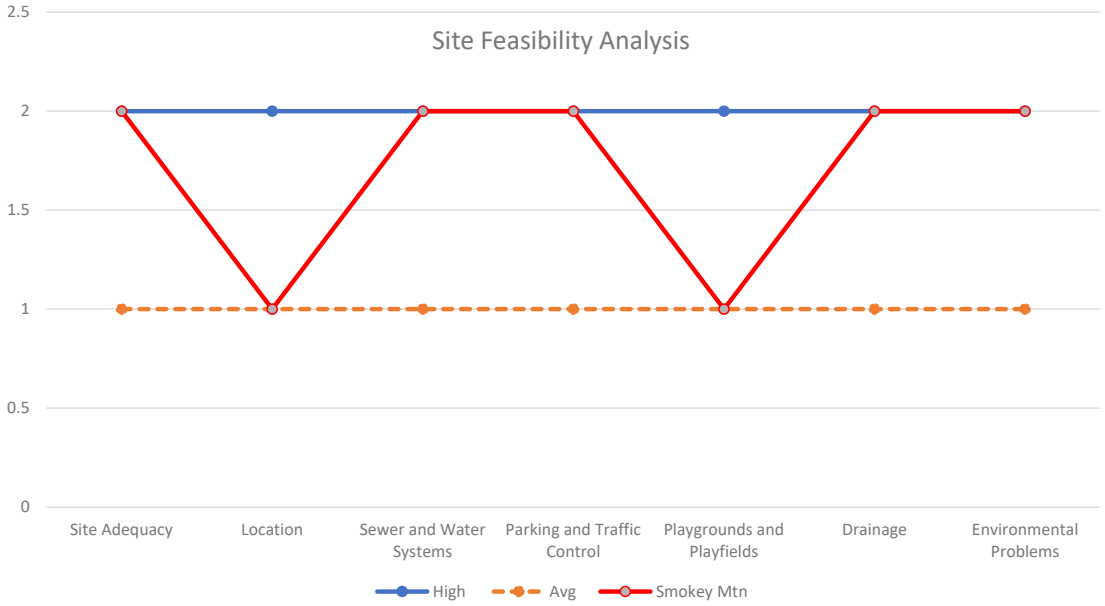
Site



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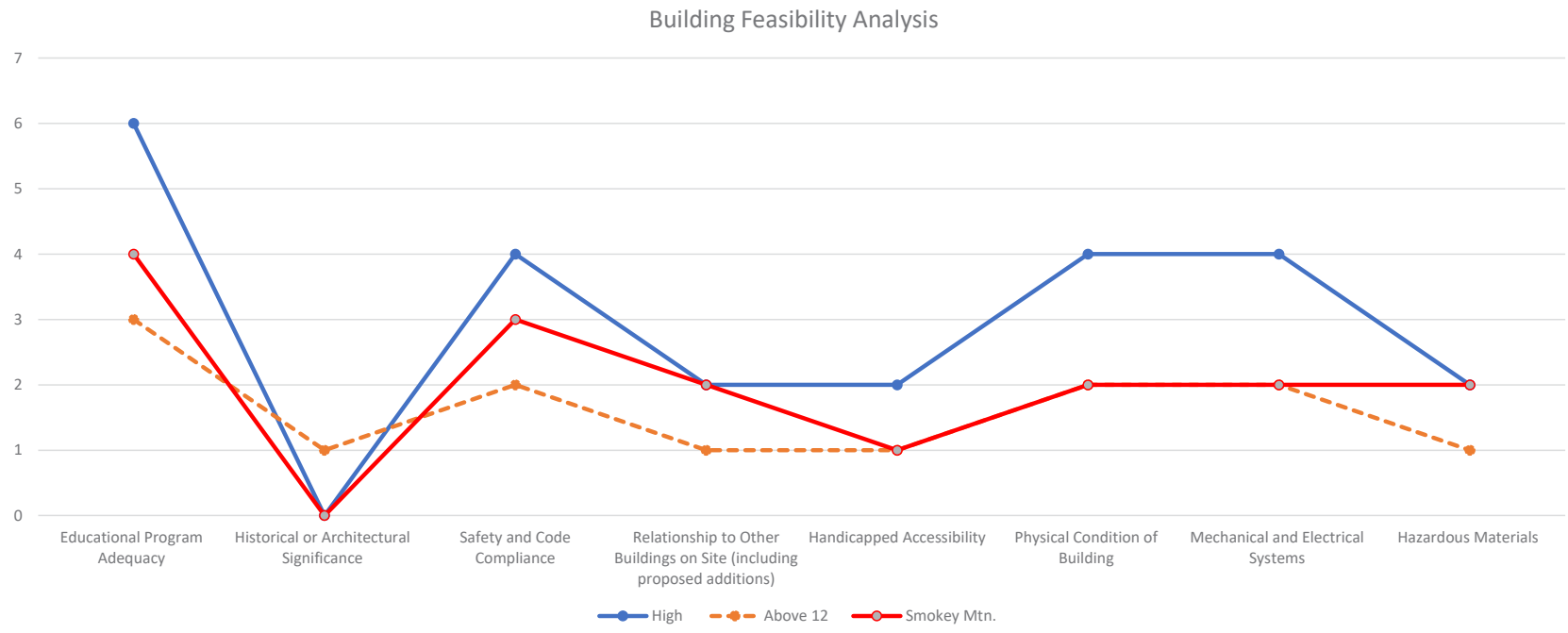
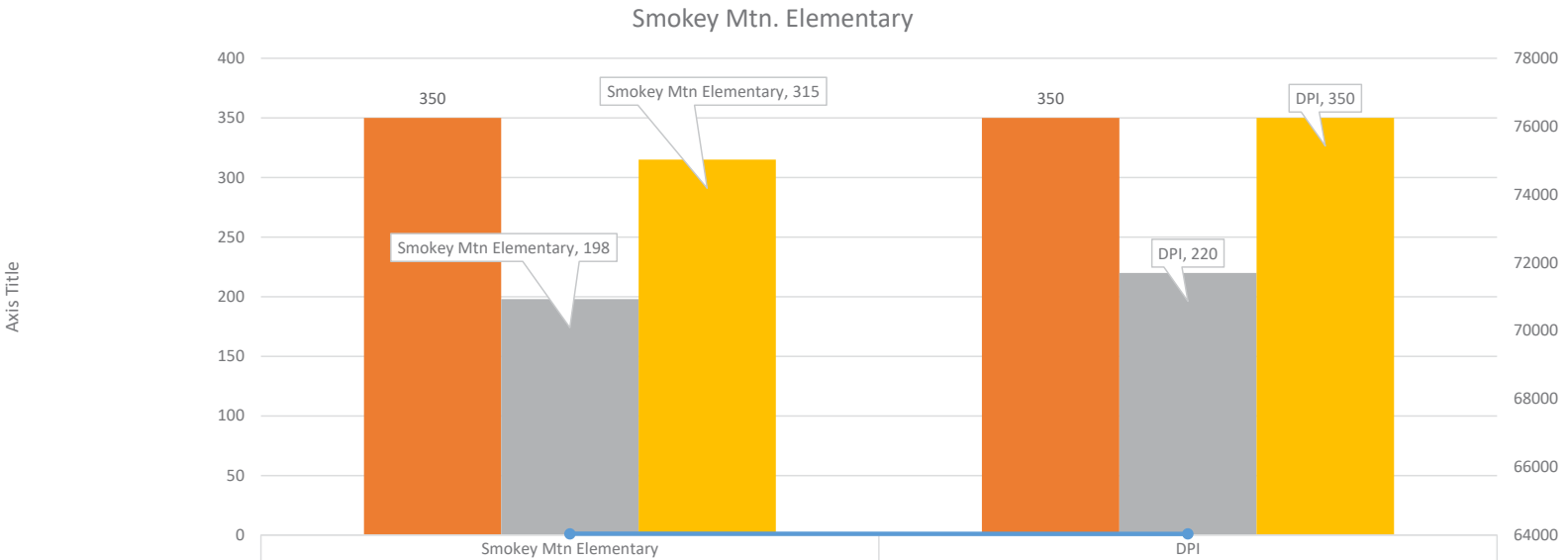
Building



CLARKNEXSEN

Utilization



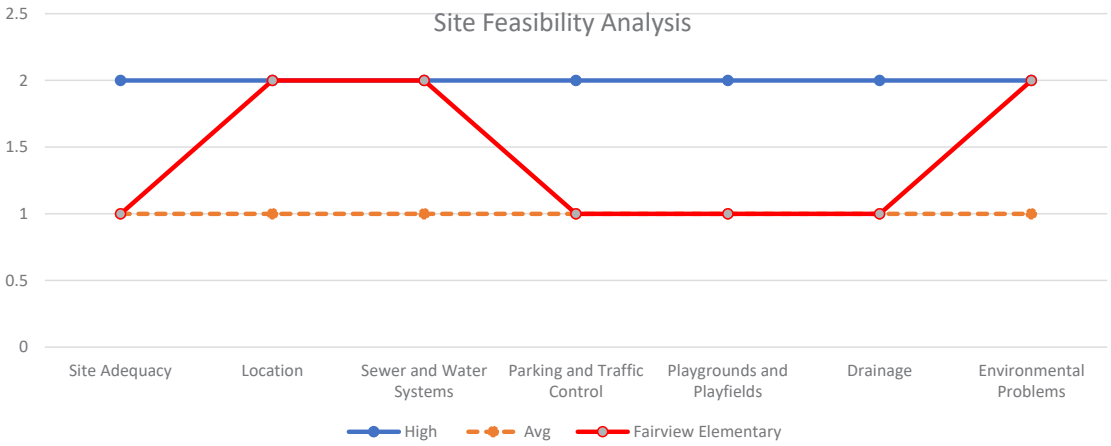
	Smokey Mtn Elementary	DPI
Current Student Enrollment	350	350
SF/Student	198	220
Available Capacity	315	350
% Utilized	111%	100%
Total Building Sf	69350	77000

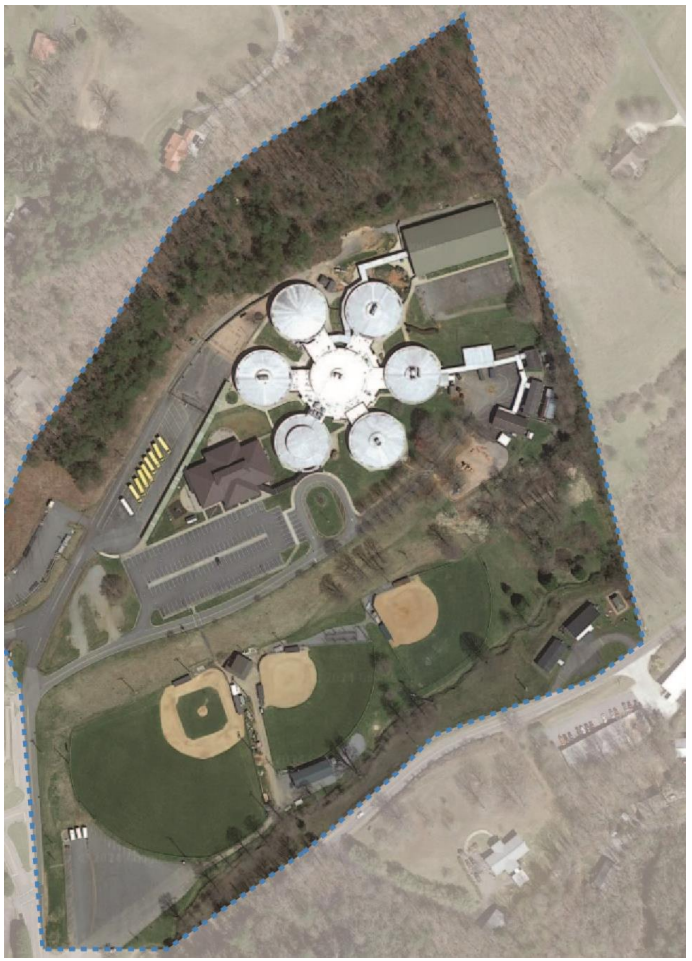
CLARKNEXSEN

Fairview Elementary

CLARKNEXSEN

Site





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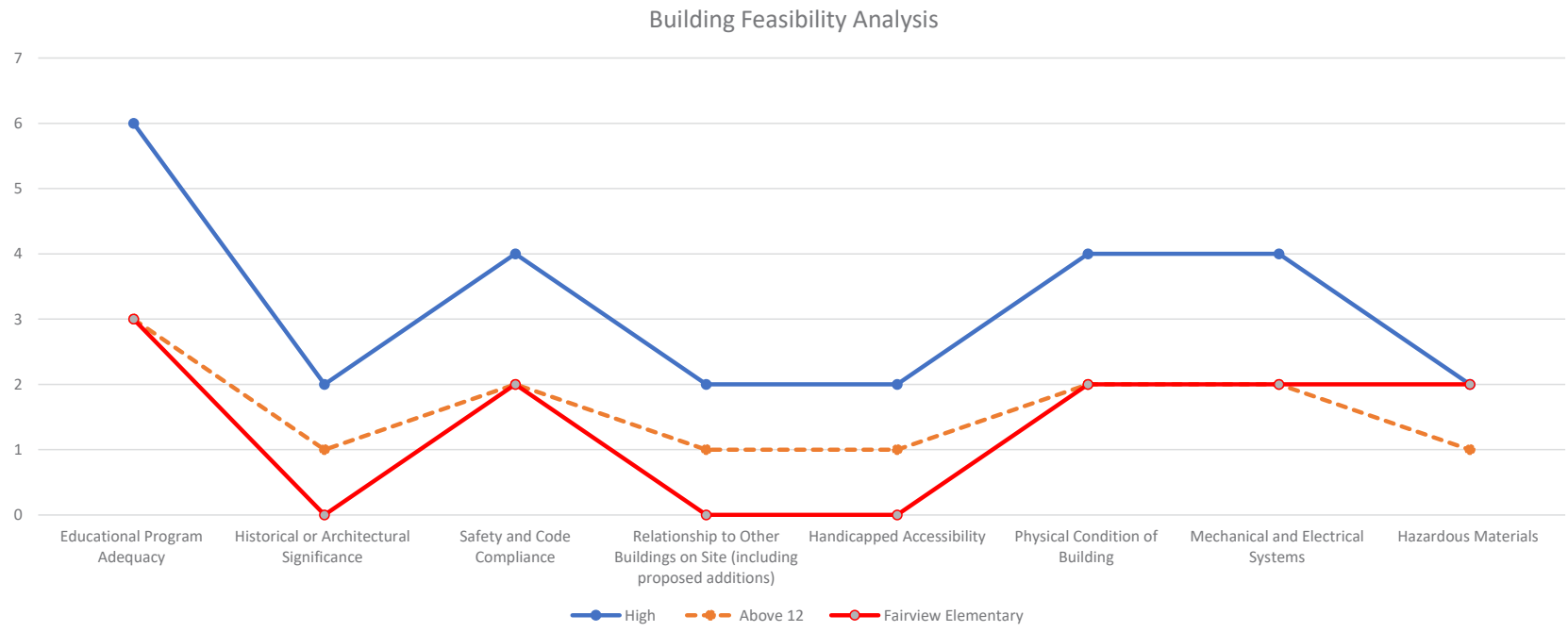
Building



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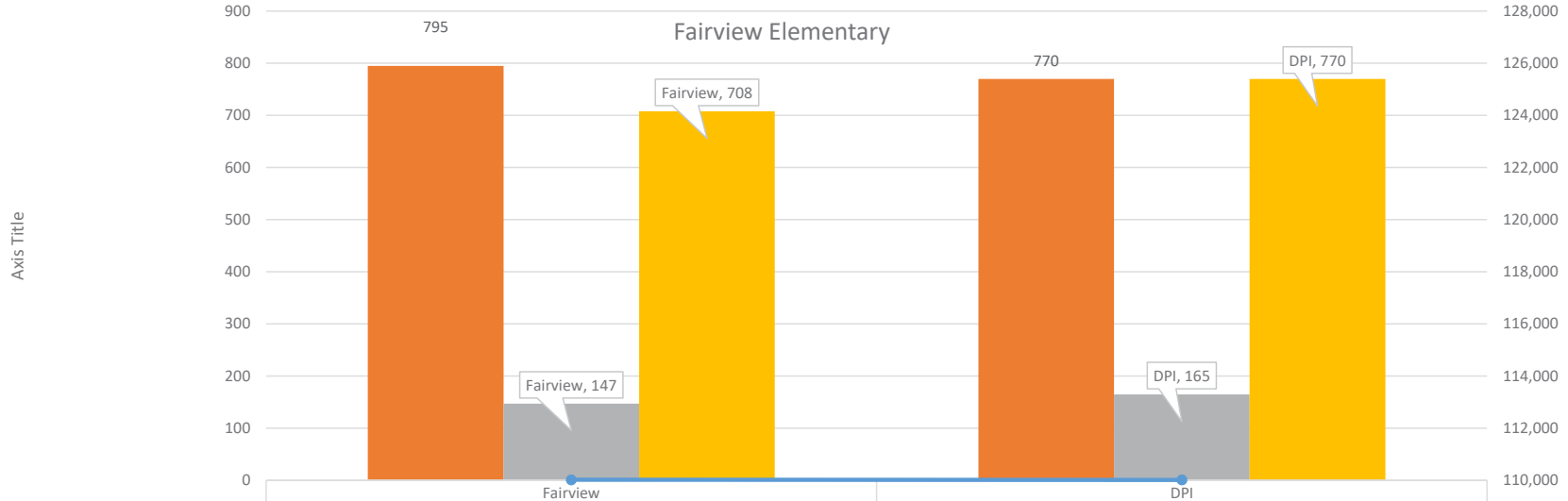
Utilization



	Fairview	DPI
Current Student Enrollment	795	770
SF/Student	147	165
Available Capacity	708	770
% Utilized	112%	100%
Total Building Sf	116,910	127,118

CLARKNEXSEN

Jackson Community School




CLARKNEXSEN

Bus Garage



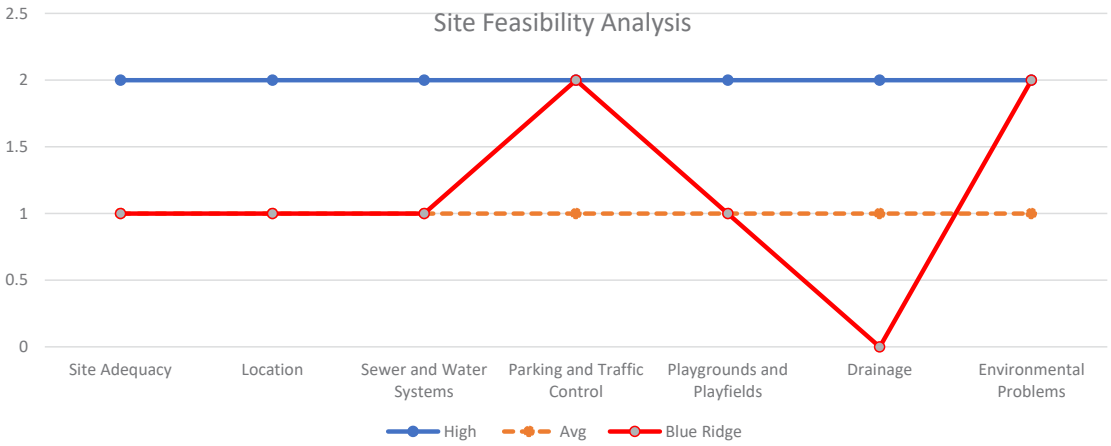

CLARKNEXSEN

Blue Ridge School
Blue Ridge Early College




CLARKNEXSEN

Site



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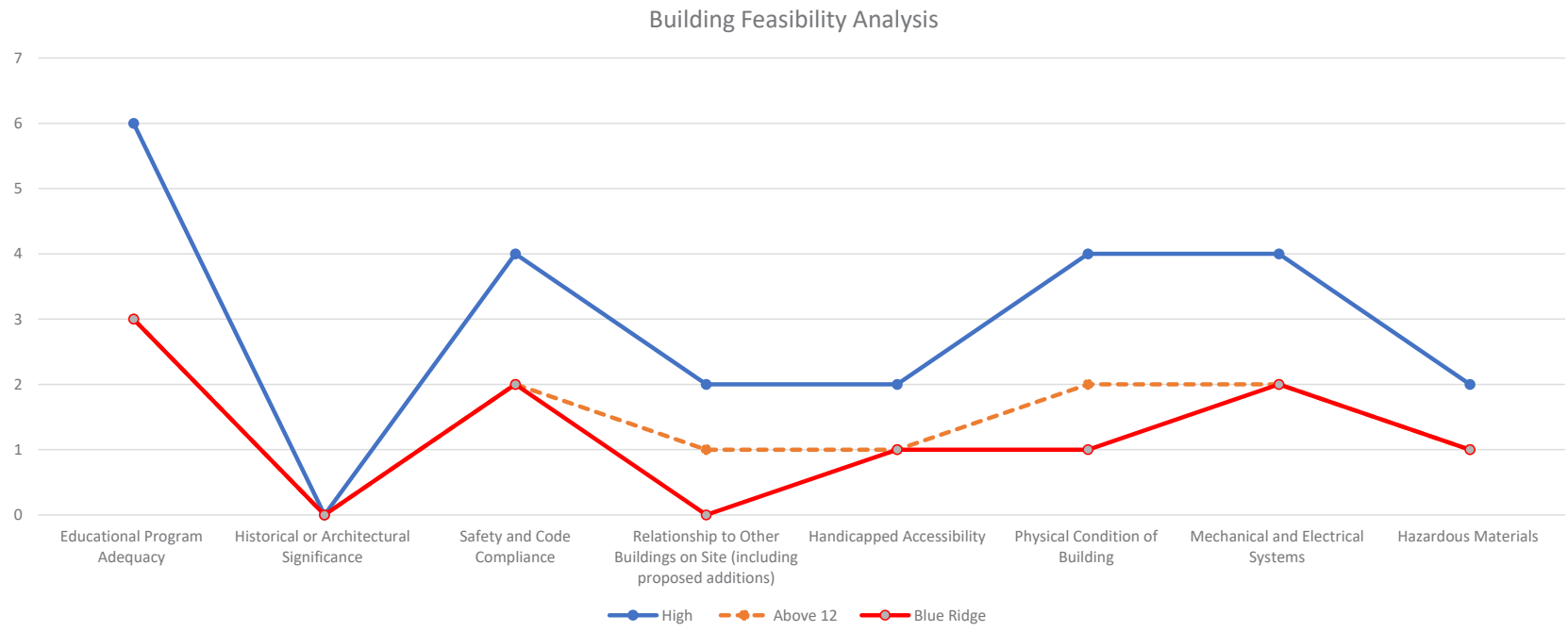
Building



CLARKNEXSEN

Summary

- Schools exhibited an average of 110% utilization
- High utilization/growth in grades Pre-K thru 5
- All sites and structures are average to above average
- Fairview is most challenged with site constraints, ADA, cafeteria, and classroom configurations. Immediate need for new cafeteria, kitchen, and minimum of 6+ classrooms
- Bus Garage should be replaced on site
- Blue Ridge Kitchen/Serving line should be addressed.

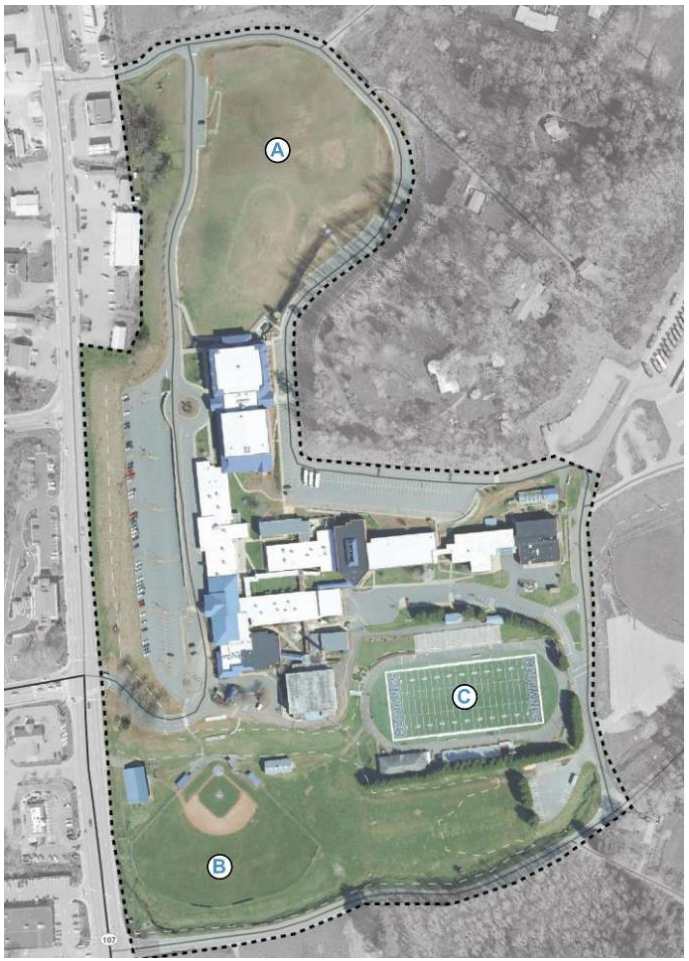
CLARKNEXSEN

Smoky Mountain High

Athletic Facility Assessment

CLARKNEXSEN

Site



CLARKNEXSEN

Site Evaluation

Site A

- Previously graded for future Baseball and Softball fields.
- Viable option for 8 Lane Track and Soccer field.

Site B

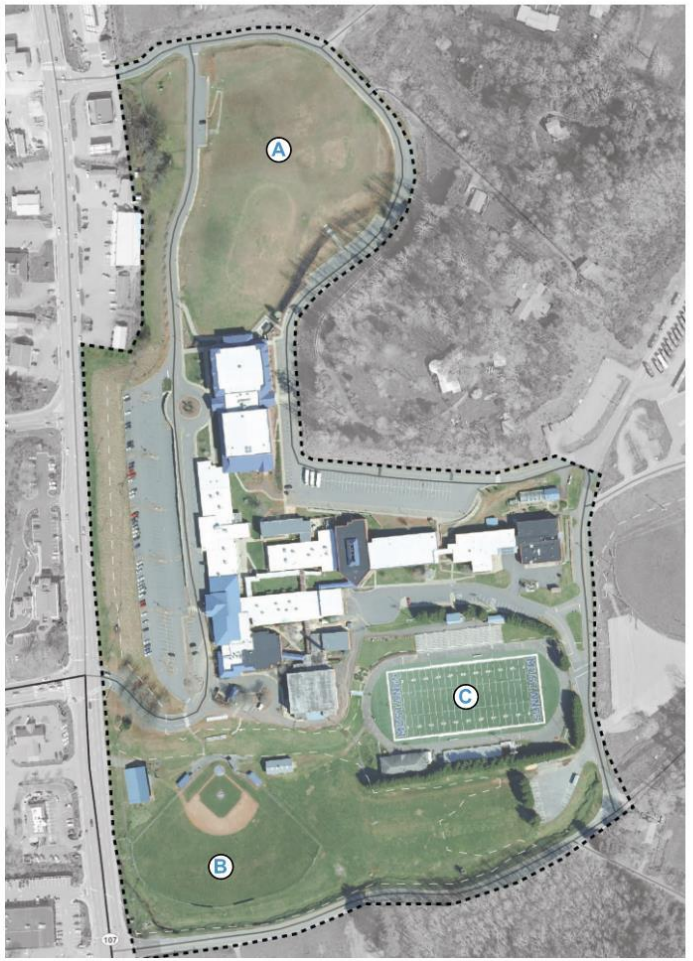
- Existing Baseball field with recently added structures.
- General area is within floodplain.
- 20 feet (+/-) lower than existing football field.

Site C

- Existing football field, stadium seating, concessions and restrooms.
- Field level and existing press box is not ADA accessible.
- Track does not meet size requirements for competition.
- Visitor's side needs restroom and concessions facilities.
- Existing layout is not adequate for hosting track and field events.

Smoky Mountain High - Programming - January 2024

CLARKNEXSEN



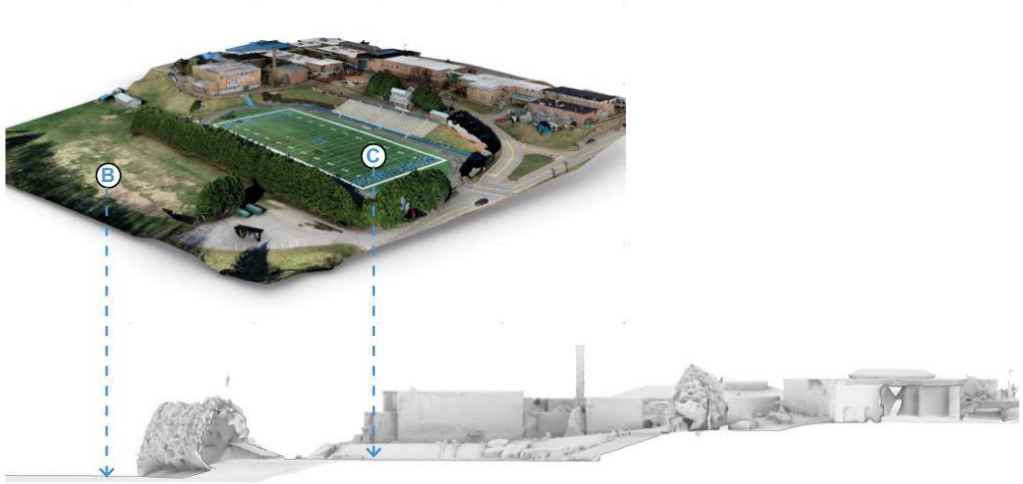
Topography

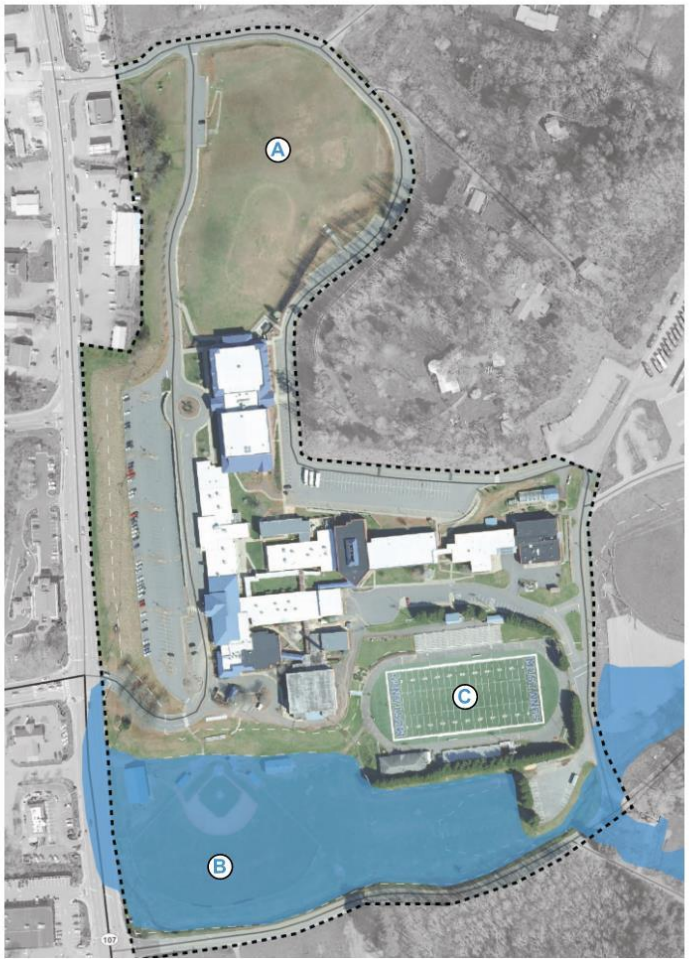
Floodplain

- Floodplain area over majority of **Site B**

Elevation

- (+/-) 20ft of grade change from **Site B** to **C**.



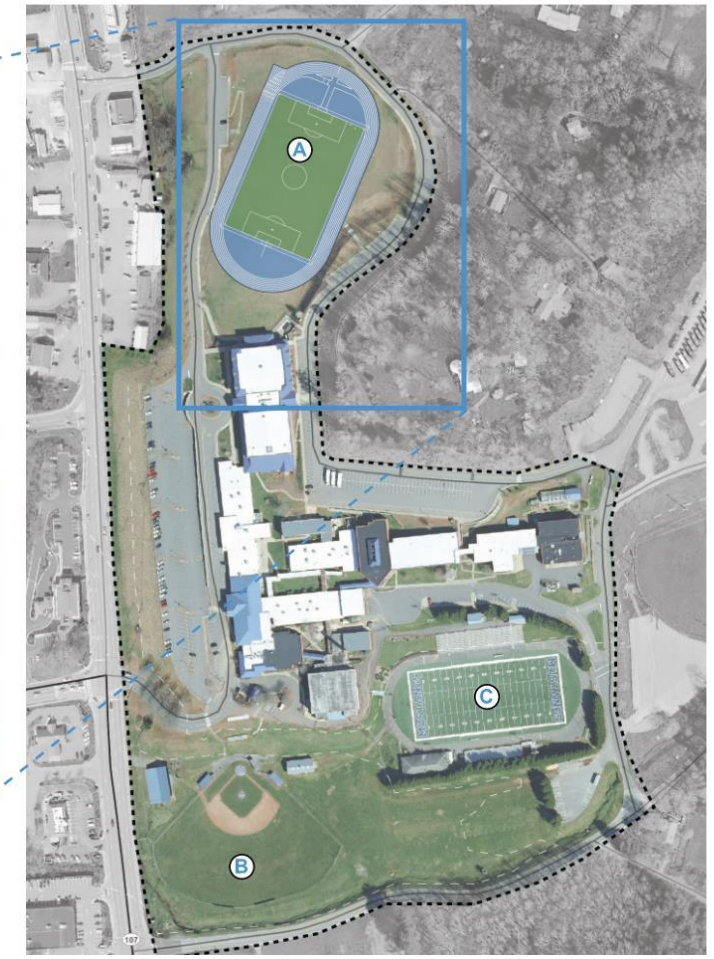


Smoky Mountain High - Programming - January 2024

CLARKNEXSEN

Track and Field

- **Site A** option for new track location.
- Competition Track and Field with 8 lanes, and field events.
- Regulation Soccer field. (Turf surface)
- Accessible access to field and builings for concessions and toilets.
- Field orientation that best fits the site.
- Scoreboard
- Perimeter fencing
- Spectator areas.
- Scoring booth locations with power and data.
- Field Lighting.

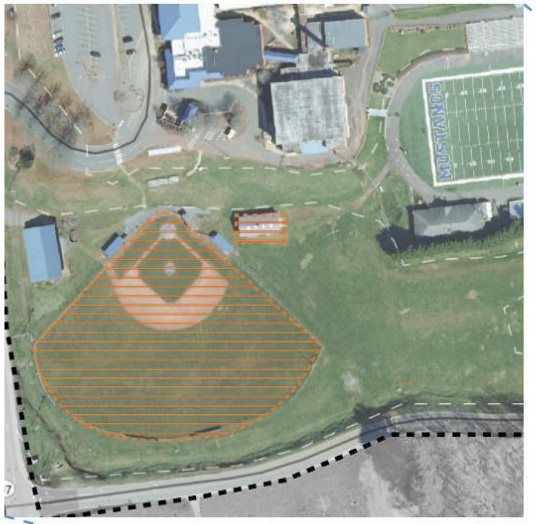


Smoky Mountain High - Programming - January 2024

CLARKNEXSEN

Baseball and Softball

- **Site B** conducive to Baseball and Softball fields.
- Demolish existing field and small structures, and retain existing field house.



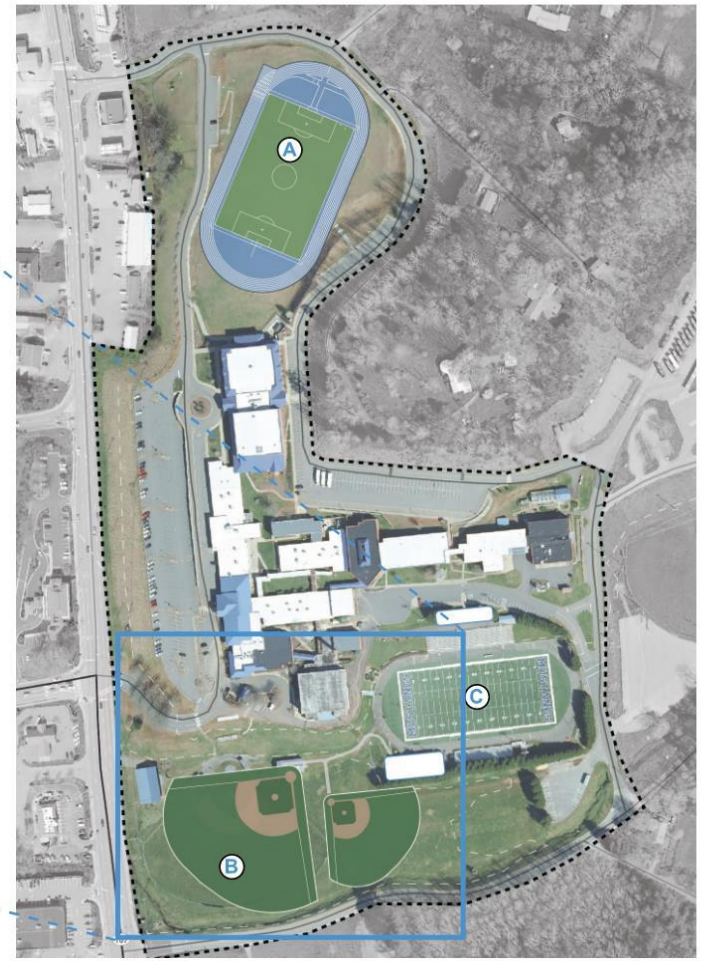
Smoky Mountain High - Programming - January 2024

CLARKNEXSEN

Baseball and Softball

- **Site B** conducive to Baseball and Softball fields.
- Demolish existing field and small structures, and retain existing field house.

- Rebuild Baseball field, add softball field.
- Renovate existing football field house to include toilets and concessions.
- Add accessible route to renovated concessions facility.



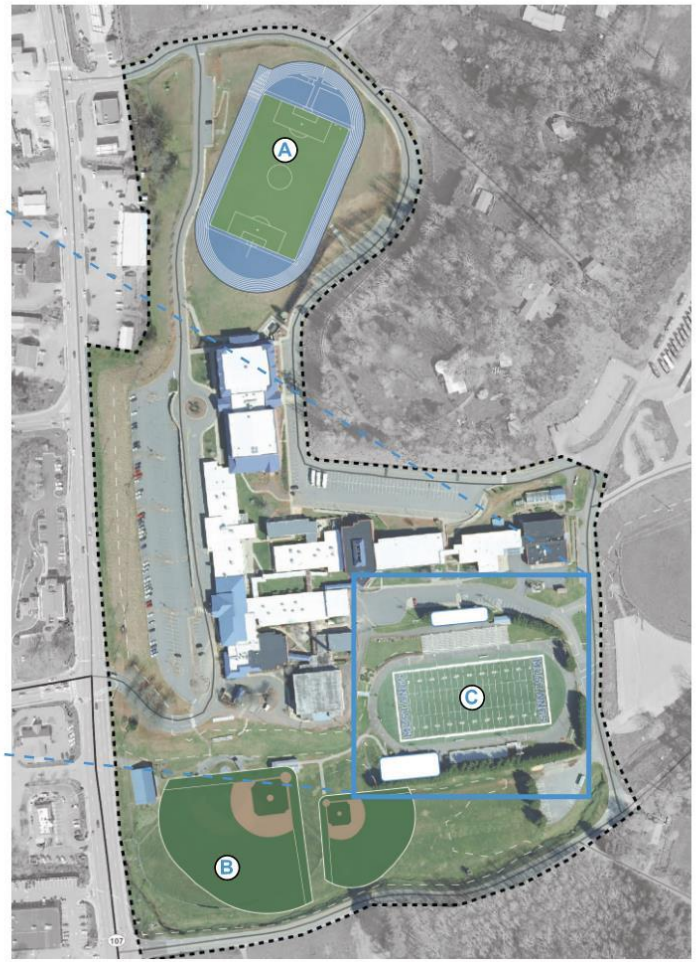
Smoky Mountain High - Programming - January 2024

CLARKNEXSEN

Renovate Football Facilities

Site C - Upgrades

- Increased restroom capacity for stadium occupant load.
- Upgraded concessions and press box facility.
- Additional concessions and restroom facility for visitor side seating.
- Accessible route from press box level to field level.



Smoky Mountain High - Programming - January 2024

CLARKNEXSEN

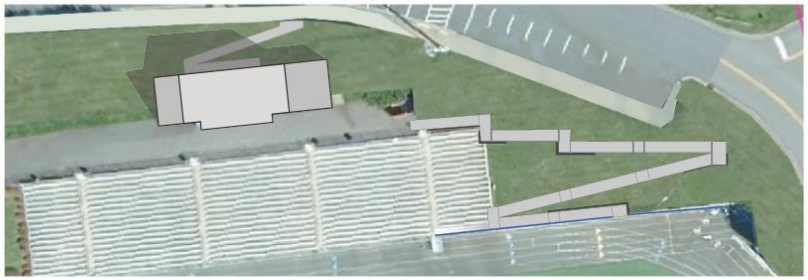
Football Stadium Upgrades

- (a) Consolodated (3) level press box builidng including toilets, concessions, green room, and coaches box.
- Removal of trees at upper level and along road.
- Back of house access for concessions supplies and equipment.

- (c) Renovated field house to include concessions and restrooms for visitor side seating. Includes
- Visitor side access gate
- Existing press box and toilet building removed.

Accessible Ramp (b)

- Roughly 22 feet of elevation from the field to the press box area.
- 264 feet of ramp plus 9 landings = 309 feet total. (5 feet wide)
- Access to the first row of seating is provided with a landing at 4 feet above the field.

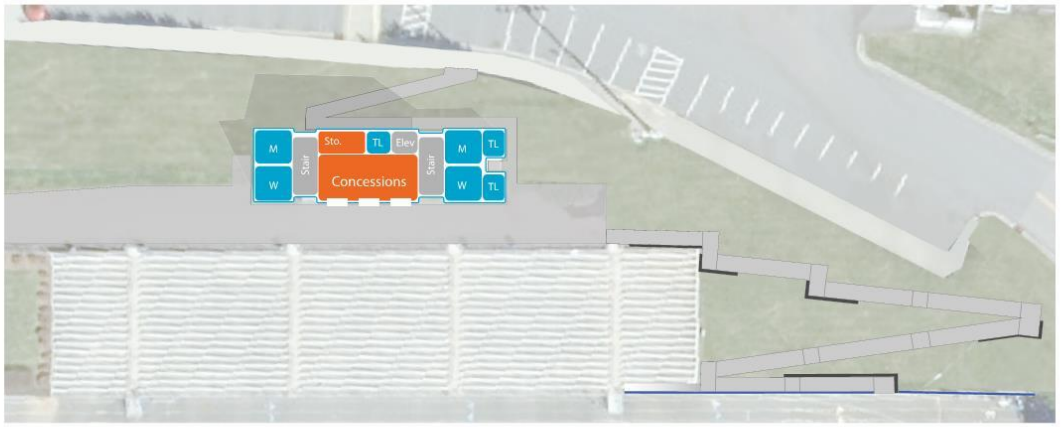


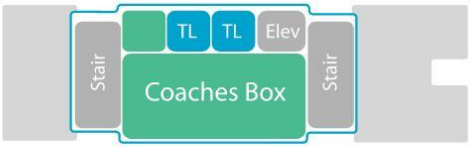
Smoky Mountain High - Programming - January 2024

CLARKNEXSEN

Press Box Facility

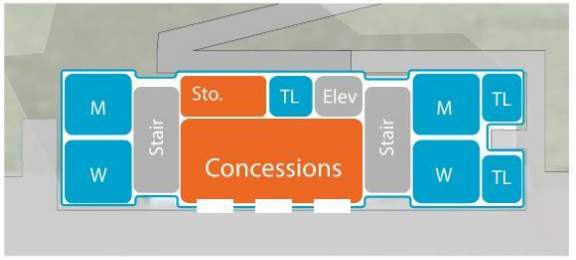
- (3) Story Press box. 3,750 sqft.
- 22 Toilets : 10 m / 10 w / 2 Family Assist. (Serves Home side seating occupancy)
- Elevator for accessiblitiy.
- 2 Stairs for egress requirements.
- Access path to parking for concessions deliveries.
- Toilet rooms at 2nd and 3rd Levels.





Level 3 - Coaches Box (1,000 sqft)

Level 2 - Green Room (1,000 sqft)



Level 1 - Concessions (1,750 sqft)

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Summary

Track and Field + Soccer

- Build Track and Field at vacant land along Jones Street.
- Utilize existing facility for support spaces.

Baseball and Softball

- Rebuild Baseball field and add Softball field and renovate the football field house to include support spaces.
- Retain existing baseball facility.

Football Stadium

- Build new football Press Box facility including support spaces for stadium occupant loads.
- Include Accessible routing to field level.
- Renovated football field house to include concession and restoorms for visitor side seating.
- Add visitor parking and entry at visitor side of stadium.

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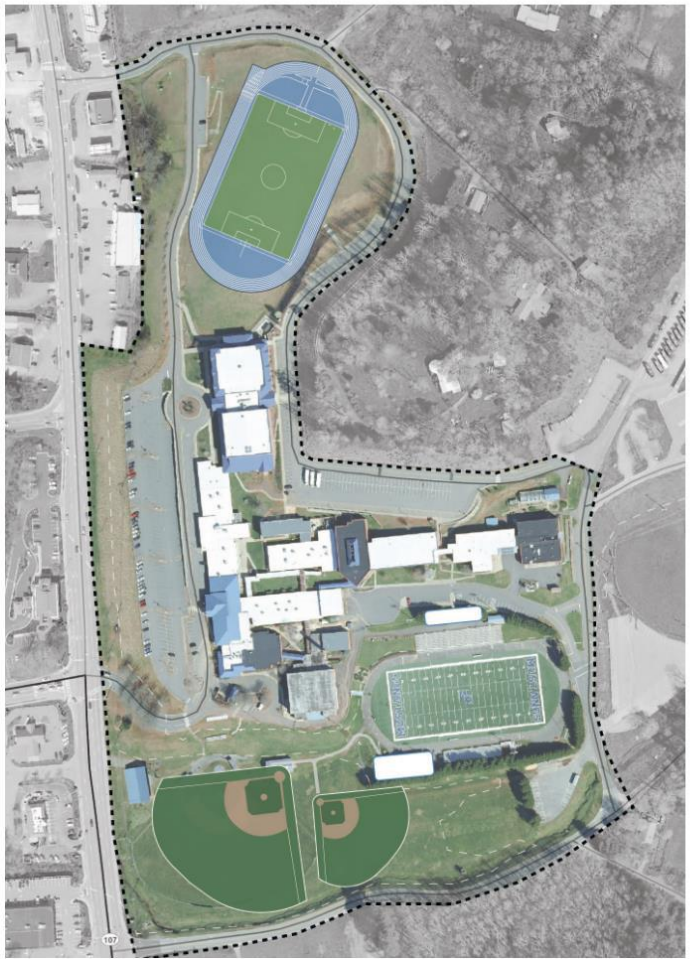

Alternate Layout

Baseball and Softball

- Build Baseball and Softball field at vacant lot along Jones Street. Retain existing baseball facility.
- Utilize existing facility for support spaces.
- Site Previosly graded for baseball and softball fields.

Track and Field + Soccer

- Build Track and Field at existing baseball location
- Demo of existing baseball field and structures.
- New track and field would be located within floodplain

Football Stadium

- Build new football press box facility including support spaces for stadium occupant loads.
- Include accessible routing to field level.
- Renovated football field house to include concession and restoorms for visitor side seating.
- Add visitor parking and entry at visitor side of stadium.

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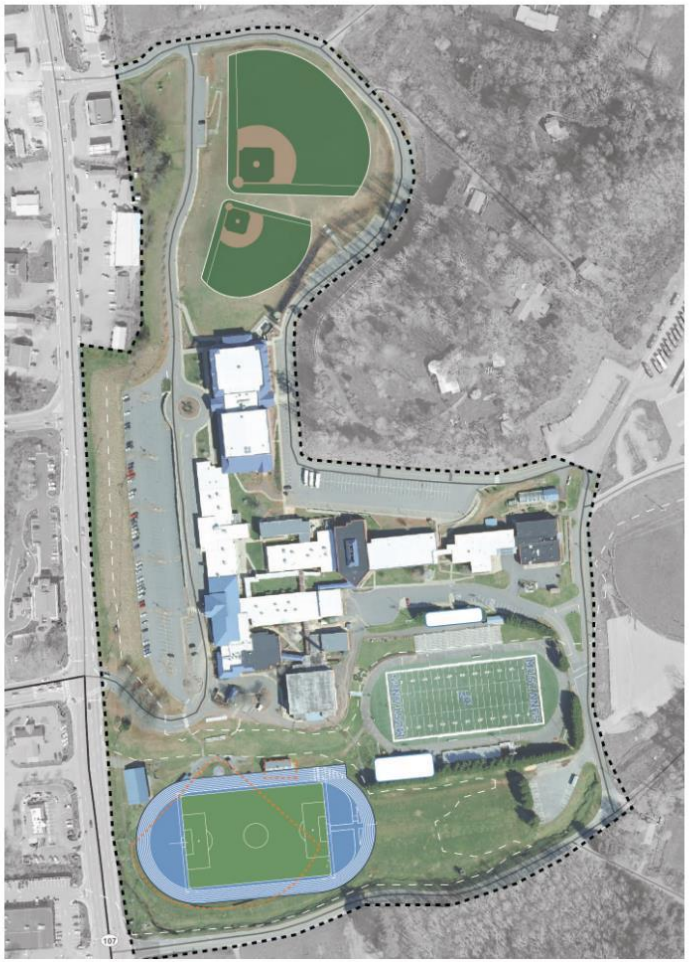

Consolidated Football + Track and Field Layout

Football Stadium

- Demolish existing Track and Football Field.
- Demolish existing field house and visitor side seating.
- Demolish existing press box and restroom facility
- Demolish Tree lines.

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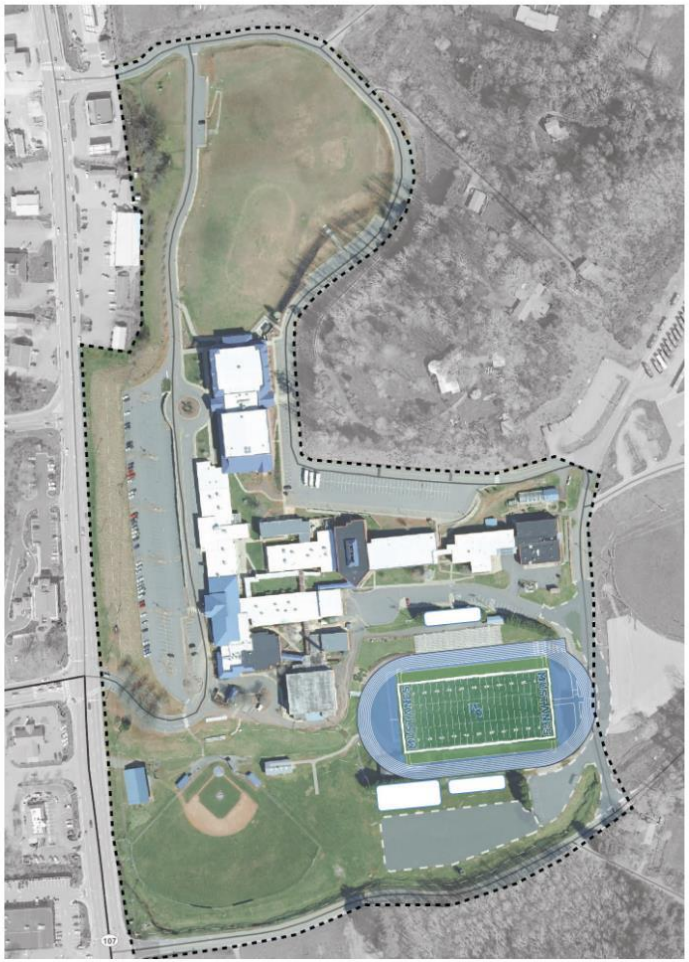
CLARKNEXSEN

Consolidated Football + Track and Field Layout

Football Stadium

- Demolish existing Track and Football Field.
- Demolish existing field house and visitor side seating.
- Demolish existing press box and restroom facility.
- Demolish Tree lines.

- Build new competition size track and field.
- Rebuild road around facility.
- Build new press box, concessions, restroom and ADA access.



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CLARKNEXSEN

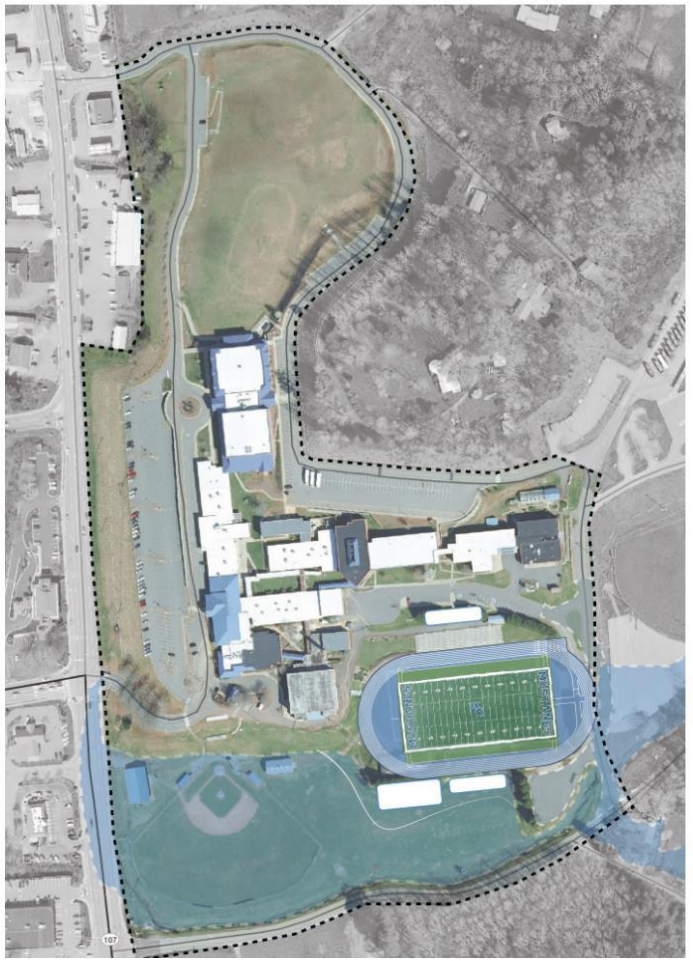
Consolidated Football + Track and Field Layout

Football Stadium

- Demolish existing Track and Football Field.
- Demolish existing field house and visitor side seating.
- Demolish existing press box and restroom facility.
- Demolish Tree lines.

- Build new competition size track and field.
- Rebuild road around facility.
- Build new press box, concessions, restroom and ADA access.

- Infill southern portion of site to for new visitor side seating and new field house.
- (+/-) 20 feet of grading infill



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Consolidated Football + Track and Field Layout

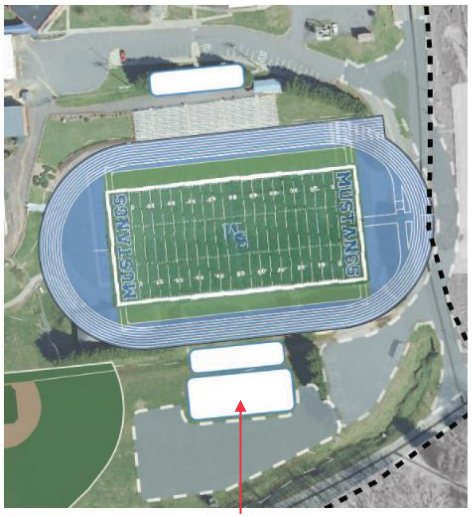
Football Stadium

- Demolish existing Track and Football Field.
- Demolish existing field house and visitor side seating.
- Demolish existing press box and restroom facility.
- Demolish Tree lines.

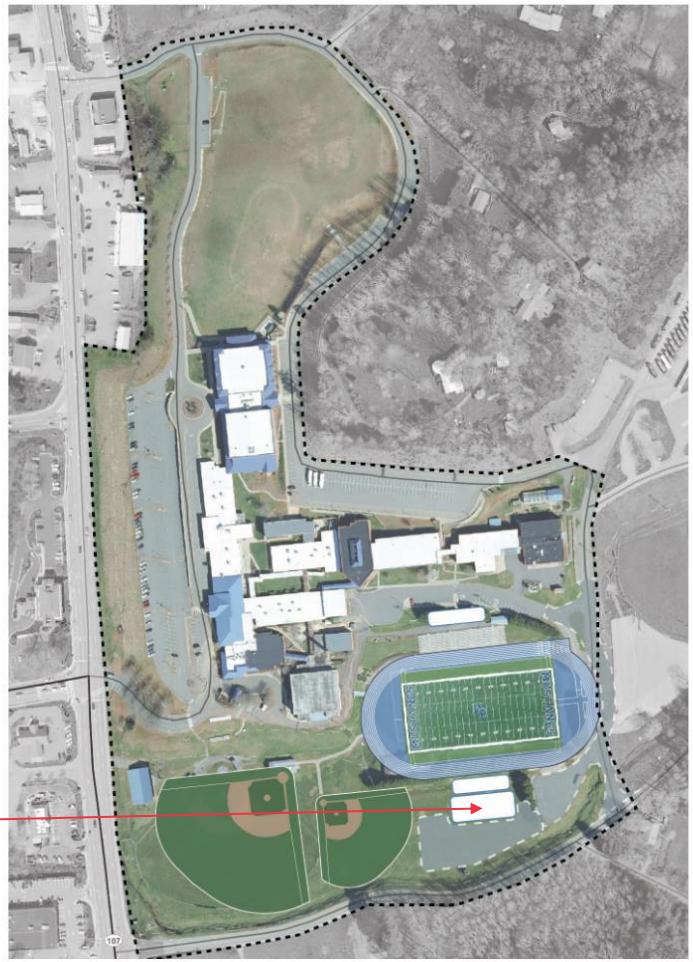
- Build new competition size track and field.
- Rebuild road around facility.
- Build new press box, concessions, restroom and ADA access.

- Infill southern portion of site to for new visitor side seating and new field house.
- (+/-) 20 feet of grading infill.

- Rebuild Baseball field and add Softball Field.
- Revised parking layout.



* Requires removal and replacement of field house.



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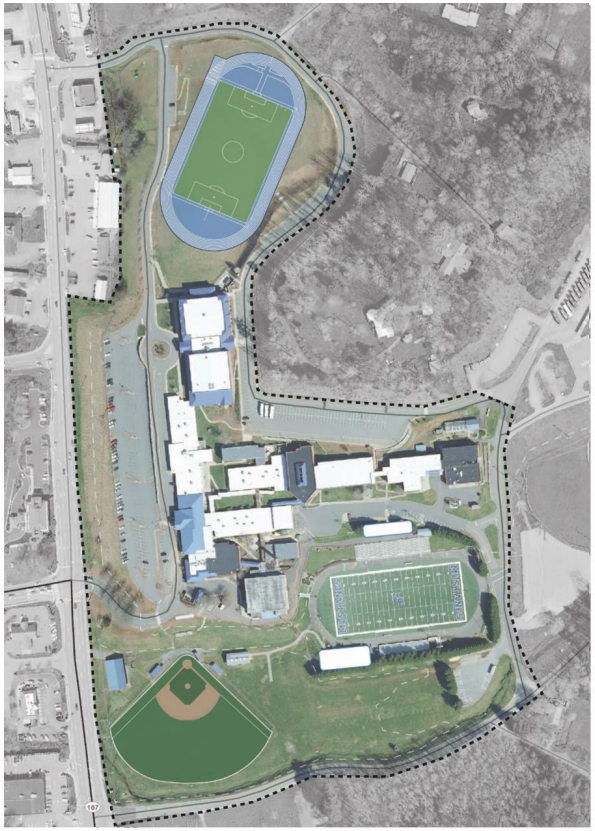
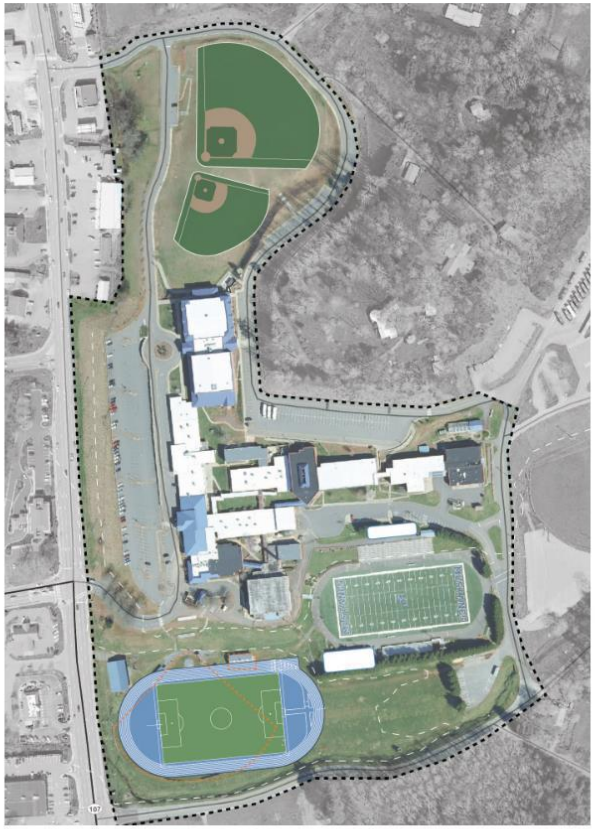
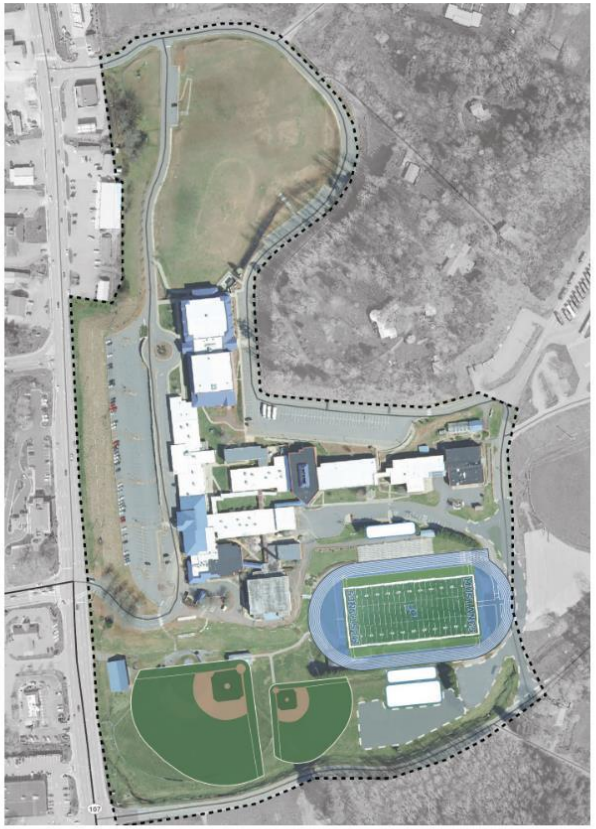
Base Layout



Alternate Layout



Consolidated Football + Track and Field Layout



Smoky Mountain High - Programming - January 2024

CLARKNEXSEN

Recommendations

- Fairview is the highest priority- Add new kitchen, cafeteria, and minimum of 6 classrooms. Study existing building to determine optimal classroom configuration. Address ADA throughout school and site.
- Study possible sites for future middle school
- Address Smoky Mtn. High Athletics
- Develop plan for backfilling existing schools
- Address Blue Ridge Kitchen and Serving line

CLARKNEXSEN

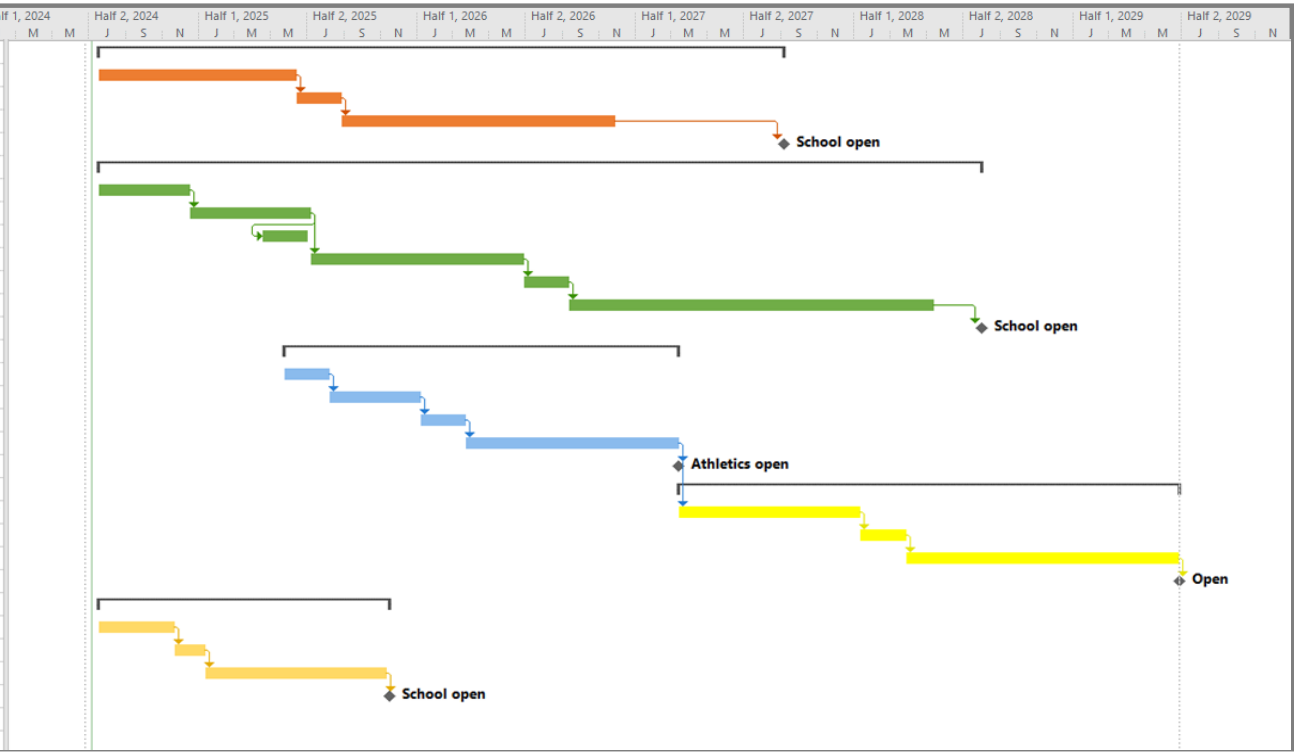
Preliminary Budgets

Project	2024	2025	2026	2027	2028	2029	Total project cost range
Fairview Elmentary School	$ 1,500,000	$ 10,250,000	$ 12,350,000				$ 24,100,000 - $ 30,125,000
Blue Ridge School Kitchen+ Serving	$ 375,000	$ 2,562,500	$ 3,062,500				$ 6,000,000 - $ 7,500,000
Middle School Due Diligence	$ 120,000	$ 80,000					$ 200,000 - $ 250,000
Middle School ***	$ 251,942	$ 6,046,618	$ 13,856,832	$ 76,842,432.00	$ 46,136,952.00		$ 143,134,776 - $ 157,448,254
Smoky Mtn High School		$ 936,000	$ 8,034,000	$ 9,190,000.00			$ 18,160,000 - $ 22,700,000
Bus Garage				$ 374,678.66	$ 3,840,456.26	$ 3,574,801.74	$ 7,789,937 - $ 9,737,421
Total per year	**$ 2,248,966**	**$ 19,877,143**	**$ 37,305,358**	**$ 86,409,138**	**$ 49,979,436**	**$ 3,576,831**	

CLARKNEXSEN

Schedule

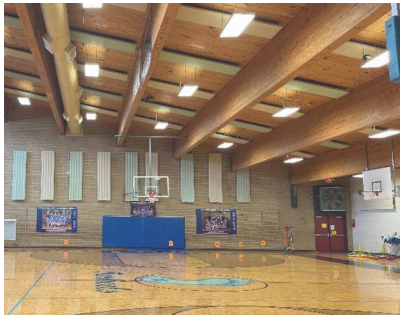
Task Name	Duration	Start	Finish
Fairview Elementary	**903 days**	**Thu 2/15/24**	**Mon 8/2/27**
Fairview Elementary Design	13 mons	Thu 2/15/24	Wed 2/12/25
Bidding + Permitting	3 mons	Thu 2/13/25	Wed 5/7/25
Construction	18 mons	Thu 5/8/25	Wed 9/23/26
School open	1 day	Mon 8/2/27	Mon 8/2/27
Middle School Site Due Dilegence	**1164 days**	**Thu 2/15/24**	**Tue 8/1/28**
Identify Sites	6 mons	Thu 2/15/24	Wed 7/31/24
Due Diligence evaluation	8 mons	Thu 8/1/24	Wed 3/12/25
Programming	3 mons	Fri 12/13/24	Thu 3/6/25
School design	14 mons	Thu 3/13/25	Wed 4/8/26
Bidding + Permitting	3 mons	Thu 4/9/26	Wed 7/1/26
Construction	24 mons	Thu 7/2/26	Wed 5/3/28
School open	1 day	Tue 8/1/28	Tue 8/1/28
Smoky Mtn Athletics	**521 days**	**Wed 1/22/25**	**Wed 1/20/27**
Final programming	3 mons	Wed 1/22/25	Tue 4/15/25
Design	6 mons	Wed 4/16/25	Tue 9/30/25
Bidding + Permitting	3 mons	Wed 10/1/25	Tue 12/23/25
Construction	14 mons	Wed 12/24/25	Tue 1/19/27
Athletics open	1 day	Wed 1/20/27	Wed 1/20/27
Bus Garage	**661 days**	**Wed 1/20/27**	**Wed 8/1/29**
Design	12 mons	Wed 1/20/27	Tue 12/21/27
Bidding + Permitting	3 mons	Wed 12/22/27	Tue 3/14/28
Construction	18 mons	Wed 3/15/28	Tue 7/31/29
Open	1 day	Wed 8/1/29	Wed 8/1/29
Blue Ridge Kitchen/Serving line	**383 days**	**Thu 2/15/24**	**Mon 8/4/25**
Design	5 mons	Thu 2/15/24	Wed 7/3/24
Bidding + Permitting	2 mons	Thu 7/4/24	Wed 8/28/24
Construction	12 mons	Thu 8/29/24	Wed 7/30/25
School open	1 day	Mon 8/4/25	Mon 8/4/25



CLARKNEXSEN

Questions?







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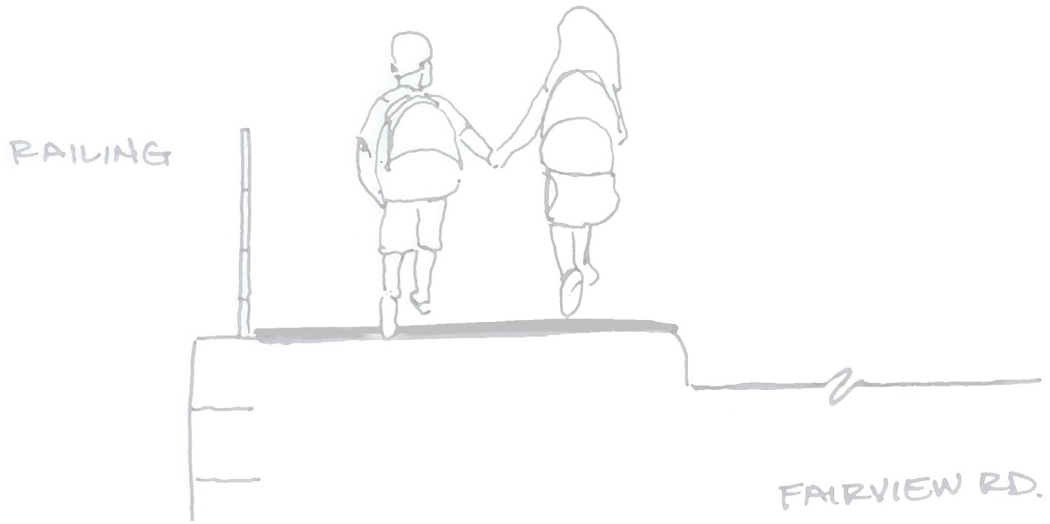

APPENDIX E

Detailed Cost Estimates


DAVID SHAWN BLANTON, JR. MEMORIAL TRAINING FACILITY

Table 2. Alternative A Cost Estimate

DESIGNERS OPINION OF PROBABLE COST

TYPE OF ESTIMATE:	CONCEPTUAL
PROJECT:	**Fairview Road Sidewalk Feasibility Study**
MUNICIPALITY:	Sylva, Jackson County, NC
TPD JOB #:	NCCO.00003 WO#5
PLAN TITLE:	Fairview Elementary Sidewalk/Trail Concept - South Alignment
PLAN DATE:	-
ROAD(S):	Big Orange Way, Fairview Rd, E Main St
DESCRIPTION OF WORK:	745 LF of Sidewalk, 745 LF of Curb & Gutter, 3 ADA Ramps, 1 High Visibility Crossing, 1425 LF of 10' Bituminous Trail (no lighting included)
ESTIMATE DATE:	**3/8/2024**
PREPARED BY:	CW
CHECKED BY:	MR
SOURCE FOR UNIT COSTS:	NCDOT 2021 Bid Averages and recent bid history
NOTES:	Unit prices last revised 11/21/23

DISCLAIMER: *TPD IS FURNISHING THIS COST ESTIMATE AS REQUESTED BY THE CLIENT. PLEASE NOTE THAT ESTIMATED COSTS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, LOCAL OR REGIONAL DIFFERENCES, CHANGES TO THE PLANS, AND/ OR CHANGES IN UNIT COSTS. COST ESTIMATES ARE PROVIDED FOR USE IN BUDGETING, BUT IN NO WAY SHOULD THIS ESTIMATE BE CONSTRUED AS A FINAL COST FOR THE PROJECT. FINAL COSTS ARE CONTINGENT ON ACTUAL BIDS FROM CONTRACTORS.*
TPD WILL NOT BE HELD RESPONSIBLE FOR DIFFERENCES BETWEEN THIS COST ESTIMATE AND BID COSTS.

Table 4. Alternative A Cost Estimate (Cont'd)

DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
GRADING AND PREPARATION				
GRADING	LS	1	$50,000.00	$50,000
TREE REMOVAL	EA	2	$2,500.00	$5,000
SUBTOTAL GRADING AND PREPARATION				**$55,000**
PAVEMENT ITEMS				
ASPHALT PAVEMENT SURFACE COURSE	TON	190	$200.00	$38,000
AGGREGATE BASE COURSE FOR SIDEWALKS, TRAILS, CURB, AND PAVEMENT	TON	785	$45.00	$35,325
SUBTOTAL PAVEMENT ITEMS				**$73,325**
CURBING ITEMS				
2'-6" CURB & GUTTER	LF	745	$46.00	$34,270
CONCRETE SIDEWALK, 4" DEPTH	SY	260	$75.00	$19,500
CONCRETE ADA CURB RAMPS	EA	3	$2,750.00	$8,250
SUBTOTAL CURBING ITEMS				**$62,020**
SIGNS AND LANE MARKINGS				
SUBTOTAL DRAINAGE ITEMS				**$38,700**

Table 4. Alternative A Cost Estimate (Cont'd)

SIGNS AND LANE MARKINGS				
24" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	LF	48	$15.00	$720
12" YIELD LINE PAVEMENT MARKINGS	LF	23	$15.00	$345
CONTRACTOR FURNISHED SIGNS	SF	62	$20.00	$1,240
SIGN ERECTION	EA	4	$100.00	$400
SUBTOTAL SIGNS AND LANE MARKINGS				**$2,705**
MISCELLANEOUS CONSTRUCTION ITEMS				
RETAINING WALL, 3' HEIGHT	SF	1,011	$52.00	$52,572
SAFETY RAILING	LF	337	$85.00	$28,645
STREAMBANK STABILIZATION WITH R-6 RIP RAP	LS	1	$12,500.00	$12,500
MANHOLE ADJUSTMENT IN BITUMINOUS TRAIL	EA	1	$1,000.00	$1,000
SCOREBOARD RELOCATION	EA	1	$1,000.00	$1,000
SUBTOTAL MISCELLANEOUS ITEMS				**$95,717**
SUBTOTAL PAY ITEMS				**$288,767**

Table 4. Alternative A Cost Estimate (Cont'd)

OTHER ITEMS					
MOBILIZATION (5%)		LS	1	$14,438	$14,438
MAINTENANCE AND PROTECTION OF TRAFFIC (6%)		LS	1	$17,326	$17,326
CONSTRUCTION SURVEY & STAKEOUT (2%)		LS	1	$5,775	$5,775
EROSION AND SEDIMENTATION CONTROL (3%)		LS	1	$8,663	$8,663
SUBTOTAL OTHER ITEMS					**$46,203**
TOTAL: PAY ITEMS + OTHER ITEMS					**$334,970**
ESCALATION (3% FOR 3 YEARS)					$31,061
ESTIMATE TO MID-CONSTRUCTION YEAR					**$366,030**
CONTINGENCY (25%)					$91,508
TOTAL ESTIMATE FOR CONSTRUCTION					**$457,538**

SURVEY AND ENGINEERING

SURVEY	Estimated at 2% of Estimate for Roadway Items	LS	1	$5,775	$5,775
PRELIM ENGINEERING	Estimated at 7.5% of Estimate for Construction	LS	1	$34,315	$34,315
FINAL ENGINEERING	Estimated at 7.5% of Estimate for Construction	LS	1	$34,315	$34,315
TOTAL FOR SURVEY AND ENGINEERING					**$74,406**

TOTAL ESTIMATE FOR CONSTRUCTION, SURVEY, AND ENGINEERING*	**$531,944**

Table 3. Alternative A1 Cost Estimate

DESIGNERS OPINION OF PROBABLE COST

TYPE OF ESTIMATE:	CONCEPTUAL
PROJECT:	**Fairview Road Sidewalk Feasibility Study**
MUNICIPALITY:	Sylva, Jackson County, NC
TPD JOB #:	NCCO.00003 WO#5
PLAN TITLE:	Fairview Elementary Sidewalk/Trail Concept - Fairview Rd North Side Sidewalk
PLAN DATE:	-
ROAD(S):	Fairview Rd
DESCRIPTION OF WORK:	1232 LF of 5' Sidewalk, 1232 LF of Curb & Gutter, Drainage Upgrades
ESTIMATE DATE:	**3/8/2024**
PREPARED BY:	CW
CHECKED BY:	MR
SOURCE FOR UNIT COSTS:	NCDOT 2021 Bid Averages and recent bid history
NOTES:	Unit prices last revised 11/21/23

DISCLAIMER: *TPD IS FURNISHING THIS COST ESTIMATE AS REQUESTED BY THE CLIENT. PLEASE NOTE THAT ESTIMATED COSTS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, LOCAL OR REGIONAL DIFFERENCES, CHANGES TO THE PLANS, AND/ OR CHANGES IN UNIT COSTS. COST ESTIMATES ARE PROVIDED FOR USE IN BUDGETING, BUT IN NO WAY SHOULD THIS ESTIMATE BE CONSTRUED AS A FINAL COST FOR THE PROJECT. FINAL COSTS ARE CONTINGENT ON ACTUAL BIDS FROM CONTRACTORS.*
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Table 4. Alternative A1 Cost Estimate (Cont'd)

DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
GRADING AND PREPARATION				
GRADING	LS	1	$7,500.00	$7,500
SUBTOTAL COMPREHENSIVE GRADING LUMP SUM				**$7,500**
PAVEMENT ITEMS				
AGGREGATE BASE COURSE FOR SIDEWALKS, TRAILS, CURB, AND PAVEMENT	TON	255	$45.00	$11,475
SUBTOTAL PAVEMENT ITEMS				**$11,475**
CURBING ITEMS				
2'-6" CURB & GUTTER	LF	1,232	$46.00	$56,672
CONCRETE SIDEWALK, 4" DEPTH	SY	685	$75.00	$51,375
SUBTOTAL CURBING ITEMS				**$108,047**
DRAINAGE ITEMS				
18" DRAINAGE PIPE (RCP)	LF	60	$175.00	$10,500
DRAINAGE INLET BOX	EA	6	$3,500.00	$21,000
FRAME WITH GRATE AND HOOD	EA	6	$1,200.00	$7,200
SUBTOTAL DRAINAGE ITEMS				**$38,700**

Table 4. Alternative A1 Cost Estimate (Cont'd)

MISCELLANEOUS CONSTRUCTION ITEMS				
RETAINING WALL, 6' HEIGHT	SF	7,392	$150.00	$1,108,800
SAFETY FENCE	LF	1,232	$85.00	$104,720
SUBTOTAL MISCELLANEOUS ITEMS				**$1,213,520**
SUBTOTAL PAY ITEMS				**$1,379,242**
OTHER ITEMS				
MOBILIZATION (5%)	LS	1	$68,962	$68,962
MAINTENANCE AND PROTECTION OF TRAFFIC (6%)	LS	1	$82,755	$82,755
CONSTRUCTION SURVEY & STAKEOUT (2%)	LS	1	$27,585	$27,585
EROSION AND SEDIMENTATION CONTROL (3%)	LS	1	$41,377	$41,377
SUBTOTAL OTHER ITEMS				**$220,679**
TOTAL: PAY ITEMS + OTHER ITEMS				**$1,599,921**
ESCALATION (3% FOR 3 YEARS)				$148,356
ESTIMATE TO MID-CONSTRUCTION YEAR				**$1,748,277**
CONTINGENCY (25%)				$437,069
TOTAL ESTIMATE FOR CONSTRUCTION				**$2,185,346**

Table 4. Alternative A1 Cost Estimate (Cont'd)

SURVEY AND ENGINEERING

SURVEY	Estimated at 0.75% of Estimate for Roadway Items	LS	1	$10,344	$10,344
PRELIM ENGINEERING	Estimated at 7.5% of Estimate for Construction	LS	1	$163,901	$163,901
FINAL ENGINEERING	Estimated at 7.5% of Estimate for Construction	LS	1	$163,901	$163,901
TOTAL FOR SURVEY AND ENGINEERING					**$338,146**

TOTAL ESTIMATE FOR CONSTRUCTION, SURVEY, AND ENGINEERING*	**$2,523,492**

**** Does not include:***

Permitting/Legal Fees

Acquisition Costs for Right-of-Way/Easements/Releases

Utility pole relocation, underground utility relocation/exploration

Note: Estimated number of utility poles to be relocated = 0

Construction Inspection

Construction Management

or any other items not specifically listed above.

Table 4. Alternative B Cost Estimate

DESIGNERS OPINION OF PROBABLE COST

TYPE OF ESTIMATE:	CONCEPTUAL
PROJECT:	**Fairview Road Sidewalk Feasibility Study**
MUNICIPALITY:	Sylva, Jackson County, NC
TPD JOB #:	NCCO.00003 WO#5
PLAN TITLE:	Fairview Elementary Sidewalk/Trail Concept - North Alignment
PLAN DATE:	-
ROAD(S):	Jones St, Smoky Mountain Dr, Cliffside Dr, Big Orange Way
DESCRIPTION OF WORK:	2730 LF of Sidewalk connections, 2220 LF of Curb & Gutter, 13 ADA Ramps, 270 LF of 5' Bituminous Trail, 7 High Visibility Crossings, and 1 Rectangular Rapid Flashing Beacon
ESTIMATE DATE:	**3/8/2024**
PREPARED BY:	CW
CHECKED BY:	MR
SOURCE FOR UNIT COSTS:	NCDOT 2021 Bid Averages and recent bid history
NOTES:	Unit prices last revised 11/21/23

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Table 4. Alternative B Cost Estimate (Cont'd)

DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
GRADING AND PREPARATION				
GRADING	LS	1	$10,000.00	$10,000
SUBTOTAL GRADING AND PREPARATION				**$10,000**
PAVEMENT ITEMS				
ASPHALT PAVEMENT SURFACE COURSE	TON	18	$200.00	$3,600
AGGREGATE BASE COURSE FOR SIDEWALKS, TRAILS, CURB, AND PAVEMENT	TON	600	$45.00	$27,000
SUBTOTAL PAVEMENT ITEMS				**$30,600**
CURBING ITEMS				
2'-6" CURB & GUTTER	LF	2,220	$46.00	$102,120
CONCRETE SIDEWALK, 4" DEPTH	SY	1,637	$75.00	$122,775
CONCRETE ADA CURB RAMPS	EA	13	$2,750.00	$35,750
SUBTOTAL CURBING ITEMS				**$260,645**
DRAINAGE ITEMS				
18" DRAINAGE PIPE (RCP)	LF	330	$175.00	$57,750

Table 4. Alternative B Cost Estimate (Cont'd)

DRAINAGE ITEMS				
18" DRAINAGE PIPE (RCP)	LF	330	$175.00	$57,750
DRAINAGE INLET BOX	EA	2	$3,500.00	$7,000
FRAME WITH GRATE AND HOOD	EA	2	$1,200.00	$2,400
SUBTOTAL DRAINAGE ITEMS				**$67,150**
SIGNS AND LANE MARKINGS				
24" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	LF	300	$15.00	$4,500
12" YIELD LINE PAVEMENT MARKINGS	LF	145	$15.00	$2,175
CONTRACTOR FURNISHED SIGNS	SF	372	$20.00	$7,440
SIGN ERECTION	EA	24	$100.00	$2,400
SUBTOTAL SIGNS AND LANE MARKINGS				**$16,515**
MISCELLANEOUS CONSTRUCTION ITEMS				
64 LF LANDSCAPING RETAINING WALL, 3' HEIGHT	SF	192	$52.00	$9,984
PEDESTRIAN CROSSING WITH RECTANGULAR RAPID FLASHING BEACON - SIDE MOUNT	LS	1	$35,000.00	$35,000
SUBTOTAL MISCELLANEOUS ITEMS				**$44,984**
SUBTOTAL PAY ITEMS				**$429,894**

Table 4. Alternative B Cost Estimate (Cont'd)

OTHER ITEMS					
MOBILIZATION (5%)		LS	1	$21,495	$21,495
MAINTENANCE AND PROTECTION OF TRAFFIC (6%)		LS	1	$25,794	$25,794
CONSTRUCTION SURVEY & STAKEOUT (2%)		LS	1	$8,598	$8,598
EROSION AND SEDIMENTATION CONTROL (3%)		LS	1	$12,897	$12,897
SUBTOTAL OTHER ITEMS					**$68,783**
TOTAL: PAY ITEMS + OTHER ITEMS					**$498,677**
ESCALATION (3% FOR 3 YEARS)					$46,241
ESTIMATE TO MID-CONSTRUCTION YEAR					**$544,918**
CONTINGENCY (25%)					$136,229
TOTAL ESTIMATE FOR CONSTRUCTION					**$681,147**

SURVEY AND ENGINEERING

SURVEY	Estimated at 2% of Estimate for Roadway Items	LS	1	$8,598	$8,598
PRELIM ENGINEERING	Estimated at 7.5% of Estimate for Construction	LS	1	$51,086	$51,086
FINAL ENGINEERING	Estimated at 7.5% of Estimate for Construction	LS	1	$51,086	$51,086
TOTAL FOR SURVEY AND ENGINEERING					**$110,770**
TOTAL ESTIMATE FOR CONSTRUCTION, SURVEY, AND ENGINEERING*					**$791,917**

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