

Cave Spring to Cedartown Trail Feasibility Study



Prepared by:

alta



PLANNING + DESIGN

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NWGRC
NORTHWEST GEORGIA REGIONAL COMMISSION
A Region With A Bright Future

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Project Staff

Julie Meadows, Northwest Georgia
Regional Commission
Charlie Jones, Northwest Georgia
Regional Commission

Project Stakeholders

Stefanie Drake-Burford, Polk County
Commission, Chair
Sue Hiller, Rome/Floyd County Planning
Director
Irwin Bagwell, Floyd County
Commissioner
Bill Fann, Cedartown City Manager
Jamie McCord, Floyd County Manager
Johnny Sprayberry, GRITS volunteer
Tamaka Hudson, Polk Chamber, Exec.
Director
Janet Cochran, Tourism Division GDEcD
Sandra Lindsey, Cave Spring DDA,
Director
Tom Lindsay, Cave Spring DDA
Julie Smith, Cycle Therapy/TRED,
President
Jim Hunter, TRED Vice President
Rick Moon, President, Georgia Pinhoti
Trails Association
Ramona Ruark, Cedartown Main Street
Director
Rob Ware, Mayor, Cave Spring
Matt Denton, Polk County Manager
Larry Maxey, Chair, Floyd County
Commission
Scotty Hancock, Floyd County
Commissioner
Rhonda Wallace, Floyd County
Commissioner
Garry Fricks, Floyd County
Commissioner
Jennifer Hulsey, Polk County
Commissioner
Scotty Tillery, Polk County Commissioner

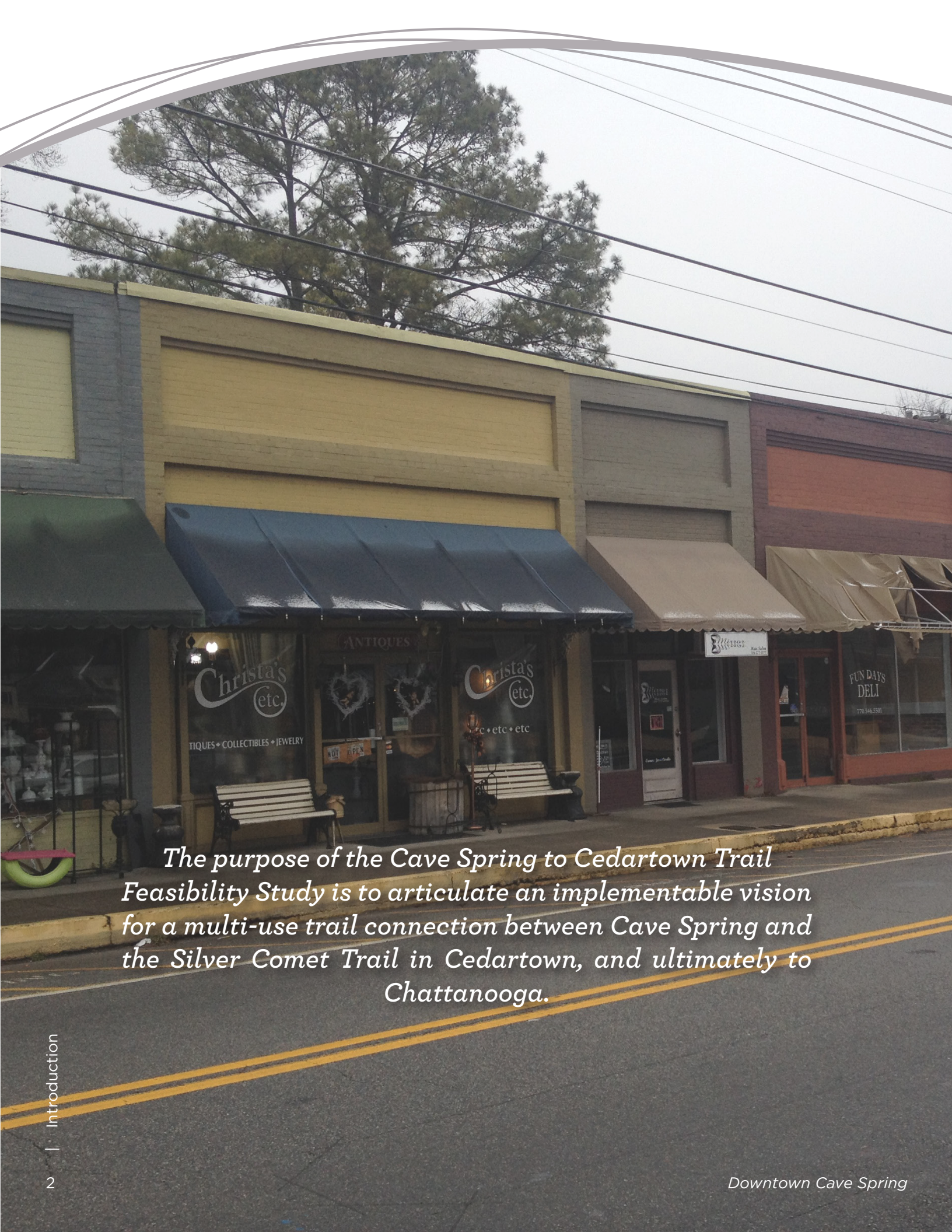
Marshelle Thaxton, Polk County
Commissioner
Ray Barber, Polk County Commissioner
Jason Ward, Polk County Commissioner,
Vice Chair
Ms. Dale Tuck, Chair, Cedartown City
Commission
Larry Odom, Cedartown City Commission
Matt Foster, Cedartown City Commission
Jordan Hubbard, Cedartown City
Commission
Gary Martin, Cedartown City Commission
Mr. Lovie Davis, GRITS volunteer
John Johnston, Cave Spring DDA
Kenneth Agan, Cave Spring Council
Nellie McCain, Cave Spring Council
Nicolas McLemore, Cave Spring Council
Mike Ragland, Cave Spring Council
Dennis Shoaf, Cave Spring Council
Katelyn DiGioia, GDOT Bike Ped
Coordinator

Project Consultant

Brittain Storck, ASLA, PLA, Alta Planning
+ Design
Brad Davis, AICP, Alta Planning + Design
Collin Chesston, Alta Planning + Design
John Cock, Alta Planning + Design

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The purpose of the Cave Spring to Cedartown Trail Feasibility Study is to articulate an implementable vision for a multi-use trail connection between Cave Spring and the Silver Comet Trail in Cedartown, and ultimately to Chattanooga.



Introduction

Overview

The purpose of the Cave Spring to Cedartown Trail (CSC) Feasibility Study is to articulate an implementable vision for a multi-use trail connection between Cave Spring and the Silver Comet Trail in Cedartown. The study identifies opportunities and constraints along multiple potential trail alignments and recommends a preferred alignment. This study also provides specific recommendations and implementation steps to guide the development of the CSC Trail.

Funded by the Georgia Department of Transportation (GDOT), the study advances the ideals of economic prosperity, healthy communities, promoting local heritage, preserving environmental assets, and enhancing community connections.

Methodology

Completing this study required the coordination of several different initiatives, from engaging with stakeholders and public agency staff to developing plan recommendations based on public input, fieldwork, and research. The key steps undertaken to develop this plan included the following:

- Project Kick-off Meeting
- Data Collection and Base Mapping
- Trail Alternatives Development
- Stakeholder Interviews
- Corridor Evaluation
- Review of Right-of-Way and Property Information
- Economic Impact and Development Strategy Development
- A Public Workshop
- Draft and Final Feasibility Documents
- Final Presentation

Guiding Principles

Stakeholder input, together with documented best practices in trail planning and design, form the basis of the study's guiding principles. These principles provide a framework for the recommendations and implementation steps described in later chapters.

1. Connect Cave Spring to the Silver Comet Trail. Provide a safe, comfortable, multi-use path connection for people of all ages and abilities.

2. Use the trail as an economic development tool. Maximize the economic benefits of the proposed trail in the region by making it attractive to tourists, an amenity for businesses and employees, an asset to property owners, and a boon to the regional tax base.

3. Promote healthy activity. Increase opportunities for outdoor recreation and active transportation by connecting to existing parks, trails, schools, libraries, churches, and businesses.

4. Enhance access to the region's cultural, ecological, and historic assets. Provide a Spring-to-Spring connection that links Cave Spring Historic Districts, Rolater Park, the Pinhoti Trail, Cedar Creek, Cedartown's Indian Removal Camp, Big Spring Park, and Historic Downtown Cedartown.



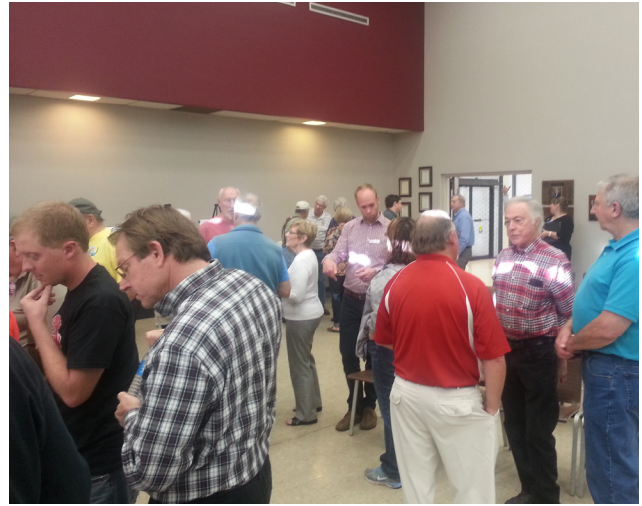
Charlie Jones of the NW GA Regional Commission briefs stakeholders at the February workshop.

Stakeholder and Public Input

The project team engaged a wide range of stakeholders and the public at key milestones. A series of in-person stakeholder interviews, two team meetings, and one collaborative stakeholder workshop were conducted in a “charrette-style” format during the week of February 23-27, 2015. These meetings included representatives from the Northwest Georgia Regional Commission, Floyd County, Polk County, the City of Cave Spring, the City of Cedartown, and the Georgia Department of Transportation.

Stakeholder interviews provided important contextual information about previous planning efforts, community values, and opportunities and challenges associated with the project. Team meetings and the stakeholder workshop helped produce the Guiding Principles described above, solidified the project vision, and finalized the corridors for detailed field evaluation.

The project team also hosted a public workshop on April 20, 2015. The primary goal of this workshop was to receive feedback from the public on potential alignment alternatives. About sixty participants gathered around poster-sized maps, sharing local knowledge and sketching out ideas for route modifications. A synthesis of almost 100 written comments received at the public workshop informed the development of the preferred alignment described in Chapter Three.



Public workshop participants discuss trade-offs involved with alignment alternatives.

Previous Planning Efforts

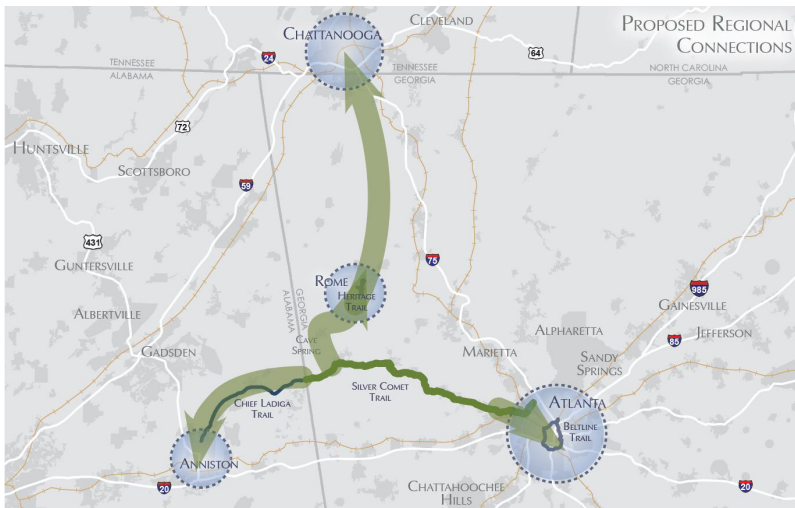
This plan builds on previous work completed by the Rome-Floyd County MPO, the NW Georgia Regional Commission, Polk County, and the City of Cedartown. In addition to providing strong policy support for trails, previous plans have identified the opportunity to connect Cave Spring to the Silver Comet Trail and provide guidance on potential alignments.

Joint County-City Comprehensive Plan: Polk County and the cities of Aragon, Cedartown, and Rockmart (2007)

The joint comprehensive plan for Polk County, Aragon, Cedartown, and Rockmart identifies a lack of sidewalks and bike trails, and insufficient connectivity between the bicycle and pedestrian facilities that do exist, as transportation issues. On page 92, the document states “there are currently a few areas that include considerations for bicyclist and pedestrians. In order to improve conditions for bicyclist and pedestrians, priority should be given to construction of sidewalks and multi-use trails.” The plan also suggests promoting the Silver Comet Trail as an economic development strategy.

Rome-Floyd County Comprehensive Plan (2008)

Language in Rome-Floyd County’s Comprehensive Plan acknowledges the benefits of trails: “Trails, like roadways and mass transit, are key components in a community’s transportation system. They provide alternate means of mobil-



Vision for Silver Comet Trail expansion from 2013 Economic Impact Analysis



**Rome-Floyd County MPO
Bicycle, Pedestrian, and Trail
Master Plan**

2015 Rome-Floyd County MPO Bicycle, Pedestrian, and Trail Master Plan

ity, which reduces traffic congestion, fossil fuel consumption, noise, and air pollution. Trails also foster more active and healthy lifestyles for residents, enhance quality of life, improve the local environment, and provide additional stimuli for the local economy” (pg 138).

The plan goes on to explain that “plans for a County-wide [trail] system are a result of recognizing the need for pedestrian and bike trails and greenways for transportation, recreation, pollution control and linking together the cultural and historical heritage of the area.” pg 138

Rome and Floyd County Trail Facilities Plan (2008)

The Rome and Floyd County Trail Facilities Plan identifies two potential Silver Comet Connections: the Rockmart Route and the Cedartown Route. The present study investigates the feasibility of constructing the Cedartown Route from the Silver Comet Trail to Cave Spring, including the State Route 100 option described in the Trail Facilities Plan.

Rome-Floyd County Long Range Transportation Plan 2040 (2012)

The “Silver Comet Connector Trail” is one of only two non-motorized transportation projects listed as priorities in the Rome-Floyd County Long Range Transportation Plan 2040. The other non-motorized project included is the Pinhoti Trail Connector from Rome to Lyerly.

Silver Comet Economic Impact Analysis and Planning Study (2013)

This two-part study evaluated the economic benefits of the existing Silver Comet Trail and identified potential economic benefits of future trail expansions in the region. One of the primary recommendations included in the study is a trail connection between the Silver Comet Trail and Chattanooga, Tennessee. After reviewing Rome-Floyd County’s Trail Facilities Plan, the Silver Comet Economic Impact Study project team determined that the Cedartown route was likely to generate more economic benefits than the Rockmart route, and as such recommended a spur trail from Cedartown to Rome via Cave Spring. The spur trail is listed as a medium term priority, indicating that it should be implemented within 5-10 years. The present study seeks to determine the feasibility of this recommendation.

Rome-Floyd County MPO Bicycle, Pedestrian, and Trail Master Plan (2015)

The Rome Floyd County MPO’s Bicycle, Pedestrian, and Trail Master Plan includes a recommended trail project that would connect the Silver Creek Trail in South Rome with Cave Spring and Cedartown. Between Cave Spring and Cedartown, the plan depicts the potential for a sidepath along Cave Spring Road. This study explores opportunities and constraints along that alignment in more detail.

Table 1.1 SELECTED DEMOGRAPHIC STATISTICS FOR CAVE SPRING, CEDARTOWN, FLOYD COUNTY, POLK COUNTY, AND GEORGIA

		Cave Spring	Cedartown	Floyd County	Polk County	Georgia
Age	% under age 18	24.5%	29.4%	24.3%	26.6%	25.7%
	% age 65 or over	17.8%	14.7%	14.2%	13.3%	10.7%
Race	% Caucasian/White	84.7%	56.5%	76.9%	77.1%	59.7%
	% African American/Black	12.9%	18.8%	14.2%	12.5%	30.5%
	% Asian	0.6%	1.0%	1.3%	0.7%	3.2%
	% Other Race	0.9%	21.5%	5.8%	7.9%	4.4%
	% Two or more races	1.0%	2.3%	1.9%	1.8%	2.1%
Ethnicity	% Hispanic or Latino	2.0%	31.0%	9.3%	11.8%	8.8%
Poverty	% of individuals below poverty line	21.6%	38.1%	21.0%	23.4%	18.2%
Income	Median Household Income	\$ 38,929	\$ 27,907	\$ 40,821	\$ 39,208	\$ 49,179
Mobility	% of households without access to a motor vehicle	10.8%	11.5%	7.7%	6.1%	6.8%

Demographics

Table 1 provides demographic statistics for Cedartown, Cave Spring, Floyd County, Polk County and Georgia. Several disparities stand out.

First, median household incomes in Cave Spring and Cedartown are lower than median household incomes in their respective counties, and median household incomes in Floyd and Polk Counties are lower than the median household income in Georgia. The disparity is most pronounced in Cedartown, where incomes are about 30% lower than incomes in Polk County overall and about 45% lower than the median income in Georgia. Poverty rates in Cedartown are also almost double those in Cave Spring, Floyd County, Polk County as a whole, and Georgia.

Second, compared to regional and state averages, there are more older adults in the study area than in Georgia as a whole. Cave Spring’s population skews most distinctively toward the older end of the age spectrum, with a significantly larger percent of residents age 65 and older than in Floyd County or Georgia. Polk

County and Floyd County also have large populations of people age 65 and older. Cedartown’s population distribution is shaped more like an hourglass, with higher-than-average populations of people over age 65 and under age 18 but lower-than-average populations of people between age 18 and age 64.

Third, people who live in Cave Spring, Cedartown, Floyd County, and Polk County are less likely to have access to a car than others compared in Georgia overall.

Taken together, these demographic figures suggest a greater demand for safe and affordable alternative transportation and recreation infrastructure. The following section explores the various benefits of offering alternative transportation options to vulnerable populations and those with limited access to vehicles.



The 2013 Silver Comet Trail Economic Impact Analysis quantified the many benefits of the Silver Comet Trail.

Benefits of the CSC Trail / Silver Comet Trail

Given all of the hard work involved in the planning, design, and development of a trail, it is important for all of those involved in this effort to periodically remind themselves, and others, of the meaning behind this work and the tremendous value it brings to the broader community. This section presents the many benefits that the CSC Trail can bring as a community asset to the area and the greater Cave Spring and Cedar-town communities as a whole.

Trails Generate Economic Activity and Benefit Local Businesses

The economic benefits of trails are generated from several sources and accrue to many different local groups, including residents, businesses, and government agencies. First, trails increase adjacent property values, which benefits property owners as well as local government agencies that see increased property tax revenues. Second, trails attract both businesses and tourists, spurring economic development that benefits all residents. Third, improved bicycle and pedestrian access near businesses, through trails or other means, has been shown to increase sales while reducing the need for expensive parking infrastructure. Finally, trails save public funding by reducing stress on expensive roadways and save residents money by offering a travel alternative that does not require gasoline or expensive car maintenance.



The Silver Comet Trail attracts thousands of users on a typical weekend day.

Trails and greenways create opportunities in construction and maintenance, recreation rentals (such as bicycles, kayaks, and canoes), recreation services (such as shuttle buses, ferry services, and guided tours), historic preservation, restaurants, and lodging. The industry rule of thumb is that for every one dollar of investment, there is a three dollar return on that investment, if not more. One of the most relevant tourism examples that saw an even higher return on investment is from the North Carolina coast. In the Outer Banks, bicycling is estimated to have an annual economic impact of \$60 million, and 1,407 jobs are supported by the 40,800 visitors for whom bicycling was an important reason for choosing to vacation in the area. The annual return on bicycle facility development in the Outer Banks is approximately nine times higher than the initial investment.¹ Another study in Kansas City found an even higher return of \$11.80 for every \$1 invested.

Like the Outer Banks, the northwest Georgia region is currently a significant draw to tourists because of the Silver Comet Trail, with jobs directly attributable to tourists and many more supported through indirect effects.² **Expanding connections to the Silver Comet Trail could build upon this existing activity base and provide a safe and enjoyable way for tourists to visit towns in northwest Georgia so that these areas can share in the economic gains of tourism.** Recreational facilities also attract businesses seeking a place to locate with a high quality

Table 3.12 – Estimated Aggregate Spending from Users of the Silver Comet Trail in its Current and Expanded Form, Including Tourism Spending by Out-of-Town Visitors

Current	Estimated Aggregate Recreational Spending	Estimated Aggregate Tourism Spending	Estimated Aggregate Spending
Residents	\$37	\$0	\$37M
Tourists	\$10	\$10	\$20M
Total	\$47	\$10	\$57M
Expanded	Estimated Aggregate Recreational Spending	Estimated Aggregate Tourism Spending	Estimated Aggregate Spending
Residents	\$56	\$0	\$56M
Tourists	\$15	\$15	\$30M
Total	\$71	\$15	\$86M

This table from the 2013 Silver Comet Trail Economic Impact Analysis and Planning Study showing current aggregate spending by Silver Comet Users and anticipated future aggregate spending resulting from trail expansion to Chattanooga.

of life for their employees. In Morgantown, West Virginia, the 45-mile Mon River trail system is credited by the Convention and Visitors Bureau for revitalizing an entire district of the city, with a reported \$200 million in private investment as a direct result of the trail.³ Similarly, Chicago’s Millennium Park is credited with one-quarter of all new retail, commercial, and residential development that has taken place in the East Loop since the park’s creation.⁴ At the street scale, pedestrian and bicycle access have been shown to increase retail sales. High quality walking and cycling conditions tend to attract retail customers.^{5,6} Further, consumers report a willingness to pay approximately 11 percent more for goods in landscaped business districts than in non-landscaped districts. They are willing to pay as much as 50 percent more in these districts for convenience goods.⁷ One of the goals of the Silver Comet Trail expansion will be to link commercial and residential areas in order to reap these benefits for local businesses.

Trails Increase Real Property Values

Greenway trails are popular community amenities that add value to properties nearby. According to a 2002 survey by the National Association of Realtors and the National Association of Homebuilders, **homebuyers rank trails as the second-most important community amenity out of 18 choices, above golf courses, ball fields, parks, security, and others.**⁸ This preference for trails is reflected in property values around the country:

- The report, “Walking the Walk: How Walkability Raises Housing Values in U.S. Cities”, analyzed data from 94,000 real estate transactions in 15 major markets provided by ZipRealty and found that in 13 of the 15 markets, higher levels of walkability, as measured by Walk Score, were directly linked to higher home values.⁹
- In the Shepherd’s Vineyard residential development in Apex, North Carolina, homes along the regional greenway were priced \$5,000 higher than other residences in the development – and these homes were still the first to sell.¹⁰
- A study of home values along the Little Miami Scenic Trail in Ohio found that single-family home values increased by \$7.05 for every foot closer a home is to the trail.¹¹
- A hedonic pricing study of property values near a greenway in Austin, Texas supports the notion that adjacency to a greenway is likely to result in either a positive or no significant impact on property values. The study found substantial positive impacts on property values correlated to greenway adjacency.¹²
- An analysis of roughly 10,000 home sales from 2001 to 2002 in San Antonio, Texas shows a 2 to 5 percent price premium for homes near trails and greenbelts.¹³
- Other findings from the Trust for Public Land’s ‘Economic Benefits of Parks and Open Space’ and the Rails-to-Trails Conservancy’s ‘Economic Benefits of Trails



Residential properties like this one are likely to increase in value when the Cave Spring Trail is constructed.

and Greenways', illustrate how trails have positively impacted property values across the country.

These higher prices reflect how trails and greenways serve as a neighborhood amenity, thus adding to the desirability of a community and attracting homebuyers and visitors alike.

Trails Offer Transportation Cost Savings

When looking at the returns on investment noted above, it is also important to put into perspective the massive differences in costs inherent in the transportation decisions we make, both as individuals and as a community. Consider the individual costs associated with different forms of transportation: Walking is virtually free, while the average annual cost of operating a bicycle is \$308.¹⁴ Compare these to the average annual operating cost for a car, which the American Automobile Association reports as \$8,876 for financing, insurance, gas, maintenance and repairs, registration, taxes, and depreciation.¹⁵

On a community scale, consider the high cost of our transportation infrastructure investments. According to the Federal Highway Administration, the cost of a single mile of urban, four-lane highway is between \$20 and \$80 million.¹⁶ By contrast, a mile of greenway trail ranges from \$500,000 to rarely more than \$1 million, depending on construction materials, design, and local circumstances. Bicycling and walking are affordable forms of transportation, and trails

provide a low cost, high return option for transportation investments.

Trails Improve Bicycle and Pedestrian Transportation Options

Communities that invest in trail systems will be better prepared to accommodate shifting modes of travel, especially as driving becomes more expensive. Provided there are viable alternatives to driving, Americans are willing to change their travel habits, as shown during the dramatic increases in gas prices in 2008. According to the Rails to Trails Conservancy and the Bikes Belong Coalition, "Every day, more commuters switch to public transportation, bicycling and walking in places where prior infrastructure investments have made these options safe and convenient".¹⁷

Choosing to bike or walk rather than to drive, however, is often made difficult by the way our cities and towns have developed. A national transportation poll found that Americans would like to see 22 percent of transportation funding invested in walking and bicycling facilities, but current budget allocation sets aside only one percent of all transportation funding to walking and bicycling.¹⁸ Suburban development patterns often leave residents and visitors with little choice but to drive, even for short trips. With improved accommodations, walking and bicycling can provide alternatives to driving for commuting to work, running errands, or making other short trips.



Downtown Cedartown businesses would benefit from economic activity generated by the Cave Spring Trail.

In fact, nearly two-thirds (62.7 percent) of all driving trips we make are for a distance of five miles or less. Surveys by the Federal Highway Administration show that some Americans are willing to walk as far as two miles or bicycle as far as five miles to a destination. A system of expanded trails in the northwest Georgia region, combined with other bicycle and pedestrian infrastructure, will offer viable opportunities for walking and biking to homes, workplaces, schools, parks, downtowns, and cultural attractions. Furthermore, more than one quarter of all trips (commute and non-commute) taken by Americans each and every day are less than one mile, equivalent to a walking trip of 15 minutes or a 6-minute bike ride; however, just 13 percent of all trips are made by walking or bicycling nationwide.¹⁹

To put these numbers into perspective, 34 percent of all trips are made by walking or bicycling in Denmark and Germany, and 51 percent of all trips in the Netherlands are by foot or by bike.²⁰ Germany, Denmark, and the Netherlands are wealthy countries with high rates of automobile ownership, just like the United States. Yet an emphasis has been placed on providing quality walking and bicycling environments, which has alleviated the reliance on motor vehicles for short trips.

Trails Improve Access to Destinations

Many Georgians do not have access to a vehicle or are unable to drive. According to US Census

5-Year (2009-2013) American Community Survey estimates, 6.8 percent of Georgia households do not have access to an automobile. The figures are even higher in Cave Spring and Cedartown, where 10.8 percent and 11.5 percent of households respectively do not have access to a vehicle. **A well-connected trail connecting Cave Spring and Cedartown through Floyd and Polk Counties would provide safe, low-cost, convenient transportation and recreation options for those who are unable to drive or would prefer to not drive**, and would help to minimize the disadvantage of not having access to a motor vehicle. These improvements can increase access to important destinations for children, senior citizens, low-income families, and others who would otherwise have limited and less convenient travel options.

Trails Improve Health through Active Living

The CSC Trail would contribute to the overall health of residents by offering people attractive, safe, and accessible places to bike, walk, hike, jog, skate, and socialize. In short, **trails improve opportunities for active lifestyles**. The design of our communities today -- including our towns, subdivisions, transportation systems, parks, trails, and other facilities -- affect our ability to be active in communities. The Centers for Disease Control and Prevention (CDC) recommend at least 30 minutes of moderate physical activity each day for adults, and 60 minutes per day for youth, but many people are unable to



A study demonstrated that for every one dollar invested in pedestrian and bicycle trails saves as much as three dollars in direct medical expenses due to the positive health effects of increased physical activity.

reach these targets due to a lack of opportunities for physical activity. According to the CDC, “Physical inactivity causes numerous physical and mental health problems, is responsible for an estimated 200,000 deaths per year, and contributes to the obesity epidemic.”²¹

The CDC determined that creating and improving places in our communities to create more physically active opportunities could generate as much as a 25 percent increase in the percentage of people who exercise at least three times per week.²² This is significant considering that for people who are inactive, even small increases in physical activity can bring measurable health benefits. A December 2010 article published by the Mayo Clinic reported that:

“Walking, like other exercise, can help you achieve a number of important health benefits such as:

- Lowered low-density lipoprotein (LDL) cholesterol (the “bad” cholesterol),
- Elevated high-density lipoprotein (HDL) cholesterol (the “good” cholesterol),
- Lowered blood pressure,
- Reduced risk of or managed Type 2 diabetes,
- Improved mood, and
- Increased feelings of strength and fitness.”

A separate study found that these personal health benefits also translate into health cost savings. Every one dollar invested in pedestrian

and bicycle trails saves as much as three dollars in direct medical expenses due to the positive health effects of increased physical activity.²³

Many public health agencies are teaming up with foundations, universities, and private companies to launch a new kind of health campaign that focuses on improving healthy lifestyle options. A 2005 Newsweek Magazine feature, “Designing Heart-Healthy Communities,” cites the goals of such programs: “The goals range from updating restaurant menus to restoring mass transit, but the most visible efforts focus on making the built environment more conducive to walking and cycling.”²⁴ The Rails-to-Trails Conservancy puts it simply: “Individuals must choose to exercise, but communities can make that choice easier.”²⁵

Trails Support Environmental Stewardship

Trails, greenways, and open spaces provide a multitude of environmental benefits through decreasing automobile dependency and protecting the natural functions of ecosystems. **Multi-use trails are often included as part of greenway or green space corridors, offering transportation options while also contributing to environmental quality.**

Trails can help to reduce automobile dependency, which in turn leads to a reduction in fossil fuel use and vehicle emissions – a benefit for Georgians and the surrounding environment. As of 2003, 27% of U.S. greenhouse gas emissions



Spring water flowing from Big Spring Park in Cedartown.

are attributed to the transportation sector, and personal vehicles account for almost two-thirds (62%) of all transportation emissions.²⁶ Primary emissions that pose potential health and environmental risks are carbon dioxide, carbon monoxide, volatile organic compounds (VOCs), nitrous oxide (N₂O), and benzene. Children and senior citizens are particularly sensitive to the harmful effects of air pollution, as are individuals with heart or respiratory illnesses. Increased health risks such as asthma and heart problems are associated with vehicle emissions.²⁷

Decreasing the dependency on daily motor vehicle trips and increasing the availability of alternative travel methods such as bicycling and walking can reduce emissions and assist in improving air quality. Replacing two miles of driving each day with walking or bicycling will, in one year, prevent 730 pounds of carbon dioxide from entering the atmosphere.²⁸ The CSC Trail will enable citizens to consider replacing two miles of driving with walking or bicycling because the trail links neighborhoods to important basic needs destinations, such as grocery stores, schools, retail areas, and parks. Other studies have likewise shown air quality benefits as a result of increased walking and bicycling rates and reduced vehicle miles traveled:

- As of 2008, roughly 9.5 percent of all U.S. trips are made by walking or bicycling. A modest increase in walking and bicycling to 13 percent of all trips would save 3.8

billion gallons of gasoline each year and reduce CO₂ emissions by 33 million tons. A substantial increase in walk and bike rates to 25 percent of all trips would save 10.3 billion gallons of gasoline and prevent 91 million tons of CO₂ emissions.²⁹

- Minneapolis-St. Paul, MN: If bicycles were used for half of the short trips made on good weather days, the Twin Cities could prevent 300 deaths and save \$57 million in annual medical costs due to reduced air pollution and increased physical activity. Collectively, 11 major Midwest cities would save \$7 billion in medical costs each year and prevent 1,100 deaths.³⁰
- A 5 percent increase in the walkability of a neighborhood is associated with a per capita 32.1 percent increase in active travel, 6.5 percent fewer miles driven, 5.6 percent fewer grams of nitrous oxide (N₂O) emitted, and 5.5 percent fewer grams of volatile organic compounds (VOCs) emitted.³¹

According to the National Association of Realtors and Transportation for America, 89% of Americans believe that transportation investments should support the goal of reducing energy use.³² The transportation sector currently accounts for 71% of all U.S. petroleum use, with 40% of daily trips made within two miles or less and 28% less than a mile.³³ Providing alternative modes of travel has the potential to reduce dependency on foreign oil and promote more



Rolater Park in Cave Spring

energy-efficient transportation choices in communities.

Green space corridors also help link fragmented tracts of land to provide larger habitats for wildlife while also protecting sensitive natural features, natural processes, and ecological integrity. These tracts of open space also contribute to cleaner air by preserving stands of plants that create oxygen and filter air pollutants such as ozone, sulfur dioxide, carbon monoxide, and airborne particles of heavy metals. Vegetation within the green space corridors also creates a buffer to protect streams, rivers, and lakes, preventing soil erosion and filtering waterborne pollutants from agricultural and roadway runoff.³⁴ Trails that are built within green space corridors give bicyclists, pedestrians, and other non-motorized trail users access to these natural areas and provide safe off-road facilities for walking and bicycling. These corridors also provide opportunities for restoring wildlife habitat in areas that have been previously disturbed.

Greenways can also serve as an educational tool, providing opportunities for trail users to learn about the local landscape and environment. Interpretive signage along the trail could be designed to inform trail users about local wildlife, habitats, water quality issues, and other environmental education topics. Similarly, greenways can serve as hands-on environmental classrooms for people of all ages to experience

natural landscapes, conduct creek clean-ups, and raise environmental awareness.

Trails Enhance Cultural Awareness and Community Identity

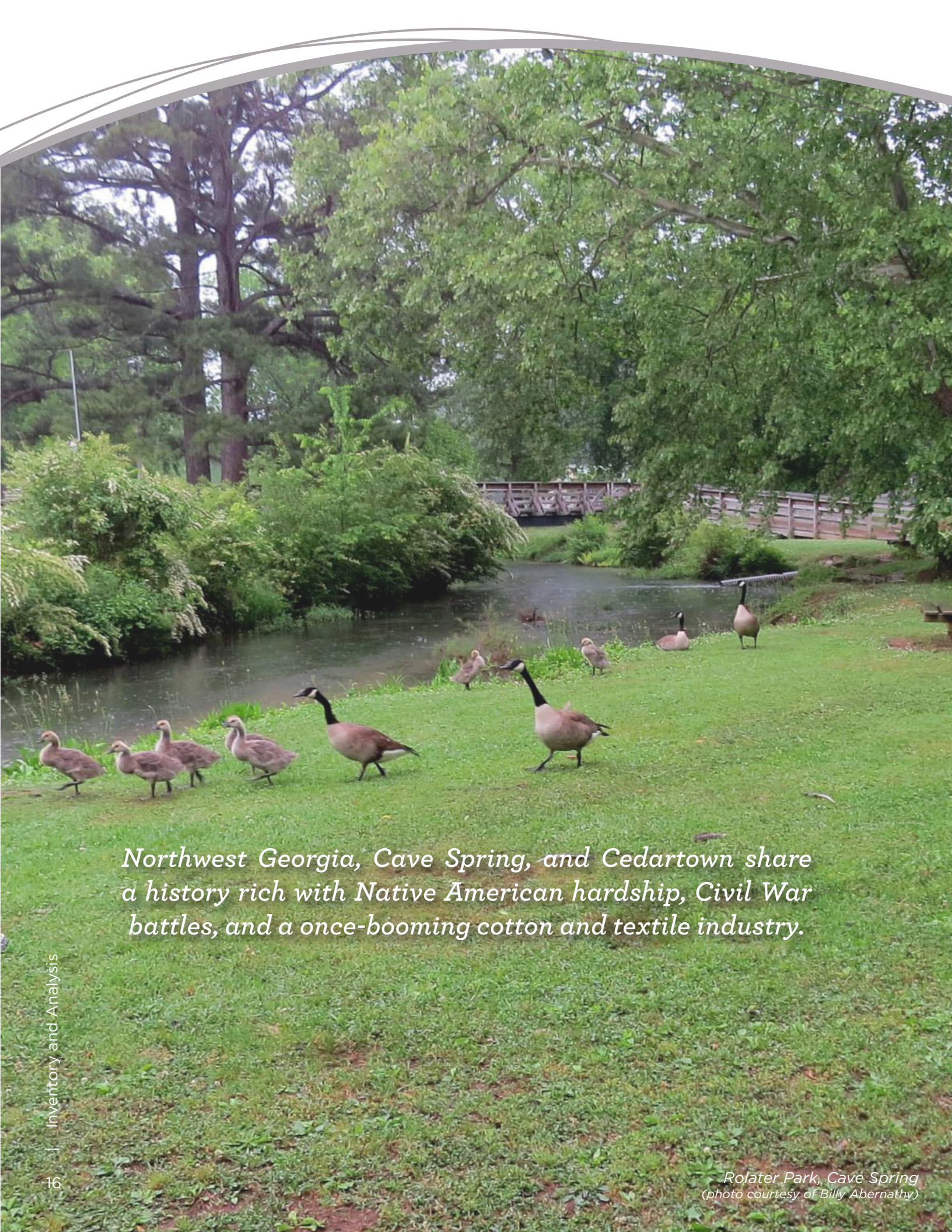
Trails, greenways, and open space can serve as connections to local heritage by preserving historic places and by providing access to them. They provide a sense of place and an understanding of past events by drawing greater public attention to historic and cultural locations and events. **Trails often provide access to historic sites such as battlegrounds, bridges, buildings, and canals that otherwise would be difficult to access or interpret.** Each community or region has its own unique history, its own features. By recognizing and connecting these features, the Silver Comet Trail would help to enhance cultural awareness and community identity and provide an attraction for residents, businesses, and tourism.

Finally, **a well-connected trail provides opportunities for people throughout the area to interact with one another outside of work and their immediate neighborhood.** Positive interaction (such as through exercising, strolling, or even just saying “hello” among people from a wider community helps to build trust and awareness of others, which strengthens the overall sense of community.

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Northwest Georgia, Cave Spring, and Cedartown share a history rich with Native American hardship, Civil War battles, and a once-booming cotton and textile industry.

2 Inventory & Analysis

Overview

This chapter describes existing conditions in and between Cave Spring and Cedartown, including local assets, opportunities, and constraints for greenway development.

History and Setting of Cave Spring and Cedartown

History

Northwest Georgia, Cave Spring, and Cedartown share a history rich with Native American hardship, Civil War battles, and a once-booming cotton and textile industry.

NATIVE AMERICAN SETTLEMENT AND THE TRAIL OF TEARS

Cave Spring and Cedartown are both home to natural springs that each produce over two million gallons of crystal clear water per day. This source of abundantly flowing fresh water is what initially attracted the Cherokee and Creek

Indians, the first human settlers in the area. The Cherokee called the area around what is now Big Spring Park in Cedartown “The Valley of the Cedars.”

As the white population of Georgia moved west in the early 1800s, conflict over land with Native Americans increased. The discovery of gold in northwest Georgia in 1828 further intensified clashes. In 1830, Congress passed the Indian Removal Act, which authorized the president to negotiate with Indian tribes in the Southern United States to relocate to federal territory west of the Mississippi.

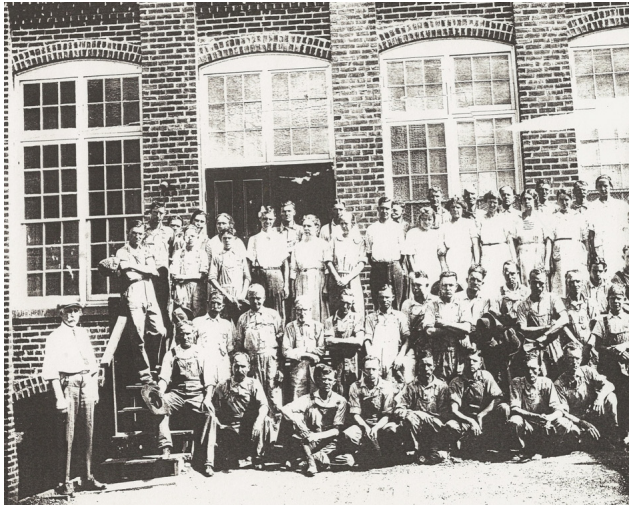
In 1838, under the direction of President Andrew Jackson, nearly 300 Cherokee Indians were interned at a containment camp to the west of Big Spring in Cedar Town (as it was then known) and later forcibly marched over a thousand miles



Signage commemorating the Cedar Town Indian Removal Camp and beginning of Trail of Tears National Historic Trail



The National Park Service's official map of the Trail of Tears National Historic Trail, zoomed to NW Georgia



Portrait of workers at the Cedartown Cotton Manufacturing Company, 1894. Photo courtesy of the Polk County Historical Society



Historic Georgia School for the Deaf in Cave Spring

at bayonet point to “Indian Territory” in what is now Oklahoma. The first leg of the march took place along what is now Cedartown Road, from Cedar Town to Cave Spring. The National Park Service has designated the route as part of the Trail of Tears National Historic Trail.

On April 19, 2011 – 173 years after the removal – hundreds of people gathered as historical signage was placed at the site of the Cedar Town Cherokee Removal Camp.

CIVIL WAR

By the time Union troops arrived in 1864, Cedar Town was largely abandoned, and was subsequently burned to the ground. Only one mill on the outskirts of town remained following the Civil War. The Georgia School for the Deaf, established in 1846 in Cave Spring, was used by both Union and Confederate troops as a field hospital during the Civil War.

RAILROADS AND INDUSTRY

In 1867, the Cedar Town was re-charted as “Cedartown” by the state of Georgia. Cedartown’s largely cotton-based industry expanded rapidly beginning in the 1880s through the early 1900s, aided in part by rail lines running east-west and north-south. The former east-west line that ran from Atlanta to Birmingham has been converted into the Silver Comet Trail. The north-south line used to connect Cedartown and Cave Spring. Portions of this line have been abandoned, and the corridor was evaluated for potential trail

conversion during the planning process that led to this report.

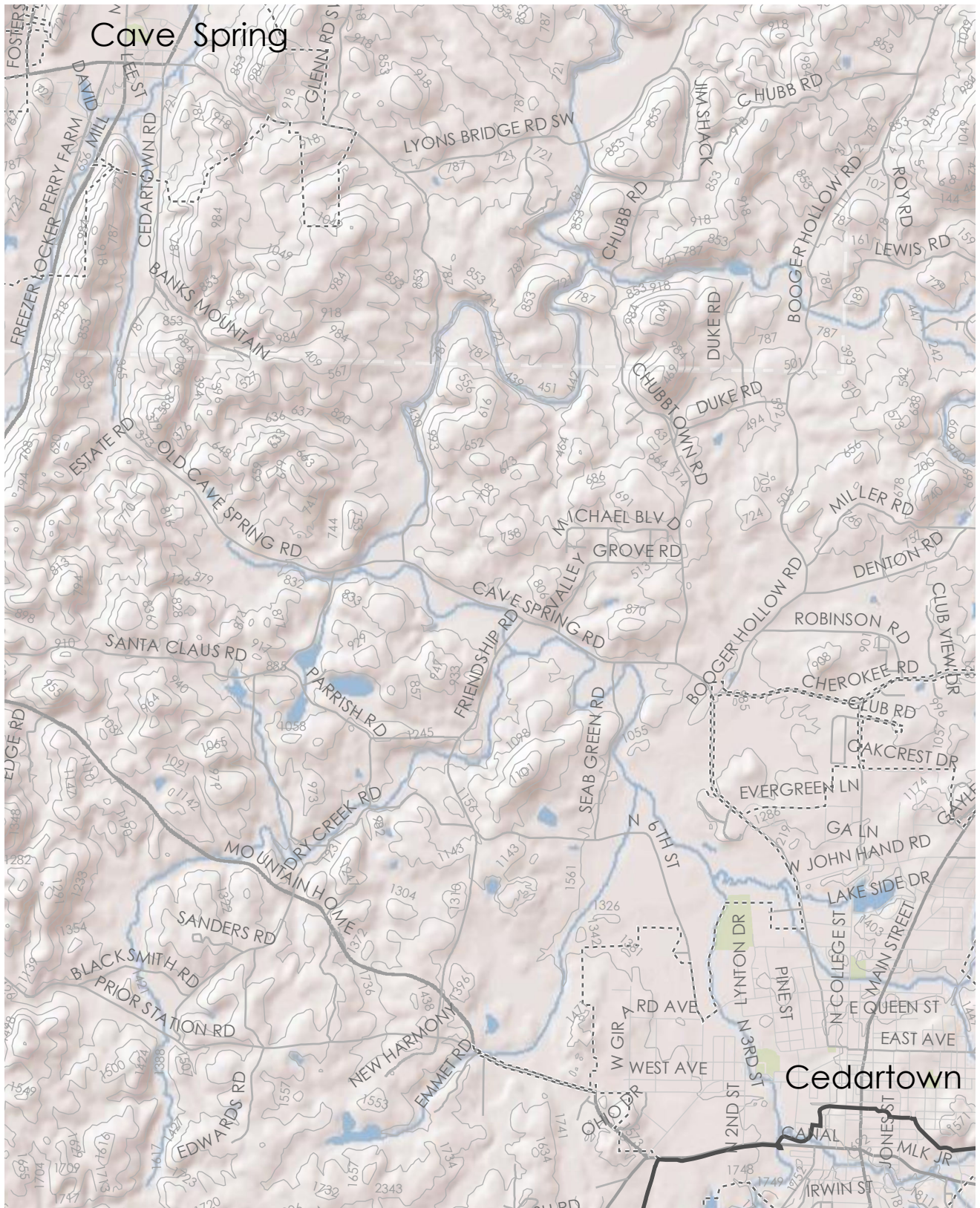
The Cedartown Cotton Manufacturing Company was founded in 1890, produced textiles, and was Polk County’s largest employer for decades. The mill was acquired by the Goodyear Tire and Rubber Company in 1925. The City of Cedartown now owns the property where the mill used to stand, and plans to transform the site into Goodyear Mills Park. The historic buildings along Cedartown’s Main Street were built during the late 19th and early 20th Century, and are now part of the Cedartown Downtown Historic District.

Setting






The study area for this planning process includes urban areas in Cave Spring and Cedartown as well as farm and forest land between the two cities. The project team evaluated multiple potential routes including State and County roadways, the Cedar Creek and Little Cedar Creek riparian corridors, abandoned and active rail corridors, utility corridors, city streets, and the existing Pinhoti Trail.

Topography

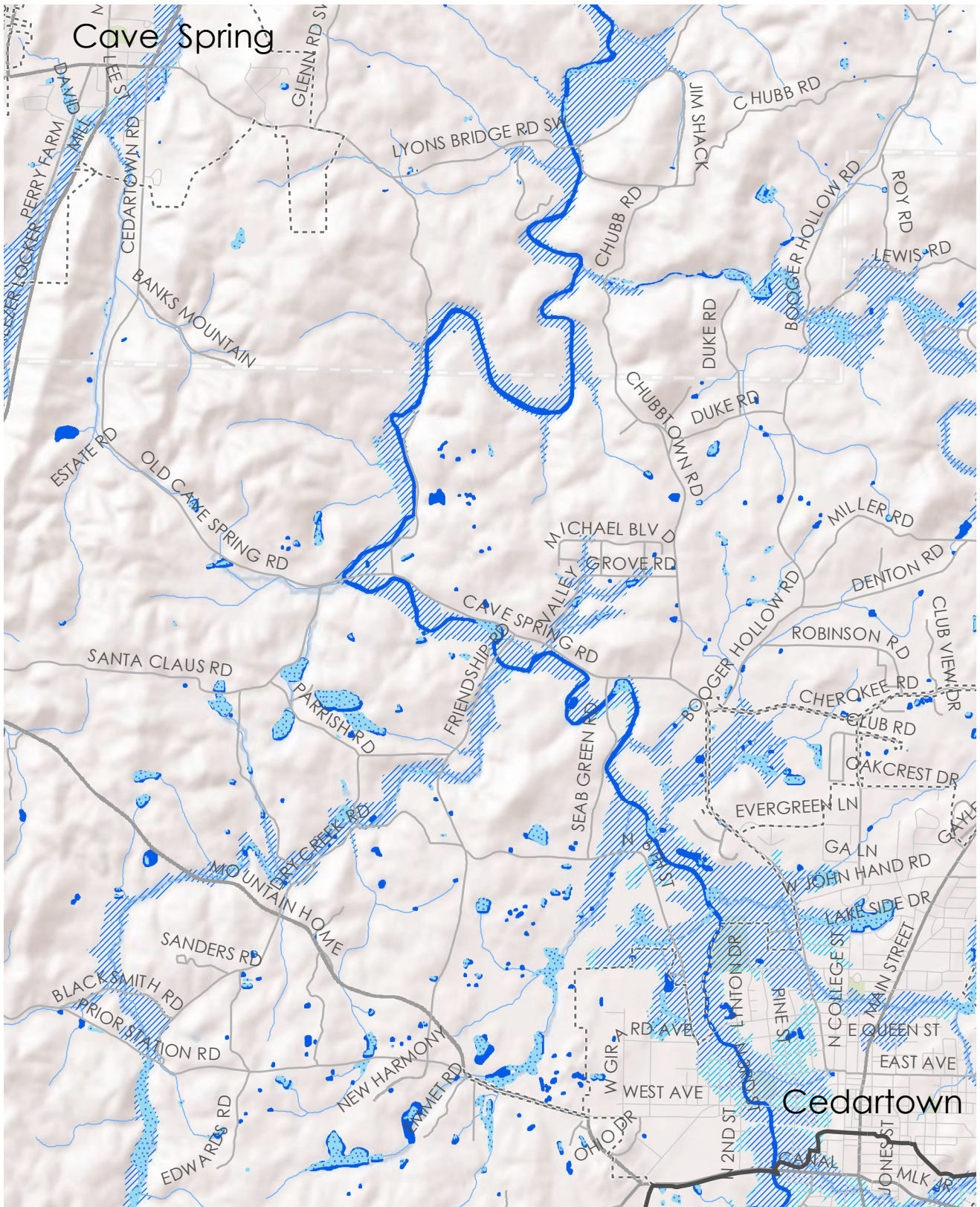
The map on the facing page features 20-foot topographic contours for the study area. The contours show the dramatic landscape, ranging from rolling hills mountainous features, typical of the foothills of northwest Georgia.



Topography

-  Topography
-  Silver Comet Trail
-  Parks
-  City Limit
-  County Boundary





Drainage

- Rivers, Lakes, and Ponds
- Streams
- 100 Year Flood Plain
- 500 Year Flood Plain
- Wetlands
- Silver Comet Trail
- Parks
- City Limit
- County Boundary





Stone bridge at Big Spring Park in Cedartown

Hydrology

Big Spring Creek is the largest tributary in the study area, located in the Coosa River watershed. The map on page 20 illustrates the various hydrological features between Cave Spring and Cedartown. Floodplain and wetlands within the study area can be seen along a few of the stream and river basins and along Cave Spring Rd.

Destinations

Enhancing access to the region's cultural, ecological, and historic assets is one of the key goals of this project. The maps on pages 22 and 23 identify key destinations in Cave Spring and Cedartown relative to the proposed CSC Trail Preferred Alignment.

Cave Spring

- The Cave, Spring, and Swimming Lake at Rolater Park

- Georgia School for the Deaf (Modern)
- Cave Spring Commercial Historic District
- Cave Spring Residential Historic District
- Georgia School for the Deaf Historic District.
- Cave Spring Railroad Station (Historic)
- Cave Spring Park
- Multiple historic homes and churches
- Cave Spring Elementary School

Cedartown

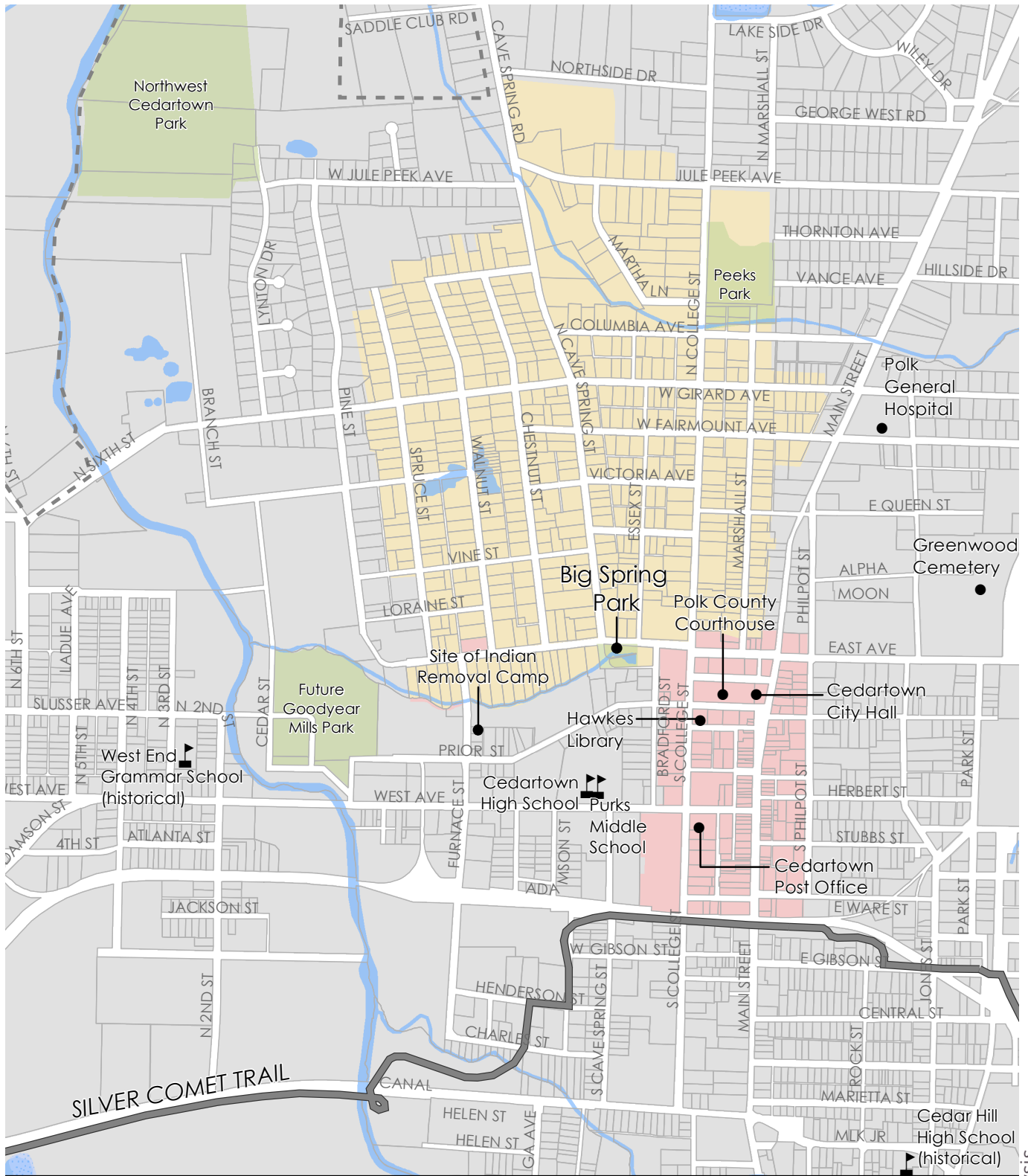
- Cedartown Local Historic District
- Northwest Cedartown Historic District
- Big Spring Park
- Northwest Cedartown Park
- Future Goodyear Mills Park
- Cedartown City Hall
- Polk County Courthouse
- Hawkes Children's Library
- Cedartown High School
- Purks Middle School
- Cedartown Post Office



Destinations: Cave Spring

- Rolater Park Historic District
- Commercial Historic District
- Residential Historic District
- Georgia School for the Deaf Historic District
- Rivers, Lakes, and Ponds
- Streams





Destinations: Cedartown



- Northwest Cedartown Historic District
- Cedartown Local Historic District
- Parks
- Wetlands
- Rivers, Lakes, and Ponds
- Streams
- Cedartown City Limit
- Silver Comet Trail



Caboose at the Historic Cave Spring Railway Station, wooden bridge over spring water at Rolater Park in Cave Spring, and signage for the Pinhoti Trail at the intersection of Cave Spring Road and Estate Road.

Current and Future Land Use

The maps on pages 26 and 27 show current and future land use classifications for selected parcels in Floyd County and Polk County. Land uses in Cave Spring are primarily residential and public/institutional, with pockets of commercial uses along Cedartown Road and Alabama Street. Commercial properties in Cedartown are clustered around Main Street, West Avenue, and East Avenue. Residential neighborhoods radiate out from the historic downtown, with a sizable industrial area on the west side of the city and a smaller cluster of industrial uses to the east.

The majority of the land outside the city limits of Cave Spring and Cedartown is either agricultural, timber land, or conservation areas. Large-lot residential properties line portions of N 6th Street, Friendship Road, Seab Green Road, Cave Spring Road, Santa Claus Road, and Parish Road, and a small suburban development off Valley Grove Road contains several dozen homes.

The proposed CSC Trail is consistent with future land use designations. For example, existing agricultural land south of central Cave Spring, between Cedartown Road and public land east of Mill Street Cave Spring, is slated to become conservation land in the future. A low-impact trail would complement conservation land well. Cave Spring Road is also shown as Scenic Corridor in Polk County’s future land use map, and the preferred alignment of the CSC Trail follows this route for several miles.

Opportunities and Constraints

Fieldwork, GIS mapping, and input from the public, Northwest Georgia Regional Commission, Floyd County, Polk County, the City of Cave Spring, and the City of Cedartown helped to identify existing opportunities and constraints for trail development inside the study area. This section presents an overview of the key assets that would support a local trail and the challenges that will need to be addressed for successful implementation.

Opportunities

SPRING TO SPRING CONNECTION

Developing and branding a trail connection between two freshwater springs with historic significance represents a key opportunity for economic development, promoting local environmental resources, and educating residents and visitors about local history.

SILVER COMET AND PINHOTI TRAILS

Connecting to the existing Silver Comet and Pinhoti Trails would leverage these regional assets, creating improved access to nature, recreational opportunities, and transportation options. The Silver Comet and Pinhoti Trails already attract thousands of visitors to the area annually, and an additional trail connection could bring the economic benefits of tourism north to Cave Spring.

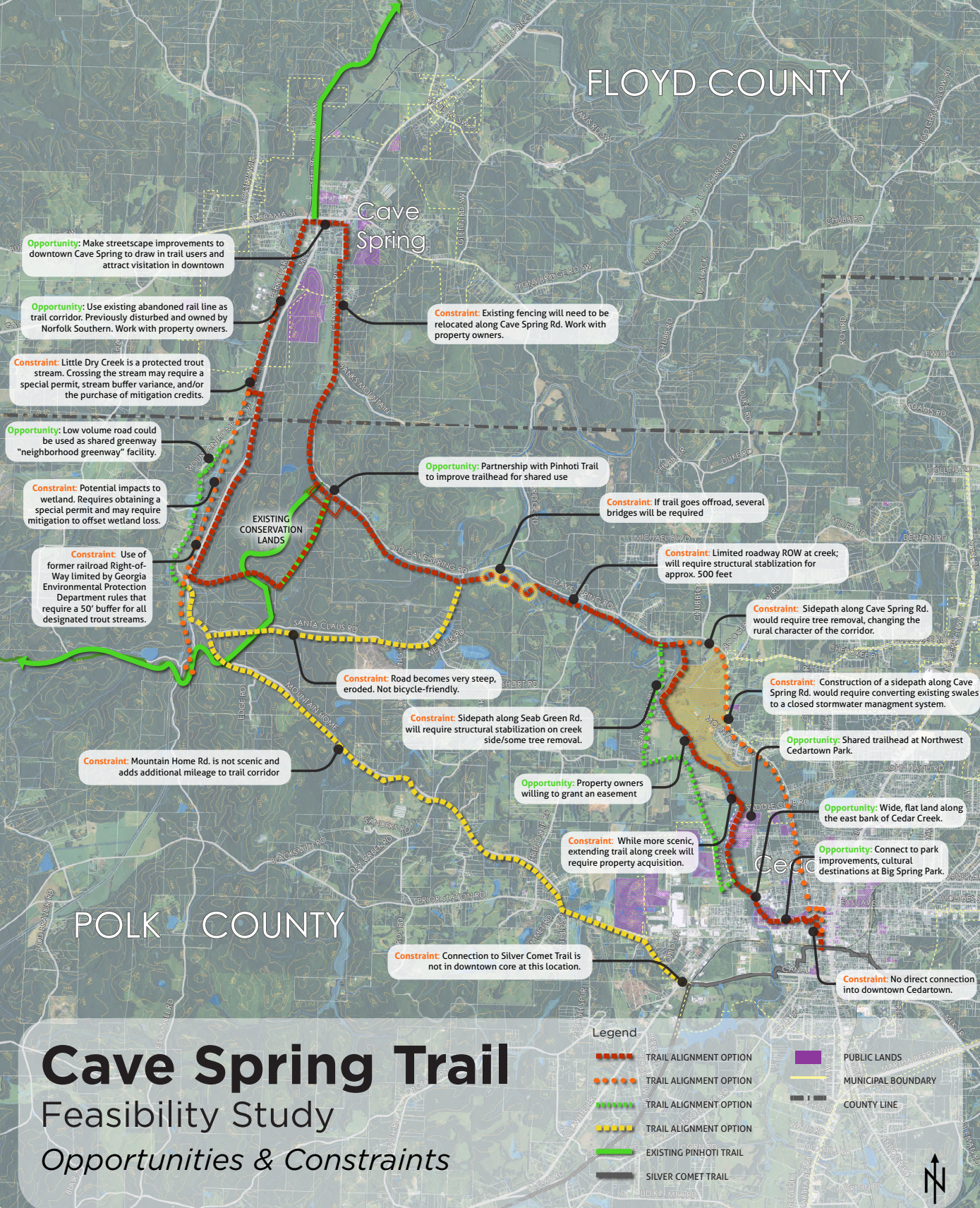
The proposed CSC Trail could also use and potentially enhance existing trailheads in Cedartown (Silver Comet Trailhead) and at the inter-

FLOYD COUNTY

Cave Spring

POLK COUNTY

Cave Spring Trail Feasibility Study Opportunities & Constraints



Opportunity: Make streetscape improvements to downtown Cave Spring to draw in trail users and attract visitation in downtown

Opportunity: Use existing abandoned rail line as trail corridor. Previously disturbed and owned by Norfolk Southern. Work with property owners.

Constraint: Existing fencing will need to be relocated along Cave Spring Rd. Work with property owners.

Constraint: Little Dry Creek is a protected trout stream. Crossing the stream may require a special permit, stream buffer variance, and/or the purchase of mitigation credits.

Opportunity: Low volume road could be used as shared greenway "neighborhood greenway" facility.

Opportunity: Partnership with Pinhoti Trail to improve trailhead for shared use

Constraint: If trail goes offroad, several bridges will be required

Constraint: Potential impacts to wetland. Requires obtaining a special permit and may require mitigation to offset wetland loss.

Constraint: Use of former railroad Right-of-Way limited by Georgia Environmental Protection Department rules that require a 50' buffer for all designated trout streams.

Constraint: Limited roadway ROW at creek; will require structural stabilization for approx. 500 feet

Constraint: Sidepath along Cave Spring Rd. would require tree removal, changing the rural character of the corridor.

Constraint: Road becomes very steep, eroded. Not bicycle-friendly.

Constraint: Construction of a sidepath along Cave Spring Rd. would require converting existing swales to a closed stormwater management system.

Constraint: Sidepath along Seab Green Rd. will require structural stabilization on creek side/some tree removal.

Opportunity: Shared trailhead at Northwest Cedartown Park.

Constraint: Mountain Home Rd. is not scenic and adds additional mileage to trail corridor

Opportunity: Property owners willing to grant an easement

Opportunity: Wide, flat land along the east bank of Cedar Creek.

Constraint: While more scenic, extending trail along creek will require property acquisition.

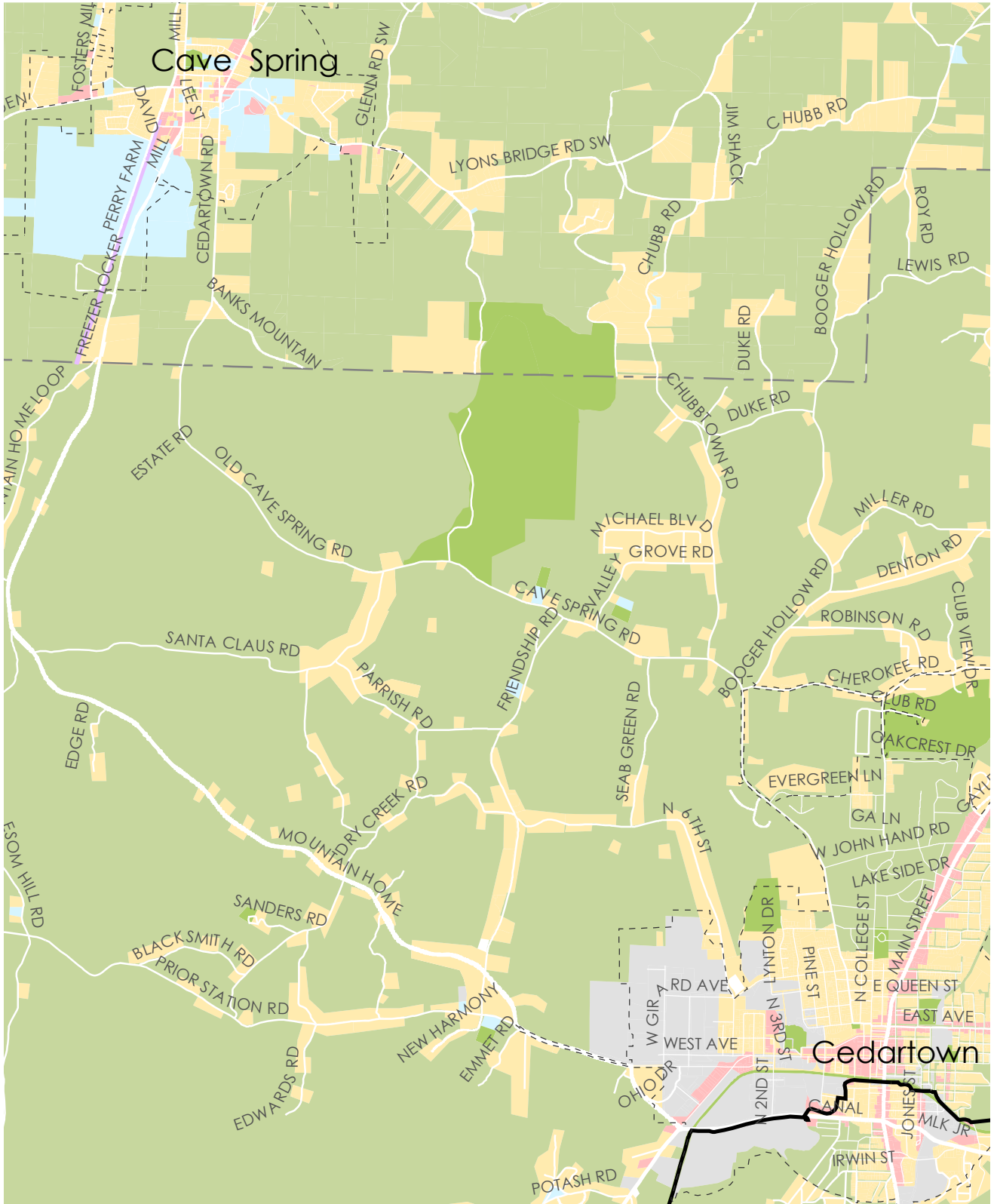
Opportunity: Connect to park improvements, cultural destinations at Big Spring Park.

Constraint: Connection to Silver Comet Trail is not in downtown core at this location.

Constraint: No direct connection into downtown Cedartown.

Legend

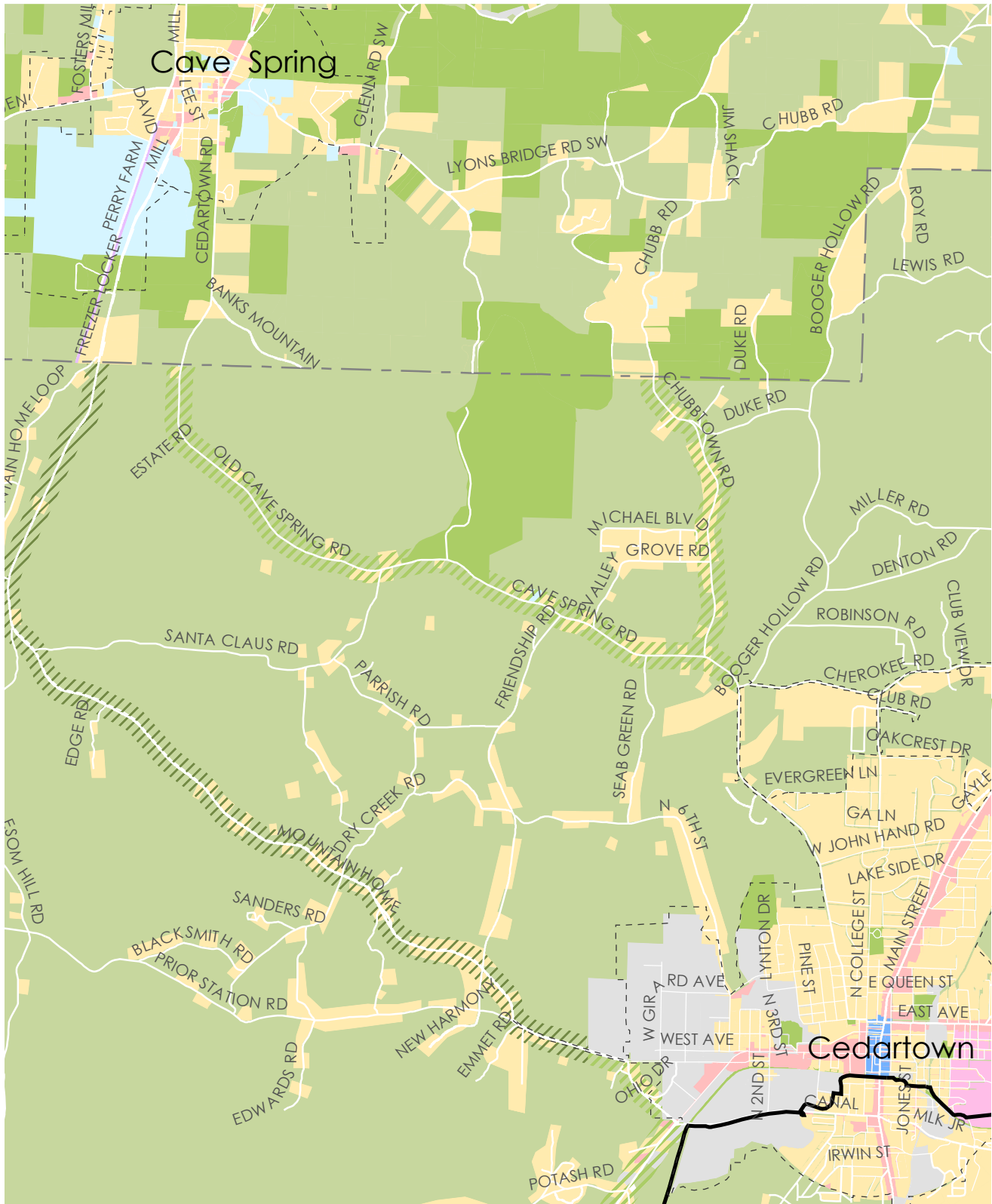
- - - TRAIL ALIGNMENT OPTION
- - - TRAIL ALIGNMENT OPTION
- - - TRAIL ALIGNMENT OPTION
- - - TRAIL ALIGNMENT OPTION
- EXISTING PINHOTI TRAIL
- SILVER COMET TRAIL
- PUBLIC LANDS
- MUNICIPAL BOUNDARY
- COUNTY LINE



Existing Land Use

- Farms and Forest
- Commercial
- Industrial
- Parks, Recreation, and Conservation
- Public and Institutional
- Former Railroad
- Residential
- Silver Comet Trail
- City Limit
- County Boundary





Future Land Use

- Farms and Forest
- Commercial
- Historic
- Parks, Recreation, and Conservation
- Industrial
- Residential
- Scenic Corridor
- Major Highway/Scenic Corridor
- Silver Comet Trail
- City Limit
- County Boundary





A flat, cleared section of the Cedar Creek streambank illustrates the potential for a paved trail.



The wooded areas of Northwest Cedartown Park adjacent to Cedar Creek are well-suited to trail development.

section of Cave Spring Road and Estate Road (Pinhoti Trailhead).

HISTORIC PROPERTIES AND EVENTS

Cave Spring and Cedartown together contain six historic districts, the Georgia School for the Deaf (historic campus), the Cedar Town Indian Removal Encampment site, and dozens of historic buildings listed on the National Register of Historic Places. Additionally, Cave Spring Road has been designated as part of the Trail of Tears National Historic Trail.

CEDAR CREEK

Cedar Creek is a beautiful scenic resource with few public access points. Developing a trail along this waterway would enable locals and visitors to connect with an ecological asset while enjoying a stroll or bike ride. As an added bonus, some sections of the stream bank are already cleared and level.

ABANDONED RAILROAD CORRIDOR

Norfolk Southern abandoned a 12.31 mile line of railroad in June 2011. This line runs through Floyd & Polk Counties. Upon discussions with NS, it was determined they still own the majority of this line with the exception of three small parcels that have been conveyed to the south. The railroad has been approached by a large number of adjacent landowners about purchasing portions of the line adjacent to their property. However, NS is deferring any additional sales until they can determine if the possible sale of the corridor to a single agency is a viable option.

PUBLIC LAND

The City of Cave Spring and the City of Cedartown own several properties that would be enhanced by the addition of a multi-use trail. Roler Park in Cave Spring and Big Spring Park and Northwest Cedartown Park in Cedartown are good examples of such properties.

LOW-VOLUME RESIDENTIAL STREETS

Where constructing an off-street path is not feasible, it may be possible to create a trail-like experience on traffic-calmed residential streets. Mountain Home Loop in Polk County and many of the streets in Cedartown's Northwest Historic District are potential candidates for creating "neighborhood greenways."

Constraints

HIGH TRAFFIC THOROUGHFARES

Roadways such as Mountain Home Road and West Avenue are major thoroughfares with high motor vehicle traffic volumes and speed limits, as well as truck traffic. These roadways are not scenic and not desirable for adjacent trail development.

NARROW ROADWAYS AND RIGHT-OF-WAY

Some sections of Cave Spring Road in Cedartown are narrow, shoulderless, and are sandwiched between stormwater swales on both sides of the street. Constructing a sidepath along this corridor would require creating a closed stormwater system and building the trail on top, which adds considerable cost. Between



Constructing a sidepath along this section of Cave Spring Road would require significant tree removal.



Coordination with private properties along the preferred alignment will be critical to the success of the project.

Cedartown and Chubbtown Road, constructing a sidepath would require significant tree removal, altering the scenic rural character of the corridor.

STEEP ROADS AND UTILITY CORRIDORS

Santa Claus Road and Banks Mountain Road are examples of roads with steep inclines that would be difficult for the target trail user group, including children and older adults, to easily navigate. In addition, the majority of available power easements are clear cut with steep terrain not conducive to sustainable trail design.

PRIVATE PROPERTY

The majority of the property between Cave Spring and Cedartown is privately owned. Property owners will need to be actively engaged in discussions about trail alignment, design, and potential easements or property acquisition to make the trail a reality.

PROTECTED TROUT STREAMS

Little Dry Creek is designated as a protected Trout Stream by the Georgia Environmental Protection Department. Crossing the stream may require a special permit, stream buffer variance, and/or the purchase of mitigation credits.

WETLANDS

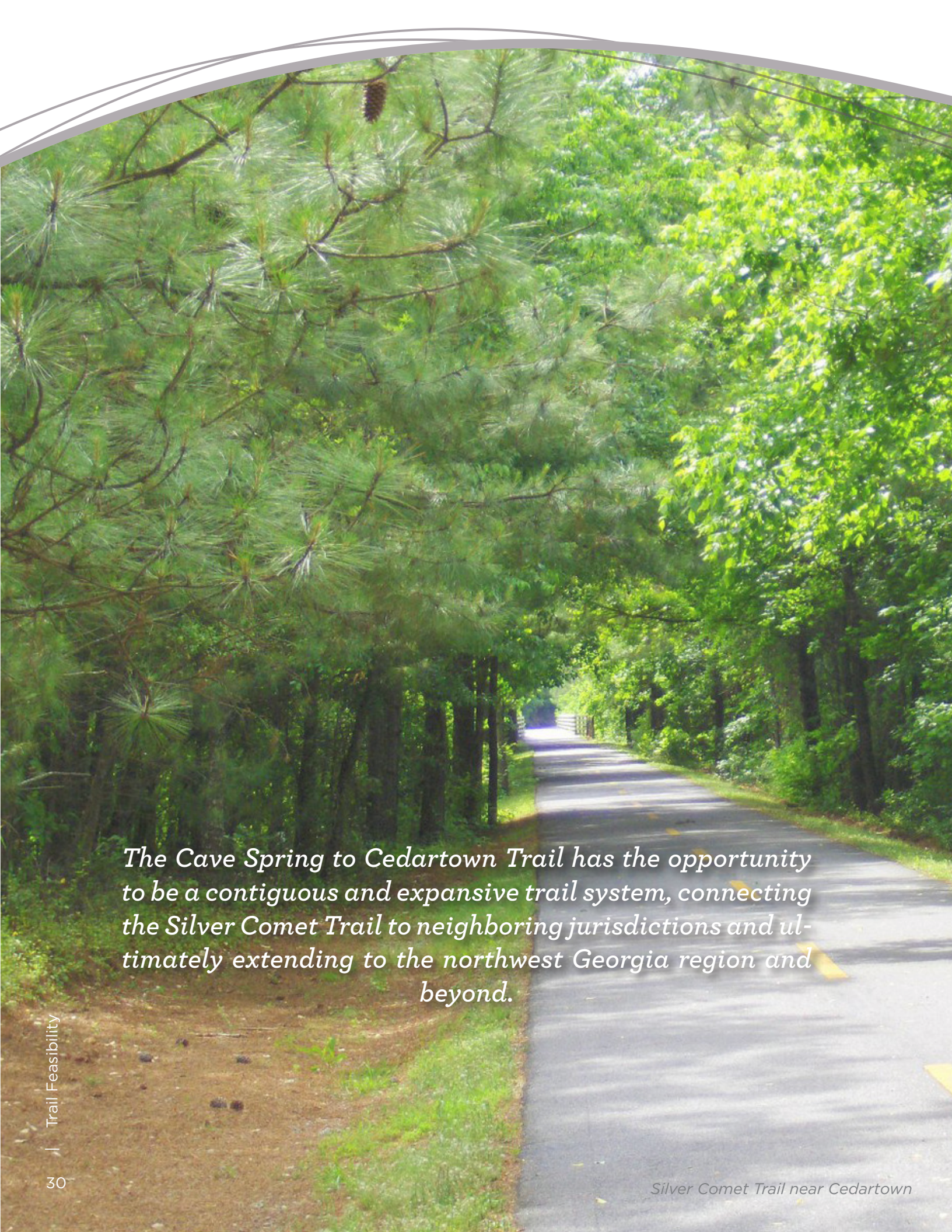
Where avoiding impacts to wetlands is not possible, the Georgia Environmental Protection Department requires the implementing agency/contractor to obtain a special permit. Some sit-

uations require mitigation to offset wetland loss, which add to project costs.

Opportunities and Constraints Summary

The map on page 25 provides a visual inventory of opportunities and constraints within the CSC Trail study area.

While constraints are considerations for any greenway project, those that exist along the CSC Trail preferred alignment are not significant barriers preventing project development. In fact, greenway opportunities outweigh the challenges for the preferred alignment. The proposed routing and alignment of the greenway, presented in Chapter Three, takes into consideration the analysis of study area conditions presented in this chapter. The end result will be a trail that optimizes investment, connections, equity, and environment.



The Cave Spring to Cedartown Trail has the opportunity to be a contiguous and expansive trail system, connecting the Silver Comet Trail to neighboring jurisdictions and ultimately extending to the northwest Georgia region and beyond.

3 Trail Feasibility

Trail Economics

The CSC Trail will one day connect neighborhoods from Cave Spring to Cedartown, providing residents and visitors a window into northwest Georgia’s landscape and culture. This 11-mile path will link users to nature, scenic vistas, rural farmland, shopping, restaurants, parks, and attractions. The CSC Trail has the capacity to protect natural resources and bolster the health and quality of life of the northwest Georgia region.

Trails have a direct impact on many facets of a community. **The full build-out of the CSC Trail will impact a variety of health, environmental, economic transportation, and equity factors that will affect the lives of northwest Georgia residents and visitors.** Quantifying these factors and understanding the magnitude of their impact on the region enables a more informed policy discussion on whether and how best to invest in the trail network.

Population Effected by the CSC Trail

The selected study area is a one-half mile buffer around the proposed CSC Trail. The distance of one-half mile was chosen because it is a conser-

Table 3.1 POPULATION PROXIMITY TO CSC TRAIL CORRIDOR

Within A 1/2 Mile	About 2,200 households and 6,200 people
Within One Mile	About 3,700 households and 10,000 people

vative estimate of the average distance an able-bodied person can travel on foot in 10 minutes.

Local Property Value Estimation PROPERTY VALUE BENEFITS

Previous research strongly suggests that proximity to trails has a positive impact on residential property values. The majority of studies reviewed by the project team employed hedonic pricing models capable of isolating the impact of trails on home prices, and found that the percent of **home values explained by proximity to parks, greenbelts, and trails commonly ranged between 5-12%**. Homes directly adjacent to trails receive the largest boost in value, and price increases are reliable up to about 3,000 feet.

Table 3.2 TRAIL BUFFER DISTANCE AND EXPECTED PROPERTY VALUE GROWTH

Distance from trail	Expected property value increase
Less than 300 ft	10%
301 to 600 ft	9%
601 to 900 ft	8%
901 to 1,200 ft	7%
1,201 to 1,500 ft	6%
1,501 to 1,800 ft	5%
1,801 to 2,100 ft	4%
2,101 to 2,400 ft	3%
2,401 to 2,700 ft	2%
2,701 to 3,000 ft	1%
Greater than 3,000 ft	0%

Table 3.3 ECONOMIC BENEFITS OF REGIONAL TRAILS

	LOCATION	LENGTH	BENEFIT	SOURCE
Virginia Creeper Trail	Damascus and Abingdon, VA	34 miles	increased tourist traffic and as a result generated \$1.6 million in economic impacts and supported 30 jobs.	"The Virginia Creeper Trail: An Assessment of User Demographics, Preferences, and Economics," Southern Forest Research Station, Department of Agriculture and Applied Economics (2004).
Silver Comet Trail	Northwest GA	61 miles	The trail generates \$100 million in expenditures and supports 750 jobs and \$20 million in earnings for the Region.	"The Economic Impact of the Silver Comet Trail," Econsult Solutions, Inc. (2013).
Ecusta Trail	Brevard and Hendersonville, NC	18 miles	The estimated impact of the Ecusta Rail-to-Trail was \$22 million in property value increases, and up to \$160,000 per year in property tax revenues generated.	"Ecusta Rail-to-Tail Economic Impact Analysis," Econsult Corporation (2012).
Pinellas Trail	Dunedin, FL	38 miles	Store vacancy rates decreased from 35% to 0 after the trail was built.	"Economic Impacts of Parks, Rivers, Trails and Greenways," Rebecca Ellen Nadel (2005).

Using these findings as a starting point, the project team set out to estimate residential property value increases for the CSC Trail. Using Geographic Information Systems (GIS), a series of buffers were created around the preferred trail alignment based on the table on the previous page. Next, expected increases on a percentage basis to the current values of residential parcels were applied. Based on this methodology, **the implementation of the Silver Comet Trail extension from Cedartown to Cave Spring is expected to add a total of \$7,825,940 to nearby residential property.**

Qualitative Benefits

HEALTH BENEFITS

While many of the health-related benefits of trail networks and other recreational amenities are difficult to quantify - such as mental health, educational growth, connection to nature, and sense of place - a growing body of literature connecting access to recreational amenities to increased exercise, potential health outcomes, and healthcare cost reductions does exist. Health conditions that stem in part from a lack

of daily activity among children and adults is a recent and increasingly problematic issues in the United States, and northwest Georgia is no exception. Georgia is ranked #18 of the 52 states in the country, with an obesity rate of 30.3%¹.

The implementation of a well-designed, connected trail system across the northwest Georgia region will encourage a shift from energy-intensive modes of transportation such as cars and truck to active modes of transportation such as bicycling and walking.

TOURISM BENEFITS

The leisure and hospitality industry contributes to a large portion of the Georgia economy. 450,000 of Georgia's non-agricultural jobs are in the leisure and hospitality industry². Tourism represents the use of outside purchasing power to support local businesses, and the ability of the CSC Trail to attract tourism spending is an important factor in analyzing the overall impact of the trail system.

1 <http://stateofobesity.org/states/ga/>

2 <https://explorer.dol.state.ga.us/mis/current/nonagcurrent.pdf>



Trails are excellent sources of economic activity. The Atlanta Beltline during Atlanta Streets Alive, 2012.

While it is difficult to accurately forecast the change in tourism spending resulting from the implementation of the CSC Trail, an examination of current tourism activity and tourism spending near the Silver Comet Trail provides a useful proxy for evaluating tourism benefits of the trail. The table on the facing page shows tourism spending generated from other trails in the southeast region.

TRANSPORTATION BENEFITS

The most readily-identifiable benefits of the CSC Trail or any trail project derive from their use as a connection between activity center and residences. While no money changes hands, real savings can be estimated from the reduction costs associated with congestion, vehicle collisions, road maintenance, and household vehicle operations.

Alternatives Analysis

As described in the Introduction, the goals of this planning process include providing a shared-use trail to accommodate all potential users, providing access and connectivity to Cave Spring and Cedartown open space, parks and other public resources, and to protect and restore wildlife habitat and water quality along Big Spring Creek. The Cave Spring to Cedartown Trail will do more than simply serve as a transportation corridor; rather, it will become a destination that allows for community gathering, recreation, and education. The Cave Spring to Cedartown Trail has the opportunity to be a contiguous

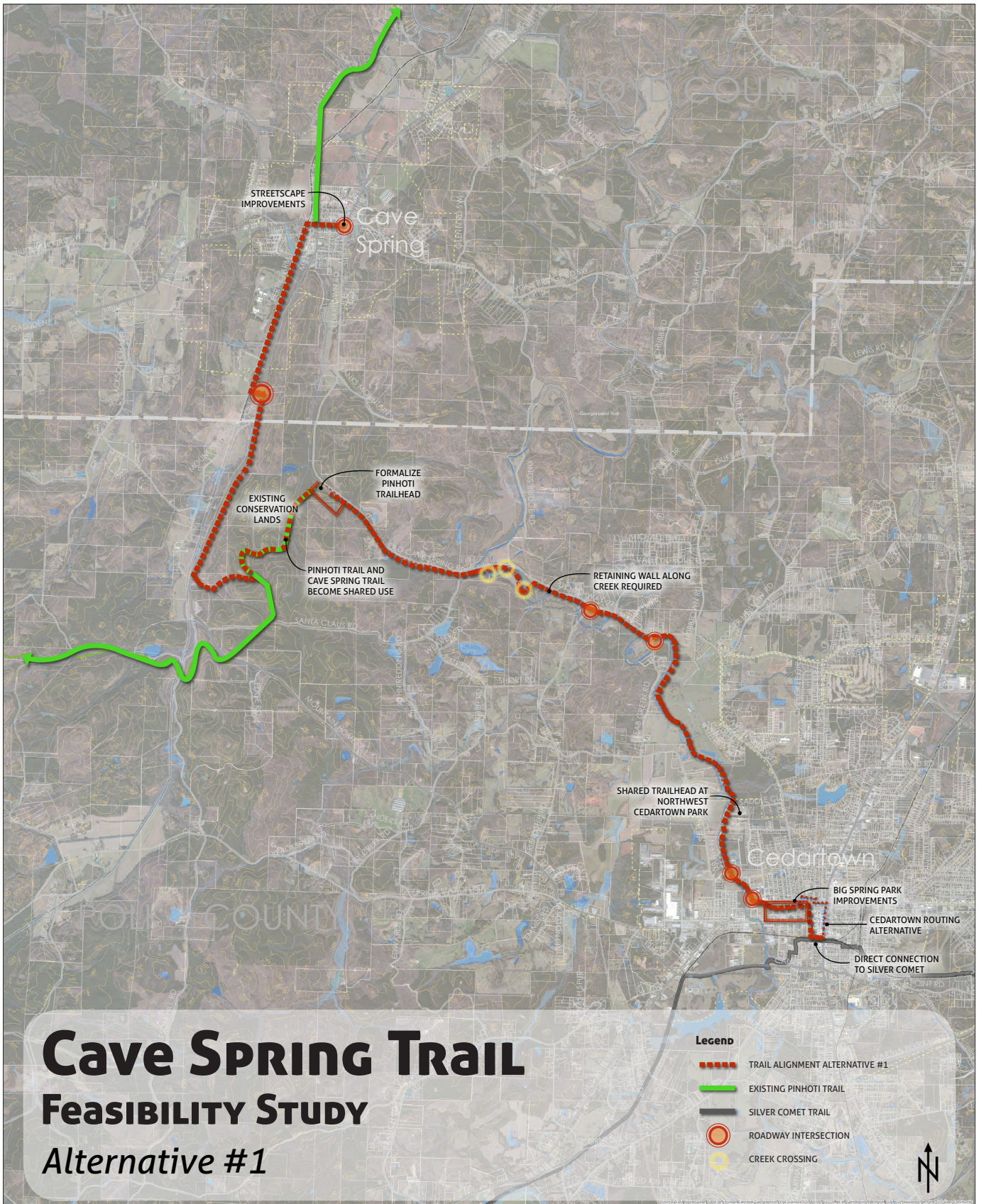
and expansive trail system, connecting the Silver Comet Trail to neighboring jurisdictions, and ultimately extending to the northwest Georgia region and beyond. Trail alternatives were generated using the following input:

- An evaluation of existing corridor conditions, opportunities, and constraints (detailed in Chapters 1 and 2)
- Input from local officials and NWGRC staff
- A Public Open House to gather public input
- Meetings with local stakeholders and landowners

The Consultant prepared three trail alignment alternatives to weigh various trail planning and design outcomes and priorities. The goal of preparing different alternatives was to provide options that were distinctly different from one another so that user needs and preference, origins, and destinations could be determined.

Alternative #1

The first of three alignment options begins in downtown Cave Spring and proposes downtown improvements to encourage trail user visitation and experience. If the trail is extended west along the south side of Alabama St., connections can be made to the north with the existing Pinhoti Trail. At Perry Farm Rd., the trail is proposed as a sidepath along the west side between the former rail line and the roadway. Where the road dead ends, the trail extends



Cave Spring Trail

Feasibility Study

Alternative #1

along the former rail corridor to the south until it intersects with the south terminus of Mountain Loop Rd. A trail crossing will be required at Old Cave Spring Rd. There is a possibility of a connection due east, along existing conserva-

tion lands to the Pinhoti Trail. If Pinhoti Trail officials allow it, the trail corridor could become a shared use until Dead Goat Gate. This location, on the south side of Old Cave Spring Rd., is the site favored for a trailhead and parking lot. Co-



Silver Comet Connections

Downtown Cedartown



- Main Route: All ages and abilities
- Supplemental Route: Main Street connection
- Silver Comet Trail
- Railroads
- Streams
- Rivers, Lakes, and Pond

ordination and discussion with Pinhoti Trail and Conservation Fund officials is necessary for this to become a feasible option.

From the Dead Goat Gate trailhead, the Cave Spring Trail will extend along the south side of Old Cave Spring Rd., along existing cable/internet utility lines providing scenic views of pas-

tures, scenic landscapes, and Big Spring Creek. Just east of Seab Green Rd., opportunities exist to extend the trail along the east side of Big Spring Creek where a large landowner has expressed a willingness to support trail development across the property. A shared use trail along the creek provides additional opportunity for improved user experience and integra-



Existing conditions at Good Year Park

tion with the area's natural resources. Further, a creekside extension will provide direct access to Northwest Park. Existing parking and other facilities prevent the need for building a new trailhead elsewhere along the corridor, saving on construction costs.

At N. 6th St., the trail will cross beneath the roadway, continuing on the east side of the creek to connect to Good Year Park, where future improvements are proposed. There is an active rail line from GeoSpecialty Chemicals and the trail will need to tie into an existing at-grade intersection (at Prior St.) to safely convey trail users unless an additional crossing can be negotiated. Coordination with the plant is recommended to determine access needs and operations. The trail will connect to Big Spring Park and its improvements before becoming a sidepath along Bradford St., east to West Ave., south on N. College St., east on W. Ware St. to Main St. where it will connect to the Silver Comet Trail at the Depot trailhead. An alternative on-street connection can also be made from Big Spring Park to connect to downtown. Following the park's entrance road, bicyclists could follow Wissahickon Ave. east to N. College St., then south to Sycamore St., and east to Main St. From Main a direct connection can also be made to the Silver Comet Trail.

DOWNTOWN CEDARTOWN

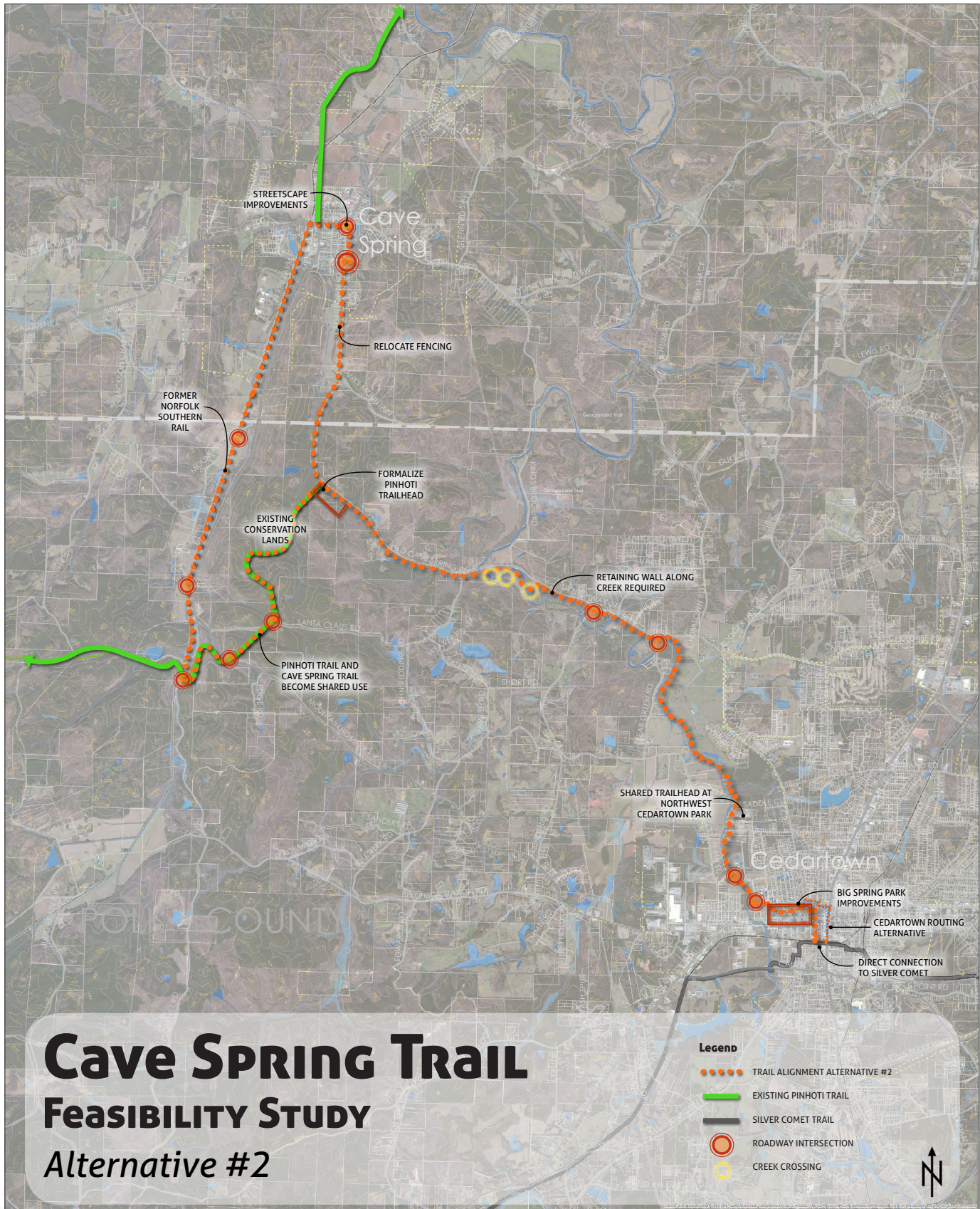
An enlargement map is provided on the previous page to illustrate several routing options

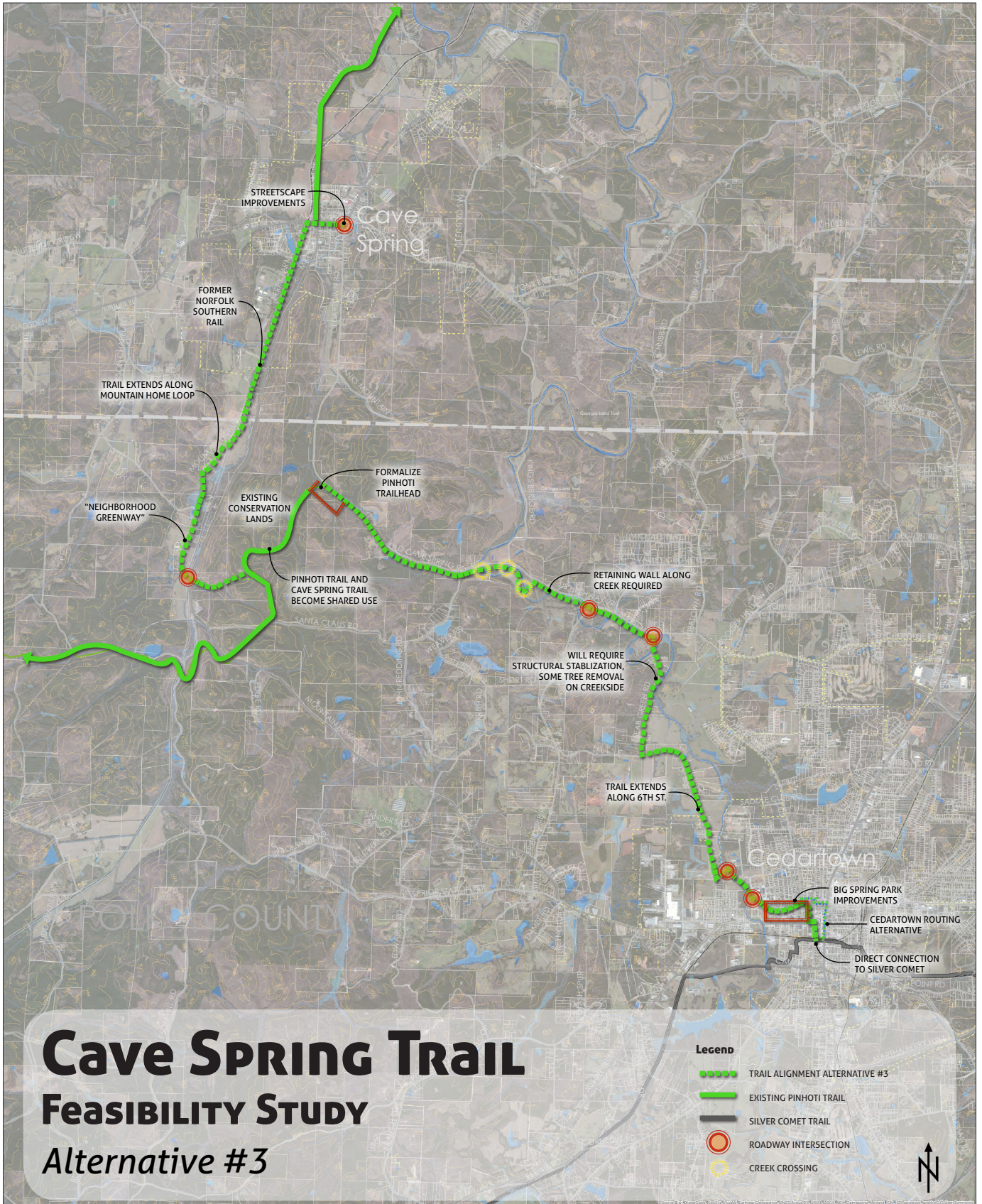
through downtown Cedartown for connecting users to the city core and the Silver Comet Trail. The alignment in green provides the safest, most offroad route which can accommodate all users. While the blue route is the most direct, it is primarily on-road and the installation of bicycle lanes or sharrows must be provided to safely connect specific users only comfortable using on-road facilities.

Alternative #2

The second Cave Spring Trail alignment proposes a similar starting point in Cave Spring, along Alabama St. Between Lee St. and Perry Rd., former railroad exists. Should the right-of-way be acquired by local agencies, the former rail line could become a viable option for trail use. Coordination with adjacent property owners will be necessary as the line may interrupt farming operations on several parcels. The "rail trail" would extend south along the former rail corridor until intersecting with the southern terminus of Mountain Loop Rd. A similar routing plan is proposed along conservation lands and the Pinhoti Trail at Dead Goat Gate.

At Cave Spring Rd., an option for a looped trail back to Cave Spring exists. The trail would extend as a sidepath on the west side of the roadway as a separated facility. For users desiring a longer trip to Cedartown and the Silver Comet Trail, a route is proposed along Old Cave Spring Rd. south. The alignment follows a similar course along Big Spring Creek and through downtown







From the N. 6th St. bridge at Big Spring Creek, where an existing access road is desired to connect users to Good Year Park.

Cedartown to connect with the Silver Comet Trail as described in Alternative #1.

Alternative #3

Similar to the other alternatives, Alignment #3 begins in downtown Cave Spring and extends along Perry Farm Rd. to the former rail line. The trail will extend as a rail trail should the right-of-way be acquired by local agencies. The primary difference between Alternative #3 and others is when the rail trail crosses Mountain Home Loop, it will share the roadway as a “neighborhood greenway.” This concept is a federally accepted practice for shared facilities when the roadway volumes are very low and routing alternatives are necessary. Where Mountain Home Loop connects with Mountain Home Rd., the trail will need treatments to safely cross at-grade.

The managing trail agency would need to work closely with representatives from the Conservation Fund to determine routing and alignment through lands to the east of Mountain Home Rd. Terrain is difficult to traverse for a shared use trail in this location. Ultimately, the alignment would meet up with existing Pinhoti Trail and share the corridor, however this concept has not been adopted by Pinhoti Trail Board members. As such, easements would need to be required to extend the trail east of the rail corridor through lands to connect back to Old Cave Spring Rd. The routing plan is very similar to the other alternatives along the roadway as a separated sidepath.

At Seab Green Rd., Alternative #3 is proposed

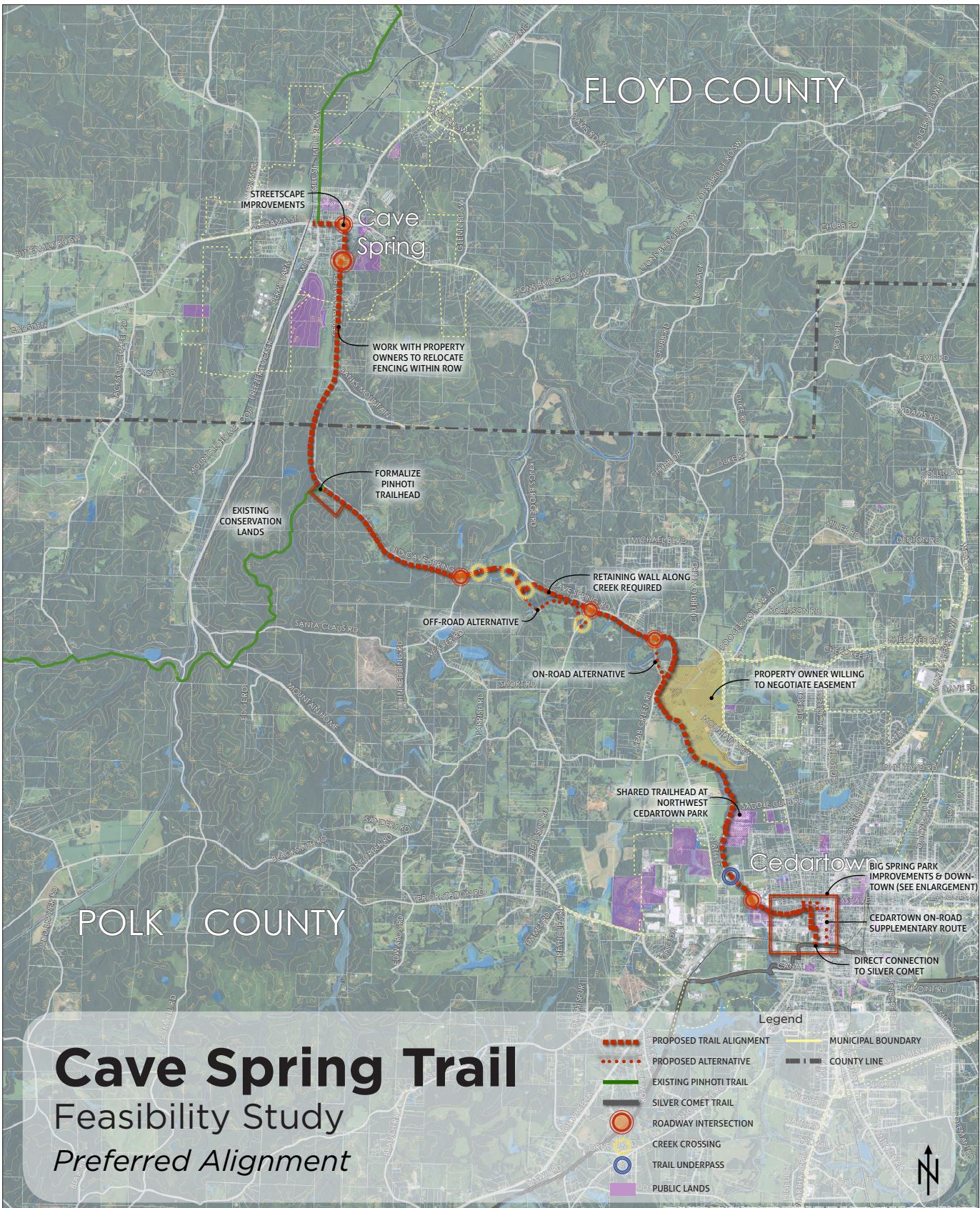
southbound as a sidepath on the east side of the roadway. The east side of the roadway provides views of Big Spring Creek; however some tree removal and trail stabilization may be necessary. This route provides public access to local natural resources which are good sources of economic development for the region and local jurisdictions. Where Seab Green Rd. connects with N. 6th St., the corridor will continue as a sidepath along the north side within roadway right-of-way.

As N. 6th St. begins to enter downtown Cedartown, it will transition from a sidepath to an offroad corridor at the Big Spring Creek bridge. A cantilevered structure will be necessary at the existing bridge that ramps down to the existing access road which will be used to extend the trail along the east side of Big Spring Creek to Good Year Park. Coordination with GeoSpeciality Chemicals is recommended to determine operational and access controls.

Alternative #3 will follow the same routing plan as the other alternatives to connect with downtown Cedartown and eventually the Silver Comet Trail.

Cave Spring to Cedartown Trail Recommended Alignment

The results of the public input session, feedback from local officials and stakeholders, and staff were that a combination of several alternatives would provide the greatest number of



Cave Spring Trail

Feasibility Study

Preferred Alignment

connections and benefit to residents and other trail users. This section presents detailed recommendations for the alignment and physical at-

tributes of the Cave Spring to Cedartown Trail (CSC Trail). The recommendations take into account the impact of physical and environmen-

Table 3.4 FACILITY TYPE BREAKDOWN BY ALTERNATIVE						
	Proposed linear feet of sidepath	% of route proposed as sidepath	Proposed linear feet of “Neighborhood Greenway”	% of route proposed as “Neighborhood Greenway”	Total route length (ft)	Total route length (mi)
Alternative 1	75,453	99.0%	730	1.0%	76,183	14.43
Alternative 2	99,699	99.3%	730	0.7%	100,429	19.02
Alternative 3	67,789	88.5%	8,820	11.5%	76,609	14.51
Preferred Alternative	57,519	98.7%	730	1.3%	58,249	11.03

For a description of the various facility types, see Chapter 5, Design Guidelines.

tal factors and the relationships between these factors that govern the successful creation of a trail facility. Special attention is given to how users will perceive the built and natural environments surrounding the proposed trail, how citizens will use it, and how trail use will impact the surrounding built and natural environments. The proposed CSC Trail extends along public lands and rights-of-way whenever possible. The Recommended Alignment, (shown in red on the maps) is the most successful in terms of serving the largest number of neighborhoods along the corridor. Further, the Recommended Alignment provides the greatest diversity of options for accessing the trail.

The Recommended Alignment is conceptual in nature and is not intended to be a “stand-alone” design for the final trail corridor. When the project enters the design and construction phase, additional study will be required of each phase to determine actual routing plans. A professional land survey will reveal information not available during the course of this study and changes are inevitable as a result. Coordination and negotiation with adjacent property owners will also be necessary prior to final design.

Recommended Alignment

Project consultants conducted a thorough in-field evaluation of the CSC Trail project study area to determine a feasible alignment. Prior to entering the field, the team evaluated existing conditions using Geographic Information

Systems (GIS) to determine land uses and resources adjacent to the project study area. The recommended alignment, shown on the facing page, is the most successful in terms of accomplishing the mission of this study: serving the largest number of users of all skill levels, providing access to the natural and cultural resources of the Northwest Georgia region, and connecting Cave Spring to Cedartown in the most cost effective and user-friendly manner. Once constructed in the recommended form, the CSC Trail will connect neighborhoods, two existing trail systems, four parks, Big Spring Creek, and downtown development services, including retail, restaurants, and accommodations. The alignment totals 11 miles.

CSC Trail Corridor Types

“Greenway trails,” “greenways,” or “trails” are constructed pedestrian and bicycle access facilities within various rights-of-way where an easement is present. Combined together, individual trails make up a larger network that connects neighborhoods, schools, parks, downtown, and commercial areas. Greenways should provide access and connectivity without damaging the qualities of the natural environment that are most valued and appreciated during construction. Greenway corridors should be selected using a variety of site factors, such as:

- site topography
- surface drainage
- frequency of flooding
- public access



Trails can share numerous corridors with utilities and other infrastructure, such as power and roadway as seen in this illustration showing proposed trail on Cave Spring Rd. just south of Cave Spring.

- construction cost
- environmental impact
- maintenance concerns

The CSC Trail will traverse many different landscapes and land uses. In some cases, development challenges will be insurmountable, and an alternative facility such as sidewalks and bicycle lanes must be designated as the trail corridor. Trails within the study area are constructed within natural corridors (Pinhoti Trail), man-made corridors (Silver Comet Trail), or along tracts of open space or other public lands (Pinhoti Trail). The following corridor types are recommended and described for the CSC Trail. Table 3.4 shows a breakdown of facility type by alternative on the previous page.

Riparian Corridors

The CSC Trail will provide a connective amenity for the community, supplying recreational value and ecological resilience for continuity to some of its most important natural areas in the north-west Georgia region. Riparian corridors include land directly adjacent to Big Spring Creek and its perennial streams, including both flood plains and high ground. All floodplain land within the City or County jurisdiction falls within the drainage basins, or watersheds, of the Coosa River or and its major tributaries.

Man-Made Corridors

Man-made corridors are potential trail corridors

that follow man-made linear elements of the roadway or utility infrastructure, or they may follow corridors created by patterns of land development. Man-made corridors can make important connections throughout the system by capitalizing on abandoned rail corridors, roadway rights-of-way, or utility rights-of-way. For all man-made corridors, a trail easement must be acquired from the current fee simple title owner of the land.

ROADWAY RIGHTS-OF-WAY

Some state-owned roadways include right-of-way widths sufficient for accommodating trails separated from on-road traffic. Georgia Department of Transportation (GDOT) routinely grants encroachment agreements for trails. All encroachment agreements require design approval and adherence to GDOT stormwater design and traffic control standards.

RAILROAD RIGHTS-OF-WAY

Federal legislation allows public interim use of inactive, abandoned railroads as trails. This method of right-of-way preservation is known as railbanking, and the trails that are built within railroad corridors are referred to as “rail-trails.” For railbanking to be successful, both the interested trail agency and the railroad must agree upon the interim use and negotiate a purchase price for the corridor. Once an agreement is made, the railroad is released of all liability and management responsibilities. The responsible



Where the CSC Trail is proposed to cross roadways, they will need to be treated as standard intersections or mid-block crossings.



trail agency assumes any mitigation measures, permitting requirements, safety improvements, and liability associated with trail development for public use.

POWER TRANSMISSION RIGHTS-OF-WAY

Georgia Power, which owns the majority of power lines within the study area, generally will allow its rights-of-way to be used for trail development with the acquisition of an easement from the current fee simple title owner of the land. Any use of these easements requires permission and design approval from the utility.

AT&T RIGHTS-OF-WAY

At the time of the study, AT&T had recently installed buried cable along several roadways in the study area. These corridors were evaluated for shared-use with the proposed trail. Many of

the rights-of-way are narrow (10-20 feet) and, similar to other utility corridors, will require acquisition of an easement from the current fee simple title owner of the land and design approval from AT&T.

CONNECTED ON-ROAD FACILITIES

On-road bicycle facilities and sidewalks outside trail corridors can connect users from residential, civic, social, and employment areas to the trail network. These connections are generally located on or along the conventional transportation system of streets and are segregated by use (bicycle/pedestrian). They include bicycle lanes, signed bicycle routes, sharrow lane markings, bicycle boulevards (neighborhood greenways), sidewalks, paved shoulders, and cycle tracks (exclusive bike facility that combines the user experience of a separated path with the

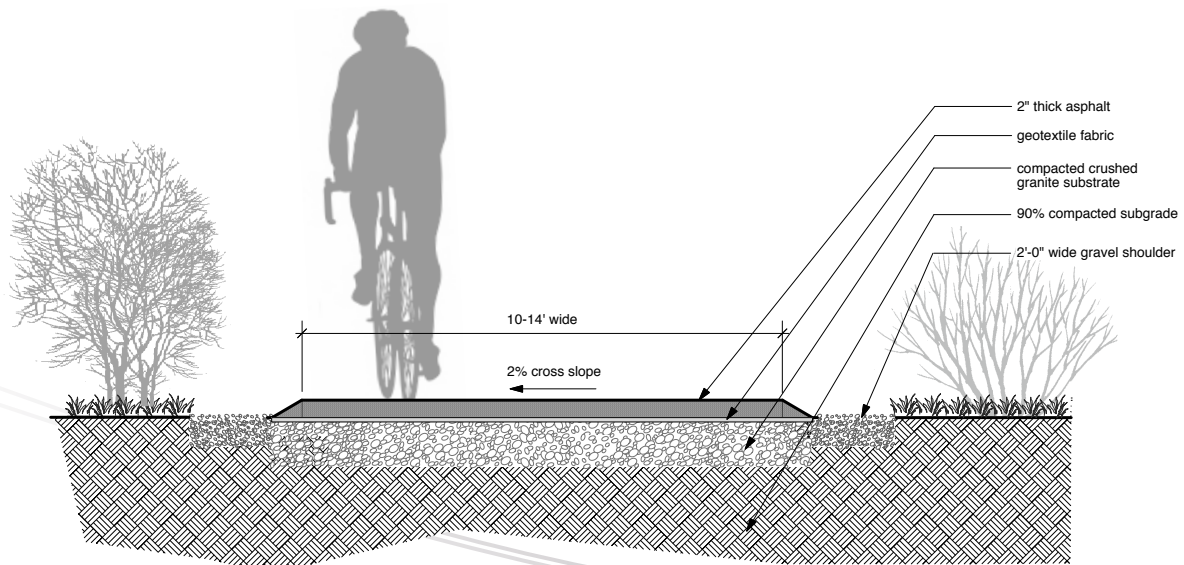


Table 3.5 ROADWAY INTERSECTION INVENTORY AND RECOMMENDATIONS

ID	Intersecting Road Name	Intersection Type	Recommended Treatment
A	Cedartown Rd.	Signalized intersection	High-visibility crosswalk, curb extensions, countdown timers
B	Cedartown Rd.	Midblock	High-visibility crosswalk, curb ramps, adv. ped. warning signage
C	Furnace St	Midblock	High-visibility crosswalk, curb ramps, adv. ped. warning signage
D	Prior St.	Unsignalized intersection	High-visibility crosswalk, curb ramps
E	West Ave.	Signalized intersection	High-visibility crosswalk, curb extensions, countdown timers
F	S. College St.	Unsignalized intersection	High-visibility crosswalk, curb extensions, RRFB
G	Seab Green Rd.	Unsignalized intersection	High-visibility crosswalk, curb ramps, adv. ped. warning signage
H	Santa Claus Rd.	Unsignalized intersection	High-visibility crosswalk, curb ramps
I	Friendship Rd.	Unsignalized intersection	High-visibility crosswalk, curb ramps

on-street infrastructure of a conventional bike lane). On-road facilities that connect directly to trails complement the network and are not intended as an alternative to trail development. In order to provide improved bicycle/pedestrian connectivity, transportation analysis should meld both on-road and trail systems in order to provide ultimate solutions.

Greenway User Types

A trail’s surface can be the determining factor for the expected types of use and overall trail aesthetics. Paving a trail with a hardened surface such as asphalt encourages use by the most diverse range of recreational and transportation users, and can be driven by funding sources, as discussed in Chapter 4. Where right of way permits, consideration can be given to provide a shoulder with stone fines or crushed gravel surfacing for those users desiring a more natural trail experience or a softer surface for running or walking. Several governing factors that should be considered in the selection of the surfaces for both the main trail and any bridges are: construction cost, maintenance cost, and expected types and volume of use.

The CSC Trail has the capability of serving pedestrians, runners, skaters, dog walkers, bicy-

clists, and those using strollers and wheelchairs. Each user type has its own needs and demands. These details are discussed in Chapter 5.

Surface Type

Based on the physical site analysis and the metrics of shared-use trail design, a 10-foot-wide tread is recommended for the CSC Trail. Each managing jurisdiction should monitor user types, number of users, and needs once the trail is open for public use to determine future characteristics or amenities as necessary. Ultimately, to serve the greatest range of users for transportation and recreation, a 10-foot-wide asphalt trail (concrete in riparian areas) with a two-foot-wide shoulder is recommended. See Chapter 5 for additional design guidance.

Roadway Intersections

Roadway crossings represent a key safety challenge for trail users since motorists often do not expect to see bicyclists and pedestrians crossing mid-block or across streets lacking bicycle and pedestrian infrastructure. A combination of signals and traffic controls can increase driver awareness of trail crossings. Similarly, pedestrians and cyclists traveling on trails may not notice upcoming crossings without proper signals along the trail itself. Controls in the form



There will be various trail structures required along the CSC Trail that either use the existing roadway bridge or will need support along the banks of Big Spring Creek.



of signs or signals are therefore recommended along both the CSC trail and the roadway at all crossings.

Crossing treatments are based on trail and roadway characteristics. Key roadway factors influencing the selected treatment include the posted speed limit, average daily traffic (ADT), line of sight, street width, roadway and trail geometry, and intersection configuration. Each roadway intersection along the CSC Trail has been inventoried and identified by a letter that corresponds to the table on this page. In total, there are nine at-grade roadway intersections along the CSC Trail corridor.

During design, when a survey is obtained, each intersection recommendation should be revisited to determine the exact treatment type appropriate for each application. All intersection improvements should be reviewed and approved with GDOT along state-owned roads. Chapter 5, Design Guidelines, provides further guidance for intersection treatments.

Underpass

By far, underpasses and overpasses are the preferred roadway crossing to safely convey trail users. The CSC Trail will cross beneath the N. 6th St. roadway bridge in Cedartown to connect to the unpaved access road on the east side of Big Spring Creek. There is adequate horizontal and vertical clearance to excavate the tread and retain a trail. Similar permitting and structural

coordination will be required, including cooperation from GDOT, for a trail underpass.

Railroad Intersections

There is one at-grade railroad crossing along the CSC Trail corridor, located south of GeoSpeciality Chemicals. Opportunity exists at each railroad crossing to improve bicycle and pedestrian safety, visibility, and accessibility when the CSC Trail is in place. All railroad crossing improvements will require design review and approval from each active rail corridor owner and operator. Railroad crossings should be the focus of future detailed engineering study and recommendations.

Creek Intersections ***Bridge Crossing***

Three bridges will be required to adequately cross Big Spring Creek if the alignment extends along the creek near Old Cave Spring Rd. Bridges will require a geotechnical report and borings that meet GDOT standards, as well as structural design for the abutments and a flood study. In some cases, the existing roadway bridge can be used to cantilever a bicycle and pedestrian structure which can save on substructure costs. Coordination with GDOT will be required for this type of application, as not all bridges are feasible candidates. There are a number of different bridge styles that can be used for creek crossings along the CSC Trail project, which are detailed in Chapter 5.



Northwest Park would be a candidate for a shared use trail head because of the park's size, location, and existing parking and public facilities.

Other Trail Structures

Big Spring Creek is a large, sinuous water body that, in some areas along Old Cave Spring Rd., comes within less than 25 feet of the roadway. While a bridge may not be necessary to cross the creek, a supportive structure will be required on the banks of the creek that retain and support the tread of the trail. In some cases the trail can be benched into the existing grade but a structure will still be necessary for future flood events. Similar to a bridge, there will be permitting, structural design, geotechnical, and coordination with GDOT and the U.S. Army Corps of Engineers.

Trail Support Improvements

Trailheads, streetscape improvements, and park improvements provide essential access to the trail and can include many amenities in one location: automobile parking, bicycle parking, restrooms, drinking fountains, trash and recycle receptacles, dog waste stations, bicycle repair stations, and wayfinding and informational signage.

Trailheads

Major trailheads include restrooms, parking areas for vehicles and trailers, maps and kiosks, and sign posts for the trail and its features. Mi-

nor trailheads usually include a map or kiosk of the trail network, connections to adjacent sidewalks or bicycle facilities, and shared parking. Minor trailheads are sometimes referred to as “walk-up” trailheads.

It is important to optimize existing public lands or adjunct land uses that may be suitable for trailheads to benefit cost and develop partnerships with relevant use. Coordination with landowners, GDOT, and local development plans and ordinances will still be required.

DEAD GOAT GATE TRAILHEAD

The Dead Goat Gate Trailhead provides access to the Pinhoti Trail and is an ideal shared use trailhead. It is situated along the proposed corridor along Old Cave Spring Rd. in Polk County and already provides public access. While no formal conditions exist, there is a gravel area for parking several vehicles and signage with an operable gate to the Pinhoti Trail. If Pinhoti Trail Board members allow a shared use for this trailhead, expansion to accommodate more vehicles as well as improved facilities will make this trailhead more accessible and comfortable for all trail users.

NORTHWEST PARK

This Cedartown sports venue and stadium park



Minor improvements can be made to enhance downtown Cave Spring and attract visitors.

is located directly along the recommended CSC Trail corridor near Big Spring Creek. Limited improvements are necessary, making Northwest Park an optimal candidate for immediate trail access with little upfront investment. Directional signage leading up to, and within the parking area should be provided for trail users. There is ample parking, restrooms, and comfort facilities for trail users, making it an excellent candidate for shared use. A more detailed study for trail routing and alignment is recommended through the park when a survey can be obtained and design is underway.

Streetscape

Where the CSC trail enters Cave Spring and Cedartown’s downtown areas, it is especially important to draw in users to encourage access to available goods and services. Users will spend money on local businesses as part of their trip planning, which is healthy for the local economy. Improvements can be made to enhance walkability and bikeability, especially in Cave Spring

where a shared use trail is yet to come. A draft concept is shown above that offers suggestions for improving circulation and enhancing the downtown aesthetic.

Wayfinding Signage

A comprehensive signage system makes a trail system memorable and creates a sense of place, “trail identity,” and ownership. Informational kiosks with maps at trailheads and in the downtown can provide enough information for someone to use the trail system with little introduction. Having a consistent, unique logo, material, or design that will help guide people to the trail enhances trail navigability and identity. Gateways or entry markers at major access points with trail identity information further augments the user experience. Signage is a strategic method for sponsorship opportunities by working with local businesses or industries in support of the trail. It is a simple, yet effective way to integrate company branding into the sign placards.



Adding street trees, wayfinding signage, and other bicycle and pedestrian amenities can draw trail users into Cave Spring, as illustrated here in Cave Spring downtown.



Trail implementation and management can be effective and efficient with support from partnerships with a variety of public, private, non-profit, and community organizations at the local, regional, and national levels.

Photo simulation of trail on Cave Spring Rd., south of Cave Spring



Implementation & Management

Overview

Trail implementation and management can be effective and efficient with support from partnerships with a variety of public, private, non-profit, and community organizations at the local, regional, and national levels. Through the combined resources of existing staff, new funding sources, and new community partners and volunteers, the following are strategies for advancing best practices in implementation and management for the Cave Spring to Cedartown Trail.

Maximizing Trail-Based Economic Development

The economic and social benefits outlined above are important to account for as the region contemplates whether and how to move forward with the proposed CSC Trail implementation. To be sure, municipal governments must always consider “return on investment” in narrow terms, in terms of comparing financial outlays and tax revenues, especially in the current climate of fiscal uncertainty. The estimates and conservative assumptions made in this study provide a baseline comfort level for the jurisdictions involved that some financial return can be expected on any upfront financial outlays.

Governments also make investment decisions based on a desire to improve the overall quality of life for their residents, or, to state this point in more transactional terms, to increase the value of services and resources offered to their citi-

zenry. Investments in amenities such as trails, parks, playgrounds, libraries, and recreation centers offer some financial “return on investment” but are also evaluated based on the extent to which they increase the amount of value that is available to residents and visitors.

Trail communities that succeed at promoting economic development through trail recreation may approach the process from many angles, but all began with clear visions of how they wanted the trail system to help their communities. Research from market analysis and economic development strategies from other trail projects indicate the following successes, which can be applied to the CSC Trail.

Determine Service Demand

Communities lacking quality lodging, entertainment, or dining services are ill-equipped to accommodate large numbers of visiting trail users and should not market themselves as recreation destinations until adequate services are developed. Cedartown, which already connects to the Silver Comet Trail, markets to the trail community and can handle trail tourism but should consider providing additional lodging capacity, dining, and entertainment prior to marketing the Cave Spring Trail spur. The same is true of Cave Spring.

Build Upon Community’s Relationship to the Regional Trail System

Cedartown and Cave Spring’s position in the



The Swamp Rabbit Trail in Greenville, SC has gone to incredible efforts to market the trail.

regional trail hierarchy influences its role in the system and the nature of its economic development opportunities. There are two facets to a community's positioning: the hierarchy of the trail (backbone, loop, spur) and its location along the trail. Because Cave Spring and Cedartown are "book-ended" by the Silver Comet Trail spur, they are more likely to attract overnight visitors. Over time, if a regional trail expands to Rome, or ultimately to Chattanooga, the characteristics of Cave Spring and Cedartown may change, drawing more midday visitation.

Concentrate Economic Impacts within City Boundaries

Most recreational trail users own their equipment and provide their own transportation to trailheads. As a result, offering equipment rental and shuttle service in town has some economic benefit. Situating trailheads with both short and long term parking within the boundaries of Cave Spring and Cedartown not only enables service businesses (gas stations, convenience stores, outfitters) to cluster around them, but it also increases the chances that tired trail users will stay for dinner or even overnight.

Build a Trail Identity

Part of the Silver Comet Trail appeal (and the goal of the CSC Trail alignment) is the diversity of landscapes, attractions, and population centers to be experienced over its length. Building a trail identity as a tourist destination is an ongoing process. To promote tourism in Cave Spring and Cedartown, the managing trail agency should identify community character and visitor experience (both Silver Comet trail user and non-users) to define a trail identity for the CSC trail. Identity is influenced by many factors. Geography, surrounding land use, natural features, history, and local community can be used to create a sense of place. Residents may know their hometowns inside out, but tourists often notice unusual or charming attributes that residents tend to take for granted. Findings from a tourist assessment will guide the process of creating marketing materials and messages, which in turn shape visitors' expectations of the experience in Cave Spring and Cedartown.

Visitor Outreach, Promotions and Marketing

Once a trail identity can be defined, a promotions and marketing campaign should be established. Increasing awareness about your community means you will need to develop, implement,



The CSC Trail should co-market with the Silver Comet Trail to appeal to potential trail users. A map such as this could be created for the new spur.

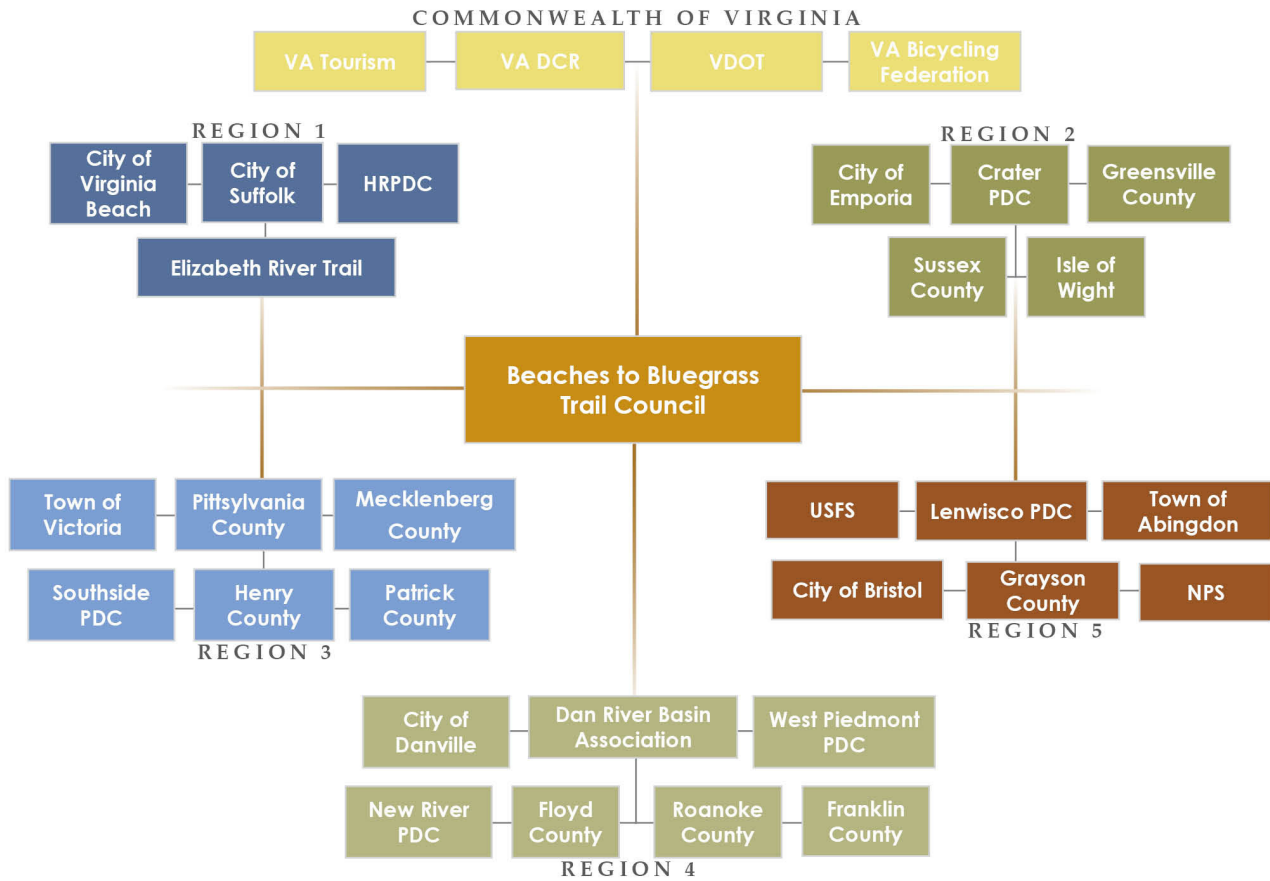
evaluate, and refine a marketing and public relations plan. Alongside overall name recognition comes a number of tangible components of a single unified brand, such as a logo, signage, and other design elements. These components, when used across geographies and on multiple platforms (physical signage, brochures, websites, social media) and by multiple operators (state and local government, as well as hotels, retailers, and restaurants), can reinforce that single identity and thus strengthen the location's overall draw, both to residents and tourists. The easiest approach is simply to make sure that existing brochures and other marketing communications feature the trail experience. Work with neighboring cities along the Silver Comet Trail to promote a trail system: if there is more to see and do along the way, a trail becomes more attractive as a destination.

Additional marketing and promotion could be creating new special events or expanding existing events. Festivals, competitive events, and other community-wide activities require an immense amount of work to organize but are excellent marketing for a new trail. Athletic events can incorporate the trail system, with activities ranging from extremely serious professional races to non-competitive events geared towards benefiting charities.

Inter-Agency Collaboration

Partnerships among public agencies, and businesses are essential for success. Usage, spend-

FRAMEWORK FOR THE BEACHES TO BLUEGRASS TRAIL COUNCIL



Example of an implementation organizational structure

ing, and overall enjoyment can be enhanced if there can be better integration between the related but separate work of various public and private sector entities. For example, within the State’s government, there are opportunities for the Department of Tourism and the Department of Transportation to collaborate on branded signage and other ways to mark the northwest Georgia area and facilitate wayfinding. Private sector entities within the hospitality industry – hotels, retailers, restaurants, and sellers of recreational goods and services – need to be brought into a working partnership that creates a unified and enhanced experience for residents and visitors alike.

Organize for Implementation

It is rare that a single entity implements a trail project alone. More commonly, a coalition of existing entities (i.e., Chamber of Commerce, tourism promotion organization, downtown revitalization group) will band together to implement the CSC Trail. In such coalitions, an

internal decision-making process must be clearly defined at the outset in order to avoid later conflicts. Implementing a trail-based economic development plan requires ensuring that the organizational, technical and financial resources are in place to do the job. Each entity in the process has to help define its most suitable role and understand its place in the bigger picture.

For the CSC Trail to be a true success, the following actions are required during design and implementation:

- Create a partnership between public, quasi-public and private sector entities.
- identify logical roles and responsibilities- state agencies, local government units, private sector entities, and concerned non-profits.
- Determine the structure of the primary implementing entity.

CRITERIA	RANKING JUSTIFICATIONS		
Overall Connectivity	connects to a variety of parks and public facilities	connects to at least one public facility	limited connections with public facilities
Improved Safety	accessible, promotes biking and walking	some pedestrian and bicyclist safety improvements needed	major pedestrian and bicyclist safety improvements needed
Economic Opportunity	enhances development opportunities in downtown areas	some limited enhancement opportunities	no such opportunities exist
Public Support	little to no concerns; positive reception	some public concerns; additional study required	many public concerns
Construction Cost	reasonable construction requirements	requires additional ancillary improvements	needs major sitework and structures for public access
Available Public Lands	extends across publicly owned property	some public property exists	little to no public property exists
User Experience	provides a stimulating and unique user experience; attractive to visitors	provides some visitor attraction	limited interest and visitor attraction
Supports Restoration of the Environment	can enhance natural systems or has minimal development impact	opportunities for storm-water BMP's or post-construction improvements	will have impacts to the environment; mitigation will be required

Cave Spring to Cedartown Trail Phasing Plan

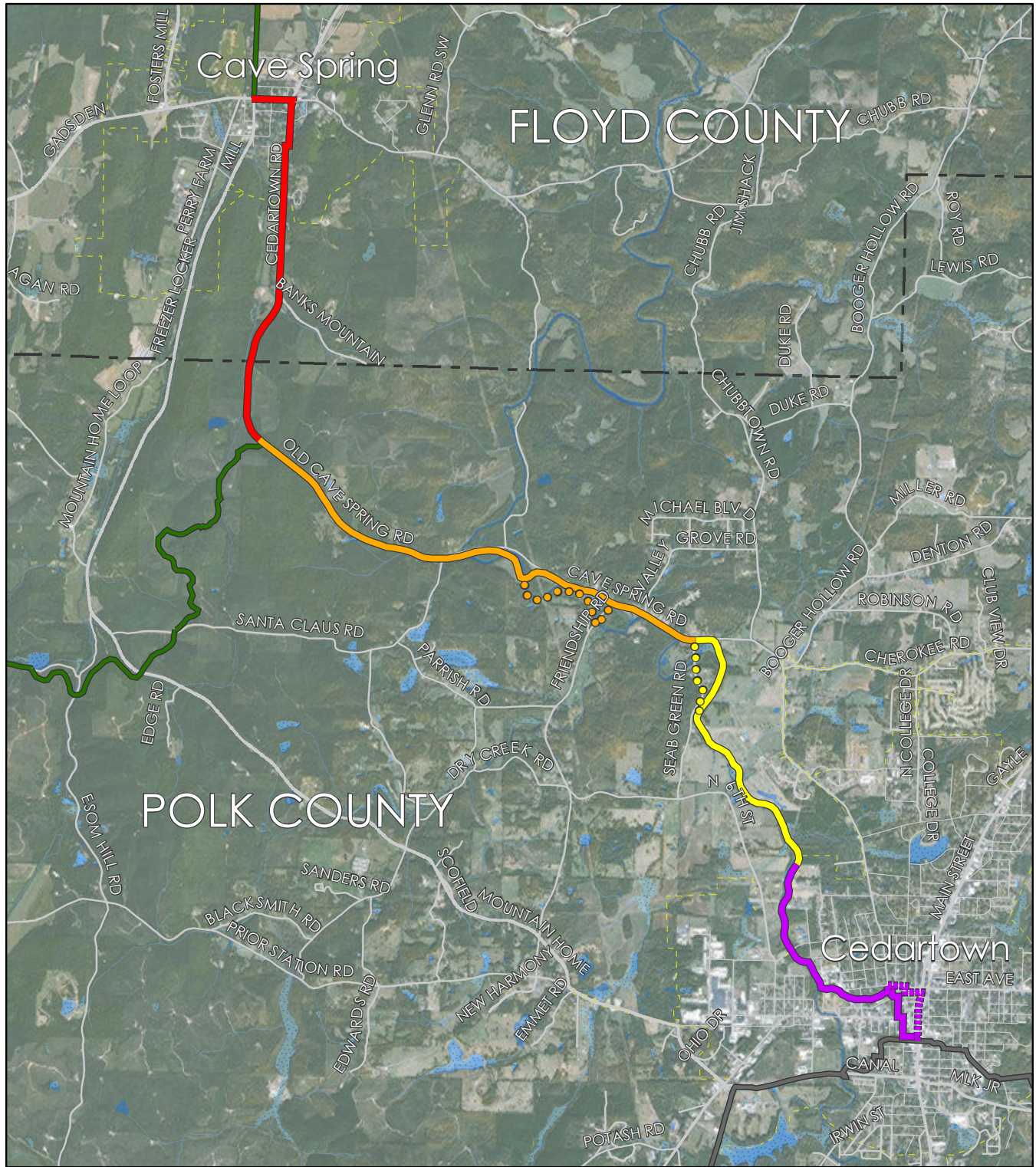
This study considers the proposed Cave Spring to Cedartown Trail (CSC Trail) as one complete, linear project with multiple access points and associated trail amenities. While the desired outcomes and anticipated benefits of trail development will not be fully realized until the project is complete, social and economic impacts can begin to be felt by the community as soon as construction commences. Significant cost savings can be gained by designing, permitting, and constructing the trail as a single project. However, it is likely that financial constraints will require the trail to be completed in several sections as funding becomes available.

The CSC Trail extends a total of 11 miles as recommended, including spurs and trail splits. The phasing strategy proposed on the following pages represent realistic goals for project imple-

mentation, assuming there is local support and cooperation. Regardless of available funds or willing parties, it is necessary to prioritize construction of the trail into functional segments for development.

Point-to-point connections were considered for all phases to avoid “dead-ends,” as well as existing service areas and population density in Cedartown, Cave Spring, Floyd County, and Polk County. The following criteria was used as a guide to prioritize segments of the CSC Trail for development:

- Overall Connectivity
- Improved Safety
- Economic Opportunity
- Public Support
- Construction Cost
- Available Public Lands
- User Experience
- Supports Restoration of the Environment



Project Phasing

- Phase 1
- Existing Pinhoti Trail
- Phase 2
- Silver Comet Trail
- - - Phase 2 Main St Route
- Wetlands
- Phase 3
- Rivers, Lakes, and Ponds
- Phase 3 Alternative
- Streams
- Phase 4
- City Limit
- Phase 4 Alternative
- County Boundary



TABLE 4.1 RIGHT-OF-WAY ANALYSIS BY PHASE								
	Total parcels	Private parcels impacted	Public parcels impacted	LF of easements required on private land	LF within existing roadway ROW	Total ROW needed (LF)	Total ROW needed (mi)	Total phase length (mi)
Phase 1	22	19	3	12,528	1,430	13,368	2.53	2.89
Phase 2	25	9	16	5,224	730	10,026	1.89	2.15
Phase 3	5	5	0	11,602	0	11,602	2.20	2.2
Phase 4	20	20	0	19,856	0	19,856	3.76	3.79
Total	72	53	19	49,210	2,160	54,852	10.38	11.03

Each criteria was ranked according to the scale shown in the table on page 53. Those sections that fulfilled multiple higher ranking criteria (green) were given higher priority. The criteria should be revisited when closer to implementation. It is important to note that the phasing plan for physical development is contingent upon the successful completion of responsibility for trail operations and maintenance by each managing jurisdiction. No public facilities can be developed until these tasks have been completed.

The following pages summarize each phase of the CSC Trail. A series of concise maps and descriptive text provide the basis for the recommended routing and alignment. Each phase includes a description, list of nearby destinations, prioritization criteria, budget costs, right-of-way and ownership information, and a list of development recommendations.

Current Property Information Analysis

Using existing parcel information in GIS, ownership information was inventoried for each parcel adjoining the proposed CSC Trail corridor. This information is useful because it gives the managing jurisdiction and other project partners current status of ownership along the corridor. Knowing the nature of current ownership affects the value of the corridor and other project constraints, and can also influence acquisition costs. The nature of the property analysis was not exhaustive as it was limited to the public information on record and is, thus, for infor-

mational purposes only. Property law is a very complex topic, and even after a search of the available public information, there may still be uncertainty regarding ownership that can only be addressed through a legal investigation by a right-of-way specialist, title company, or attorney. Nonetheless, the information collected for the parcels along the CSC Trail provides a good current picture of the status of ownership along the corridor.

OWNERSHIP CATEGORIES

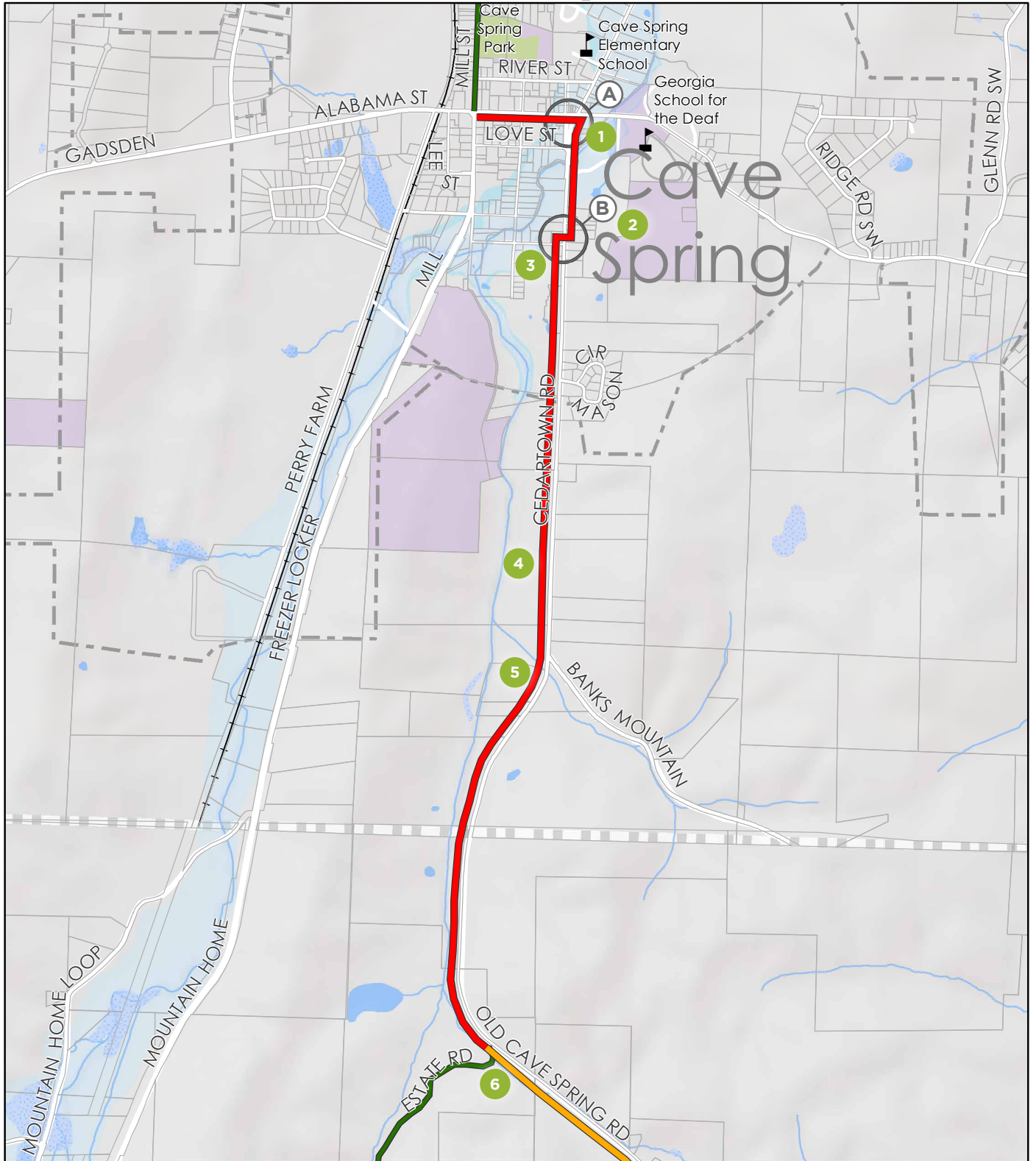
All properties adjacent to the proposed CSC Trail corridor were compiled and organized into ownership categories. The phasing plan in the following section includes tables that indicate the breakdown of property information by Phase. This information will be helpful as the trail is developed to determine acquisition cost and strategy depending on the prevailing owner. Chapter 3 includes a summary of trail development typical of the various rights-of-way.

Ownership information for each parcel along the entire corridor length is described by one of the following categories and indicated in Table 4.1:













- Property is located within GDOT right-of-way (will require encroachment agreement)
- Property is located on public land (no acquisition necessary)
- Property is located on private land (will require acquisition of public trail easement with private owner)

(Continued on page 64)

Phase 1 Map

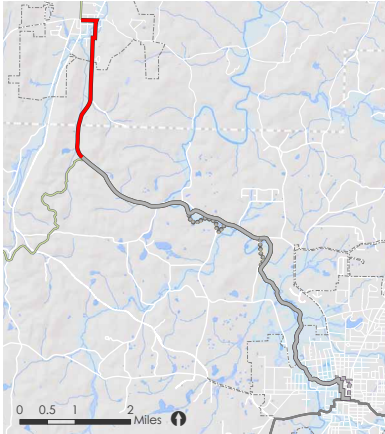


Phase 1

-  School
-  Phase 1
-  Phase 4
-  At-Grade Roadway Crossings
-  Existing Pinhoti Trail
-  Parks
-  Public Land
-  Wetlands
-  Rivers, Lakes, and Ponds
-  Streams
-  100 Year Flood Plain
-  County Boundary

PHASE 1: Cave Spring to Dead Goat Gate

Key Map



Description

Phase 1 provides valuable connections to the Pinhoti Trail and downtown Cave Spring. Streetscape improvements are recommended in downtown to attract trail users and make the city more “trail-friendly.” From the downtown the trail extends on the west side of Cedartown Rd. as a sidepath. Pastoral landscapes and views of agricultural structures are part of the experience. Phase 1 terminates at the Dead Goat Gate trailhead where another connection can be made to the Pinhoti Trail.

Points of Interest

- Pinhoti Trail
- Downtown Cave Spring
- Cave Spring Park
- Rolater Park

Ownership

PROPERTY TYPE	LENGTH	AFFECTED PARCELS
GDOT ROW*	1,430 LF	N/A
Public Land	840 LF	3
Private Land	12,528 LF	19
TOTAL	13,368 LF	22

Managing Jurisdiction

City of Cave Spring
Floyd County
Polk County

*To be conservative, estimates assumed ROW would need to be obtained along sections of trail proposed in or along the roadway right-of-way. To determine the most accurate ROW information, a right-of-way specialist and professional land survey will be necessary prior to engaging design.

Prioritization Criteria

Overall Connectivity	
Improved Safety	
Economic Opportunity	
Public Support	
Construction Cost	
Available Public Lands	
User Experience	
Supports Restoration of the Environment	

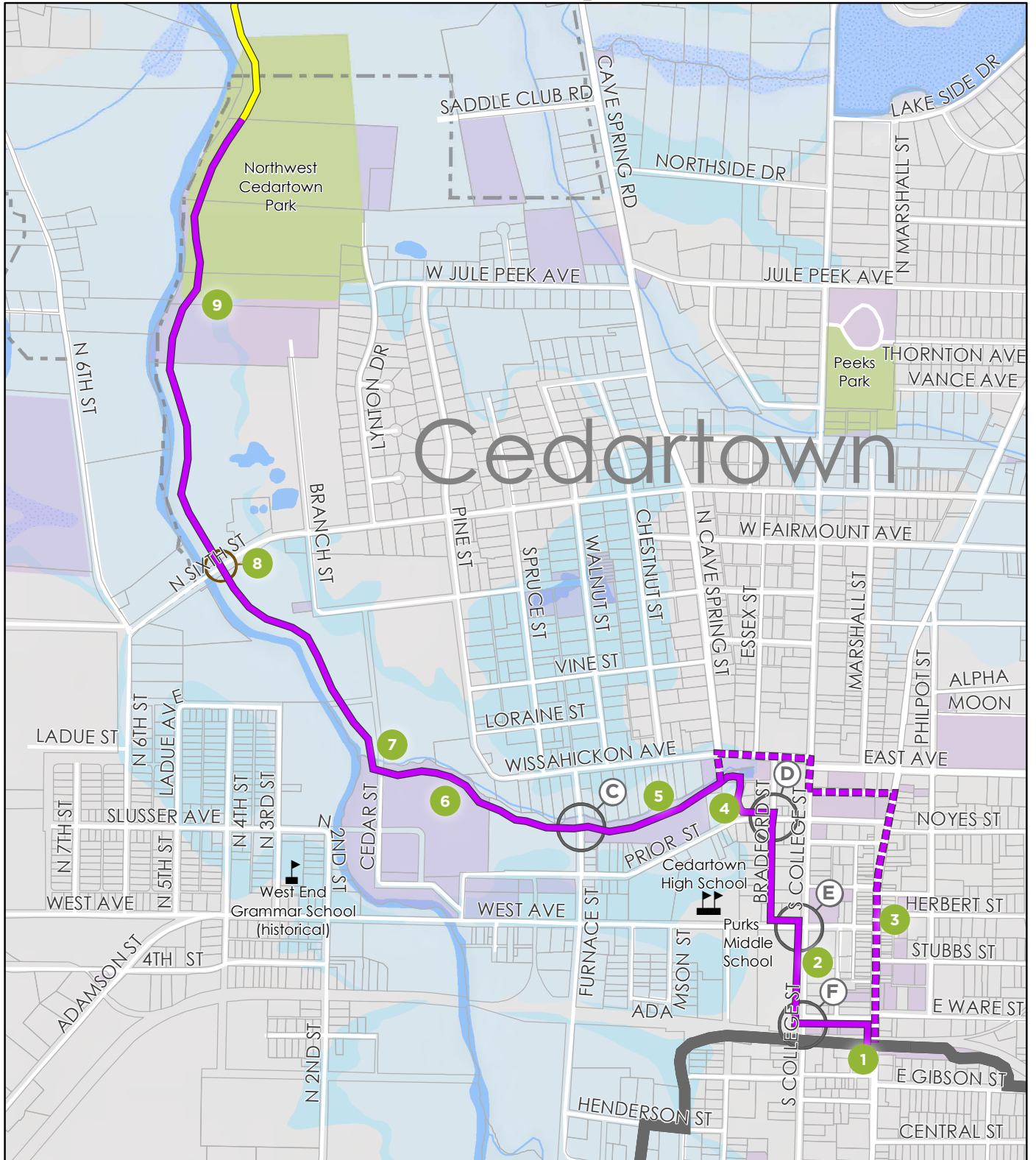
Recommended Measures

- 1 Work with downtown Cave Spring businesses, Downtown Authority, and Cave Spring officials to make streetscape improvements to better accommodate trail users and become a “trail town.”
- 2 Provide wayfinding signage to lead trail users to Rolater Park.
- 3 Install gateway monument or welcome signage along the trail so users know they are entering Cave Spring limits.
- 4 Work with adjacent property owners to obtain easements where trail extends outside of roadway right-of-way and to relocate agricultural fencing.
- 5 Culvert extension required to bridge trail across stream. Work with GDOT and Floyd County officials.
- 6 Work with Pinhoti Trail board members to better accommodate all trail users at existing Dead Goat Gate trailhead. Expand and improve parking area, install signage and kiosk, and provide other comfort station support for users.

Cost and Distance

Approximate length: **2.9 miles**
Estimated Cost: **\$2,269,866**

Phase 2 Map



Cedartown

Phase 2

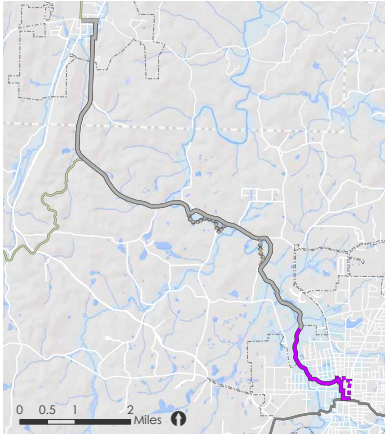
Implementation & Management



- School
- Undercrossings
- Rivers, Lakes, and Ponds
- Phase 2
- Silver Comet Trail
- Streams
- Phase 2 Main St Route
- Parks
- 100 Year Flood Plain
- Phase 3
- Public Land
- 500 Year Flood Plain
- At-Grade Roadway Crossings
- Wetlands
- County Boundary

PHASE 2: Cedartown to Northwest Park

Key Map



Description

Phase Two connects Silver Comet Trail users to the CSC Trail as a direct link. Just west of the existing trailhead at the Depot, the CSC trail uses low volume roads to extend through downtown as a sidepath. An alternate route for cyclists is also provided along Main St. for users desiring a direct connection to the thoroughfare. Phase Two connects to Big Spring Park and its future improvements as well as Good Year Park. The trail extends along the east side of the creek until connecting with Northwest Park.

Points of Interest

- Northwest Park
- Big Spring Creek
- Good Year Park
- Big Spring Creek Park
- Downtown Cedartown
- Silver Comet Trail

Ownership

PROPERTY TYPE	LENGTH	AFFECTED PARCELS
GDOT ROW	730 LF	N/A
Public Land	4,802 LF	16
Private Land	5,224 LF	9
TOTAL	10,026 LF	25

Managing Jurisdiction

City of Cedartown

Prioritization Criteria

Overall Connectivity	<div style="width: 100%; height: 10px; background-color: #4CAF50;"></div>
Improved Safety	<div style="width: 100%; height: 10px; background-color: #4CAF50;"></div>
Economic Opportunity	<div style="width: 100%; height: 10px; background-color: #4CAF50;"></div>
Public Support	<div style="width: 100%; height: 10px; background-color: #4CAF50;"></div>
Construction Cost	<div style="width: 100%; height: 10px; background-color: #FFEB3B;"></div>
Available Public Lands	<div style="width: 100%; height: 10px; background-color: #FFEB3B;"></div>
User Experience	<div style="width: 100%; height: 10px; background-color: #FFEB3B;"></div>
Supports Restoration of the Environment	<div style="width: 100%; height: 10px; background-color: #FFEB3B;"></div>

Recommended Measures

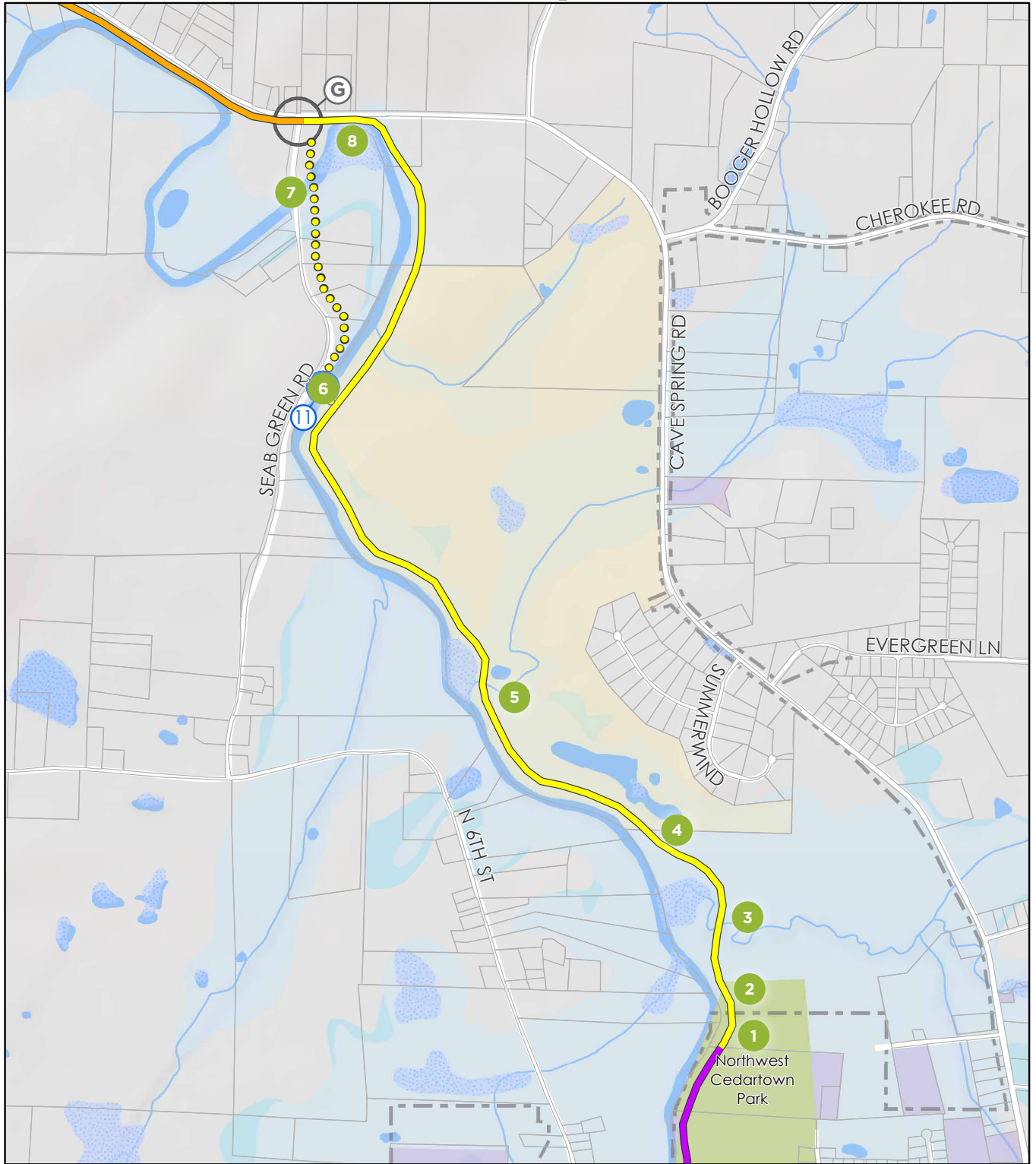
- 1 Provide safe trail connection to existing Silver Comet Trail at Main St. as well as additional wayfinding signage and kiosk improvements for future CSC trail.
- 2 Work with GDOT and adjacent property owners to install sidepath within roadway right-of-way on all downtown streets.
- 3 Install sharrow markings on supplementary route along Main St. for experienced cyclists.
- 4 Work with property owners to route trail past Big Spring Park to connect to Prior St.
- 5 Coordinate with Cedartown planners to ensure trail can route through Big Spring Park future improvements.
- 6 Coordinate improvements plans for Good Year Park to ensure CSC trail routing.
- 7 Work with GeoSpecialty Chemicals to determine operations and access needs for adjacent trail routing.
- 8 Install trail underpass beneath N. Sixth St. Work with GDOT and other officials to obtain necessary encroachment and permit approvals.
- 9 Work closely with Cedartown officials to route trail through water treatment property and to Northwest Park.

Cost and Distance

Approximate length: **2.15 miles** (with supplemental route on Main Street: **2.69 miles**)

Estimated Cost: **\$1,557,983**

Phase 3 Map



Phase 3

- Phase 2
- Phase 3
- Phase 3 Alternative
- Phase 4
- 1 Stream Crossings

○ At-Grade Roadway Crossings

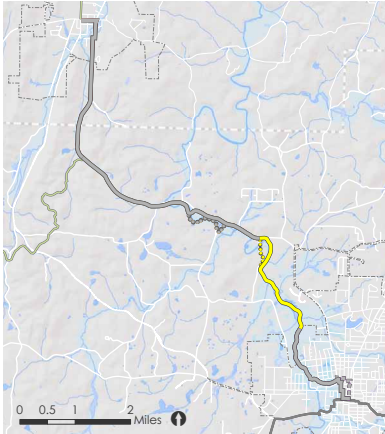
- Parks
- Public Land
- Wetlands
- Rivers, Lakes, and Ponds

- Streams
- Potential Easement Opportunity
- 100 Year Flood Plain
- 500 Year Flood Plain
- County Boundary



PHASE 3: Northwest Park to Seab Green Rd.

Key Map



Description

Phase Three begins in Northwest Park and will provide a link to users traveling on future phases along Cave Spring Rd. The route is primarily off-road and intends to showcase the beauty of Big Spring Creek and the pastoral landscapes of Polk County. There are opportunities for views to the creek as well as interpretive areas. If easements cannot be obtained in parcels adjacent to Cave Spring Rd., an alternative is proposed that extends along Seab Green Rd. as a sidepath in the roadway right-of-way.

Points of Interest

- Northwest Park
- Big Spring Creek

Ownership

PROPERTY TYPE	LENGTH	AFFECTED PARCELS
GDOT ROW*	0 LF	N/A
Public Land	0 LF	5
Private Land	11,602 LF	0
TOTAL	11,602 LF	0

Managing Jurisdiction

Polk County

*To be conservative, estimates assumed ROW would need to be obtained along sections of trail proposed in or along the roadway right-of-way. To determine the most accurate ROW information, a right-of-way specialist and professional land survey will be necessary prior to engaging design.

**Cost does not include options for trail alternate

Prioritization Criteria

Overall Connectivity	
Improved Safety	
Economic Opportunity	
Public Support	
Construction Cost	
Available Public Lands	
User Experience	
Supports Restoration of the Environment	

Recommended Measures

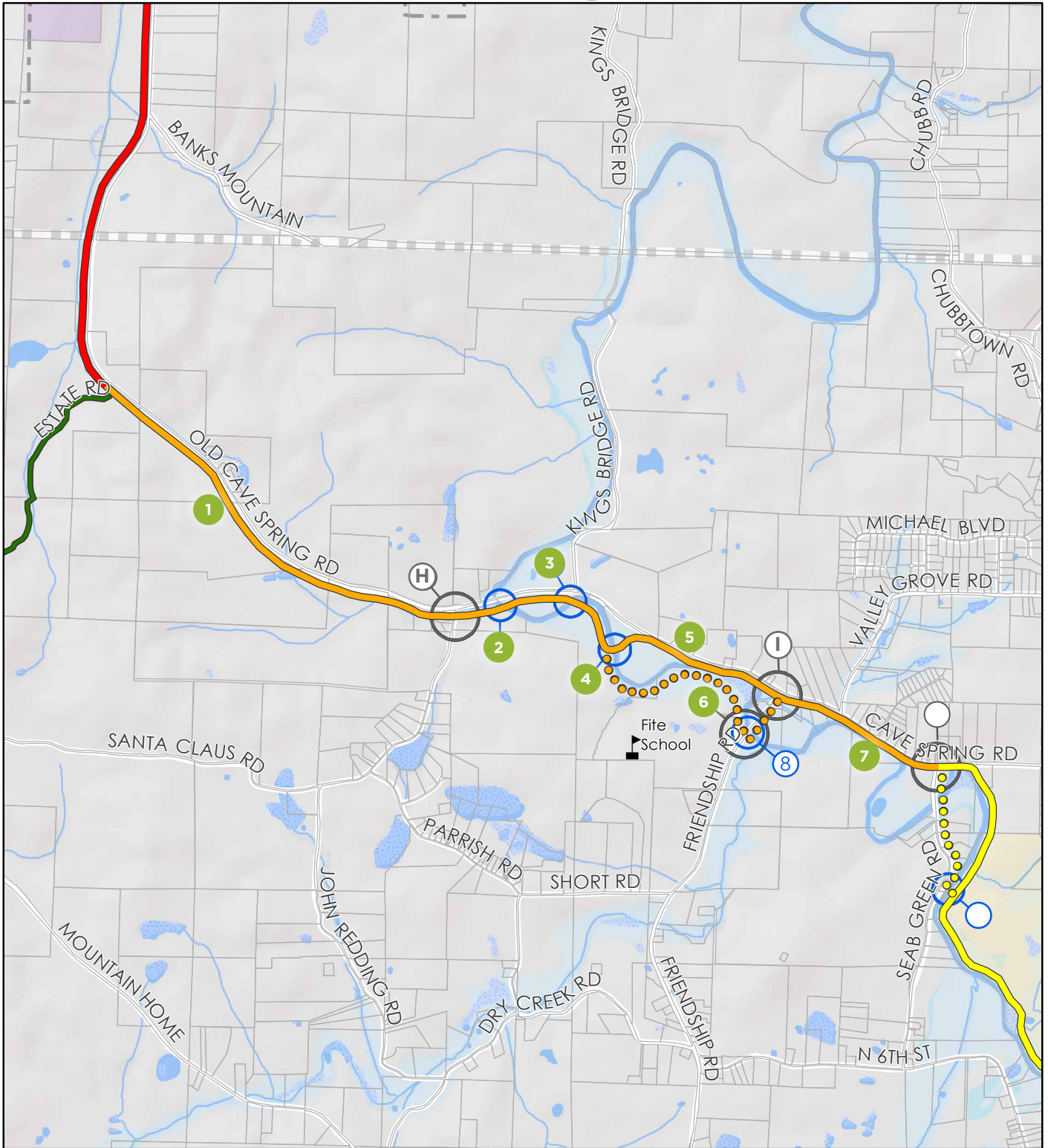
- 1 Once Phase 2 is installed, provide wayfinding signage throughout the park and on the trail for users wanting to stop at Northwest Park. Provide bicycle parking in the park.
- 2 Provide gateway or welcome signage at City limits.
- 3 Install culvert for stream crossing.
- 4 Work with property owner to install privacy measures once easement is obtained.
- 5 Install culvert for stream crossing.
- 6 If alternative is selected, a bridge crossing will be necessary to cross the creek.
- 7 A roadway bridge retrofit will be necessary if the alternative is selected to cross the creek along Seab Green Rd.
- 8 Structural stabilization will be necessary along the banks of Big Spring Creek at this location. Work closely with state and local officials to obtain permits and minimize stream impacts.

Cost and Distance

Approximate length: **2.2 miles**

Estimated Cost: **\$1,848,626****

Phase 4 Map



Implementation & Management

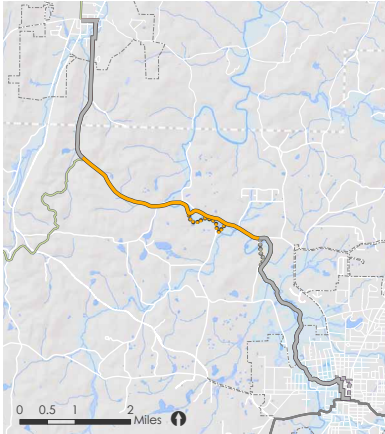
Phase 4

- School
- Phase 1
- Phase 3
- Phase 3 Alternative
- Phase 4
- Phase 4 Alternative
- Stream Crossings
- At-Grade Roadway Crossings
- Existing Pinhoti Trail
- Public Land
- Wetlands
- Rivers, Lakes, and Ponds
- Streams
- Potential Easement Opportunity
- 100 Year Flood Plain
- 500 Year Flood Plain
- County Boundary



PHASE 4: Dead Goat Gate to Seab Green Rd.

Key Map



Description

Phase Four completes the final link in the CSC Trail. It is the most cost prohibitive due to the number of structures required. From Seab Green Rd. the trail will extend as a sidepath along the south side of Cave Spring Rd. The trail will use the roadway right-of-way atop existing cable utilities where possible. An alternative is proposed that continues along the creek, avoiding one of the bridges if easements can be obtained. The terminus of this phase will be at the Dead Goat Gate trailhead.

Points of Interest

- Big Spring Creek
- Pinhoti Trail

Ownership

PROPERTY TYPE	LENGTH	AFFECTED PARCELS
GDOT ROW*	0 LF	N/A
Public Land	0 LF	20
Private Land	19,856 LF	0
TOTAL	19,856 LF	20

Managing Jurisdiction

Polk County

Prioritization Criteria

Overall Connectivity	
Improved Safety	
Economic Opportunity	
Public Support	
Construction Cost	
Available Public Lands	
User Experience	
Supports Restoration of the Environment	

Recommended Measures

- 1 Install confidence builders and other way-finding signage for trail users.
- 2 Install trail bridge retrofit on existing roadway bridge. Coordination required with GDOT and local officials.
- 3 Work with property owner to obtain easement and install bicycle and pedestrian bridge to cross Big Spring Creek.
- 4 Work with property owner and other officials to install bicycle and pedestrian bridge to cross Big Spring Creek. If alternative is selected, bridge crossing is not necessary, but easements will be.
- 5 Structural stabilization will be necessary between stream bank and edge of roadway. Trail will be recessed with 2:1 slopes. Work with GDOT, adjacent property owners, and state and local officials to complete design.
- 6 Work with all property owners to provide privacy and security measures where homes are visible from the trail.
- 7 If alternate is elected, an additional bridge crossing will be necessary to connect to Cave Spring Rd.

Cost and Distance

Approximate length: **3.79 miles**
 Estimated Cost: **\$3,500,582**

*To be conservative, estimates assumed ROW would need to be obtained along sections of trail proposed in or along the roadway right-of-way. To determine the most accurate ROW information, a right-of-way specialist and professional land survey will be necessary prior to engaging design.

**Cost does not include options for trail alternate



When estimating acquisition costs for trails, a number of items need to be taken into account, including land use, geographic location, and proximity to development and community amenities.

(Continued from page 55)

Some parcels along the trail corridor will impact multiple categories; for example, if a public sidewalk is widened to comply with shared-use trail standards, while the existing public facility is within GDOT ROW, widening it will encroach into adjacent private property. As a result, both GDOT and the private property owner will require coordination and acquisition. To be conservative, for the property value analysis and cost estimation, it was assumed that additional ROW would be necessary along all sections of trail located within the roadway right-of-way. Until a professional land survey and deed research is completed for all effected parcels, actual roadway right-of-way widths and limits can only be estimated using GIS.

In any event, all adjacent private property owners should be notified of the project intent and their concerns understood prior to the design of each phase. If easements are to be obtained, a qualified right-of-way specialist should speak individually to each party to negotiate the purchase of property for the trail corridor.

Estimating Acquisition Cost

One of the most challenging phases of a trail project is the acquisition of the corridor for building the trail. The goal of future land acquisition is to obtain the legal right to build the trail along the proposed corridor. As previously described, the trail should be constructed along public lands or within roadway right-of-way whenever possible.

Methodology

The Rails-to-Trails Conservancy (RTC) suggests three appraisal methods to determine trail corridor value. The first method is the across-the-fence approach, which determines the market value of adjoining land. While this method accounts for local market conditions, it does not account for the fact that adjacent land values are based on uses that are not feasible on the trail corridor. The second method is the comparable sales approach, which examines past trail corridor transactions. This approach is limited by the varying market conditions in which different trail corridors are located. The third method is called the income approach, which estimates value based on the land's ability to generate income. This method is rarely used with trail corridor acquisition because of the difficulty of obtaining income generation estimates.

The first method was applied for the CSC Trail corridor by calculating the average market value of an acre of land along the proposed trail corridor. First, all private parcels effected by the adjacent trail corridor were selected in GIS. Their total land quantity was calculated in acres. Second, using Floyd and Polk County's web-based tax assessor map to look up land values, the properties that intersected with the proposed CSC Trail corridor were selected and their total value determined in GIS. The total number of acres of private land effected by the corridor is **2,487 acres** with a total land value of **\$5,331,829**. The total value of the properties can

TABLE 4.2 ACQUISITION COSTS OF COMPARABLE TRAILS

TRAIL NAME	LOCATION	LENGTH ACQUIRED	YEAR ACQUIRED	ACQUISITION COST (\$)	COST PER FOOT (\$)
American Tobacco Trail	Durham, NC	22	1995/1998	4,856,400	42
Battleground Rail Trail	Greensboro, NC	1	2009	1,694,752	321
Silver Comet Trail	Smyrna, GA	36	1992	11,284,000	59
Meadow River Rail Trail	Russellville, WV	17	2008	134,948	2
Tweetsie Line	Johnson City, TN	10	2011	600,000	11

be divided by total area to get a per acre price of \$2,143. While this estimate may seem conservative, the vast majority of larger tract parcels are farmland. Land in the City of Cedartown and Cave Spring cities was excluded because improvements will occur within existing roadway ROW or on publicly owned parcels. The average per acre price of farmland in Georgia is \$3,300¹ but near Cedartown and Cave Spring, much of the land is geographically constrained and not considered farmable, so the lower estimate is likely accurate.

To value the cost for a permanent trail easement, which is typically 30-foot wide, a cost per linear foot can be calculated for the project's length using the results previously described. The total length of the proposed CSC Trail corridor is 11 miles. Of the 11 miles, it was conservatively assumed that 9.27 of those miles will occur on private land (although very likely that parts of the trail can be constructed within the roadway ROW, thereby reducing easement acquisition). The total number of acres within a 30-foot easement for 9.27 miles: 33.48 acres. By applying the price per acre estimate from the value previously determined (\$2,143/acre), the **total acquisition cost will be \$71,747, which equals \$1.47 per linear foot.**

While this value may seem low it is largely influenced by land use and location being rural and remote. The methodology prescribed for this effort is not precise, nor is it intended to be; how-
¹ http://www.nass.usda.gov/Publications/Todays_Reports/reports/land0814.pdf

ever it is considerably more accurate than other methods suggested by RTC, such as examining average property values per acre regionally for other trail projects. Table 4.2 lists several southeastern property value costs for trails. Of the trails listed, the Meadow River Trail in WV most closely resembles the rural character of the CSC Trail.

Acquisition Strategy

Several options are available for the managing jurisdictions to acquire necessary property for the CSC Trail. Options include amending local zoning and subdivision ordinances to ensure that, as developments are planned and reviewed, the trail corridors identified in this plan are protected. This would entail amending development regulations to have developers set aside land for trails whenever a development proposal overlaps with the CSC Trail. City and County staff should ensure that an effective review of all bicycle and pedestrian elements of proposed developments takes place.

In addition, local policies can be revised so that all new sewer and utility easements allow for public access as a matter of right. Although many easements do not currently prohibit trail development, they do require the approval of landowners, increasing the complexity of trail development in these easements.

Trail right-of-way (ROW) acquisition can be accomplished through a number of other methods where trail recommendations run through currently developed areas. Since it is expected that



Trail construction dollars represents one of the most challenging funding mechanisms due to its variability.

the value of the corridor would be significantly less than real estate value of a comparable area of land, given the limited potential use of the corridor, it is likely that the cost may be negotiated at the lower end of this range. However acquisition is successful, property owners should be approached and informed by the implementing agency in advance of the design process.

Trail Development Costs

Planning level cost estimates were generated for each phase of the proposed CSC Trail. **The total cost of the trail as proposed in this document, for all 11 miles is \$9,177,057.** Costs include all land development items as well as ancillary facilities such as trailheads and amenities, and acquisition estimates as appropriate. Not included in the cost estimates are: survey, permitting fees, and any other items not indicated, as these will vary depending on jurisdiction and final scope of work for each phase. Detailed breakdowns of each phase cost estimate can be found in the Appendix.

Funding

It is important to pursue support from a variety of public and private sources at the local, regional, and national levels. Supporting organizations can also include a mosaic of partnerships between public and non-profit agencies. By diversifying the support base, a community can ensure the longevity and reliability of a trail system. This will help in marketing the CSC Trail and its supporting organizations, creating

a community-wide sense of ownership and enthusiasm toward it, and serving as a vital component of an active, healthy community.

Federal and state grants should be pursued along with local funds to pay for trail ROW acquisition and trail design, construction, and maintenance expenses. Further detail on recommended funding sources can be found in the Appendix.

Design and Construction

While this feasibility study has closely examined the prospect of developing a shared-use trail in northwest Georgia, it is only the beginning. In order to prepare each phase of the trail for implementation, funding must be secured, easements acquired, surveys developed, and design and permitting must take place. These items can vary in their time requirements depending on conditions throughout each phase of the corridor. The design process can be a complicated and technical undertaking for linear projects such as trails, and a qualified consultant should always be used to design trails.

Permitting

The construction of any trail will require permits for construction. Depending on the alignment location, some trails will require coordination with various agencies at the state and federal level.

PERMITTING OVERVIEW

Potential permits which may be required for CSC Trail construction will vary by jurisdiction. Anticipated development permits include:

- » Polk and Floyd County Stormwater Management (National Pollutant Discharge Elimination System General Permit)
- » Polk and Floyd County Floodplain Development Permit
- » Polk and Floyd County Land Disturbance Permit
- » Building Permit (for structures; varies by jurisdiction)
- » Georgia Department of Transportation Encroachment Permit
- » FEMA Conditional Letter of Map Revision (CLOMR)
- » FEMA Letter of Map Revision (LOMR)
- » U.S. Army Corps of Engineers Section 401/404 Permit

Prior to undertaking design or construction, it is important to determine current local requirements with the appropriate Stormwater Management and Planning and Development departments for each phase.

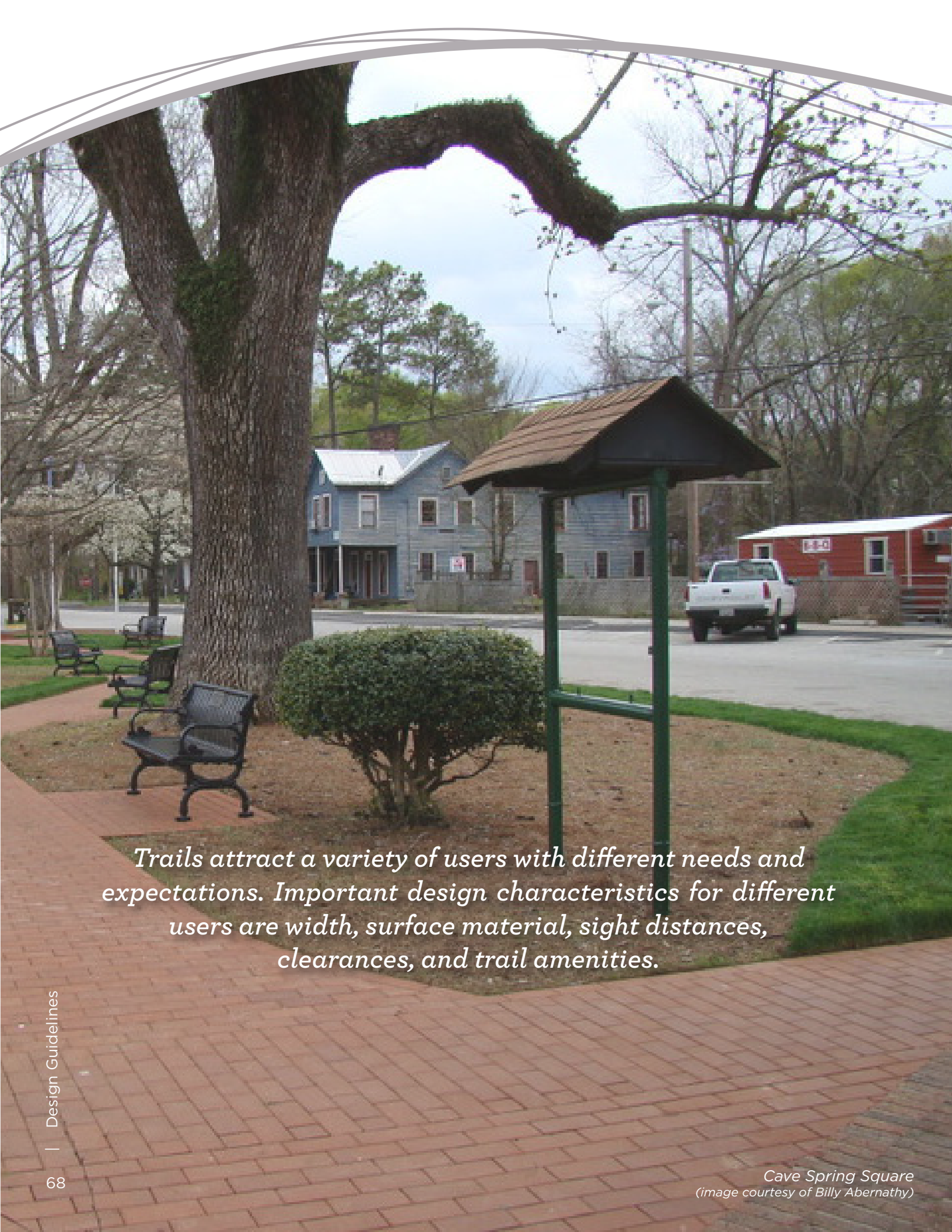
Schedule

Every trail project is unique, and, therefore, it is important to develop an implementation schedule that will meet the needs of the community while also taking into account budgetary constraints. Significant streamlining occurs when various phases of construction are consolidated into larger projects and design and permitting for the entire project can be reviewed as one project. A general schedule for the implementation of a single phase or section can be seen by looking at “typical” time frames for the various processes that projects must go through. These time frames are generally consistent, regardless of the size of a particular project, approximately 26-36 months from design through construction.

Conclusion

The CSC Trail will transform the landscapes of the northwest Georgia region. The corridor has the opportunity to **transform into a public amenity** that will **increase adjacent property values, fulfill a need for outdoor recreation opportunities, offer a safe route for bicycle commuting as an alternate to driving, raise recreational revenue, revitalize local community, and improve the overall quality of life.**

There are obstacles to overcome before these benefits can be realized. Using the phasing plan outlined in this document, segments of the CSC Trail can be achieved with the patience and cooperative effort of adjacent property owners and project partners. **A foundation of local leadership, trail advocates, and citizen support will contribute to the successful planning, design, and consequent construction of the CSC Trail that will be enjoyed by generations to come.**



Trails attract a variety of users with different needs and expectations. Important design characteristics for different users are width, surface material, sight distances, clearances, and trail amenities.

5 Design Guidelines

Design Standards, Publications, and Guidelines

The guidelines recommended in this document are intended to assist northwest Georgia city and county officials in the selection and design of trails and their ancillary facilities. The standards draw together best practices by facility type from public agencies and municipalities nationwide. The following guides have been used to formulate standards and best practices for implementing trails in northwest Georgia.

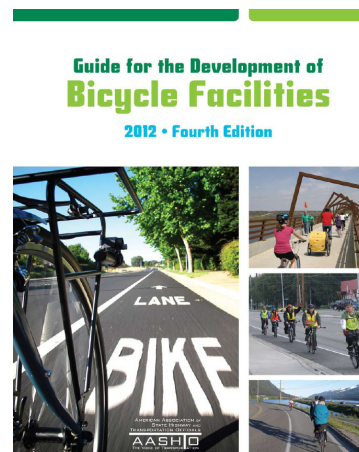
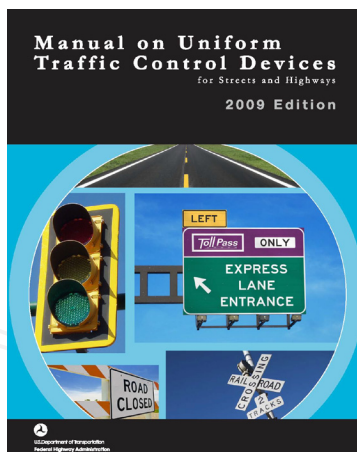
National Guidelines

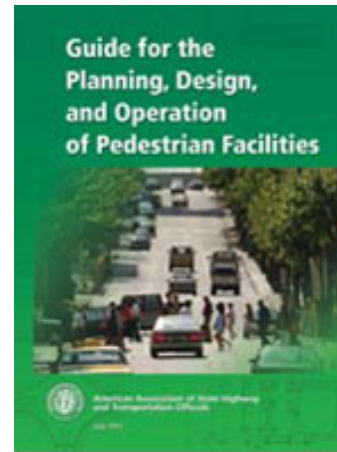
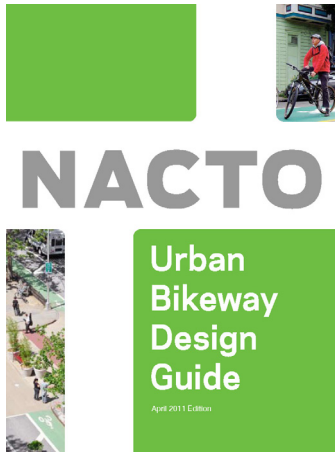
The Federal Highway Administration's (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD)* defines the standards used by road engineers nationwide to install and maintain traffic control devices on all public streets, highways, trails, and private roads open to public traffic. The MUTCD is the primary source for guidance on lane striping requirements, signal warrants, and recommended signage and pavement markings.

To further clarify the MUTCD, the FHWA created a table of contemporary bicycle facilities that lists various bicycle-related signs, markings, signals, and other treatments and identifies their official status (e.g., can be implemented, currently experimental). See *Bicycle Facilities and the Manual on Uniform Traffic Control Devices*.

Trail design treatments not explicitly covered by the MUTCD are often subject to experiments, interpretations, and official rulings by the FHWA. The *MUTCD Official Rulings* is a resource that allows website visitors to obtain information about these supplementary materials. Copies of various documents (such as incoming request letters, response letters from the FHWA, progress reports, and final reports) are available on this website: <http://mutcd.fhwa.dot.gov/orsearch.asp>.

American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities*, updated





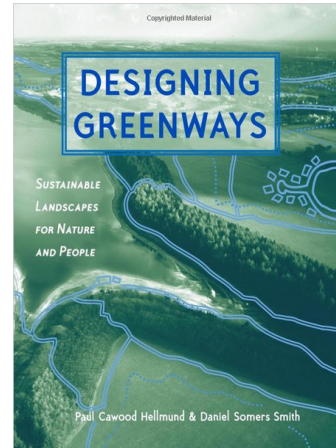
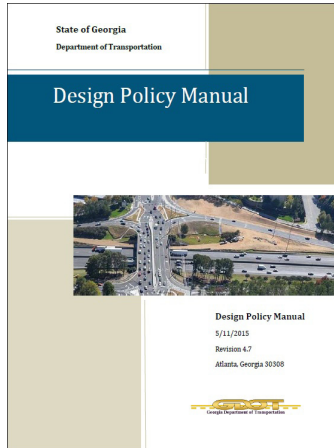
in June 2012 provides guidance on dimensions, use, and layout of specific bicycle facilities. The standards and guidelines presented by AASHTO provide basic information, such as minimum sidewalk widths, bicycle lane dimensions, detailed striping requirements, and recommended signage and pavement markings.

The National Association of City Transportation Officials' (NACTO) *Urban Bikeway Design Guide* is a modern publication of nationally recognized trail design standards, and offers guidance on the current state of the practice designs. The NACTO *Urban Bikeway Design Guide* is based on current practices in the best cycling cities in the world. The intent of the guide is to offer substantive guidance for cities seeking to improve bicycle transportation in places where competing demands for the use of the right of way present unique challenges. All of the NACTO *Urban Bikeway Design Guide* treatments are in use internationally and in many cities around the US. Offering similar guidance for pedestrian design, the *2004 AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities* provides comprehensive guidance on planning and designing for people on foot.

Meeting the requirements of the Americans with Disabilities Act (ADA) is an important part of any bicycle and pedestrian facility project. The United States Access Board's proposed *Public Rights-of-Way Accessibility Guidelines* (PROWAG), the *ICC/ANSI A117.1 Accessible and Usable*

Buildings and Facilities, the *2010 ADA Standards for Accessible Design* (2010 Standards) and the *ABA Accessibility Guidelines for Outdoor Developed Areas* contain standards and guidance for the construction of accessible facilities. This includes requirements for sidewalk curb ramps, slope requirements, and pedestrian railings along stairs. Some of these treatments are not directly referenced in the current versions of the AASHTO Guide or the MUTCD, although many of the elements of these treatments are found within these documents. In all cases, engineering judgment is recommended to ensure that the application makes sense for the context of each treatment, given the many complexities of urban streets.

Crime Prevention Through Environmental Design (CPTED) is defined as a multi-disciplinary approach to deterring criminal behavior through environmental design. CPTED strategies rely upon the ability to influence offender decisions that precede criminal acts by affecting the built, social, and administrative environment. These principals should be applied to all northwest Georgia trails when feasible and where conflicts with existing local policies and ordinances do not exist.



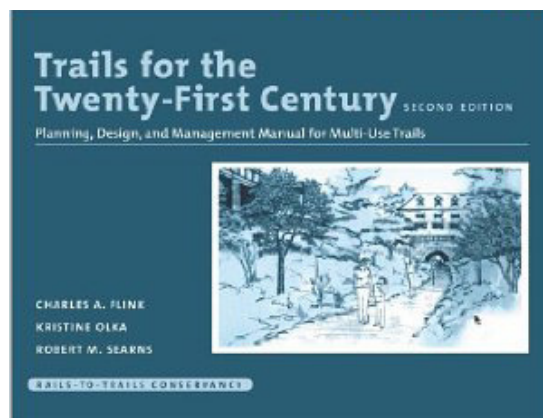
State Guidelines

Georgia Department of Transportation Design Policy Manual (2015) details Georgia's Complete Streets Design Policy in Chapter 9. The policy directs communities to consider and incorporate several modes of transportation when building new projects or making improvements to existing infrastructure. Chapter 9 provides guidance on how that policy will be implemented in order for GDOT to collaborate with cities, towns, and communities during the planning and design phases of projects. Together, they will decide how to provide the transportation options needed to serve the community and complement the context of the area.

Other Publications

Trails for the Twenty-First Century (2001). This book provides a comprehensive overview of trail planning, design, construction, and operations/maintenance. It summarizes steps necessary to complete a successful trail project using a systematic approach. Construction method best practices make recommendations for proper sub-grade preparation, sub-base material, and tread surface. Also included in the book are specific design guidelines regarding proper trail ancillary facilities and environmental considerations, land acquisition, management, and operations and maintenance of trails.

Designing Greenways (2006). This publication focuses on the holistic approach of greenways trails as ecological corridors. The book explains how greenway trails function ecologically and illustrates how to solve natural and social fragmentation. It is a practical guide for how planners, designers, and conservationists can implement solutions with consideration of land use and infrastructure issues.



User Group Definitions

Trails attract a variety of users with different needs and expectations. Important design characteristics for different users are width, surface material, sight distances, clearances, and trail amenities. The following sections provide the framework for incorporating standards and guidelines for trail design and planning.

Trail users include:

- Pedestrians - joggers, hikers, walkers, baby strollers, pet walkers, nature watchers
- Bicyclists - commuting, recreational, touring; different types of bicycles
- In-line skaters and skateboarders
- Wheelchair users and users of other mobility devices
- Electric Personal Mobility Device (EPMD)

User Conflict

One of the safety issues in trail planning, design, and development is multi-user conflict. Typically these conflicts are caused by multiple user types traveling at different speeds. The combination of overuse of a trail and insufficient widths may result in user conflicts. Other factors that can lead to user conflicts are poorly designed and engineered trail alignments, inappropriate user behavior, or inadequate facility capacity. Potential conflicts that exist between trail users are unique to the users themselves and indicated in the table below.

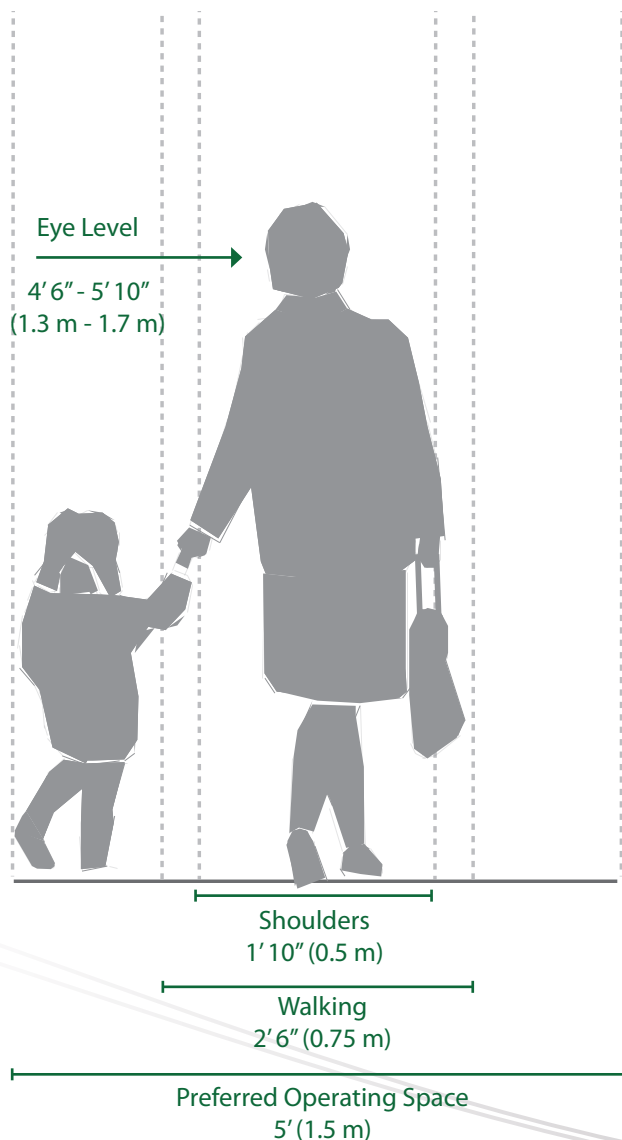
The most effective trail use management plan is a well-conceived safety program that provides the individual user with a Code of Conduct for the trail, sometimes called a Trail Ordinance. Several communities across the U.S. have adopted progressive trail ordinances for public use, including King County, Washington, and the East Bay Regional Park in Alameda and Contra Costa counties, California.

Potential Trail User Conflicts

USER TYPE	POTENTIAL CONFLICTS WITH OTHER USERS
PEDESTRIANS (includes any users on foot)	<ul style="list-style-type: none"> • Multiple pedestrians may walk more than two abreast making it difficult for other users to pass • Children may veer into oncoming users on bicycles • Pet owners may not exercise on-leash etiquette
BICYCLISTS	<ul style="list-style-type: none"> • Have tendency to startle other users • May not obey posted speed limits • May frighten wildlife • May not exercise appropriate audible etiquette when passing
SKATERS	<ul style="list-style-type: none"> • Have tendency to startle other users • May not exercise appropriate audible etiquette when passing
WHEELCHAIR USERS	<ul style="list-style-type: none"> • May not keep right making it difficult for other users to pass

Design Needs of Pedestrians

Pedestrians have a variety of characteristics and trails should accommodate a variety of needs, abilities, and possible impairments. Age is one major factor that affects pedestrians' physical characteristics, walking speed, and environmental perception. Children have low eye height and walk at slower speeds than adults. They also perceive the environment differently at various stages of their cognitive development. Older adults walk more slowly and may require assisted devices for walking stability, sight, and hearing. The table below summarizes common pedestrian characteristics for various age groups. As a rule of thumb, the MUTCD recommends



a normal walking speed of three and one half feet per second when calculating the pedestrian clearance interval at traffic signals. The walking speed can drop to three feet per second for areas with older populations and persons with mobility impairments. While the type and degree of mobility impairment varies greatly across the population, the trail system should accommodate these users to the greatest reasonable extent at trail intersections, sharp turns, overpasses, and underpasses.

Pedestrian Characteristics by Age

Age	Characteristics
0-4	Learning to walk Requires constant adult supervision Developing peripheral vision and depth perception
5-8	Increasing independence, but still requires supervision Poor depth perception
9-13	Susceptible to "dart out" intersection dash Poor judgment Sense of invulnerability
14-18	Improved awareness of traffic environment Poor judgment
19-40	Active, fully aware of traffic environment
41-65	Slowing of reflexes
65+	Difficulty crossing street Vision loss Difficulty hearing vehicles approaching from behind

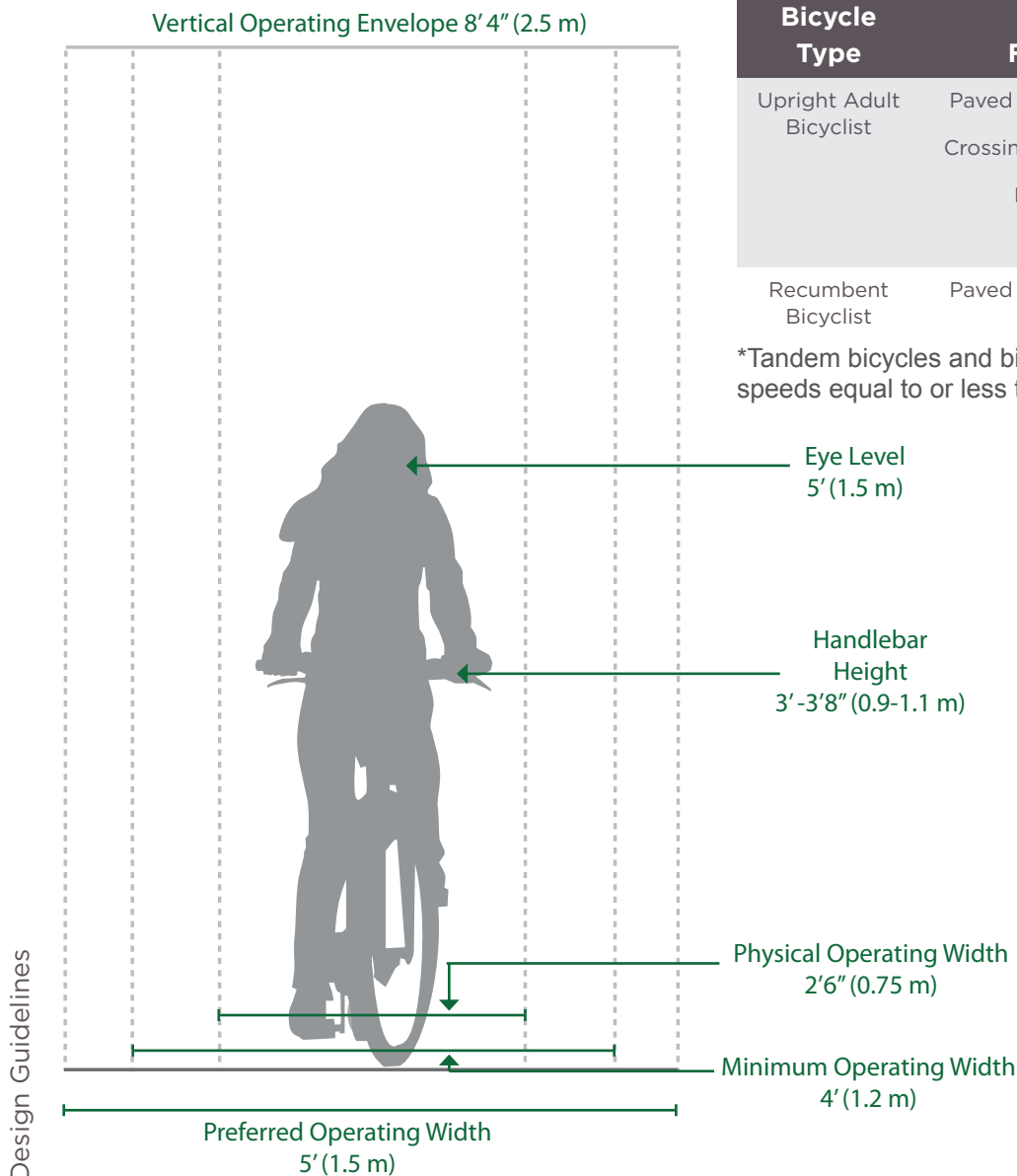
Source: AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities. 2004. Exhibit 2-1.

Design Needs of Bicyclists

Similar to motor vehicles, bicyclists and their bicycles exist in a variety of sizes and configurations. These variations occur in the types of vehicle (such as a conventional bicycle, a recumbent bicycle or a tricycle), and behavioral characteristics (such as the comfort level of the bicyclist). The design of a trail should consider expected bicycle types on the facility and utilize the appropriate dimensions.

The figure below illustrates the operating space and physical dimensions of a typical adult bicyclist, which are the basis for typical facility design. Bicyclists require clear, open space with no visual obstructions to operate within a facility. This is why the minimum operating width is greater than the physical dimensions of the bicyclist. Bicyclists prefer five feet or more operating width, although four feet may be minimally acceptable.

Standard Bicycle Rider Dimensions



Speed Expectations

Bicycle Type	Feature	Typical Speed	
Upright Adult Bicyclist	Paved level surfacing	8-15 mph	
	Crossing Intersections	10 mph	
		Downhill	20-30 mph
		Uphill	5 -12 mph
Recumbent Bicyclist	Paved level surfacing	11-18 mph	

*Tandem bicycles and bicyclists with trailers have typical speeds equal to or less than upright adult bicyclists.

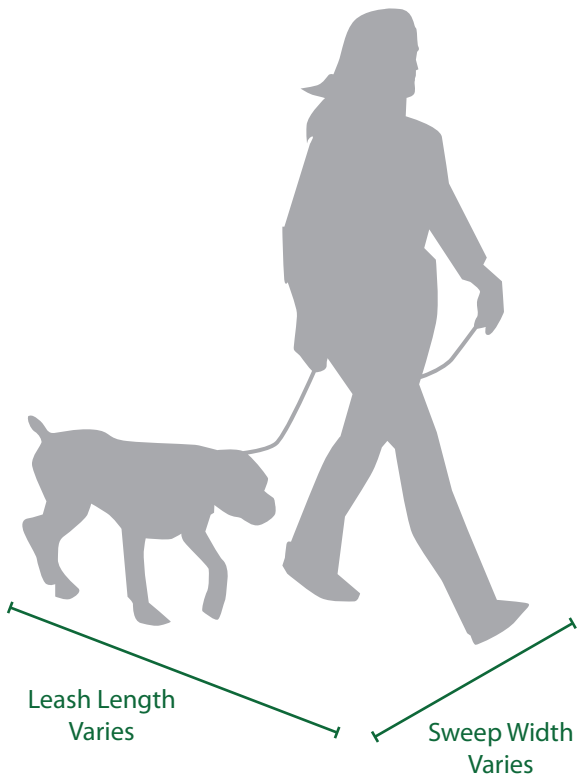
Source: AASHTO Guide for the Development of Bicycle Facilities, 3rd Edition. 2012.

Design Needs of Dog Walkers

Dog walking is a common and anticipated use on trails. Dog sizes vary largely, as does leash length and walking style, leading to wide variation in possible design dimensions.

Trails designed to accommodate wheelchair users are likely to provide the necessary dimensions for the average dog walker. See page 51, Design Needs of Wheelchair Users. Amenities such as dog waste stations at trailheads enhance conditions for dog walkers.

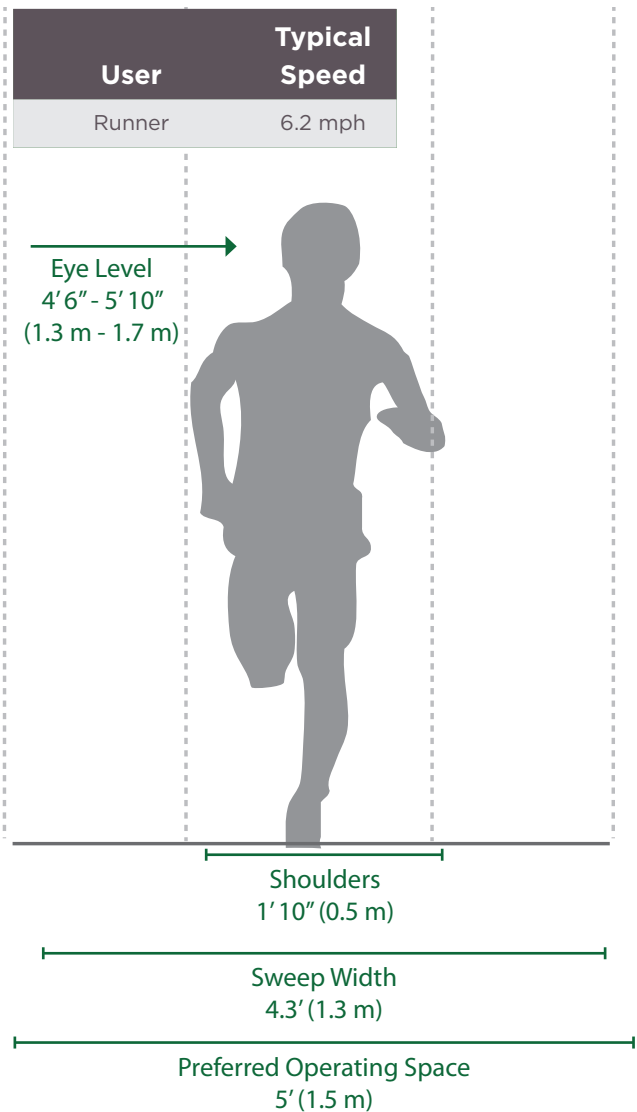
Dog walker vertical and horizontal dimensions are same as runner dimensions, pictured at right



Design Needs of Runners

Running is an important recreation and fitness activity commonly performed on trails. Many runners prefer softer surfaces (such as rubber, bare earth or crushed rock) to reduce impact. Among the hardened surfaces, asphalt is preferred over concrete because it is more forgiving on joints. Runners can change their speed and direction frequently.

Typical Speed



Source: FHWA. *Characteristics of Emerging Road and Trail Users and Their Safety*. (2004).

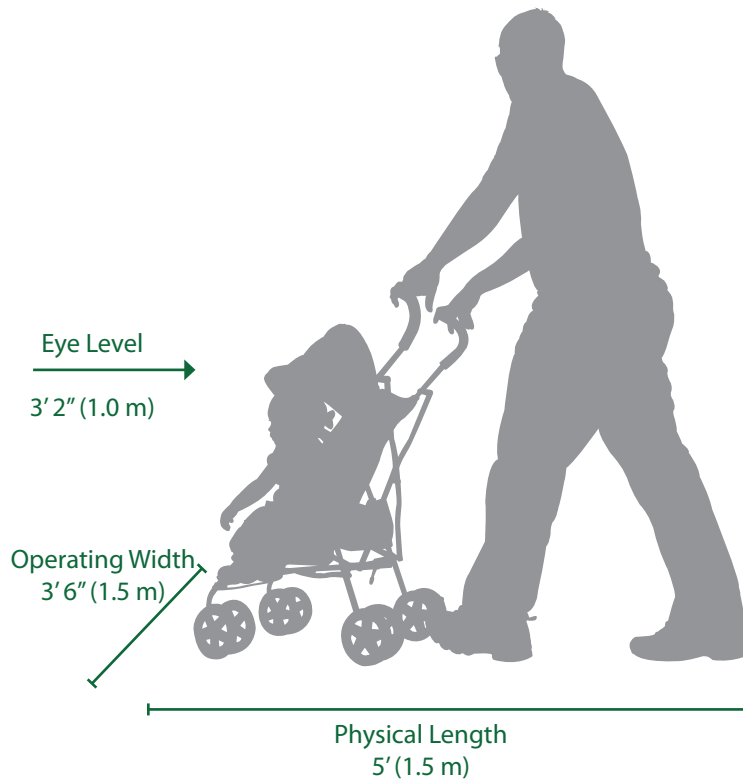
Design Needs of Strollers

Strollers are wheeled devices pushed by pedestrians to transport babies or small children. Stroller models vary greatly in their design and capacity. Some strollers are designed to accommodate a single child, others can carry three or more. Design needs of strollers depend on the wheel size, geometry and ability of the adult who is pushing the stroller.

Strollers commonly have small pivoting front wheels for easy maneuverability, but these wheels may limit their use on unpaved surfaces or rough pavement. Curb ramps are valuable to these users. Lateral overturning is one main safety concern for stroller users.

Typical Speed

User	Typical Speed
Stroller	3.7 mph



Source: FHWA. (2004).

Design Needs of Mobility Assistance Device Users

As the American population ages, the number of people using mobility assisted devices (such as manual wheelchairs or powered wheelchairs) increases.

Manual wheelchairs are self-propelled devices. Users propel themselves using push rims attached to the rear wheels. Braking is done through resisting wheel movement with the hands or arm. Alternatively, a second individual can control the wheelchair using handles attached to the back of the chair.

Power wheelchairs use battery power to move the wheelchair. The size and weight of power wheelchairs limit their ability to negotiate obstacles without a ramp. Various control units are available that enable users to control the wheelchair movement, based on user ability (e.g., joystick control, breath controlled, etc).

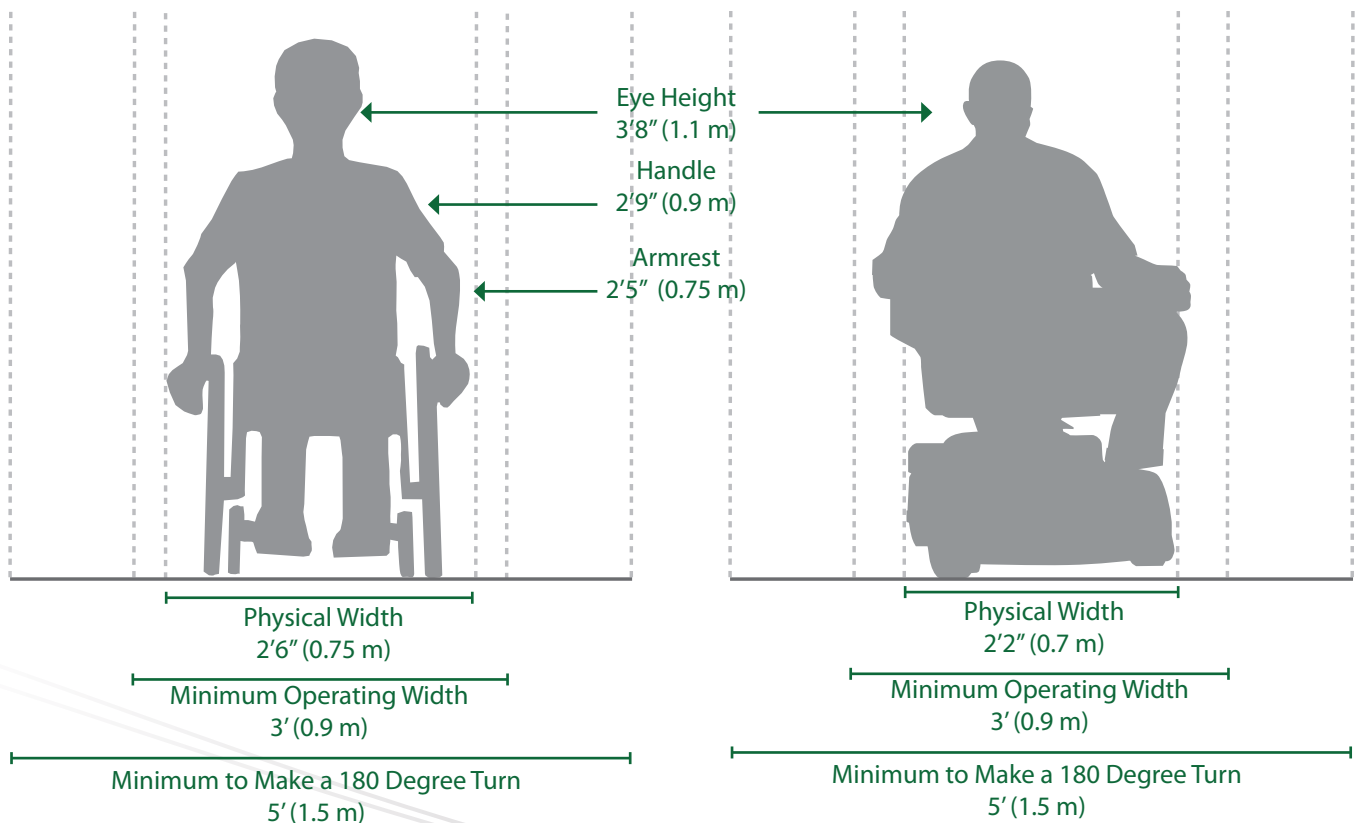
Maneuvering around a turn requires additional space for wheelchair devices. Providing adequate space for 180 degree turns at appropriate locations is an important element for accessible design.

Wheelchair User Typical Speed

User	Typical Speed
Manual Wheelchair	3.6 mph
Power Wheelchair	6.8 mph

Wheelchair User Design Considerations

Effect on Mobility	Design Solution
Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
Cross-slopes cause wheelchairs to veer downhill.	Cross-slopes of less than two percent.
Require wider path of travel.	Sufficient width and maneuvering space.



Source: FHWA. *Characteristics of Emerging Road and Trail Users and Their Safety*. (2004).
 USDOJ. *2010 ADA Standards for Accessible Design*. (2010).

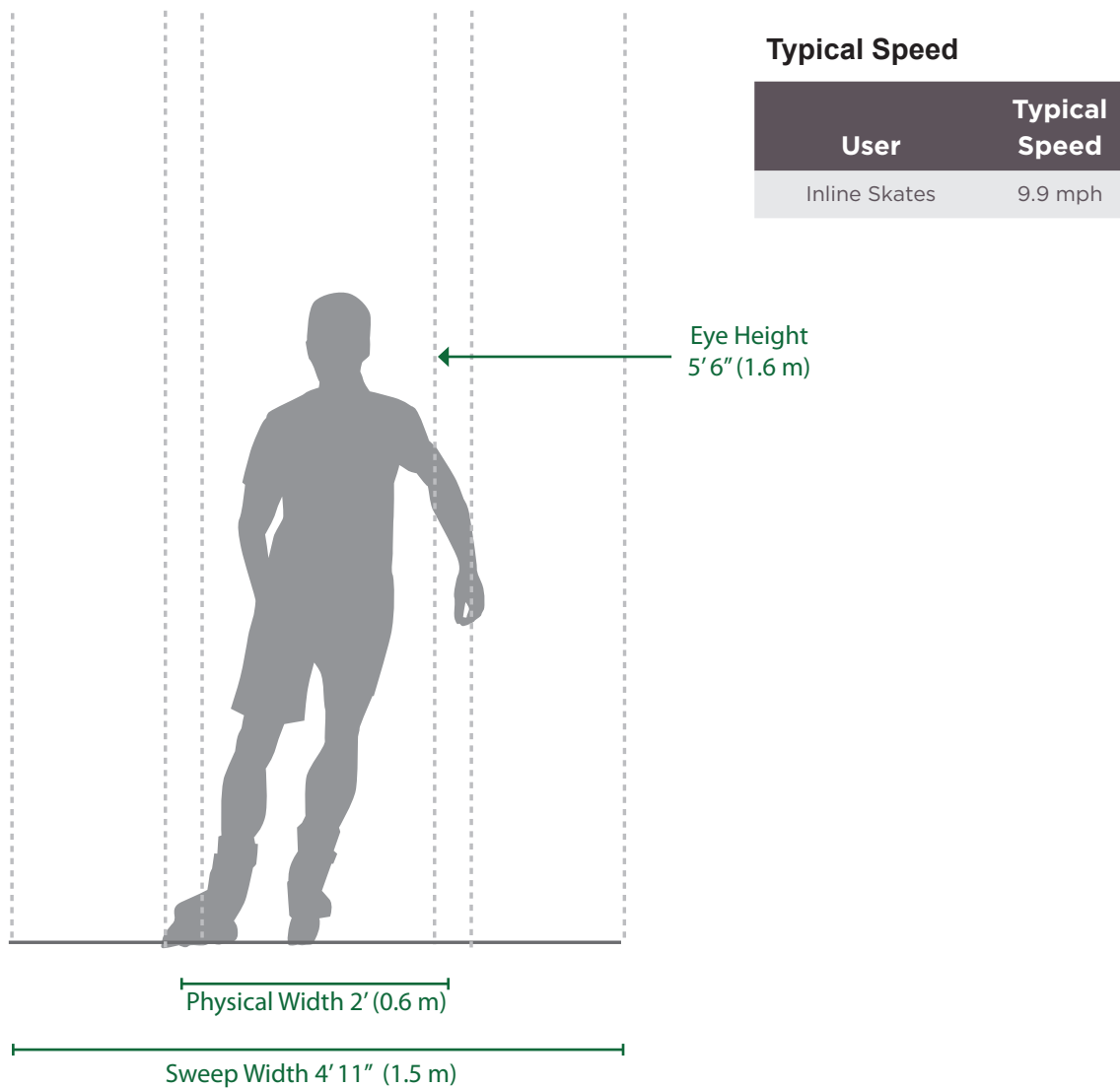
Design Needs of Skaters

Inline skates are commonly used for recreational and transportation purposes. They typically have three to five wheels of 3 to 4 inches diameter, aligned in a straight line. Inline skate design allows for more efficient and high speed travel than quad wheel skates.

Operational characteristics vary by skill level of the operator. Novice skaters travel more slowly and

have a narrower sweep width from advanced skaters. Novice users may also have trouble making sharp turns and stopping quickly, particularly on speed grades.

Inline skates are nearly impossible to use on unpaved surfaces and can be uncomfortable and difficult to operate on rough pavements such as asphalt with large aggregate.



Source: FHWA. *Characteristics of Emerging Road and Trail Users and Their Safety*. (2004).

General Design Practices for Paved Trails

The intent of trail construction is to make open space available without damaging the qualities of the natural environment that are most valued and appreciated. Surfacing should be selected to support projected intensities of use and to enable multiple uses. Surfacing should also account for site topography, surface drainage, frequency of flooding, construction cost, and maintenance concerns.

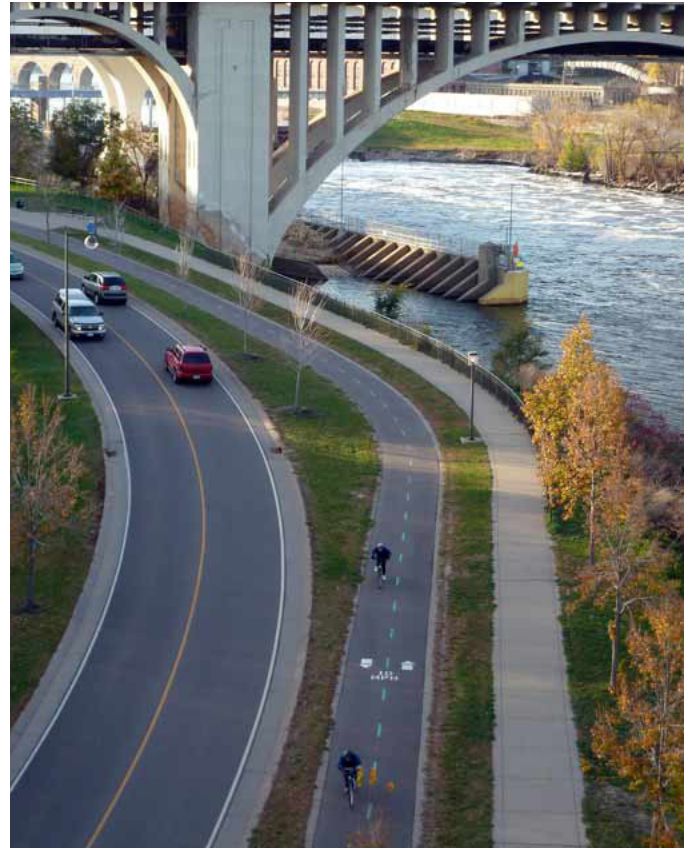
Key features include:

- Frequent access points from the local on-street transportation network.
- Directional signs to direct users within the trail network.
- A limited number of at-grade crossings with streets or driveways.
- Providing easily accessible connections to destinations.
- Designing facilities that safely accommodate multiple user types.

Trail Surfacing Types

American Disabilities Act Accessibility Guidelines compliant trails require paved surfaces, in most instances for access and ease of use. In limited cases, packed gravel fines can be used, where there is little to no topography. However, packed surfaces require much more maintenance effort and cost over time, and may not be desirable in the long term.

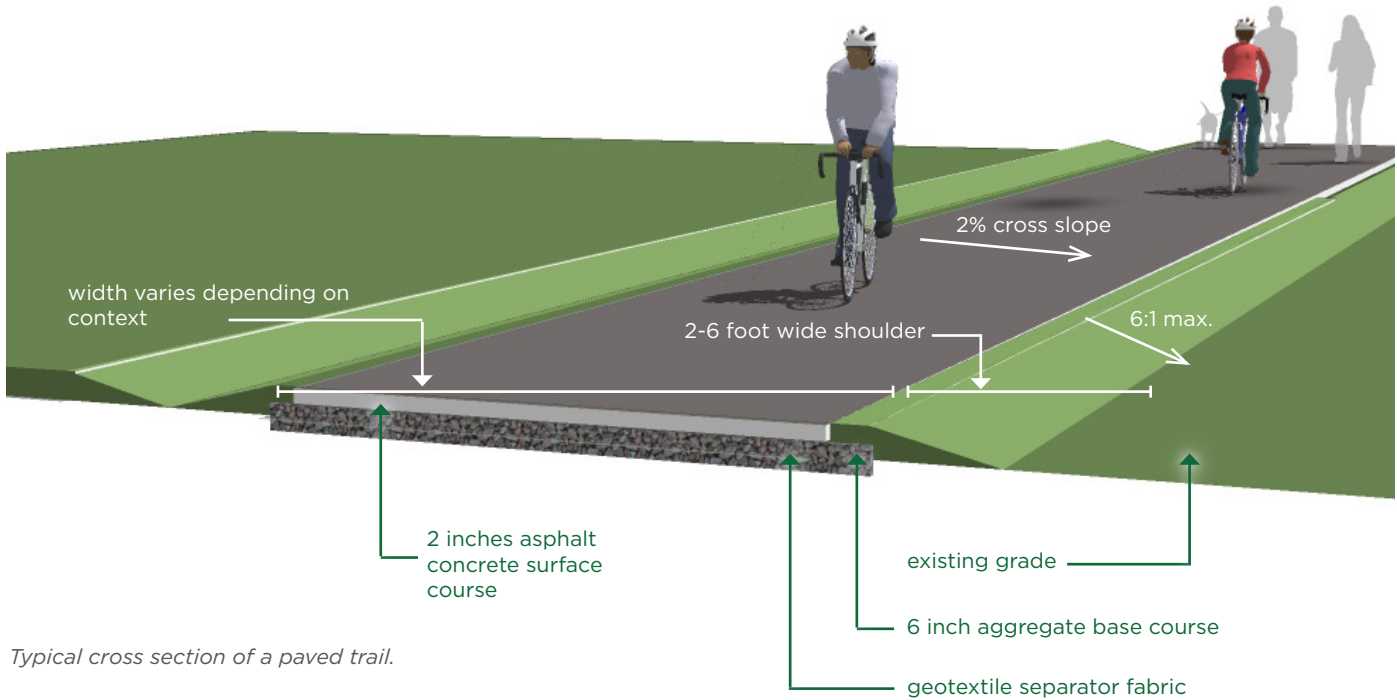
Asphalt trails offer substantial durability for the cost of installation and maintenance. Asphalt is popular with users for its smooth, continuous surface and has the benefit of lower cost, but requires more upkeep than concrete. As a flexible pavement, asphalt can also be considered for installing a paved trail on grades steeper than 3 percent. If constructed properly on suitable sub-grade, asphalt has a life span of about half that of concrete, or 10-15 years. When properly constructed and maintained on a regular basis, concrete can last 25 years or more. The high cost of concrete is often the most limiting factor since it is one of the most expensive surfaces to install. It is recommended that concrete be used for its superior durability and lower maintenance requirements in areas prone to frequent flooding, and for intensive urban applications.



Example of a separated track for pedestrians; along West River Parkway, Minneapolis; photo by Stuart Macdonald, 29 Oct 2010; courtesy of American Trails

Permeable paving is twice the cost of asphalt to install and is only recommended in very special trail applications under the following considerations:

- A maintenance schedule must be established for vacuuming debris after storm events (required to retain permeability)
- Only use permeable paving areas with proper drainage (not suitable in floodplain or areas with ponding or sedimentation)



Typical cross section of a paved trail.

When determining surface type for trails, consider topography, landscape position, underlying soils, and user needs. All surfaces have advantages and disadvantages, and each must be analyzed to determine which surface is appropriate in any given location.

GUIDANCE

WIDTH

- Eight feet is the absolute minimum width allowed for a shared use trail and is only recommended for low volume Neighborhood Trails. AASHTO requirements for trails receiving federal funding is 10' minimum.
- Ten feet is recommended in most situations and is adequate for moderate to heavy use.
- Twelve feet (and in very heavy trail use, 14 feet) is recommended for situations with high concentrations of multiple users. A separate track (5 feet minimum) can be provided for pedestrian use where right-of-way permits.

LATERAL CLEARANCE

- A 2 foot minimum shoulder on both sides of the trail should be provided for all trails. Use 6 feet of shoulder in fill sections and 3 feet of shoulder in cut sections.
- If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night and spaced adequately (see Bollards guideline for more information).

OVERHEAD CLEARANCE

- Clearance to overhead obstructions should be 8 feet minimum, with 10 feet recommended.
- Convex mirrors should be provided at blind corners and at the approaches to underpasses with poor sight lines.

STRIPING

- Striping should be used on trails with anticipated heavy use or with high concentrations of multiple users.
- See the Pavement Markings guideline in this document for more information.

SURFACE GRADE

- Trails should be designed to comply with ADAAG standards when possible (see Accessible Trail Design guideline section for more information).
- Provide a 2 percent cross slope from crown of trail in both directions to provide positive drainage off the trail as conditions allow.
- Provide a 48 inch safety rail for the following circumstances within 6 feet of the edge of pavement:
 - Slope is greater than or equal to 3:1 and drop of 6 feet
 - Slope is greater than or equal to 2:1 and drop of 4 feet
 - Slope is greater than or equal to 1:1 and drop of 1 foot

MATERIALS

- Asphalt is a common surface for trails, offering substantial durability for the cost of installation and maintenance.
- It is recommended that concrete be used for its superior durability and lower maintenance requirements, specifically in areas prone to frequent flooding, since the hardness and jarring of this surface is not preferred by runners or cyclists. Saw cut concrete joints rather than troweled improve user experience.
- Proper trail foundation will increase the longevity of the trail. Two inches of surfacing material over six inches of base course gravel over geotextile fabric is recommended.



Silver Comet Trail

Accessible Trail Design

The United States Access Board has approved American with Disabilities Act Accessibility Guidelines (ADAAG) for trails and outdoor recreational access routes. Constructing trails may have limitations that make meeting ADAAG and AASHTO guidelines difficult and sometimes prohibitive. Prohibitive impacts include harm to significant cultural or natural resources; a significant change in the intended purpose of the trail; requirements of construction methods that are against federal, state, or local regulations; or terrain characteristics that prevent compliance.

GUIDANCE

- Surface: Hardened surface such as asphalt, concrete, timber, compacted gravel
- Clear tread width: 36 inches minimum
- Tread Obstacles: 2 inches high maximum (up to 3 inches high where running and cross slopes are 5 percent or less)
- Cross Slope: 5 percent maximum
- Longitudinal slope must meet one or more of the following:
 - Five percent or less for any distance
 - Up to 8.33 percent for 200 feet max with resting intervals no less than 5 feet long and equal to the width of the trail at both ends.
 - Up to 10 percent for 30 feet max with resting intervals no less than 5 feet long

and equal to the width of the trail at both ends.

- Up to 12.5 percent for 10 feet max with resting intervals no less than five feet long and equal to the width of the trail at both ends.

NOTE: If resting intervals are not located within the trail tread, adjacent resting interval clear widths must be 3 feet minimum.

- No more than 30 percent of the total trail length may exceed a running slope of 8.33 percent.
- Passing Space: provided at least every 1,000 feet where trail width is less than 60 inches.
- Signs: shall be provided indicating the length of the accessible trail segment.
- Detectable pavement changes at curb ramp approaches should be placed at the top of ramps before entering roadways.
- Trailhead signage should provide accessibility information, such as trail gradient/profile, distances, tread conditions, location of drinking fountains, and rest stops.
- Provide one accessible parking space per every 25 vehicle spaces at trailheads.
- Trail amenities, drinking fountains, and pedestrian-actuated push buttons should be placed no higher than 4 feet off the ground.



Crime Prevention Through Environmental Design (CPTED) Principles for Trails

Personal safety, both real and perceived, heavily influences a trail user's decision to use a facility and a community's decision to embrace the trail system. Proper design must address both the perceived safety issues (i.e., feeling safe or fear of crime) and actual safety threats (i.e., infrastructure failure and criminal acts). CPTED is a proactive approach to deterring undesired behavior in neighborhoods and communities. When all spaces have a defined use and the use is clearly legible in the landscape, it is easier to identify undesired behavior.

- Principle #1: Natural Surveillance
- Principle #2: Natural Access Control
- Principle #3: Territorial Reinforcement
- Principle #4: Maintenance

Apply CPTED guidelines to trail facilities, management features, and amenities when appropriate.

GUIDANCE

- Where feasible, fencing installed along trails should not obstruct the view of trail users.
- Where the trail is fenced for long stretches, intermittent openings should be located to allow users to enter and exit the trail. Access points to the trail should be at locations with good visibility from the surrounding neighbors.
- Trail signage should include the contact number to report graffiti, suspicious behavior, and maintenance issues (e.g., "Immediately report any observed graffiti to 911").
- All groundcover and shrubs along trails should be trimmed to a maximum height of 36 inches above ground level.
- Trees should be limbed-up to provide a minimum of 8 feet of vertical clearance over the trail within the trail corridor.
- Tree canopies should not obstruct pathway illumination.
- Hostile native landscaping material (e.g.



- vegetation with thorns) can be used in strategic areas to discourage unauthorized use and eliminate entrapment areas.
- Add anti-graffiti application to retaining walls, where appropriate.
- Where lighting is installed on trails the illumination should:
 - Be adequate to identify a face up to 20 yards away.
 - Have full cut-off fixtures to reduce light pollution.
 - Provide uniform coverage, eliminating dark pockets.
 - Provide good color rendition.
 - Not be obstructed by tree canopies.
- The use of metal halide or light emitting diode (LED) lamps are recommended, as they provide excellent color rendition. Color rendition is especially important when describing identifying features such as hair, clothing, and vehicle color. Light quality is as important as the quantity. Poor lighting, whether too bright or not bright enough, can diminish safety.
- Lighting should respond to the conditions of the site and meet the minimum standards set forth by the Illuminating Engineering Society of North America (IESNA).

Design Considerations for Riparian Trails

Depending on the width of the floodplain area, riparian corridors often offer substantial recreational and open space preservation opportunities. These corridors include rivers and streams, drainage facilities, and wetlands (where environmentally feasible). All trails constructed within riparian corridors in the CSC study area should be studied for stormwater impacts, wildlife habitat impacts, and floodplain development impacts.

GUIDANCE

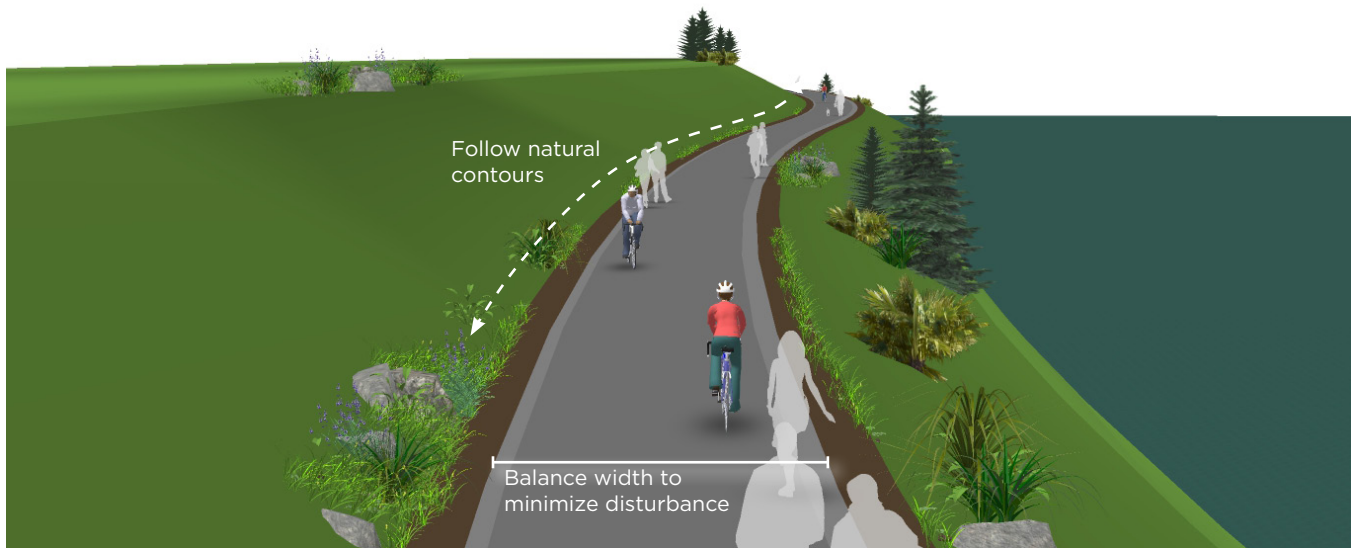
- Trails in riparian corridors should meet or exceed General Design Practices indicated previously due to their sensitive nature and generally poorly-drained and wet periods of the year.
- Confirm local and current Coosa River Watershed buffer rules to determine acceptable uses and buffer widths.
- All trails within floodplain areas will require adequate environmental permits from local floodplain administrators. Confirm current requirements with stormwater staff when designing riparian trails.

ROUTING AND ALIGNMENT

- Where possible, trails should follow the contours.
- Avoid constructing trails along fall lines, which are prone to erosion and generally cannot be maintained over time.
- Trails through wetlands should be avoided if

possible. If wetlands must be crossed, choose the narrowest point.

- Construction of trails immediately adjacent to or abutting streambanks should be avoided to the greatest degree possible. Construct all trails at the maximum distance from streams as is practical.
- Include consideration of stream restoration potential where feasible. Stream restoration projects commonly involve considerable reshaping of the floodplain to reduce bank angles and heights to allow the stream to access its floodplain.



Typical cross section of a paved trail along a riparian corridor.

ACCESS POINTS

- Any access point to the trail should be well-defined with appropriate signage designating the corridor as a shared-use trail and prohibiting motor vehicles.
- Design logical points of interest to avoid informal “social” trails that follow poorly executed routes and trample floodplain vegetation or sensitive areas.

MATERIALS AND MANAGEMENT

- Concrete is the recommended surface treatment for trails prone to flooding due to its superior durability and lower maintenance requirements.
- Permeable paving is not recommended in floodplain areas or areas without proper drainage. Sheet flow and sediment transport

clogs pores and requires vacuuming after all storm events.

- Where wetlands are present, use elevated tread materials (such as timber boardwalk) to preserve these fragile ecosystems.
- Do not use gravel or crushed stone fines in riparian areas prone to flooding. These materials have very low cohesiveness and erode easily. They can also contribute to sediment in streams.
- Use natural dispersed infiltration systems such as vegetated swales to manage stormwater.

Design Considerations for Trails in Utility Corridors

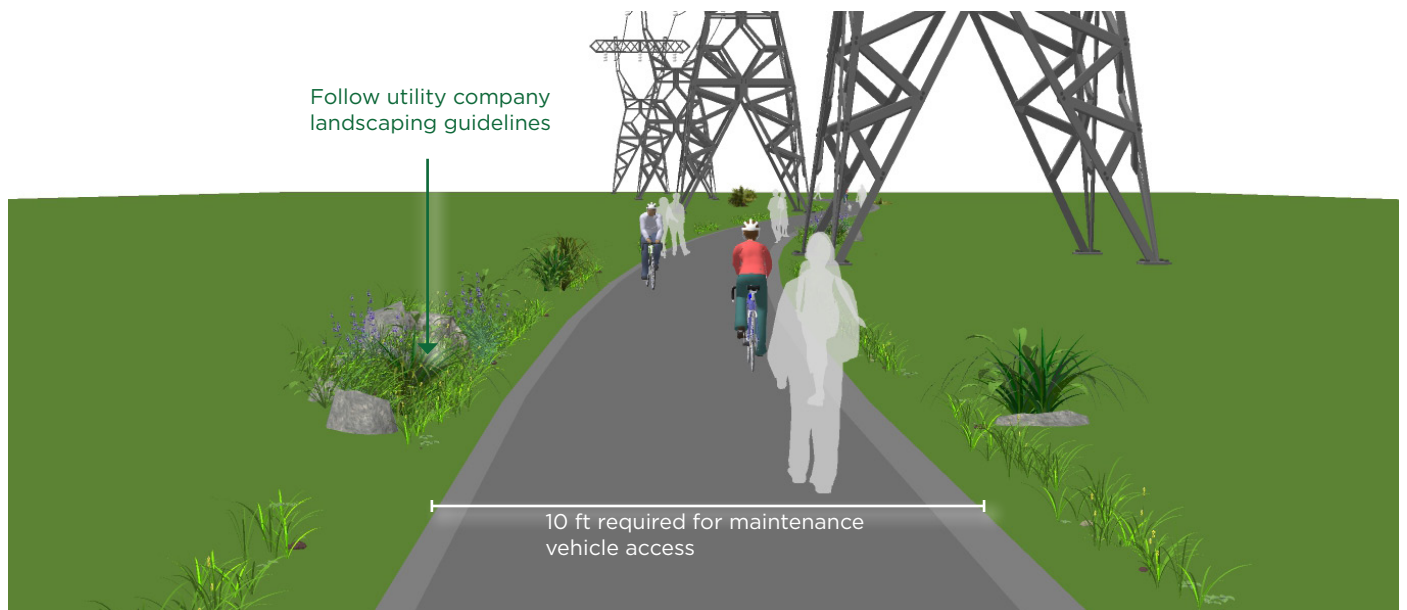
Existing man-made corridors may be able to simultaneously serve the needs of trail users. Underground utilities such as water, sewer, natural gas, or buried electric or optic lines can accommodate trails as well as above-ground utilities such as telephone, cable, or overhead electric. Utility companies benefit from this arrangement by having uninterrupted, easily accessible route to their utility service. For the CSC trail, sections of the preferred alignment will overlap with AT&T utilities.

GUIDANCE

- Utility companies require specific design guidelines, routing and alignment, and landscaping limitations.
- Ten feet width is required if motor vehicles will be accessing the trail for maintenance purposes.
- In sewer easements, the edge of trail should be at least 10 feet from manhole rims, where possible.
- All trails require acquisition of an easement from the current fee simple title owner of the land.
- Some utilities have trail width limitations within their rights-of-way. When designing trails in utility corridors, confirm current

guidelines widths with each utility.

- In many cases, bollards are required at access points to deter motor vehicles. Bollards must be installed per the utility's specifications.
- For electrical utility corridors, a minimum separation of 25 feet is required between the trail and any associated electrical equipment (such as guy wires, power poles, and towers; based on Georgia Power ROW requirements for trails).
- Culverts and vegetation must be installed per the utility's specifications.
- Structures are typically restricted within utility easements. Structures include signage, lighting, and benches.
- Review each utility's policy and construction specifications for repair, maintenance, access, and corridor maintenance requirements.
- User expectations will be similar to other trails, however trails in utility corridors may be restricted to the conditions listed above and closed at certain times when utility repairs are necessary.

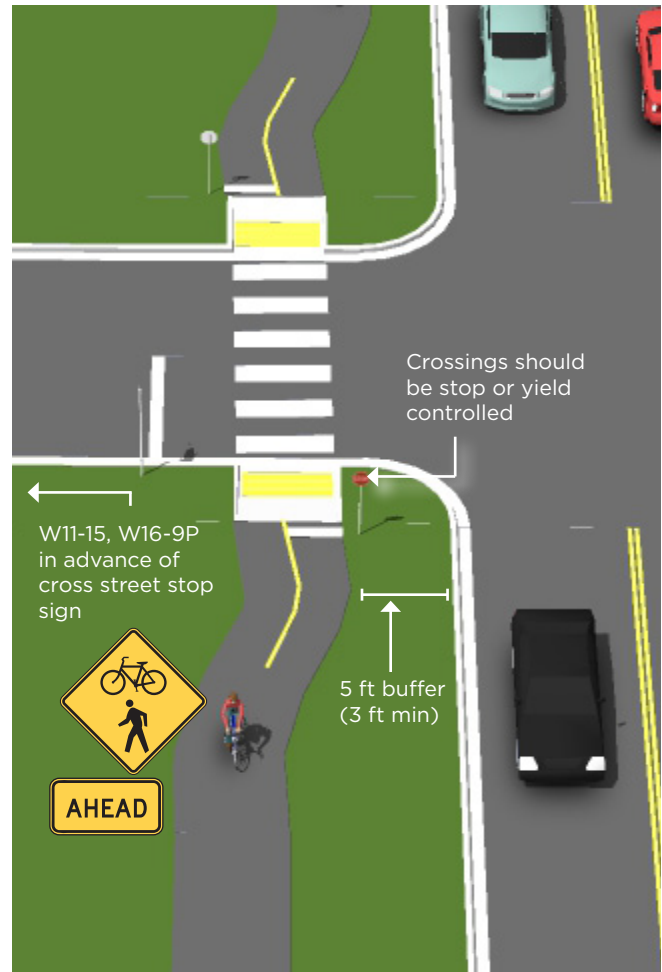


Design Considerations for Trails in Roadway Corridors

Sometimes referred to as ‘sidepaths,’ these trails provide more comfortable widths than sidewalks and can accommodate multiple users when designed adequately.

GUIDANCE

- This configuration works best along roadways with limited driveway crossings and with services primarily located on one side of the roadway, or along a riverfront or other natural feature. Not recommended in areas with frequent driveways or cross streets.
- A minimum of 10 feet wide is necessary for bicyclists to pass other users safely on sidepaths.
- A 5 foot or greater vegetated buffer between the sidepath and the roadway should be provided.
- At driveway entrances and other roadway crossings, appropriate regulatory and way-finding signage and crossing treatments should be provided.
- In some cases, sidepaths will transition to sidewalks or designated bicycle lanes. In the event that sidepaths merge onto streets, provide appropriate signage and pavement markings to help safe merging.
- Trails constructed within roadway ROW will likely require an encroachment permit from GDOT. Check with GDOT for ROW limitations regarding the following:
 - Structures, such as retaining walls and bridges
 - Clear recovery zone from the edge of a roadway travel land to the edge of a trail that is in ROW. Will depend on Average Daily Traffic (ADT)
 - Stormwater treatment and vegetation



Neighborhood Greenways

Neighborhood greenways are low-volume, low-speed streets modified to enhance bicyclist by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.

Jurisdictions throughout the country use a wide variety of strategies to determine where specific treatments are applied. While no federal guidelines exist, several best practices have emerged for the development of bicycle boulevards. At a minimum, bicycle boulevards should include distinctive pavement markings and wayfinding signs. They can also use combinations of traffic calming, traffic diversion, and intersection treatments to improve the bicycling environment. The appropriate level of treatment to apply is dependent on roadway conditions, particularly motor vehicle speeds and volumes.

Traffic conditions on bicycle boulevards should be monitored to provide guidance on when and where treatments should be implemented. When motor vehicle speeds and volumes or bicyclist delay exceed the preferred limits, additional treatments should be considered for the bicycle boulevard.



GUIDANCE

Pavement Markings

- Place symbols every 250-800 feet along a linear corridor, as well as after every intersection.
- On narrow streets where a motor vehicle cannot pass a bicyclist within one lane of traffic, place stencils in the center of the travel lane.
- See Marked Shared Roadway guidance for additional information on the use of shared lane markings.
- A bicycle symbol can be placed on a standard road sign, along with distinctive coloration.

Signs

- See Bikeway Signing for guidance on developing bicycle wayfinding signage. Some cities have developed unique logos or colors for wayfinding signs that help brand their bicycle boulevards.
- Be consistent in content, design, and intent; colors reserved by the Manual on Uniform Traffic Devices (MUTCD) for regulatory and warning road signs are not recommended.
- Signs can include information about intersecting bikeways and distance/time information to key destinations.

Barrier Separated Sidepaths

When space is constrained or improved user comfort is desired, shared use paths adjacent to roadways (sidepaths) may be barrier separated from the adjacent travel lanes.

Barriers, while needed in tight spaces, can narrow both roadway and path, and create hazards and should be used with caution and close attention to design.

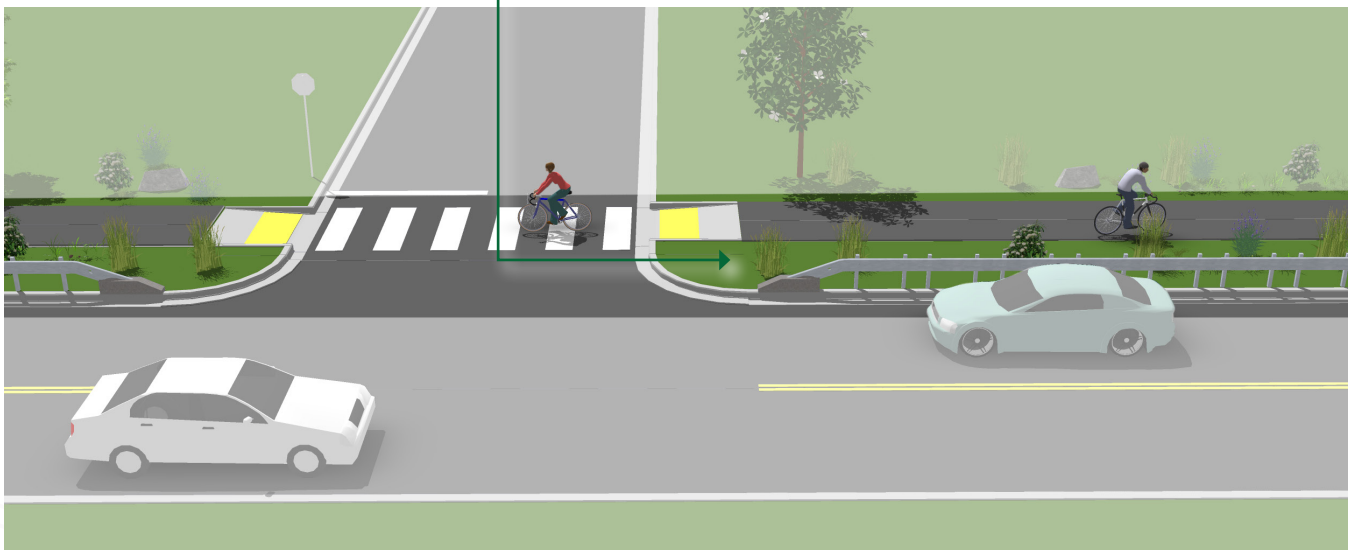
GUIDANCE

- For use on streets with less than 5 ft of natural surface separation between the roadway and the sidepath. Paved shoulders should not be included in the separation distance measurement.
- For use on streets with high speeds (>45 mph) and/or high volumes of motor vehicles, where a robust form of physical separation is preferred.
- On streets lacking curb and gutter.
- Barriers should meet minimum height requirements of a standard guardrail. (28 -

32"). On high speed highways (≥ 45 mph) a crash worthy barrier should be used.

- Provide 2 ft of shy distance from the barrier to preserve preferred operating dimensions for bicyclists.
- When curbs are present in high speed conditions (> 40 mph) guardrails should be placed flush with the face of curb. Curb face should be 100 mm or shorter with a sloping face curb (AASHTO type C or G).
- In highly constrained conditions lacking room for a barrier, the path may be raised with a vertical curb, or striped with rumble strips.
- Barriers may be constructed of steel or timber.
- Guardrail need not be of size and strength to redirect vehicles, unless high speeds or other conditions indicate the need for crash worthy barrier.

The barrier should not impair sight distance at intersections



Trail Management Features

There are certain trail management needs that may be considered depending on the context. Some trails require management features to enhance user experience, provide privacy and security to adjacent property owners, or to sustain the life span of the trail.

**Access Management
TRAILHEADS**

Trailheads provide essential access to a trail system and can include many amenities in one location: automobile parking, bicycle parking, comfort stations, drinking fountains, trash and recycle receptacles, dog waste stations, bicycle repair stations, and trail wayfinding and informational signage.

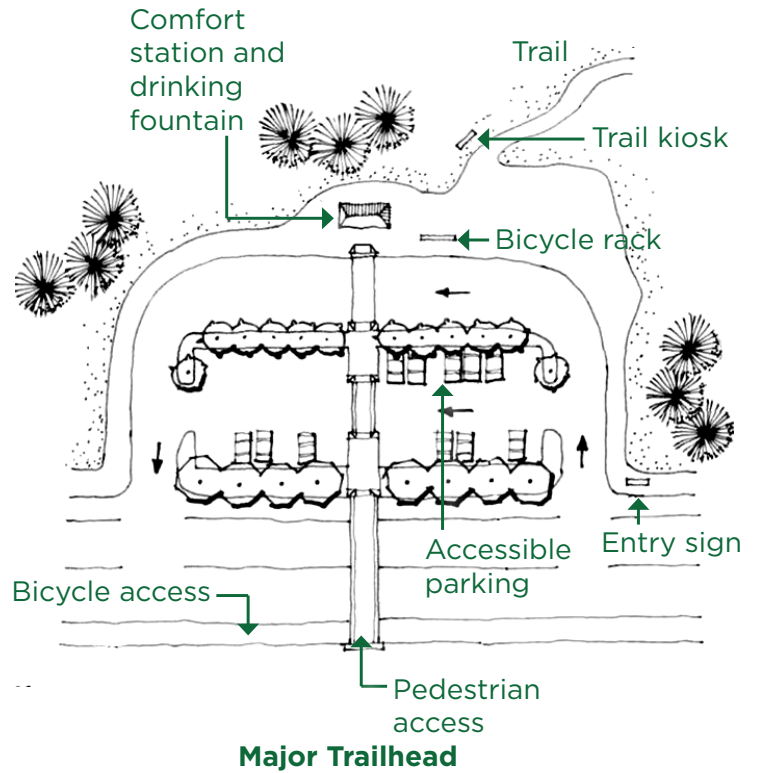
There is no prescription for the frequency of trailheads. Conduct user counts, vehicle counts, and surveys across the trail network at peak hours of use to determine parking demand. Consider locating trailheads with consideration to other available public facilities or through partnerships with owners of existing parking areas. When locating trailheads in or adjacent to neighborhood streets, work with property owners to install no parking signs if desired, and to minimize impacts during construction and daily use.

MAJOR TRAILHEADS

Major trailheads should be established near large residential developments, commercial developments, and transportation nodes, making them highly accessible to the surrounding community and to the trail system. A major trailhead could include all of the items mentioned previously plus additional facilities, such as shelters, picnic areas, and more extensive parking.

GUIDANCE

- Major trailheads can provide parking for 10-40 vehicles, depending on availability of land and anticipated level of use of the trail.
- Consider 300 to 350 square feet for each parking space.
- Major trailheads will typically have a large paved parking lot that accommodate pas-



senger vehicles and large vehicles year round. Consider locating larger lots in existing disturbed areas to minimize environmental impacts.

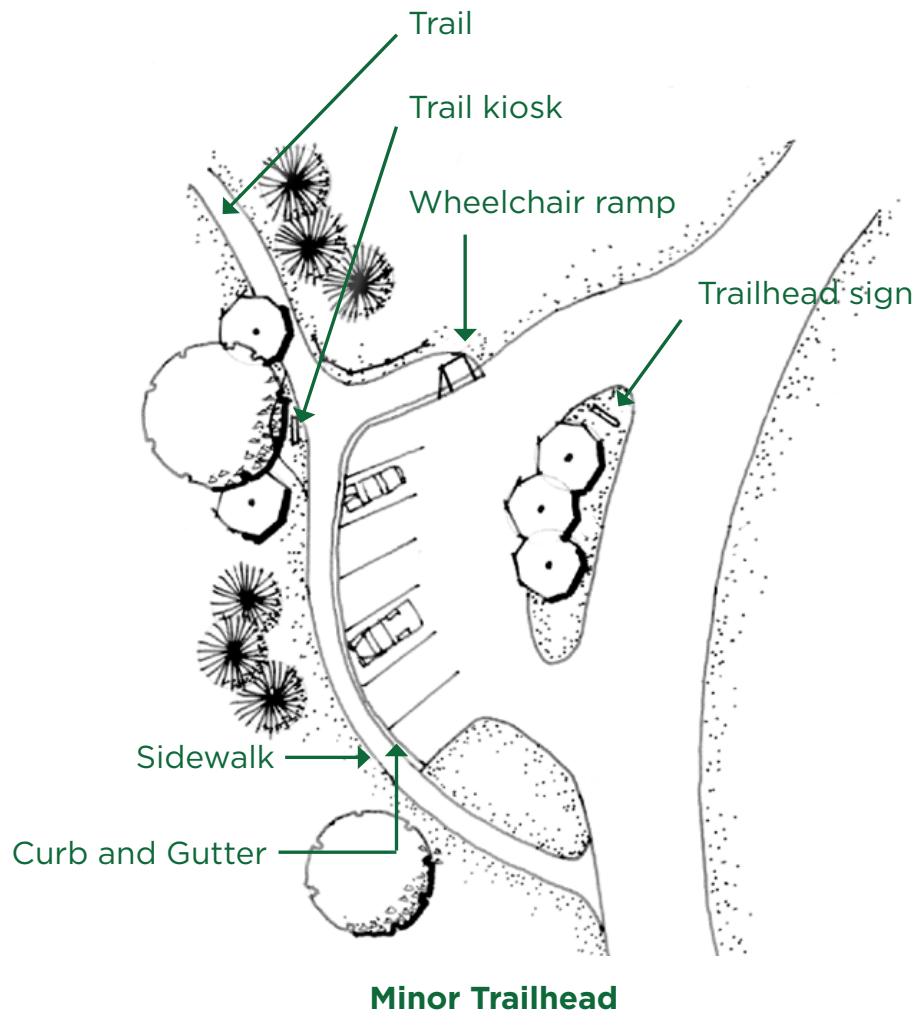
- Major trailheads should provide emergency and maintenance vehicle access and turn-around.
- Place ADA accessible parking spaces near the site’s accessible route, at a rate of one accessible space per 25 standard spaces. Parking spaces and access aisles should not exceed 2 percent slope in any direction.
- Parking lot surfaces should never exceed 5 percent slope in any direction.
- Where major trailheads are located near neighborhoods, provide user access from local streets crossing the trail. Where trails cross neighborhood streets, “No Parking” signs may be desirable to minimize impact on the neighborhood.
- Reduce the visual intrusion of large parking areas by using vegetative screening.
- Consider one-way vehicle circulation within parking areas to minimize road width.
- Refer to current setbacks and other requirements within local regulations.

MINOR TRAILHEADS

Minor trailheads are trail access points with very minimal infrastructure. They can occur at parks and residential developments. Some minor trailheads could include a small parking lot for five to six passenger vehicles. In addition to vehicle parking, minor trailheads may include drinking fountains, benches, trash and recycling receptacles, an information kiosk, and signage about the trail network.

GUIDANCE

- Minor trailheads can provide parking for up to ten vehicles. The parking area may be asphalt or gravel, as long as ADA requirements are met.
- Minor trailheads should provide emergency and maintenance vehicle access.
- Minor trailheads should be ADA accessible and provide at least one accessible space near the accessible route.
- Provide adjacent wayfinding signage that directs trail users to minor trailheads.



Trail Edge Definition

Vegetation, topography, ditches, fencing, railings, or walls may be used to clearly mark trail edges.

Such features serve multiple purposes, including:

- Providing visual separation/privacy screens
- Delineating public space from private property adjacent to the trail
- Discouraging the development of unauthorized foot trails
- Separating users from hazardous drop-offs or adjacent non-compatible land use

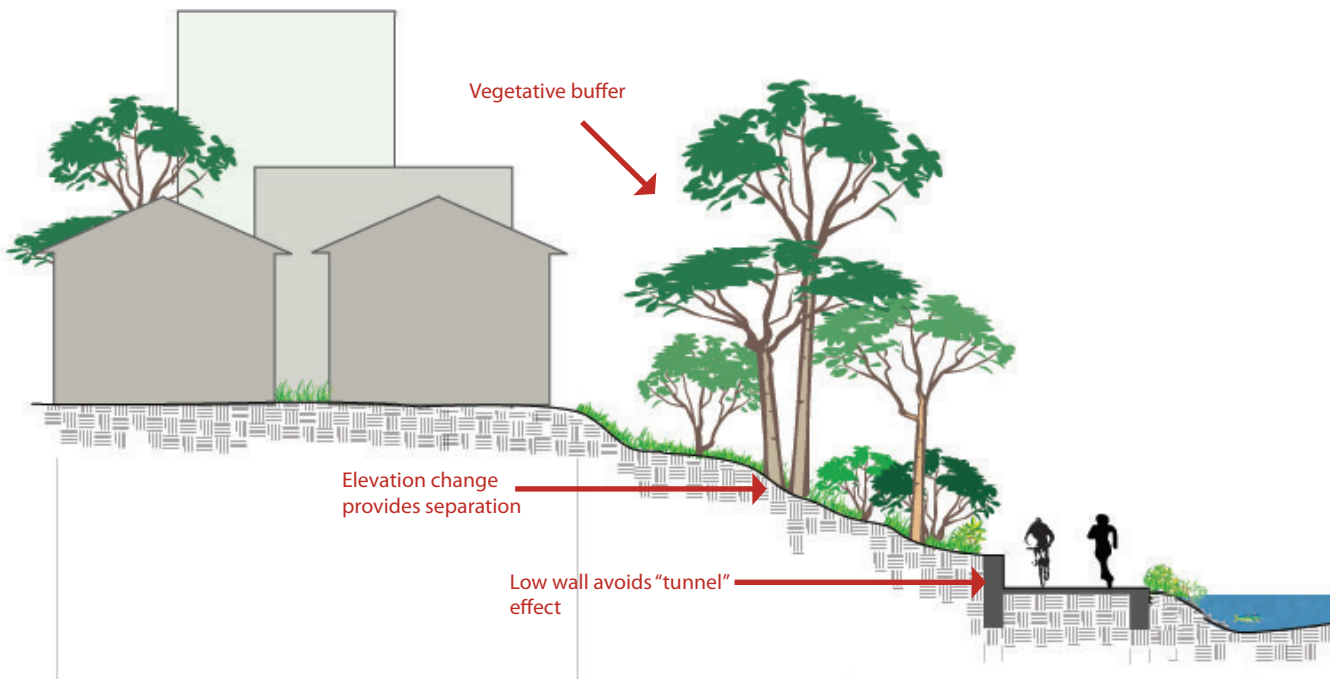
Wildlife passage and safety for trail users are important factors in determining appropriate trail edge treatments. Although the public often perceives fencing as a means of providing safety by prevention of unwanted access, fencing that blocks visual access completely can have the opposite effect by impairing informal trail surveillance (see CPTED guidelines for more information).

reasons, native vegetation buffers or the use of topography are recommended where possible.

- For physical separation aimed at preventing trespassing or guarding against hazardous slopes, consider the use of topography, ditches, semi-transparent fencing or railings, and hostile vegetation.
- Fencing should strike a balance between adjacent residents' privacy and informal surveillance of the trail. Permeable fencing of four feet tall or less can provide a barrier sufficient to denote property boundaries or to deter most access. Opaque fencing or walls can degrade the experience of trail users, obscure views, and create a "tunnel" effect that creates the effect of users feeling "trapped."
- Railings on bridges, boardwalks, and at the edges of steep slopes should be provided. For more information, see the Fencing and Railings guideline.

GUIDANCE

- If separation is desired purely for privacy



Vegetative Screening

The presence or absence of vegetation and the type of vegetation present in a trail corridor affects habitat quality, the trail's effectiveness as a wildlife corridor, ecological sustainability, and the aesthetic experience for the trail user. Trails are more effective at providing wildlife habitat and corridors when they have native trees and shrubs present. Trees and shrubs can also shade users from sun and shelter users from rain. When possible, protecting, preserving, and maintaining existing native vegetation when constructing trails through riparian corridors is the first choice for creating separation between the trail and adjacent properties. Vegetative buffers create a natural privacy screen, provide habitat for wildlife, and stabilize erodible soils.

GUIDANCE

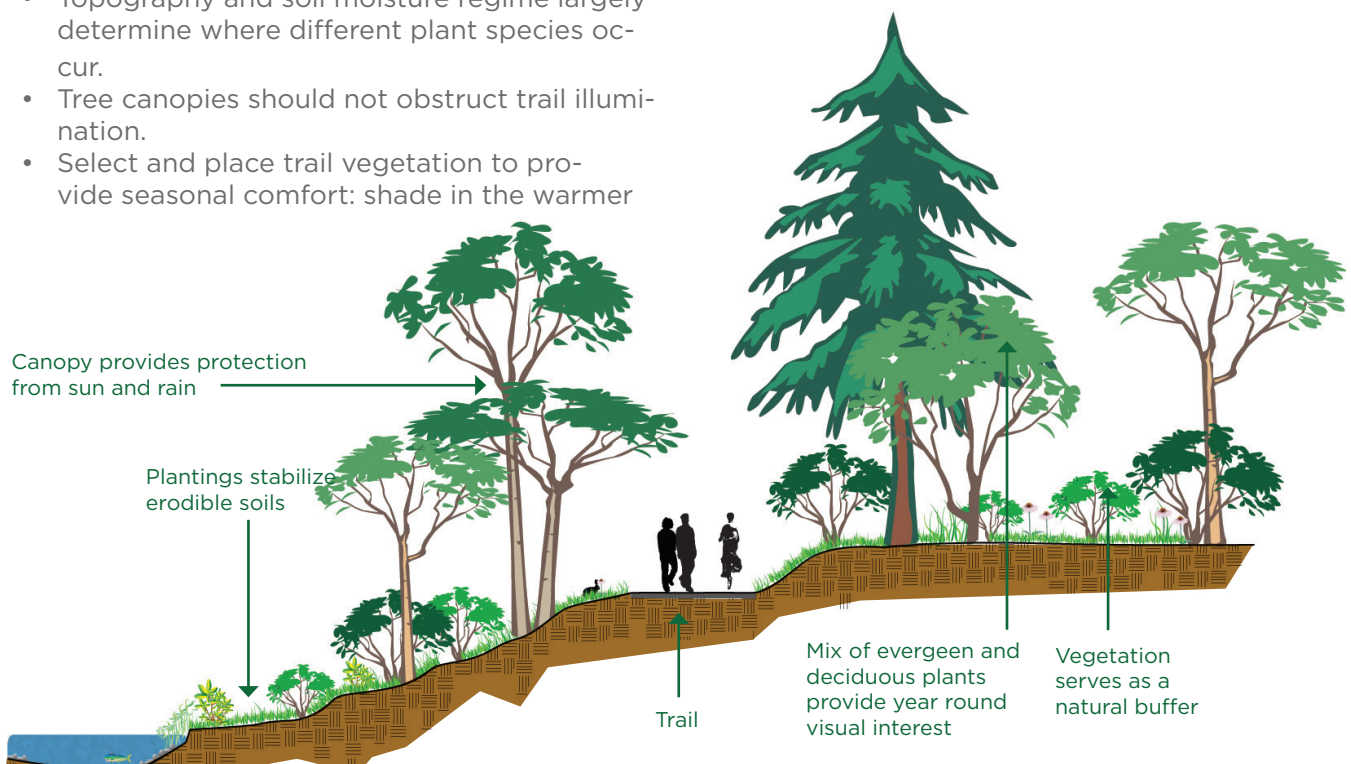
- In locations where trees and shrubs are lacking and can be planted, native species are the most ecologically sustainable choice. As a group, native species require less maintenance than horticultural plantings and often provide wildlife with a food source.
- To achieve an open line of sight, groundcover and shrub height should be a maximum of 24 inches above ground level.
- Topography and soil moisture regime largely determine where different plant species occur.
- Tree canopies should not obstruct trail illumination.
- Select and place trail vegetation to provide seasonal comfort: shade in the warmer

months and sunlight in colder months.

- Select native landscaping material that can deter users from using unauthorized foot trails, access points, or exits (e.g. vegetation with thorns).
- Follow CPTED requirements.

MAINTENANCE AND ESTABLISHMENT

- Larger plants require more water to survive than seeds and smaller plants. Plant seeds and/or plants either right before or during the rainy season to take advantage of seasonal rainfall (spring and fall).
- Remove all competing invasive vegetation and or mulch regularly to conserve water.
- Trees should be trimmed to provide a minimum of 8 feet of vertical clearance within trail circulation.
- Fertilizing native plants is only necessary in extreme cases when the condition of the soil is still in need of repair.



Environmental Management: Drainage and Erosion Control

Drainage and erosion control is necessary to maintain a stable trail system and low maintenance facility. Excessive soil erosion near a trail is usually the result of water collecting and flowing along the trail edge or onto the surface with enough volume and velocity to carry away soil. This results in a degraded trail area and potential impacts to adjacent or downstream water resources. When managing stormwater along all trails, use dispersed infiltration systems such as vegetated swales, over engineered stormwater control structures such as storm drains, and catch basins for reduced maintenance and improved aesthetic.

GUIDANCE

PAVED SURFACES:

- A 2 percent cross slope will resolve most drainage issues on a paved trail and should be used for both the tread and its shoulders. A maximum 1:6 slope is used for the shoulders although 2 percent is preferred. For sections of cut where uphill water is collected in a ditch and directed to a catch basin, water should be directed under the trail in a drainage pipe of suitable dimensions.
- Following land contours helps reduce erosion problems, minimizes maintenance, and increases comfort levels..
- Provide low groundcover vegetation up to the edge of the trail to prevent erosion on shoulders.

NATURAL SURFACES:

- Erosion will occur on natural surface trails. Natural surface trails should be designed to accommodate erosion by shaping the tread to limit how much erosion occurs and to maintain a stable walkway and tread. The goal is to outslope the trail so that water sheets across, instead of down, its tread.
- Contour trails are also outsloped 5 percent from the face of the ridge to aid in sheeting water off the trail during rain events. These trails disperse and shed water in a non-eroseive manner.
- Avoid fall line trails when possible.
- Designing trails with rolling grades is the preferred way to build sustainable natural surface trails. "Rolling grade" describes the series of dips, crests, climbs, and drainage crossings linked in response to the existing landforms on the site to form a sustainable trail.
- Frequent grade reversals (grade dips, grade brakes, drain dips, or rolling dips) are a critical element for controlling erosion on sustainable trails. A general rule-of-thumb is to incorporate a grade reversal every 20 to 50 linear feet along the trail to divide the trail into smaller watersheds so the drainage characteristics from one section won't affect another section.



Example of a silt sock controlling drainage along a riparian trail corridor

Boardwalks

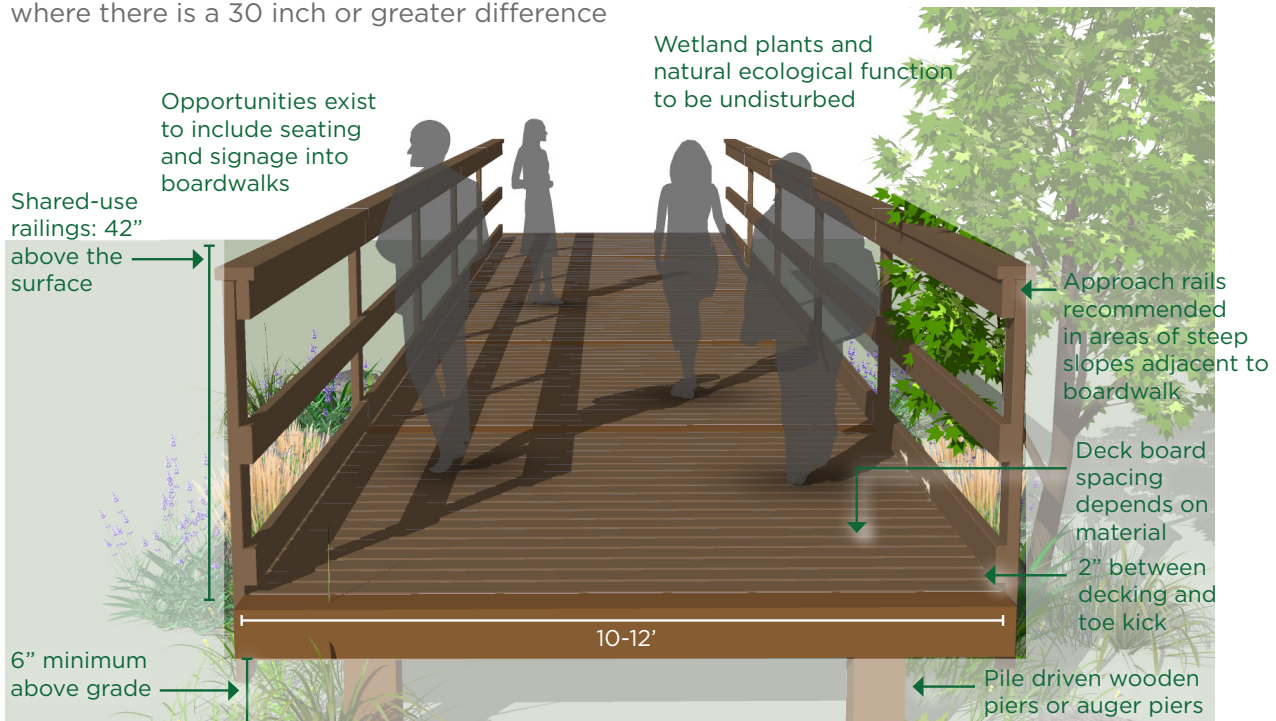
Boardwalks are structures that bridge over sensitive natural or inundated areas while limiting the potential for environmental impact. They are typically used when crossing small creeks and wetlands. Boardwalks range in length and can span as little as 10 feet or stretch for longer distances depending on site conditions. Bridges are used where greater span lengths are required and when the objective is to reduce base flood elevations. Boardwalks are usually constructed of timber, concrete, or recycled plastic decking. Recycled systems such as Trex® are popular for their material durability, however they have structural limitations. Modular concrete boardwalk systems are gaining popularity due to their low-impact installation methods and durability within wet areas. Permatrak™ is a system being used in some communities in the state and by the National Park Service.

GUIDANCE

- Boardwalk clear span width should be a minimum of 10 feet when no rail is used. A 12 foot width is preferred in areas with higher anticipated use and whenever railings are used.
- A 6 inch curb rail is recommended, however, a 42 inch guardrail is required at locations where there is a 30 inch or greater difference

in the low water bridge elevation and the ground elevation below. Maximum opening between railing posts is 4 inches.

- Boardwalks should be designed to structurally support 5 tons of capacity.
- Evaluation of boardwalk footings should include uplift as well as loading consideration for flood events.
- Consult a structural engineer for member sizing and post footing design. The foundation normally consists of marine-grade timber posts or auger piers (screw anchors). Screw anchors provide greater support and durability.
- Give careful consideration to minimize slippery decking surfaces following storm events. A topcoat of non-skid paint, sandy compounds, or a light asphalt overlay can be effective on timber decking. Concrete is the most reliable non-skid surface.
- Local, state and federal permits will be required where a boardwalk is located within wetlands. Any construction in wetlands is subject to regulations and should be avoided.



Bridges

Trail bridges are most often used to provide user access over natural features such as streams and rivers, where a culvert is not an option or the span length exceeds 20 feet. The type and size of bridges can vary widely depending on the trail and specific site requirements. Bridges often used for trails include suspension bridges and prefabricated clear span bridges. When determining a bridge design for trails, it is important to consider emergency and maintenance vehicle access.

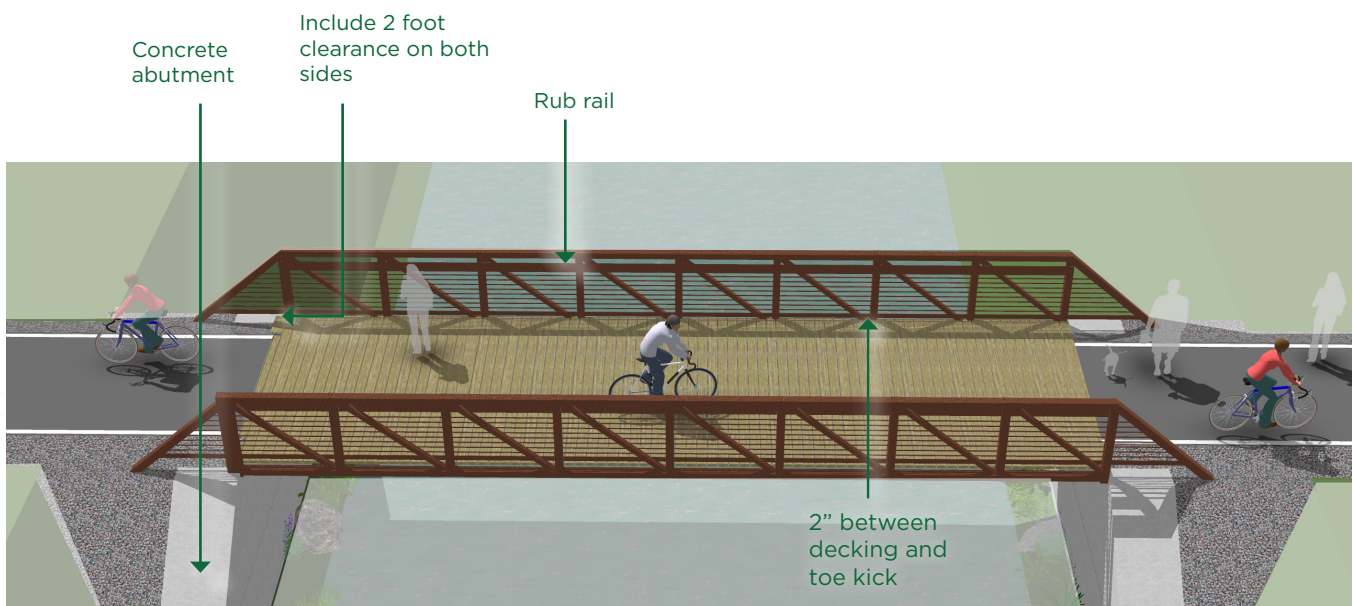
Trails that are poorly designed through water features can impact wetlands and streams, and become conduits for delivering sediments, nutrients, and pathogens to the watershed. Trails that cross streams can exhibit bank and streambed erosion if not properly constructed.

GUIDANCE

- The clear span width of the bridge should include 2 feet of clearance on both ends of the bridge approach for the shoulder.
- Bridge deck grade should be flush with adjacent trail tread elevation to provide a smooth transition. Any gap between bridge deck and trail tread should be covered with steel plate.
- Railing heights on bridges should include a 42 inch minimum guard rail, and 48 inches where hazardous conditions exist.
- A minimum overhead clearance of 10 feet is desirable for emergency vehicle access.

Maximum opening between railing posts is 4 inches.

- A trail bridge should support 10 tons for 10 foot wide trails, and 20 tons for wider than 10 feet for emergency vehicle access.
- Bridges along trails that allow equestrian use should be designed for mounted unit loadings.
- When crossing small headwater streams, align the crossing as far upstream as possible in the narrowest section of stream channel to minimize impact.
- Trail drainage features should be constructed to manage stormwater before the trail crosses the watercourse (see Drainage and Erosion guideline).
- All abutment and foundation design should be completed and sealed by a professional structural engineer licensed in the State of Georgia.
- All trail bridges will require local building permits, stormwater and land disturbance permits, floodplain development permits, and FEMA approval. Length and height of the bridge cords are governed by the width of the floodway and impacts to the base flood elevation of streams.

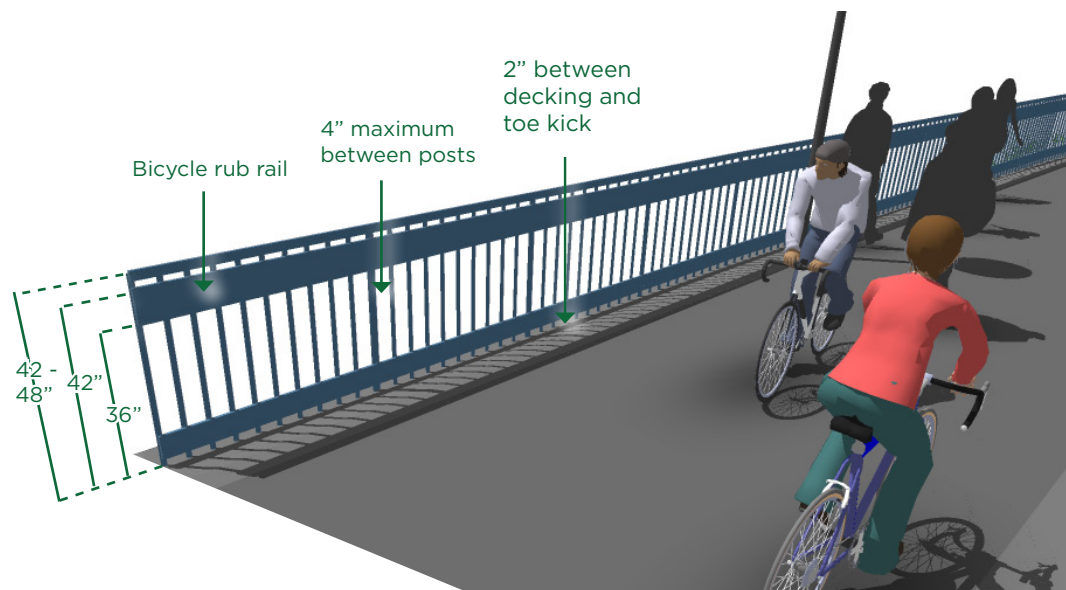


**Safety Management:
Fencing and Railings**

Railing and fences are important features on bridges, some boardwalks, or in areas where there may be a hazardous drop-off or incompatible adjacent land uses.

GUIDANCE

- At a minimum, railings and fences should consist of a vertical top, bottom, and middle rail. Picket style fencing should be avoided as it presents a safety hazard for bicyclists.
- Railings should be at least 42 inches above the finished grade, and up to 48 inches where more hazardous conditions exist, such as a bridge over a highway.
- Openings between horizontal or vertical members on railings should be small enough that a 6 inch sphere cannot pass through in the lower 27 inches. For the portion of railing higher than 27 inches, openings may be spaced such that an 8 inch sphere cannot pass through.
- Use durable fencing and railing materials, such as vinyl or recycled plastic, for reduced maintenance and sustainability.
- The middle railing functions as a 'rub rail' for bicyclists and should be located 33 to 36 inches above the finished grade.
- Local, state, and/or federal regulations and building codes should be consulted to determine when it is appropriate to install a railing and comply with current standards.



Intersections

Overview

At-grade roadway crossings can create potential conflicts between trail users and motorists, however, well-designed crossings can mitigate many operational issues and provide a higher degree of safety and comfort for users. In most cases, at-grade trail crossings can be properly designed to provide a reasonable degree of safety and can meet existing traffic and safety standards. Generally speaking, trail facilities for bicyclists require additional considerations due to the higher travel speed of bicyclists versus other trail users.

Special consideration must be given when delineating at-grade trail crossings. The sign types, pavement markings, and treatments will vary based on the roadway type the trail crosses. Proper signage and pavement markings alerting trail users of at-grade crossings must also be utilized. Care must be taken not to place too many signs at crossings lest they begin to lose their visual impact. The appropriate department within the respective northwest Georgia local government entity should be consulted prior to design and installation of roadway crossing treatments.



At-grade roadway intersection

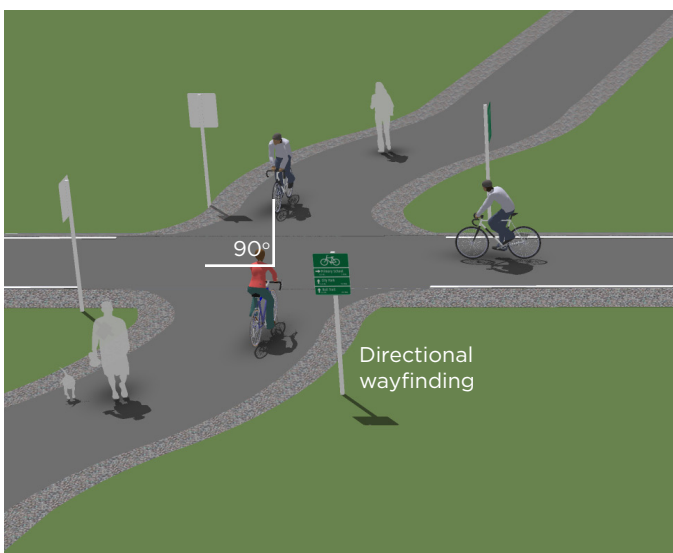
Intersections with Other Trails

At the intersection of two trails, users should be aware that they are approaching an intersection and of the potential for encountering different user types from a variety of directions. This can be achieved through a combination of regulatory and wayfinding signage and unobstructed sight lines.

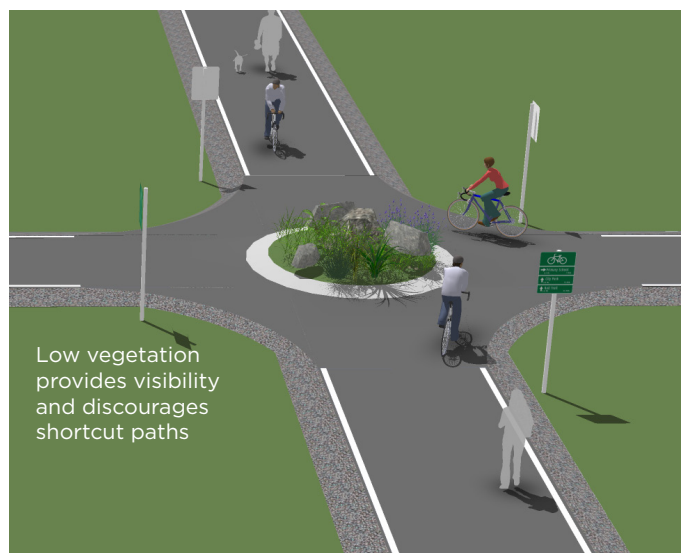
GUIDANCE

- Trails should be aligned to intersect at 90 degree angles when possible.
- Sight lines should be clear for all users, as determined by expected user speeds.
- Consider off-setting the trail intersection and creating two three-way intersections rather than one four-way intersection.
- A roundabout may be a viable design option to slow speeds and clarify expected operation.
- Include directional signage at intersections.
- If a roundabout design is used, consider the use of landscaping with low growing (no more than 24 inches high) and minimally spreading native shrubs and groundcover that require little maintenance and provide clear sight lines.
- Other material can be used within roundabouts such as boulders and public art to discourage shortcut paths through the central island as long as clear sight lines under 36 inches are maintained.

Reorient angled crossings to approach at 90 degrees



Trail roundabout



Marked/Unsignalized Crossings

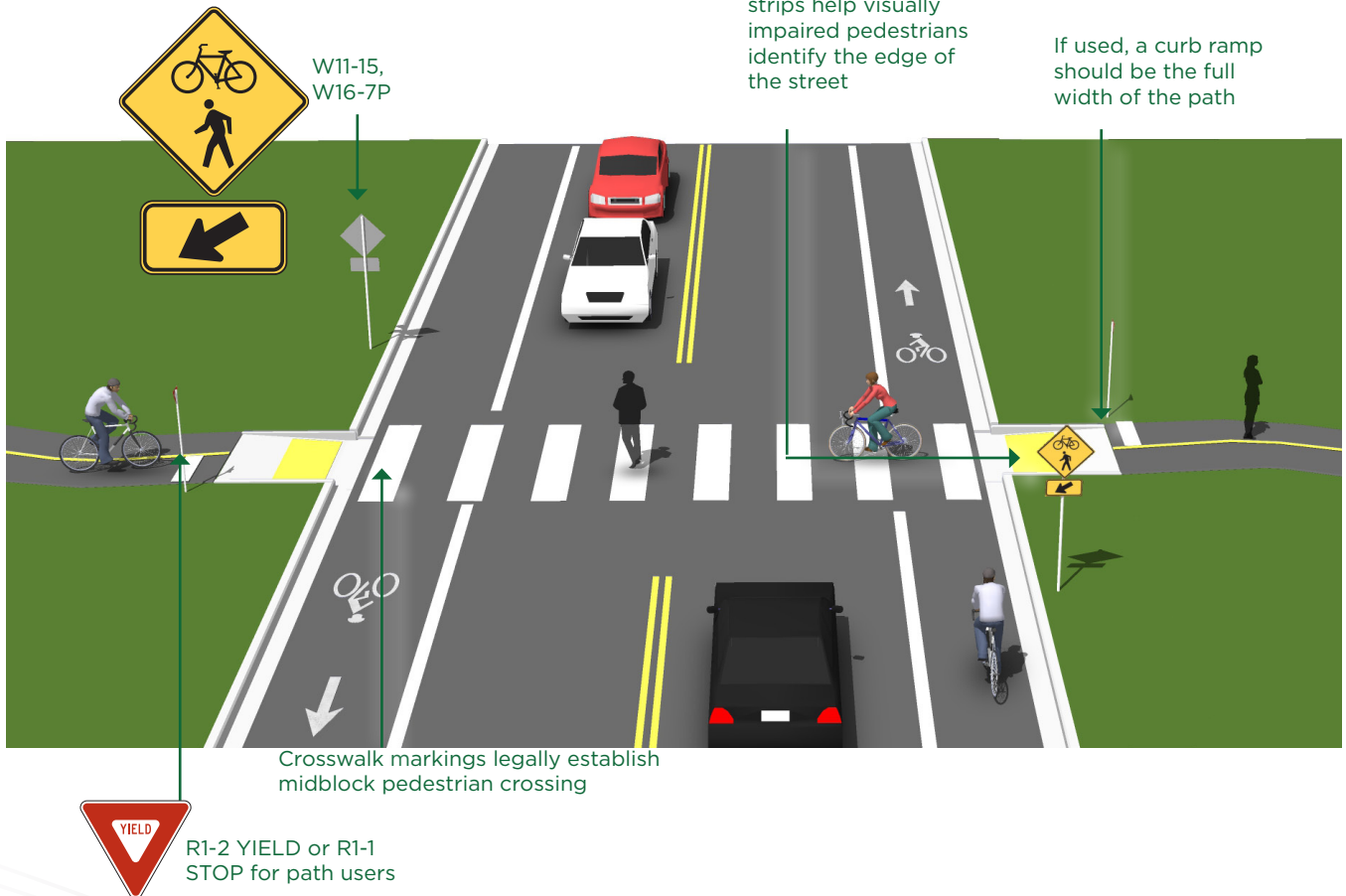
A marked/unsignalized crossing typically consists of a marked crossing area, with signage and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, trail traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.

When space is available, using a median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time. Locate markings out of wheel tread when possible to minimize wear and maintenance costs.

Curves in trails help slow users and make them aware of oncoming vehicles

Detectable warning strips help visually impaired pedestrians identify the edge of the street

If used, a curb ramp should be the full width of the path



Median Refuge Islands

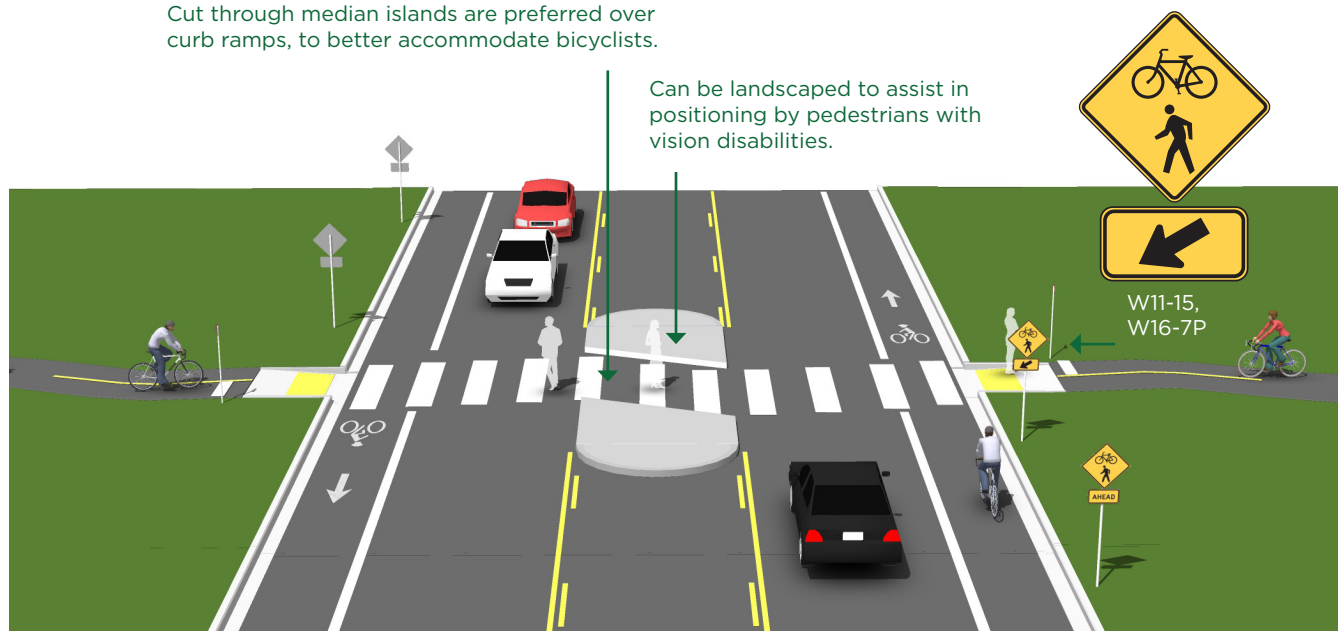
Median refuge islands are located at the midpoint of a marked crossing and help improve trail user safety by directing crossing in one direction of traffic at a time. Refuge islands minimize user exposure by shortening crossing distance and increasing the number of available gaps for crossing.

GUIDANCE

- Appropriate at signalized or unsignalized crosswalks.
- The refuge island must be accessible, preferably with an at-grade passage through the island rather than ramps and landings.
- If a refuge island is landscaped, the landscaping should not compromise the visibility of trail users crossing in the crosswalk. Consider the use of landscaping with low growing, minimally spreading native shrubs and ground cover that require little maintenance and are no higher than 18 inches.
- Refuge islands may collect road debris and may require somewhat frequent maintenance.
- The approach nose should be highly visible.

Cut through median islands are preferred over curb ramps, to better accommodate bicyclists.

Can be landscaped to assist in positioning by pedestrians with vision disabilities.

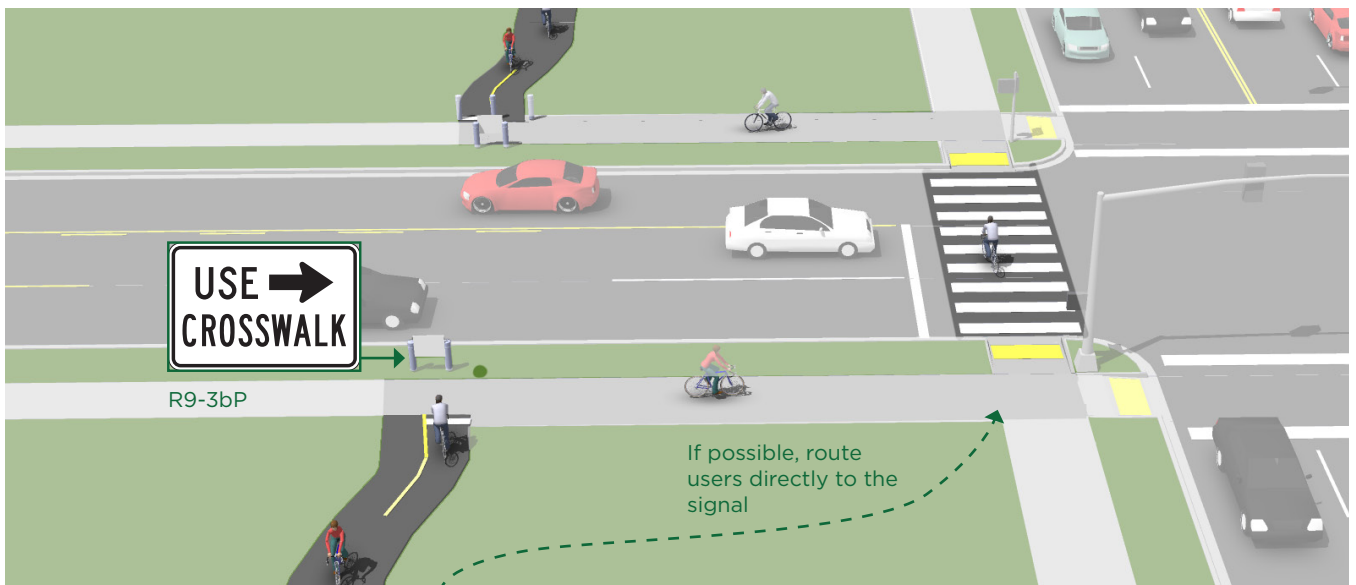


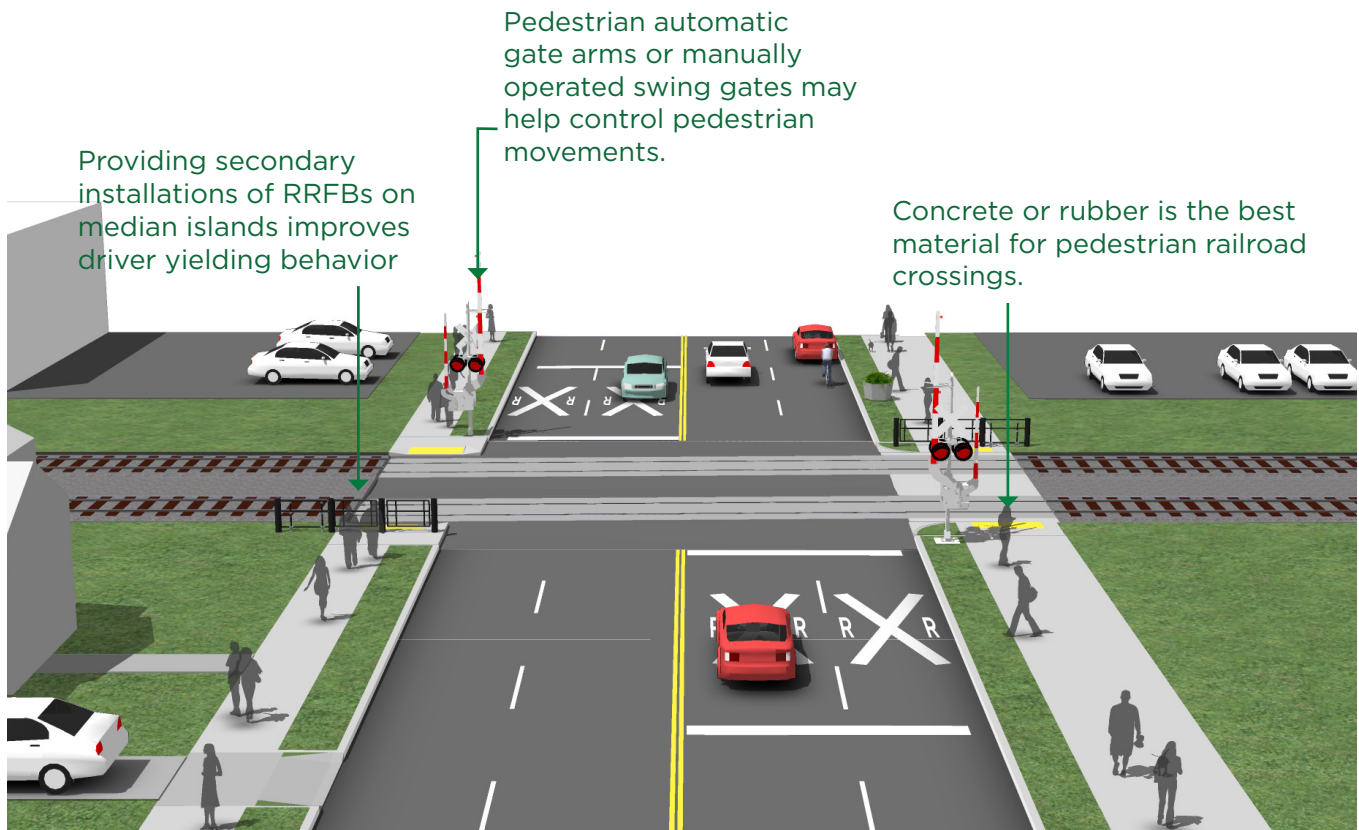
Signalized Crossings

Signalized crossings provide the most protection for users through the use of a red-signal indication to stop conflicting motor vehicle traffic.

Trail crossings within approximately 400 feet of an existing signalized intersection with crosswalks are typically diverted to the signalized intersection to avoid traffic operation problems when located so close to an existing signal.

If possible, route users to signalized crossing. If no crossings are in vicinity, use appropriate crossing treatment. Any signal or “hawk” specific to crossings has to be evaluated to have met FHWA warrants for the appropriate control device.





Pedestrian At-grade Railroad Crossings

Locations where sidewalks must cross railroad tracks are problematic for pedestrians, particularly for those with mobility or vision impairments. Wheelchair and scooter casters can easily get caught in the flangeway gap, and slippery surfaces, degraded rough materials, or elevated track height can cause tripping hazards for all pedestrians. Angled track crossings also limit sight triangles, impacting the ability to see oncoming trains.

GUIDANCE

- Bells or other audible warning devices may be included in the flashing-light signal assembly to provide additional warning for pedestrians and bicyclists.
- Pedestrians need clear communication and warning to know that they may encounter a train and when a train is coming. Provide clear definition of where the safest place to cross is.
- The crossing should be as close as practical to perpendicular with tracks. Ensure clear lines of sign and good visibility so that pedestrians can see

approaching trains

- The crossing must be level and flush with the top of the rail at the outer edge and between the rails.
- Flangeway gaps should not exceed 2.5 in (3.0 in for tracks that carry freight.)

Crossing design and implementation is a collaboration between the railroad company and highway agency. The railroad company is responsible for the crossbucks, flashing lights and gate mechanisms, and the highway agency is responsible for advance warning markings and signs. Warning devices should be recommended for each specific situation by a qualified engineer based on various factors including train frequency and speed, path and trail usage and sight distances.

Amenities

Overview

When designing functional, attractive, and inviting trails, the small details matter. Elements such as a lighting fixtures, public art, benches, and other amenities help create a unique identity for a trail. It is important that these details work together to create a complete experience for all users.



Amenity area along the Silver Comet Trail

Trash and Recycling Receptacles

Trash and recycle receptacles provide for proper maintenance and appearance of trails. For recycling receptacles, signage should be provided indicating what recyclables are accepted. Consider including educational signage about the importance of recycling and the environmental benefits. Trash and recycling receptacles should be prioritized along more heavily used sections.

GUIDANCE

- Locate receptacles at each trailhead and each seating area (one per every one picnic table, one per every two benches).
- In areas with adequate sunlight, consider compacting receptacles for trash and recyclables that use smart technology (such as Big Belly®).
- Placement of other receptacles will depend upon the location of concessions, facilities and areas of group activities.
- Receptacles need to be accessible to maintenance personnel and trail users.
- Receptacles should be selected using the following criteria:
 - Expected trash/recycling amount
 - Maintenance and collection program requirements
 - Durability
 - Animal proof
- Receptacles should be set back a minimum of 3 feet from the edge of the trail.



Comfort Stations

Comfort stations are one of the most critical building amenities because they need to be responsive to a wide range of human needs and abilities. Careful consideration should be given to a number of factors before locating comfort stations, including available land, size of trailhead, existing comfort station facilities, utility availability, and user need.

Prior to undertaking any comfort station building design, consultation with a structural and civil engineer, state building codes, health and safety codes, ADAAG and Public Rights-of-Way Accessibility Guidelines (PROWAG) standards, and local development codes is required. The space required for each comfort station building depends on the number of toilets to be provided.

Comfort stations require considerable maintenance and service. Access to these resources should be a strong consideration when planning for comfort station buildings.

GUIDANCE

- Local, state, and federal codes take precedence for all comfort station facilities.
- Prioritize location of comfort stations at trailheads within existing parks and review gaps for placement at other trailheads or locations within the system.
- Comfort station structures should be located adjacent to vehicular access points for security, maintenance, and access to water and sewer (unless they are self-composting).
- Comfort stations should also make use of natural light and ventilation to the extent possible.
- Place bicycle parking close to comfort station structures so that bicyclists do not impede trail access. Inadequate bicycle parking encourages informal propping of bicycles at or against comfort station buildings.
- Provide comfort station facilities that are durable and resistant to vandalism.
- Always provide comfort station facilities outside of floodprone areas.
- Where other comfort station facilities are available within the park and trail system, use wayfinding signage along trails to direct users appropriately.
- Composting toilets should be considered in remote areas or where utility connections are unavailable.



Comfort Station

Drinking Fountains

Drinking fountains provide opportunities for users to replenish fluids and potentially extend their trip. Access to City water service must be available. Review Regulatory Flood Protection Elevation prior to locating.

GUIDANCE

- Locate drinking fountains at least 5 feet from trail edge.
- Locate drinking fountains near comfort stations, at trailheads, parks and other public gathering places along the trail.
- Standard and accessible fountains should be installed to accommodate all trail users.
- Consider grouping amenities together (seating, bicycle parking, drinking fountains, and bicycle repair stations) at a rest stop or comfort station.
- Drinking fountains should be placed on a well-drained surface (2 percent sloped concrete slab).
- Consider the use of durable and vandalism-resistant materials such as steel, or stone.
- Drinking fountains must be ADAAG compliant; see Accessible Trail Design guideline for more information.

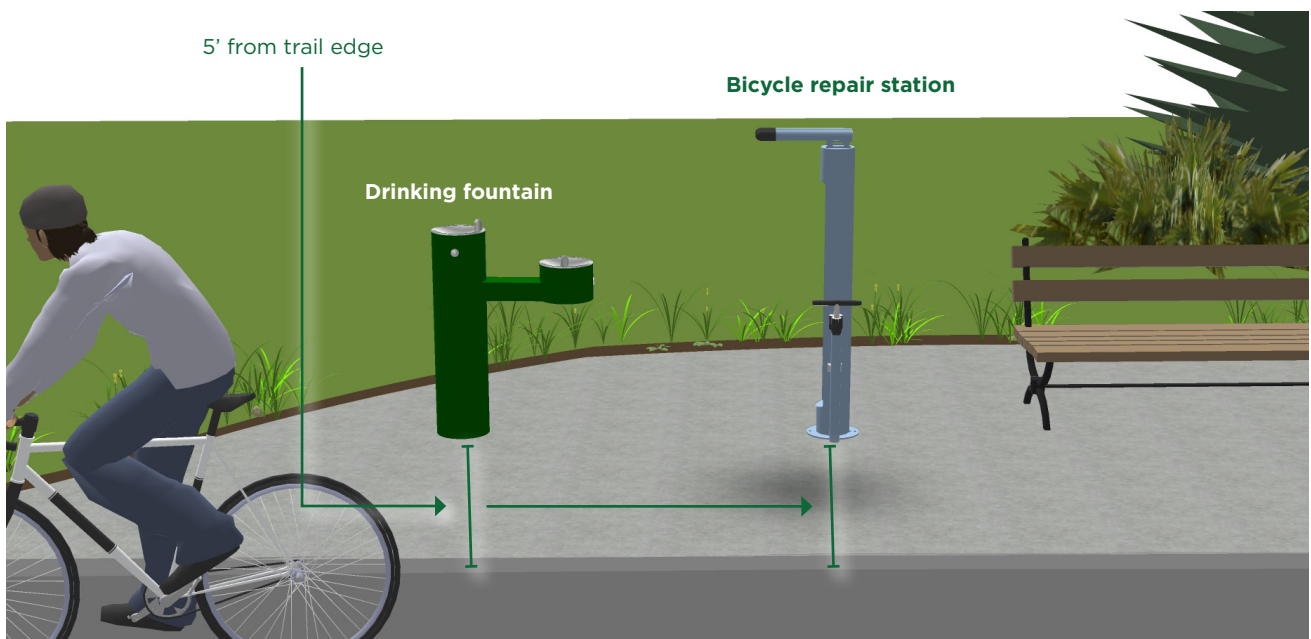
Bicycle Repair Stations

Bicycle repair stations are small kiosks designed to offer a complete set of tools necessary for routine bicycle maintenance.

Popular locations for placement include major or minor trailheads and rest stops trails.

GUIDANCE

- Bicycle repair station tools are secured by high security cables, but will still be an attractive target for theft. Proper placement of kiosks in areas of high activity is one key strategy to reduce potential vandalism.
- Consider grouping repair stations together with other amenities (seating, bicycle parking, and drinking fountains) at a rest stop.



Bicycle Parking

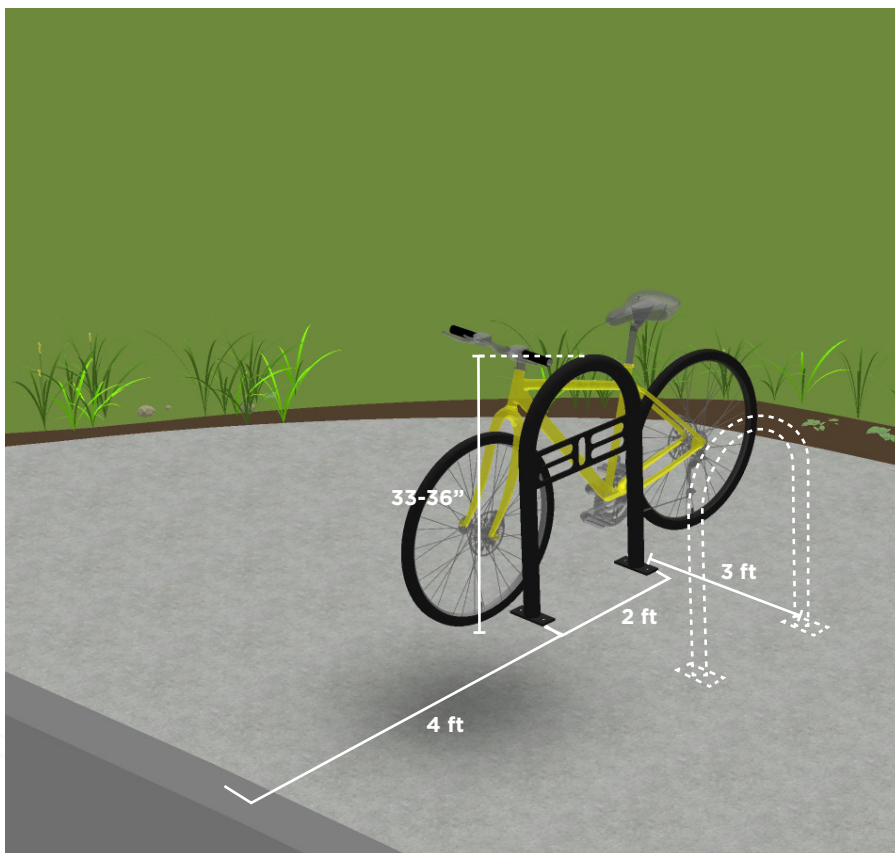
Bicycle parking should be as convenient as the majority of automobile parking and should be easily accessible from the associated trail. Entrances and exits should be designed to minimize conflict with trail user traffic patterns.

Bicycle parking should be located on a hardscape surface and not be located directly in front of other trail amenities. Ideal rack location should be parallel along the trail approach. Parking should be located no more than 25 feet from ingress/egress and at least 5 feet from the edge of trail to avoid traffic conflict. Location should be highly visible.

Consideration should be given to avoid emergency ingress/egress, service access, and vehicular conflict areas.

GUIDANCE

- Locate bicycle racks at comfort stations, select trailheads, points of interest, and rest stops.
- The bicycle rack should support the bicycle in at least two places, preventing it from falling over.
- The bicycle rack should allow locking of the frame and one or both wheels with a U-lock.
- When installing racks on concrete surfaces, use 3/8 inch anchors to plate mount. Shim as necessary to ensure vertical placement.
- When installing racks on pavers or other non-stable surfaces, embed into base. Core holes no less than 3 inches in diameter and 10 inches deep.
- Ensure the rack is securely anchored to ground.
- Consider bicycle racks that resist cutting, rusting, and bending or deformation.



MUTCD D4-3

Signage may be desired to direct users to bicycle parking areas

Seating

Seating along trails provides a place for users to rest, congregate, contemplate, or enjoy art, nature, and interpretive elements throughout a trail. Benches can be designed to create identity along the trail or be strictly utilitarian. Picnic tables provide places for trail users to congregate for meals or to relax.

GUIDANCE

- Locate benches and other site furniture a minimum of 3 feet from the edge of the trail.
- Locate benches along the trail where appropriate, or where there is a demand by users. Providing seating at one mile gaps is the goal. Seating within 1/2 mile of trailheads is recommended.
- Provide benches and picnic tables in areas that provide interesting views, are close to an interpretive element, and offer shade or shelter from seasonal winds.
- Drainage should slope away from the bench and the trail.
- Locate benches a minimum of 4 feet from comfort stations and drinking fountains and a minimum of 2 feet from trash and recycling receptacles, lighting poles, and sign posts.
- Wheelchair access should be possible at some picnic tables and alongside benches. Provide access with a hardened surface such as concrete or asphalt.
- Seating should be securely anchored to the ground. Consider durable materials or native materials such as boulders that are vandalism-resistant.



Public Art and Sculpture

Public art engages the community through artists' work and creates a memorable experience for trail users. Art and sculpture can create an identity for the trail and strengthen the emotional connection between northwest Georgia trails and its users. Depending on the scale and form, it can become an "event" in itself and serve as a public attraction.

Public art can be aesthetic and/or functional, and double as sitting or congregational areas. Memorable installations can act as landmarks and serve as valuable wayfinding tools. Public art can be a device for telling a compelling and memorable story about the trail and area history.

GUIDANCE

- Artists can be commissioned to provide art at one or multiple locations along trails.
- When appropriate, artists could be engaged as part of the corridor planning and development process.
- Artists should be encouraged to produce artwork in a variety of materials for sites along the corridor.
- When appropriate, consider developing furnishings and amenities with artistic intent. Key locations such as turns or landscape changes could be areas to highlight through the inclusion of public art. Consider how to provide continuity between elements while maintaining the unique styles of multiple artists.
- Provide art displays on trails with anticipated high use and user exposure.
- Consider community based art and temporary installations.



North Carolina Art Museum Park



Temporary organic art sculpture

Lighting

Lighting for trails should be analyzed on a case-by-case basis with full consideration of the maintenance commitment lighting requires. In general, lighting is not appropriate for trails in remote areas, trails with low use, or where there is little to no development.

Lighting can improve visibility along the trail and intersection crossings at night for commuters. If a trail is determined to be unlit and closes at sun down, extended hours for commuters should be considered, particularly during winter months when trips to and from work are often made before sunrise and after sunset. Lighting may also be necessary for day-time use in tunnels and underpasses.

GUIDANCE

- Recommended locations for lighting include the following:
 - Trailheads and parking areas
 - Comfort stations
 - Major trailhead intersections to use as a navigation aid
 - Entrances and exits of bridges and underpasses and in tunnels, see pg 80
 - Street crossings

- Low-cost light emitting diodes (LED) offer a wide range of light levels and can reduce long term utility costs.
- Design lighting levels appropriate to each situation.
- Trail lighting should be at pedestrian scale.
- Solar powered lighting is available where utility collection is difficult or when alternative energy sources are desired.
- Avoid light fixtures at eye level that could impair visibility.
- Limit direct glare or excessive illumination on to adjacent properties, streets, or sidewalks.
- Dependent upon trail hours, consider uses in urban and/or commercial land use areas.



Solar Power with LED



Signage and User Regulation

Signage Overview

The goal of a signage program is to provide a sense of identity and utility for the existing trail network. Signage types include informational, directional, regulatory, confidence markers, access identification, and interpretive panels. The program adheres to a consistent, selective, and strategic manner so as not to clutter or dominate the visual character of the trails.



Signage along the Silver Comet Trail

Destination/Directional Signs

The ability to navigate through a city is informed by landmarks, natural features, and other visual cues.

Wayfinding signs indicate:

- Direction of travel
- Location of destinations
- Location of access points

These signs increase users' comfort and accessibility to the trail network. Wayfinding signage can serve many purposes including:

- Helping to familiarize users with the trail system.
- Helping users and emergency responders identify locations, in case of emergency on the trails.
- Helping users identify the best routes to destinations.

- Helping overcome a “barrier to entry” for people who do not use the trail system.
- Helps users find access points to the trail system.

Wayfinding signs also visually cue motorists that they are driving near a trail corridor and should use caution. Signs are typically placed at key locations leading to and along routes, including the intersection of multiple routes.



Regulatory Signs

Regulatory signs give a direction that must be obeyed, and apply to intersection control, speed, vehicle movement and parking. The examples below are types of regulatory signs that could be integrated into a signage program.

GUIDANCE

- Smaller scale signs or plaques may be used for trail applications.
- See the MUTCD 9B for a detailed list of regulatory sign application and guidance.



R1-1



R1-2



R5-3



R9-7



R15-8

Etiquette Signage

Informing trail users of acceptable etiquette is a common issue when multiple user types are anticipated. Yielding the right-of-way is a courtesy and yet a necessary part of a safe trail experience. The message must be clear and easy to understand. The most common trail etiquette systems involve yielding of bicyclists to pedestrians.

GUIDANCE

- Trail etiquette information should be posted at access points and periodically along the trail.

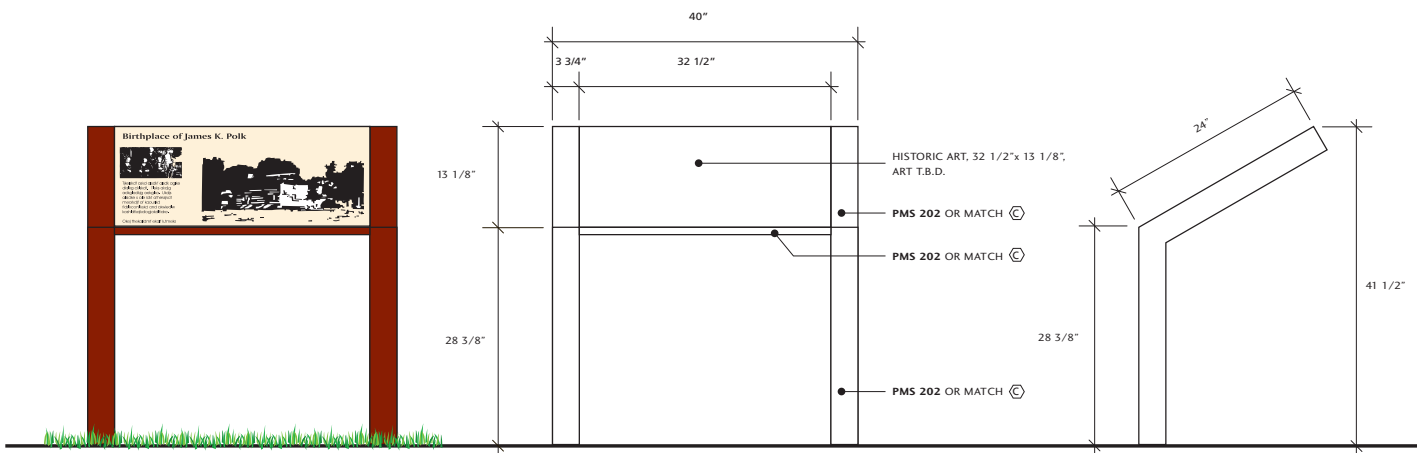


Interpretive Signage

Interpretive displays provide trail users with information about the surrounding environment or site, wildlife, vegetation, history and the significance of cultural elements. Interpretive displays may also be combined with public art and sculpture opportunities along the trail.

GUIDANCE

- Consider the character of the trail and surrounding elements when designing these signs.
- Work with experts specific to the information you are conveying on the signs such as historians, ecologists, or artists.
- Separate interpretive signage panels from the main trail circulation so that users can stop and not impede traffic.
- Consider including interpretive signage at rest stops or areas of congregation.
- Panels must be ADA accessible.
- Consider use of technology for interpretation.



H INTERPRETIVE

SIDE ELEVATION

Informational Kiosks and Message Centers

Kiosks and message centers provide trails users with information to orient themselves, learn of areas of interest, read the rules and regulations of the trail system, and find the hours of operation.

GUIDANCE

- Install kiosks at each major and minor trail-head.
- Rules and regulations, and ADAAG accessibility advisories should be included on each kiosk.
- When locating kiosks next to parking facilities, set the units back far enough from traffic and protect the support posts or structure with appropriately sized barriers.
- Provide ADA access using established guidelines for visual height, clearance, and surface type where kiosks are located.
- Evaluate the use of emerging technology options for implementation of information and messages as part of the signage program.



Signage along the Silver Comet Trail

Pavement Markings

Pavement markings are commonly used to reinforce signs along a trail, but they should not be used to replace signs altogether. Center line striping is the most common form of pavement marking, but warning, regulatory, and directional messages can be used. Use pavement markings sparingly and only where necessary to attract additional attention to a possible problem area.

GUIDANCE

- Do not use pavement markings at critical stopping or turning points.
- High visibility thermoplastic material is the most durable and visible. Use white or yellow.
- Pavement markings to consider include “Stop,” “Yield,” and “Slow.”
- Place messages at trail access points, prior to roadway intersections or bridges, or near intersections with converging trails.
- When striping is required, use a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.
- Non-slip or non skid pavement marking or striping materials should be used in all cases when trails are wet.
- Consider using at road intersections for road name identification.



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It is important to pursue support from a variety of public and private sources at the local, regional, and national levels. Supporting organizations can also include a mosaic of partnerships between public and non-profit agencies. By diversifying the support base, a community can ensure the longevity and reliability of a trail system.

Document Appendix

Opinion of Probable Costs

Tables on the following pages indicate development costs by phase. All cost estimates should be considered with the following notes and limitations in mind:

- This “Opinion of Probable Cost” (OPC) should not be considered a guaranteed maximum cost, but instead is a professional opinion of probable construction costs at the time of this study. Costs should be revisited every two years and updated accordingly. It should be anticipated that bids and actual costs will vary from this OPC.
- The “Cost Factor”, as utilized, is a percentage of calculated costs, which is added to the subtotal. The Cost Factor helps compensate for unknown elements or conditions, variations in quantities used, and other unforeseen circumstances.

A separate “Contingency Fund” should be developed above and beyond the total figure in the OPC. This fund will provide for modifications to the design, higher than anticipated costs, and other program alterations after construction initiation.

Cave Spring to Cedartown Trail: Phase 1

Cost Estimate Evaluation

May 2015

Trail Corridor Preparation	Quantity	Cost	Unit	Amount
Clearing, grubbing, and demolition	11.00	\$11,072.50	AC	\$121,797.50
Trail Centerline Staking	15,312	\$1.03	LF	\$15,771.36
Dumping Fees @ 6%			6%	\$7,307.85
Subtotal				\$144,876.71

Asphalt Trail	Quantity	Cost	Unit	Amount
Grading	4,000	\$21.00	CY	\$84,000.00
Bank Stabilization	0	\$4.28	LF	\$0.00
Hydroseeding	10,500	\$1.00	LF	\$10,500.00
Aggregate Base Course	1,914	\$40.00	TN	\$76,560
SF9.5A Asphalt	638	\$100.00	TN	\$63,800
Geotextile Fabric	17,013	\$2.00	SY	\$34,026.00
Subtotal				\$268,886.00

On-Street Bicycle and Pedestrian Facilities	Quantity	Cost	Unit	Subtotal
None	0	\$350.00	EA	\$0.00
	0		LF	\$0.00
Subtotal				\$0.00

Ancillary Improvements/Trailheads	Quantity	Cost	Unit	Subtotal
Streetscape Improvements: Downtown Cave Spring	1	\$425,000.00	LS	\$425,000.00
Pinhoti Trailhead Expansion	1	\$195,165.00	LS	\$195,165.00
Subtotal				\$620,165.00

Drainage Structures	Quantity	Cost	Unit	Amount
15" Reinforced Concrete Pipe	250	\$50.00	LF	\$12,500.00
Culvert Extension on Cave Spring Rd.	1	\$137,000.00	LS	\$137,000.00
Class A Rip-Rap Protection	183	\$50.00	TN	\$9,150.00
Subtotal				\$158,650.00

Erosion Control	Quantity	Cost	Unit	Subtotal
Silt Fence	13,876	\$4.00	LF	\$55,504.00
Stone Outlets	93	\$257.50	EA	\$23,947.50
Construction Staging Area	1	\$3,000.00	EA	\$3,000.00
Temporary Seeding	5	\$2,781.00	AC	\$13,905.00
Subtotal				\$96,356.50

Miscellaneous Items	Quantity	Cost	Unit	Subtotal
Crossing "A" improvements	1	\$24,000.00	LS	\$24,000.00
Crossing "B" improvements	1	\$6,900.00	LS	\$6,900.00
Gateway monument	1	\$15,000.00	LS	\$15,000.00
Wayfinding Signage	8	\$500.00	EA	\$4,000.00
Relocate Agricultural Fencing (Cave Spring Rd.)	8,376	\$20.00	LF	\$167,520.00
Kiosk at Pinhoti Trailhead	1	\$2,500.00	EA	\$2,500.00
Subtotal				\$219,920.00

Improvements Subtotal	\$1,508,854.21
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Mobilization Fee (10% of total)			7%	\$150,885.42
Contingency (20% of total)			20%	\$301,770.84
Traffic Control (4%)			4%	\$60,354.17
Acquisition	12,528	\$1.73	LF	\$21,673.44
Design and Engineering Fees			15%	\$226,328.13
SUBTOTAL				\$761,012.00

GRAND TOTAL	\$2,269,866.21
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Note: Total does not include surveying, geotechnical studies, utility stubs, structural design, potential rock excavation, permitting fees, taxes, or any other item not listed above. This cost estimate is for budgetary purposes only and should be revisited prior to design and implementation. Construction costs are extremely variable and effected by a number of market factors.

Cave Spring to Cedartown Trail: Phase 2

Cost Estimate Evaluation

May 2015

Trail Corridor Preparation	Quantity	Cost	Unit	Amount
Clearing and grubbing	5,20	\$11,072.50	AC	\$57,577.00
Trail Centerline Staking	11,352	\$1.03	LF	\$11,692.56
Dumping Fees @ 6%			6%	\$3,454.62
Subtotal				\$72,724.18

Asphalt Trail	Quantity	Cost	Unit	Amount
Grading	4,204	\$21.00	CY	\$88,284.00
Bank Stabilization	0	\$4.28	LF	\$0.00
Hydroseeding	9,850	\$1.00	LF	\$9,850.00
Aggregate Base Course	1,419	\$40.00	TN	\$56,760
SF9.5A Asphalt	473	\$100.00	TN	\$47,300
Geotextile Fabric	12,613	\$1.55	SY	\$19,550.15
Subtotal				\$221,744.15

Concrete Trail in Floodplain	Quantity	Cost	Unit	Amount
10-foot-wide Concrete Trail (includes #3 rebar reinforcement; installed 6" thick)	6,306	\$70.00	SY	\$441,420.00
Subtotal				\$441,420.00

Structures	Quantity	Cost	Unit	Amount
Trail Underpass	1	\$129,800.00	LS	\$129,800.00
Subtotal				\$129,800.00

Erosion Control	Quantity	Cost	Unit	Amount
Silt Fence	8,320	\$4.00	LF	\$33,280.00
Stone Outlets	55	\$257.50	EA	\$14,162.50
Construction Staging Area	2	\$3,000.00	EA	\$6,000.00
Temporary Seeding	4	\$2,781.00	AC	\$11,680.20
Subtotal				\$65,122.70

Drainage Structures	Quantity	Cost	Unit	Amount
15" Reinforced Concrete Pipe	150	\$40.00	LF	\$6,000.00
Class A Rip-Rap Protection	210	\$50.00	TN	\$10,500.00
Subtotal				\$16,500.00

Miscellaneous Items	Quantity	Cost	Unit	Amount
Crossing "C" improvements	1	\$6,900.00	LS	\$6,900.00
Crossing "D" improvements	1	\$6,900.00	LS	\$6,900.00
Crossing "E" improvements	1	\$24,000.00	LS	\$24,000.00
Crossing "F" improvements	1	\$30,000.00	LS	\$30,000.00
Fencing Allowance at GeoSpecialty Chemicals	600	\$20.00	LF	\$12,000.00
Wayfinding Signage	8	\$500.00	EA	\$4,000.00
Kiosk at Silver Comet Trail Junction	1	\$2,500.00	EA	\$2,500.00
Sharrow Markings on Main St.	17	\$350.00	EA	\$5,950.00
Subtotal				\$92,250.00

Improvements Subtotal	\$1,039,561.03
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Mobilization Fee (10% of total)			7%	\$103,956.10
Contingency (20% of total)			20%	\$207,912.21
Traffic Control (4%)			4%	\$41,582.44
Acquisition	5,224	\$1.73	LF	\$9,037.52
Design and Engineering Fees			15%	\$155,934.15
SUBTOTAL				\$518,422.42

GRAND TOTAL	\$1,557,983.45
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Note: Total does not include surveying, geotechnical studies, utility stubs, structural design, potential rock excavation, permitting fees, taxes, or any other item not listed above. This cost estimate is for budgetary purposes only and should be revisited prior to design and implementation. Construction costs are extremely variable and effected by a number of market factors.

Cave Spring to Cedartown Trail: Phase 3

Cost Estimate Evaluation

May 2015

Trail Corridor Preparation	Quantity	Cost	Unit	Amount
Clearing and grubbing	5.30	\$11,072.50	AC	\$58,684.25
Trail Centerline Staking	11,616	\$1.03	LF	\$11,964.48
Dumping Fees @ 6%			6%	\$3,521.06
Subtotal				\$74,169.79

Asphalt Trail	Quantity	Cost	Unit	Amount
Grading	4,306	\$21.00	CY	\$90,426.00
Bank Stabilization along Cave Spring Rd. near creek	340	\$75.00	LF	\$25,500.00
Hydroseeding	9,850	\$1.00	LF	\$9,850.00
Aggregate Base Course	0	\$40.00	TN	\$0
SF9.5A Asphalt	0	\$100.00	TN	\$0
Geotextile Fabric	0	\$1.55	SY	\$0.00
Subtotal				\$125,776.00

Concrete Trail in Floodplain	Quantity	Cost	Unit	Amount
10-foot-wide Concrete Trail (includes #3 rebar reinforcement; installed 6" thick)	12,906	\$70.00	SY	\$903,420.00
Subtotal				\$903,420.00

Structures	Quantity	Cost	Unit	Amount
Alternate Route Structures not included	0		LS	\$0.00
Subtotal				\$0.00

Erosion Control	Quantity	Cost	Unit	Amount
Silt Fence	11,000	\$3.00	LF	\$33,000.00
Stone Outlets	73	\$257.50	EA	\$18,797.50
Construction Staging Area	1	\$3,000.00	EA	\$3,000.00
Temporary Seeding	5	\$2,781.00	AC	\$13,905.00
Subtotal				\$68,702.50

Drainage Structures	Quantity	Cost	Unit	Amount
15" Reinforced Concrete Pipe	150	\$40.00	LF	\$6,000.00
Class A Rip-Rap Protection	187	\$50.00	TN	\$9,350.00
Subtotal				\$15,350.00

Miscellaneous Items	Quantity	Cost	Unit	Amount
Crossing "G" improvements	1	\$6,900.00	LS	\$6,900.00
Fencing/Privacy Allowance at Private Properties on Cave Spring Rd.	1,200	\$20.00	LF	\$24,000.00
Wayfinding Signage	8	\$500.00	EA	\$4,000.00
Kiosk at Northwest Park	1	\$2,500.00	EA	\$2,500.00
Bicycle Parking in Northwest Park	2	\$1,200.00	EA	\$2,400.00
Subtotal				\$39,800.00

Improvements Subtotal				\$1,227,218.29
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Mobilization Fee (10% of total)			7%	\$122,721.83
Contingency (20% of total)			20%	\$245,443.66
Traffic Control (4%)			4%	\$49,088.73
Acquisition	11,602	\$1.73	LF	\$20,071.46
Design and Engineering Fees			15%	\$184,082.74
SUBTOTAL				\$621,408.42

GRAND TOTAL				\$1,848,626.70
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Note: Total does not include surveying, geotechnical studies, utility stubs, structural design, potential rock excavation, permitting fees, taxes, or any other item not listed above. This cost estimate is for budgetary purposes only and should be revisited prior to design and implementation. Construction costs are extremely variable and effected by a number of market factors.

Cave Spring to Cedartown Trail: Phase 4

Cost Estimate Evaluation

May 2015

Trail Corridor Preparation	Quantity	Cost	Unit	Amount
Clearing and grubbing	9.20	\$11,072.50	AC	\$101,867.00
Trail Centerline Staking	20,011	\$1.03	LF	\$20,611.33
Dumping Fees @ 6%			6%	\$6,112.02
Subtotal				\$128,590.35

Asphalt Trail	Quantity	Cost	Unit	Amount
Grading	6,800	\$21.00	CY	\$142,800.00
Hydroseeding	18,000	\$1.00	LF	\$18,000.00
Aggregate Base Course	1,364	\$40.00	TN	\$54,560
SF9.5A Asphalt	455	\$100.00	TN	\$45,500
Geotextile Fabric	12,123	\$1.55	SY	\$18,790.65
Subtotal				\$279,650.65

Concrete Trail in Floodplain	Quantity	Cost	Unit	Amount
10-foot-wide Concrete Trail (includes #3 rebar reinforcement; installed 6" thick)	10,111	\$70.00	SY	\$707,770.00
Subtotal				\$707,770.00

Structures	Quantity	Cost	Unit	Amount
Bicycle and Pedestrian Bridge	2	\$225,000.00	LS	\$450,000.00
Bicycle and Pedestrian Bridge Roadway Retrofit	1	\$225,000.00	LS	\$225,000.00
Recessed Trail Structure w/ Stabilization	2,400	\$85.00	LF	\$204,000.00
Subtotal				\$879,000.00

Erosion Control	Quantity	Cost	Unit	Amount
Silt Fence	21,000	\$3.00	LF	\$63,000.00
Stone Outlets	140	\$257.50	EA	\$36,050.00
Construction Staging Area	1	\$3,000.00	EA	\$3,000.00
Temporary Seeding	8	\$2,781.00	AC	\$22,248.00
Subtotal				\$124,298.00

Drainage Structures	Quantity	Cost	Unit	Amount
15" Reinforced Concrete Pipe	360	\$40.00	LF	\$14,400.00
Class A Rip-Rap Protection	250	\$50.00	TN	\$12,500.00
Subtotal				\$26,900.00

Miscellaneous Items	Quantity	Cost	Unit	Amount
Crossing "H" improvements	4	\$6,900.00	LS	\$27,600.00
Crossing "I" improvements	0	\$24,000.00	LS	\$0.00
Improvements Allowance for Adjacent Property Owners	1	\$150,000.00	LS	\$150,000.00
Wayfinding Signage	4	\$180.25	EA	\$721.00
Interpretive Panel	1	\$1,800.00	EA	\$1,800.00
Subtotal				\$180,121.00

Subtotal				\$2,326,330.00
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Mobilization Fee (10% of total)			7%	\$232,633.00
Contingency (20% of total)			20%	\$465,266.00
Traffic Control (4%)			4%	\$93,053.20
Acquisition	19,856	\$1.73	LF	\$34,350.88
Design and Engineering Fees			15%	\$348,949.50
SUBTOTAL				\$1,174,252.58

GRAND TOTAL				\$3,500,582.58
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Note: Total does not include surveying, geotechnical studies, utility stubs, structural design, potential rock excavation, permitting fees, taxes, or any other item not listed above. This cost estimate is for budgetary purposes only and should be revisited prior to design and implementation. Construction

Acquisition Overview

There are many different ways to secure trail right-of-way for greenway systems. The proposed CSC Trail alignment will utilize existing public lands including GDOT right-of-way (ROW) and other public lands. It will be necessary to work with some landowners to secure trail easements where it does not exist. Easements along existing sewer and power lines can also be helpful along those sections of trail that overlap utilities on private property.

The following sections detail a list of specific strategies including the formation of partnerships and a toolbox of acquisition options during implementation for the managing jurisdictions of northwest Georgia. Funding sources for acquiring right-of-way and trail development are described in the next section of this Appendix.

Partnerships

The managing agency should pursue partnerships with land trusts and land managers to make more effective use of their land acquisition funds and strategies. The following offers recommendations on how these partnerships could be strengthened

Land Trusts

Land trust organizations are valuable partners when it comes to acquiring land and rights-of-way for greenways. These groups can work directly with landowners and conduct their business in private so that sensitive land transactions are handled in an appropriate manner. Once the transaction has occurred, the land trust will usually convey the acquired land or easement to a public agency, such as a town or county for permanent stewardship and ownership.

Private Land Managers

Another possible partnership that could be strengthened would be with the utility companies that manage corridors throughout Northwest Georgia. Trails and greenways can be built on rights-of-way that are either owned or leased by electric and natural gas companies. Electric utility companies have long recognized the value of partnering with local communities, non-profit trail organizations, and private land owners to permit their rights-of-ways to be used for trail development. This has occurred all over the United States and in Georgia.

The managing agency should actively update and maintain relationships with private utility and land managers to ensure that a community wide greenway system can be accommodated within these rights-of-way. The managing agency will need to demonstrate to these companies that maintenance will be addressed, liability will be reduced and minimized and access to utility needs will be provided.

Government Regulation

Regulation is defined as the government's ability to control the use and development of land through legislative powers. Regulatory methods help shape the use of land without transferring or selling the land. The following types of development ordinances are regulatory tools that can meet the challenges of projected growth and development as well as conserve and protect greenway resources.

Growth Management Measures (Concurrency)

Concurrency-based development approaches to growth management simply limit development to areas with adequate public infrastructure. This helps regulate urban sprawl, provides

for quality of life in new development, and can help protect open space. In the famous case with the Town of Ramapo (1972), the Town initiated a zoning ordinance making the issue of a development permit contingent on the presence of public facilities such as utilities and parks. This was upheld in Court and initiated a wave of slow-growth management programs nationwide. This type of growth management can take the form of an adequate public facilities ordinance.

Performance Zoning

Performance zoning is zoning based on standards that establish minimum requirements or maximum limits on the effects or characteristics of a use. This is often used for the mixing of different uses to minimize incompatibility and improve the quality of development. For example, how a commercial use is designed and functions determines whether it could be allowed next to a residential area or connected to a greenway.

Incentive Zoning (Dedication/Density Transfers)

This mechanism allows greenways to be dedicated for density transfers on development of a property. The potential for improving or subdividing part or all of a parcel can be expressed in dwelling unit equivalents or other measures of development density or intensity. Known as density transfers, these dwelling unit equivalents may be relocated to other portions of the same parcel or to contiguous land that is part of a common development plan. Dedicated density transfers can also be conveyed to subsequent holders if properly noted as transfer deeds.

Conservation Zoning

This mechanism recognizes the problem of reconciling different, potentially incompatible land

uses by preserving natural areas, open spaces, waterways, and/or greenways that function as buffers or transition zones. It can also be called buffer or transition zoning. This type of zoning, for example, can protect waterways by creating buffer zones where no development can take place. Care must be taken to ensure that the use of this mechanism is reasonable and will not destroy the value of a property.

Overlay Zoning

An overlay zone and its regulations are established in addition to the zoning classification and regulations already in place. These are commonly used to protect natural or cultural features such as historic areas, unique terrain features, scenic vistas, agricultural areas, wetlands, stream corridors, and wildlife areas.

Negotiated Dedications

This type of mechanism allows municipalities to negotiate with landowners for certain parcels of land that are deemed beneficial to the protection and preservation of specific stream corridors. This type of mechanism can also be exercised through dedication of greenway lands when a parcel is subdivided. Such dedications would be proportionate to the relationship between the impact of the subdivision on community services and the percentage of land required for dedication—as defined by the US Supreme Court in *Dolan v Tigar*d.

Reservation of Land

This type of mechanism does not involve any transfer of property rights but simply constitutes an obligation to keep property free from development for a stated period of time. Reservations are normally subject to a specified period of time, such as 6 or 12 months. At the end of this period, if an agreement has not already

been reached to transfer certain property rights, the reservation expires.

Planned Unit Development

A planned unit development allows a mixture of uses. It also allows for flexibility in density and dimensional requirements, making clustered housing and common open space along with addressing environmental conditions a possibility. It emphasizes more planning and can allow for open space and greenway development and connectivity.

Cluster Development

Cluster development refers to a type of development with generally smaller lots and homes close to one another. Clustering can allow for more units on smaller acreages of land, allowing for larger percentages of the property to be used for open space and greenways.

Land Management

Land Management is a method of conserving the resources of a specific greenway parcel by an established set of policies called management plans for publicly owned greenway land or through easements with private property owners. Property owners who grant easements retain all rights to the property except those which have been described in the terms of the easement. The property owner is responsible for all taxes associated with the property, less the value of the easement granted. Easements are generally restricted to certain portions of the property, although in certain cases an easement can be applied to an entire parcel of land. Easements are transferable through title transactions, thus the easement remains in effect perpetually.

Management Plans

The purpose of a management plan is to establish legally binding contracts which define the specific use, treatment, and protection for publicly owned greenway lands. Management plans should identify valuable resources; determine compatible uses for the parcel; determine administrative needs of the parcel, such as maintenance, security, and funding requirements; and recommend short-term and long-term action plans for the treatment and protection of greenway lands.

Conservation Easement

This type of easement generally establishes permanent limits on the use and development of land to protect the natural resources of that land. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Dedicated conservation easements can qualify for both federal income tax deductions and state tax credits. Tax deductions are allowed by the Federal government for donations of certain conservation easements. The donation may reduce the donor's taxable income.

Preservation Easement

This type of easement is intended to protect the historical integrity of a structure or important elements in the landscape by sound management practices. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Preservation easements may qualify for the same federal income tax deductions and state tax credits as conservation easements.

Public Access Easements

This type of easement grants public access to a specific parcel of property when a conservation

or preservation easement is not necessary. The conditions of use are defined in the terms of the public access easement.

Abandoned Rail

Abandoned rail lines are excellent candidates for trail development due to gentle grading and linear open space connectivity through developed and undeveloped areas. In Georgia, once a rail line is abandoned, full ownership is transferred to the adjacent landowner unless the corridor is railbanked prior to abandonment.

Acquisition

Acquisition requires land to be donated or purchased by a government body, public agency, greenway manager, or qualified conservation organization.

Donation or Tax Incentives

In this type of acquisition, a government body, public agency, or qualified conservation organization agrees to receive the full title or a conservation easement to a parcel of land at no cost or at a “bargain sale” rate. The donor is then eligible to receive a federal tax deduction of up to 30 to 50 percent of their adjusted gross income. Also, property owners may be able to avoid any inheritance taxes, capital gains taxes, and recurring property taxes.

Fee Simple Purchase

This is a common method of acquisition where a local government agency or private greenway manager purchases property outright. Fee simple ownership conveys full title to the land and the entire “bundle” of property rights including the right to possess land, to exclude others, to use land, and to alienate or sell land.

Easement Purchase

This type of acquisition is the fee simple purchase of an easement. Full title to the land is not purchased, only those rights granted in the easement agreement. Therefore the easement purchase price is less than the full title value.

Purchase / Lease Back

A local government agency or private greenway organization can purchase a piece of land and then lease it back to the seller for a specified period of time. This lease may contain restrictions regarding the development and use of the property.

Bargain Sale

A property owner can sell property at a price less than the appraised fair market value of the land. Sometimes the seller can derive the same benefits as if the property were donated. Bargain Sale is attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has a fairly high current income and could benefit from the donation of the property as an income tax deduction.

Installment Sale

An installment sale is a sale of property at a gain where at least one payment is to be received after the tax year in which the sale occurs. These are valuable tools to help sellers defer capital gains tax. This provides a potentially attractive option when purchasing land for open space from a possible seller.

Option / First Right of Refusal

A local government agency or private organization establishes an agreement with a public agency or private property owner to provide the right of first refusal on a parcel of land that

is scheduled to be sold. This form of agreement can be used in conjunction with other techniques, such as an easement to protect the land in the short-term. An option would provide the agency with sufficient time to obtain capital to purchase the property or successfully negotiate some other means of conserving the greenway resource.

Purchase of Development Rights

A voluntary purchase of development rights involves purchasing the development rights from a private property owner at a fair market value. The landowner retains all ownership rights under current use, but exchanges the rights to develop the property for cash payment.

Land Banking

Land banking involves land acquisition in advance of expanding urbanization. The price of an open space parcel prior to development pressures is more affordable to a jurisdiction seeking to preserve open space. A municipality or county might use this technique to develop a greenbelt or preserve key open space or agricultural tracts. The jurisdiction should have a definite public purpose for a land banking project.

Condemnation

The practice of condemning private land for use as a greenway is viewed as a last resort policy. Using condemnation to acquire property or property rights can be avoided if private and public support for the greenway program is present. Condemnation is seldom used for the purpose of dealing with an unwilling property owner. In most cases, condemnation has been exercised when there has been an absentee property ownership, when the title of the property is not clear, or when it becomes apparent

that obtaining the consent for purchase would be difficult because there are numerous heirs located in other parts of the United States or different countries.

Eminent Domain

The right of exercising eminent domain should be done so with caution by the community and only if the following conditions exist: 1) the property is valued by the community as an environmentally sensitive parcel of land, significant natural resource, or critical parcel of land, and as such has been defined by the community as irreplaceable property; 2) written scientific justification for the community’s claim about the property’s value has been prepared and offered to the property owner; 3) all efforts to negotiate with the property owner for the management, regulation, and acquisition of the property have been exhausted and that the property owner has been given reasonable and fair offers of compensation and has rejected all offers; and 4) due to the ownership of the property, the timeframe for negotiating the acquisition of the property will be unreasonable, and in the interest of pursuing a cost effective method for acquiring the property, the community has deemed it necessary to exercise eminent domain.

Trail Funding Sources Overview

Due to the cost of most construction and trail development activities, it may be necessary to consider several sources of funding, that when combined, would support these costs. This appendix outlines sources of funding at the federal, state, and local government levels and from the private sector. These sources cover a variety of costs related to trail and community development in northwest Georgia along proposed trail connections and surrounding

areas. The following descriptions are intended to provide an overview of available options and do not represent a comprehensive list. Funding sources can be used for a variety of activities, including: planning, design, implementation and maintenance. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice.

Federal Funding Sources

Federal funding is typically directed through State agencies to local governments either in the form of grants or direct appropriations, independent from State budgets, where shortfalls may make it difficult to accurately forecast available funding for future project development. Federal funding typically requires a local match of approximately 20%, but there are sometimes exceptions; the American Recovery and Reinvestment Act stimulus funds did not require a match. The following is a list of possible Federal funding sources that could be used to support construction of many trail improvements. Most of these are competitive, and involve the completion of extensive applications with clear documentation of the project needs, costs, and benefits.

Moving Ahead For Progress In The Twenty-First Century (Map-21)

The largest source of federal funding for bicycle and pedestrian is the US DOT's Federal-Aid Highway Program, which Congress has reauthorized roughly every six years since the passage of the Federal-Aid Road Act of 1916. The latest act, Moving Ahead for Progress in the Twenty-First Century (MAP-21) was enacted in July 2012 as Public Law 112-141, and has been extended through May 31, 2015. The Act replaces the Safe,

Accountable, Flexible, Efficient Transportation Equity Act - a Legacy for Users (SAFETEA-LU), which was valid from August 2005 - June 2012.

MAP-21 authorizes funding for federal surface transportation programs including highways and transit for the 27 month period between July 2012 and September 2014 (with an extension to May 31, 2015). It is not possible to guarantee the continued availability of any listed MAP-21 programs, or to predict their future funding levels or policy guidance. Nevertheless, many of these programs have been included in some form since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, and thus may continue to provide capital for active transportation projects and programs.

In Georgia, federal funds are administered through the Georgia Department of Transportation (GDOT) and Regional Planning Commissions, such as the Northwest Georgia Regional Commission (NWGRC). Most, but not all, of these programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system. Georgia has been flexing 50% of TAP.

There are a number of programs identified within MAP-21 that are applicable to bicycle and pedestrian projects, such as the Recreational Trails Program and Safe Routes to Schools.

More information: <http://www.fhwa.dot.gov/map21/guidance/guidetap.cfm>

Transportation Alternatives

Transportation Alternatives (TA) is a new funding source under MAP-21 that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements (TE), Safe Routes to School (SR2S), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, and rail-trails. TA funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TA does not provide a guaranteed set-aside for this activity as SAFETEA-LU did.

Average annual funds available through TA over the life of MAP-21 equal \$81.4 million nationally, which is based on a two percent set-aside of total MAP-21 allocations. Note that state DOT's may elect to transfer up to 50 percent of TA funds to other highway programs, so the amount listed on the website represents the maximum potential funding. Remaining TA funds (those monies not re-directed to other highway programs) are disbursed through a separate competitive grant program administered by GDOT. Local governments, school districts, tribal governments, and public lands agencies are permitted to compete for these funds.

Each state governor is given the opportunity to “opt out” of the Recreational Trails Program. However, as of the writing of this plan, only Florida and Kansas have “opted out” of the RTP. For all other states, dedicated funds for recreational trails continue to be provided as a subset of TA. MAP-21 provides \$85 million nationally for the RTP.

For the complete list of eligible activities, visit: http://www.fhwa.dot.gov/environment/transportation_enhancements/legislation/map21.cfm
For funding levels, visit: <http://www.fhwa.dot.gov/MAP21/funding.cfm>

Highway Safety Improvement Program

MAP-21 doubles the amount of funding available through the Highway Safety Improvement Program (HSIP) relative to SAFETEA-LU. HSIP provides \$2.4 billion nationally for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. MAP-21 preserves the Railway-Highway Crossings Program within HSIP but discontinues the High-Risk Rural roads set-aside unless safety statistics demonstrate that fatalities are increasing on these roads. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds.

More information: <http://safety.fhwa.dot.gov/hsip/>

Surface Transportation Program (STP)

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of pedestrian improvements are eligible, including trails, sidewalks, crosswalks, pedestrian signals, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STP-funded pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. 50 percent of

each state's STP funds are allocated by population to the MPOs; the remaining 50 percent may be spent in any area of the state.

More information: <http://www.fhwa.dot.gov/map21/guidance/guidestprev.cfm>

Congestion Mitigation And Air Quality Improvement Program (CMAQ)

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. States with no non-attainment areas may use their CMAQ funds for any CMAQ or STP eligible project. These federal dollars can be used to build bicycle and pedestrian facilities that reduce travel by automobile. Purely recreational facilities generally are not eligible. Communities located in attainment areas who do not receive CMAQ funding apportionments may apply for CMAQ funding to implement projects that will reduce travel by automobile.

More information: http://www.fhwa.dot.gov/environment/air_quality/cmaq/

Federal Transit Administration Enhanced Mobility of Seniors and Individuals with Disabilities

This program can be used for capital expenses that support transportation to meet the special needs of older adults and persons with disabilities, including providing access to an eligible public transportation facility when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs.

For more information: http://www.fta.dot.gov/documents/MAP-21_Fact_Sheet_-_Enhanced_

[Mobility_of_Seniors_and_Individuals_with_Disabilities.pdf](#)

Partnership For Sustainable Communities

Founded in 2009, the Partnership for Sustainable Communities is a joint project of the Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (USDOT). The partnership aims to “improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide.” The Partnership is based on five Livability Principles, one of which explicitly addresses the need for bicycle and pedestrian infrastructure (“Provide more transportation choices, develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation’s dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health”).

The Partnership is not a formal agency with a regular annual grant program. Nevertheless, it is an important effort that has already led to some new grant opportunities (including both TIGER I and TIGER II grants). Georgia jurisdictions should track partnership communications and be prepared to respond proactively to announcements of new grant programs. Initiatives that speak to multiple livability goals are more likely to score well than initiatives that are narrowly limited in scope to pedestrian improvement efforts.

More information: <http://www.sustainablecommunities.gov/>

National Scenic Byways Discretionary Grant Program

The National Scenic Byways Discretionary Grants program provides merit-based funding for byway-related projects each year, utilizing one or more of eight specific activities for roads designated as National Scenic Byways, All-American Roads, State scenic byways, or Indian tribe scenic byways. The activities are described in 23 USC 162(c). This is a discretionary program; all projects are selected by the US Secretary of Transportation.

Eligible projects include construction along a scenic byway of a facility for pedestrians and bicyclists and improvements to a scenic byway that will enhance access to an area for the purpose of recreation. Construction includes the development of the environmental documents, design, engineering, purchase of right-of-way, land, or property, as well as supervising, inspecting, and actual construction.

For more information: <http://www.bywaysonline.org/grants/>

Federal Community Development Block Grant

Community Development Block Grant (CDBG) funds are allocated through the States to local municipal or county governments for projects that enhance the viability of communities by providing decent housing and suitable living environments and by expanding economic opportunities, principally for persons of low and moderate income. The program provides communities with resources to address a wide range of unique community development needs.

Beginning in 1974, the CDBG program is one of the longest continuously run programs at HUD.

The CDBG program provides annual grants on a formula basis to 1209 general units of local government and States. Federal CDBG grantees may use Community Development Block Grants funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities; paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grants funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs.

More information: http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs

Energy Efficiency and Conservation Block Grants

The Department of Energy's Energy Efficiency and Conservation Block Grants (EECBG) may be used to reduce energy consumptions and fossil fuel emissions and for improvements in energy efficiency. Section 7 of the funding announcement states that these grants provide opportunities for the development and implementation of transportation programs to conserve energy used in transportation including development of infrastructure such as bike lanes and pathways and pedestrian walkways. Although the current grant period has passed, more opportunities may arise in the future.

For more information: <http://www1.eere.energy.gov/wip/eecbg.html>

Rivers, Trails, And Conservation Assistance

Program

The Rivers, Trails and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program providing technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation funds available. Projects are prioritized for assistance based on criteria including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. This program may benefit trail development in Georgia locales indirectly through technical assistance, particularly for community organizations, but is not a capital funding source.

More information: <http://www.nps.gov/hcra/programs/rtca/>

State Funding Sources

Unlike many states, Georgia has no consistent funding source that supports acquisition, development and rehabilitation of outdoor recreation areas. While the State of Georgia operated a Recreation Assistance Fund from 1978-1999, the state is currently one of fourteen states with no consistent source of funds for parks and recreational agencies. Lacking state assistance for recreation, many of the programs operated in Georgia are derived from federal funding sources administered at the state level.

Transportation Improvement Programs (TIP)

Transportation Improvement Programs (TIPs) in Georgia are administered by Metropolitan Planning Organizations (MPOs) within metro areas.

These TIPs can contain a variety of transportation projects, including bicycle and pedestrian facilities. Outside of metro areas, Georgia maintains a Statewide Transportation Improvement Program (STIP). However, bicycle and pedestrian planning in non-MPO areas are typically funded through Regional Commissions (RCs). The distinctions between MPOs and RCs are discussed below.

Metropolitan Planning Organizations (MPOs) are federally designated agencies created in urban areas containing more than 50,000 people. Fifteen MPOs operate within Georgia. They are charged with conducting comprehensive, coordinated planning processes to determine the transportation needs of their respective constituencies, and prioritizing and programming projects (including bicycle and pedestrian projects) for federal funding. The MPOs conduct open public meetings annually for input into the development of the Long Range Plans and Transportation Improvement Programs.

The Georgia State Planning Act of 1989 included key provisions for the creation of Regional Development Commissions throughout the state intended to assist local governments in planning and coordinate regional planning. These entities were later consolidated into twelve Regional Commissions (RCs). GDOT contracts with Regional Commissions (Except the Atlanta Regional Commission) to provide bicycle and pedestrian transportation services. Sample projects include:

- Regional bicycle and pedestrian plans
- Safe Routes to School Plans
- Purchasing bike route signage and coordinating their installation
- Bike route and trail mapping
- Walkable community design workshops

Georgia Statewide Transportation Improvement Program: <http://www.dot.ga.gov/InvestSmart/Pages/STIP.aspx>

Governor's Office of Highway Safety

The Governor's Office of Highway Safety (GOHS) is Georgia's advocate for highway safety. This office works with law enforcement, judicial personnel and community advocates to coordinate activities and initiatives relating to the human behavioral aspects of highway safety. The GOHS's mission is to develop, execute and evaluate programs to reduce the number of fatalities, injuries and related economic losses resulting from traffic crashes on Georgia's roadways. The office works in tandem with the National Highway Safety Administration to implement programs focusing on occupant protection, impaired driving, speed enforcement, truck and school bus safety, pedestrian and bicycle safety and crash data collection and analysis. Programs administered by the Governor's Highway Safety Office are 100% federally funded.

More information: <http://www.gahighwaysafety.org/>

Georgia Recreational Trail Program

In Georgia, the administration of the Recreational Trail Program is handled by the Department of Natural Resources (DNR), Division of Parks, Recreation, and Historic Sites. Under this program, the Grants Administration and Planning Unit of Georgia DNR provides 80/20 grant assistance for eligible applicants for land acquisition, development of public recreational trails, non-routine maintenance, and assessment of existing public trails.

The Georgia Recreational Trail Program has several criteria for applicants of trail funding.

Lands and facilities that receive funding must be for public trails or the direct support of trail usage. In order to satisfy the public requirement, trail facilities must be open to the general public without discrimination during reasonable times and hours, and must be maintained and operated for public recreational usage. Eligible applicants must be legally constituted entities such as state and federal agencies, cities, counties, recreational commissions, or recreational authorities with legislative sanction. Applicants must also demonstrate that proposed trail projects are identified or further a specific planning goal of Georgia's Statewide Comprehensive Outdoor Recreation Plan (SCORP). Likewise, the proposed trail project should be consistent with needs identified in the sponsor jurisdiction's local comprehensive plan.

Annual grant cycles begin with applications in the fall and grant awards announced in early March of the following year.

More information: <http://gastateparks.org/grants/rtp#application>

Georgia Safe Routes to School

Funded by the Federal Safe Routes to School (SRTS) program, Georgia's SRTS program is designed to encourage more kids to walk and bike to school safely. Program activities and funding are for projects with a 2-mile radius of primary and middle schools (grades K-8). SRTS funding for infrastructure is no longer available in Georgia; the state only continues to fund the SRTS Resource Center.

The Safe Routes to School Program is organized around 5 ideas – also called the 5 Es:

- Engineering: Making the environment safer for walking and bicycling
- Encouragement: Encouraging kids to walk and bike
- Education: Teaching kids and parents safe ways to walk and bike
- Evaluation: Checking to see how many kids are walking and biking as a result of the program
- Enforcement: Changing driver, walker and bicyclist behavior as they travel together along the road

More information: <http://www.saferoutesga.org/content/georgia-srts-basics>

Land And Water Conservation Fund

The Land, Water & Conservation Fund (LWCF) program is a federally funded, state administered grant program and provides matching grants to local governments and state agencies that provide recreation and parks, for the acquisition and development of public outdoor recreation areas and facilities. All grant projects must be on publicly owned land. In Georgia, the LWCF has helped finance land acquisition for linear parks, such as the Chattahoochee River National Recreation Area.

The Georgia Department of Natural Resources (DNR) Division of Parks, Recreation, and Historic Sites conducts a Statewide Comprehensive Outdoor Recreation Plan (SCORP) each five years to articulate state recreational policy and maintain eligibility for federal funds from the Land and Water Conservation Fund (LWCF). LWCF grants support state, county, and managing agency outdoor recreation projects for land acquisition, development, and rehabilitation.

The most recent iteration of the SCORP covers the planning period of 2008-2013. Under this

plan, three key priorities are identified as follows:

- Promote Health / Fitness and Livability of All Communities
- Enhance Economic Vitality
- Conserve and Properly Use Natural Resources

Of these three primary goals, the promotion of health, fitness, and livability appears to apply the most closely to trail development. For example, one key recommendation under this goal is to explore ways of connecting existing parks and recreational facilities for pedestrians and non-motorized vehicles, such as bikes and in-line skates.

Georgia Land & Water Conservation Fund Grants: <http://gastateparks.org/grants/lwcf>

Georgia Statewide Comprehensive Outdoor Recreation Plan: <http://www.gastateparks.org/item/152835>

Local Government Funding Sources

Municipalities often plan for the funding of pedestrian and bicycle facilities/improvements through development of Capital Improvement Programs (CIPs). For example, the Managing agency of Powder Springs has financed local extensions connecting to the Silver Comet Trail through municipal general funds. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. A variety of possible funding options available to Georgia jurisdictions for implementing bicycle and pedestrian projects are described below. However, many will require specific local action

as a means of establishing a program, if not already in place.

Capital Reserve Fund

Other states have created statutory authority for municipalities to create capital reserve funds for any capital purpose, including bicycle and pedestrian facilities. The reserve fund must be created through ordinance or resolution that states the purpose of the fund, the duration of the fund, the approximate amount of the fund, and the source of revenue for the fund. Sources of revenue can include general fund allocations, fund balance allocations, grants and donations for the specified use.

More information: <http://www.osc.state.ny.us/localgov/pubs/lgmg/reservefunds.pdf>

Community Improvement Districts (CIDs)

Community Improvement Districts (CIDs) are a voluntary self-taxing mechanism for funding governmental services, such as parks and recreation, road construction, storm water and waste water systems, water systems, public transportation, and other services. CIDs can levy taxes, fees and assessments on non-residential properties and apply the funds to governmental services and facilities within the CID boundary. CIDs can also fund improvements through issuing bonds. However, CID-issued bonds may not be considered an obligation of the state or local government other than the CID itself. The Georgia General Assembly may create a CID by local legislation, with conditional approval of the managing agency or county government where the CID is located. In addition, the creation of a CID is contingent on receiving the written consent of a majority of the property owners within the CID that would be subject to CID taxes, fees and assessments. The governing body of

each CID as designated by the Legislature must include representatives from each managing agency or county within the CID.

More information: Georgia Constitution Article IX, Section VII <http://www.lexisnexis.com/hot-topics/gacode/>

Tax Allocation Districts (TADs)

Tax Allocation Districts (TADs), often called Tax Increment Financing (TIF) in other states, are a mechanism for funding improvements in blighted or underutilized areas based on future property value increases. TADs operate by establishing a current tax base floor for a given TAD district area and applying future taxes over and above the tax floor for a given period of time to pay the costs of infrastructure. Most often, but not always, TADs issue bonds to fund infrastructure improvements that are aimed at spurring redevelopment and property value increases. TAD funds may be used for a wide range of development activities. Cities, counties and school systems may decide independently whether to participate in a TAD. Managing agency or County TADs require a jurisdiction-wide referendum for approval and the creation of a local redevelopment agency to administer the TAD. The local redevelopment agency is tasked with identifying a specific redevelopment area and public improvements needed to help the area attract new private development. Since a determination of blight is required, TADs generally apply to urbanized “brownfield” or “grayfield” sites rather than undeveloped rural property. One prominent example of TAD financing for bicycle/pedestrian infrastructure is the Atlanta Beltline TAD.

More information: <https://www.investatlanta.com/development/commercial-incentives/tax-allocation-districts/tax-allocation-districts-frequently-asked-questions/>

Installment Purchase Financing

As an alternative to debt financing of capital improvements, communities can execute installment or lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing to finance or when up-front funds are unavailable. In a lease purchase contract the community leases the property or improvement from the seller or financial institution. The lease is paid in installments that include principal, interest, and associated costs. Upon completion of the lease period, the community owns the property or improvement. While lease purchase contracts are similar to a bond, this arrangement allows the community to acquire the property or improvement without issuing debt. These instruments, however, are more costly than issuing debt.

Taxes

Many communities have raised money for general transportation programs or specific project needs through self-imposed increases in taxes and bonds. For example, Pinellas County residents in Florida voted to adopt a one cent sales tax increase, which provided an additional \$5 million for the development of the overwhelmingly popular Pinellas Trail. Sales taxes have also been used in Allegheny County, Pennsylvania, and in Boulder, Colorado to fund open space projects. A gas tax is another method used by some municipalities to fund public improvements. A number of taxes provide direct or indirect funding for the operations of local governments and public improvement projects that can be used for bicycle and pedestrian facilities. Some of them are:

SPECIAL PURPOSE LOCAL OPTION SALES TAXES (SPLOST)

In Georgia, sales tax is imposed on all retail sales, leases and rentals of most goods, as well as taxable services (occupancy taxes fall under this category as well). Georgia cities and counties have the option of imposing an additional Special Purpose Local Option Sales Tax (SPLOST). State law requires approval of a resolution to establish a SPLOST by a countywide referendum with a defined end date. SPLOST funds can only be applied to specified capital improvement projects. The Managing agency of Thomasville, Georgia has recently approved a SPLOST program for the construction of multi-use trails.

PROPERTY TAX

Property taxes generally support a significant portion of a municipality's activities. However, the revenues from property taxes can also be used to pay debt service on general obligation bonds issued to finance trail system acquisitions. Because of limits imposed on tax rates, use of property taxes to fund trails could limit the municipality's ability to raise funds for other activities. Property taxes can provide a steady stream of financing while broadly distributing the tax burden. In other parts of the country, this mechanism has been popular with voters as long as the increase is restricted to parks and open space. Note, other public agencies compete vigorously for these funds, and taxpayers are generally concerned about high property tax rates.

EXCISE TAXES

Excise taxes are taxes on specific goods and services. These taxes require special legislation and funds generated through the tax are limited to specific uses. Examples include lodging, food, and beverage taxes that generate funds

for promotion of tourism, and the gas tax that generates revenues for transportation related activities.

Fees

A variety of fee options have been used by local jurisdictions to assist in funding pedestrian and bicycle improvements. Enabling actions may be required for a locality to take advantage of these tools.

IN-LIEU-OF FEES

As an alternative to requiring developers to dedicate on-site greenway or pedestrian facility that would serve their development, some communities provide a choice of paying a front-end charge for off-site protection of pieces of the larger system. Payment is generally a condition of development approval and recovers the cost of the off-site land acquisition or the development's proportionate share of the cost of a regional facility serving a larger area. Some communities prefer in-lieu-of fees. This alternative allows community staff to purchase land worthy of protection rather than accept marginal land that meets the quantitative requirements of a developer dedication but falls short of qualitative interests.

Bonds And Loans

Bonds have been a very popular way for communities across the country to finance trail projects. A number of bond options are listed below. Contracting with a private consultant to assist with this program may be advisable. Since bonds rely on the support of the voting population, an education and awareness program should be implemented prior to any vote. Billings, Montana used the issuance of a bond in the amount of \$599,000 to provide the matching funds for several of their TEA-21 enhancement

dollars. Austin, Texas has also used bond issues to fund a portion of its bicycle and trail system.

REVENUE BONDS

Revenue bonds are bonds that are secured by a pledge of the revenues from a specific local government activity. The entity issuing bonds pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payment). Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are generally more expensive than general obligation bonds.

GENERAL OBLIGATION BONDS

Cities, counties, and service districts generally are able to issue general obligation (G.O.) bonds that are secured by the full faith and credit of the entity. A general obligation pledge is stronger than a revenue pledge, and thus may carry a lower interest rate than a revenue bond. The local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. Frequently, when local governments issue G.O. bonds for public enterprise improvements, the public enterprise will make the debt service payments on the G.O. bonds with revenues generated through the public entity's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. Bond measures are typically limited by time, based on the debt load of the local government or the project under focus. Funding from bond measures can be used for right-of-way acquisition, engineering, design, and construction of pedestrian and bicycle facilities. Voter approval is required.

SPECIAL ASSESSMENT BONDS

Special assessment bonds are secured by a lien on the property that benefits from the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

STATE REVOLVING FUND LOANS

Initially funded with federal and state money, and continued by funds generated by repayment of earlier loans, State Revolving Funds (SRFs) provide low interest loans for local governments to fund water pollution control and water supply related projects including many watershed management activities. These loans typically require a revenue pledge, like a revenue bond, but carry a below market interest rate and limited term for debt repayment (20 years).

Funds From Private Foundations & Organizations

Many communities have solicited trail infrastructure funding assistance from private foundations and other conservation-minded benefactors.

PATH Foundation

The PATH Foundation is a non-profit organization that partners with state and local governments to fund the construction and maintenance of trails in Georgia. Since its inception, the PATH foundation has constructed more than 160 miles of hiking, biking, and walking trails, including the Silver Comet Trail. PATH foundation staff provides assistance to local governments in planning, designing, building and maintaining trail projects. The foundation has created a “PATH Standard” for trail facilities to provide regular specifications for trails. The PATH Foundation has conducted several successful capital campaigns to solicit donations from charitable

foundations and individual donors. In some cases, PATH provides matching funds to finance the development of trails. The PATH foundation also sponsors an “Adopt a Trail” program to coordinate volunteers for supplemental maintenance programs. Numerous local charitable organizations and business interests have provided support for the PATH foundation, including the James M. Cox Foundation, Arthur M. Blank Family Foundation, Georgia-Pacific Foundation, Georgia Power Foundation, Northside Hospital Foundation, SunTrust Bank Atlanta Foundation, Turner Broadcasting System, The Wachovia Foundation, and the Robert W. Woodruff Foundation.

More information: <http://pathfoundation.org/>

The Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation was established in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas: To assure that all Americans have access to basic health care at a reasonable cost To improve care and support for people with chronic health conditions To promote healthy communities and lifestyles To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs.

More information: <http://www.rwjf.org/grants/>

REI Grants

REI is dedicated to inspiring people to love the outdoors and take care of the places they love. REI focuses philanthropic efforts on supporting and promoting participation in active volunteerism to care for public lands, natural areas, trails and waterways. This focus engages a full spectrum of REI resources to mobilize communities

around outdoor stewardship. The store teams cultivate strong partnerships with local non-profit organizations that engage individuals, families and entire communities in outdoor volunteer stewardship. REI stores use their public visibility, staff support and online communication tools to connect people to the stewardship opportunities hosted by their partners. These store resources thereby drive customers' attention, awareness and involvement in support of partner programs and needs. REI also supports local partners financially with grant funding. The grants program begins with nominations from store teams who select the local non-profits with whom they've developed enduring and meaningful partnerships. Nominated partners are then invited to submit applications for grant funding. REI grants provide partner organizations with the resources and capamanaging agency to organize stewardship activities and get volunteers involved.

More information: <http://www.rei.com/stewardship/community.html>

Walmart State Giving Program

The Walmart Foundation financially supports projects that create opportunities for better living. Grants are awarded for projects that support and promote education, workforce development/ economic opportunity, health and wellness, and environmental sustainability. Both programmatic and infrastructural projects are eligible for funding. State Giving Program grants start at \$25,000, and there is no maximum award amount. The program accepts grant applications on an annual, state by state basis.

More information: <http://foundation.walmart.com/?p=8979>

The Rite Aid Foundation Grants

The Rite Aid Foundation is a foundation that supports projects that promote health and wellness in the communities that Rite Aid serves. Award amounts vary and grants are awarded on a one year basis to communities in which Rite Aid operates. A wide array of activities are eligible for funding, including infrastructural and programmatic projects.

For more information: <https://www.riteaid.com/about-us/rite-aid-foundation>

Bank Of America Charitable Foundation, Inc

The Bank of America Charitable Foundation is one of the largest in the nation. The primary grants program is called Neighborhood Excellence, which seeks to identify critical issues in local communities. Another program that applies to greenways is the Community Development Programs, and specifically the Program Related Investments. This program targets low and moderate income communities and serves to encourage entrepreneurial business development.

More information: <http://www.bankofamerica.com/foundation>

The Trust For Public Land

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land for human enjoyment and well being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities.

More information: <http://www.tpl.org>

National Trails Fund

American Hiking society created the National Trails Fund in 1998 as the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting, and maintaining foot trails in America. The society provides funds to help address the \$200 million backlog of trail maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. To date, American Hiking has granted more than \$240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from \$500 to \$10,000 per project.

- Projects the American Hiking Society will consider include: Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.
- Building and maintaining trails that will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects, including volunteer recruitment and support.

More information: <http://www.americanhiking.org/national-trails-fund/>

The Conservation Alliance

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. Grants are typically about \$35,000 each. Since its inception in 1989, The Conservation Alliance has contributed \$4,775,059 to environmental groups across the

nation, saving over 34 million acres of wild lands. The Conservation Alliance Funding Criteria:

- The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation.
- The Alliance does not look for mainstream education or scientific research projects, but rather for active campaigns.
- All projects should be quantifiable, with specific goals, objectives, and action plans and should include a measure for evaluating success.
- The project should have a good chance for closure or significant measurable results over a fairly short term (one to two years).
- Funding emphasis may not be on general operating expenses or staff payroll.

For more information: <http://www.conservation-alliance.com/grants>

People for Bikes

The PeopleForBikes Community Grant Program provides funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths and rail trails, as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle advocacy initiatives.

Since 1999, they have awarded 272 grants to non-profit organizations and local governments in 49 states and the District of Columbia. The investments total nearly \$2.5 million and have leveraged \$650 million in public and private funding.

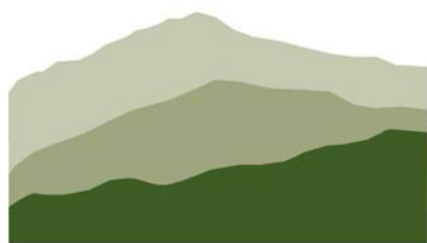
More information: <http://www.peopleforbikes.org/pages/community-grants>



peopleforbikes™



THE
TRUST
for
PUBLIC
LAND



The Conservation Alliance

MEMBER

Outdoor Business Giving Back to the Outdoors



Robert Wood Johnson
Foundation

Local Trail Sponsors

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Valuable in-kind gifts include donations of services, equipment, labor, or reduced costs for supplies.

Corporate Donations

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Municipalities typically create funds to facilitate and simplify a transaction from a corporation's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented. Such donations can improve capital budgets and/or projects.

Private Individual Donations

Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Municipalities typically create funds to facilitate and simplify a transaction from an individual's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented. Such donations can improve capital budgets and/or projects.

Fundraising / Campaign Drives

Organizations and individuals can participate in a fundraiser or a campaign drive. It is essential to market the purpose of a fundraiser to

rally support and financial backing. Often times fundraising satisfies the need for public awareness, public education, and financial support.

Land Trust Acquisition And Donation

Land trusts are held by a third party other than the primary holder and the beneficiaries. This land is oftentimes held in a corporation for facilitating the transfer between two parties. For conservation purposes, land is often held in a land trust and received through a land trust. A land trust typically has a specific purpose such as conservation and is used so land will be preserved as the primary holder had originally intended.

Volunteer Work

Residents and other community members are excellent resources for garnering support and enthusiasm for a greenway corridor or pedestrian facility. Furthermore volunteers can substantially reduce implementation and maintenance costs. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fundraising, maintenance, and programming needs.



WALKING

NC WADING