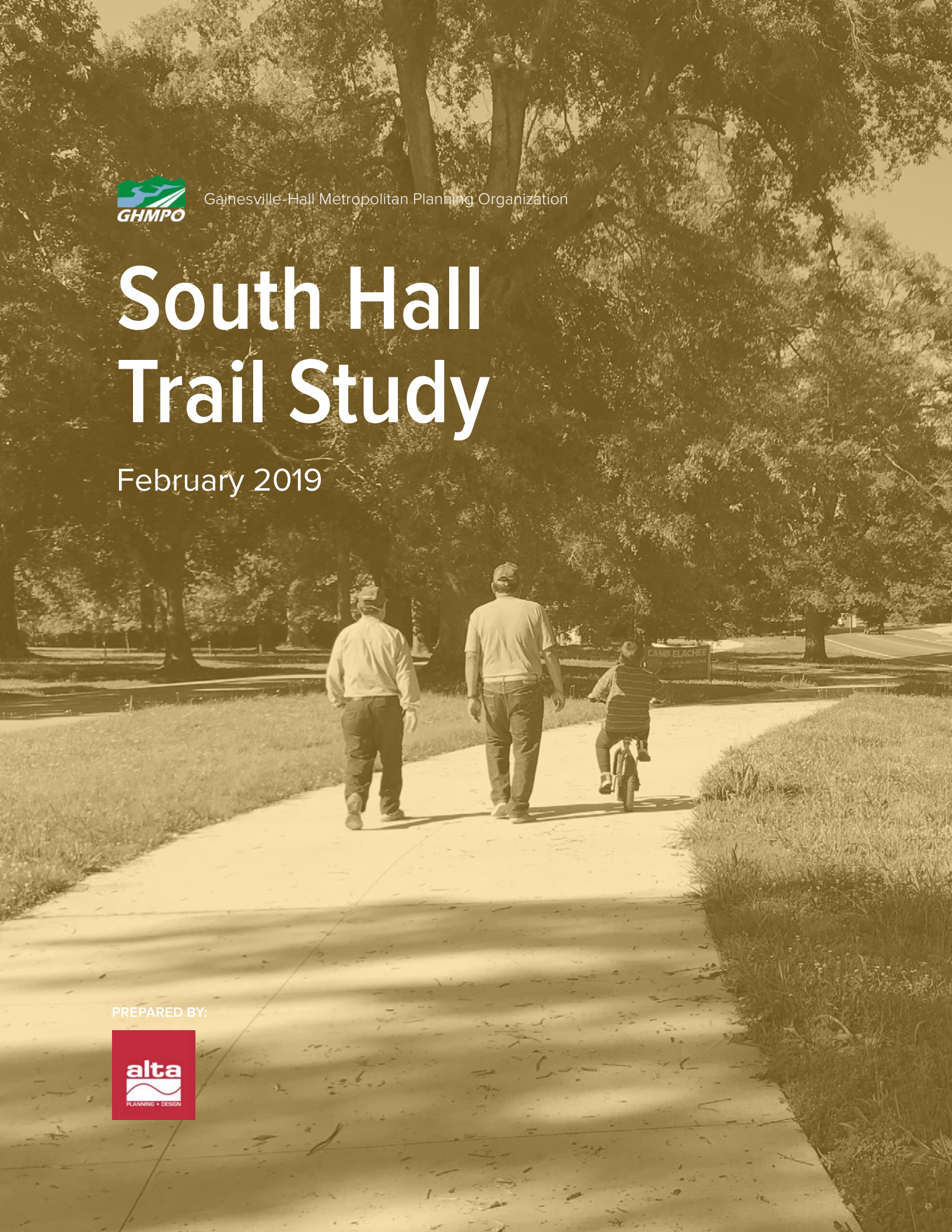

Gainesville-Hall Metropolitan Planning Organization

South Hall Trail Study

February 2019

PREPARED BY:

alta PLANNING + DESIGN

GHMPO

Gainesville - Hall Metropolitan Planning Organization

A Resolution by the Gainesville-Hall Metropolitan Planning Organization Policy Committee Adopting the South Hall Trail Study

WHEREAS, the Gainesville-Hall Metropolitan Planning Organization (GHMPO) is the designated Metropolitan Planning Organization for transportation planning within the Gainesville Metropolitan Area Boundary which includes all of Hall County and a portion of Jackson County following the 2010 Census; and

WHEREAS, the Fixing America's Surface Transportation (FAST) Act directs GHMPO to increase the accessibility and mobility options available;

WHEREAS, the FAST Act furthermore directs GHMPO to enhance the integration and connectivity of the transportation system, across and between modes;

WHEREAS, the South Hall Trail Study makes recommendations to improve the area's pedestrian and bicycle infrastructure and connectivity;

NOW, THERE, BE IT RESOLVED that the Gainesville-Hall Metropolitan Planning Organization adopts the South Hall Trail Study.

A motion was made by PC member Danny Dunagan and seconded by PC member Lamar Scroggs and approved this the 12th of February, 2019.

Mayor Mike Miller, Chairperson
Policy Committee

Emily Foote
Notary Public
Hall County
State of Georgia
My commission expires July 31, 2022

Subscribed and sworn to me this the February 12, 2019.

Notary Public

My commission expires 7/31/2022

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Gainesville, Georgia 30504

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www.ghmpo.org

Acknowledgments

The South Hall Trail Study was prepared for the Gainesville-Hall Metropolitan Planning Organization (GHMPO) by Alta Planning + Design. Funding for this study was provided by GHMPO through Work Program #4: System Planning, Sub-element 4.7 - Special Transportation Studies.

GHMPO acknowledges the Project Management Team members and agency staff who provided valuable input throughout the study:

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GHMPO would like to thank all interested stakeholders and members of the public who provided valuable input, comments, and suggestions to the study.

The opinions, findings, and conclusions of this publication are those of the author(s) and not necessarily those of the Department of Transportation, State of Georgia, or the Federal Highway Administration. Prepared in Cooperation with the Department of Transportation and the Federal Highway Administration.

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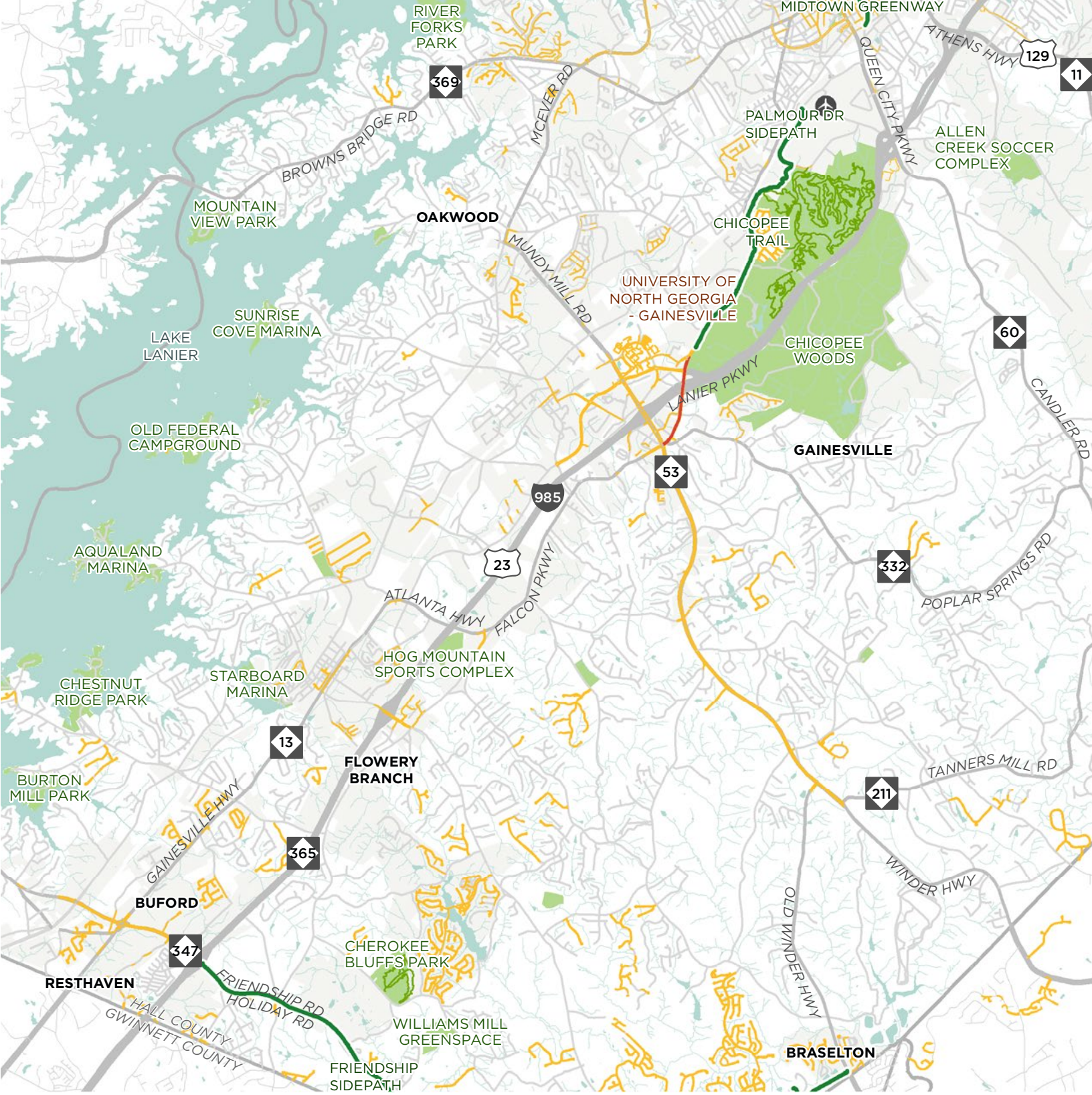
I. Introduction

Hall County is nestled between the urbanized area of Atlanta and its suburbs, and rural North Georgia with its rich recreational and natural resources. As such, the county has a mix of land use patterns, including subdivision residential, historic town centers, recreational areas surrounding Lake Lanier, dense urbanized areas around Gainesville, industrial areas, and large swaths of agricultural land in the northern part of the county. This trail feasibility study focuses on central and southern Hall County, where the majority of county residents call home. The county is home to a diverse population of nearly 200,000 people[1]. The county already has several miles of high quality paved trails, including the recently completed Chicopee Trail, and a sophisticated mountain bike trail network. Connecting this network of paved trails will further establish Hall County as a regional recreation hub with access to walking and biking.

With this study, the City of Oakwood, the City of Flowery Branch, Hall County, and the Gainesville-Hall Metropolitan Planning Organization (GHMPO) are taking the next step toward implementing this vision. The purpose of this study is to explore potential trail alignments connecting from Lee Gilmer Memorial Airport to the recently built sidepath along Friendship Road, and prepare GHMPO and local jurisdictions to move forward with planning, design, and fundraising. It includes an existing conditions assessment, alignment alternatives, a preferred alignment, and implementation strategy. The recommended trail system would ultimately provide a continuous, off-street, paved trail loop connecting places such as the University of North Georgia, Hall County Government Center, Flat Creek, Lee Gilmer Airport, downtown Oakwood, downtown Flowery Branch, the Falcons Training Camp, Flowery Branch Library, Cherokee Bluffs Park, and several schools.

The purpose of this study is to explore potential trail alignments connecting from Lee Gilmer Memorial Airport to the recently built sidepath along Friendship Road, and prepare GHMPO and the city to move forward with design and fundraising.

1 US Census Bureau American Community Survey 2017 1-year estimates



EXISTING ACTIVE TRANSPORTATION NETWORK

Trails
- Unpaved Trails
- Paved Trails

- Bike Lanes
- Sidewalks
- Parks

0 1 2 MILES

N

Trails are a priority for Hall County

The recommendations of this plan will help Hall County achieve several of the stated goals and objectives in the *GHMPO Bicycle and Pedestrian Plan Update (2014)*:

- Goal One: Promote active lifestyles by providing access to recreational trails in Hall County.
  - » Objective 1A: Create destination trails connecting to and through major passive parks.
- Goal Two: Provide bicycle connections to high demand areas.
  - » Objective 2A: Connect trails to colleges and universities.
  - » Objective 2B: Connect trails to K-12 schools and parks.
  - » Objective 2C: Connect trails in areas of higher residential density with low auto ownership.
- Goal Four: Improve long distance cycling through the county and region.
  - » Objective 4B: Connect to key destinations in surrounding counties.

Hall County recently completed a tunnel underneath Atlanta Hwy to connect the Chicopee Trail to the University of North Georgia and the trails in the Tumbling Creek Preserve.

Planning Process

In 2017, the Gainesville-Hall Metropolitan Planning Organization, in partnership with City of Gainesville, City of Oakwood, City of Flowery Branch, and Hall County, received transportation funding through the Federal Highway Administration's Federal Metropolitan Planning (PL) Fund for two trail studies: one in Gainesville, and one in South Hall County. The grant covers planning funds for two trail corridor studies. In January 2018, GHMPO hired a consultant team of engineers, planners, and landscape architects. The two studies were done in parallel, with a joint Gainesville/South Hall project management team. For this reason, there was a unified public involvement strategy for both studies.

Hall County, City of Oakwood, City of Flowery Branch, and City of Gainesville staff served on the project management team and contributed throughout the project. The study began with investigation. Throughout the Spring of 2018, the consultant team conducted fieldwork, interviewed key stakeholders, launched a project website, and hosted a pop up event at the Spring Chicken Festival. Public project information was available in both English and Spanish, and Spanish speaking staff were present at public events to engage Gainesville's large Hispanic community.

The study recommendations were developed in partnership with GHMPO, the City of Gainesville, the City of Flowery Branch, and Hall County staff. Draft recommendations were presented to the public at an open house on November 1, 2018, and then refined based on community feedback.

Project Benefits

In addition to implementing adopted goals, policies, and recommendations in the *GHMPO Bicycle and Pedestrian Plan Update (2014)*, closing this gap will provide several key benefits to Hall County residents and visitors.

Trail connect people to destinations

Beautiful trails that provide access to great destinations mean you can have your cake and eat it too. The Highlands to Islands Trail network will provide access to town centers, schools, employment centers, and neighborhoods.

Trails Create Value and Generate Economic Activity

Trails are a top amenity to home buyers and studies have found a positive correlation between walkability and housing prices, suggesting that trails increase nearby land values. [2,3] In addition, households in automobile-dependent communities devote 50% more to transportation (more than $8,500 annually) than households in communities with more accessible land use and more multimodal transportation systems

2 National Association of Realtors and National Association of Home Builders. (2002). Consumer's Survey on Smart Choices for Home Buyers.

3 CEOs for Cities. (2010) Walking the Walk: How Walkability Raises Home Values in U.S. Cities.)

(less than $5,500 annually), so households that have viable active transportation options have more income to spend in the local market. [4]

Recreational amenities such as trails are increasingly seen as regional economic development tools that generate value through:

- Recreational spending (bicycle rentals, food & drink, sporting equipment)
- Tourism (spending by out-of-state users on lodging, transportation, dining)
- Spillover impacts (additional jobs and worker spending)
- Fiscal impacts (sales tax revenue generated)
- Increased property values
- Property tax revenue (benefiting municipalities and school districts)

Trails Create Healthy Communities

A growing number of studies show that the design of our communities—including neighborhoods, towns, transportation systems, parks, trails and other public recreational facilities—affects people's ability to reach the recommended daily 30 minutes of moderately intense physical activity (60 minutes for youth). Over 20% of Hall County residents do not meet recommended activity levels, and over 25% qualify as obese.[5] The increased rate of disease associated with inactivity reduces quality of life for individuals and increases medical costs for families, companies, and local governments. The Centers for Disease Control has determined that creating and improving places to be active could result in a 25% increase in the number of people who exercise at least three times a week.[6] This is significant considering that for people who are inactive, even small increases in physical activity can bring measurable health benefits. The establishment of a safe and reliable transportation network that offers opportunities for bicycling will have a positive impact on the health of nearby residents.

4 Barbara McCann (2000), Driven to Spend; The Impact of Sprawl on Household Transportation Expenses, STPP (www.transact.org).

5 County Health Rankings, 2014-2018. http://www.countyhealthrankings.org/app/georgia/2018/rankings/hall/county/outcomes/overall/snapshot

6 CDC Guide to Strategies to Increase Physical Activity in the Community, National Center for Chronic Disease Prevention and Health Promotion, 2011. https://www.cdc.gov/obesity/downloads/PA_2011_WEB.pdf

In April 2016, Hall County had the inaugural Highlands to Islands 5k run on the newly opened Chicopee Section of the Highlands to Islands Trail. Events like this make the trail more visible while creating community around active lifestyles.

Trails Protect the Environment

Trails protect the environment by reducing dependence on emissions-producing vehicles, and by creating protected natural corridors. Natural greenway corridors that connect to and contain large areas of open space serve important functions for our natural ecosystems by:

- Creating a natural buffer that protects waterways from soil erosion and pollution caused by agricultural and roadway runoff.
- Linking wildlife and habitat that is fragmented by development, thereby supporting greater biodiversity.
- Protecting and restoring natural floodplains along rivers and streams (FEMA estimates that implementation of floodplain ordinances prevents $1.1 B in flood damage annually).

A bicycle commuter who rides five miles to work, four days a week, avoids 2,000 miles of driving a year—the equivalent of 100 gallons of gasoline saved and 2,000 pounds of CO2 emissions avoided. CO2 savings of this magnitude reduce the average American's carbon footprint by about 5 percent. A citizen who lives in a community that allows him or her to run most errands by bicycling or walking can save about 500 gallons of fuel, or 10,000 pounds of CO2 each year.

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II.

What the community wants

Overview

This study is largely based on a thorough process of asking questions and listening to community members about their personal priorities and vision. Community members submitted feedback through an online survey, public open house, and a pop up event at the Spring Chicken Festival. Through the public engagement process, community members shared their desire for more recreational and transportation opportunities. ***Hall County residents are excited about the prospect of a countywide trail network.***

Project Management Team

The project management team convened four times throughout the project to monitor progress, and coordinate plans and priorities from the local jurisdictions. This group consisted of representatives form the following organizations:

- Gainesville-Hall Metropolitan Planning Organization (GHMPO)
- City of Gainesville, Community Development Department
- City of Oakwood, Community Development Department
- City of Flowery Branch, City Manager
- Hall County, Engineering Division

Project Website and Online Survey

A project website—Gainesville.AltaProjects.Net—was posted at the outset of the project. It included all project deliverables and resources related to trails. It also included an online survey in both Spanish and English.

171 online surveys were completed about the vision for the Gainesville and South Hall trail system. Most respondents are in favor of the trail system. Respondents envision a multi-use, recreational trail that brings communities and families together in a safe space for exercise and fun.

Community members want their trail system to immerse them in nature, with ample separation from motor vehicles. Connectivity to destinations is key to their vision. Respondents would like the trail to connect to several destinations including schools, workplaces, local businesses, parks, and natural areas like Lake Lanier.

While respondents were enthusiastic about a trail network, there are also concerns. One critical concern among the comments is safety: respondents want a safe space to enjoy with their families. Maintenance is also a concern; respondents want the trail to remain clear of trash and debris. Finally, some are skeptical about implementation, fearing that building the system will take too long or will not happen at all.

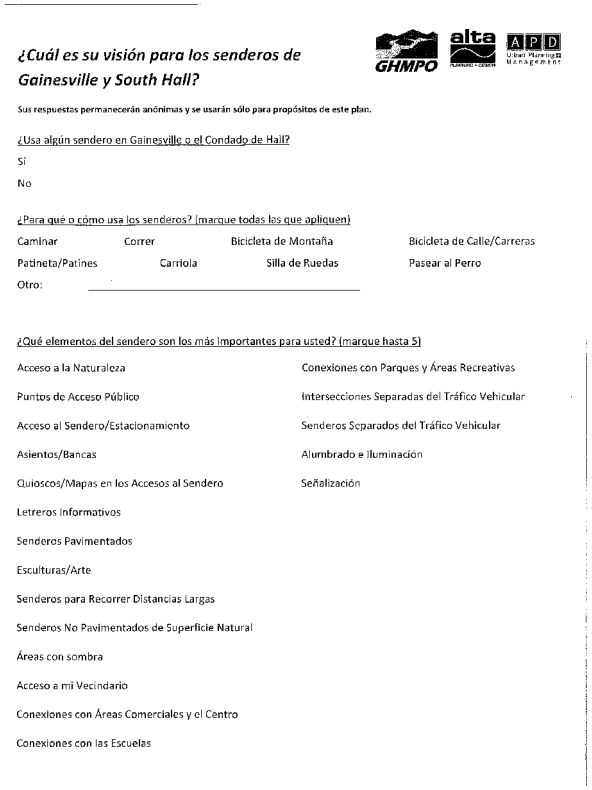
Pop Up Event Feedback

In addition to the online survey, eight individuals filled out comment cards at a pop-up event held at the Spring Chicken Festival on April 28th. Offered in both English and Spanish, surveys provided the public an opportunity to communicate their vision for the Gainesville and South Hall trails.

Respondents envision a long-distance, interconnected trail system that has ample trailheads with parking and wayfinding to help people access the trails. Respondents also envision the trail connecting to local businesses like restaurants, breweries, and bike shops. A few anticipate those who do not have a car using the trail system as a means of commute to school or work.

Respondents prefer trails independent of the road network, that provide access to nature. They envision the trail as an opportunity to experience the outdoors, connect to parks, and learn more about the environment. Health and exercise is also a common theme among respondents. They visualize the trails as a recreational space for walking, running, and biking.

All respondents were in favor of a trail system, but some had concerns about trail maintenance and safety. Respondents envision a clean, safe space for families away from cars that provides ample lighting. Others were skeptical about prolonged or lack of implementation.



¿Cuál es su visión para los senderos de Gainesville y South Hall?

GHMPO alta APD Urban Planning & Management

Sus respuestas permanecerán anónimas y se usarán sólo para propósitos de este plan.

¿Usa algún sendero en Gainesville o el Condado de Hall?

Sí

No

¿Para qué o cómo usa los senderos? (marque todas las que apliquen)

Caminar | Correr | Bicicleta de Montaña | Bicicleta de Calle/Carreras

Patineta/Patines | Carriola | Silla de Ruedas | Pasear al Perro

Otro: _____

¿Qué elementos del sendero son los más importantes para usted? (marque hasta 5)

- Acceso a la Naturaleza
- Puntos de Acceso Público
- Acceso al Sendero/Estacionamiento
- Asientos/Bancas
- Quioscos/Mapas en los Accesos al Sendero
- Letreros Informativos
- Senderos Pavimentados
- Esculturas/Arte
- Senderos para Recorrer Distancias Largas
- Senderos No Pavimentados de Superficie Natural
- Áreas con sombra
- Acceso a mi Vecindario
- Conexiones con Áreas Comerciales y el Centro
- Conexiones con las Escuelas
- Conexiones con Parques y Áreas Recreativas
- Intersecciones Separadas del Tráfico Vehicular
- Senderos Separados del Tráfico Vehicular
- Alumbrado e Iluminación
- Señalización

Comment form used at pop-up events and workshops

Stakeholder Interviews

The consultant team conducted 14 interviews with stakeholders who contribute in some way to active transportation, recreation, or specific destinations along the trail network. These conversations were crucial to the assembly of each jurisdiction's collective knowledge and attitude toward trails.

Results of the interviews included feedback on maintenance challenges, funding sources, and infrastructure limiations for trails, including major roadways. There were also many opportunities discussed, such as connecting to the area's universities and health care systems, and potential partnership opportunities.

Table 1: Stakeholder interviewees

Organization	Role
Oakwood Community Development Department	Community Development Director
Hall County Parks and Leisure Services	Director of Parks and Leisure
Highlands to Islands Leadership	
Lee Gilmer Memorial Airport	Manager
University of North Georgia (UNG) Facilities Department	Director of Facilities and Operations
Newland Communities / Sterling on the Lake	Vice President, Operations
Greater Hall Chamber of Commerce	VP, existing industry, GHCC
Elachee Nature Center	President/CEO
Brenau University	President Director of Campus Security
Stone Capital Group, LLC	Owner 795 Georgia Ave, also owns Gainesville Times
North Georgia Healthcare	Manager of the Community Health Improvement Program
N/A	Citizen
Hall County Public Works	Civil Engineer III
Hall County Road Maintenance Division	Superintendent
Vulcan Materials Company	Land Manager HR Manager Sales Service Center Manager

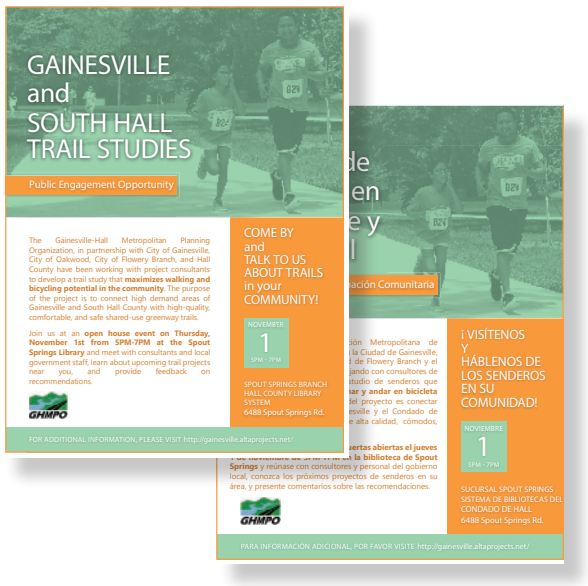
Static Exhibits

Two static exhibits were prepared to solicit public interest in the project at strategic locations around South Hall. The exhibits were intended to channel residents to the project website to complete comment forms and learn more about the project.

Exhibits were set up at the Elachee Nature Center and the Gainesville-Hall County Government Center. The display is shown on the facing page.

Public Open House

A public open house was held at the Spout Springs Public Library on November 1, 2018 from 5:00 pm to 7:00 pm. Posters provided information on schematics for each trail segment, and the project staff were available to answer questions and have conversations with the public. Feedback for the vast majority of segments was positive, with residents communicating support for the projects. The only community concerns were about the alignment near the Sterling on the Lake community. In response to this feedback, the alignment was adjusted to follow the edge of the neighborhood instead of connecting through it.



Flyers for the Public Open House

GAINESVILLE *and* SOUTH HALL TRAIL STUDIES

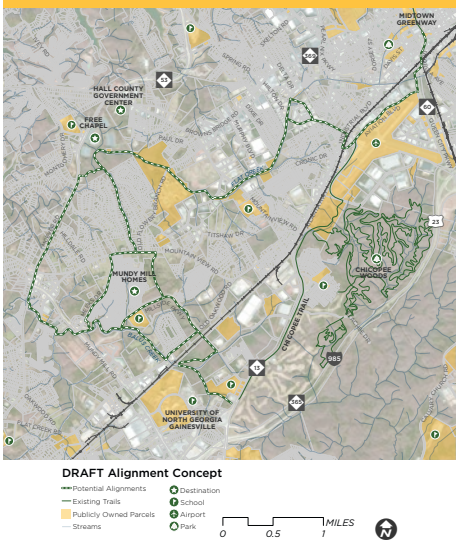
What are the Gainesville and South Hall trail studies?

In 2017, the Gainesville-Hall Metropolitan Planning Organization, in partnership with City of Gainesville, City of Oakwood, City of Flowery Branch, and Hall County, received transportation funding through the Federal Highway Administration's Federal Metropolitan Planning (PL) Fund. The grant covers planning funds for two trail corridor studies.

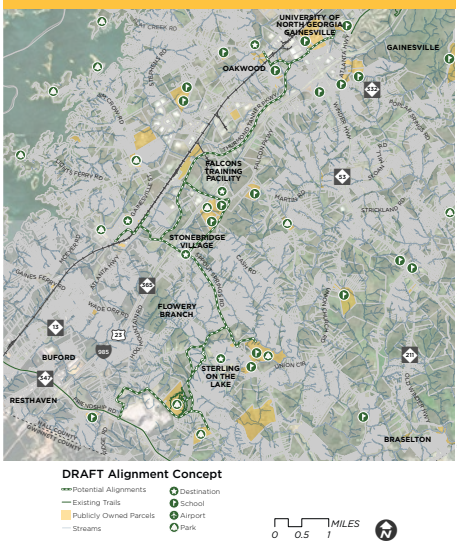
Building on efforts by community stakeholders and local government agencies, the Gainesville and South Hall Trail studies are examining the feasibility of two trail corridors that provide a coordinated vision for active transportation investment and recreational outlet in Gainesville and southern Hall County. The study is developing project recommendations that maximize walking and bicycling potential in high-demand areas by connecting those areas with high-quality, comfortable, and safe trails.

Gainesville and South Hall County are home to 30 miles of trails, approximately 5 miles paved and 24 miles unpaved. This trail study aims to expand the network and increase connectivity by adding 25 miles of paved trails to Hall County.

GAINESVILLE STUDY AREA



SOUTH HALL COUNTY STUDY AREA



GHMPO

alta PLANNING + DESIGN

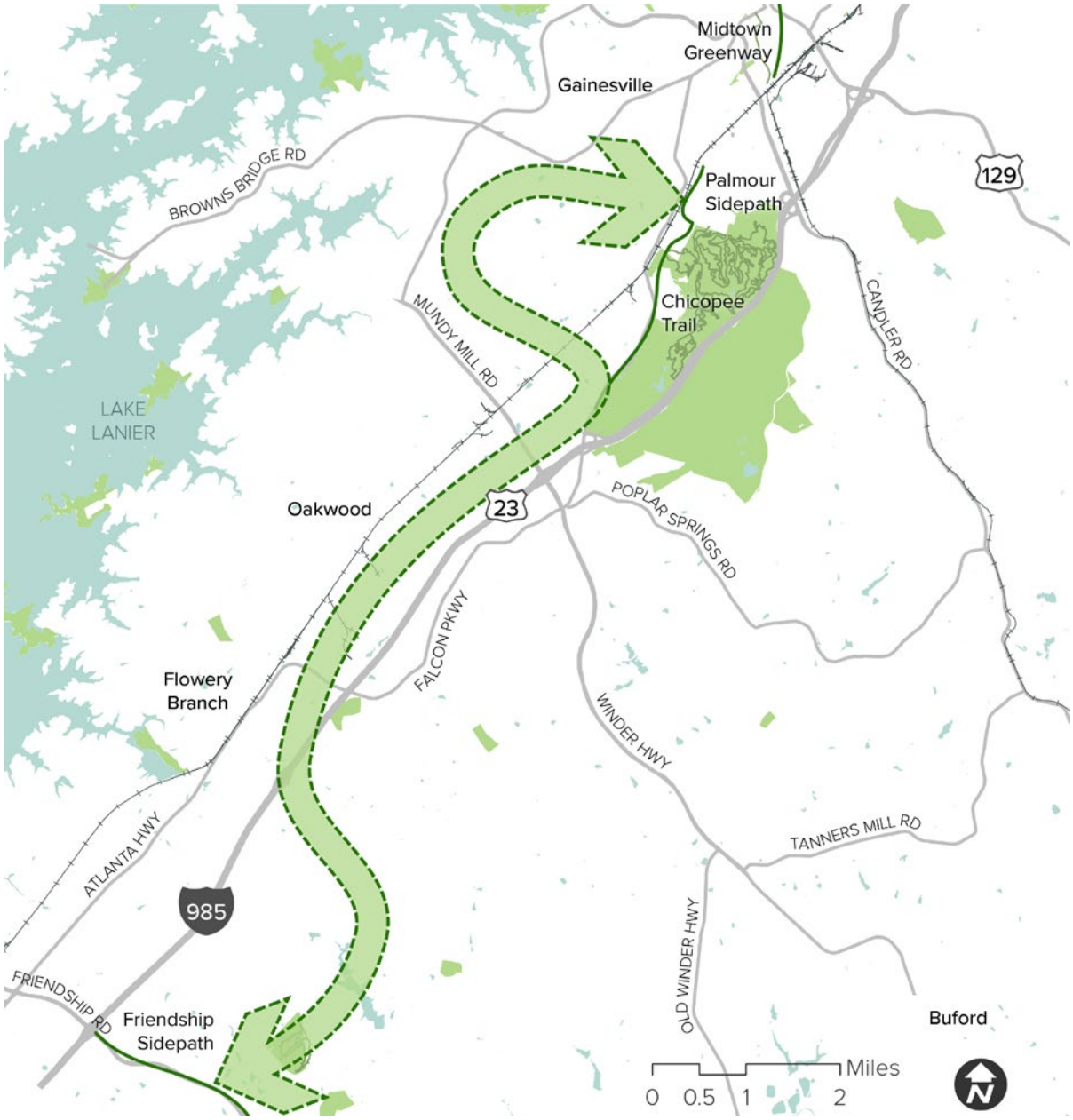
FOR MORE PROJECT INFORMATION, PLEASE VISIT *Gainesville.AltaProjects.Net*
OR CONTACT JOSEPH BOYD, GHMPO PROJECT MANAGER, AT JBOYD@HALLCOUNTY.ORG

III.

Inventory

South Hall Study Area

The South Hall study area extends from Friendship Road in Flowery Branch to the University of North Georgia - Gainesville Campus in Oakwood. The City of Flowery Branch, the City of Oakwood, and Hall County will partner to construct the trail system which will one day connect users from South Hall County to the Highlands to Islands Multi-Use Trail system, providing a continuous bicycle and pedestrian pathway that would span across a large portion of Hall County.



Hall County...by the numbers

POPULATION

Population of 199,335[1]

11% growth
% population growth between 2010 and 2017

5% projected growth
% projected population growth by 2021

DEMOGRAPHICS

62%
of the population is White[1]

27%
of the population is Hispanic[1]

7%
of the population is Black[1]

COMMUTE

26 minutes
Average commute time[1]

1.0%
% of people who walk to work

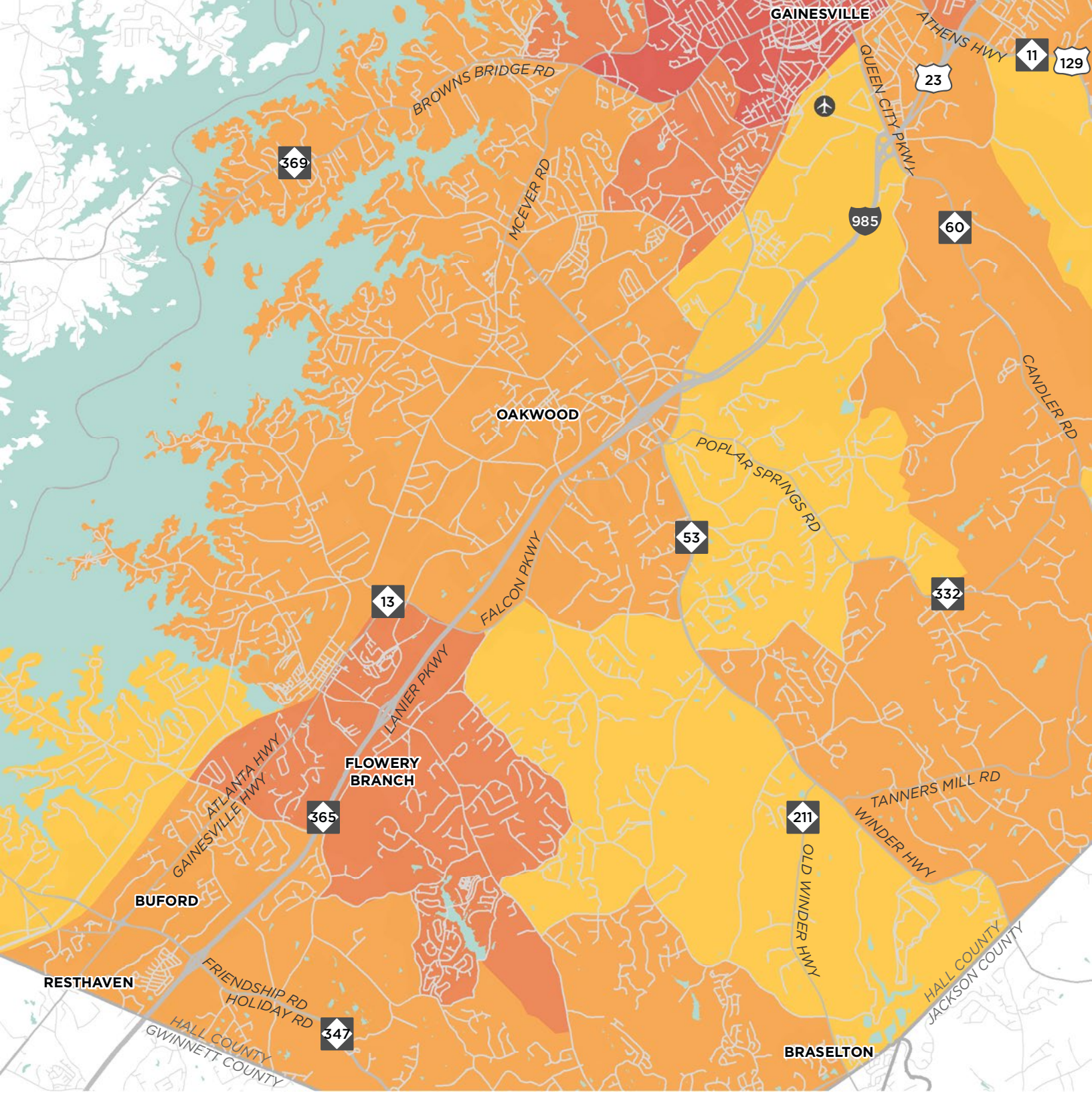
0.1%
% of people who bike to work

HEALTH

4.1 score
Rank on the Community Health Needs Index that ranges between 1 and 5[2]

4 unhealthy days
Average # of physically unhealthy days, exceeding state and national averages[3]

1 US Census Bureau American Community Survey 2017 1-year estimates
2 US Census Bureau American Community Survey 2016 5-year estimates
3 Northeast Georgia Medical Center 2016 Community Needs Assessment Survey
4 County Health Rankings for Hall County 2016



POPULATION DENSITY BY CENSUS TRACT

People per Square Mile

- < 500
- 500 - 1000
- 1001 - 2500
- 2501 - 5000

0 1 2 MILES

Population Characteristics

Hall county is home to

199,335
people[1]

This population grew 11% 2010-2017, and is expected to grow another 5% over the next 5 years.[1,2,3]

Figure 2. Median Income[2]

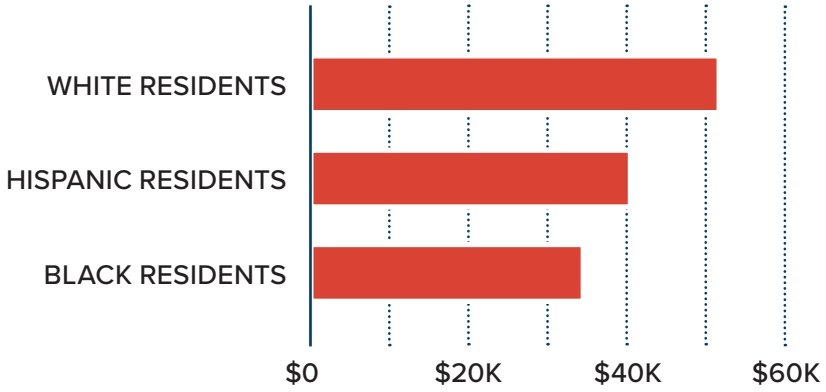
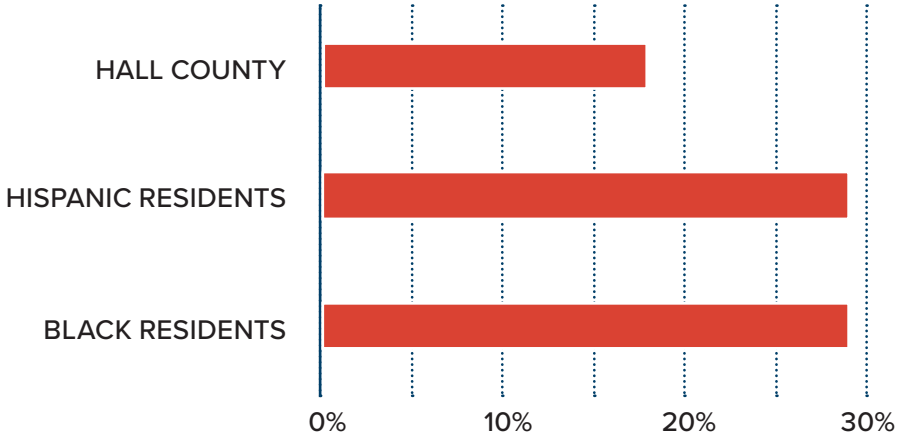


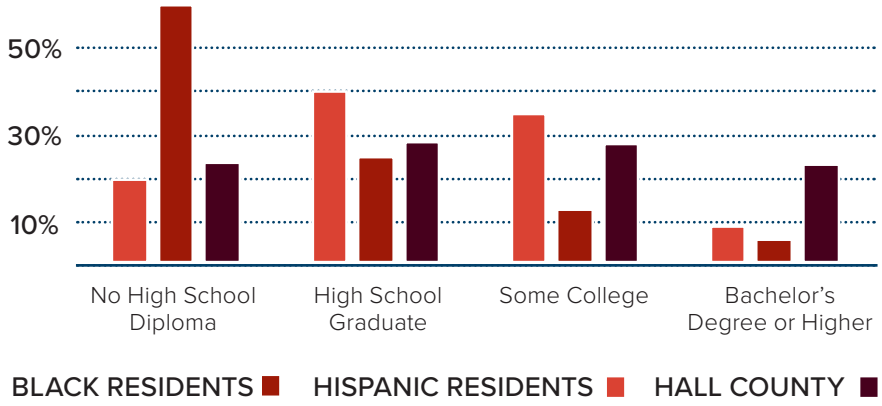
Figure 3. Below Poverty Level[2]



In Hall County, poverty disproportionately affects Hispanic and Black residents. Roughly 29% of Hispanics and 29% of Black residents live below the poverty line whereas only 17.7% of the overall county population live in poverty.[1]

Overall, Hall County residents vary in their educational attainment. Most Hispanic residents do not have a high school diploma. For Black residents, most graduated high school, and nearly 35% have some higher education.

Figure 4. Educational Attainment[2]



1 US Census Bureau American Community Survey 2017 1-year estimates

2 US Census Bureau American Community Survey 2016 5-year estimates

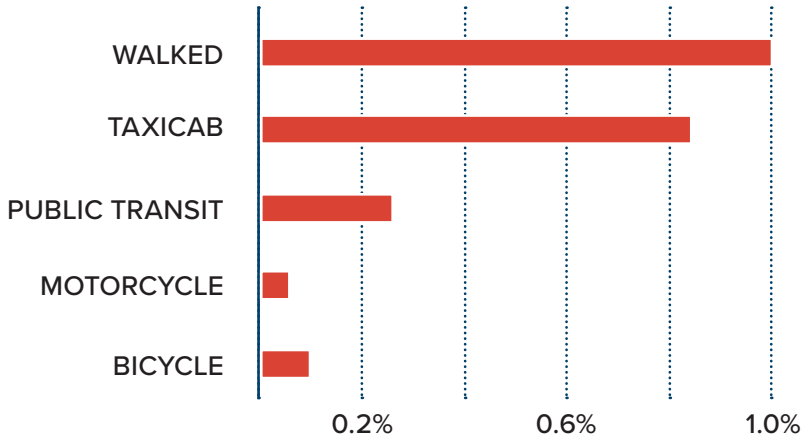
3 Northeast Georgia Medical Center 2016 Community Needs Assessment Survey

Commuting Characteristics

Only 1% of commuters made the trip to work on foot or via bike; Whereas, single-occupancy vehicle commuters represent 80% of commuters.[1]

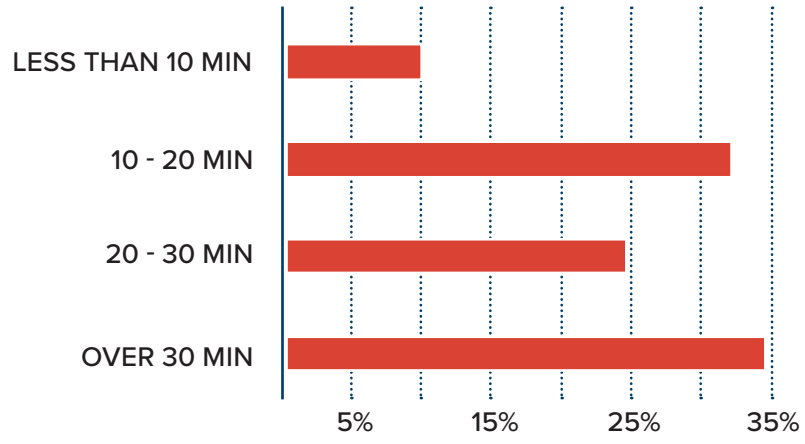
One limitation to this data is that it excludes non-commuting trips like picking up groceries or going to dinner. These non-commuting trips account for 84% of all trips.[2]

Figure 5. Commute Mode Share[1]



Hall County residents have a mean commute time of about 26 minutes.[1]

Figure 6. Commute Times[1]



1 US Census Bureau American Community Survey 2016 5-year estimates

2 AASHTO Commuting in America 2013: The National Report on Commuting Patterns and Trends, Brief 2, 1.

Public Health Characteristics

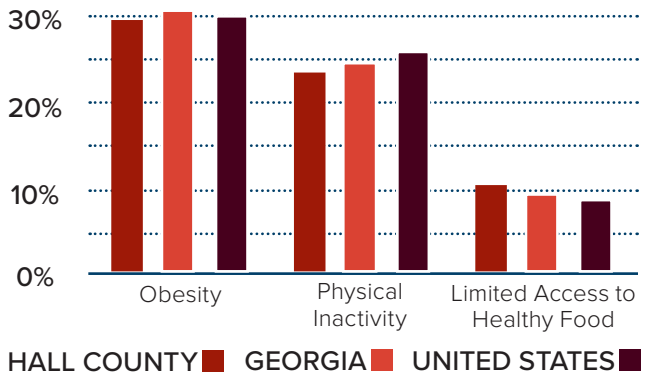
The Northeast Georgia Medical Center conducted a Community Health Needs Assessment in 2016. The Primary Study Area (PSA) covers the southern portion of Hall County. The Truven Health Community Need Index (CNI) measures the level of health care needs on a scale of 1 to 5. An index of 4.1 out of 5 is indicates that there is high demand for healthcare services.[1]

South Hall County has a

4.1 score

on the Community Need Index[1]

Figure 7. Public Health Indicators[2]



Hall County residents struggle with obesity, physical inactivity, and accessing healthy foods. Like the state and the country, obesity rates are high in Hall County. Nearly 30% of Hall County residents are obese. Almost a quarter of residents (23%) are physically inactive, or those who do not participate in leisure-time physical activities like walking or biking for exercise.[2]

Food Access Issues

Hall county exceeds both the state and the nation in the percentage of those who have limited access to healthy foods (Figure 8).[2] Furthermore, Hall County has six census tracts identified as food deserts, including two in the South Hall trail study area.[3]

6 census tracts
in Hall County are identified as food deserts[3]

10% of Hall County Residents
have limited access to healthy foods[2]

Food deserts are areas that are low-income and have limited access to grocery stores. Specifically, 'low-income' includes areas that have a 20% or higher rate of poverty. 'Limited access' indicates that a considerable portion of the population (at least 500 people or 33%) lives more than a mile from a supermarket.[4]

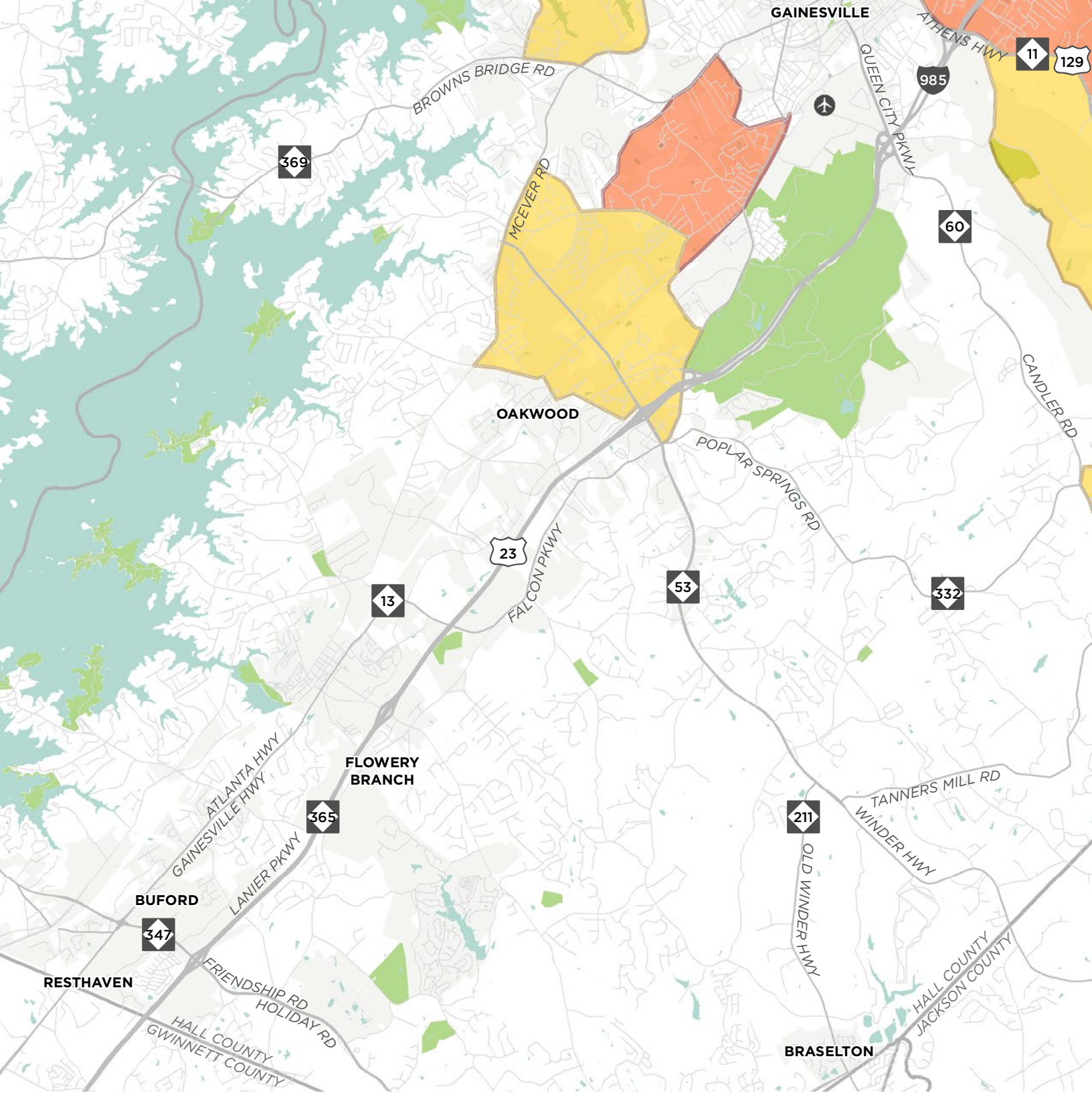
In addition to income and distance, limited vehicle access also exacerbates food access issues. Limited vehicle access food deserts have at least 100 households without access to a car. Out of the six existing food deserts, Hall county has three limited vehicle access food deserts.[4]

1 Northeast Georgia Medical Center 2016 Community Needs Assessment Survey

2 County Health Rankings, Hall County 2015

3 Economic Research Service (ERS), U.S. Department of Agriculture (USDA). Food Access Research Atlas

4 Alana Rhone et al. ERS. USDA. Low-Income and Low-Supermarket-Access Census Tracts, 2010-2015. January 2017.



FOOD DESERTS

Low-Income and Low-Access* Tracts

Adequate Vehicle Access

Low Vehicle Access

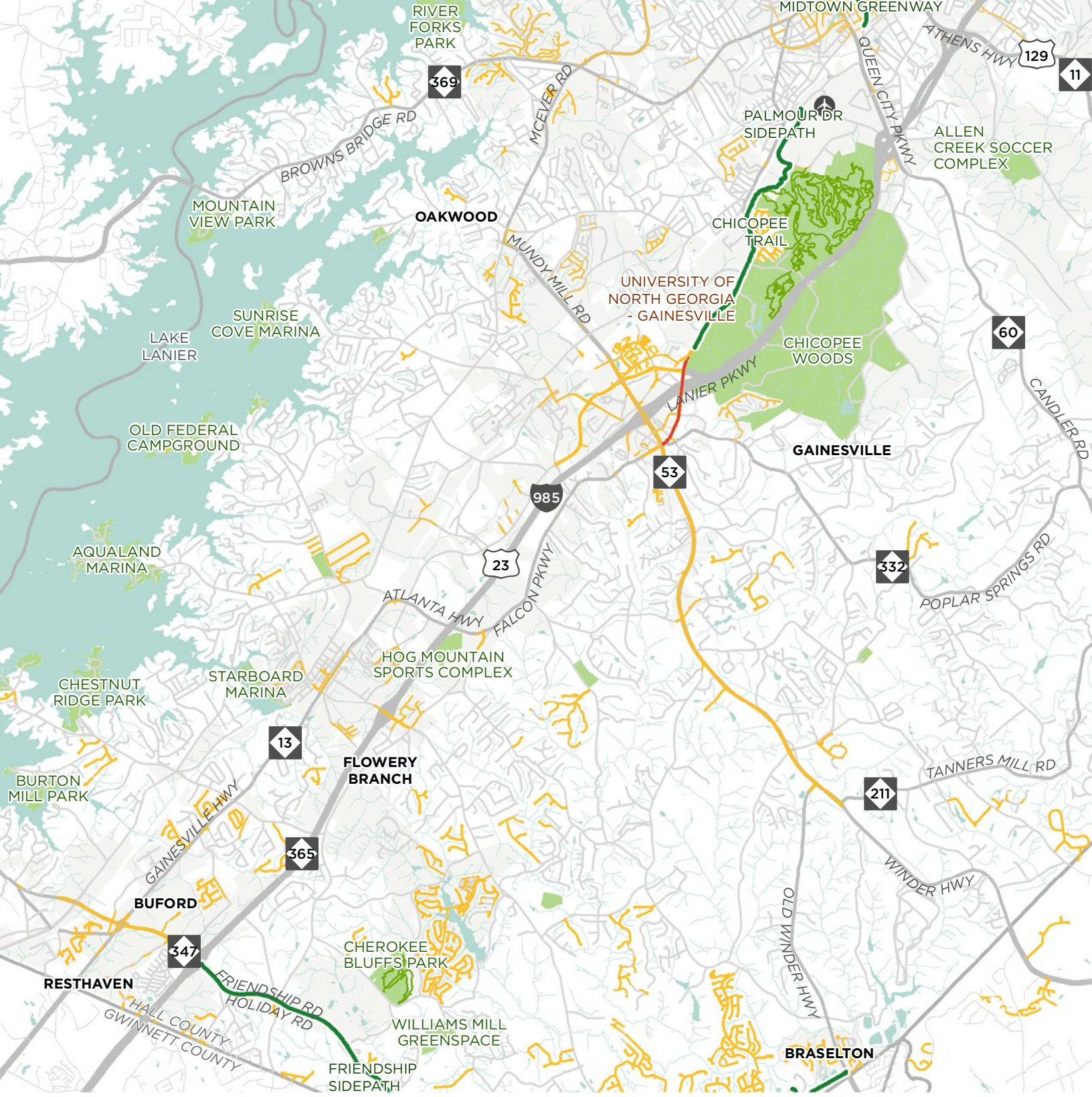
**Low-Access indicates that a significant portion of the population (more than 500 people or 33%) lives more than 1 mile from a grocery store.*

0 1 2 MILES

Existing Active Transportation Network

The existing network of sidewalks, bike lanes, and trails is characterized by strong nodes, but lack of connectivity. The map to the right shows relatively good sidewalk coverage in the City of Gainesville, town centers, and within some neighborhoods. There are also continuous sidewalks along Friendship Rd and Winder Hwy, two major arterials. The only dedicated bike lanes are along Atlanta Hwy, about one tenth of a mile in length, between Frontage Rd and Poplar Springs Rd.

The network also includes roughly 13 miles of paved trail, and over 23 miles of unpaved trails. The unpaved trails include a sophisticated and extensive network of mountain bike trails. The paved trail segments include the Rock Creek Greenway, the Midtown Greenway, Chicopee Trail, and the sidepath along Friendship Road.



EXISTING ACTIVE TRANSPORTATION NETWORK

Trails
- Unpaved Trails
- Paved Trails

- Bike Lanes
- Sidewalks
- Parks

0 1 2 MILES

Points of Interest

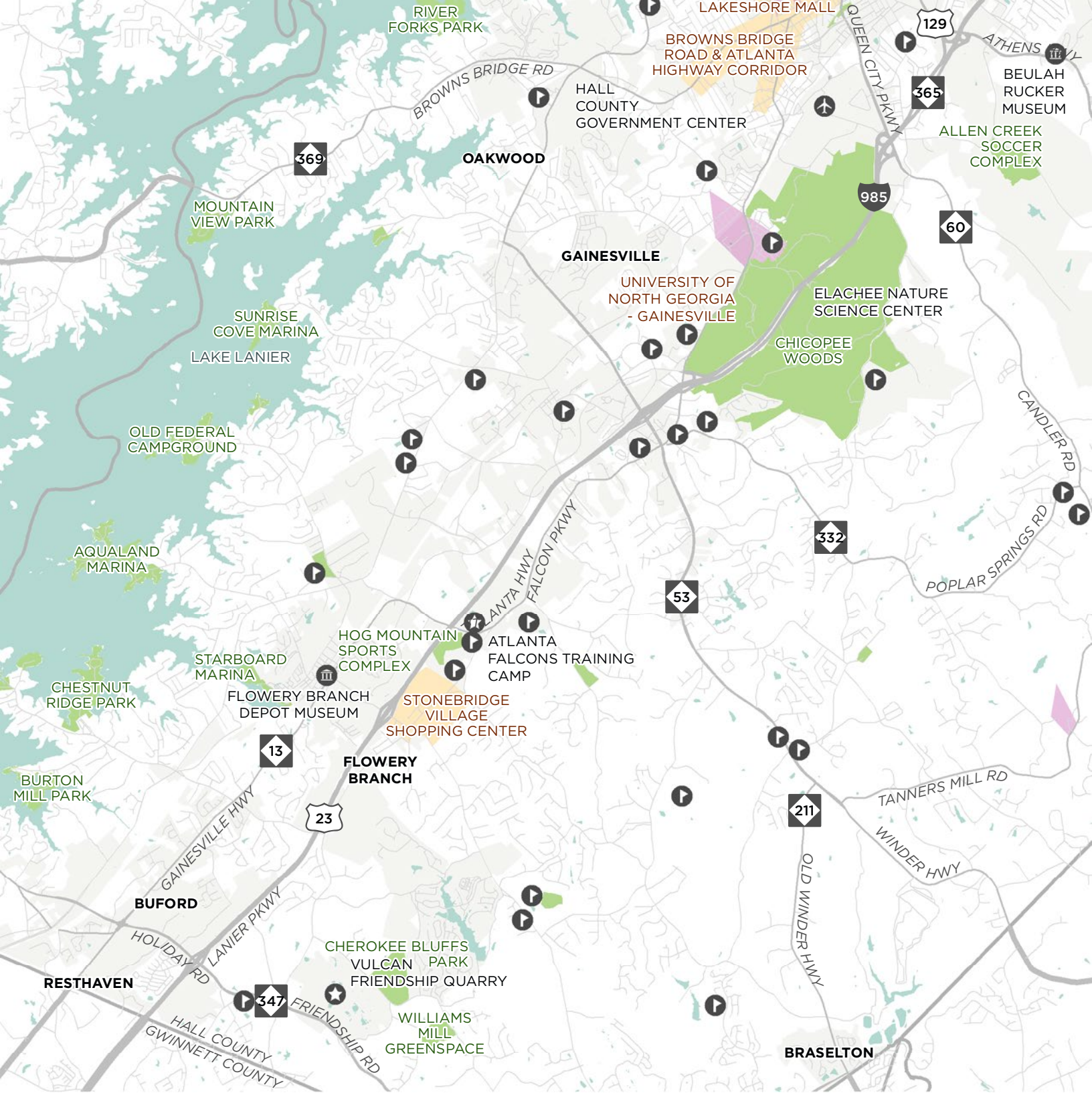
The map to the right highlights some of South Hall's points of interest, including cultural destinations, schools, national historic districts, commercial and retail centers, and parks. South Hall's cultural points of interest are primarily concentrated in historic downtown Gainesville. These destinations include the Quinlan Visual Arts Center, the North Georgia History Center, as well as the Gainesville Square. Other cultural destinations are scattered throughout the southern part of the county. The Atlanta Falcons off-season training camp is located in Flowery Branch. Some practices are open to the public and draw visitors from around the region. Flowery Branch is also home to a local depot museum and large residential areas to the east of I-985. The Vulcan Friendship Quarry is located in Buford. It has been a longtime presence in the Buford community since 1979.

In addition to cultural centers and other points of interest, South Hall is home to seven National Historic Districts. Six are located in Gainesville including: Logan Building, Jackson Building, Gainesville Commercial Historic District, Federal Building and Courthouse, Chicopee Mill and Village Historic District, and Dixie Hunt Hotel. Flowery Branch is home to the Flowery Branch Commercial Historic District.

South Hall contains 11 elementary schools, 7 middle school programs, and 6 high schools, including Early College at Jones. The University of North Georgia is located in Gainesville.

Furthermore, South Hall has three primary retail and commercial centers: Lakeshore Mall, the Browns Bridge Road & Atlanta Highway corridor, and the Stonebridge Village Shopping Center. Located on Dawsonville Hwy, Lakeshore Mall is a central hub of shopping, dining, and entertainment. The Browns Bridge Road & Atlanta Highway corridor hosts diverse commercial and retail ranging from Mexican grocery stores to seafood markets. Finally, the Stonebridge Village Shopping Center, located on the corner of Hog Mountain Rd and Spout Springs Rd, has a variety of shopping and dining options.

Hall County is home to more than 8,300 acres of parkland. Its largest park, the Chicopee Woods Park Area, is over 2,600 acres and includes the Elachee Nature Science Center, an extensive mountain bike trail network, a public golf course, and an agriculture demonstration pavilion. Cherokee Bluffs Park boasts over 106 acres and also includes several mountain bike trails. The University of North Georgia campus in Gainesville provides another 3.5 miles of natural terrain trails for mountain biking and cross country running.



POINTS OF INTEREST

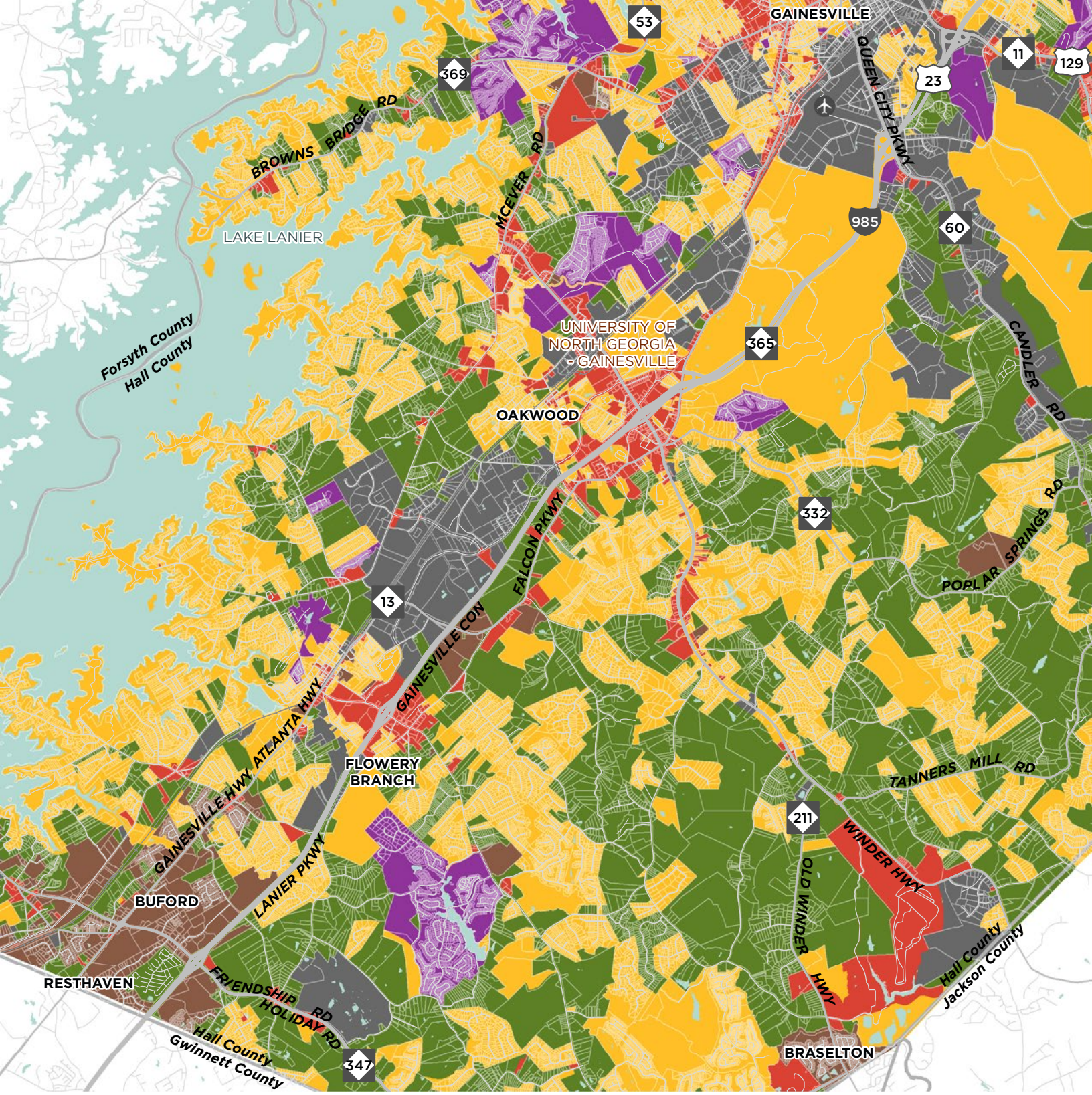
- Points of Interest
- Cultural Points
- Schools
- Commercial and Retail Centers
- National Historic Districts
- Parks

0 1 2 MILES

Land Use

Land use classifications for parcels within South Hall are shown on the facing map. The study area is primarily zoned residential and agricultural. Industrial uses are also prominent, particularly along the multiple railroad lines that extend through the center of the county. Commercial uses are interspersed throughout the county, concentrating in downtown areas such as Gainesville and Flowery Branch. Highly-trafficked corridors like McEver Rd, Browns Bridge Rd, Atlanta Hwy and Spout Springs Rd, serve primarily as commercial zones as well.

Overall, land uses are highly separated with only a few areas zoned mixed use. Trail networks between these various, separated land uses can provide more connectivity. Trails serve as connections between otherwise separated neighborhoods, commercial districts, employment centers, schools, and parks. These connections between land uses provide residents the opportunity to use alternative forms of transportation to reach destinations.



EXISTING LAND USE

- Agricultural
- Commercial
- Industrial
- Institutional
- Mixed Use
- Residential

0 1.5 3 MILES

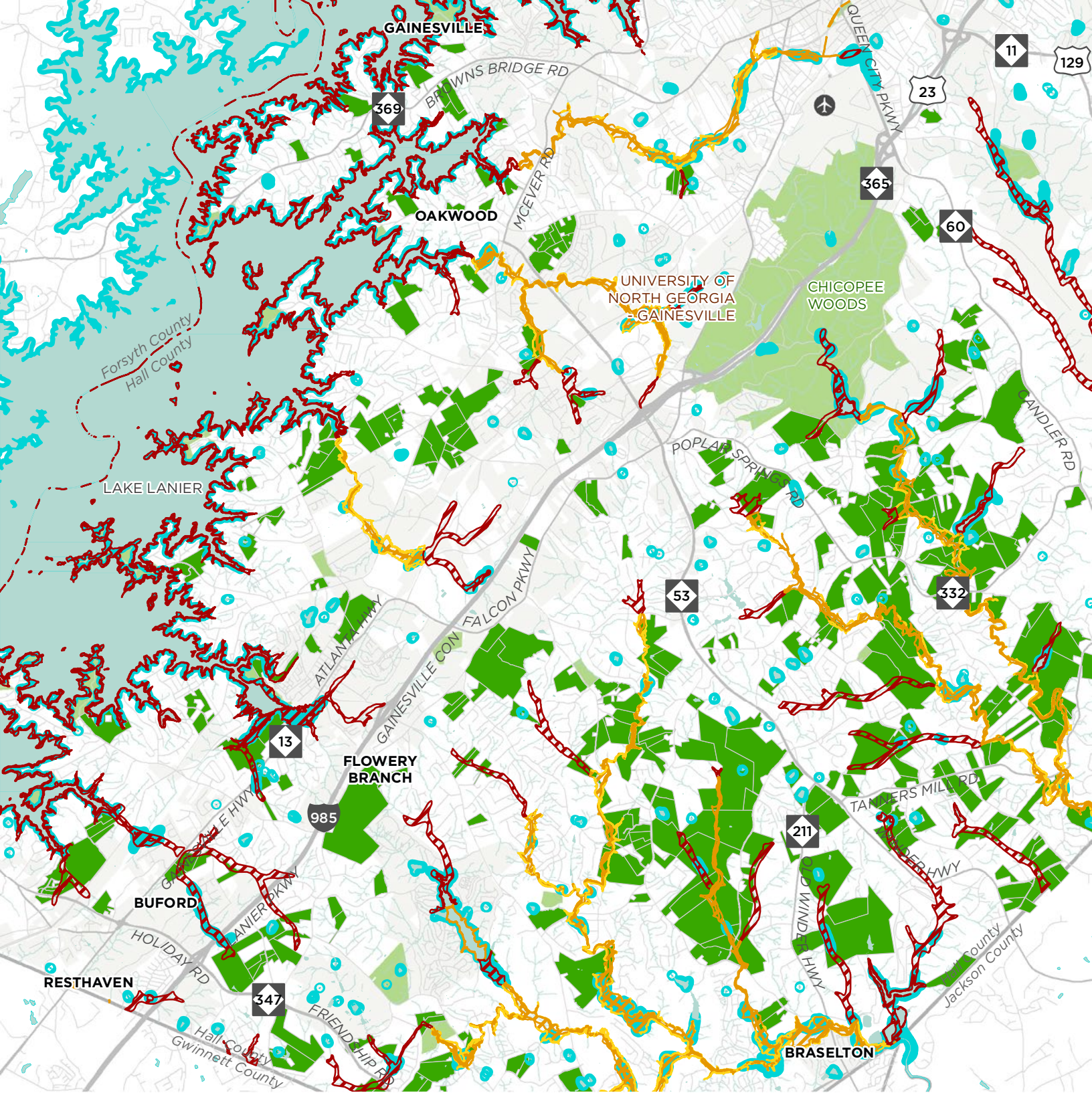
Environmentally Sensitive Areas

South Hall possesses incredible environmental resources. The County contains parts of Lake Lanier and is thus located within the Lake Lanier watershed. The area has a system of creeks and streams feeding into the lake. Water ecosystems in urbanized areas like Gainesville, Oakwood, Flowery Branch, and Buford are particularly vulnerable to pollution and other stressors.

The map to the right identifies these sensitive areas, specifically wetlands and floodplains. Both of these natural features serve vital environmental functions. Wetlands are unique ecosystems inundated by water. They store and purify water as well as serve as critical habitat for unique plant and animal species. Floodplains act as a buffer between riparian corridors and adjacent land and buildings. Developing on floodplains poses flood risk to the project but also increases flood risk to the adjacent areas outside the flood zone. The severe risk category indicates areas incredibly prone to flooding. A 100-year floodplain identifies areas that are highly likely to flood during a 100-year storm, or a storm that has a 1% chance of occurring in any given year. 500-year floodplains signify areas at risk of flooding during a 500-year storm, or one that has 0.2% chance (1 in 500 chance) of occurring in a given year.

Because of these vital functions, both wetlands and floodplains are considered environmentally sensitive areas. Development on wetlands also requires further analysis and permitting. Therefore, it is important to identify these areas because trail development can require additional documentation and have lasting impacts on these vital natural resources.

The map also shows conservation use property. Conservation use assessments grant property tax breaks to those who own agricultural, forested, or environmentally sensitive land. The favorable tax treatment incentivizes land owners to protect environmental resources on their land rather than redeveloping it. There are several South Hall properties assessed as conservation use, indicating that these are environmentally sensitive resources. In addition to private land, public parks often serve conservation purposes. For example, the Chicopee Woods Nature Preserve protects over 1,400 acres of old growth forest. Trail development through these conservation lands might provide a unique experience, but also impact these sensitive areas.



ENVIRONMENTALLY SENSITIVE AREAS

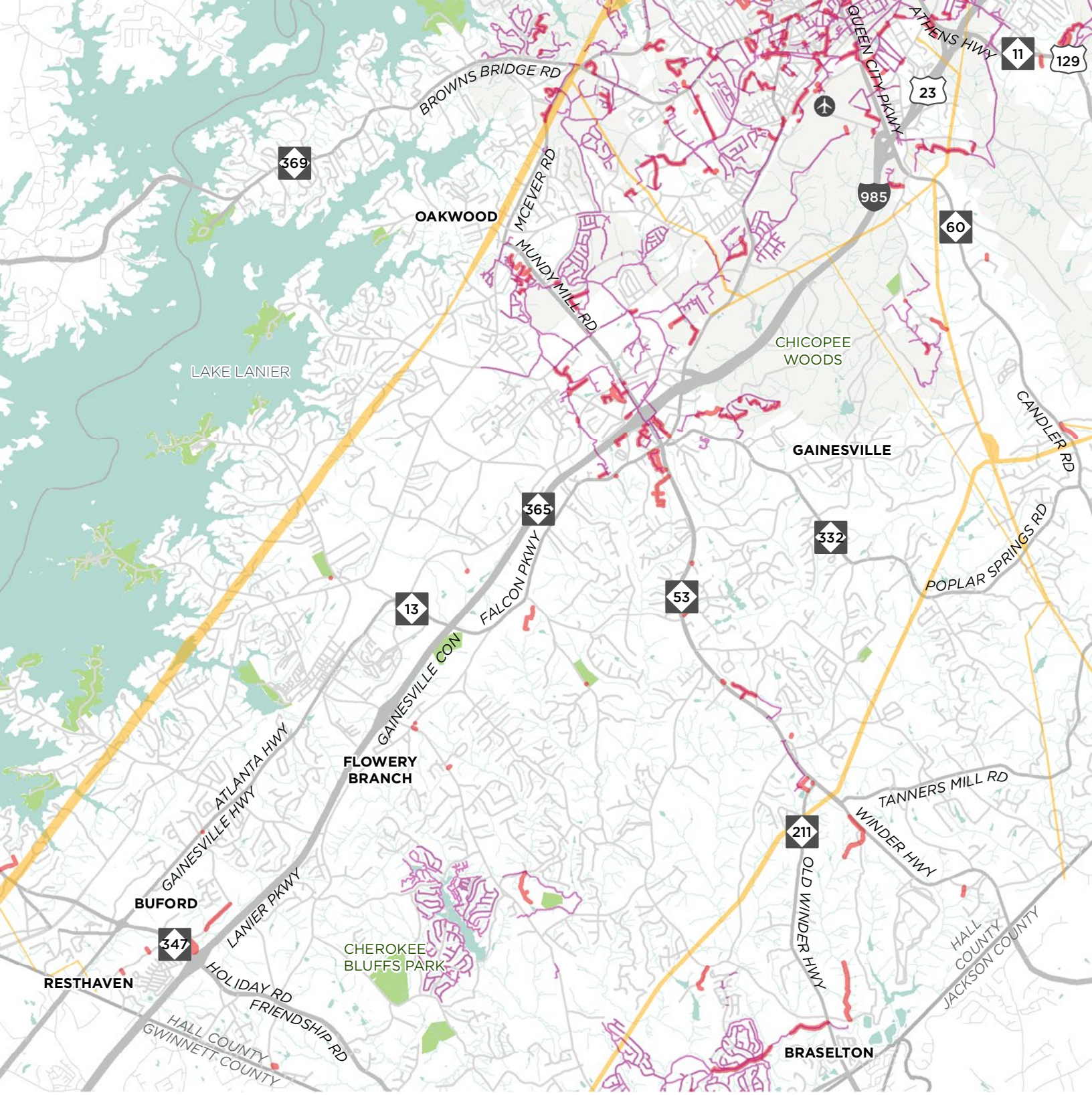
- Severe Risk
- 100-Year Floodplain
- 500-Year Floodplain
- Wetlands
- Conservation Use Property
- Parks

0 1 2 MILES

Easements

Easements grant the right to use another's property without having to purchase property in fee. The map on the facing page shows South Hall's utility easements. Identifying these existing publicly-held easements is a key strategy to developing trail networks. Specifically, utility easements, including sewer and power lines, provide trail development opportunities on often underused space. Utility companies typically locate their services along continuous, linear spaces; these long corridors are often incredibly suitable for trails. Furthermore, developing trails along utility easements can be cost-effective. Easements alleviate the need to purchase the full ownership rights of property, and therefore are more cost-effective. South Hall has numerous sewer and utility easements between Gainesville and Oakwood that prove useful in establishing trail alignments.

South Hall has many easements that could be dual-purpose utility and active transportation corridors, such as this sewer easement near Old Flowery Branch Rd.



UTILITY EASEMENTS

- Sewer Lines
- Utility Easements
- Sewer Easements
- Parks

0 1 2 MILES

Opportunities and Constraints

Fieldwork, GIS mapping, and input from the public and Project Management Team helped to identify existing opportunities and constraints for trail development within South Hall. This section presents an overview of the key assets that would support a local trail system and the challenges that will need to be addressed for successful implementation.

1 Flat Creek restoration project underway.

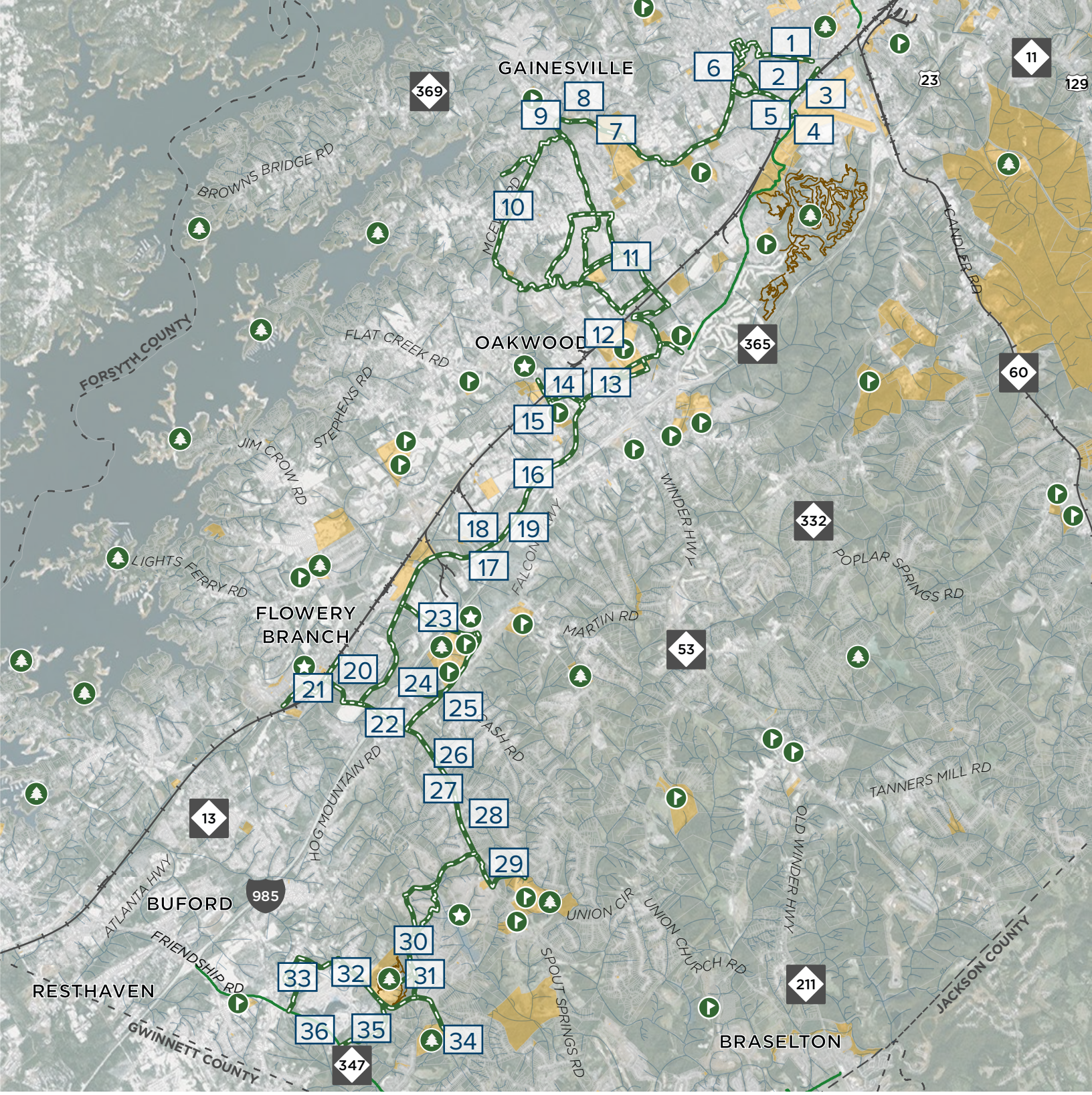
2 Sidepath on west side of Industrial Blvd would require property acquisition along corridor; owners currently using the space for parking.

3 East side of Industrial Blvd has relatively few driveways and intersections. Buffer between rail and road roughly 40’ min.

4 Loggins St corridor allows direct connection to Palmour Dr sidepath from Aviation Blvd.

5 No pedestrian accommodations at existing at-grade rail crossing across Aviation Blvd.

6 Land use challenges around this portion of Flat Creek.



Opportunities and Constraints

- Potential Alignments
- Existing Paved Trails
- Existing Unpaved Trails
- Streams
- Destination
- School
- Park
- Publicly Owned Parcels
- Rail

0 ½ 1 2 MI

7 Potential trailhead off of Old Flowery Branch Rd, near water treatment facility.

8 Utility corridor connects directly to Hall County Government Center.

9 Creek runs behind Free Chapel.

10 McEver Rd is a high speed, high volume corridor.

11 Several feasible routes through UNG campus.

12 New Tumbling Creek Bridge over railroad tracks includes 10’ separated sidepath.

13 Mundy Mill Rd. is a very high volume, high speed roadway and a grade-separated crossing should be considered.

14 Oakwood Rd. is a low volume roadway that provides a direct connection to Oakwood town center.

15 Coordinate with Oakwood Elementary School to create spur connecting to school.

16 Existing streetscape provides opportunity for trail development if sidewalk were widened.

17 Thurmon Tanner Pkwy is less developed on the east side with anticipated office and commercial use. A trail will provide recreational and transportation access opportunity for future businesses.

18 There are many driveway entrances along the roadway which can disrupt trail crossings.

19 Wetlands in this area should be protected from any development.

21 Railroad coordination will be required for crossing.

22 Bench modification will be required beneath I-985. GDOT to reconstruct underpass for I-985 widening.

24 A connection into commercial complex via stream corridor is not feasible due to steep grades.

20 E Main offers low-volume route into Flowery Branch.

23 Trail overpass would require suspended structure over I-985.

25 Alignment is feasible on east side of Hog Mountain Rd. with utility setbacks.

26 Steep grades on north side of roadway will require guardrail or fencing along trail.

27 Trail along Spout Springs Rd. will require closed drainage system and improvements to driveways.

28 East side of Spout Springs Rd. is preferred to limit driveway crossings and drainage.

29 Opportunity to use sewer easement to connect to school.

30 Use Bragg Rd for trail connection.

31 The gas easement provides potential trail spur to Cherokee Bluffs Park.

32 Trail along Blackjack requires curb and gutter, utility coordination on either side.

33 Coordination needed with quarry to determine routing along edge of property.

34 Provide connection to parks.

35 Swansey Road is unpaved and steep, posing challenges to trail

36 Tie to existing sidepath on Friendship Rd.

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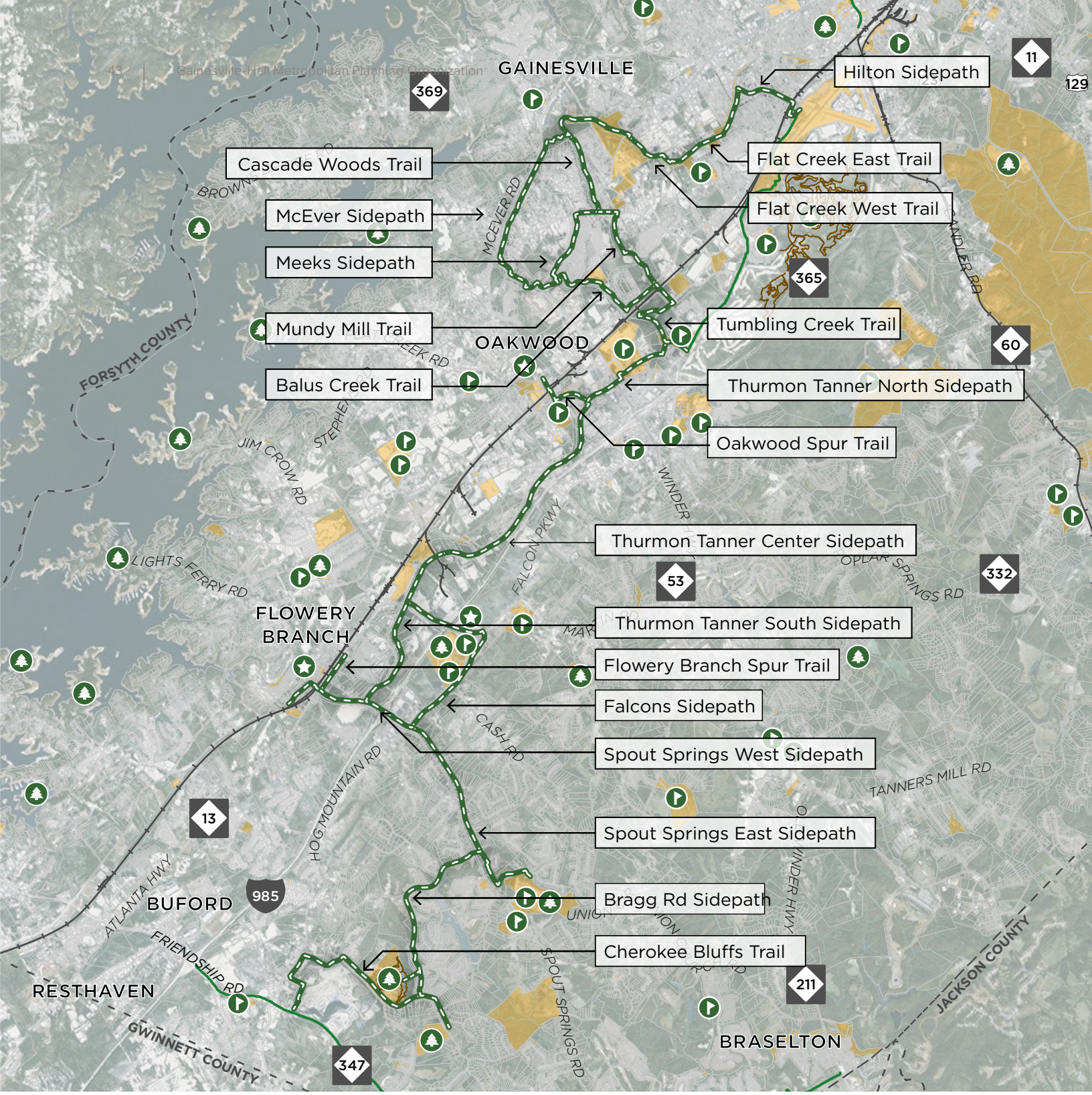
IV.

Recommendations

The South Hall Trail Network

This chapter presents detailed recommendations for the alignment and physical attributes of the South Hall trail network. The recommendations take into account the impact of physical and environmental factors and the relationships between these factors that govern the successful creation of a trail system. 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.



Trail Segments

- Proposed Trails
- Existing Paved Trails
- Existing Unpaved Trails
- Streams
- Destination
- School
- Park
- Publicly Owned Parcels

0 ½ 1 2 MI

Recommended Alignment

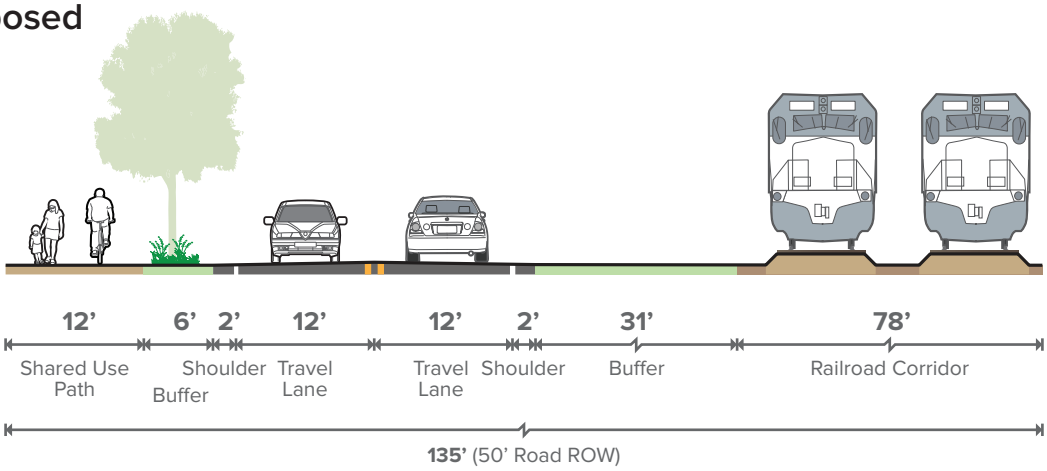
A thorough in-field evaluation of the South Hall project study area was conducted to determine feasible trail alignments. Prior to entering the field, the team remotely assessed the study area and analyzed corridors using Geographic Information Systems (GIS) to determine land use and resources adjacent to the project study area. **The resulting alignments provide the greatest number of connections and benefits to trail users.** The proposed alignment composite, shown on the following page, is the most successful in terms of serving the largest number of users along the corridor. Detailed project segments are provided starting on page 46. Once constructed in the recommended form, the South Hall trail system will connect to Flowery Branch and Oakwood city cores, dozens of neighborhoods, seven public schools, UNG, multiple parks, commercial areas, and ultimately downtown Gainesville. The alignment totals 30.8 miles.

The following pages provide detail for the recommended alignment of each trail. Additional recommendations are continued on page 79.

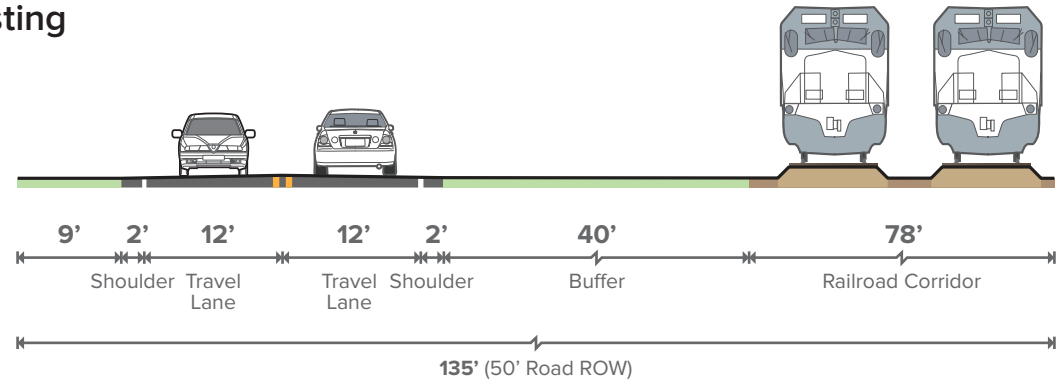
Hilton Sidepath

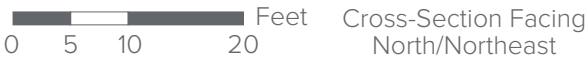
The Hilton Sidepath provides an important link between the Aviation Blvd. and Industrial Blvd. The segment begins at the south end of Aviation Blvd. with several safety modifications to the intersection of Francis Ave. There is ample space within the existing traffic islands to include a median refuge island to convey use to the north side of Aviation Blvd. before crossing Industrial Blvd. Coordination with the railroad is required to modify the at-grade crossing to accommodate a shared use path. Where the proposed trail crosses driveways along the commercial and industrial use, coordination is recommended with property owners, especially where operations may be interfering with public right-of-way.

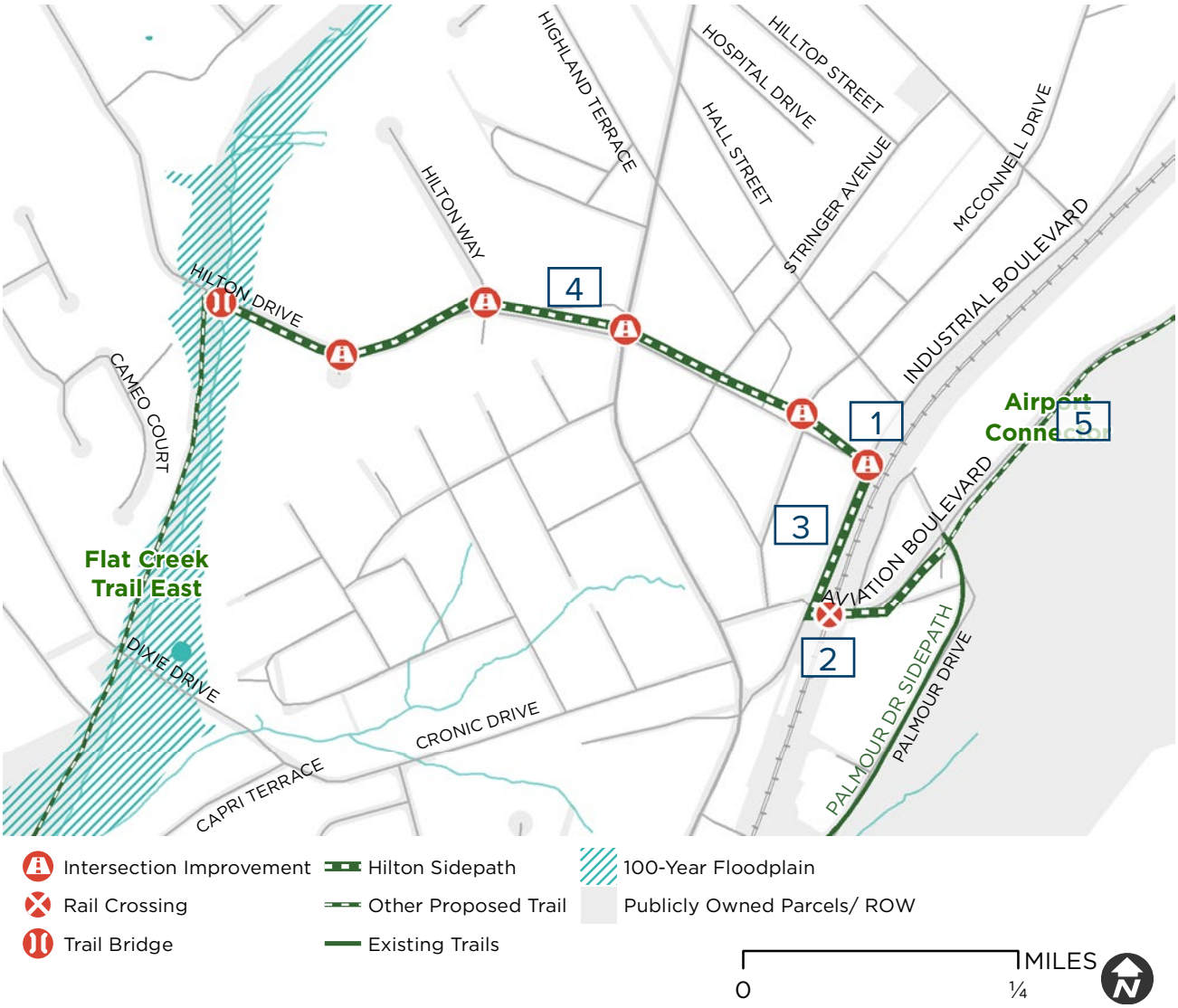
Proposed



Existing







Hilton Sidepath

1. Provide median refuge and intersection enhancements to increase safety
2. Work with RR to develop at-grade crossing modification, including controlled access fencing and pedestrian gates
3. Work with commercial property owners to extend trail north along the west side of Industrial Blvd. along the shoulder to Mimosa St.
4. Trail extends along north side of Hilton Dr.
5. For more information on the Airport Connector Trail, see the *GHMPO Gainesville Trails Study* (2018)

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	5,012	100%	N/A
Public Parcels	0	0%	0
Private Land	0	0%	0

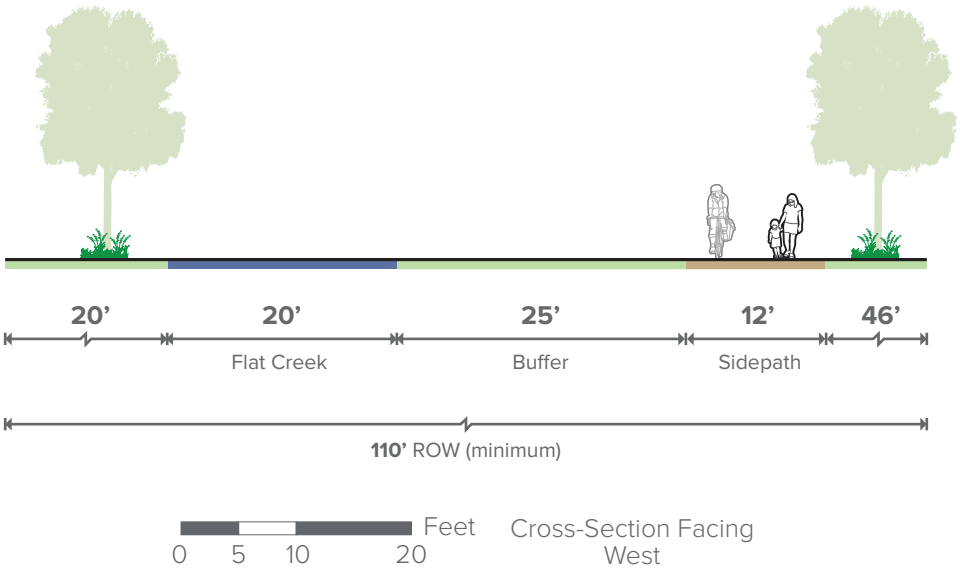
Approximate length: **0.96 miles**

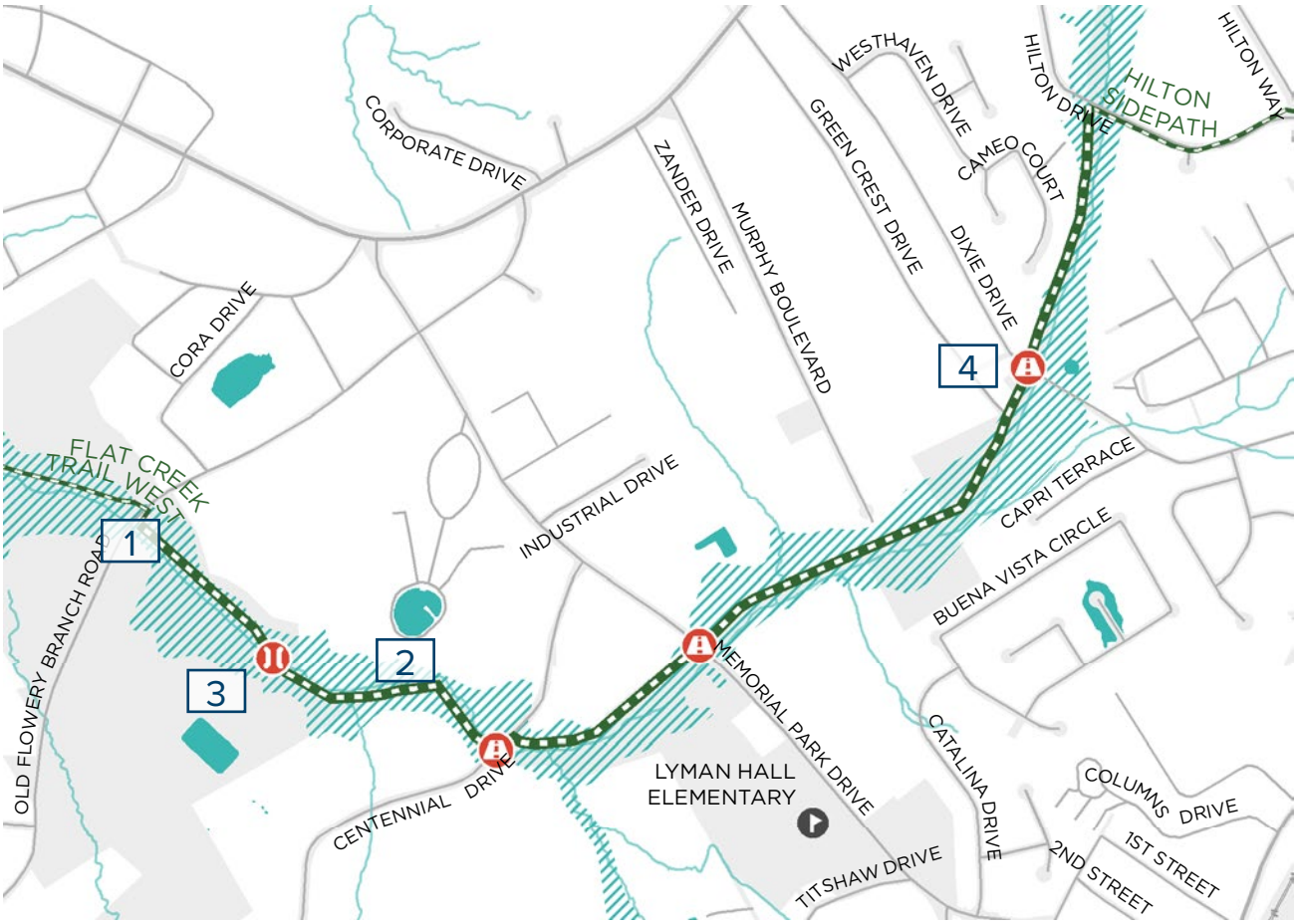
Estimated Cost: **$2.5M**

Flat Creek Trail East

The Flat Creek corridor is one of the natural resources extending through Gainesville and South Hall county and opportunities exist to provide a contiguous trail along its banks, offering residents options for recreation and connections to neighboring land use. Flat Creek Trail East extends from Old Flowery Branch Rd., at the proposed trailhead. The entire trail corridor is located in 100-year floodplain, therefore concrete is recommended to provide durability during storm events. The corridor will follow sewer easements. There are three roadway crossings along the corridor, which will be treated at-grade. The segment connects to the north at Hilton Dr. This section of the Flat Creek corridor is more remote and will provide a separated facility for almost 1.25 miles.

Proposed





Flat Creek Trail East

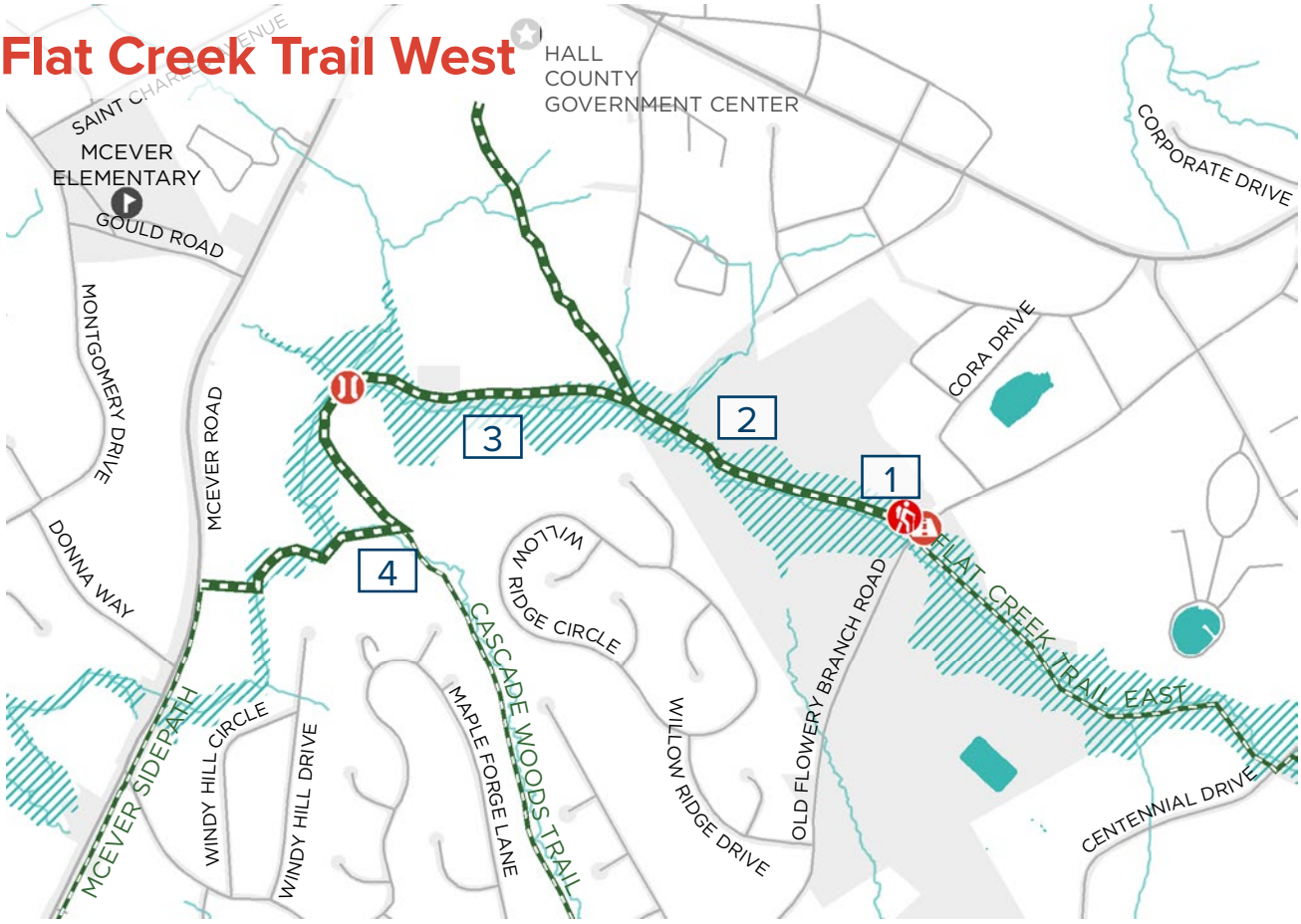
1. Provide rectangular rapid flash beacon (RRFB) at Old Flowery Branch Rd. to connect with the proposed trailhead
2. Multiple culverts are recommended along the sewer easement to convey drainage
3. 50-foot bridge proposed at stream
4. This area has encroaching wetlands into the sewer easement and may require raised tread. Because no structures are allowed in utility easements, additional easement will need to be acquired to the north from adjacent property owner.

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	298	3.2%	N/A
Public Parcels	9,032	96.8%	5
Private Land	0	0%	0

Approximate length: **1.77 miles**

Estimated Cost: **$3.28M**

Flat Creek Trail West



Flat Creek Trail West extends from Old Flowery Branch Rd. where a 20-car trailhead is proposed. The trail will extend along gas easement parallel to Flat Creek. The segment is remote and it will be important to provide ample wayfinding signage, clear sight lines, and well-maintained facilities to encourage the intended use and maintain a sense of security. The trail connects with existing sewer easements until spurring off to the west to connect with McEver Rd.

1 Proposed trailhead with parking for up to 20 vehicles

2 Several 30” culverts are recommended along entire corridor to convey drainage

3 Concrete trail is recommended in this segment to provide durability during storm events

4 Provide wayfinding signage to direct trail users

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	3,662	40%	N/A
ROW	42	0%	N/A
Public Parcels	3,621	40%	1
Private Land	1,818	20%	1

Approximate length: **1.73 miles**

Estimated Cost: **$2.79M**

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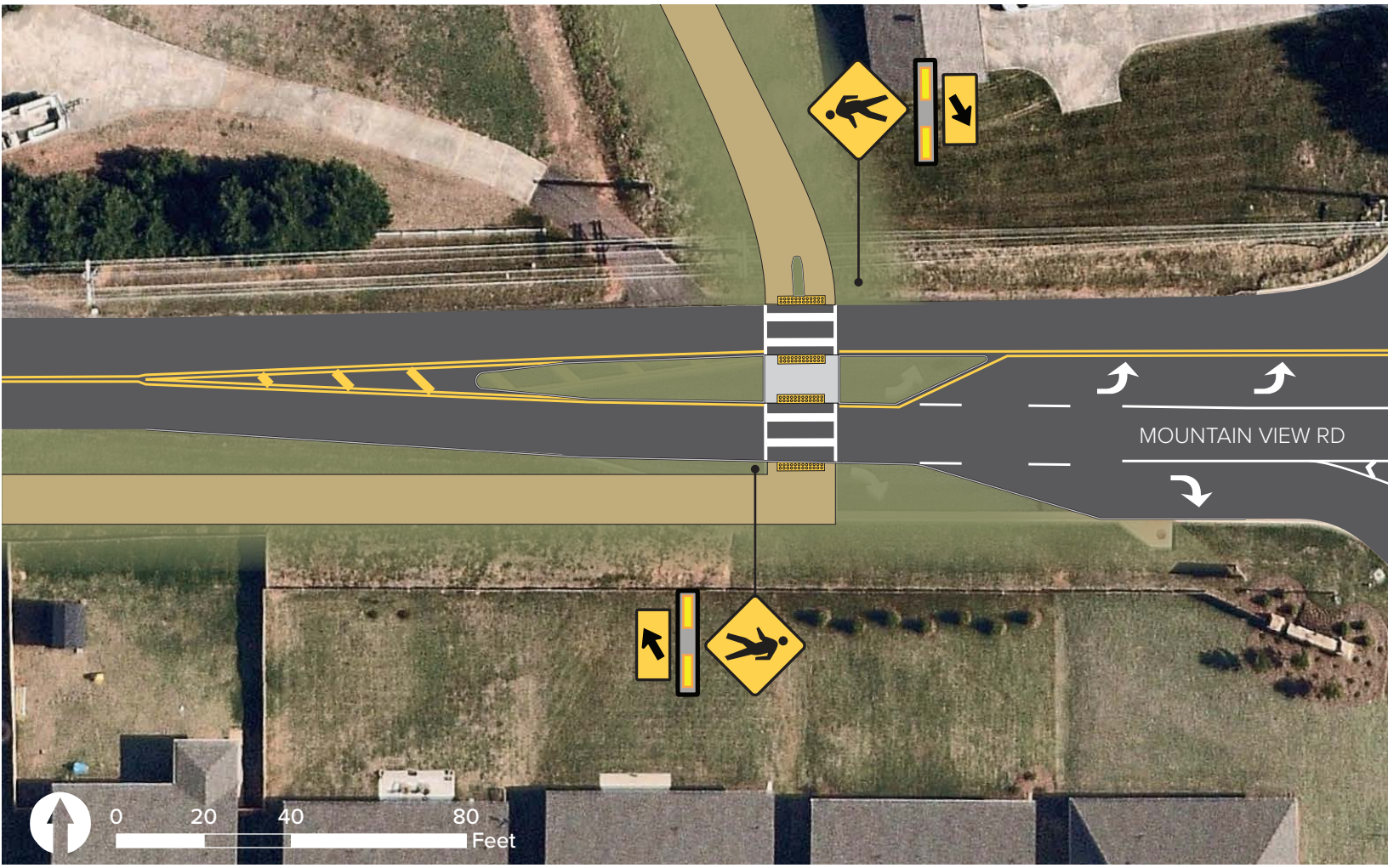
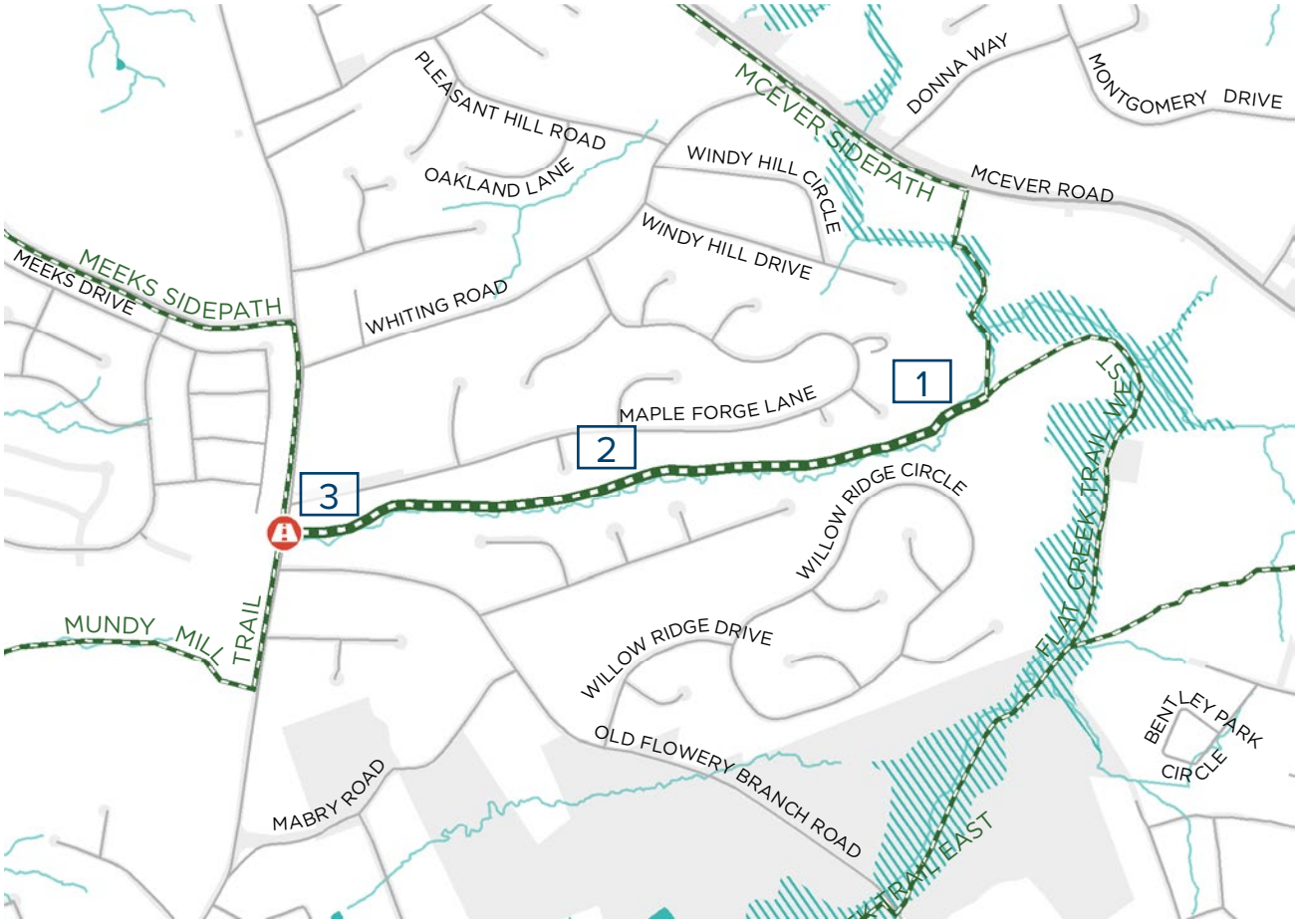
Cascade Woods Trail



The Cascade Woods Trail will be a neighborhood trail extending along a tributary off of Flat Creek near the Maple Forge subdivision. This trail will provide a valuable north/south connection from Meeks Rd. to the Flat Creek trail corridor, offering residents in this part of Hall County recreational connections directly from their homes. Since the trail extends along a creek, the surfacing will be concrete to accommodate occasional inundation during storm events. The acquisition of easements will be required from all property owners, and close coordination with individual home owners is necessary during design to ensure their privacy.



Cascade Woods Trail

1. Work with property owners to develop final design and obtain trail easements
2. Install fencing along west boundary of trail easement to ensure homeowner privacy
3. Install wayfinding signage and proper guidance to direct all trail users

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	2,454	51.4%	N/A
ROW	18	0.4%	N/A
Public Parcels	0	0%	0
Private Land	2,300	48.3%	35

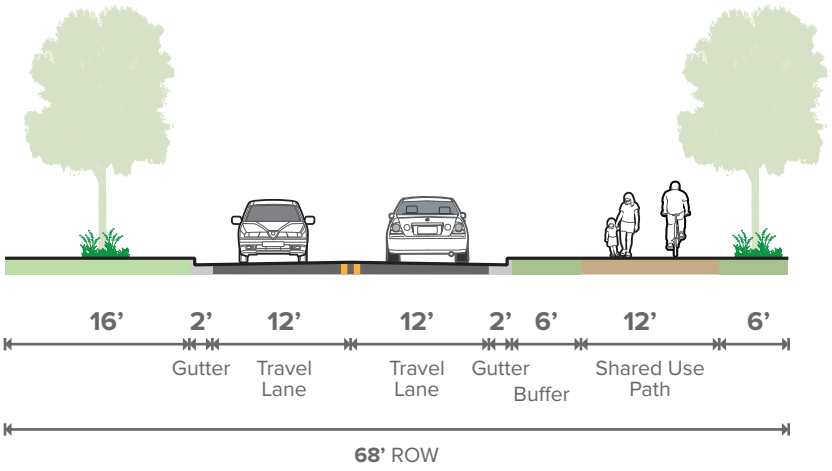
Approximate length: **0.4 miles**

Estimated Cost: **$1.34M**

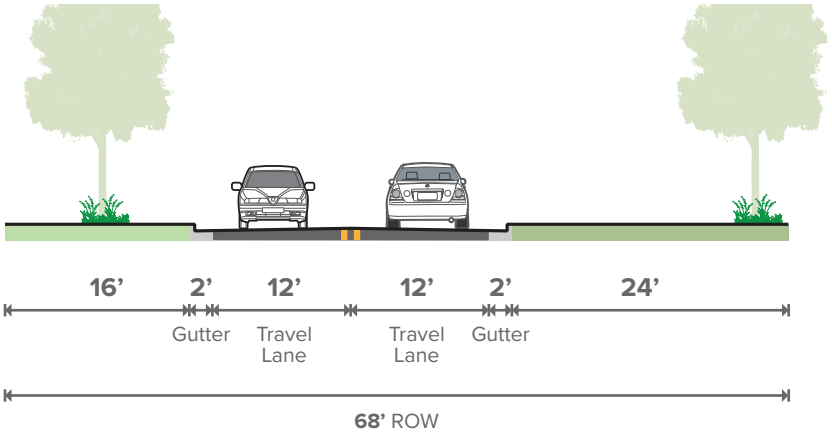
Meeks Sidepath

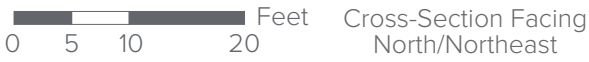
Meeks Dr. provides an important north/south connection between Mountain View Rd. and Tumbling Creek. The segment begins on Mountain View Rd. across from the proposed trailhead. A mid-block crossing is proposed on Mountain View Rd. to convey trail use on the south side of the roadway, within public right-of-way. At Meeks Dr., the trail will extend south, along the eastside of the roadway. Meeks Dr. is a low volume road and trail construction will occur within roadway right-of-way to minimize easement acquisition. Just before the Mundy Mill Rd. intersection, the trail will extend slightly south off road before connecting with the Balus Creek corridor. The Meeks Sidepath is proximate to UNG and may support active transportation commuters who work at or attend the university.

Proposed

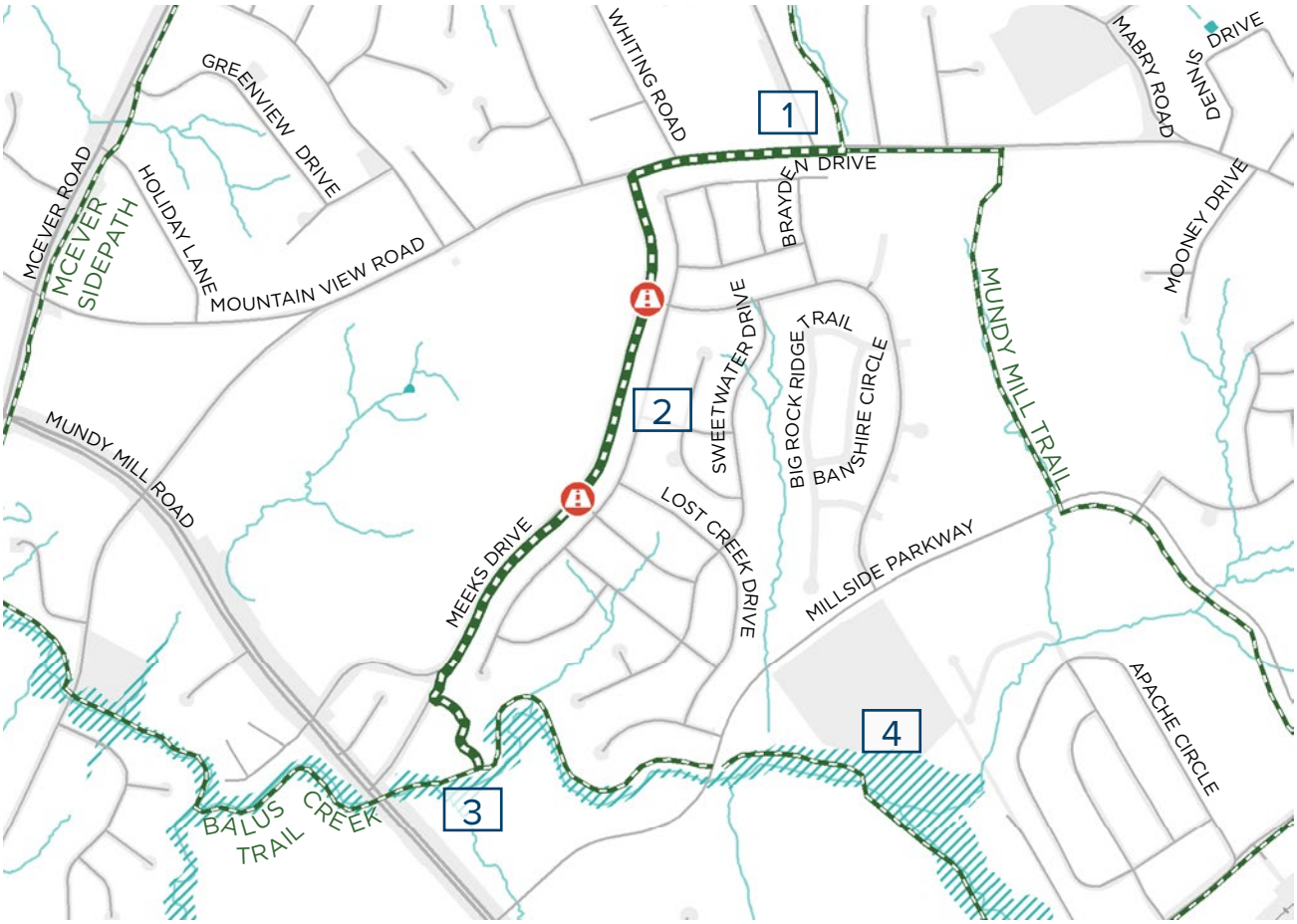


Existing





Cross-Section Facing North/Northeast



Meeks Sidepath

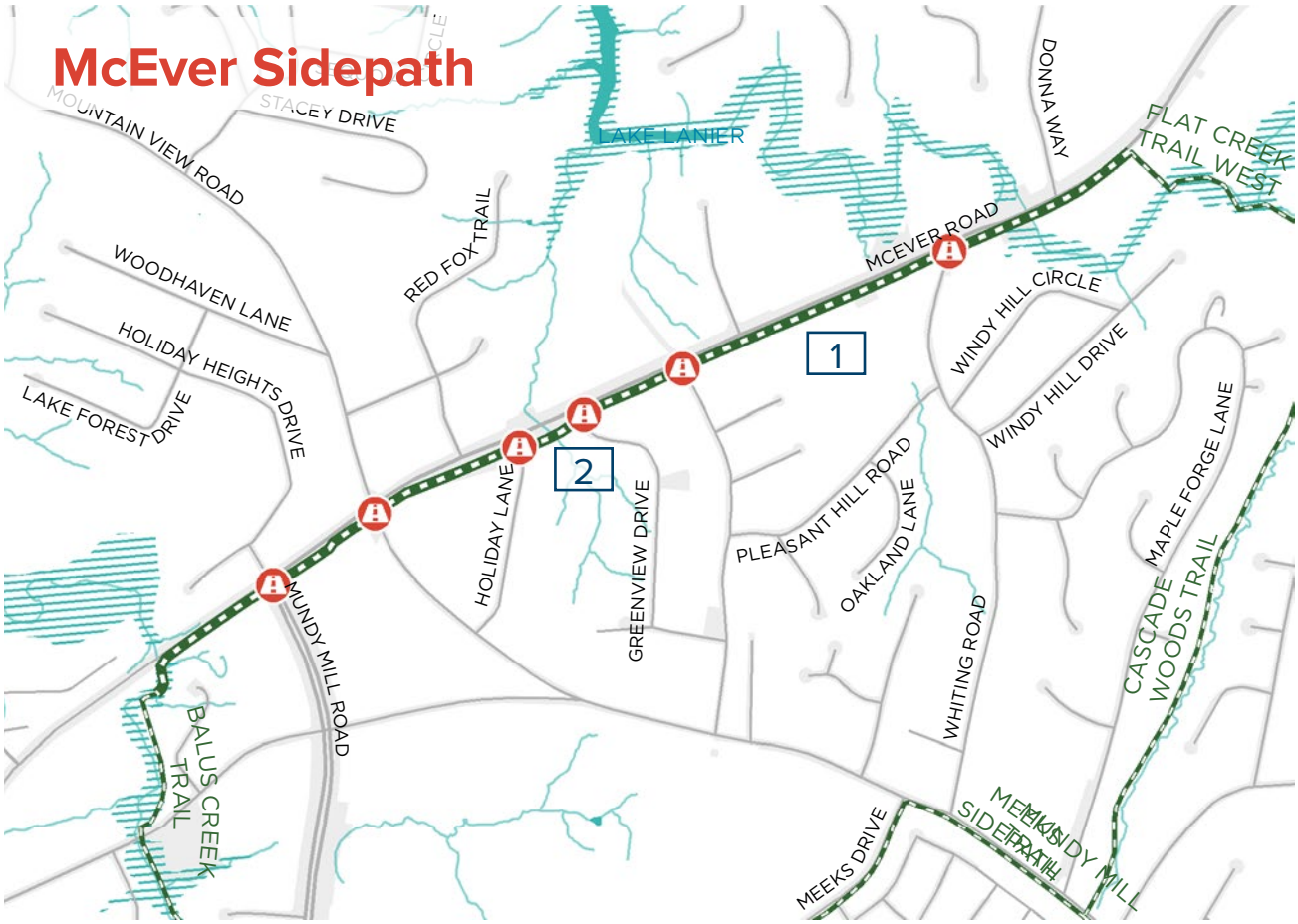
1. Mid-block crossing with rectangular rapid flash beacon (RRFB) at Mountain View Rd.
2. Install trail along the east side of Meeks Dr.
3. Trail intersection, TYP. (see design guidelines)
4. Connections to UNG support active transportation choices

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	75	1.3%	N/A
ROW	5,286	89.7%	N/A
Public Parcels	0	0%	0
Private Land	531	9.0%	2

Approximate length: **1.12 miles**

Estimated Cost: **$2.12M**

McEver Sidepath



McEver Sidepath extends on the south side of McEver Rd. from approximately Donna Way west to the Balus Creek corridor. A number of minor roadway crossings will require high visibility crosswalk and signage. Where possible the trail will be constructed within roadway right-of-way to minimize easement acquisition.

1 Install trail on the south side of McEver Rd.

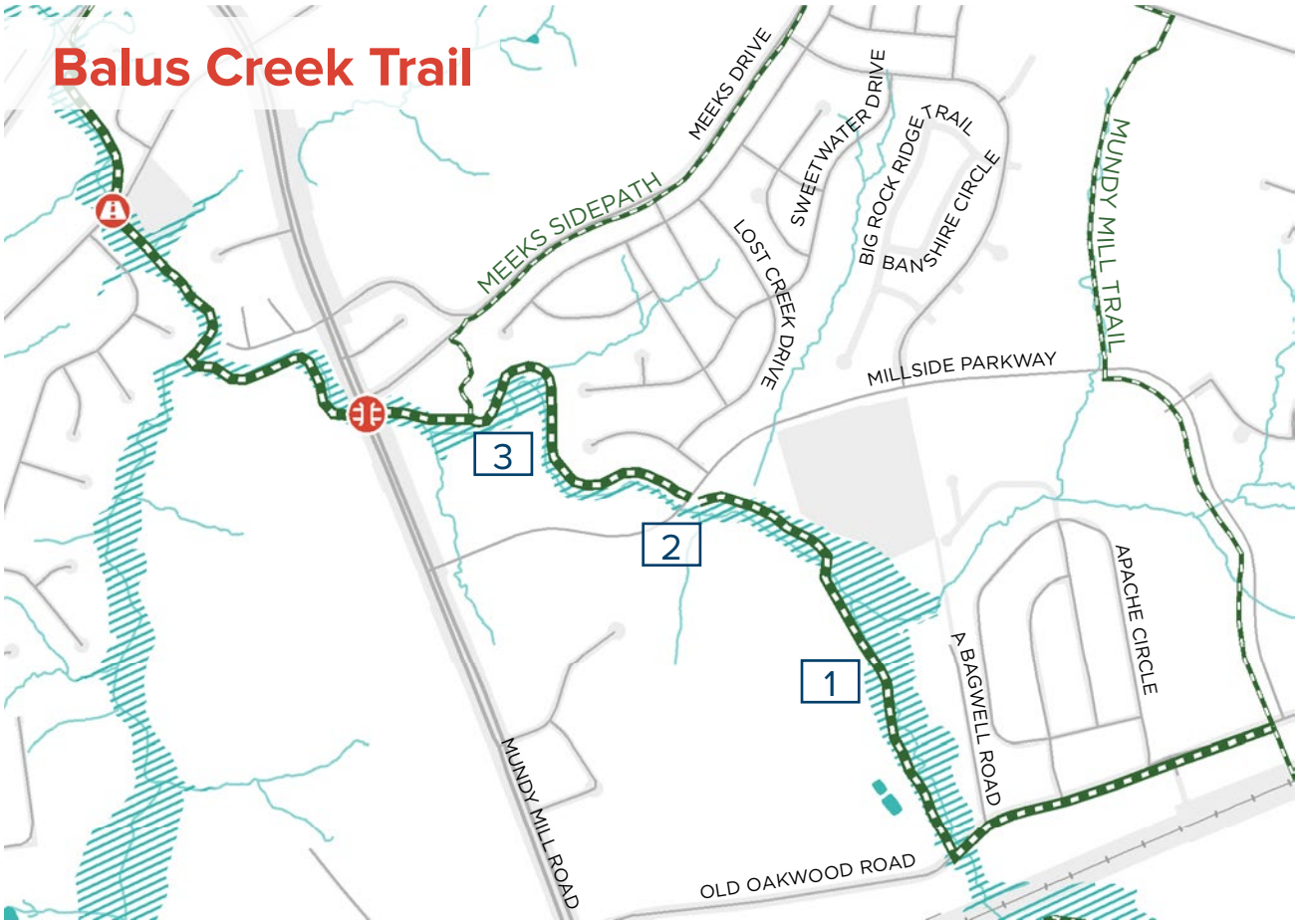
2 Culvert extension required to accommodate trail

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	6638	89.4%	N/A
Public Parcels	230	3.1%	0
Private Land	556	7.5%	5

Approximate length: **1.4 miles**

Estimated Cost: **$3.32M**

Balus Creek Trail



Beginning at the Tumbling Creek trail segment, Balus Creek Trail will extend along the south side of Old Oakwood Rd. within roadway right-of-way before crossing mid-block and at grade where it will follow the sewer easement along Balus Creek to the north. The trail continues north and west along utility easements until connecting with the McEver Rd. trail segment. During the trail study, a number of neighborhoods were under development along and near the Balus Creek corridor, and close coordination with builders and the final as-built conditions are recommended for this trail segment.

1. Close coordination with neighborhood developers and residents is recommended prior to design
2. Install rectangular rapid flash beacon (RRFB) at Millside Pkwy.
3. Multiple 30” culverts are required to convey drainage

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	1984	16.2%	N/A
ROW	2604	21.3%	N/A
Public Parcels	3723	30.5%	0
Private Land	3917	32.0%	19

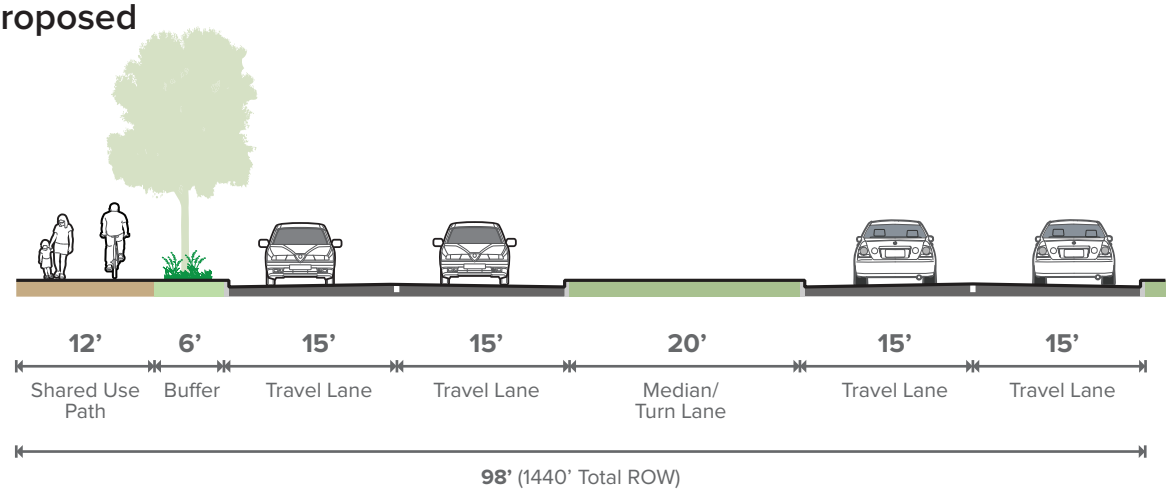
Approximate length: **2.32 miles**

Estimated Cost: **$4.59M**

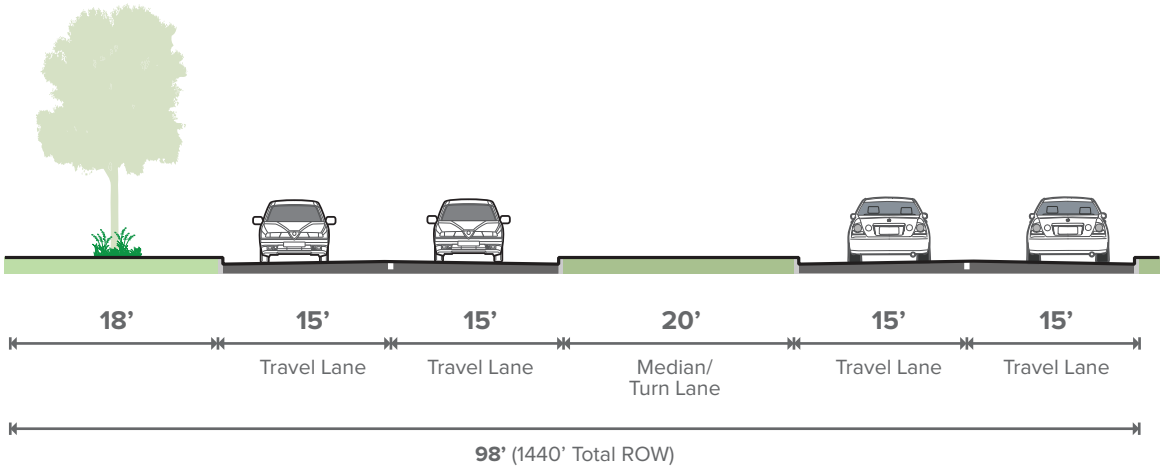
Mundy Mill Trail

At the north end of the Meeks Sidepath segment, the Mundy Mill Trail extends along Mountain View Rd. before turning south through neighborhood streets to connect with the future Tumbling Creek Rd. bridge. The Mundy Mill Trail requires very close coordination with the neighborhood's developers to determine proper routing that maintains privacy and controls access for home owners. Once constructed this trail segment will provide important active transportation connections to UNG.

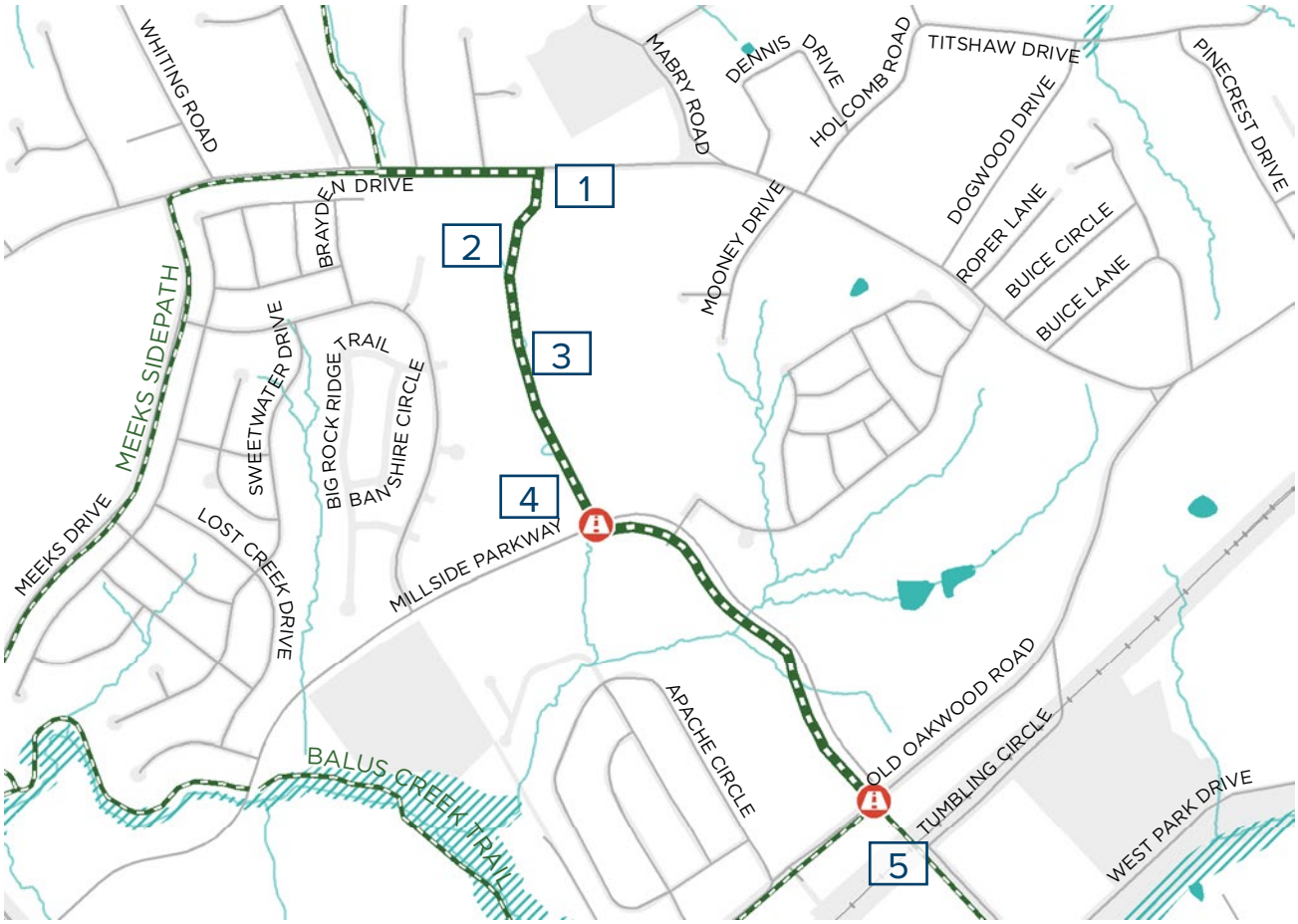
Proposed



Existing



Cross-Section Facing North/Northeast



Mundy Mill Trail

1. Provide proper wayfinding signage to direct users since this segment is more residential
2. Work with neighborhood developer and home owners to provide fencing and other treatments as necessary to maintain privacy and control access
3. Several culverts may be necessary to provide positive drainage
4. A midblock crossing is proposed at Millside Pkwy.
5. Proposed bicycle/pedestrian facilities on future railroad bridge, connect trail with this important link

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	254	4.0%	N/A
ROW	1,117	17.6%	N/A
Public Parcels	0	0%	0
Private Land	4,960	78.4%	3

Approximate length: **1.2 miles**

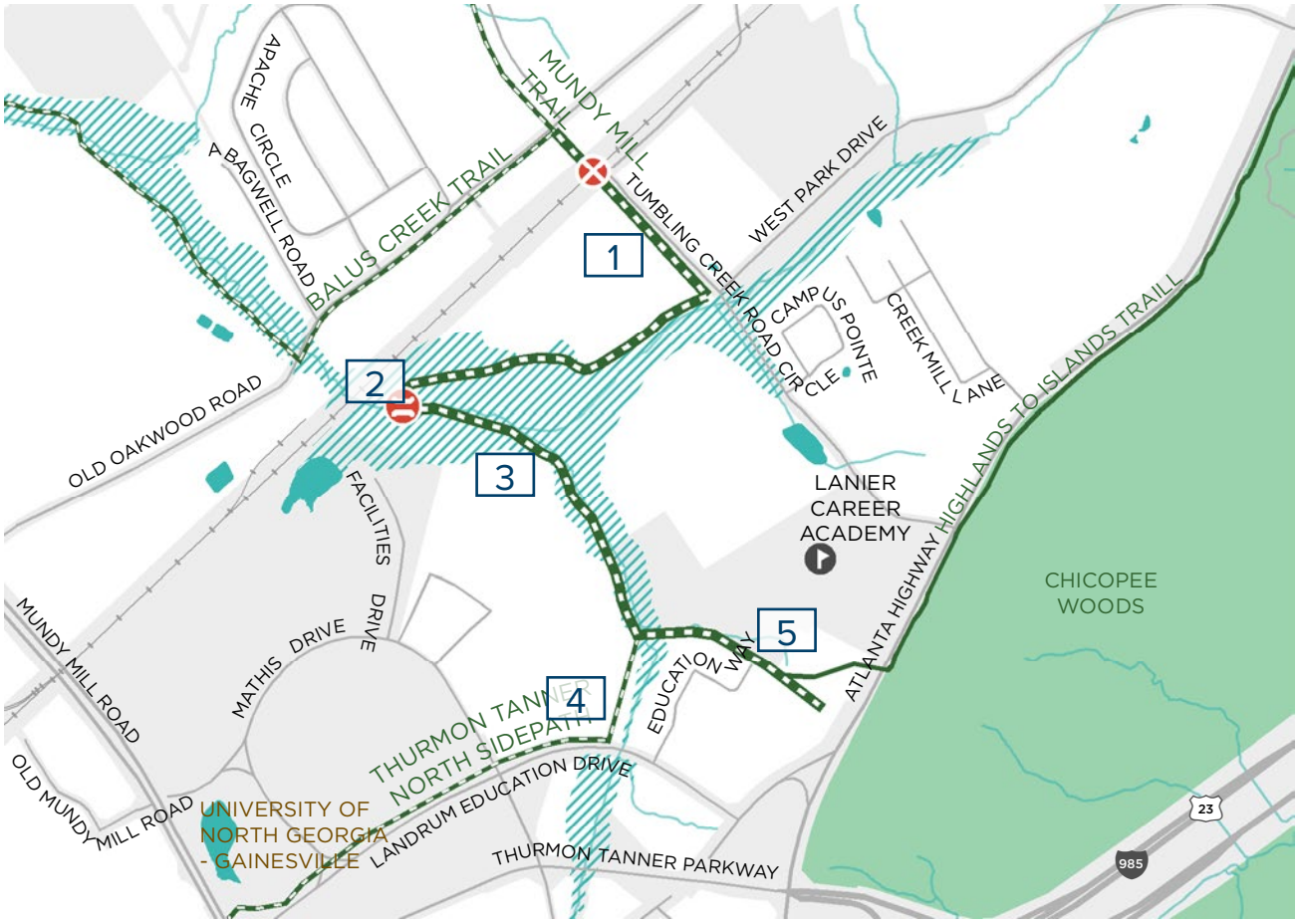
Estimated Cost: **$1.95M**

Tumbling Creek Trail

Proposed Trail Spur

Existing Parking Lot along Education Way

Tumbling Creek Trail begins at the future railroad bridge crossing and extends south along the west side of Tumbling Creek Rd. before making a direct connection into UNG campus and existing trails. The alignment's routing is based on the preservation of the existing trails where possible, and follows sewer easement which is currently being used as a commuter corridor for UNG faculty and students. Extensive boardwalk and a creek crossing will be required as the majority of the site is located in 100-year floodplain.



Rail Crossing
Trail Bridge
Tumbling Creek Trail
Other Proposed Trail
Existing Trails
100-Year Floodplain
Publicly Owned Parcels/ ROW

0 ¼ MILES

Tumbling Creek Trail

1. Install trail along the west side of Tumbling Creek Rd. to connect with UNG campus
2. Approximately 40-foot creek crossing
3. Boardwalk will be required through this area due to extensive flooding during storm events
4. Connect to minor trailhead where improvements are proposed
5. Earthwork will be required in this location based on topography

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	2525	33.6%	N/A
ROW	252	3.4%	N/A
Public Parcels	935	12.5%	0
Private Land	3799	50.6%	9

Approximate length: **1.42 miles**

Estimated Cost: **$2.22M**

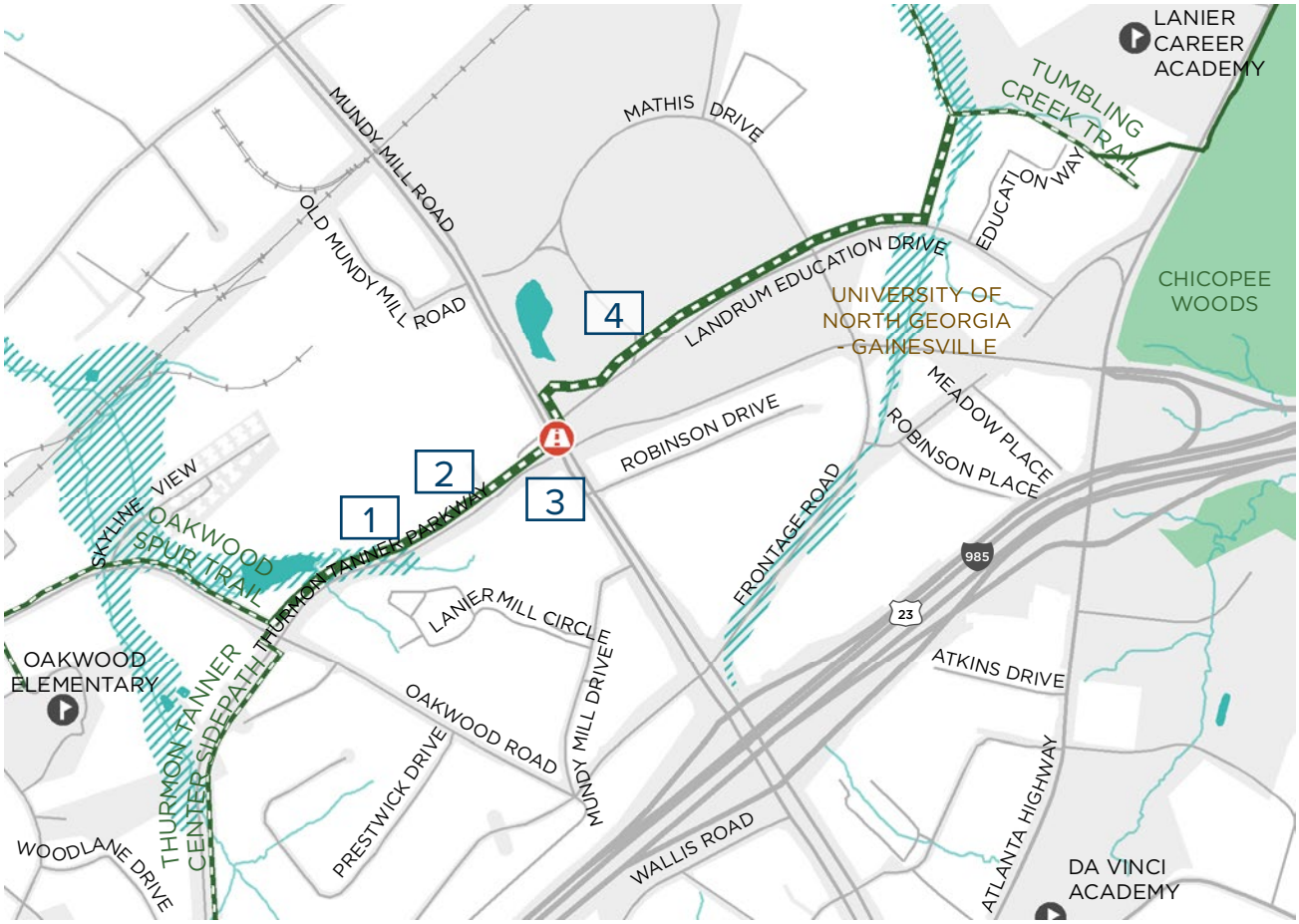
Thurmon Tanner North Sidepath

Proposed Bicycle & Pedestrian Bridge

Existing roadway

Mundy Mill Rd.

The North Sidepath connects Oakwood north to UNG. This very important connection will provide active transportation choices for residents who work or attend UNG and may live nearby in Oakwood. The trail will extend along the west side of the parkway until Mundy Mill Rd. where a separated overpass is proposed to connect to the university. The trail will use existing walking and biking routes on UNG campus to connect through to Tumbling Creek trails.



Intersection Improvement
Thurmon Tanner North Sidepath
Other Proposed Trail
Existing Trails
100-Year Floodplain
Publicly Owned Parcels/ ROW

0 ¼ MILES

Thurmon Tanner North Sidepath

1. Existing pedestrian lighting will need to be relocated
2. Demolish existing sidewalk and construct 12-foot wide sidepath
3. Approximately 180-foot pedestrian overpass across Mundy Mill
4. Work with UNG to determine precise routing and shared use/sidewalk widening

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	5	0.1%	N/A
ROW	3970	64.8%	N/A
Public Parcels	1080	17.6%	0
Private Land	1068	17.4%	4

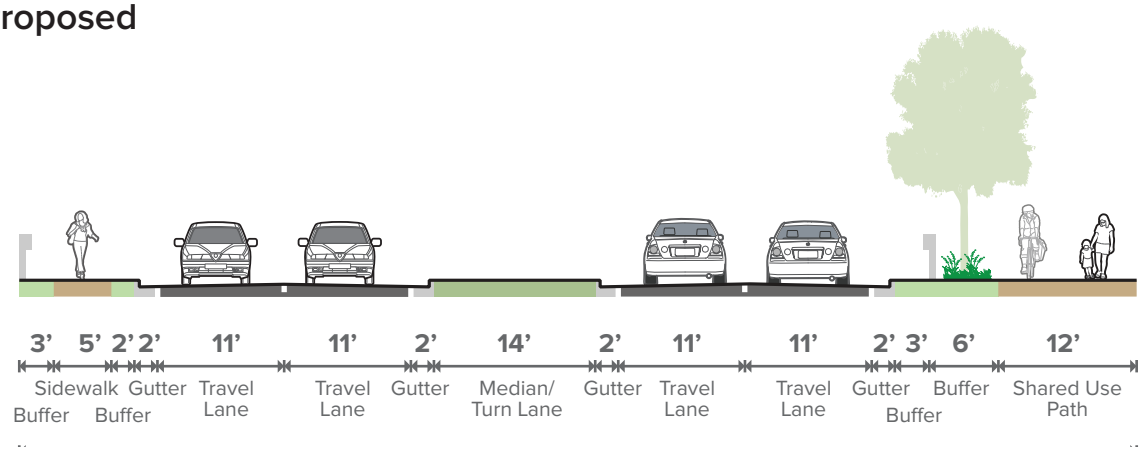
Approximate length: **1.16 miles**

Estimated Cost: **$3.93M**

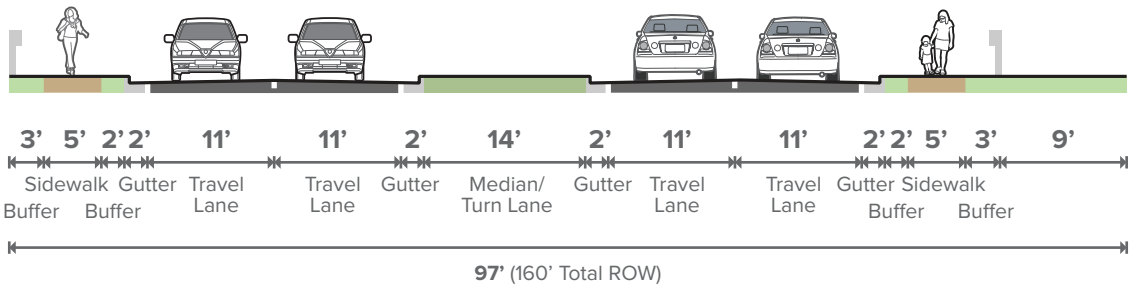
Thurmon Tanner Center Sidepath

The Center Sidepath connects Oakwood south to the railroad crossing. The trail will extend along the east side of Thurmon Tanner Pkwy. Where feasible, the trail will be constructed in roadway right-of-way, which will include moving guardrail to protect trail users and maintain motor vehicle safety. In these areas, the trail will bench into the outslope. The trail character along this roadway will include streetscape and shade trees and the lighting will be maintained. This segment and the north and south segments are part of an overall important north/south connection in South Hall for the trail network.

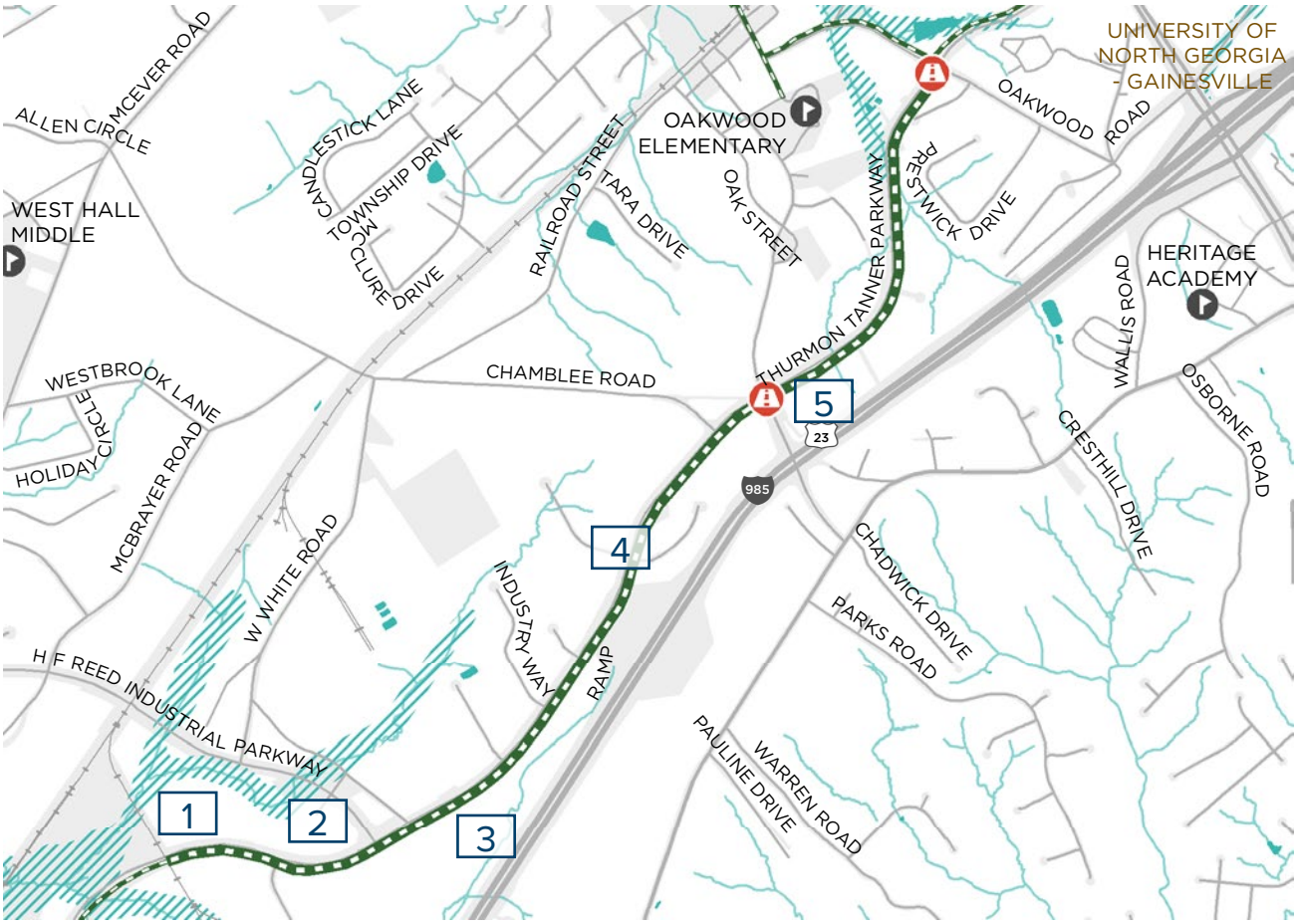
Proposed



Existing



Cross-Section Facing North/Northeast



Intersection Improvement | Thurmon Tanner Center Sidepath | 100-Year Floodplain

Other Proposed Trail | Publicly Owned Parcels/ ROW

0 ¼ MILES

Thurmon Tanner Center Sidepath

1. At-grade crossing modification and coordination is required for trail to cross the railroad
2. Route trail along outside of existing canopy trees
3. Demolish existing sidewalk and construct 12-foot wide sidepath outside of guardrail
4. Several commercial driveway crossings will be required
5. Culvert extension required

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	13,680	100%	N/A
Public Parcels	0	0%	0
Private Land	0	0%	0

Approximate length: **2.59 miles**

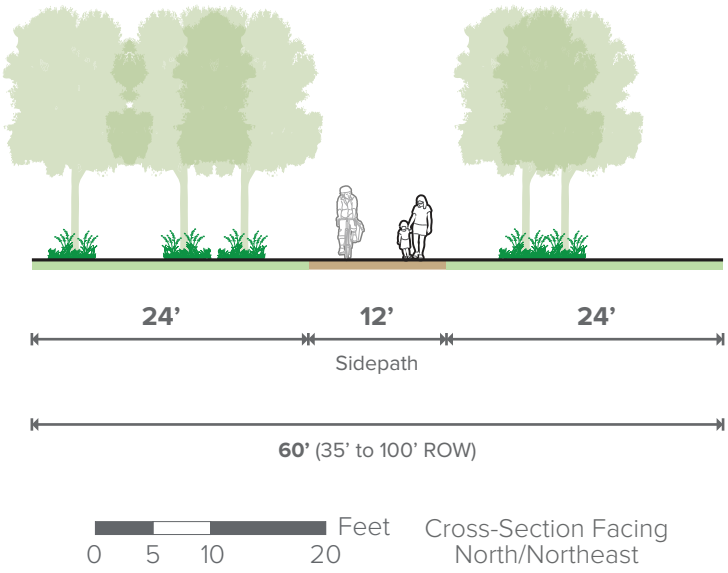
Estimated Cost: **$4.93M**

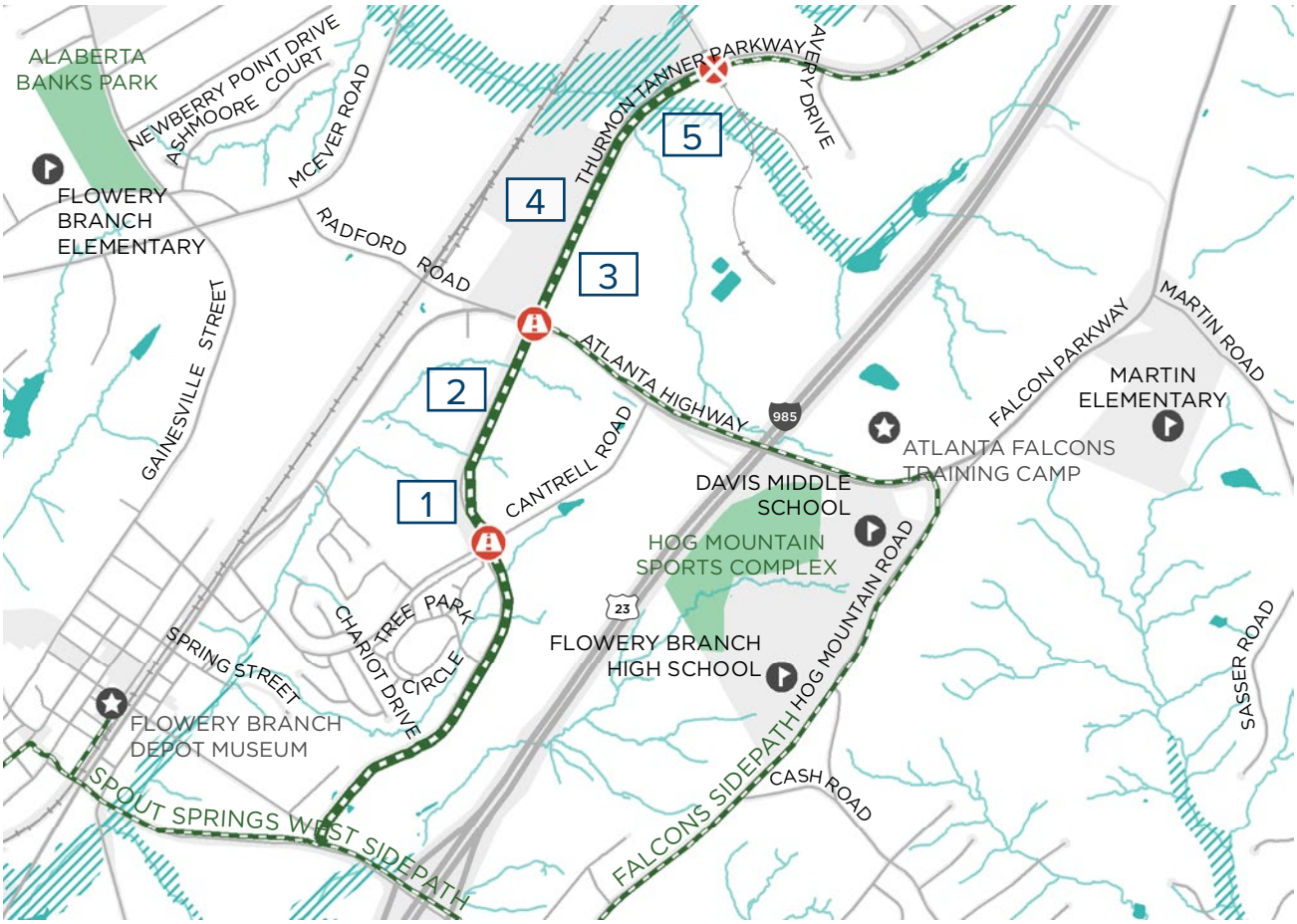
Thurmon Tanner South Sidepath

The South Sidepath provides the final connection to Flowery Branch. For bicyclists, this active transportation corridor will provide connections from Flowery Branch to UNG. The trail will extend along the east side of the parkway until Phil Niekro Blvd. A major intersection improvement is proposed at the Atlanta Hwy roadway intersection. The trail will terminate on the south side at the proposed trailhead.

Proposed

This cross section shows the trail near Cantrell Rd where the ROW widens and there is opportunity to divert from the side of the roadway





Thurmon Tanner South Sidepath

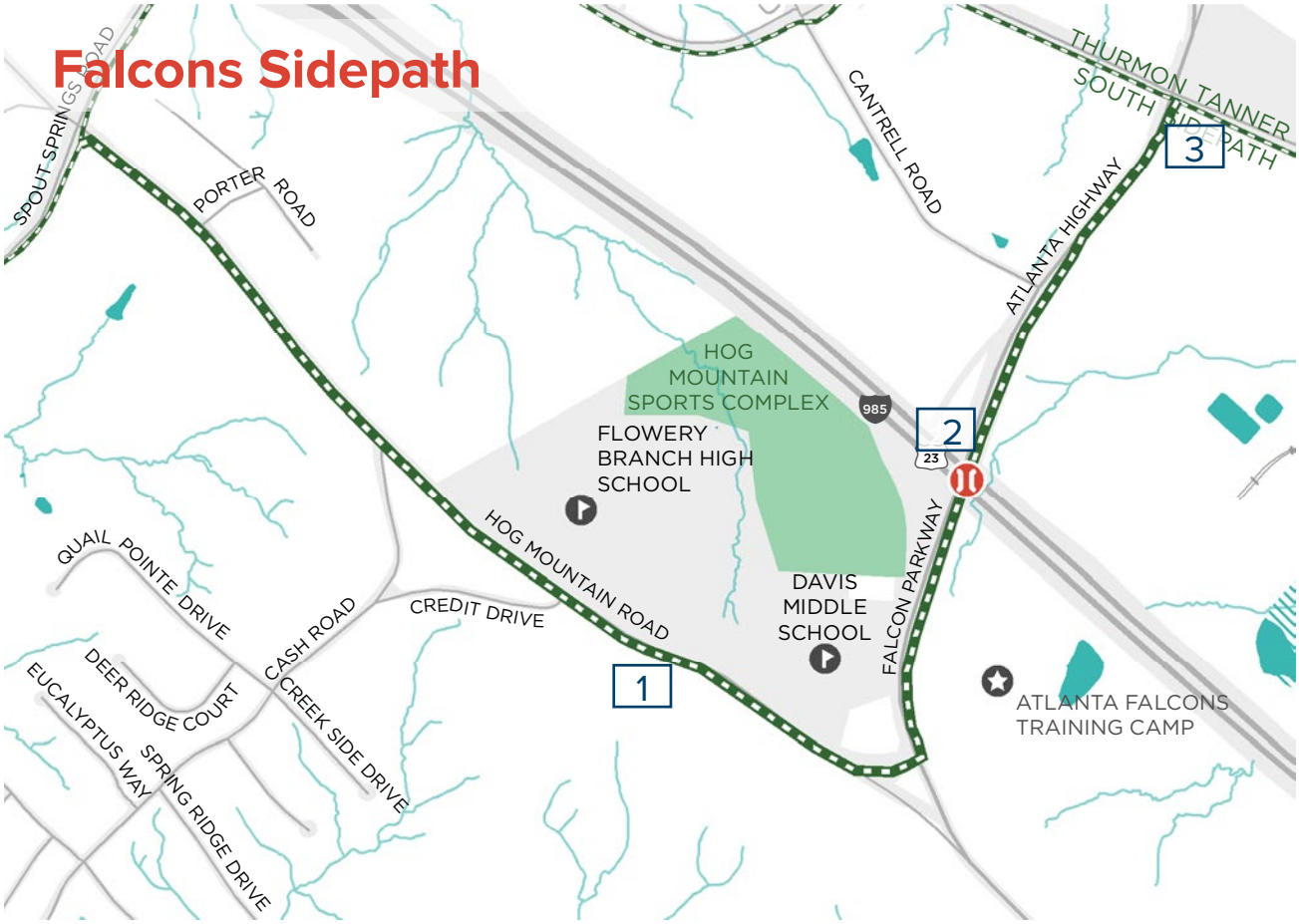
1. Existing pedestrian lighting will need to be relocated
2. Demolish existing sidewalk and construct 12-foot wide sidepath
3. Install retaining wall on the outslope along guard rail
4. Route trail along outside of existing canopy trees
5. Culvert extension required

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	9,896	96.0%	N/A
Public Parcels	0	0%	0
Private Land	417	4.0%	1

Approximate length: **1.95 miles**

Estimated Cost: **$3.51M**

Falcons Sidepath



The Falcons sidepath provides an east/west connection from the main trunk and then south to the Stonebridge Village Shopping Center, creating a loop option for trail users and eliminating mileage to make more direct connections. Crossing I-985 along Atlanta Hwy. will require a new structure either suspended on the north side of the existing roadway bridge or a separate standalone pedestrian bridge. This segment will also connect two schools, a sports complex, and commercial area.

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	11,825	100%	ROW
Public Parcels	0	0%	0
Private Land	0	0%	0

1. Trail extends on east side of Hog Mountain Rd.
2. Install standalone bicycle and pedestrian bridge across I-985
3. Provide wayfinding signage to direct trail user

Approximate length: **2.24 miles**

Estimated Cost: **$3.89M**

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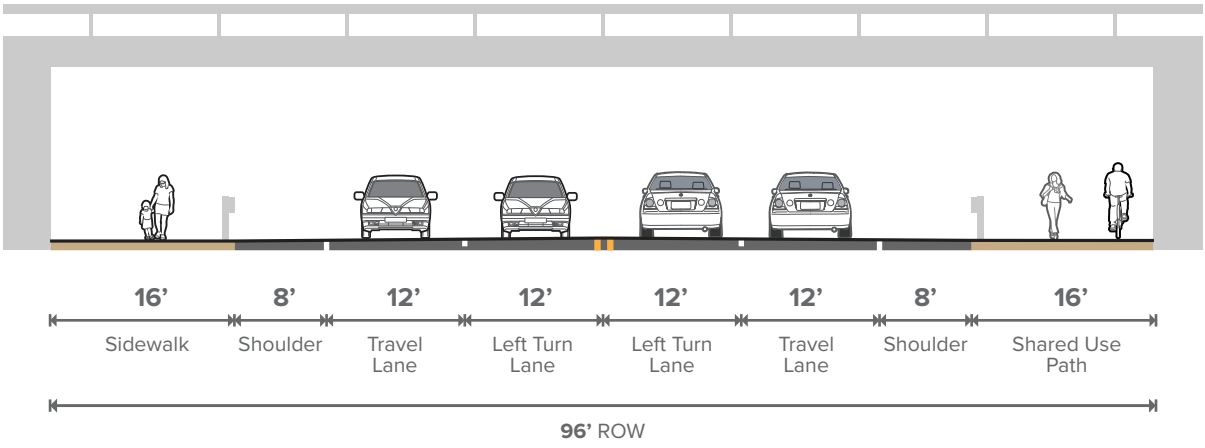
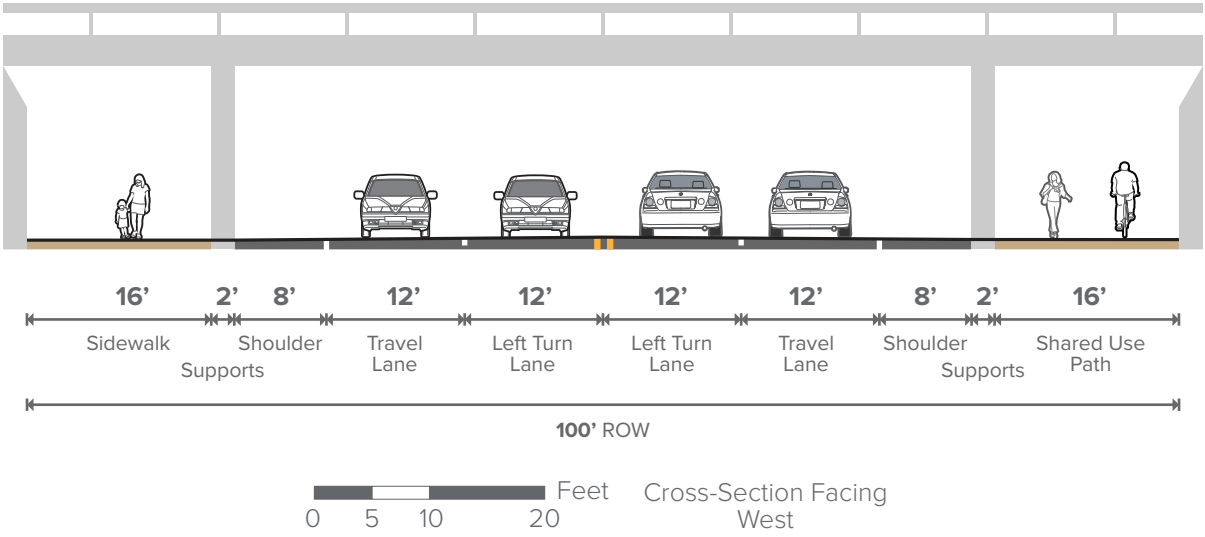
Spout Springs West Sidepath

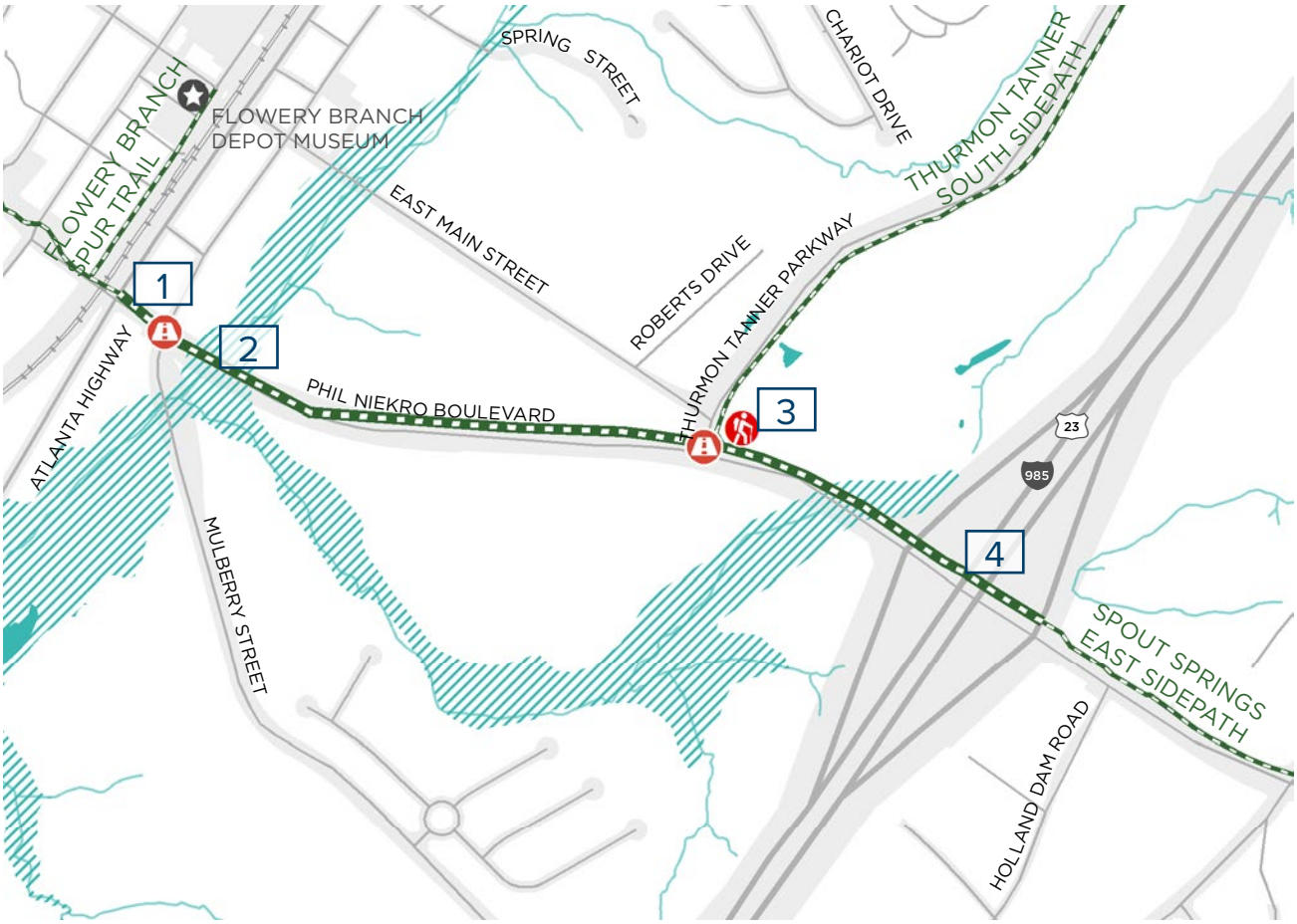
Spout Springs Rd. West segment connects Flowery Branch to Hog Mountain Rd. and the Thurmon Tanner routes. The majority of the trail will extend along the north side of Spout Springs/Phil Niekro making a vital connection to a proposed trailhead at the corner of Phil Niekro Blvd. and Thurmon Tanner Pkwy. Acquisition of property will be required for this proposal. The trailhead will provide parking for approximately 15 vehicles and include an informational kiosk, bicycle parking, and water. The trail passes beneath the I-985 roadway bridge before connecting with Hog Mountain Rd. trail segments. The two cross sections below provide options for integrating the trail with the new I-985 bridge structure.

Proposed - I-985 Bridge Reconstruction (Option 1)



Proposed - I-985 Bridge Reconstruction (Option 2)





Spout Springs West Sidepath

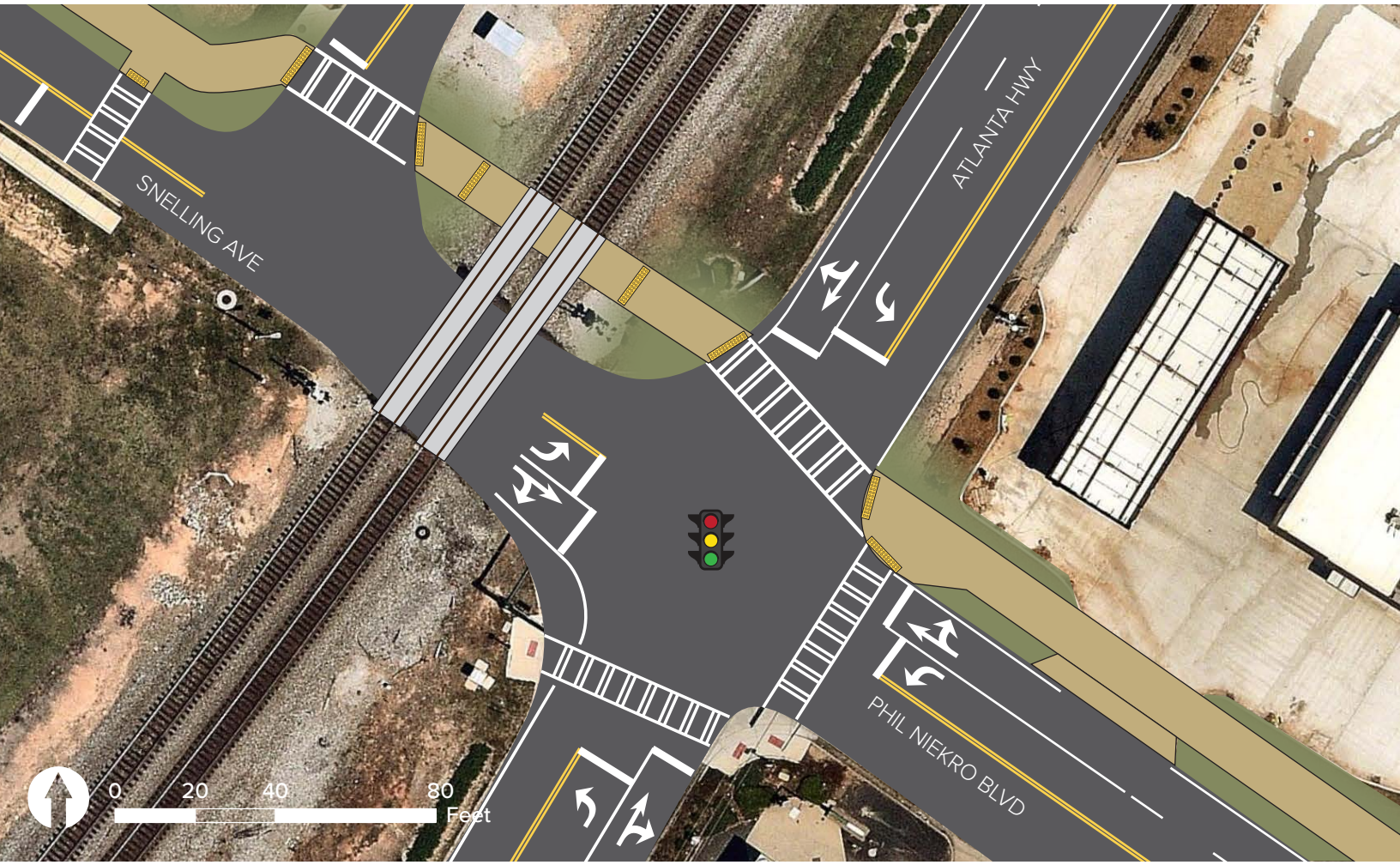
1. Work with property owner to obtain easements on edge of property
2. Minor stream crossing/boardwalk will be required
3. Proposed 34-car trailhead, work with property owner to obtain easement/land in this location
4. Work with GDOT to coordinate bridge plans to accommodate 12-foot shared use path beneath future roadway widening bridge

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	5,803	100%	N/A
Public Parcels	0	0%	0
Private Land	0	0%	0

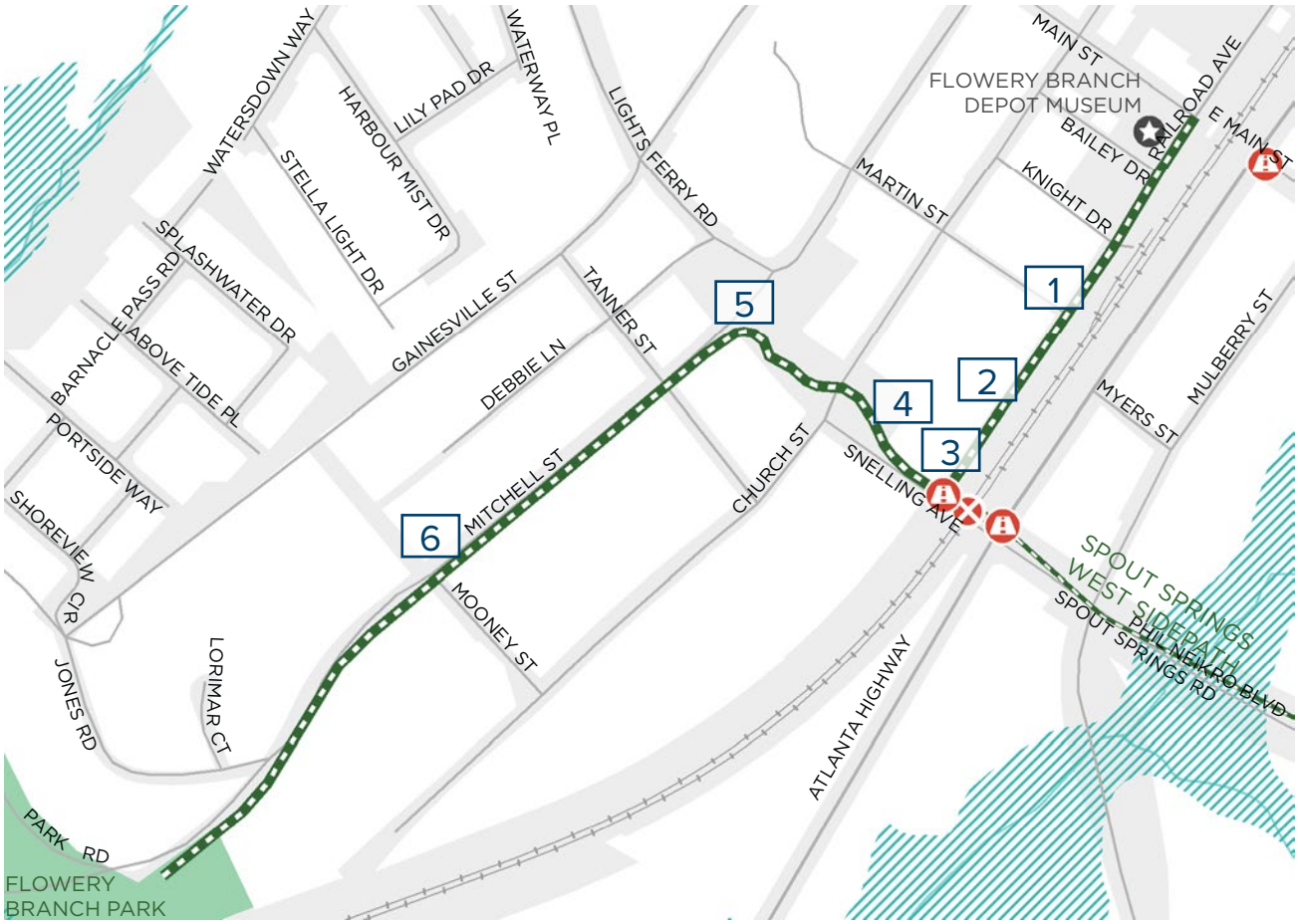
Approximate length: **1.13 miles**

Estimated Cost: **$1.68M**

Flowery Branch Spur Trail



Connecting to Flowery Branch downtown will provide trail users an appealing destination since there are shops, restaurants, and access to Lake Lanier. The segment continues from Phil Niekro Blvd. and will require a crossing modification at the railroad to accommodate the trail. The sidepath extends north on Snelling Ave. and then west on Mitchell St. to provide access to Flowery Branch Park and Lake Lanier. A northerly spur is also recommended along Railroad Ave to connect users to the shops, museum, and other services downtown.



Intersection Improvement
Rail Crossing
Flowery Branch Spur Trail
Other Proposed Trail
100-Year Floodplain
Publicly Owned Parcels/ ROW

0 MILES ¼

Flowery Branch Spur Trail

1. Widen sidewalk on north side of Railroad Ave. to 12-feet
2. Install streetscape amenities such as lighting, seating, and rest stops for bicycles
3. Include wayfinding signage to direct trail users to downtown shops and restaurants
4. Widen sidewalk on east side of Snelling Ave. to 12-feet
5. Provide directional signage at roundabout to direct trail users to recreation area
6. Install 10-foot trail on north side of Mitchell St with curb and gutter

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	3,295	95%	N/A
Public Parcels	0	0%	0
Private Land	187	5%	1

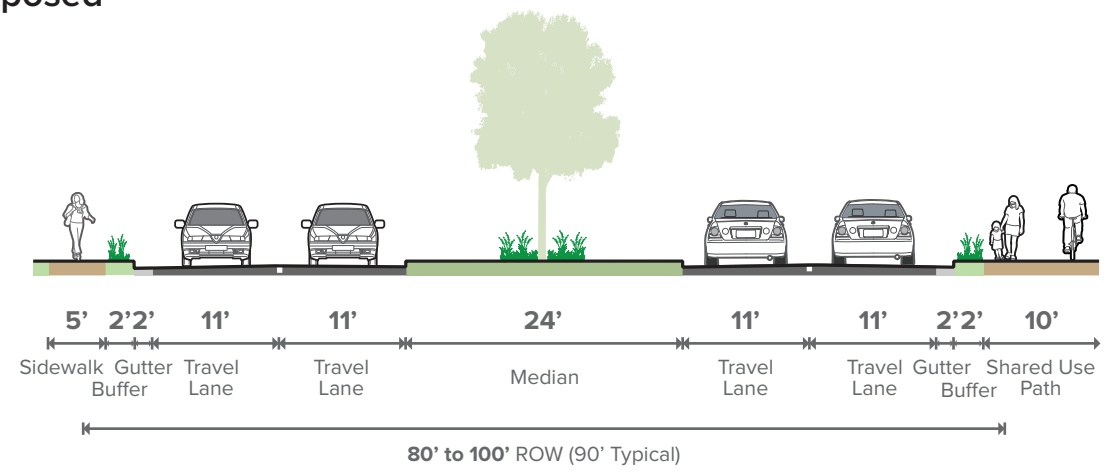
Approximate length: **0.66 miles**

Estimated Cost: **$2.84M**

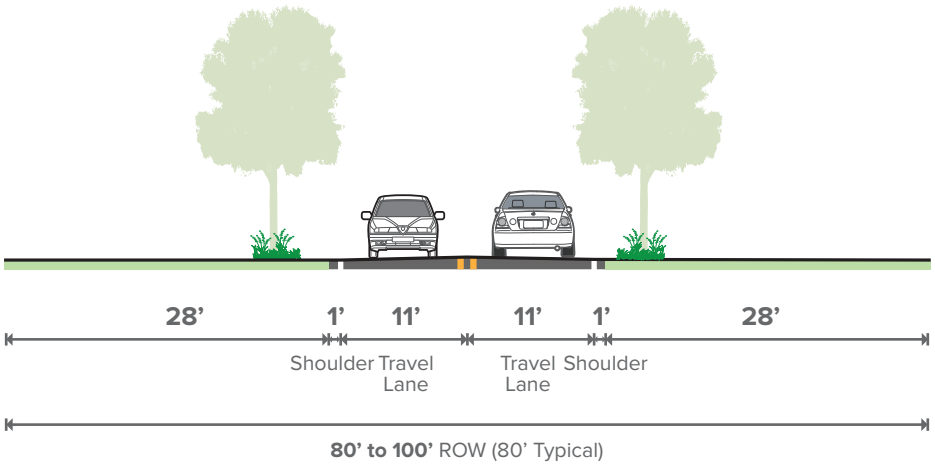
Spout Springs East Sidepath

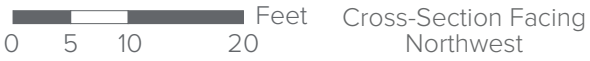
A sidepath on the north side of Spout Springs Rd. will connect the commercial areas of Hog Mountain Rd. east to neighborhoods and the Spout Springs Rd. Sports Complex. This segment is currently in implementation by GDOT. Hall County should consider adding a mid-block crossing at the Capitola Farms neighborhood since it is so large and will eventually include South Hall County trail connections.

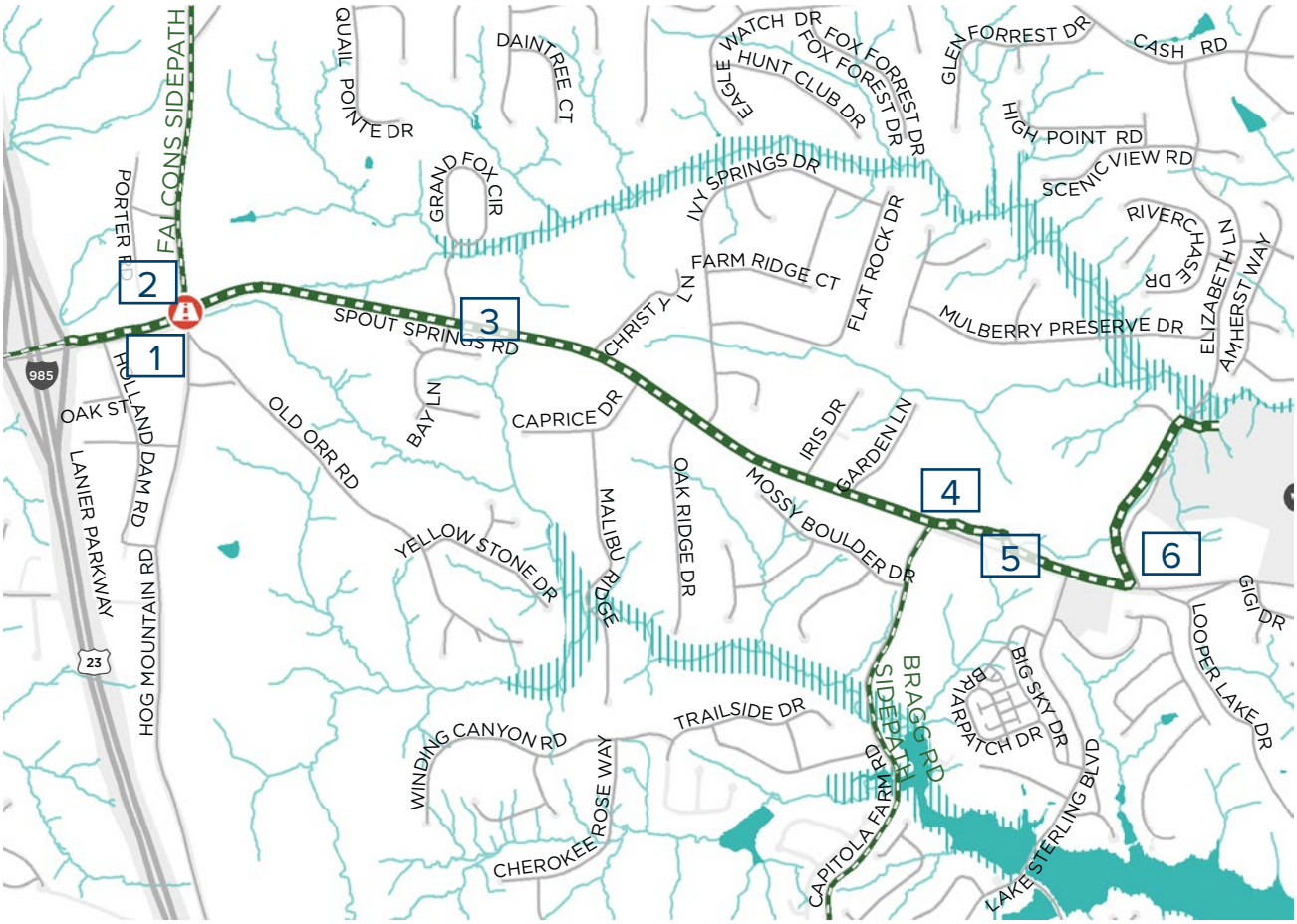
Proposed



Existing







Intersection Improvement
Spout Springs East Sidepath
Other Proposed Trail
100-Year Floodplain
Publicly Owned Parcels/ ROW

MILES
0 ¼

Spout Springs East Sidepath

1. Opportunities may exist for shared use parking at commercial areas
2. Provide proper wayfinding and direction for trail users
3. Coordinate driveway crossings with business owners
4. Mid-block crossing at Capitola Farms Rd.
5. Coordinate mailbox and driveway relocation with homeowners
6. Provide wayfinding signage to direct trail users

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	987	7.6%	N/A
ROW	9,569	74.2%	N/A
Public Parcels	531	4.1%	1
Private Land	1,817	14.1%	5

Approximate length: **2.44 miles**

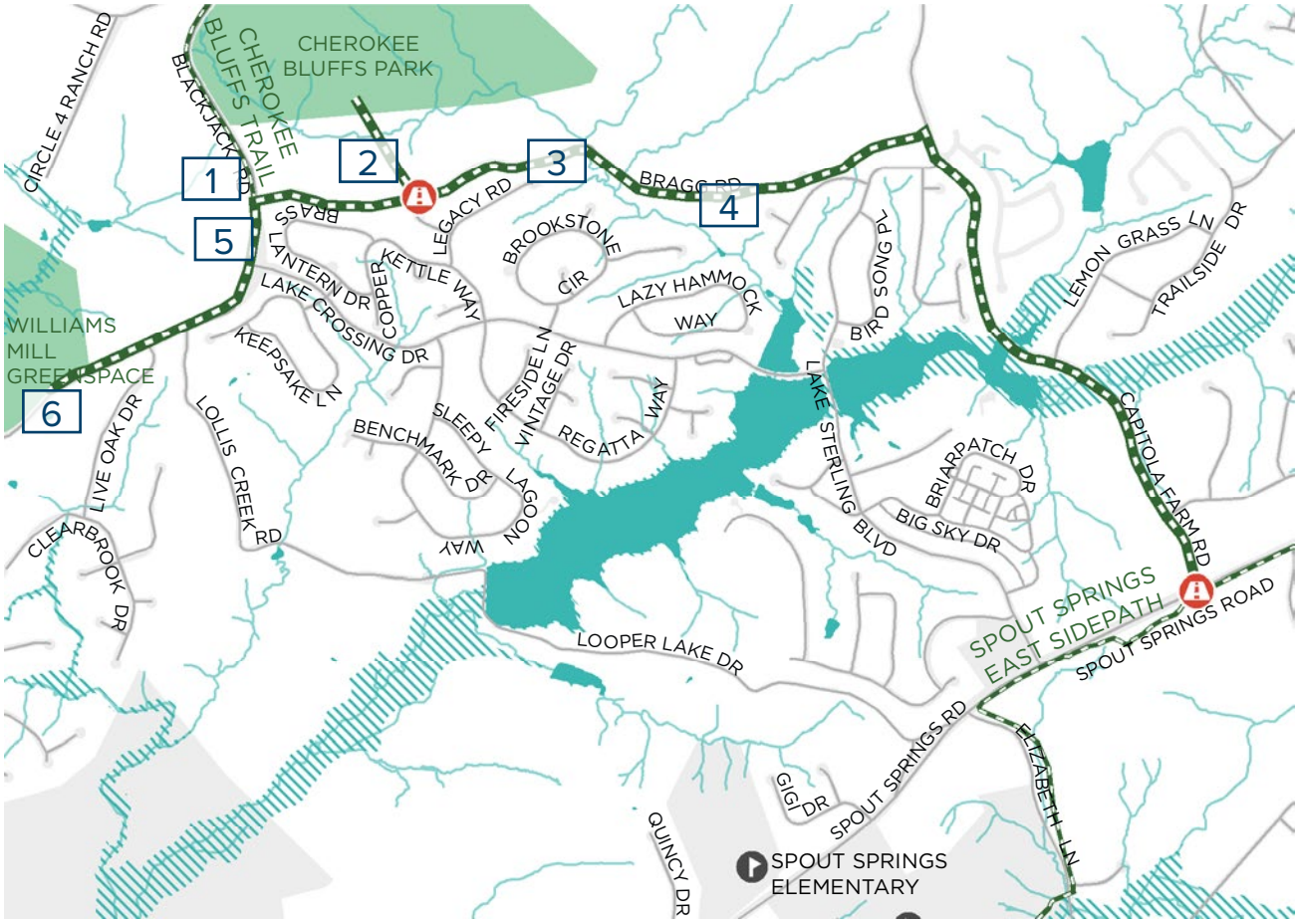
Estimated Cost: **Funded (Project Underway)**

Bragg Road Trail

Proposed Trail

Bragg Rd.

The Bragg Rd Sidepath provides a vital trail connection between Spout Springs Rd. and Blackjack Rd. trails. It will run along city right-of-way along Capitola Farm Rd and Bragg Rd, adjacent to one of South Hall's largest neighborhoods, with future expansion planned in this area as well. Once constructed, this segment will provide neighborhood residents links to Williams Mill Greenspace, Cherokee Bluffs Park, and Spout Springs Rd. trails, which also provide active transportation connections to commercial areas. Trail design will require coordination with Newland Communities and homeowners' cooperation, and privacy measures and controlled access must be provided to respect adjacent properties.



Bragg Road Trail

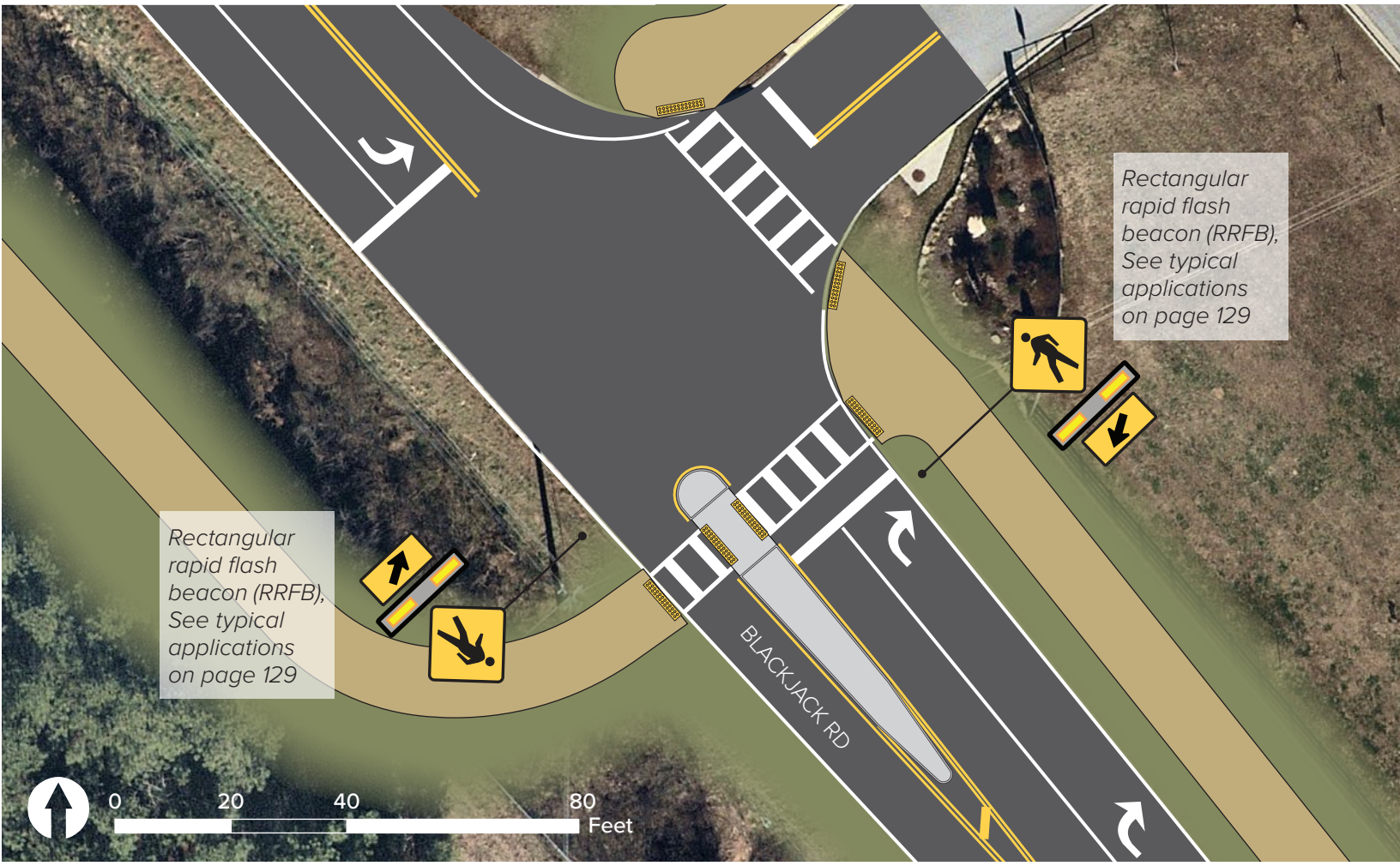
1. Rectangular rapid flash beacon (RRFB) across Blackjack Rd. to connect to Bragg Rd.
2. Provide spur to Cherokee Bluffs Park
3. This segment requires ample wayfinding signage to direct users and limit access to other neighborhood trails
4. Boardwalk will be required in natural areas
5. Trail continues past Bragg Road along the north side of Blackjack Road to connect to Williams Mill Greenspace.
6. At-grade trail crossing to Williams Mill Greenspace.

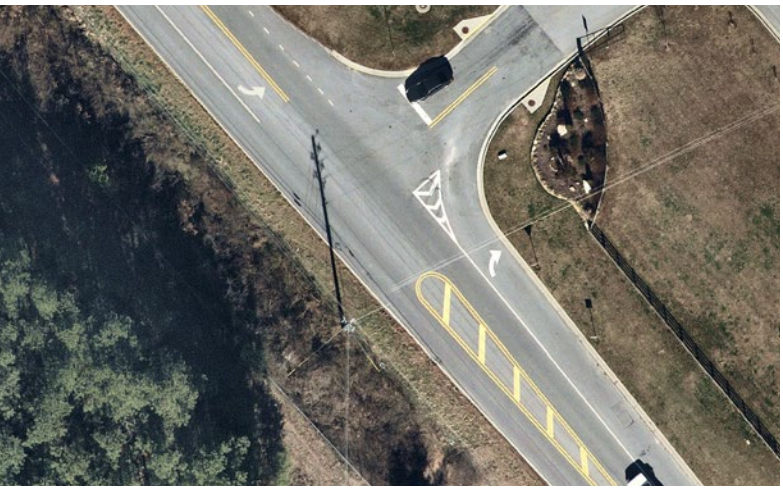
PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	15.996	100%	N/A
Public Parcels	0	0%	0
Private Land	0	0%	0

Approximate length: **3.02 miles**

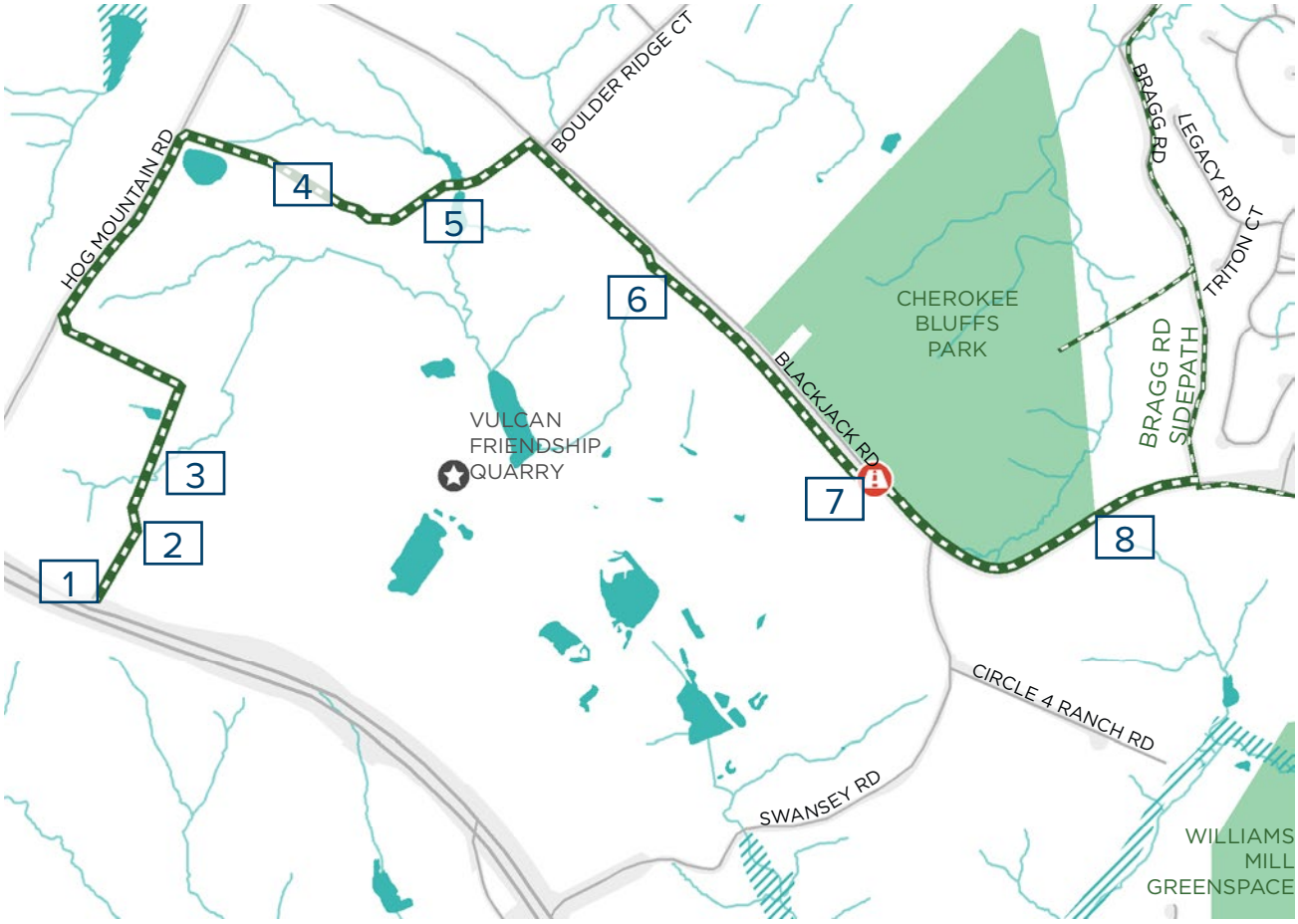
Estimated Cost: **$6.81M**

Cherokee Bluffs Trail





The Cherokee Bluffs Trail is located at the southern most area of the South Hall study area. The segment will connect to existing sidepath along Friendship Rd., expanding off-road connections adjacent to Vulcan Materials quarry. The county will need to work closely with Vulcan Materials to obtain easements where trail extends across the quarry, ensuring no operations are interrupted and users are completely separated from quarry access. The trail extends along Hog Mountain Rd. to avoid extended interruption of operations at the quarry before it connects back to Blackjack Rd. It then crosses at-grade to connect users to Cherokee Bluffs Park.



Cherokee Bluffs Trail

1. Provide proper wayfinding signage to direct trail users
2. Obtain easements from Vulcan Materials, consider opportunities for partnership with Vulcan Materials in areas along quarry
3. 30” culvert is recommended at stream
4. Several drainage improvements will be necessary throughout the Vulcan property
5. Boardwalk will be required to extend across wetland area
6. In some locations fencing will need to be relocated or rebuilt to maintain site security and to accommodate the trail
7. Install rectangular rapid flash beacon (RRFB) at Blackjack Rd. across from Cherokee Bluffs Park
8. Trail will extend on the north side of Blackjack after crossing at park

PROPERTY TYPE	LENGTH (FT)	% OF PHASE	AFFECTED PARCELS
Utility Easement	0	0%	N/A
ROW	3,717	30.7%	N/A
Public Land	0	0	0
Private Land	8,410	69.3%	13

Approximate length: **2.3 miles**

Estimated Cost: **$4.4M**

(continued text from page 44)

Surface Type

Based on the physical site analysis and the metrics of shared-use trail design, a 12-foot-wide asphalt trail (concrete in riparian areas) with a two-foot-wide shoulder is recommended. Page 80 provides additional detail about construction materials.

Shared-Use Path Corridor Types

"Greenway trails," "greenways," "shared-use paths," 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. Trails should provide access and connectivity without damaging the qualities of the natural environment that are most valued and appreciated during construction. Trail corridors should be selected using a variety of site factors, such as:

- site topography
- surface drainage
- frequency of flooding
- public access
- construction cost
- environmental impact
- maintenance concerns

South Hall trails 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 primary bicycle and pedestrian corridor. The following corridor types are recommended and described for the South Hall trail network.

RIPARIAN CORRIDORS

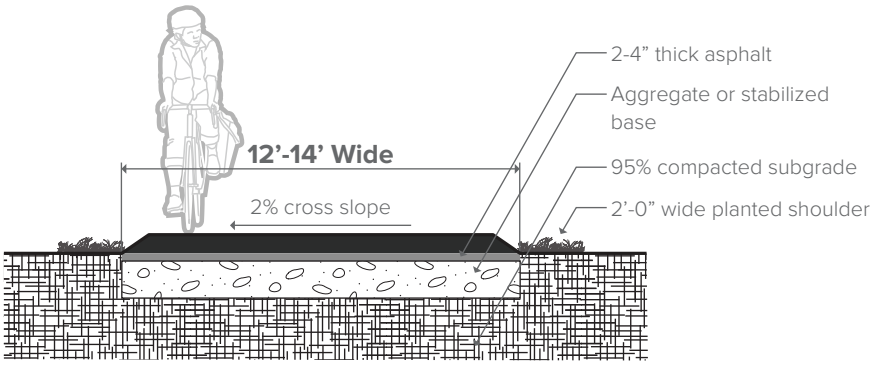
Creekside trails will provide a connective amenity for the community, supplying recreational value and ecological resilience for continuity to some of its most important natural areas in the county. Riparian corridors include land directly adjacent to County creeks and perennial streams, including both floodplains and high ground. All trails are within the drainage basins, or watersheds, of the Chattahoochee and Oconee watersheds and its major tributaries.

MAN-MADE CORRIDORS

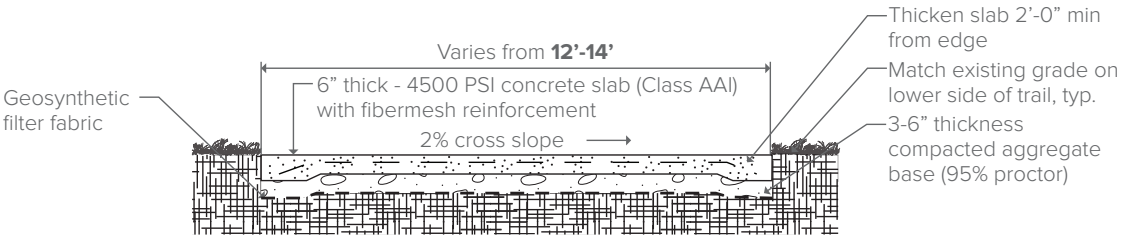
Man-made corridors are potential trail corridors that follow man-made linear elements of the roadway or utility infrastructure, or they may follow corridors created by patterns of land development. Man-made corridors can make important connections throughout the system by capitalizing on roadway rights-of-way 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.

Public Utilities

Many trails can be constructed within water/sewer easements. Sewer easements are typically located within riparian corridors.



Asphalt Shared Use Path



NOTE:

Some areas may contain exceptionally weak subgrade materials which will require additional soil stabilization measures per direction of geotechnical consultant.

Soft Subgrade Area Concrete Trail

Examples of trail surface types

Parks and Recreation staff has worked closely with the County Public Utilities to secure some easements in Hall County. Trails must be designed to minimize utility conflicts. No structures are permitted within utility easements unless no other alternative exists.

Roadway Rights-of-Way
Some state-owned roadways within County limits include right-of-way widths sufficient for accommodating trails separated from on-road traffic. GDOT routinely grants encroachment agreements for trails. All encroachment agreements require design approval and adherence to GDOT stormwater design and traffic control standards.

Power and Natural Gas Right-of-Way
Georgia Power, Scana, and other providers generally will allow its right-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. However, grading within these easements must be limited. Georgia Power has developed electric transmission right-of-way requirements for shared-use trails.

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 rail network. These connections are generally located on or along the conventional transportation system of streets and are segregated by use (bicycle/pedestrian). 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 off-road trail systems in order to provide ultimate solutions.

Sewer easements can be good candidates for dual use with trails

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 of signs or signals are therefore recommended along both the greenway 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, traffic volume, line of sight, street width, roadway and trail geometry, and intersection configuration. During design, each proposed trail crossing will require close evaluation of traffic conditions before implementation occurs.

Railroad Crossings

There are several at-grade railroad crossing locations proposed along project segments in South Hall County. Opportunities exist at each railroad crossing to improve bicycle and pedestrian safety, visibility, and accessibility when the trail is in place. All railroad crossing improvements will require coordination and design review and approval from Norfolk Southern. Proposals must:

- Meet future track/clearance/drainage requirements
- Include additional access/flagman requirements for survey and construction

Railroad crossings should be the focus of future detailed engineering study and recommendations made using at-grade crossing modification permit procedures.

Proposed Trailheads

Trailheads provide essential access to the trail network 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. Major trailheads include restrooms, parking areas for vehicles and trailers, maps and kiosks, and sign posts for the trail and its features. Minor trailheads usually include a map or kiosk of the trail network, connections to adjacent sidewalks or bicycle facilities, and shared parking.

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 be required. For South Hall trails, several trailhead areas were identified as potential improvement areas for trailheads or increased access and visibility.

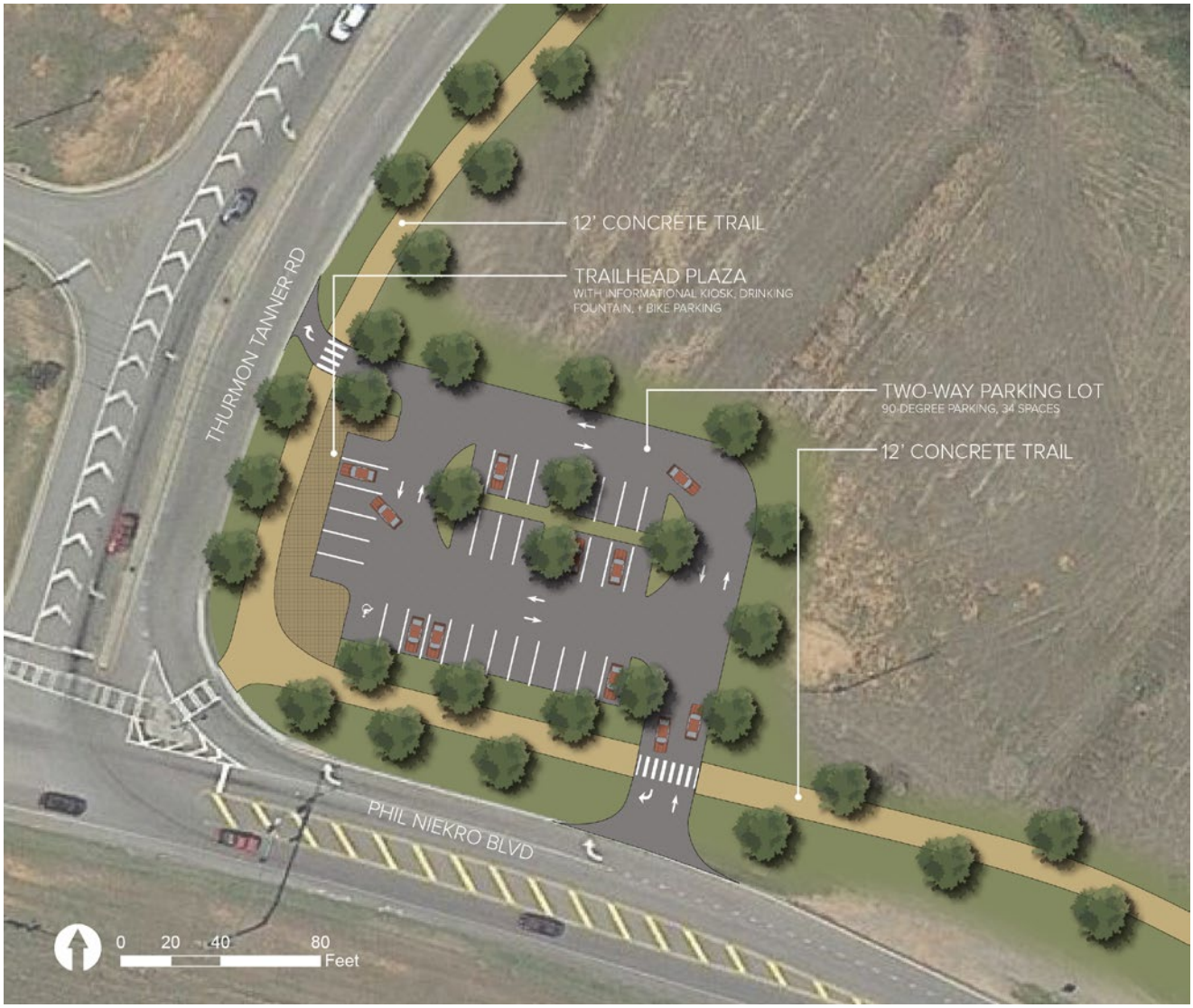
Example trailhead for the Park to Playa Trail in Los Angeles County

Old Flowery Branch Rd. Trailhead

OLD FLOWERY BRANCH RD. TRAILHEAD

At the service drive entrance to the water treatment plant, an existing gravel pad rests just west of Old Flowery Branch Rd. There is ample space for parking up to 20 vehicles with a two way driveway entrance. A trailhead plaza for Flat Creek Trail West will include bicycle parking, a kiosk, and the area around the parking area landscaped with canopy trees and groundcover. The utility drive etnrance will be maintained for service vehicles.

Phil Niekro Blvd. Trailhead



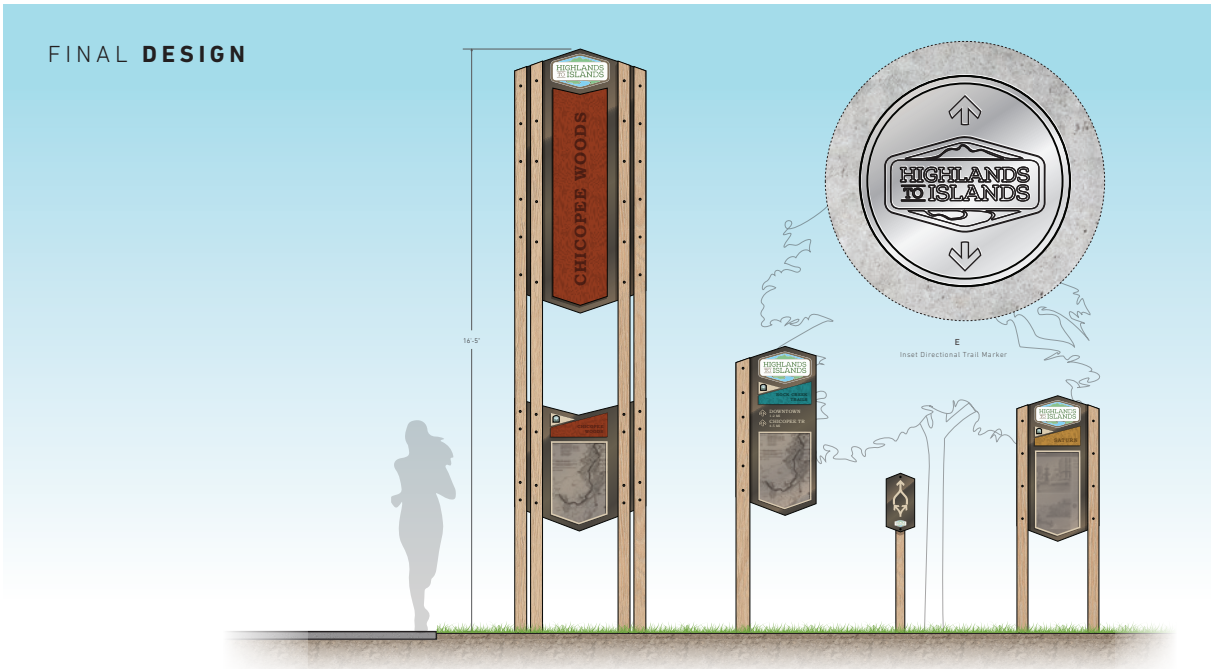
PHIL NIEKRO BLVD. TRAILHEAD

At the corner of Phil Niekro Blvd. and Thurmon Tanner Rd., a large flat area of undeveloped property exists on the eastern corner. Because the location is a gateway to Flowery Branch, it makes an ideal candidate for the Spout Springs West Sidepath trailhead. The trailhead will have two entrances since it rests on a corner and can accommodate up to 34 vehicles with potential seating, bicycle parking, and landscape. A kiosk and wayfinding signage is important to orient users. This trailhead proposal is prospective, and discussions with the property owner did not occur during this study. The County will need to work with the property owner to obtain easements for the trailhead and discuss the final design.

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 other pedestrian generators 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.

The figure below shows Gainesville's adopted signage concept. The *Higlands to Islands Trail Signage and Wayfinding Schematic Design Set* was developed in March 2018. For consistency, South Hall should consider using the same signage concept or developing a similar concept that makes it clear the trails are part of a unified Highlands to Islands network.



The wayfinding concept above was recently developed for the Highlands to Islands Trail System. This will serve as the standard sign design for the countywide Highlands to Islands system.

Prioritization

Introduction

The prioritization of planned priority trail corridors is essential to rational and orderly growth of the regional trail system. The project team has developed a suggested set of measurable prioritization criteria to score each planned priority trail corridor. The prioritization criteria reflect the needs and aspirations of the community as expressed through the public engagement process and includes additional factors critical to project phasing and network development, such as availability of public lands, maintenance resources and capacities, and planned infrastructure investments.

This corridor prioritization process begins with an introduction to and explanation of the criteria used to measure the effectiveness of each corridor, then summarizes the results of the prioritization exercise. The section concludes with a further examination of ten planned priority trail corridors to identify projects that can be developed within the limited financial resources available in each of the corridors. Another consideration that must be taken into account in this process goes beyond just prioritization, and to phasing based on the ability for corridors to move forward, such as corridors that require easement acquisition.

Prioritization Methodology

This prioritization methodology synthesizes a wide range of goals that have emerged throughout the planning process. It provides a quantitative, objective process for prioritizing each trail segment based on how strongly it helps GHMPO, the County, and its local municipalities achieve their goals.

The data-driven scoring process applies 22 criteria to all 20 priority trail corridors to capture the full value of each corridor based on eight important themes, which include safe connections, regional coordination/ impact, connectivity, and project readiness. This process is objective in nature and is dependent on spatial analysis of GIS-based data to assign value to each corridor. The methodology for this data-driven, value-based scoring process is described below.

1. SAFE CONNECTIONS

1.A. Roadway Crossing Frequency

This prioritization criterion is based on the number of roadway and driveway crossings. Fewer at-grade crossings of roadways creates fewer conflict points between trail users and motor vehicles. Scores are calculated on a per-mile basis.

1.A: Roadway Crossing Frequency	
○	Number of crossings per mile falls into the highest third of all trail segments
◑	Number of crossings per mile falls into the middle third of all trail segments
●	Number of crossings per mile falls into the lowest third of all trail segments

1.B. Feeling of Safety (security)

This prioritization criterion reflects the ability of a corridor to feel safe due to natural surveillance. Natural surveillance of a space provides peripheral observation of and for community members, allowing trail users to feel as though they are being looked after by their neighbors. This feeling of safety typically correlates with the traffic of adjacent streets.

1.B: Feeling of Safety (Security) Scoring

- ○ There is no natural surveillance along corridor
- ◑ There is some natural surveillance along corridor
- ● There is natural surveillance throughout the corridor

1.C. Low Stress Facility

This category reflects how much separation there is between traveling vehicles and trail users.

1.C: Low Stress Facility Scoring

- ○ Trail has a buffer less than 20' from roadway
- ◑ Trail has a buffer greater than 20' from roadway
- ● Trail is independent of roadway right-of-way

1.D. Need for crossing improvements

This prioritization criterion is based on the need for at-grade intersection and mid-block crossings improvments. These improvements may affect feasibility and cost. Scores are calculated on a per-mile basis.

1.D: Need for Crossing Improvements Scoring

- ○ Major improvements required (e.g. new signals, geometry reconfiguration)
- ◑ Only minor improvements required (ADA upgrades, signal modifications)
- ● Intersections are adequate as they exist currently

2. CONNECTIVITY

2.A. Proximity to Neighborhoods

This category identifies which alignment provides the best access to neighborhoods along the trail.

2.A: Proximity to Neighborhoods Scoring

- ○ No existing neighborhood connections
- ◑ Trail runs adjacent to, but does not connect directly to a neighborhood
- ● Trail provides direct connection into a neighborhood

2.B. Proximity to Parks

For people bicycling and walking, trails can serve as vital connectors to and between local and regional parks. This scoring category measures whether or not the trail provides a direct, or somewhat direct connection to a park.

2.B: Proximity to Parks Scoring

- ○ No existing park connections
- ◑ Trail runs adjacent to, but does not connect directly to a park
- ● Trail provides direct connection into a park

2.C. Proximity to Schools

Trails can also provide needed access to schools for children and families. This category measures whether or not the trail provides a direct, or somewhat direct connection to a school.

2.C: Proximity to Schools Scoring

- ○ No existing school connections
- ◑ Trail runs adjacent to, but does not connect directly to a school
- ● Trail provides direct connection into a school

3. PROJECT READINESS

3.A. Previously Proposed Trail

This category acknowledges whether or not the alignment has been included in other recent planning documents for GHMPO, Hall County, the City of Gainesville, the City of Oakwood, or the City of Flowery Branch. Points were allocated as described below.

3.A: Previously Proposed Scoring

- ○ Alignment has not appeared in previous planning documents
- ◑ Partial trail alignment is included in a previous plan
- ● Full trail alignment is included in a previous plan

3.B. Rail Crossing Treatment

The need to provide a rail crossing treatment may complicate trail implementation, particularly along active rail lines. Rail crossings require more permitting and safety precautions. For this category, there are two possible scores instead of three.

3.B: Rail Crossing Treatment Scoring

- ○ Trail includes an at-grade rail crossing
- ● Trail does not include an at-grade rail crossing

3.C. Right-of-Way Acquisition

Some corridors may follow utility easements or other public right-of-way, and therefore alleviate the need to purchase property in fee. This criterion measures the percentage of corridor alignment located on utility easements, public right-of-way, or publicly owned parcels.

3.C. Right-of-Way Acquisition Scoring

- ○ Alignment completely within private land
- ◑ Alignment in both private and public land
- ● Alignment fully contained in public land

3.D. Cost

Cost can be a major factor for the development of trail projects. This category rates each corridor based on estimated cost per mile.

3.D: Corridor Cost Scoring

- ○ Per mile cost falls in the most expensive third compared to all other segments
- ◑ Per mile cost falls in the middle third compared to all other segments
- ● Per mile cost falls in the least expensive third compared to all other segments

4. SCENIC VALUE

4.A. Proximity to Natural Resources

Through the public input process, community members expressed their desire for trail types that provided access to natural resources, in particular riparian (stream/river) corridors, which support biodiversity. This category uses proximity to streams and rivers to develop a

natural resources score for each trail corridor.

4.A. Proximity to Natural Resources Scoring

- ○ Trail does not intersect or run parallel to a riparian corridor
- ◑ Trail intersects or briefly follows a riparian corridor
- ● Trail completely follows a riparian corridor

5. ENVIRONMENTAL IMPACTS

5.A. Wetlands

While wetlands can provide a unique user experience, trail development can have lasting impacts on these sensitive natural resources. For this category, there are two possible scores representing the presence or absence of wetlands along the trail alignment.

5.A. Wetlands Scoring

- ○ Trail will require wetlands permitting
- ● Trail will not require wetlands permitting

5.B. 100-Year Floodplain

Similar to wetlands, floodplains serve a vital environmental function. Trail development through floodplains requires extra documentation and permitting to ensure the floodplain's continued functionality as a buffer between riparian corridors and adjacent land and buildings. For this category, there are two possible scores representing the presence or absence of the 100-year floodplain along the trail alignment.

5.B. Floodplains Scoring

- ○ Trail does intersect the 100-year floodplain
- ● Trail does not intersect the 100-year floodplain

6. EQUITY AND COMMUNITY VALUE

6.A. Trail Access

Trailheads and access points increase the permeability of trails and provide multiple locations for adjacent residents, nearby employees, and area visitors to get on and off the trail. This category measures the number of existing and future trailheads, potential trail access points, and parking facilities, calculated on a per-mile basis.

6.A. Trail Access Scoring

- ○ Less than one trailhead or access point per mile
- ◑ One to two trailheads or trail access points per mile
- ● More than two trailheads or trail access points per mile

6.B. Access to Healthy Foods

Trails can improve community access to grocery stores, particularly communities with limited access to vehicles. This category measures the proximity of the trail to supermarkets.

6.B. Access to Healthy Foods Scoring

- ○ More than 1 mile from a grocery store
- ◑ Between 1/2 mile and 1 mile from a grocery store
- ● Less than a 1/2 mile to a grocery store

6.C. Limited Vehicle Access

Trails increase the mobility of communities that have limited access to vehicles. According to the American Community Survey, Limited Vehicle Access Communities are those in which 5% or more of households do not have access to a car. Because this figure represents the median value for Hall County, any

community that exceeds 5% limited vehicle access and is not adjacent to the trail recieves a lower score.

6.C. Limited Vehicle Access Scoring	
○	Trail does not connect or run adjacent to a community with limited vehicle ownership
◑	Trail runs near or adjacent to an area with limited vehicle ownership
●	Trail provides direct connections to a limited vehicle ownership community

7. ECONOMIC IMPACT POTENTIAL

7. A. Adjacent Redevelopment

Trails have long been understood to spur and sustain economic growth. Corridors adjacent to redevelopment can ensure the success of the project by supporting the trail and its users. This score is based on the context of surrounding land use. Typically, dense industrial areas with underutilized parcels or structures have high potential for redevelopment.

7.A. Adjacent Redevelopment Scoring	
○	No redevelopment nearby
◑	Some redevelopment potential
●	High amount of redevelopment potential or already in progress nearby

7. B. Employment Centers

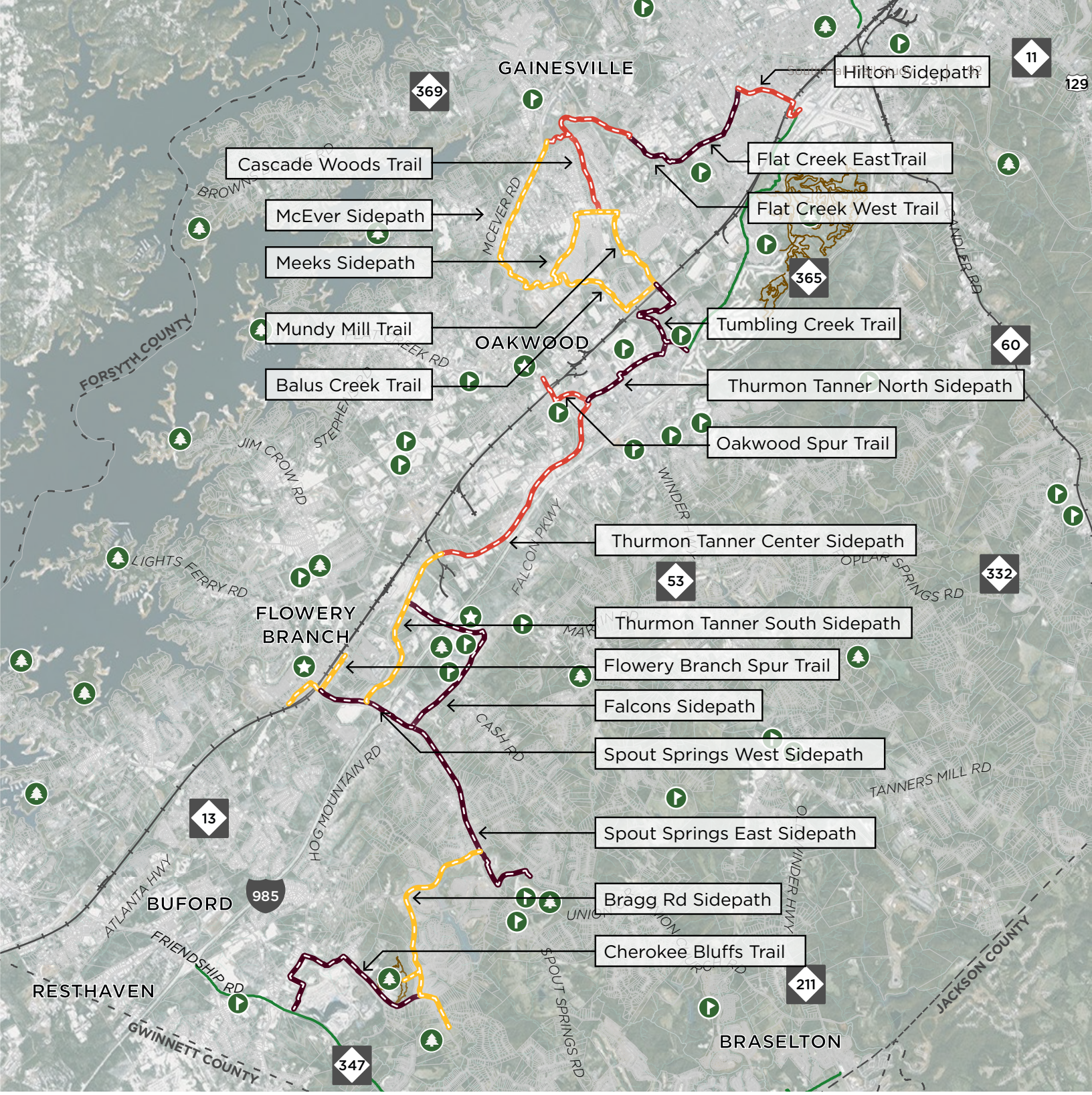
Connecting trails to employment centers can create opportunities for walking and bicycling to work, as well as provide adjacent businesses and employees with healthy, accessible recreation options. The greatest amount of connectivity is provided through direct connections to employment centers.

7.B. Employment Center Scoring	
○	Offers limited connection to employment centers
◑	Offers the average amount of connection to employment centers
●	Offers the greatest amount of connection to employment centers

7. C. Connectivity to Downtown Cores

By connecting trails to downtown cores, people can choose to walk and bike to local businesses. For many commercial areas, trail development can serve as an economic booster by providing a valuable amenity that attracts people to the area. The greatest amount of connectivity is provided through direct connections to downtown cores.

7.C. Connectivity to Downtown Cores	
○	Offers limited connection to downtown cores
◑	Offers the average amount of connection to downtown cores
●	Offers the greatest amount of connection to downtown cores



Composite Prioritization Results

Prioritiy Tiers
- Tier 1
- Tier 2
- Tier 3

- Existing Paved Trails
- Existing Unpaved Trails

- Destination
- School
- Park

0 ½ 1 2 MI

Prioritization Results

Based on the prioritization steps described in previous pages, the 20 priority trail corridors were grouped into three categories: short-term trail corridors (1-4 year implementation), medium-term corridors (5-9 year implementation) and long-term trail corridors (10+ year implementation). The short-term, implementable corridors represent the seven projects with the highest refined data-driven, value-based scores and few to no negative critical factors impacting trail development. The remaining corridors consist of middle to lower-scoring projects, and project whose development is constrained by external critical factors.

The planned priority trail corridors that follow have been prioritized based on the scoring criteria listed in previous pages. The results of this process are shown in Table 2 below. The table ranks the corridors by their composite score in order of highest priority to lowest priority.

Table 2: Prioritization Results

Corridor Name	Tier	Composite Score	Safe Connections				Connectivity		
			1.A	1.B	1.C	1.D	2.A	2.B	2.C
Thurmon Tanner North Sidepath	1	25	1	2	1	0	0	1	2
Falcons Sidepath	1	24	0	1	1	1	1	2	2
Spout Springs East Sidepath	1	23	1	2	0	1	2	2	1
Tumbling Creek Trail	1	23	2	2	2	1	1	1	1
Cherokee Bluffs Trail	1	21	1	1	2	2	0	2	1
Flat Creek Trail East	1	21	2	1	2	2	0	0	0
Spout Springs West Sidepath	1	21	0	2	1	0	0	2	0
Flat Creek Trail West	2	20	2	1	2	2	0	0	0
Oakwood Spur Trail	2	19	0	2	1	1	0	0	2
Cascade Woods Trail	2	18	2	1	2	2	1	0	0
Thurmon Tanner Center Sidepath	2	18	1	1	1	1	0	0	1
Hilton Sidepath	2	18	0	2	1	1	1	0	0
Flowery Branch Spur Trail	3	17	0	2	0	0	1	2	0
Thurmon Tanner South Sidepath	3	17	2	1	0	1	1	2	0
Balus Creek Trail	3	16	2	2	2	0	2	0	0
McEver Sidepath	3	16	0	2	1	0	2	0	0
Meeks Sidepath	3	16	2	2	0	1	1	0	0
Bragg Road Trail	3	15	0	0	1	1	2	2	0
Mundy Mill Trail	3	12	1	1	1	0	1	0	0

Project Readiness				Scenic Value	Environmental Impacts		Equity and Community Value			Economic Impact Potential		
3.A	3.B	3.C	3.D	4.A	5.A	5.B	6.A	6.B	6.C	7.A	7.B	7.C
0	2	2	0	1	2	2	1	2	0	2	2	2
1	2	1	1	1	2	2	2	1	0	1	2	0
0	2	1	1	1	2	2	2	1	0	1	1	0
1	1	2	2	2	0	1	1	1	0	0	2	0
0	2	1	1	1	2	2	2	0	0	1	0	0
2	2	2	1	2	0	0	2	0	0	1	1	1
0	2	1	2	1	2	2	2	1	0	1	1	1
2	2	1	2	2	2	0	2	0	0	0	0	0
0	0	2	0	2	2	2	1	0	0	1	1	2
0	2	0	2	2	2	2	0	0	0	0	0	0
0	2	2	1	1	2	2	1	0	0	1	1	0
2	0	1	0	1	0	2	0	1	0	2	2	2
1	0	2	0	1	2	2	1	0	0	1	0	2
0	0	2	1	1	2	2	2	0	0	0	0	0
1	2	1	0	2	2	0	0	0	0	0	0	0
2	2	1	0	1	2	2	1	0	0	0	0	0
0	2	1	1	0	2	2	2	0	0	0	0	0
0	2	1	0	1	2	2	1	0	0	0	0	0
0	2	0	2	1	0	2	0	0	0	0	1	0

V.

Implementation Strategy

Overview

The proposed trail system in this plan represents a major investment with enormous positive impacts for Hall County residents, businesses, and visitors. The effort put forth to implement this plan will require a high level of determination, coordination, and leadership on behalf of those who champion the plan.

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 South Hall Trail system.

This chapter lays the groundwork for implementation efforts, with a recommended framework and set of action steps for establishing funding and carrying out implementation. The organizational chart on page 101 outlines the suggested key roles for project partners and stakeholders involved in implementation. The actual roles and responsibilities of each group will be more diverse and may vary depending on how this Plan is implemented over time.

Phasing Plan

While the desired outcomes and anticipated benefits of trail development will not be fully realized until segments are fully connected, 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 trail segments as larger multi-mile projects. However, it is likely that financial constraints will require Hall County trails to be completed in several sections as funding becomes available.

South Hall trails extend a total of 30.8 miles as recommended, including spurs and trail splits. The phasing strategy proposed represents realistic goals for project implementation, 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 as is the criteria developed in the prioritization process in the previous section, as well as ongoing community development projects, feedback from staff, and public input. The prioritization criteria and phasing plan should be revisited and refreshed when closer to implementation for each phase, as development patterns, funding sources and population growth change over time. 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 Hall County and associated jurisdictions. No public facilities can be developed until these tasks have been completed.

SHORT-TERM TRAIL CORRIDORS (1-4 YEAR IMPLEMENTATION)

1. TUMBLING CREEK TRAIL
2. THURMON TANNER NORTH SIDEPATH
3. FALCONS SIDEPATH
4. SPOUT SPRINGS WEST SIDEPATH
5. SPOUT SPRINGS EAST SIDEPATH
6. FLAT CREEK TRAIL EAST

MEDIUM-TERM CORRIDORS (5-9 YEAR IMPLEMENTATION)

7. FLAT CREEK TRAIL WEST
8. CHEROKEE BLUFFS TRAIL
9. BRAGG ROAD SIDEPATH
10. HILTON SIDEPATH
11. THURMON TANNER CENTER SIDEPATH
12. OAKWOOD SPUR TRAIL
13. CASCADE WOODS TRAIL

LONG-TERM TRAIL CORRIDORS (10+ YEAR IMPLEMENTATION)

14. THURMON TANNER SOUTH SIDEPATH
15. FLOWERY BRANCH SPUR TRAIL
16. MUNDY MILL TRAIL
17. BALUS CREEK TRAIL
18. MCEVER SIDEPATH
19. MEEKS SIDEPATH

Acquisition Strategy

Several options are available for Hall County to acquire necessary property for future trails. Options include amending local zoning and subdivision ordinances to ensure that, as developments are planned and reviewed, the greenway corridors identified in this plan are protected. This strategy would entail amending development regulations to have developers set aside land for trails whenever a development proposal overlaps with the Hall County trail corridors. Hall 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 utility easements do not currently

prohibit trail development, they do require the approval of underlying 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. Wherever acquisition is successful, property owners should be approached and informed by the implementing agency in advance of the design process.

Current Property Information Along the Corridor

Using existing parcel information in GIS, general ownership information was inventoried for each project segment. This information is useful because it gives the County and other project partners the composition 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. Acquisition costs were not developed as part of this study. The nature of the property analysis was not exhaustive as it was limited to the public information on record and is, thus, for informational 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 Hall County trail corridors provides a relevant and current picture of the status of ownership along the corridors.

Inventory and Analysis of Property Information

All properties adjacent to the proposed South Hall trail corridors were compiled and organized into ownership categories. Chapter 5 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. The appendix includes a summary of trail development typical of the various rights-of-way.

Ownership information for parcels along trail corridors is described by one of the following categories:

- Property is located within GDOT right-of-way (will require encroachment agreement)
- Property is located within public utility (will require modification to existing easement agreement with utility and underlying property owner)
- 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)

Some parcels along the trail corridors will

impact multiple categories; for example, if a public sidewalk is widened to comply with shared-use path 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. This condition is further detailed in the Appendix. An aggregate breakdown of property type for all Hall County trails is found in the table on this page.

Table 3: Trail Length by Property Ownership Type

PROPERTY TYPE	LF	MI	% OF TOTAL
UTILITY EASEMENT	13,329	2.5	8.2%
ROW	93,182	17.6	57.2%
PUBLIC PARCELS	21,006	4.0	12.9%
PRIVATE LAND	35,338	6.7	21.7%
TOTAL	**162,855**	**30.8**	**100.0%**

Development Costs

Order-of-magnitude cost estimates were generated for each phase of proposed South Hall trails. **The total cost of the trail network as proposed in this document, for all 30.8 miles is roughly $63M.** Costs include all land development items as well as ancillary facilities such as trailheads and amenities, as appropriate. Not included in the cost estimates are: survey, acquisition costs, permitting fees, and any other items not indicated. Detailed breakdowns of cost by phase can be found in the Appendix.

PERMITTING OVERVIEW

Potential permits which may be required for South Hall trail construction include:

- GEPD Stormwater Management (National Pollutant Discharge Elimination System General Permit)
- GEPD Riparian Buffer Authorization/ Floodplain Development Permit
- Hall County Land Disturbance Permit
- Hall County Building Permit (for structures)
- Jurisdictional Site Plan Review/ Construction Review
- GDOT Access Permit
- GDOT Lighting Permit (as appropriate)
- GDOT Utility Permit (as approrpriate)
- GDOT Signal Permit
- GDOT Air Rights Permit (for bridges)
- GDOT Encroachment Permit
- FEMA Conditional Letter of Map Revision (CLOMR)
- FEMA Letter of Map Revision (LOMR)
- FEMA Compliance
- 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 Hall County Development Review, Engineering Division, and the prevailing jurisdiction for each project segment.

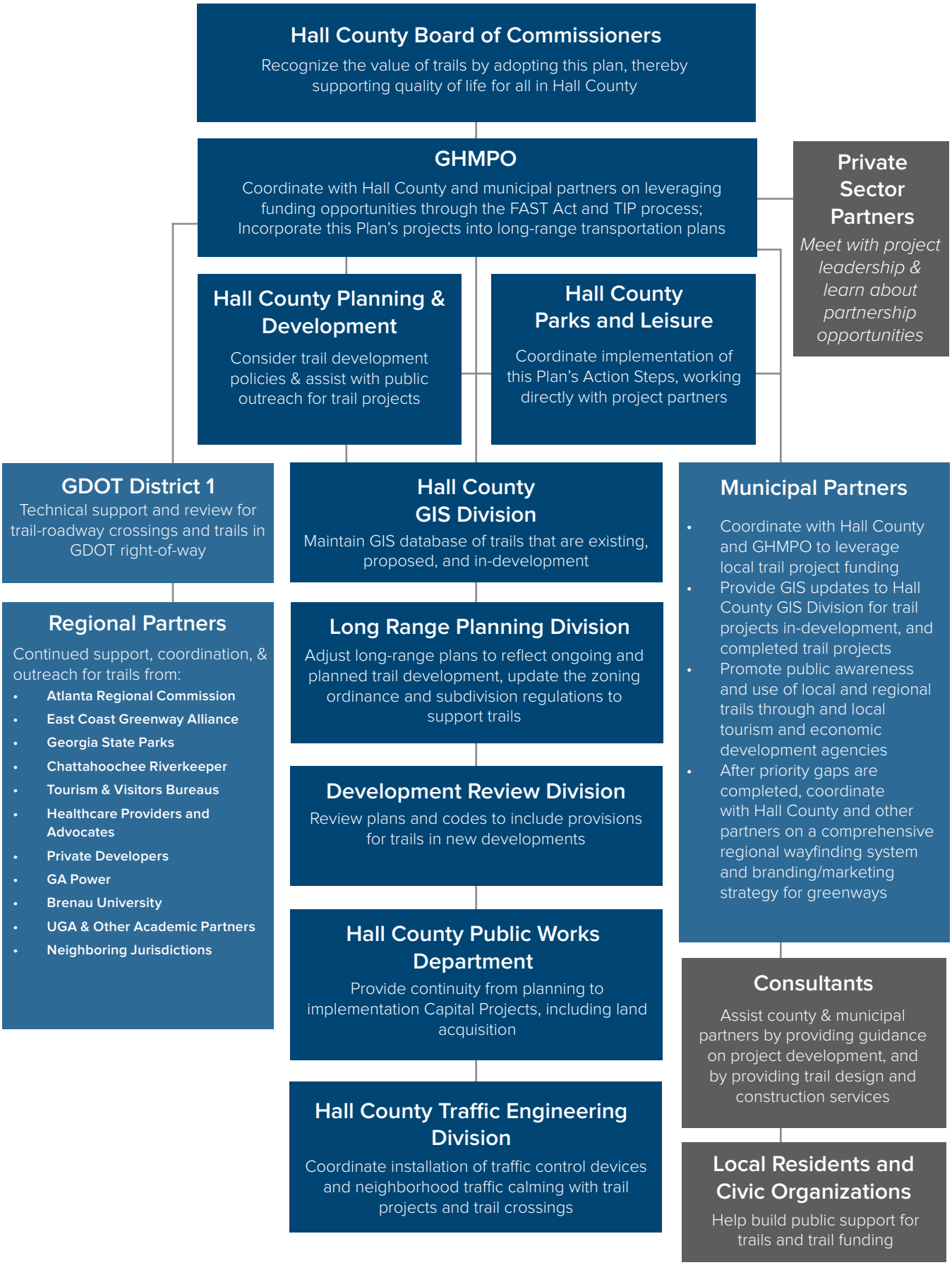
Table 4: Total Development Cost by Trail Segment

PROJECT SEGMENT	TOTAL COST
TUMBLING CREEK TRAIL	$2,436,426
THURMON TANNER SOUTH	$4,009,246
THURMON TANNER NORTH	$4,451,531
THURMON TANNER CENTER	$5,401,907
BRAGG ROAD TRAIL	$6,789,652
SPOUT SPRINGS WEST	$1,827,764
SPOUT SPRINGS EAST	FUNDED
OAKWOOD SPUR TRAIL	$1,695,759
MUNDY MILL TRAIL	$2,129,678
MEEKS SIDEPATH	$2,422,154
MCEVER SIDEPATH	$3,890,072
HILTON SIDEPATH	$2,813,850
FLOWERY BRANCH SPUR TRAIL	$2,847,418
FLAT CREEK TRAIL WEST	$2,794,489
FLAT CREEK TRAIL EAST	$3,574,419
FALCON SIDEPATH	$4,282,177
CHEROKEE BLUFFS TRAIL	$4,823,699
CASCADE WOODS TRAIL	$1,463,233
BALUS CREEK TRAIL	$5,044,550
TOTAL	**$62,698,024**

Design and Construction

While this feasibility study has closely examined the prospect of developing a shared-use path system in South Hall, 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 but can be generally estimated and are shown on the following table. The design process can be a complicated and technical undertaking for linear projects such as trails, and a qualified consultant should always be employed.

ORGANIZATIONAL FRAMEWORK FOR IMPLEMENTATION



IMPLEMENTATION ACTION STEPS

Table 5: Policy Action Steps

#	Task	Lead Agency	Support	Details	Phase
1	Present Plan to Board of Commissioners for adoption	Planning Consultants	Hall County Planning & GHMPO	The plan should be presented to the board in Fall 2018. Focus on the health and economic benefits of greenways and key trail recommendations. Adoption signals intent to implement the plan over time; it *does not* commit County to funding the plan.	Short Term (2018)
2	Meet with GDOT to introduce the Plan and coordinate on key recommendations	GHMPO Staff + GDOT District 1	GDOT Bike & Pedestrian Coordinator	This plan and the recommended trail routes should be officially recognized by GDOT. For example, GDOT should refer to this document when assessing the impact of future projects and plans, such as future trail crossings needed in relation to state road RRR projects. Effort should be made between state and local partners to include parallel trail facilities on planned future roadways and roadway reconstruction projects, especially where they appear on adopted plans.	Short Term (2018)
3	Amend county and local development ordinances and technical standards	Hall County Planning & Development; Municipal Partners	Hall County Planning Commission; Local Planning Boards	County and local development ordinances should be considered for amendment to ensure that, as developments are planned and reviewed, the recommended greenway 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 proposed routes, as adopted. Local governments should also consider requirements and tools like dedicating easements, connections to adjacent land uses, issuing credits, and offering some form of recognition to developers who go above and beyond the requirements for trail development.	Short Term (2018)
4	Revise sewer, stormwater and utility easement policies	Hall County Planning and Zoning	Hall County Planning Commission	All new sewer, stormwater and utility easements should be considered for allowing public access as a matter of right. Such a consideration should allow for access that does not require landowner approval for each parcel the easement overlaps. As trails are developed, also review applicable existing easements for similar revision considerations.	Short Term (2018)
5	Develop a corporate sponsorship policy	GHMPO	Local Private Sector Partners	For a comprehensive sponsorship policy example, see that of Portland Parks and Recreation: www.portlandonline.com/shared/cfm/image.cfm?id=155570 . For a sponsorship brochure example, see that of the 'Mountains to Sound Greenway': http://mtsgreenway.org/events-calendar/greenway-365-sponsorship-brochure	Short Term (2018)
6	Develop a coordinated operations & maintenance plan	GHMPO; Hall County Parks & Leisure	Municipal Partners ont/ Organizations	This plan will help to apportion responsibility between agencies where facilities cross jurisdictional boundaries or where pooled efforts can reduce costs. See the maintenance section of this chapter for more information about best practices for operations and maintenance.	Short Term (2018)

Table 7: Program Action Steps

#	Task	Lead Agency	Support	Details	Phase
1	Establish a directory of greenway stakeholder contacts for Hall County	GHMPO	All Project Stakeholders	The group could include members from multiple Hall County departments, local municipalities, neighboring jurisdictions, GHMPO, and others listed in the acknowledgments of this plan. Individuals who participated in this planning process on the Project Management Team should be including in the contact list. This list of contacts could either be maintained privately by those included, or could be made public, on a County-hosted greenways web page.	Short Term (2018)
2	Host a semi-annual Countywide Greenway Trails Workshop	Hall County Parks & Leisure; GHMPO	All Project Stake-holders	The purpose of this event is to establish regional coordination for trail development with the members listed above. Meetings should evaluate implementation progress and set goals to be achieved before the following meeting. The group should also make necessary plan updates. Meetings could also feature tours of recently completed sections of trail, and special presentations by stakeholders and invited guests.	Short Term (2018); Semi-annual meetings thereafter
3	Conduct regular trail user counts	GHMPO; Municipal Partners	Planning Consultant or Using In-House Equipment	Trail usage data is needed to strengthen grant requests and influence policy and funding decisions. A complete picture of trail-user characteristics can be developed and outcomes can help to identify if additional amenities would improve the trail-user experience.	Short Term (2018-2019)
4	Coordinate with school system on greenway issues	GHMPO & Municipal Partners	Hall County Schools	Need better coordination with Hall County Schools, particularly around the topics of school siting and greenways as 'essential' versus simply 'bonus'. Greenway connectivity must be considered on the front end of school site development.	Short Term (2018-2019)
5	Continue efforts to reduce crime on greenways	Municipal Partner's Police Dpt.	Volunteer Groups	Address personal safety concerns on trails. Consider a program such as Trail Watch or other safety volunteer programs: Any citizen interested in helping keep a watchful eye on greenway trails by reporting back to Parks officials any breach in safety, security or maintenance concerns is invited to apply to become a Trail Volunteer.	Short Term (2018-2019)
6	Continue installation of the wayfinding system for trails and other points of interest throughout the region	Hall County Parks & Leisure; Municipal Partners	Planning Consultant or In-House Design	Efforts were already underway during this planning study to develop a trail wayfinding system. When project segments are built, continue fabrication and installation of signage.	Medium Term (2019 -2020)

Table 8: Infrastructure Action Steps

#	Task	Lead Agency	Support	Details	Phase
1	Identify and secure specific funding sources for trail corridors & begin design and construction phases as soon as possible.	GHMPO; Hall County Public Works	Municipal Partners; Hall County Parks & Leisure	Partnerships for joint funding opportunities should be pursued. Combine financial and management resources for trail development with surrounding municipalities, regional entities (such as ARC), and private sector partners. **Potential BUILD ready projects should be identified for the 1-5 year time frame. "Shovel-ready" designed projects should be prepared in the event that future federal stimulus funds become available.**	Short Term (2018); Ongoing
2	Gather further public support and input during the design phase for trail projects.	GHMPO; Municipal Partners	Local Advisory Committees	Involve the general public and advisory groups, such as the Hall County Open Space and Trails Committee in the design stage for trail development. Some such groups can help with both trail routing ideas and public support from specific neighborhoods.	Short Term (2018); Ongoing
3	Develop a long term funding strategy; Consider limited obligation bonds to fund Hall County projects, including trails.	GHMPO; Hall County Parks & Leisure	Municipal Partners	To allow continued development of the overall system, capital funds for trail construction should be set aside every year, even if only a small amount; small amounts of local and county funding can be matched to outside funding sources, such as state, federal, and private funds. Funding for an ongoing maintenance program should also be included in the local operating budgets. Cross-jurisdictional trail projects lend themselves well to collaboration on funding as coordinated multi-jurisdictional projects are looked upon more favorably by outside funding sources than single-jurisdiction applications.	Short Term (2018); Ongoing
4	Make improvements to existing trails & expand marketing efforts for existing trails	Hall County Parks & Leisure; Hall County Public Works	Municipal Partners	Make improvements to existing trails that enhance the overall experience for trail users. Other examples include evaluating bicyclist speeds in certain areas, and enforcing trail speed limits for safety. Centerline striping could also be useful in certain areas, with occasional signage indicating that both walkers and cyclists (and everyone else) should keep to the right except when passing.	Medium Term (2018 -2019)
5	Re-evaluate and re-confirm the near-term top priorities	GHMPO	Municipal Partners	Every year, reevaluate near-term top priorities based on what has been completed, and reconfirm the agenda of "priority" projects. Consider sticking with earlier projects that were not successful to-date, versus new trail opportunities that may have arisen or become more feasible since 2018.	Medium Term (2019- ongoing)
6	Update this Plan	GHMPO	Project Consultants	In 2023, reassess overall system-wide goals and reevaluate the overall approach to implementation. In 2028, complete a full plan update.	Long Term (2023 & 2028)

Permitting

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

Project Development Criteria

- River Basin – Upper Chattahoochee and Upper Oconee
- Watershed Protection Overlays – None
- Development Tier - Varies; Residential Suburban, University and College, Commercial Neighborhood, Industrial
- Riparian Buffers - The Georgia Erosion and Sedimentation Act of 1975 (O.C.G.A. 12-7) and its subsequent amendments require that primary and secondary trout streams maintain an undisturbed riparian buffer of 50', and all other streams maintain a minimum buffer of 25' (measured from where vegetation is wrested by normal stream flow).

Surface Waters

Trail project segments are located in the eastern border of the Upper Chattahoochee River and the Upper Oconee River watersheds. Both basins include drinking water supply and may include impaired streams.

To obtain the necessary water quality certifications, the GEPD NPDES application will need to be completed and submitted in addition to a Stormwater Pollution Prevention Plan (SWPPP) developed in accordance with current local and state (GEPD) guidelines.

Some trail project segments are located within 100-year floodplain. A field delineation to identify all regulated surface waters (streams, wetlands, open waters) and any associated protected riparian buffers will be required, along with USACE and GEPD verification of this delineation.

Permitting Assessment, Anticipated Impacts, and Mitigation:

Depending on the trail project segments that are developed, some may have impacts to jurisdictional waters or their associated protected riparian buffers. All segments within riparian buffers will be required to comply with the nutrient reduction and mitigation requirements associated with the associated stream buffer rules and development ordinance.

Because most trail segments will be located in a mostly developed area with little available room for treatment options, and treatment options to remove nitrogen and phosphorus are generally not allowed in floodplains or buffers, it should be anticipated that the projects may have to purchase nutrient offset credits prior to construction.

Some of the project segments will require 404/401 permits from the USACE and/or GEPD. If jurisdictional wetlands or waters are found at the time of the field delineation and impacts are unavoidable, the project should be eligible for the use of Nationwide Permit No. 14 (NWP14) and General Water Quality Certification No. 3886 (GC3886). Written approval to use these will be required depending on the impacts. A pre-construction

Table 9: Estimated Project Timeline

Process	Description	Critical Path Tasks (Mos)	Concurrent Tasks (Mos)
RFQ	Request for Qualifications and Consultant Selection	3	
Contracting	Contracting between the City and the Consultant	2	
Survey	Detailed survey of the project area	2	
Preliminary Design	Preliminary Design of the Project	3	
Review	Review of Preliminary Design by Regulatory Agencies	3	
Permits	Application for local, state, federal permits		18
Final Design	Final Design of the project		2
Review	Review of Final Design by Regulatory Agencies		1
CD's	Preparation of Construction Documents	2	
Procurement	Soliciting public bids for the project	2	
Contracting	Contracting between the City and the Builder	1	
Construction	Construction	8 - 18	
TOTAL TIME FOR ONE PHASE OF DESIGN/CONSTRUCTION: 26-36 MONTHS			

notification application form (PCN), with required exhibits and fees, will need to completed and submitted to the USACE and GEPD for approval.

A mitigation ratio of required mitigation to impacts of 2:1 should be anticipated for projects that impact wetlands. Current fees should be examined prior to development but can be anticipated within $40K-$70K per acre of required riparian wetland mitigation. Wetland mitigation is rounded up to the nearest 0.25 acre. Compliance with applicable stormwater management/ treatment, nutrient management and diffuse flow will most likely be required as well as conditions of the permit approvals.

FEMA Compliance

Balus Creek and Flat Creek project segments are located within a FEMA detailed study area with an established floodway. Therefore, coordination will be required with the County's Floodplain Administrator, the Georgia Floodplain Mapping Program, and FEMA. Any changes in water surface elevation greater than 0.02 feet, floodway width or location, or floodway water surface elevations will require FEMA approval through the CLOMR / Letter of Map Revision (LOMR) process. This is a very intensive modeling and review process that can take 6 to 9 months to complete. If the trail can be kept outside of the floodway, and impacts such as fill and structures (such as bridges and boardwalks) that would cause blockages in the floodplain can be minimized, it is expected that a "No-Rise" can be obtained and approved at the local level by

the County's Floodplain Administrator.

The amount of trail located within the floodway and floodplain is highly dependent on the surveyed location of the alignment option selected, and will drive the FEMA compliance effort. In all cases during this trail study, efforts were made to route trail segments outside floodway.

Summary

Alta has completed a "desk-top" review and permitting assessment of the project as described above. We believe that any impacts to wetlands, streams, waters and/or protected riparian buffers associated with the study area would be minor and can be permitted within the confines of existing Nationwide Permits (most likely Nationwide Permit No. 14).

We also believe that the impacts to local stream buffers can be approved as "allowable" or possibly "allowable w/ mitigation" uses by GEPD. It has been our recent experience that mitigation will be required for the project even if the individual impacts can remain under the historic minimum impact thresholds of 150 feet of streams, 1/10th acre of wetlands, and "allowable" uses under the buffer rules. USACE has taken the stance that those impacts are not per project, but are fully inclusive of the entire trail system, and that the thresholds have already been exhausted. Many of the project segments are located in an existing urbanized area and no impacts to protected species are anticipated.

FEMA compliance can likely be obtained with all options. However, the design level effort, construction costs, and FEMA review fees are expected to be higher when more trail is located in the floodplain. FEMA review fees are currently $6,700 for the initial CLOMR package, and $8,000 for the LOMR package, which is reviewed after construction. There are no FEMA fees associated with a "No-Rise" as it is approved at the local level.

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 considering 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. The general schedule presented on this page is based on similar greenway project schedules. Since some of these processes occur simultaneously, the times listed are not cumulative. Items considered to be on the "critical path" are shown in the second column from the right.

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 South Hall trail system 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.

Operations and Maintenance

Guiding Principles for Effective Operations and Maintenance

The South Hall trail system should be regarded and maintained as a public resource. The condition of the trail reflects the relationship between the trail, trail managers and the surrounding community. A well-maintained trail will serve the community for generations to come. The following guiding principles will help assure the preservation of a first class trail:

- Good maintenance begins with sound planning and design.
- Foremost, protect life, property, and the environment.
- Promote and maintain a quality outdoor recreation and transportation experience.
- Develop a management plan that is reviewed and updated annually with tasks, operational policies, standards, and routine and remedial maintenance goals.
- Develop a maintenance plan that is reviewed and updated annually and includes regular inspection schedules.
- Maintain construction and design quality control, and conduct regular inspections.
- Include field crews, police, and fire/rescue personnel in both the design review and on-going management process.
- Maintain an effective, responsive public feedback system, and promote public participation.
- Be a good neighbor to adjacent properties.
- Operate a cost-effective program with sustainable funding sources.

A management plan provides a basic foundation for South Hall trail development tasks that need to be undertaken by the City and other partners once design development begins and the trail is opened for use. A benchmark structure, including a series of work items and tasks that need to be completed in order, is recommended

to maintain South Hall's trail network as an attractive, safe, and secure public amenity.

Trail Facility Management and Administration

For a successful trail facility to be developed, it is critical for those involved in the operations and maintenance to understand their role in supporting and managing the trail. The South Hall trail system will be developed and maintained primarily by the County and its partners. Listed below are the key departments and organizations that will play a role in the implementation and management of the trail.

GAINESVILLE-HALL METROPOLITAN PLANNING ORGANIZATION (GHMPO)

MPOs are responsible for leading regional transportation initiatives and coordinating transportation grant funding. In the event additional coordination is needed for other roles, the GHMPO could serve as a facilitator of meetings, especially if it involves the Mayor or City Manager of partner cities.

Other roles may include:

- Provide updates to City staff on opportunities for facility development that coincide with other capital or maintenance projects.
- Work actively to ensure bicycle and pedestrian projects are funded through the State prioritization process (STIP).

HALL COUNTY ADMINISTRATION

County Administration provides leadership and funding obligations and budget items for capital improvements. The Hall County Board of Commissioners should adopt a budget for expenditures of funding that support local trail development. County staff should be prepared to provide supporting materials to the administration for the budget process, including any bicycling, walking, and trail-related reports, user estimates, and benchmarking statistics.

HALL COUNTY PARKS AND RECREATION DEPARTMENT

County officials ensure that the public's health and safety are protected during the normal use of any county-owned property, including parks and trails. The Hall County Parks and Recreation Department would have the overall responsibility for trail construction, operations, and maintenance.

Other roles may include:

- Coordinate across jurisdictional boundaries to provide trail network connectivity to Hall County.
- Enforce trail design standards and uniformity for all future trail construction projects.
- Lead greenway programmatic activities to encourage trail use and community pride.
- Conduct evaluation activities along trails such as user preference surveys and counts.

SHERIFF'S DEPARTMENT

The Hall County Sheriff's Department patrols all public property including parks and recreation facilities in unincorporated Hall County. For Flowery Branch and Oakwood, the local PD will patrol trail portions in their jurisdictions. When segments of South Hall trail are constructed, police patrol should increase in the first six months to monitor use and hours of operation along the trail.

HIGHLANDS TO ISLANDS

Highlands to Islands has helped promote the advancement of trails in the Gainesville region. The organization, a 501 (c)3, seeks to raise active living, health, and quality of life through various efforts including advocacy, education, facilitation, and campaigning. Highlands to Islands should continue to play a role during the development of the South Hall network by helping to organize promotional events, assisting with fundraising, and raising awareness for increased trail use and programming.

ROLE OF THE PRIVATE SECTOR AND NON-PROFITS

Private organizations can play a significant role in the development and management of trail systems; local, regional, and national organizations provide various types of help. Local organizations can make in-kind donations, volunteer labor, and construct and maintain sections of a trail. Regional and national organizations can provide similar types of support including the provisioning of grants and other funding schemes. When new businesses or subdivisions are constructed near or adjacent to a trail facility, they may agree to share responsibility in supporting operations and maintenance, as well as providing access and dedicating open space.

After a trail is constructed, other developments, adjacent to or nearby, may take place and affect trail usage. Agreements can be established for new neighborhood, subdivision, and business development in such areas to help support trail maintenance, operations, and access. This type of support may include annual fees, in-kind donations, and day-to-day operations and maintenance responsibilities.

To various degrees, partnerships between other private, public, and non-profit agencies can also be formed in creating a diversified, stable support system for the trail network. For South Hall, the following partners have been identified:

- University of North Georgia (UNG)
- Northeast Georgia Healthcare System (NGHS)
- Lee Gilmer Airport

Facility Maintenance

Trail maintenance shall include the removal of all debris, trash, litter, obnoxious and unsafe human-made structures, vegetation and other foreign matter. Trailheads, points of public access, and other activity areas shall be maintained in a clean and usable condition at all times. The primary concern for pathway

maintenance shall always be public safety.

All trail facilities shall be maintained in a safe and usable manner during hours of operation, and in accordance with applicable Americans with Disability Act policies. Rough edges, severe bumps or depressions, cracked or uneven pavement, gullies, rills and washed out tread surface shall be repaired in a timely manner by Hall County and/or its designee. Volunteer vegetation occurring in the trail tread should be removed in such a manner so that the trail surface is maintained as a continuous, even and clean surface. Graffiti should be removed and vandalized elements of the trail and trail amenities should be repaired in a timely manner.

Vegetation within the trail corridor should be managed to promote safety, serve as habitat for wildlife, buffer public use from private property when possible, enhance water quality, and preserve the unique aesthetic values of the natural landscape. Removal of native vegetation should be done with clear purpose and discretion. The objective in controlling growth of vegetation shall be to maintain clear and open lines of sight along the trail at all times, at intersections with roadways and driveways, and along roadways.

Vegetation removal within the trail development zone should be accomplished to eliminate potential hazards that could occur from natural growth. To promote safe use of the trail, all vegetation should be clear-cut to a minimum distance of 3 feet from the edge of the trail tread, and 8 feet of overhead clearance. Selective clearing of vegetation should be conducted, in cooperation with Hall County maintenance staff within a zone that is defined as being between three to ten feet from the edge of the pathway.

At any point along South Hall trails, a user should have an unobstructed view, along the centerline of the pathway, 250 feet ahead and behind his/her position. The only exception to this policy is where terrain or trail curvature is a limiting factor. Hall County is responsible for the cutting and removal of vegetation. Removal of vegetation within the trail right-of-way by an individual other than these agencies or their designee, is deemed unlawful and subject to fines and/or prosecution.

The tasks on the previous pages should be performed on a regular basis to keep all network facilities in good, usable condition. Maintenance tasks should be conducted more frequently for trail facilities where use is the most concentrated. Methods such as trail use counts, sketch plan analysis methods for estimating demand, public survey results, and public meeting comments can be used to determine which areas are the most heavily used and may require the most maintenance attention. The frequency of required maintenance tasks should be established as new phases are implemented and should be reviewed and updated annually to reflect any changes in usage, safety issues, or other concerns.

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VI.

Trail Design Best Practice

Guidance Basis

The sections that follow serve as an inventory of shared use path and trail design treatments and provide guidelines for their development. These treatments and design guidelines are important because they are the tools for creating a safe and accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a landscape architect or engineer, upon implementation of facility improvements.

National Guidance

The following standards and guidelines are referred to in this guide:

- The Federal Highway Administration's (FHWA) ***Manual on Uniform Traffic Control Devices (MUTCD)*** defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic.
- American Association of State Highway and transportation Officials (AASHTO) ***Guide for the Development of Bicycle Facilities*** (2012) provides guidance on dimensions, use, and layout of specific bicycle facilities.
- The National Association of City Transportation Officials' (NACTO) ***Urban Bikeway Design Guide*** (2012) is the newest publication of nationally recognized bikeway design standards, and offers guidance on the current state of the practice designs.
- The AASHTO ***A Policy on Geometric Design of Highways and Streets*** (2011) commonly referred to as the "Green Book," contains the current design research and practices for highway and street geometric design.
- ***Trails for the 21st Century*** (1993) guides communities on how to convert unused railway and canal corridors into trails for pedestrians, cyclists, horseback riders, and others.

State Guidance

Statewide guidance is provided by the Georgia Department of Transportation (GDOT).

- The ***Design Policy Manual*** (2018) is the primary resource for design guidelines and standards of GDOT.
- The ***Pedestrian and Streetscape Guide*** (2018) provides guidance on design of walkways and pedestrian support facilities. It does not provide standards or specifications.

Design Needs of Trail Users

Trail users include pedestrians (including those using mobility devices and pushing strollers), and cyclists. By understanding the unique characteristics and needs of all trail users, a facility designer can provide quality facilities and minimize user risk.

Types of Pedestrians

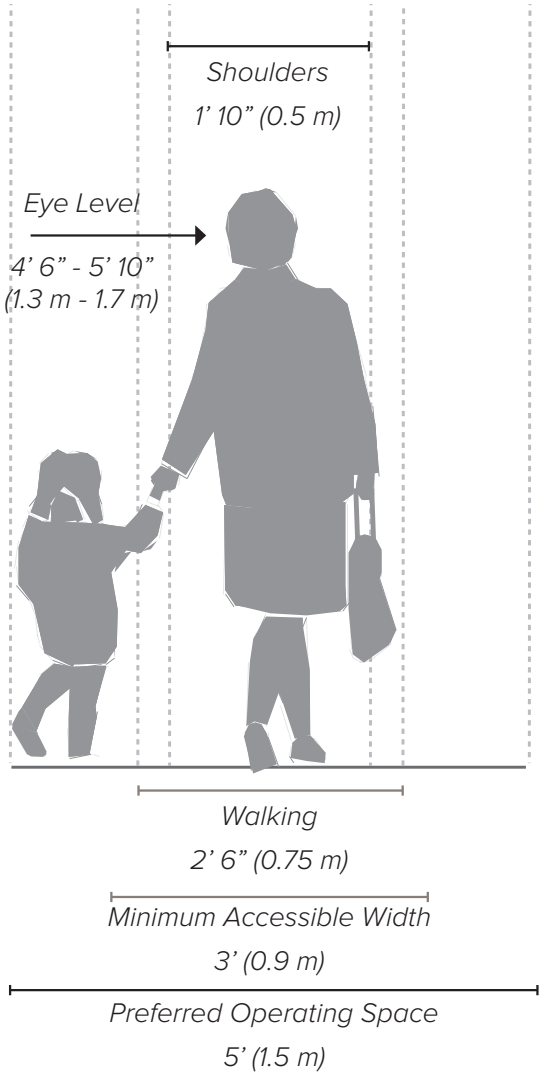
Pedestrians have a variety of characteristics and the trail network should accommodate a variety of needs, abilities, and possible impairments.

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 assistive devices for walking stability, sight, and hearing.

Table 10: 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 "darting out" in roadways
	Insufficient judgment
	Sense of invulnerability
14-18	Improved awareness of traffic environment
	Insufficient judgment
19-40	Active, aware of traffic environment
41-65	Slowing of reflexes
65+	Difficulty crossing street
	Vision loss
	Difficulty hearing vehicles approaching from behind

Figure 8: Pedestrian Dimensions



Disabled Pedestrian Design Considerations

The table below summarizes common physical and cognitive impairments, how they affect personal mobility, and recommendations for improved pedestrian-friendly design.

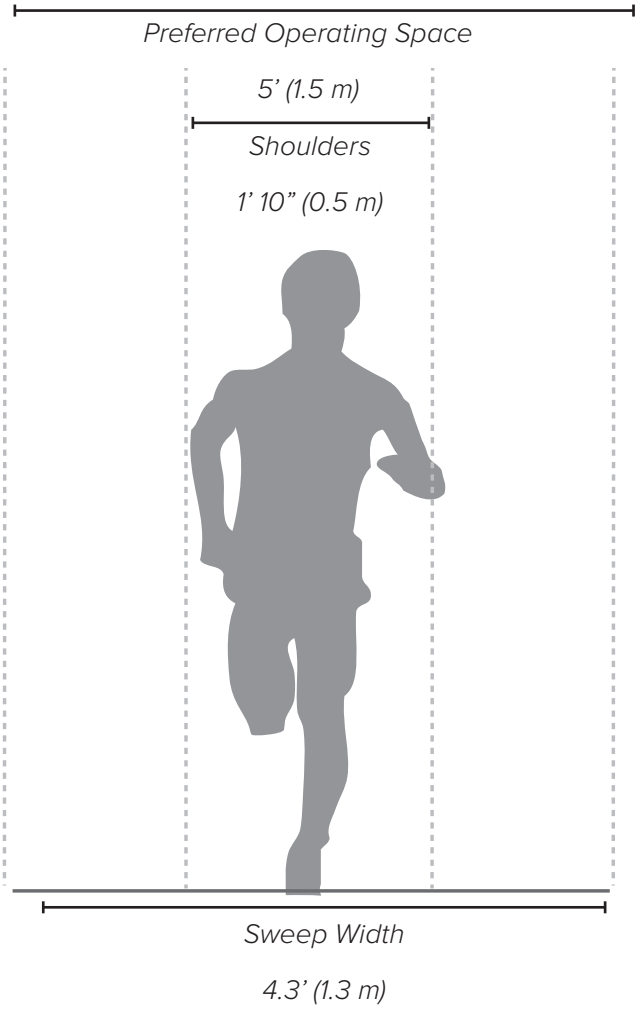
Table 11: Disabled Pedestrian Design Considerations (AASHTO Pedestrian Guide 2004)

Impairment	Effect on Mobility	Design Solution
Physical Impairment Necessitating Wheelchair and Scooter Use	Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
	Cross-slopes cause wheelchairs to veer downhill or tip sideways.	Cross-slopes of less than two percent.
	Require wider path of travel.	Sufficient width and maneuvering space.
Physical Impairment Necessitating Walking Aid Use	Difficulty negotiating steep grades and cross slopes; decreased stability and tripping hazard.	Cross-slopes of less than two percent. Smooth, non-slippery travel surface.
	Slower walking speed and reduced endurance; reduced ability to react.	At trail crossings, longer pedestrian signal cycles, shorter crossing distances, median refuges, and street furniture.
Hearing Impairment	Less able to detect oncoming hazards at locations with limited sight lines.	At trail crossings, longer pedestrian signal cycles, clear sight distances, highly visible pedestrian signals and markings.
Vision Impairment	Limited perception of path ahead and obstacles; reliance on memory; reliance on non-visual indicators (e.g. sound and texture).	Accessible text (larger print and raised text), accessible pedestrian signals (APS), guide strips and detectable warning surfaces, safety barriers, and lighting.
Cognitive Impairment	Varies greatly. Can affect ability to perceive, recognize, understand, interpret, and respond to information.	Signs with pictures, universal symbols, and colors, rather than text.

Design Needs of Runners

Running is an important recreation and fitness activity commonly performed on shared use paths. Many runners prefer softer surfaces (such as rubber, bare earth or crushed rock) to reduce impact. Runners can change their speed and direction frequently. If high volumes are expected, controlled interaction or separation of different types of users should be considered.

Figure 9: Runner Dimensions

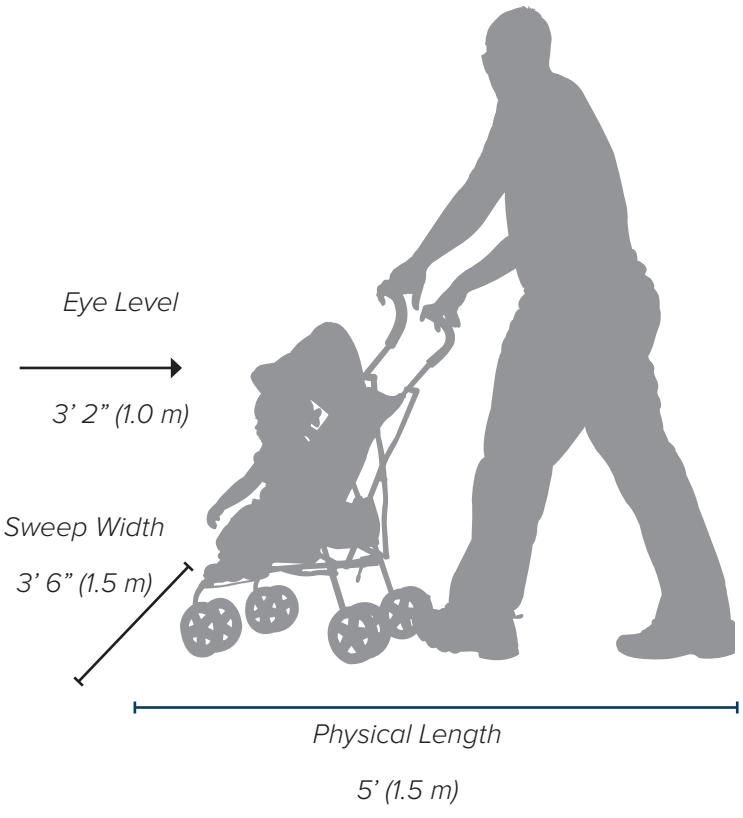


Design Needs of Strollers

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 3 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.

Figure 10: Stroller Dimensions



Design Needs of Wheelchair Users

As the American population ages, the number of people using mobility assistive devices (such as manual wheelchairs, 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.

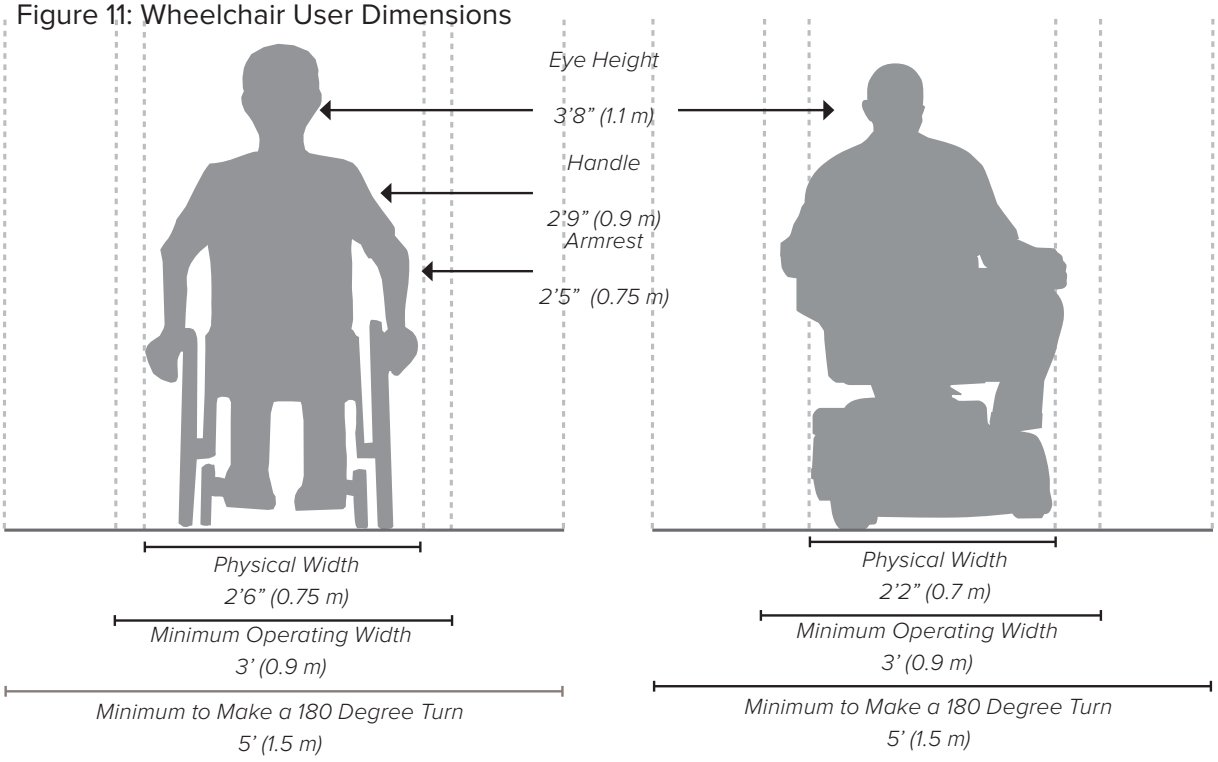
Power wheelchairs use battery power to move the wheelchair. The size and weight of power wheelchairs limit their ability to negotiate obstacles without a ramp. Various control units are available that enable users to control the wheelchair movement, based on their ability (e.g., joystick control, breath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

Table 12: 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.

Figure 11: Wheelchair User Dimensions



Design Needs of Cyclists

Bicyclists and their bicycles exist in a variety of sizes and configurations. These variations occur in the types of bicycle (such as a conventional bicycle, a recumbent bicycle or a tricycle), and behavioral characteristics (such as the comfort level of the cyclist). The trail design should consider reasonably expected bicycle types and utilize the appropriate dimensions.

The figure to the right illustrates the operating space and physical dimensions of a typical adult bicyclist, which are the basis for typical facility design. Bicyclists require clear space 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.

In addition to the design dimensions of a typical bicycle, there are many other commonly used pedal-driven cycles and accessories to consider when planning and designing bicycle facilities. The most common types include tandem bicycles, recumbent bicycles, and trailer accessories.

Figure 12: Bicycle Rider Dimensions

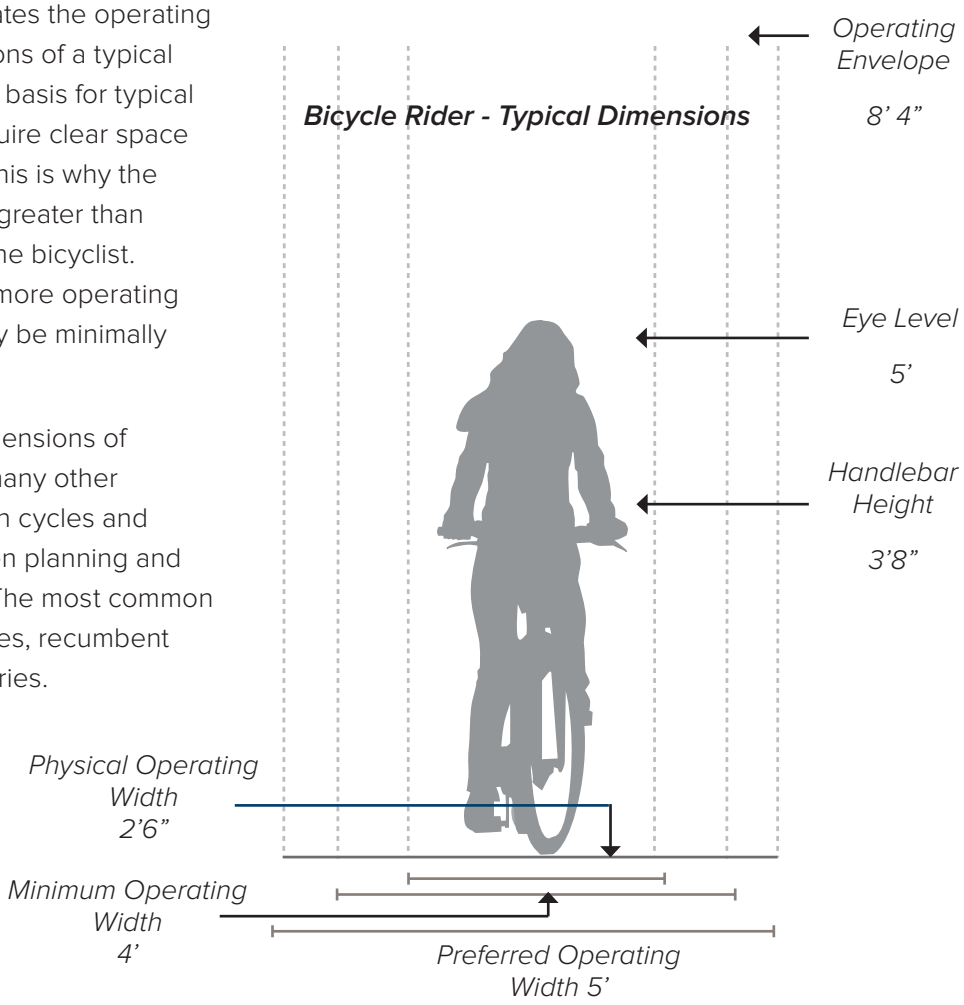
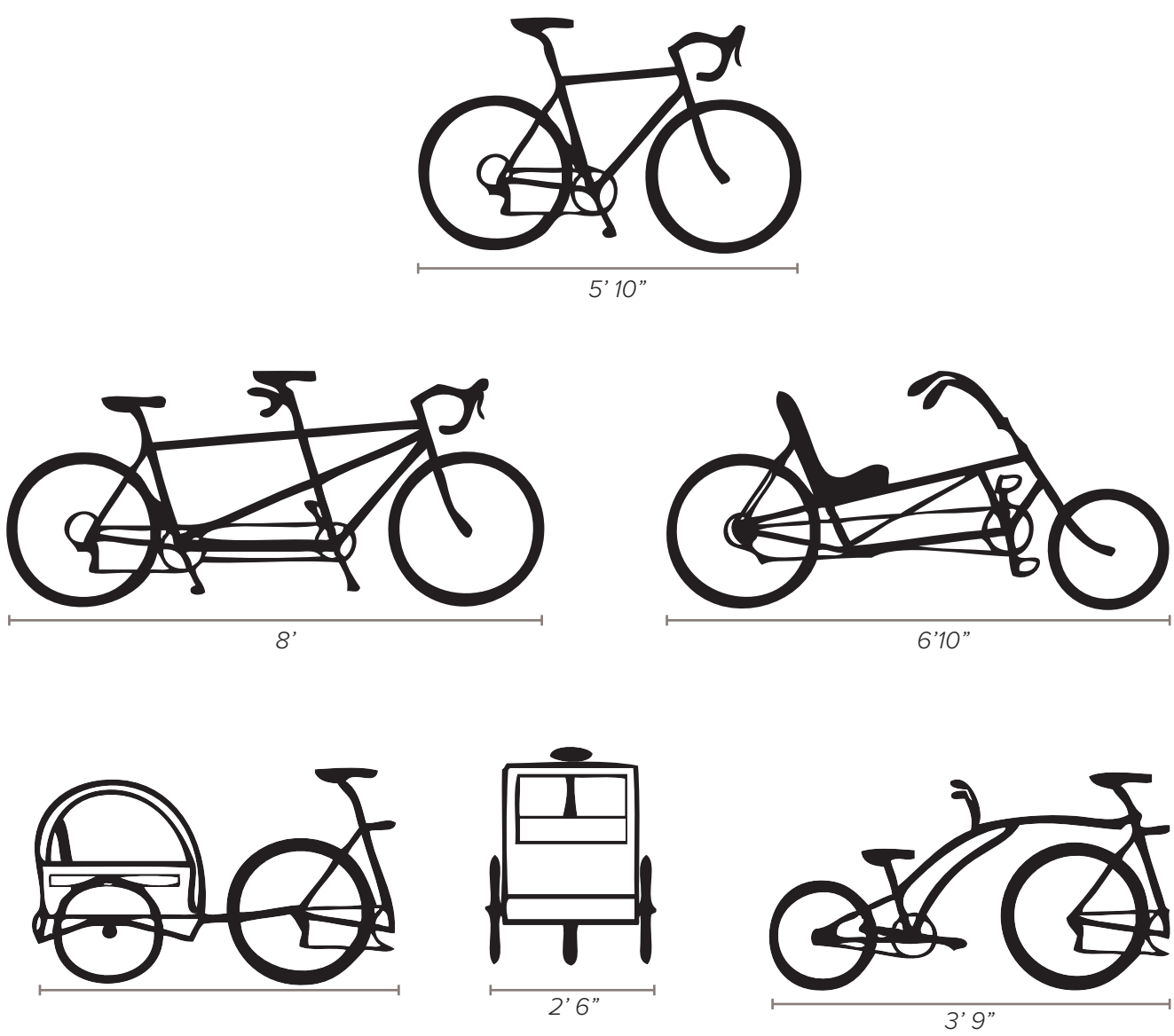


Figure 13: Cycles and Accessories Dimensions



Source: AASHTO *Guide for the Development of Bicycle Facilities,* 4th Edition

Shared Use Path Design Practices

Shared use paths can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic. Shared use paths should generally provide directional travel opportunities not provided by existing roadways.

Typical Application

- In abandoned rail corridors (commonly referred to as Rails-to-Trails or Rail-Trails).
- In active rail corridors, trails can be built adjacent to active railroads (referred to as Rails-with-Trails).
- In utility corridors, such as powerline and sewer corridors.
- In waterway corridors, such as along canals, drainage ditches, rivers and beaches.
- Within roadway right-of-way.

Design Features

- 12 feet is the recommended width for shared use paths. A separate track (5' minimum) can be provided for pedestrian use. 10 feet is recommended width for low traffic paths.
- 8 feet is the minimum width allowed for a two-way bicycle path and is allowed for neighborhood accessways or places with limited space and for limited lengths.
- A 2 foot or greater shoulder on both sides of the path should be provided. An additional foot of lateral clearance (total of 3') is required by the MUTCD for the installation of signage or other furnishings.

- Clearance to overhead obstructions should be 8 feet minimum, with 10 feet recommended.
- 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.
- Use of bollards should be avoided when possible. 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.

Shared Use Paths in Active Rail Corridors

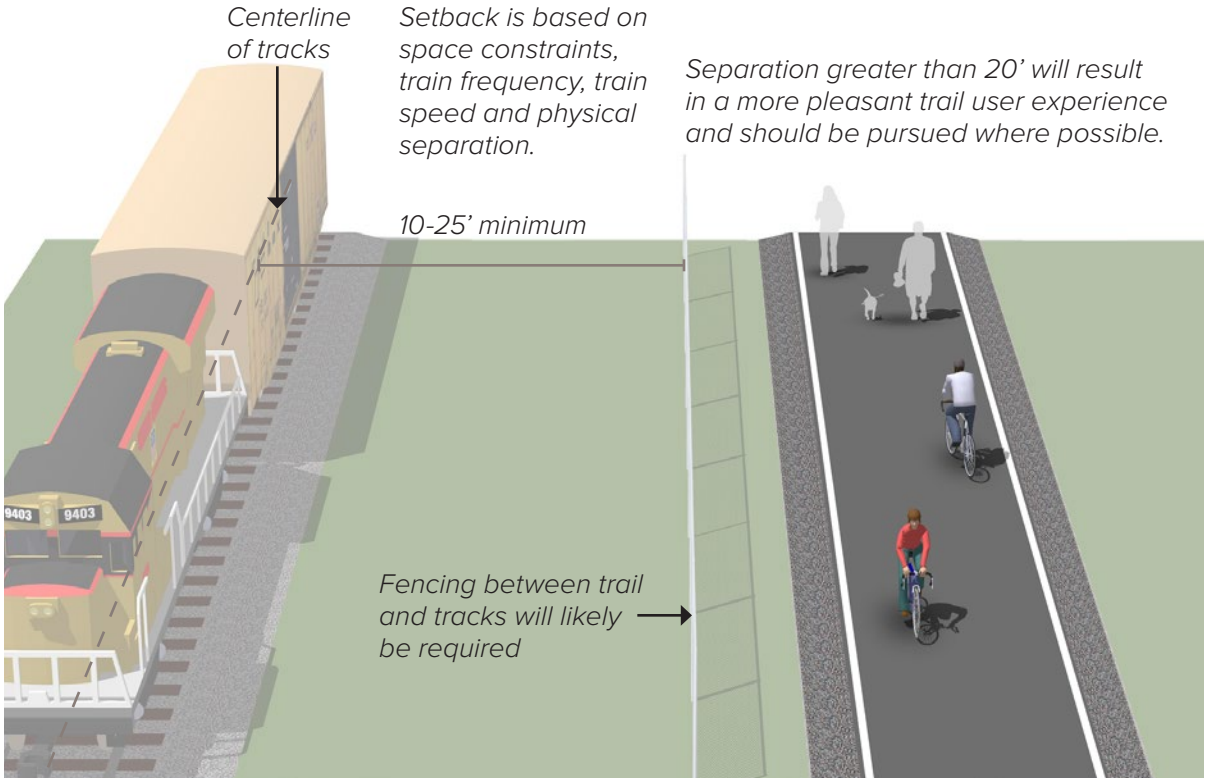
Rails-with-Trails projects typically consist of paths adjacent to active railroads within railroad right-of-way. It should be noted that some constraints could impact the feasibility of rail-with-trail projects. In some cases, space needs to be preserved for future planned freight, transit or commuter rail service.

Typical Application

- Along active rail corridors

Design Features

- Shared use paths in active rail corridors should meet or exceed general design standards. If additional width allows, wider paths, and landscaping are desirable.
- If required, fencing should be a minimum of 5 feet in height with higher fencing than usual next to sensitive areas such as switching yards. Whenever feasible, provide transparent fencing. Setbacks from the active rail line will vary depending on the speed and frequency of trains, and available right-of-way.



Shared Use Paths in Riparian Corridors

Riparian and waterway corridors often offer excellent shared use path development and gap closure opportunities. These corridors include canals, drainage ditches, rivers, and beaches and offer excellent transportation and recreation opportunities for trail users of all ages and skills.

Typical Application

- Along riparian and waterway corridors

Design Features

Any access point to the path should be well-defined with appropriate signage designating the pathway as a shared use facility and prohibiting motor vehicles.

Public access to the shared use path may be prohibited during the following events:

- Canal/flood control channel or other utility maintenance activities
- Inclement weather or the prediction of storm conditions

Stream Buffer should be 25' (Hall County Code of Ordinances Section 8.170.070. - Stream buffer and setback requirements.)

Shared Use Paths in Utility Corridors

Utility corridors often offer space for shared use path and trail development. Utility corridors typically include powerline and sewer corridors. These corridors offer excellent transportation and recreation opportunities for trail users of all ages and skills.

Typical Application

- Along underground utilities such as water, sewer, natural gas, or buried electric or optic lines.
- Along above-ground utility corridors such as telephone, cable, or overhead electric.
- Utility companies benefit from this arrangement by having uninterrupted, easily accessible route to their utility service.
- Individual utility companies may have their own policies and guidelines about buffer requirements.

Design Features

- Shared use paths in utility corridors should meet or exceed general design practices. If additional width allows, wider paths, and landscaping are desirable.
- Any access point to the path should be well-defined with appropriate signage designating the pathway as a shared use facility and prohibiting motor vehicles.

Neighborhood Accessways

Neighborhood accessways provide residential areas with direct bicycle and pedestrian access to parks, trails, greenspaces, and other recreational areas. They most often serve as small trail connections to and from the larger trail network, typically having their own right-of-way and easements.

Typical Application

- Neighborhood accessways should be designed into new subdivisions. For existing subdivisions, neighborhood and homeowner association groups are encouraged to identify locations where such connects would be desirable.

Design Features

- Neighborhood accessways should remain open to the public.
- Trail pavement shall be at least 8 feet wide to accommodate emergency and maintenance vehicles, meet ADA requirements and be considered suitable for multi-use.
- Trail widths should be designed to be less than 8 feet wide only when necessary to protect large mature native trees over 18" in caliper, wetlands or other ecologically sensitive areas.
- Access trails should slightly meander whenever possible.

Boardwalks

Boardwalks are typically required when crossing wetlands or other sensitive natural areas. A number of low-impact support systems are also available that reduce the disturbance within wetland areas to the greatest extent possible.

Typical Application

- Boardwalks should be constructed of composite decking that forms the top layer of the boardwalk. The composite decking, made from recycled material, has gained popularity in recent years since it lasts much longer than wood, particularly when exposed to wet conditions. An alternative to composite or wood decking is to constructing the boardwalk of concrete.
- In general, building in wetlands is subject to regulations and mitigation and should be avoided.

Design Features

- A boardwalk width should be a minimum of 10 feet when no rail is used. A 12 feet width is preferred in areas with average anticipated use and whenever rails are used.
- When the height of a boardwalk exceeds 30”, railings are required.
- If access by vehicles is desired, boardwalks should be designed to structurally support the weight of a small truck or a light-weight

Marked Crossing

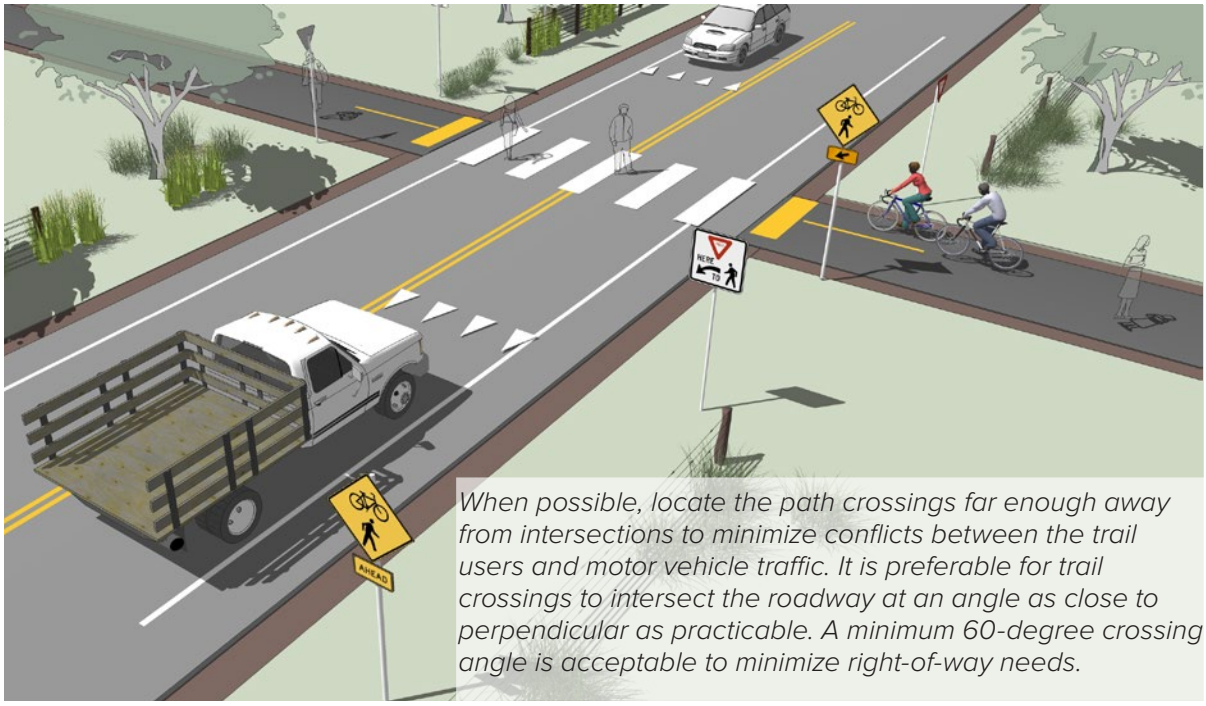
A marked/unsignalized crossing typically consists of a marked crossing area, signage, and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, pathway traffic, use patterns, vehicle speed, road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

Typical Application

- Maximum Traffic Volumes
  - ≤9,000-12,000 Average Daily Traffic (ADT) volume
- Maximum travel speed of 35 MPH
- Minimum Sight Lines
  - 25 MPH zone: 155 ft
  - 35 MPH zone: 250 ft
  - 45 MPH zone: 360 ft

Design Features

- On roadways with low to moderate traffic volumes (<12,000 ADT) and a need to control traffic speeds, a raised crosswalk may be the most appropriate crossing design to improve pedestrian visibility and safety.



When possible, locate the path crossings far enough away from intersections to minimize conflicts between the trail users and motor vehicle traffic. It is preferable for trail crossings to intersect the roadway at an angle as close to perpendicular as practicable. A minimum 60-degree crossing angle is acceptable to minimize right-of-way needs.

Median Crossing

On roadways with higher volumes, higher speeds and multi-lanes of vehicular traffic, a median crossing is preferred. 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.

Typical Application

- Maximum Traffic Volumes
    - Up to 15,000 ADT on two-lane roads, preferably with a median
    - Up to 12,000 ADT on four-lane roads with median

Design Features

- Unsignalized crossings of multi-lane arterials over 15,000 ADT may be possible with features such as sufficient crossing gaps (more than 60 per hour), median refuges, and/or active warning devices like rectangular rapid flash beacons (RRFB) or in-pavement flashers, and excellent sight distance. For more information, see the discussion of active warning beacons on susequent pages.

When possible, locate the path crossings far enough away from intersections to minimize conflicts between the trail users and motor vehicle traffic. It is preferable for trail crossings to intersect the roadway at an angle as close to perpendicular as practicable. A minimum 60-degree crossing angle is acceptable to minimize right-of-way needs.

Rectangular Rapid Flashing Beacons (RRFBs)

Rectangular Rapid Flash Beacons (RRFB) are a type of active warning beacon used at unsignalized crossings. They are designed to increase motor vehicle yielding compliance on multi-lane or high-volume roadways. RRFBs are user actuated lights that supplement warning signs at unsignalized intersections or mid-block crossings.

Typical Application

- Guidance for marked/unsignalized crossings applies.
- RRFBs shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.
- RRFBs shall initiate operation based on user actuation and shall cease operation at a predetermined time after the user actuation or, with passive detection, after the user clears the crosswalk.

Design Features

- RRFBs either utilize solar power to emit light, or can be wired to a traditional power source.

When possible, locate the path crossings far enough away from intersections to minimize conflicts between the trail users and motor vehicle traffic. It is preferable for trail crossings to intersect the roadway at an angle as close to perpendicular as practicable. A minimum 60-degree crossing angle is acceptable to minimize right-of-way needs.

Pedestrian Hybrid Beacons

A pedestrian hybrid beacon, formerly known as a High-intensity Activated Crosswalk (HAWK), consists of a signal-head with two red lenses over a single yellow lens on the major street, and pedestrian and/or bicycle signal heads for the minor street. There are no signal indications for motor vehicles on the minor street approaches.

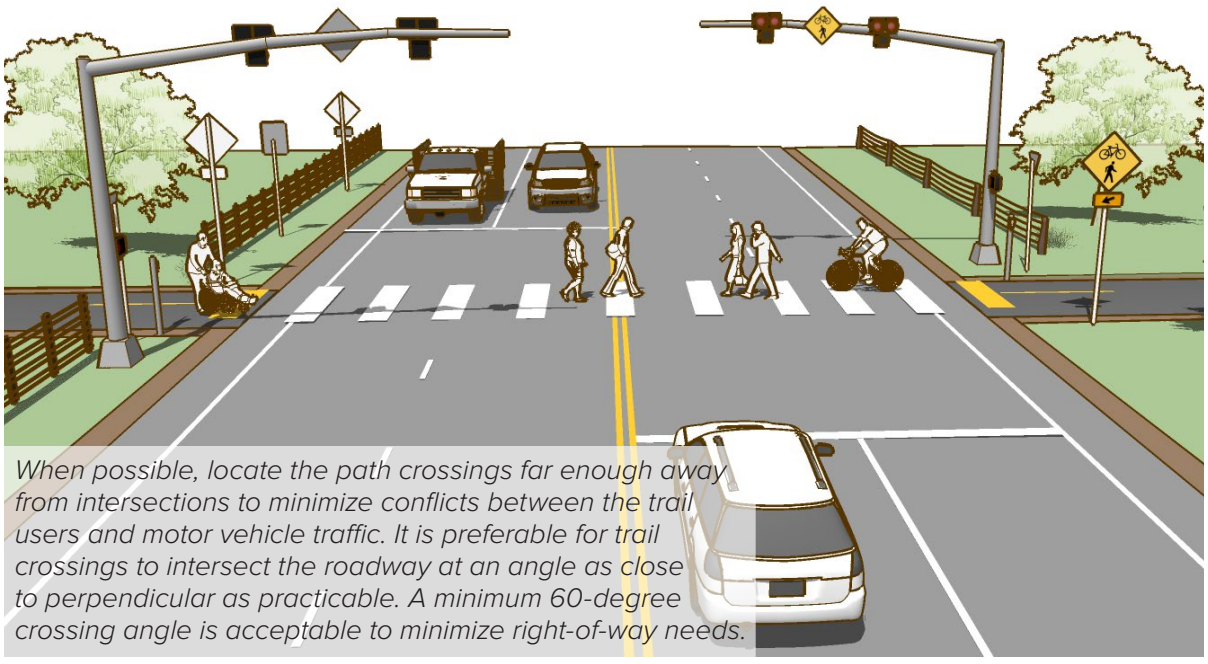
Typical Application

- Used to improve non-motorized crossings of major streets in locations where side-street volumes do not support installation of a conventional traffic signal.
- Hybrid beacons may also be used at mid-block crossing locations.

Design Features

Hybrid beacons may be installed without meeting traffic control signal warrants if roadway speed and volumes are excessive for comfortable user crossing.

- If installed within a signal system, signal engineers should evaluate the need for the hybrid signal to be coordinated with other signals.
- Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk to provide adequate sight distance.



When possible, locate the path crossings far enough away from intersections to minimize conflicts between the trail users and motor vehicle traffic. It is preferable for trail crossings to intersect the roadway at an angle as close to perpendicular as practicable. A minimum 60-degree crossing angle is acceptable to minimize right-of-way needs.

Route Users to Signalized Crossing

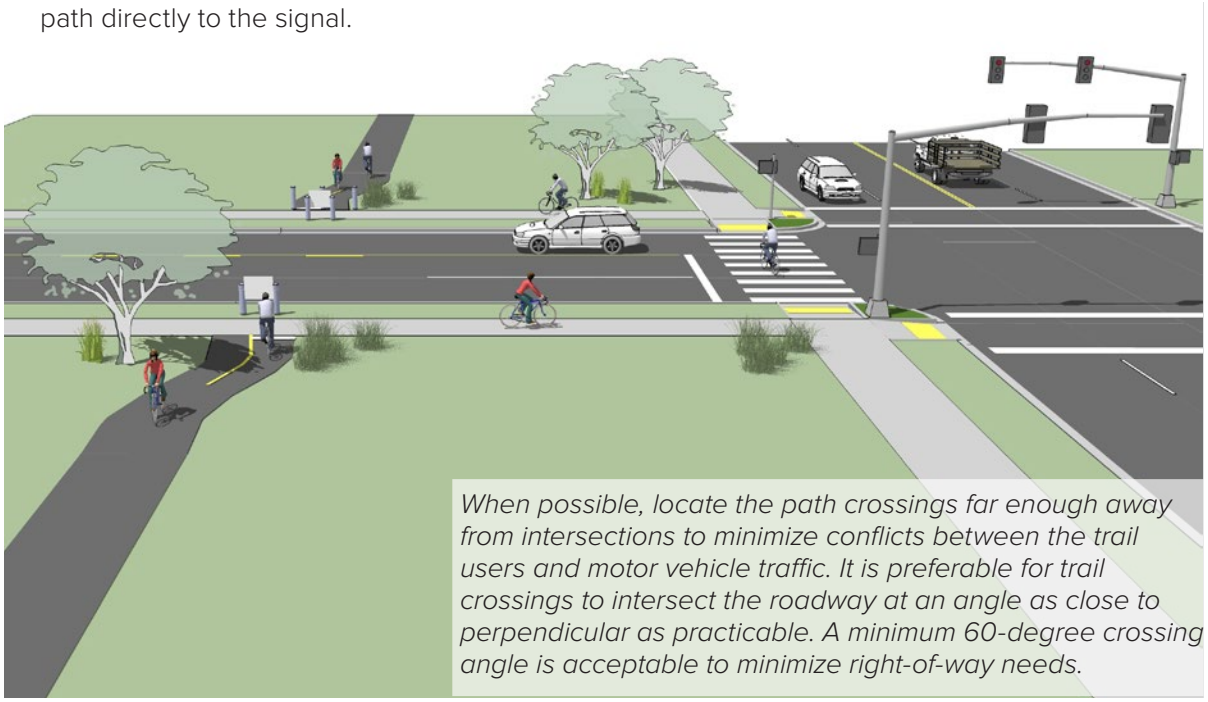
Path crossings within approximately 400 feet of an existing signalized intersection with pedestrian crosswalks are typically diverted to the signalized intersection to avoid traffic operation problems when located so close to an existing signal.

Typical Application

- For this restriction to be effective, barriers and signing may be needed to direct path users to the signalized crossing. If no pedestrian crossing exists at the signal, modifications should be made.
- Path crossings should not be provided within approximately 400 ft of an existing signalized intersection. If possible, route path directly to the signal.

Design Features

- In the US, the minimum distance a marked crossing can be from an existing signalized intersection varies from approximately 250 to 660 feet.
- Engineering judgment and the context of the location should be taken into account when choosing the appropriate allowable setback. Pedestrians are particularly sensitive to out of direction travel and undesired mid-block crossing may become prevalent if the distance is too great.



When possible, locate the path crossings far enough away from intersections to minimize conflicts between the trail users and motor vehicle traffic. It is preferable for trail crossings to intersect the roadway at an angle as close to perpendicular as practicable. A minimum 60-degree crossing angle is acceptable to minimize right-of-way needs.

Full Traffic Signal Crossing

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

A full traffic signal installation treats the path crossing as a conventional 4-way intersection and provides standard red-yellow-green traffic signal heads for all legs of the intersection.

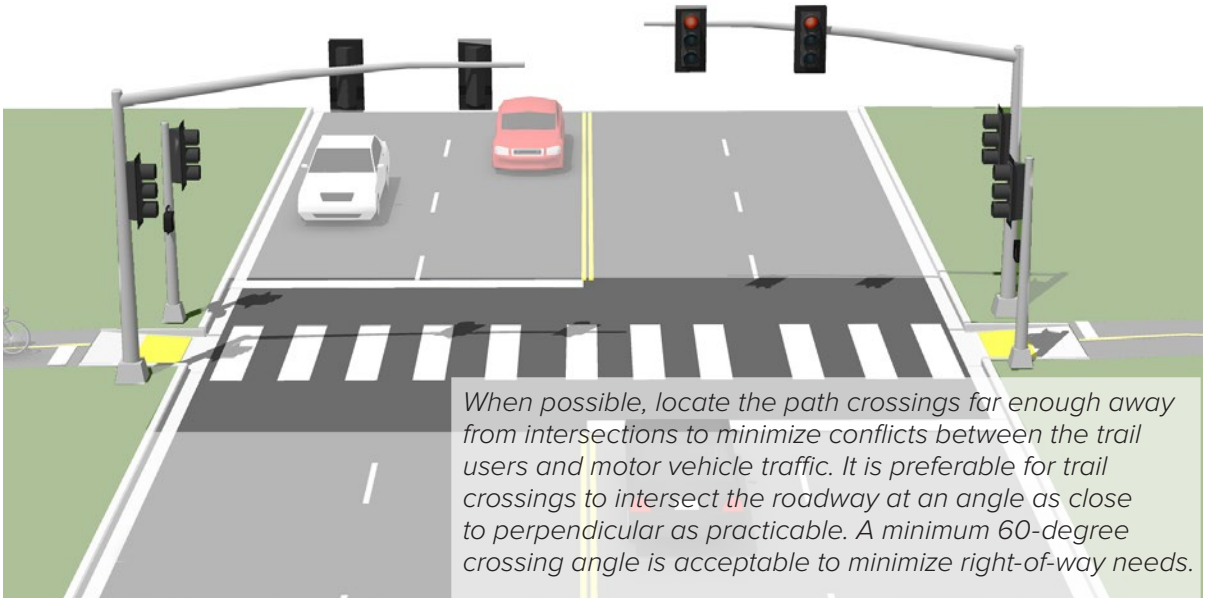
Typical Application

Full traffic signal installations must meet MUTCD pedestrian, school or modified warrants. Additional guidance for signalized crossings:

- Located more than 300 feet from an existing signalized intersection
- Roadway travel speeds of 40 MPH and above
- Roadway ADT exceeds 15,000 vehicles

Design Features

- Shared use path signals are normally activated by push buttons but may also be triggered by embedded loop, infrared, microwave or video detectors. The maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street.
- Each crossing requires additional review by a registered engineer.



When possible, locate the path crossings far enough away from intersections to minimize conflicts between the trail users and motor vehicle traffic. It is preferable for trail crossings to intersect the roadway at an angle as close to perpendicular as practicable. A minimum 60-degree crossing angle is acceptable to minimize right-of-way needs.

Overpass

Grade-separated crossings provide critical non-motorized system links by joining areas separated by barriers such as railroads, waterways, and highway corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist. There are no minimum roadway characteristics for considering grade separation.

Typical Application

- Where shared-use paths cross high-speed and high-volume roadways where an at-grade signalized crossing is not feasible or desired, or where crossing railways or waterways.
- Depending on the type of facility or the desired user group, grade separation may be considered in many types of projects.

Design Features

- Overpasses should be at least 8 feet wide with 14 feet preferred and additional width provided at scenic viewpoints.
- Railing height must be a minimum of 42 inches for overpasses.
- Centerline stripe is recommended for grade-separated facility.

Trail Bridges

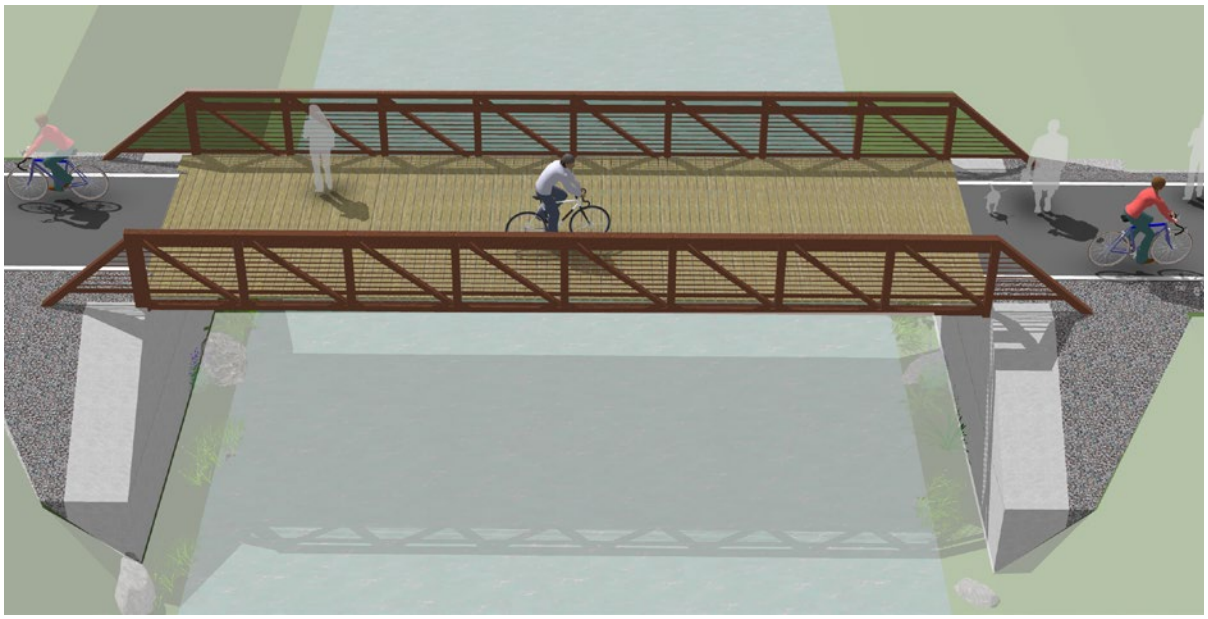
Multi-use trail bridges (also 'bicycle/pedestrian bridges') are most often used to provide trail access over natural features such as streams and rivers, where a culvert or boardwalk is not an option. The type and size of bridges can vary widely depending on the trail type and specific site requirements.

Typical Application

- Some bridges often used for multi-use trails include suspension bridges, prefabricated span bridges and simple log bridges. When determining a bridge design for multi-use trails, it is important to consider emergency and maintenance vehicle access.

Design Features

- The clear width of the bridge should allow for 2 feet of clearance on each end of the pathway.
- Bridge deck height should match that of the path surface to provide a smooth transition.
- Bicycle and shared use paths should include a 54'' guard rail where hazardous conditions exist.
- A minimum vertical clearance of 10 ft is desirable for motor vehicle access.
- Railing height minimum height is 42".
- Maximum opening between railing posts is 4" (International Building Code).
- A trail bridge should support 6.25 tons if motor vehicle access is permitted. (AASHTO 2002)



Underpass

Bicycle/pedestrian underpasses provide critical non-motorized system links by joining areas separated by barriers such as railroads and highway corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist.

Typical Application

- To provide continuity of a shared use path where a barrier exists. (AASHTO 2013)
- There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group grade separation may be considered in many types of projects.

Design Features

- 14 foot minimum width, greater widths preferred for lengths over 60 feet in constrained conditions.
- 10 foot minimum height.
- A balanced proportion of 1.5:1 width to height is desired.
- The underpass should have a centerline stripe even if the rest of the path does not have one.

Further Considerations

Safety is a major concern with underpasses. Shared use path users may be temporarily out of sight from public view and may experience poor visibility themselves. To mitigate safety concerns, an underpass should be designed to be spacious, well-lit, equipped with emergency cell phones at each end and completely visible for its entire length from end to end. (AASHTO 2013)

Bollard Alternatives

Bollards are physical barriers designed to restrict motor vehicle access to the multi-use path. Unfortunately, physical barriers are often ineffective at preventing access, and create obstacles to legitimate trail users. Alternative design strategies use signage, landscaping and curb cut design to reduce the likelihood of motor vehicle access.

Typical Application

- "No Motor Vehicles" signage (MUTCD R5-3) may be used to reinforce access rules.
- At intersections, split the path tread into two sections separated by low landscaping.
- Vertical curb cuts should be used to discourage motor vehicle access.
- Consider targeted surveillance and enforcement at specific intrusion locations.

Design Features

- Split tread into two sections in advance of the crossing.
- Add vertical curb cut design at ramps
- Low landscaping preserves visibility and emergency access

Trailheads

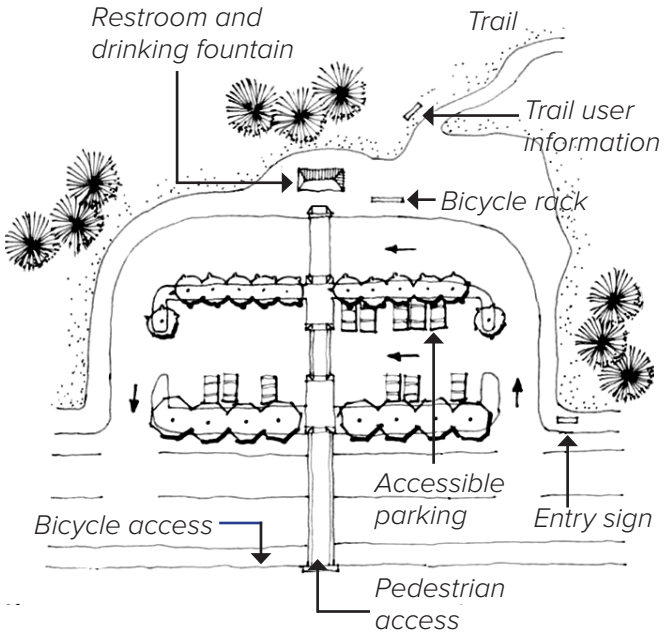
Good access to a path system is a key element for its success. Trailheads serve the local and regional population arriving to the path system by car, transit, bicycle or other modes. Trailheads provide essential access to the shared use path system and include amenities like parking for vehicles and bicycles, restrooms (at major trailheads), and posted maps.

Typical Application

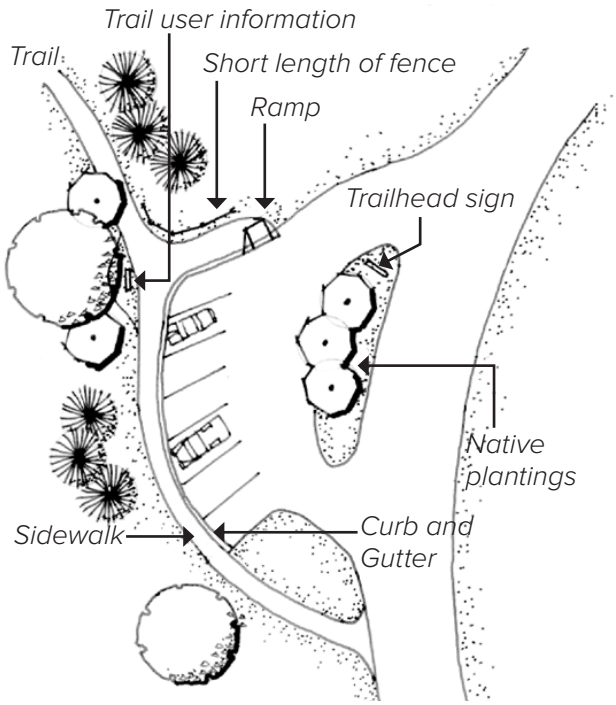
- Major trailheads should include automobile and bicycle parking, trail information (maps, user guidelines, wildlife information, etc.), garbage receptacles and restrooms.
- Minor trailheads can provide a subset of these amenities.

Design Features

- A trailhead should be a welcoming introduction to a path and its design should reflect that of accessibilty, safety, and sustainability. Water flow from the parking lot, regional specific (native) plantings, and adequet lighting are all important elements to consider in the trailhead site design.
- Parking lot design must consider the saftey of trail users. Layout and site grading are important for the successful circulation of cars, bikes, and people.



Major Trailhead



Minor Trailhead

Conclusion

The future South Hall trail system will transform the landscapes of Hall County. This trail network 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 communities, and improve the overall quality of life in Hall County. There are obstacles to overcome before these benefits can be realized. Using the phasing plan outlined in this document, segments of the South Hall trail system 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 trail network that will be enjoyed by generations to come.

Gainesville-Hall Metropolitan Planning Organization

South Hall Trail Study