

SECTION 11
DESIGN GUIDELINES

SECTION 11

DESIGN GUIDELINES:

Introduction

A successful trail system requires careful planning prior to being implemented. This section gives an overview of the various considerations necessary when designing and constructing the Chattahoochee River Trail system. For additional design guideline information refer to the latest edition of the AASHTO *Guide for the Development of Bicycle Facilities* and the most recent edition *GDOT Pedestrian and Streetscape Guide*.

The most important consideration prior to implementation of a trail function and layout of the trail route must meet the needs and wants of the community. This feasibility study provides two unique trail routes that address the majority of the community's trail needs. The second most important consideration is user safety. Trail users should feel safe and comfortable along the entire length of the trail. The trail should also be sensitively located to minimize environmental impact and long-term maintenance. Finally, appropriate amenities should be incorporated at key areas along the trail to enhance the trail user's experience.

Trail Users/Types

The three major types of trails are multi-use trails, walking trails and bike lanes. Selection of an appropriate trail type for a given situation depends on the anticipated trail uses and the existing site conditions. The various types of acceptable uses for trails include walking, running, cycling, in-line skating, hiking, skateboarding, and use of non-motorized scooters. Site conditions vary dramatically, but may include steep or flat topography, rocky terrain, wetlands, mowed and maintained right-of-way, etc. In some instances it may be necessary to utilize a combination of trail types to accommodate existing site conditions.

Multi-use trails should be implemented when it is necessary to accommodate the widest range of users. The preferred width for these trails is 10 feet. However, if heavy use is expected trails may be widened to 12 feet, or if physical space is limited they may be narrowed to 8 feet. Multi-use trails are typically paved and require 2-foot wide graded shoulders on each side. The shoulders are typically grassed, but might also be composed of mulch or gravel. According to the AASHTO guidelines, multi-use trails adjacent to roadways require a minimum 5-foot separation (i.e. a landscape strip). If this separation cannot be achieved, AASHTO recommends the use of a concrete barrier wall or other type of 42" tall barrier. Because of their width, multi-use trails require the most amount of space, meaning that they often require the removal of additional vegetation and/or the purchase of additional right-of-way or construction easements. (*Refer to Figure 11-1 for GDOT regulations on sidewalks and trails*)

Walking trails include paved sidewalks and soft-surface hiking trails. These trails should be used to accommodate walkers, runners, hikers, and where permitted, scooters and in-line skaters. Bicycles should not be permitted on walking trails. Sidewalks are paved and are typically 5 to 6 feet wide, with a minimum width of 4 feet. Sidewalks typically follow roadways and can either be located directly at the curb or separated by a landscape strip. Soft-surface hiking trails should only be used for walking and hiking. These trails are primarily compacted dirt and typically range from 3 to 6 feet wide, with a minimum width of 20

inches. Although careful attention must be paid to trail slopes (due to varying user skill levels and erosion control considerations), hiking trails are not regulated by ADA guidelines.

Bike Lanes are striped lanes along the outermost travel lanes of vehicular roadways, which are designated exclusively for bicycle use. Bike lanes should be a minimum of 4 feet wide along rural roadways and 5 feet wide adjacent to curb and gutter or parking stalls. Drainage structures should be kept out of bike lanes if possible. If this is not possible, the width of the bike lane may need to be increased to avoid the structure. Curb inlet openings should be minimized and bicycle safe grates should be used on all drainage structures along bike lanes.

If it is not feasible to construct a continuous multi-use trail due to space constraints, it may be necessary to utilize a combination of bike lanes and sidewalks to accommodate the variety of uses desires. If this is done, it is critical to clearly indicate transitions between the different trail types with signage and/or pavement markings.

Trail Surfaces

There are several types of surfaces that can be used for trails. Selection of a surface for a particular trail depends upon the type of use, environmental site conditions and site character. All of these factors require careful consideration before finally selecting an appropriate trail surface. The following list provides a description of various types of trail surfaces:

Asphalt

Many multi-use trail users, such as bicyclists and in-line skaters prefer asphalt pavement because it is softer and does not contain the "bumps" created by concrete construction joints (Peterson, 1998). In addition to being preferred by many trail users, asphalt is less expensive than concrete and tends to blend in better with the natural environment. However, asphalt has a shorter life expectancy (15-20 years), greater on-going maintenance costs, and does not hold up well under flood conditions. Cold-pressed recycled asphalt is suitable for pedestrian and handicap accessible uses, but the rough surface is not appropriate for bicyclists or in-line skaters. Asphalt is recommended for the new bike lanes being proposed along Terrell Mill and Delk Roads.

Concrete

Concrete pavement is more expensive than asphalt, but it has a much longer life expectancy (approximately 40 years). If installed properly, concrete will also require much less maintenance, and will perform better under flood conditions. Aesthetically, concrete is more appropriate in an urban environment. If maintenance vehicles are expected on the trail, reinforcing such as fibermesh, and a thicker section should be used to strengthen the concrete. Expansion joint material should be recessed and joints should be caulked to provide a smoother riding surface. The recommended surface for the multi-use trails and sidewalks along the Chattahoochee River Trail routes is concrete because of its longevity and durability.

Permeable Concrete

Permeable concrete is simply concrete with small holes in it. It is manufactured without any sand in the mix, which leaves voids in the pavement. These voids allow water to infiltrate through the

pavement into the ground below, which greatly reduces stormwater runoff. Permeable concrete is comparable in price to regular concrete but requires more experienced labor during installation. Proper installation is critical to successful performance. It is also essential that the pavement stay clean and free of sediment during construction. Permeable concrete is most effective on well-drained soils and should be constructed such that water drains away from the pavement. It is not recommended inside the 100-year floodplain.

Boardwalks

Boardwalks are used in areas with saturated soils, wetland areas, and other sensitive areas where it is undesirable or prohibited to install a trail on the ground surface. Boardwalks may be used when it is necessary to cross wetlands, where the trail has an educational purpose, or for access to the water across river buffers. The boardwalks in these areas should be designed to have a minimal impact on the vegetation below and surrounding them, and should comply with all Federal guidelines when on National Park Service lands. The boardwalk surface is typically designed to be 18 inches in height from the ground/water surface. In cases where the boardwalk height exceeds 30 inches, 42 inch guardrails are required. Boardwalks will be needed along parts of the Chattahoochee River Recreational Trail route in wet areas. There are some existing boardwalks in these parks that may need to be repaired.

Some of the sections along the proposed Rottenwood Creek Trail will be boardwalk to cross wet areas as well as to provide ramps in areas of steep slope. Boardwalks may also be necessary to connect from the Rottenwood Creek Trail up to Windy Ridge Road to achieve a reasonable grade for trail users.

Signage	signs should indicate grade steepness in areas where grades exceed 5%. Additional pavement markings and traffic calming measures may be necessary in addition to safety signage where trail routes intersect roadways or railroad crossings. <i>(Refer to Figure 11-3)</i>
Educational Signage	Provides additional interpretive information about a site’s environmental, cultural, or historical features. <i>(Refer to Figure 11-4.)</i>
Mileage Markers	These markers are appropriate for long trails, such as the Chattahoochee River Trail to provide users with information about their location along a route and allow users to measure their distance.
Information Station	A small kiosk to provide safety information, provide trail maps, and information about surrounding locations, attractions, activities, and events.

Trail Signage

Appropriately selected and located trail signage is essential for orienting and directing trail users, maximizing trail safety and enhancing users’ experience through education and interpretation. Directional and safety signage should have a level of consistency and simplicity that makes it easy for users to recognize and understand. The American Association of State Highway and Transportation Officials (AASHTO) and the Manual on Uniform Traffic Control Devices (MUTCD) guidelines must be followed for the directional and safety signage. All signs should be located between 3 and 6 feet from the edge of the trail to ensure adequate safe clearance for users.

A signage package should consist of the following elements:

Logo	Creates a sense of place and provides consistency along the trail route. The logo should be incorporated onto all the signage in the same location. It can be imprinted on the sign frame or post, or included on the sign itself.
Map	Provides site specific and overall location information. Map signage should be placed at trailheads, parks and any other site where locational information is appropriate.
Directional Signage	Alerts trail users of directional changes along the trail. <i>(Refer to Figure 11-23)</i>
Safety	Alerts trail users of potential hazards and site conditions along the route. For example,

Amenities and Facilities

Providing appropriate amenities and facilities at strategic locations along the trail will greatly enhance the trail user’s experience. These may include:

- Signage/ Kiosks: (See above)
- Water fountains: Freeze-proof, ADA accessible outdoor water fountains should be installed at major trailheads.
- Restrooms: Low maintenance ADA compliant restrooms located at periodic intervals throughout the trail system. There are some existing and former restrooms facilities that should be evaluated for their potential to service the Cobb Chattahoochee Multi-Use Trail and the Recreational Trail. These include the restrooms at Terrell Mill Park, the former restrooms at the Chattahoochee Outdoor Center at Johnson Ferry North, the existing restrooms in Cochran Shoals, the existing restrooms at Mt. Bethel Park, and the existing restrooms at the Paces Mill Unit. *(Cobb County should also consider consulting local business owners regarding the possibility of allow trail users to use their restrooms.)*
- Benches and Picnic Tables: Vandal-resistant wood and or metal benches and picnic tables should be located at trailheads and rest stops.
- Trash receptacles: Receptacles should be vandal-proof, weatherproof, and pest-proof, and should be located near benches, picnic tables, kiosks, restrooms and parking lots.
- Dog waste receptacles/bag dispensers: When placed at trailheads and periodically along the trail route, these dispenser/receptacles help control dog waste along the trail route.
- Bollards: Bollards should be located at all trail entry points and crossings to restrict unwanted vehicular traffic along wide multi-use paths. Removable bollards with locks can allow County personnel and maintenance vehicles to access the trail. *(Refer to Figure 11-5)* Bollards should be placed 5 feet apart so that bicyclists and pedestrians have sufficient room to pass through them.
- Fencing: Fences can be used to physically and/or visually separate the trail from adjacent properties. Split rail and picket fences provide a visual barrier while retaining a sense of character for the area. Wood privacy fences and chain link fences, can provide a physical separation between the trail and the adjacent property. Privacy fences are not recommended because they create a potential safety hazard along the trail corridor. *(Refer to 11-6)*

- Retaining walls: Retaining walls may be a necessary part of the design of the trail. In areas of steep slope, retaining walls are used to minimize excess grading or damage to a site. Retaining walls should be designed by a licensed structural engineer, and will need to comply to GDOT standards if federal funding is used or if the trail is along a state route. (Refer to Figures 11-9 and 11-10)

Miscellaneous Design Issues

Handrails and Guardrails

Handrails are single continuous rails along ramps and stairs, which are recommended by ADA guidelines to facilitate access (Refer to Figure 11-8). Handrails should be set 34-38 inches above the step or ramp surface. Pedestrian guardrails are post-and picket rails intended to protect trail users from hazards on the other side of the rail (Figure to Figure 11-6). These rails must be 42 inches high and pickets must be spaced such that a 4 inch sphere cannot pass between them. Pedestrian guardrails are required where trails are greater than 30 inches off the ground.

Vehicular guardrails may be necessary to protect trail users where the 5-foot minimum separation cannot be achieved between the trail and the road. Existing guardrails may need to be relocated during trail construction.

Vertical Clearance

It is critical that sufficient vertical clearance is supplied above the trail surface to allow for varying heights of pedestrians, roller-bladers and bicyclists. The GDOT Pedestrian and Streetscape Guide states that multi-use trails, sidewalks and bike lanes must all have a minimum vertical clearance of 8 feet, with a desirable vertical clearance of at least 10 feet.

Striping

Striping is often used along hard surface multi-use trails to separate directional traffic. It can also be used to delineate a stopping area, at intersections, in areas where there are turns, or areas of limited sight distance (Refer to Figure 11-7) It is recommended that the Chattahoochee River Multi-Use Trail be striped only in the special areas mentioned above, rather than the entire route.

Curbcut/Driveway Crossings/Intersection Design

One of the main potential hazards of multi-use trails, bike lanes and sidewalks, occurs when the trail crosses another travelway. Other travelways can include driveways, streets, sidewalks, other trails, and railroad crossings. While some of these hazards may be unavoidable, the following preventative measures can be taken to prevent potential accidents:

- Reduce slopes across driveways to comply with the most current ADA guidelines: trail cross slopes should be 2% or less
- Indicate minor driveway crossings can be indicated with colored concrete and signage to provide advance warning to trail users (Refer to Figure 11-7)
- Indicate major driveway crossings can be indicated with colored concrete and stop signs
- Install detectable warning surfaces at major intersections (Figure to Figure 11-1)
- Provide sufficient warning of intersections/stop ahead
- Indicate trail crossings along vehicular roadways.
- Provide sufficient signage for motorists so that they are aware of trail users

- Provide “Motor Vehicles Prohibited” signs at appropriate trail/road crossings

Lighting

- Existing street lighting should be maintained along the trail. If additional streetscape lighting is required, the local power company should be consulted for leasing of lighting units and service.
- Lighting is typically not recommended for off-road trail sections as it is expensive and can potentially damage or destroy existing trees during installation. These sections of the trail (i.e. Rottenwood Trail) should be “closed” after dark.

Landscaping

- Minimal landscaping is recommended along the trail route, because of space, design, and maintenance constraints.
- Grass should be in the landscape median and 2’ shoulder adjacent to the trail.
- Plantings at trailheads should enhance the character of the site and should be planned with maintenance and safety requirements in mind.
- Small trees under a 4 inch caliper, (measured 2 feet above the ground) , can be planted in no less than 5 foot wide planting medians (Georgia DOT standards)
- Shade trees should be spaced between 25 and 50’ feet apart (depending on tree type).

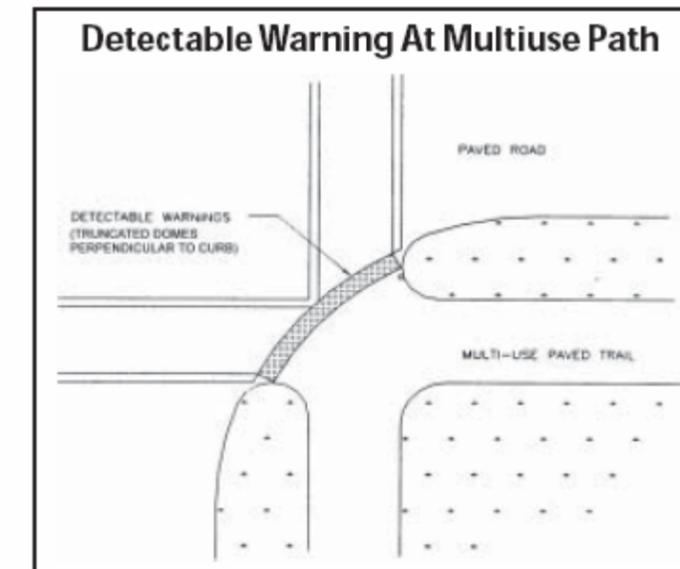
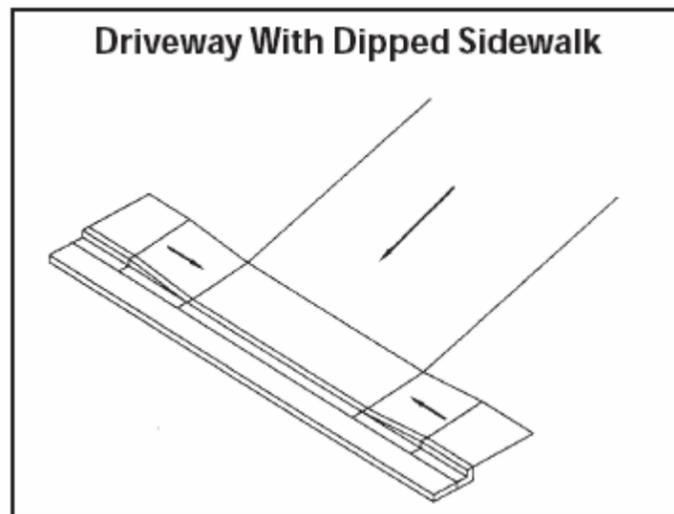
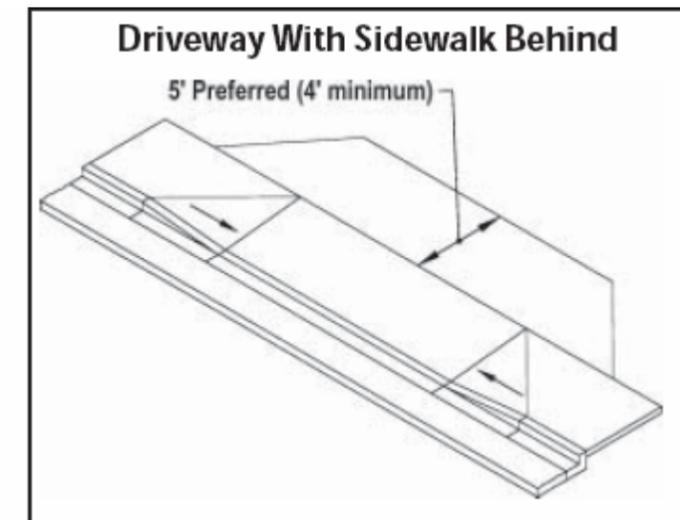
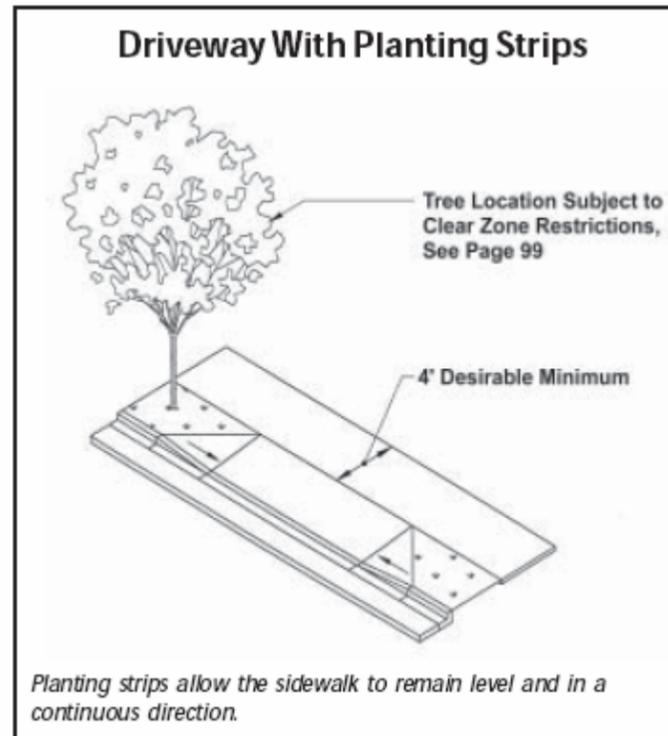
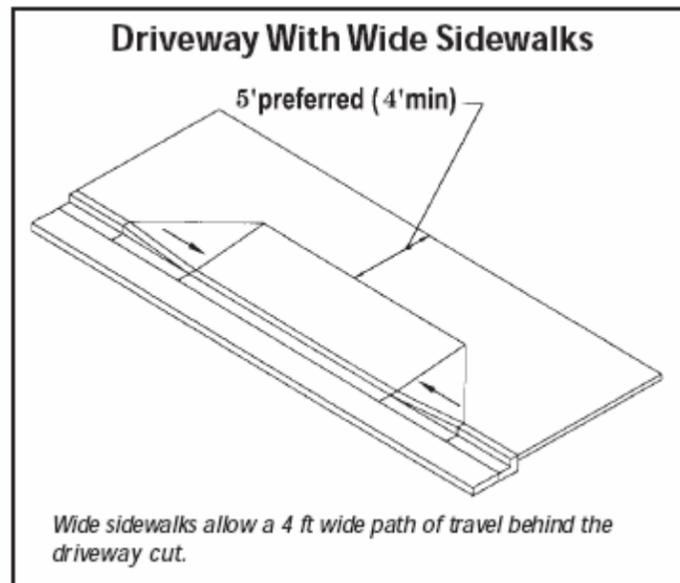


Figure 11-1: Examples of GDOT Regulations for Sidewalks and Trails

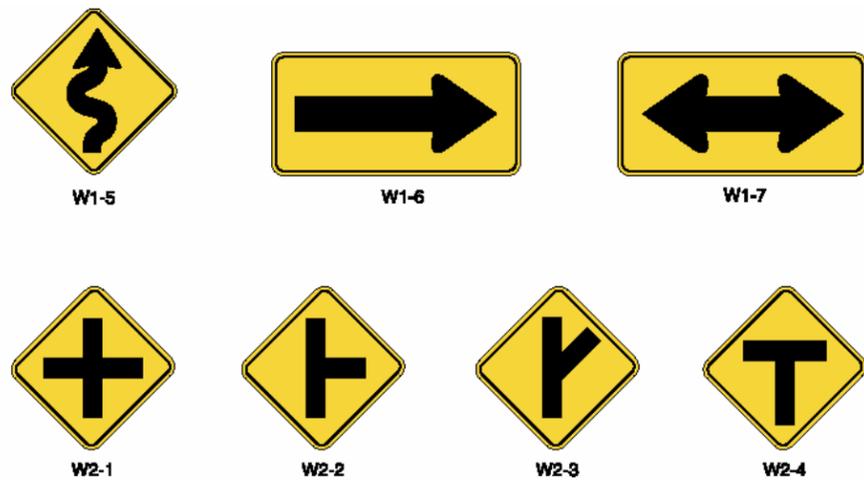


Figure 11-2: Examples of Directional Signage

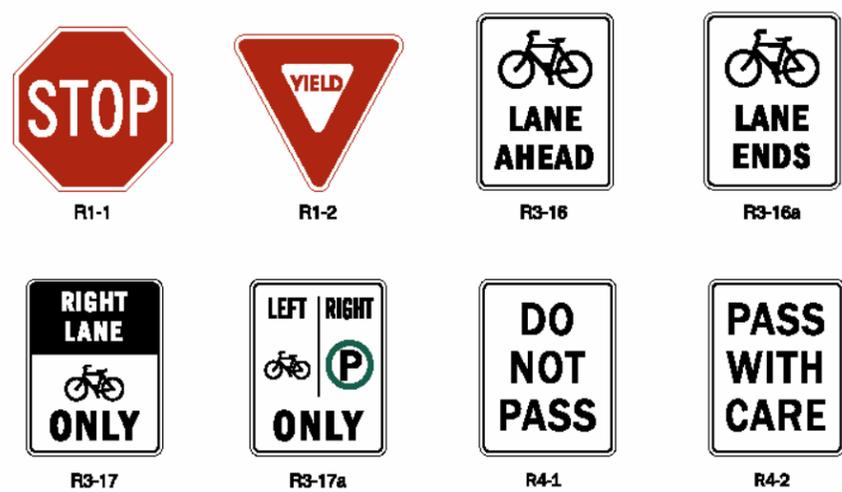


Figure 11-3: Examples of Safety Signage

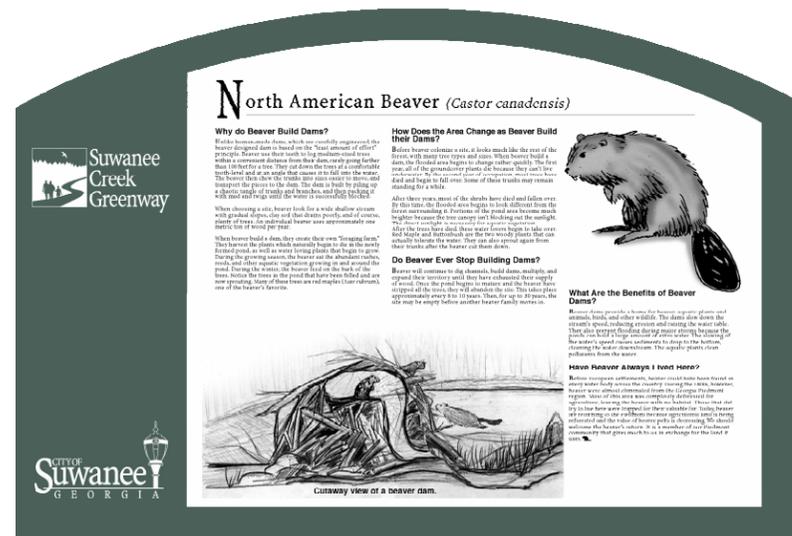


Figure 11-4: Examples of Educational/ Interpretive Signage



Figure 11-5: Example of Bollard at Trail Entrance



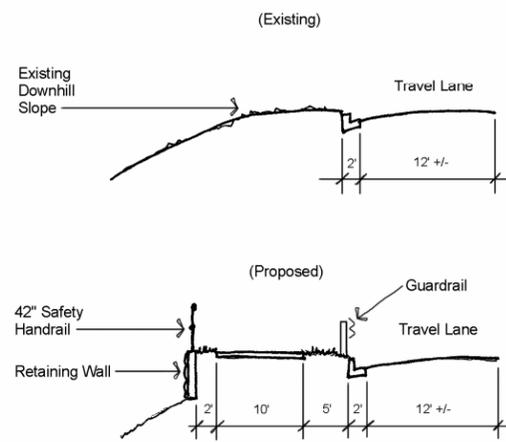
Figure 11-6: Example of ADA Accessible Trail Ramp



Figure 11-7: Example of Trail crossing at Driveway

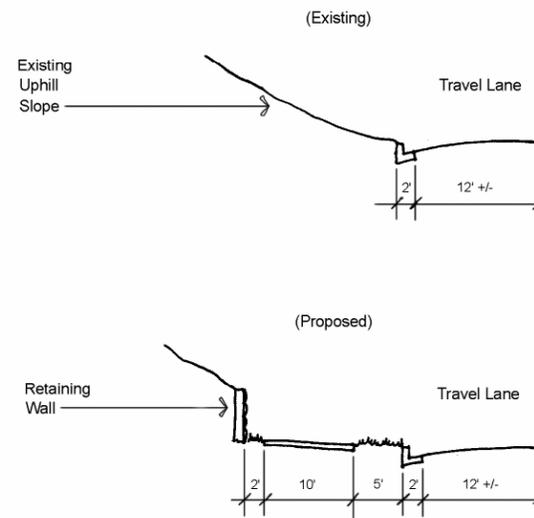


Figure 11-8: Example of Trail Safety and Directional Signage, and Fences along Trail



Special Conditions - Downhill Slope

Figure 11-9: Example of Multi-Use Trail Next to Downhill Slope



Special Condition - Uphill Slope

Figure 11-10: Example of Multi-Use Trail Next to Uphill Slope

SECTION 12

MAINTENANCE AND OPERATIONS

SECTION 12

MAINTENANCE AND OPERATIONS :

Introduction

Maintenance and operations planning are frequently overlooked by trail developers in the conceptual planning stage because specific details of the trail may be unknown. However, a preliminary investigation into the necessary maintenance and operations procedures will aid the trail developers to evaluate their existing resources, and anticipate the need for new resources to ensure a completely functional trail system. This section provides an overview of the issues involved in maintaining and operating a trail system.

Maintenance Management System

An appropriate maintenance management system is a critical component in the success and longevity of a trail system. A maintenance management system provides the entity responsible for managing the trail with a clear work plan from which to operate. The entity managing the trail system will need to:

- Determine the maintenance goals and levels of service
- Generate maintenance programs which afford those levels of service
- Provide an efficient execution of the maintenance programs
- Monitor and assess each maintenance program to determine if the programs are meeting the service needs
- Accurately budget the maintenance programs¹

The trail will need to be specifically examined after planning in order to accurately address its maintenance needs. The type and frequency of maintenance required are dependent on the trail surface, types of user, amount of use, and location of the trail. The section below from the Denver Bicycle Master Plan, provides a general checklist for trail maintenance. In this section, author Jed Wagner of the Denver Parks and Recreation department presents a checklist as follows:

“MAINTENANCE TO BE PERFORMED ON A CONTINUOUS, SCHEDULED BASIS:

1. Trail user safety
Safety is central to all maintenance operations, and is the single most important trail maintenance concern. Items for consideration include scheduling and documentation of inspections, the condition of railings, bridges, and trail surfaces, proper and adequate signage, removal of debris, and coordination with other agencies associated with trail maintenance.
2. Trails inspection
Trails inspections are integral to all trail maintenance operations. Inspections will occur on a regularly scheduled basis, the frequency of which will depend on the amount of trail use, location, age, and the type of construction.
3. Trail sweeping
Trail sweeping is one of the most important aspects of trail maintenance, helping ensure trail user safety. The

type of sweeping to be performed depends on trail design and location. Trails that require sweeping of the whole system will be swept by machine. Trails that require only spot sweeping of bad areas will be swept by hand or with blowers.

4. Trash Removal

Trash removal from trail corridors is important from both a safety and aesthetic viewpoint and includes removing ground debris and emptying trash containers. Trash removal will take place on a regularly scheduled basis, the frequency of which will be fairly low.

5. Tree and shrub pruning

Tree and shrub pruning will be performed for the safety of trail users. Pruning will be performed to established specifications on a scheduled and as needed basis, the frequency of which will be fairly low.

6. Moving of vegetation

Trails maintenance personnel will mow vegetation along trail corridors on a scheduled basis only where moving is not performed by other agencies or park districts.

7. Scheduled maintenance tasks

Inspections, maintenance and repair of trail-related concerns will be scheduled. Inspection and repair priorities should be dictated by trail use, location, and design. Scheduled maintenance tasks is a key item towards the goal of consistently clean and safe trails.

MAINTENANCE TO BE PERFORMED ON AN IRREGULAR OR AS NEEDED BASIS:

1. Trail Repair

Repair of asphalt or concrete trails will be closely tied to the inspection schedule. Prioritization of repairs is part of the process. The time between observation and repair of a trail will depend on whether the needed repair is deemed a hazard, to what degree the needed repair will affect the safety of the trail user, and whether the needed repair can be performed by the trails maintenance crew or if it is so extensive that it needs to be repaired by outside entities.

2. Trail Replacement

The decision to replace a trail and the type of replacement depends on many factors. These factors include the age of the trail, and the money available for the replacement. Replacement involves either completely overlaying an asphalt trail with a new asphalt surface, or replacement of an asphalt trail with a concrete trail. In general, replacing asphalt trails with concrete is desirable ...”

“...4. Weed control

Weed control along trails will be limited to areas in which certain weeds create a hazard to users... Environmentally safe weed removal methods should be used, especially along waterways.

5. Trail edging

Trail edging maintains trail width and improves drainage. Problem areas include trail edges where berms tend to build up, and where uphill slopes erode onto the trails. Removal of this material will allow proper draining of the trail surface, allow the flowing action of the water to clean the trail, and limit standing water on trail surfaces. Proper drainage of trail surfaces will also limit ice build-up during winter months.

¹ From Bachensky, L...*Maintenance Management Systems for Trails*. article from [American Trails Organization website](http://www.americantrails.org), www.americantrails.org, website accessed October 1, 2003.

6. Trail drainage control

In places where low spots on the trail catch water, trail surfaces should be raised or drains built to carry away water. Some trail drainage control can be achieved through the proper edging of trails. If trail drainage is corrected near steep slopes, and the possibility of erosion must be considered.

7. Trail Signage

Trail signs fall into two categories, trail safety and information. Trail users should be informed where they are, where they are going, and how to use trails safely. Signs related to safety are most important and should be considered first. Information signage can enhance the trail users experience. A citywide system of trail information signage should be a goal.

8. Revegetation

Areas adjacent to trails that have been disturbed for any reason should be revegetated to minimize erosion.

9. Habitat enhancement and control

Habitat enhancement is achieved by planting vegetation along trails, mainly trees and shrubs. This can improve the aesthetics of the trail, help prevent erosion, and provide for wildlife habitat. Habitat control involves mitigation of damage caused by wildlife. An example is the protection of trees along waterways from damage caused by beavers.

10. Public awareness

Creating an understanding among trail users of the purpose of trails and their proper use is a goal of public awareness. Basic concepts of trail use include resolution of user conflicts, and speed limitations. The representatives should be easily accessible to field questions and concerns.

11. Trail program budget development

A detailed budget should be created for the trails program, and revised on an annual basis.

12. Volunteer coordination

The use of volunteers can help increase public awareness of trails, and provide a good source of labor for the program. Sources of volunteers include Boy Scouts, school groups, church groups, trail users, or court workers. Understanding volunteers' concerns is important, as are possible incentives or recognition of work performed. Implementation of an "Adopt-a-Trail" program should be considered.

13. Records

Good record-keeping techniques are essential to an organized program. Accurate logs should be kept on items such as daily activities, hazards found and action taken, maintenance needed and performed, etc. Records can also include surveys of the types and frequency of use of certain trail sections. This information can be used to prioritize trail management needs.

14. Graffiti control

The key to graffiti control is prompt observation and removal. During scheduled trail inspections any graffiti should be noted and the graffiti removal crew promptly notified.

15. Mapping

Several maps can be privately marketed and available for trail users. From a maintenance standpoint, an accurate detailed map of the trail system is important for internal park use.

16. Coordination with other agencies

...A clear understanding of maintenance responsibilities needs to be established to avoid duplicating efforts or issuing maintenance on sections of the trails.

17. Education and Interpretation

Many segments of the trail system contain a wealth of opportunities for education and interpretation...Trails along waterways provide good opportunities to teach and study concepts about urban wildlife and ecology. Educational opportunities range from interpretive signage to educational tours.

18. Law enforcement

A greater law-enforcement effort might be made toward the goal of safer trail system. Law enforcement agencies should be aware about the location of trails, and the types and levels of use they receive. Sections of trail corridors being used by transients is an ongoing problem that is not easily solved. Increased law enforcement will be addressed on an as needed basis.

19. Proper training of employees

Proper training of maintenance employees is essential to the efficient operation of the trails maintenance program. All employees should be thoroughly trained to understand and be aware of all of the above mentioned aspects of a good training program. Employees must also be aware of the need for positive public contact. Proper positive attitude towards public questions and concerns is important, as is the conveyance of this information to trail supervisors."

Maintenance Responsibilities

The Chattahoochee River Trail routes pass through various areas of eastern Cobb County. As each segment of the trail is implemented, it is important that a comprehensive management plan is created before the design process is completed. Issues concerning funding, scheduling, and responsibility should be addressed as part of the management plan. Cobb County should consult with Cobb Parks and Recreation, and the National Park Service early in the process to coordinate maintenance responsibilities and funding. Coordination will be necessary for items such as maintaining entry roads and walkways to existing parking areas, and pruning of vegetation along trail routes along and within the National Park Service Units.

Additionally, groups such as Adopt-a-Trail as well as school and neighborhood association volunteers should be approached for involvement in maintaining the trail systems. Whenever possible all groups performing ongoing maintenance should schedule their activities to take place during times of low trail use. Involving community groups in this process will help to reduce maintenance costs and promote local "ownership" of the trail.

Additional Resources

More specific technical information on trail maintenance can be found in the following resources:

Georgia Department of Transportation, 2003, *Pedestrian and Streetscape Guide*
Georgia Department of Transportation

American Trails Organization Website: www.americantrails.org

Parker, T.S. 1994. *Trail Design & Management Handbook, Revision 1.1*. Open Space and Trails Program, Pitkin County Colorado. Available from the Pitkin County Open Space and Trails Program, 530 E. Main Street, Aspen, CO 81611, phone 970-920-5232, fax 970-920-5198.

USDA Forest Service, 1996. *Trail Construction and Maintenance Notebook*,
Revised February 1999. USDA Forest Service-Technology & Development Program.

OPERATIONS GUIDELINES

Establishing operations guidelines for a new trail system will enable the trail users and the people responsible for trail maintenance and safety to have a clear understanding of the uses and behaviors that will be allowed on the trail. This will also enhance trail users' sense of security and comfort while on the trail. The following list of rules offers suggestions for the Chattahoochee River Multi-Use Trail and the Chattahoochee River Recreational Trail.

- Be Courteous: All trail users should be respectful of other users and adjacent land owners
- Stay on trail surface
- Don't block the trail
- Use trails only during daylight hours
- Yield to pedestrians
- Pass on the left. Keep right when moving
- Announce yourself: Give audible signals when passing
- Travel in a consistent and predictable manner
- Stop, look and yield to traffic at road crossings
- Keep pets leashed
- Clean pet waste from the trail
- Cyclists and skaters should wear helmets
- Use the buddy system – do not travel alone
- No alcohol, drugs or firearms are permitted on the trail
- Leave the trail as clean as you found it
- No motor vehicles are permitted on the trail
- Do not use trails during or immediately after a rainstorm
- There is a "Walk Only" zone from the ____ at ____ for ____ yards to the _____. For your safety please walk bicycles and remove skates in this area
- Security on the trail in this area is provided by _____. In the event of an emergency, call _____

Trail rules should be posted at trailheads and should be legible and placed at a height convenient to most trail users. Off-road trails in natural areas, such as trails through the CRNRA, may require warnings about possible flooding, and animal and plant hazards. The County may also choose to implement a trail user education program within schools or neighborhood groups. This type of outreach raises awareness of proper trail use etiquette, and generates interest in nearby trails.

There should also be areas where users will have access to emergency phones, especially along isolated sections of trail. The emergency phones should be clearly signed and accessible. Additionally, emergency vehicles (ie. ambulances, small golf-cart sized vehicles) should have adequate access to these isolated sections of trails. The local enforcement agency should routinely monitor trail routes, either by vehicle (on trails adjacent to roads), by bike (on trails adjacent to roads and off road bike accessible trails), or by foot (on pedestrian only trails).



Figure 12-1: Example of Trail Maintenance at Times of Low Use

SECTION 13

**OPINION OF COSTS
AND
PHASING**

SECTION 13A

Estimate of Implementation Costs:

Introduction

As a component of the feasibility study we have provided conceptual level cost estimates for the Chattahoochee River Multi-Use Trail, and the Chattahoochee River Recreational Trail. The estimates can be used to approximate the amount of funding that will be needed to complete these trail systems.

It is important to note that because the study has been completed at a conceptual level, without accurate topography, utility, and property surveys, the actual costs of the implemented project may vary. Additionally, design fees, costs of construction labor and materials, and land acquisition costs are subject to fluctuations over time that can not be anticipated in advance. Unknown site conditions, as well as ongoing changes in Federal requirements may necessitate additional areas of right of way and easements.

Included in the estimates are costs for land acquisition, design & engineering services, construction of trail and trail amenities, drainage, and utility relocation. The definitions for each of the items included in the cost estimates are as follows:

Definitions

1. Staking: Initial layout of the project, including on site adjustments.
2. Clearing and Grubbing: Removal of vegetation and trees within the project construction limits.
3. Demolition: Removal/relocation of structures, waste and other obstructions within the project construction limits.
4. Erosion Control & NPDES Requirements: Items and work necessary for compliance with state and local erosion and sedimentation laws. Includes silt fencing, temporary seeding, drain outlet protection, and storm runoff reduction measures.
5. Grading: Earthwork necessary to complete the trail and curb and gutter construction.
6. Utilities: Includes relocation of overhead electrical, phone, and cable utilities that are found within the construction corridor and must be relocated due to construction activities and trail/road relocation. Utility estimates may vary. The estimates provided are conceptual only.
7. Drainage: Pipes, inlets and other structures necessary to control and carry stormwater from the site.
8. Trail: There are different types of trails being used:
 - a. 10' wide concrete trail with 5' landscape buffer, 2' grass shoulder
 - b. 10' wide concrete trail with 30" curb and gutter, 5' landscape buffer, 2' grass shoulder
 - c. 8-10' wide concrete sidewalk
 - d. 5'-6' wide concrete sidewalk with 24" curb and gutter
 - e. 5'-6' wide concrete sidewalk
 - f. 4'-6' wide soft surface walking trail
 - g. 6' wide boardwalk with railings (both sides)
 - h. 10' wide boardwalk ramp
9. Rest Areas: Rest areas can serve as small trailheads or stops along the trail. They can include the following items:
 - a. Benches
 - b. Trash receptacles
 - c. Dog waste receptacles/bag dispensers
 - d. Maps/ Interpretative/ Informational signage
 - e. Concrete/gravel landing
 - f. Bollards
 - g. Bike rack
10. Trailhead: Trailheads are major points of entry to a trail. They typically include:
 - a. Parking area
 - b. Restrooms
 - c. Benches
 - d. Picnic tables
 - e. Trash receptacles
 - f. Dog waste receptacles/bag dispensers
 - g. Maps/ Interpretative/ Informational signage
 - h. Concrete/gravel landing
 - i. Bollards
 - j. Bike rack
11. Site Furniture: Additional site furnishings can be placed along the trail to add comfort and convenience for users. Typical site furnishings include:
 - a. Benches
 - b. Trash receptacles
 - c. Dog waste receptacles/bag dispensers
 - d. Concrete/gravel landing
 - e. Bollards
 - f. Bike rack
12. Landscape: An allowance for landscaping is included. Additional landscaping plants such as shade or specimen trees or accent plantings may be included at trailheads and/or rest areas.

Additional Items:

1. Surveying: Services necessary to survey topographic and physical features. Minimum 2' contours will be necessary, along with structures, utilities and street fixture locations.
2.
 - a. Design/Permitting/Construction Observation: Includes professional services necessary to design and engineer the trail, to perform environmental and historical surveys as necessary for state and federal permitting, to comply with state and federal funding permitting, as well as professional services to oversee construction.
 - b. Federal Permitting/Coordination with NPS: Includes special Federal permitting on Federal lands which contain sensitive ecological and historical resources. Coordination will be necessary with NPS from the planning process, permitting, design, construction, maintenance and monitoring.
3. Right of Way: Costs for acquisition of permanent right of way (fee simple), permanent easements (drainage, use, maintenance of slope) and temporary easements (construction/ driveway) necessary to implement the project. The right of way estimates include:
 - Improvements
 - Relocation
 - Damages
 - Condemnation Increase and Legal Cost
 - Fee Acquisition Cost
 - Incidental Cost
 - Inflation Rate of Rural and Urban Properties (2 years)

The estimates which are broken down into these categories are provided in the Appendix.

It also may be possible that landowners, especially commercial landowners, would be willing to donate right-of-way for improvements to their area. This might significantly decrease acquisition costs.

Recommendations

Based upon the cost estimates, it is recommended that the transportation multi-use trail be implemented. This section of bike lanes and sidewalks would be disruptive to the area and expensive to implement due to the right of way acquisition involved. Additionally, it was not supported by the public. The attached spreadsheets in this section titled "Estimate of Construction Costs", give both a summary, as well as a breakout of the costs of the trail system phases. The total costs for the recommended transportation multi-use trail route amount to \$19,270,360. It is not recommended that a section of bike lanes and sidewalks along Lower Roswell Road between Johnson Ferry Road and Old Canton Road be implemented. This would cost an additional \$7,572,000 to construct because of high right of way costs, demolition, and widening of the roadway for bike lanes. The sections of trail that *are* recommended will be a wise investment in the future of alternative transportation in the County.

The total costs of the recreational trail system amount to \$2,691,500. The recreational trail route is less expensive than the multi-use route because right of way acquisition is not involved, and the majority of proposed trails are soft surface trails, which are inexpensive to construct.

When considering the costs of the proposed trail systems, it is also important that safety issues be considered above cost issues. These recommendations stress that if a trail cannot be constructed in a safe way because of restricted funding, it should not be implemented until such funds become available. Various funding sources are shown in Section 15. The recommended phasing plan for the trail systems are explained in detail in the second part of Section 14B: Phasing.

TABLE 13-1

**Estimate of Implementation Costs: Chattahoochee
River Multi-Use Trail**

**Chattahoochee River Multi-Use Trail
Estimate of Construction Costs
Estimate Overview**

Priority	Phase No.	Name	Estimate of Costs
High	1	Bentley Road and Terrell Mill Road from Delk Road to Programmed Rottenwood Creek Trail	\$ 1,869,100
High	2a	Lower Roswell Road : From Willeo Creek to near Johnson Ferry Road	\$ 2,887,060
High	2b	Timber Ridge Road from Lower Roswell To Jacksons Bluff	\$ 427,100
High	3	Windy Ridge and Cumberland Blvd from programmed Rottenwood Creek Trail to Spring Road	\$ 3,251,200
Medium	1	Delk Road: From Powers Ferry Road to Bentley Road	\$ 2,095,700.00
Low	1	Terrell Mill Road and Delk Road : From Paper Mill Road to Powers Ferry Road	\$ 4,413,700
Low	2a	Johnson Ferry Road: Lower Roswell Road to Powers Road	\$ 1,178,700
Low	2b	Johnson Ferry Road Trail Bridge Overpass	\$ 3,174,800
Total \$			19,297,360

High Priority: Phase 1

Bentley Road and Terrell Mill Road from Delk Road to Programmed Rottenwood Creek Trail

10' Wide Multi-Use Trail, C/G and Landscape Buffer (West Side-Bentley Road, South Side-Terrell Mill Road)

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	6000	LF	\$ 4.00	\$ 24,000.00	Allowance
2	Clearing and Grubbing	Included in Item 8				
3	Demolition					
	A) Remove existing concrete sidewalks	1	JOB	\$ 13,000.00	\$ 13,000.00	Allowance
	B) Miscellaneous demolition	1	JOB	\$ 30,000.00	\$ 60,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 57,000.00	\$ 57,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	6000	LF	\$ 40.00	\$ 240,000.00	
	B) Relocation of fire hydrants	5	EA	\$ 1,500.00	\$ 7,500.00	Allowance
	C) Relocation of water meters	3	EA	\$ 250.00	\$ 750.00	Allowance
7	Drainage	Included in Item 8				
8	Trail Complete	1.14	MI	\$ 355,000.00	\$ 404,700.00	Allowance
9	Rest Areas	2	EA	\$ 15,000.00	\$ 30,000.00	Allowance
10	Signage	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
11	Site Furniture	1	JOB	\$ 12,000.00	\$ 12,000.00	Allowance
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Vehicular Guardrail w/Anchor Posts	1000	LF	\$ 70.00	\$ 70,000.00	Allowance
	B) Pedestrian Handrails/Guardrails	100	LF	\$ 60.00	\$ 6,000.00	Allowance
	C) Retaining Walls-Average Height 4'	600	LF	\$ 160.00	\$ 96,000.00	Allowance
	D) Pedestrian Improvements at Terrell Mill/ Bentley Road Intersection	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 1,030,950.00	
	Contingency-30%				\$ 309,285.00	
	Total Construction Costs				\$ 1,340,235.00	
Additional Items						
	Surveying	6000	LF	\$ 3.00	\$ 18,000.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 160,828.20	\$ 160,828.20	Allowance
	R/W Bentley Road	1	JOB	\$ 350,000.00	\$ 350,000.00	REFER TO APPENDIX
	R/W Delk Road	1	JOB	\$ 200,000.00	\$ 200,000.00	REFER TO APPENDIX
	Subtotal Additional Items				\$ 528,828.20	
	Total Construction Costs + Additional Items				\$ 1,869,100.00	

High Priority: Phase 2a
Lower Roswell Road : From Willeo Creek to near Johnson Ferry Road
10' Wide Multi-Use Trail, C/G and Landscape Buffer on South Side of Road

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	15364	LF	\$ 4.00	\$ 61,456.00	Allowance
2	Clearing and Grubbing	Included in Item 8				
3	Demolition					
	A) Remove existing concrete sidewalks	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
	B) Miscellaneous demolition	1	JOB	\$ 70,000.00	\$ 70,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 145,500.00	\$ 145,500.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	15364	LF	\$ 40.00	\$ 614,560.00	
	B) Relocation of fire hydrants	15	EA	\$ 1,500.00	\$ 22,500.00	Allowance
	C) Relocation of water meters	15	EA	\$ 250.00	\$ 3,750.00	Allowance
7	Drainage	Included in Item 8				
8	Trail Complete w/ Curb and Gutter	2.91	MI	\$ 355,000.00	\$ 1,033,050.00	Allowance
9	Rest Areas	2	EA	\$ 15,000.00	\$ 30,000.00	Allowance
10	Signage	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
11	Site Furniture	1	JOB	\$ 20,000.00	\$ 20,000.00	Allowance
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Vehicular Guardrail w/Anchor Posts	500	LF	\$ 70.00	\$ 35,000.00	Allowance
	B) Pedestrian Handrails/Guardrails	100	LF	\$ 60.00	\$ 6,000.00	Allowance
	C) Retaining Walls-Average Height 4'	100	LF	\$ 160.00	\$ 16,000.00	Allowance
	D) Renovate area to Gold Branch Entry and Expand Trailhead	1	JOB	\$ 18,000.00	\$ 18,000.00	Allowance
	E) Cantilevered Trail over Sunset Trace along Lower Roswell Rd	1	JOB	\$ 50,000.00	\$ 50,000.00	Allowance
	F) Trail bridge over Willeo Creek	1	JOB	\$ 80,000.00	\$ 80,000.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 2,220,816.00	
	Contingency-30%				\$ 666,244.80	
	Total Construction Costs				\$ 2,887,060.80	
Additional Items						
	Surveying	15364	LF	\$ 3.00	\$ 46,092.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 346,447.30	\$ 346,447.30	Allowance
	R/W Total Costs	1	JOB	\$ 240,000.00	\$ 240,000.00	REFER TO APPENDIX
	Subtotal Additional Items				\$ 632,539.30	
	Total Construction Costs + Additional Items				\$ 3,519,700.00	

High Priority: Phase 2b
Timber Ridge Road from Lower Roswell To Jacksons Bluff
5' Wide Sidewalks and C/G on North Side of Road

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	2000	LF	\$ 4.00	\$ 8,000.00	Allowance
2	Clearing and Grubbing	Included in Item 8				
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 20,000.00	\$ 20,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	2000	LF	\$ 40.00	\$ 80,000.00	Allowance
	B) Relocation of fire hydrants	3	EA	\$ 1,500.00	\$ 4,500.00	Allowance
	C) Relocation of water meters	2	EA	\$ 250.00	\$ 500.00	Allowance
7	Drainage	Included in Item 8				
8	5' Sidewalks and Curb and Gutter	0.4	MI	\$ 305,000.00	\$ 122,000.00	Allowance
9	Signage	1	JOB	\$ 1,000.00	\$ 1,000.00	Allowance
10	Miscellaneous Extras					
	A) Vehicular Guardrail w/Anchor Posts	200	LF	\$ 70.00	\$ 14,000.00	Allowance
	B) Pedestrian Handrails/Guardrails	70	LF	\$ 60.00	\$ 4,200.00	Allowance
	C) Small Sidewalk Bridge over Jacksons Creek	1	JOB	\$ 25,000.00	\$ 25,000.00	Allowance
	Subtotal Construction Costs Items 1-10				\$ 289,200.00	
	Contingency-30%				\$ 86,760.00	
	Total Construction Costs				\$ 375,960.00	
Additional Items						
	Surveying	2000	LF	\$ 3.00	\$ 6,000.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 45,115.20	\$ 45,115.20	Allowance
	R/W Total Costs	N/A	JOB	N/A	\$ -	
	Subtotal Additional Items				\$ 51,115.20	

	Total Construction Costs + Additional Items				\$ 427,100.00	

High Priority: Phase 3
Windy Ridge and Cumberland Blvd from programmed Rottenwood Creek Trail to Spring Road
10' Wide Multi-Use Trail and Landscape Buffer North Side of Road

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	7800	LF	\$ 4.00	\$ 31,200.00	Allowance
2	Clearing and Grubbing	Included in Item 8				
3	Demolition					
	A) Remove existing concrete sidewalks	1	JOB	\$ 26,000.00	\$ 26,000.00	Allowance
	B) Miscellaneous demolition	1	JOB	\$ 50,000.00	\$ 50,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 74,000.00	\$ 74,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	7800	LF	\$ 40.00	\$ 312,000.00	
	B) Relocation of fire hydrants	8	EA	\$ 1,500.00	\$ 12,000.00	Allowance
	C) Relocation of water meters	5	EA	\$ 250.00	\$ 1,250.00	Allowance
7	Drainage	Included in Item 8				
8	Trail Complete	1.5	MI	\$ 355,000.00	\$ 532,500.00	Allowance
9	Rest Areas	2	EA	\$ 10,000.00	\$ 20,000.00	Allowance
10	Signage	1	JOB	\$ 7,000.00	\$ 7,000.00	Allowance
11	Site Furniture	1	JOB	\$ 12,000.00	\$ 12,000.00	Allowance
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Vehicular Guardrail w/Anchor Posts	1000	LF	\$ 70.00	\$ 70,000.00	Allowance
	B) Pedestrian Handrails/Guardrails	700	LF	\$ 60.00	\$ 42,000.00	Allowance
	C) Retaining Walls-Average Height 4'	700	LF	\$ 160.00	\$ 112,000.00	Allowance
	D) Road and Trail Improvements along Windy Ridge Bridge	1	JOB	\$ 60,000.00	\$ 60,000.00	Allowance
	E) Connection Ramp from Rottenwood Creek Trail to Windy Ridge	1	JOB	\$ 80,000.00	\$ 80,000.00	Allowance
	F) Pedestrian Improvements at Interstate North Parkway Intersection	1	JOB	\$ 20,000.00	\$ 20,000.00	Allowance
	G) Pedestrian Improvements at Cobb Parkway Intersection	1	JOB	\$ 20,000.00	\$ 20,000.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 1,481,950.00	
	Contingency-30%				\$ 444,585.00	
	Total Construction Costs				\$ 1,926,535.00	
Additional Items						
	Surveying	7800	LF	\$ 3.00	\$ 23,400.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 231,184.20	\$ 231,184.20	Allowance
	Windy Ridge R/W	1	JOB	\$ 880,000.00	\$ 880,000.00	REFER TO APPENDIX
	Cumberland Blvd	1	JOB	\$ 190,000.00	\$ 190,000.00	REFER TO APPENDIX
	Subtotal Additional Items				\$ 1,324,584.20	
	Total Construction Costs + Additional Items				\$ 3,251,200.00	

Medium Priority:Phase 1

**Delk Road: From Powers Ferry Road to Bentley Road
Bike Lanes, C/G, and 6' wide Sidewalks Both Sides of Road**

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	2700	LF	\$ 5.00	\$ 13,500.00	Allowance
2	Clearing and Grubbing	Included in Item 8				
3	Demolition					
	A) Remove existing curb and gutter	5400	LF	\$ 6.00	\$ 32,400.00	Allowance
	B) Remove existing concrete sidewalks	1	JOB	\$ 18,000.00	\$ 18,000.00	Allowance
	C) Miscellaneous demolition	1	JOB	\$ 150,000.00	\$ 150,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 36,000.00	\$ 36,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	2700	LF	\$ 40.00	\$ 108,000.00	
	B) Relocation of fire hydrants	5	EA	\$ 1,500.00	\$ 7,500.00	Allowance
	C) Relocation of water meters	5	EA	\$ 250.00	\$ 1,250.00	Allowance
7	Drainage	Included in Item 8				
8	Trail Complete	0.51	MI	\$ 607,200.00	\$ 309,672.00	Allowance
9	Rest Area	1	EA	\$ 15,000.00	\$ 15,000.00	Allowance
10	Signage	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
11	Site Furniture	1	JOB	\$ 4,000.00	\$ 4,000.00	Allowance
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Vehicular Guardrail w/Anchor Posts	75	LF	\$ 70.00	\$ 5,250.00	Allowance
	B) Retaining Walls-Average Height 4'	200	LF	\$ 160.00	\$ 32,000.00	Allowance
	C) Pedestrian Improvements for Bentley Road Intersection	1	JOB	\$ 8,000.00	\$ 8,000.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 745,572.00	
	Contingency-30%				\$ 223,671.60	
	Total Construction Costs				\$ 969,243.60	
Additional Items						
	Surveying	2700	LF	\$ 3.00	\$ 8,100.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 116,309.23	\$ 116,309.23	Allowance
	R/W Delk Road	1	JOB	\$ 1,002,000.00	\$ 1,002,000.00	REFER TO APPENDIX
	Subtotal Additional Items				\$ 1,126,409.23	
	Total Construction Costs + Additional Items				\$ 2,095,700.00	

Low Priority: Phase 1
Terrell Mill Road and Delk Road : From Paper Mill Road to Powers Ferry Road
Bike Lanes, C/G, and 6' wide Sidewalks Both Sides of Road

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	7100	LF	\$ 5.00	\$ 35,500.00	Allowance
2	Clearing and Grubbing	Included in Item 8				Allowance
3	Demolition					
	A) Remove existing curb and gutter	14200	LF	\$ 6.00	\$ 85,200.00	Allowance
	B) Remove existing concrete sidewalks	1	JOB	\$ 47,500.00	\$ 47,500.00	Allowance
	C) Miscellaneous demolition	1	JOB	\$ 100,000.00	\$ 100,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 70,000.00	\$ 70,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	7100	LF	\$ 40.00	\$ 284,000.00	
	B) Relocation of fire hydrants	10	EA	\$ 1,500.00	\$ 15,000.00	Allowance
	C) Relocation of water meters	10	EA	\$ 250.00	\$ 2,500.00	Allowance
7	Drainage	Included in Item 8				
8	Trail Complete	1.35	MI	\$ 607,200.00	\$ 819,720.00	Allowance
9	Trailhead	1	EA	\$ 15,000.00	\$ 15,000.00	Allowance
10	Signage	1	JOB	\$ 6,000.00	\$ 6,000.00	Allowance
11	Site Furniture	1	JOB	\$ 6,000.00	\$ 6,000.00	Allowance
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Vehicular Guardrail w/Anchor Posts	100	LF	\$ 70.00	\$ 7,000.00	Allowance
	B) Retaining Walls-Average Height 4'	300	LF	\$ 160.00	\$ 48,000.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 1,541,420.00	
	Contingency-30%				\$ 462,426.00	
	Total Construction Costs				\$ 2,003,846.00	
Additional Items						
	Surveying	7100	LF	\$ 3.00	\$ 21,300.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 240,461.52	\$ 240,461.52	Allowance
	R/W Terrell Mill Road	1	JOB	\$ 1,480,000.00	\$ 1,480,000.00	REFER TO APPENDIX
	R/W Delk Road	1	JOB	\$ 668,000.00	\$ 668,000.00	REFER TO APPENDIX
	Subtotal Additional Items				\$ 2,409,761.52	
	Total Construction Costs + Additional Items				\$ 4,413,700.00	

Low Priority: Phase 2a
Johnson Ferry Road Trail: Lower Roswell Road to Powers Road
8' Wide Multi-Use Trail and Landscape Buffer on East Side of Road

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	3800	LF	\$ 4.00	\$ 15,200.00	Allowance
2	Clearing and Grubbing	Included in Item 8				
3	Demolition					
	A) Remove existing concrete sidewalks	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
	B) Miscellaneous demolition	1	JOB	\$ 30,000.00	\$ 30,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 145,500.00	\$ 145,500.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	3800	LF	\$ 40.00	\$ 152,000.00	
	B) Relocation of fire hydrants	5	EA	\$ 1,500.00	\$ 7,500.00	Allowance
	C) Relocation of water meters	5	EA	\$ 250.00	\$ 1,250.00	Allowance
7	Drainage	Included in Item 8				
8	Trail Complete	0.72	MI	\$ 345,000.00	\$ 248,400.00	Allowance
9	Signage	1	JOB	\$ 2,000.00	\$ 2,000.00	Allowance
10	Site Furniture	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
11	Landscape	Included in Item 8				
12	Miscellaneous Extras					
	A) Pedestrian Improvements at Lower Roswell Road and Johnson Ferry Road Intersection	1	JOB	\$ 20,000.00	\$ 20,000.00	Allowance
	Subtotal Construction Costs Items 1-12				\$ 636,850.00	Allowance
	Contingency-30%				\$ 191,055.00	Allowance
	Total Construction Costs				\$ 827,905.00	
Additional Items						
	Surveying	3800	LF	\$ 3.00	\$ 11,400.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 99,348.60	\$ 99,348.60	Allowance
	R/W Total Costs-Conceptual Estimate	1	JOB	\$ 240,000.00	\$ 240,000.00	REFER TO APPENDIX
	Subtotal Additional Items				\$ 350,748.60	
	Total Construction Costs + Additional Items				\$ 1,178,700.00	

Low Priority: Phase 2
Johnson Ferry Road Trail Bridge Overpass
10' Wide Accessible Trail Bridge and Ramps

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	500	LF	\$ 4.00	\$ 2,000.00	Allowance
2	Clearing and Grubbing	Included in Item 8				
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 100,000.00	\$ 100,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	500	LF	\$ 40.00	\$ 20,000.00	
	B) Relocation of fire hydrants	1	EA	\$ 1,500.00	\$ 1,500.00	Allowance
	C) Relocation of water meters	1	EA	\$ 250.00	\$ 250.00	Allowance
	D) Relocation of traffic signals	1	JOB	\$ 100,000.00	\$ 100,000.00	Allowance
7	Drainage	Included in Item 8				
8	Trail Bridge Complete	1	JOB	\$ 1,200,000.00	\$ 1,200,000.00	Allowance
9	Signage	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
10	Site Furniture	1	JOB	\$ 3,000.00	\$ 3,000.00	Allowance
11	Landscape	Included in Item 8				
12	Miscellaneous Extras					
	A) Pedestrian Improvements at Lower Roswell Road and Johnson Ferry Road Intersection	1	JOB	\$ 50,000.00	\$ 50,000.00	Allowance
	Subtotal Construction Costs Items 1-12				\$ 1,486,750.00	Allowance
	Contingency-40%				\$ 446,025.00	Allowance
	Total Construction Costs				\$ 1,932,775.00	
Additional Items						
	Surveying	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 231,933.00	\$ 231,933.00	Allowance
	R/W Total Costs-Conceptual Estimate	1	JOB	\$ 1,000,000.00	\$ 1,000,000.00	Allowance
	Subtotal Additional Items				\$ 1,241,933.00	
	Total Construction Costs + Additional Items				\$ 3,174,800.00	

Alternate A
Lower Roswell Road : Johnson Ferry Road to Old Canton Road
5' Wide Sidewalks and 5' Wide Bike Lanes

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking-entire road	17200	LF	\$ 8.00	\$ 137,600.00	Allowance
2	Clearing and Grubbing	Included in Item 8				
3	Demolition					
	A) Remove existing concrete sidewalks and curb/gutters on both sides of road	1	JOB	\$ 240,000.00	\$ 240,000.00	Allowance
	B) Miscellaneous demolition	1	JOB	\$ 150,000.00	\$ 150,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 300,000.00	\$ 300,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	17200	LF	\$ 40.00	\$ 688,000.00	
	B) Relocation of fire hydrants	50	EA	\$ 1,500.00	\$ 75,000.00	Allowance
	C) Relocation of water meters	40	EA	\$ 250.00	\$ 10,000.00	Allowance
7	Drainage	Included in Item 8				
8	5' wide Sidewalk/ Bike Lane Combination	3.2	MI	\$ 602,000.00	\$ 1,926,400.00	Allowance
9	Rest Areas	1	EA	\$ 15,000.00	\$ 15,000.00	Allowance
10	Signage	1	JOB	\$ 20,000.00	\$ 20,000.00	Allowance
11	Site Furniture	1	JOB	\$ 35,000.00	\$ 35,000.00	Allowance
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Vehicular Guardrail w/Anchor Posts	3000	LF	\$ 70.00	\$ 210,000.00	Allowance
	B) Pedestrian Handrails/Guardrails	350	LF	\$ 60.00	\$ 21,000.00	Allowance
	C) Retaining Walls-Average Height 4'	400	LF	\$ 160.00	\$ 64,000.00	Allowance
	D) Bridge expansion over Sope Creek	1	JOB	\$ 600,000.00	\$ 600,000.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 4,492,000.00	
	Contingency-30%				\$ 1,347,600.00	
	Total Construction Costs				\$ 5,839,600.00	
Additional Items						
	Surveying	17200	LF	\$ 3.00	\$ 51,600.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 700,752.00	\$ 700,752.00	Allowance
	R/W Total Costs	1	JOB	\$ 980,000.00	\$ 980,000.00	REFER TO APPENDIX
	Subtotal Additional Items				\$ 1,732,352.00	
	Total Construction Costs + Additional Items				\$ 7,572,000.00	

TABLE 13-2

**Estimate of Implementation Costs: Chattahoochee
River Recreational Trail**

**Chattahoochee River Recreational Trail
Estimate of Implementation Costs
Estimate Overview**

Priority	Phase No.	Name	Estimate of Costs
High	1a	Interstate North Parkway from Cochran Shoals to Powers Ferry Road	\$ 381,600
High	1b	Interstate North Parkway Connection to Programmed Rottenwood Creek Trail	\$ 172,900
Medium	1	Renovations: Johnson Ferry North	\$ 677,700
Medium	2	Spur Trail to Potential Bridge at Morgan Falls and Great Park Connection	\$ 321,600
Low	1a	Hyde Farm Trailhead and Trails	\$ 252,100
Low	1b	Hyde Road from Lower Roswell to Hyde Farm	\$ 679,100
Low	2	Boardwalk Spur Trail: Johnson Ferry Unit South	\$ 206,500
Total			\$ 2,691,500

High Priority: Phase 1a
Interstate North Parkway from Cochran Shoals to Powers Ferry Road
5' wide sidewalk

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	1400	LF	\$ 4.00	\$ 5,600.00	Allowance
2	Clearing and Grubbing	Included in Item 8				Allowance
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 30,000.00	\$ 30,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 14,000.00	\$ 14,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	1400	LF	\$ 40.00	\$ 56,000.00	Allowance
	B) Relocation of fire hydrants	2	EA	\$ 1,500.00	\$ 3,000.00	Allowance
	C) Relocation of water meters	2	EA	\$ 250.00	\$ 500.00	Allowance
7	Drainage	Included in Item 8				
8	Sidewalk Complete	0.27	MI	\$ 50,000.00	\$ 13,500.00	Allowance
9	Signage	1	JOB	\$ 3,000.00	\$ 3,000.00	Allowance
10	Site Furniture	1	JOB	\$ 3,000.00	\$ 3,000.00	
11	Landscape	Included in Item 8				
12	Miscellaneous Extras					
	A) Retaining Walls-Average Height 4'	600	LF	\$ 160.00	\$ 96,000.00	Allowance
	B) Intersection Improvements -Powers Ferry Road	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
	Subtotal Construction Costs Items 1-12				\$ 229,600.00	Allowance
	Contingency-30%				\$ 68,880.00	Allowance
	Total Construction Costs				\$ 298,480.00	
Additional Items						
	Surveying	3.2	ACRES	\$ 1,000.00	\$ 3,200.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 29,848.00	\$ 29,848.00	Allowance
	R/W Total Costs	1	JOB	\$ 50,000.00	\$ 50,000.00	Allowance
	Subtotal Additional Items				\$ 83,048.00	
	Total Construction Costs + Additional Items				\$ 381,600.00	

High Priority: Phase 1b
Interstate North Parkway Connection to Programmed Rottenwood Creek Trail
10' Concrete Trail and Boardwalk Ramp

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	300	LF	\$ 4.00	\$ 1,200.00	Allowance
2	Clearing and Grubbing	Included in Item 8				Allowance
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 8,000.00	\$ 8,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Miscellaneous relocation	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
7	Drainage	Included in Item 8				
8	Trail Connection					
	A) 10' wide Concrete Trail Connection	0.03	MI	\$ 150,000.00	\$ 4,500.00	Allowance
	B) 10' wide Boardwalk Ramp	150	LF	\$ 400.00	\$ 60,000.00	Allowance
9	Rest Areas	1	EA	\$ 15,000.00	\$ 15,000.00	Allowance
10	Signage	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
11	Site Furniture	1	JOB	\$ 1,000.00	\$ 1,000.00	Allowance
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Retaining Walls-Average Height 4'	50	LF	\$ 160.00	\$ 8,000.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 117,700.00	Allowance
	Contingency-30%				\$ 35,310.00	Allowance
	Total Construction Costs				\$ 153,010.00	
Additional Items						
	Surveying	1.5	ACRES	\$ 1,000.00	\$ 1,500.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 18,361.20	\$ 18,361.20	Allowance
	R/W Total Costs	N/A	N/A	\$ -	\$ -	
	Subtotal Additional Items				\$ 19,861.20	
	Total Construction Costs + Additional Items				\$ 172,900.00	

Medium Priority: Phase 1
Renovations: Johnson Ferry North
4'-6' wide soft surface trail

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	6400	LF	\$ 4.00	\$ 25,600.00	Allowance
2	Clearing and Grubbing	Included in Item 8				Allowance
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 30,000.00	\$ 30,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 60,000.00	\$ 60,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Miscellaneous	1	JOB	\$ 2,000.00	\$ 2,000.00	Allowance
7	Drainage	Included in Item 8				
8	Existing Soft Surface Trail Renovations	1.21	MI	\$ 15,000.00	\$ 18,150.00	Allowance
9	Rest Areas	1	EA	\$ 15,000.00	\$ 15,000.00	Allowance
10	Signage	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
11	Site Furniture	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Replace Boardwalk/boardwalk ramps-6' wide	600	LF	\$ 250.00	\$ 150,000.00	Allowance
	B) New Boardwalk Bridges, 12 lf each	3	EA	\$ 3,000.00	\$ 9,000.00	Allowance
	C) Prefabricated Bridge and Concrete Abutments-40 lf	1	EA	\$ 50,000.00	\$ 50,000.00	Allowance
	D) Emergency Phones	3	EA	\$ 1,200.00	\$ 3,600.00	Allowance
	E) NPS Restroom Renovation	1	JOB	\$ 50,000.00	\$ 50,000.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 433,350.00	Allowance
	Contingency-30%				\$ 130,005.00	Allowance
	Total Construction Costs				\$ 563,355.00	
Additional Items						
	Surveying	7.3	ACRES	\$ 1,000.00	\$ 7,300.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 56,335.50	\$ 56,335.50	Allowance
	Federal Permitting/NPS Coordination	1	JOB	\$ 50,701.95	\$ 50,701.95	
	R/W Total Costs	N/A	N/A	\$ -	\$ -	
	Subtotal Additional Items				\$ 114,337.45	
	Total Construction Costs + Additional Items				\$ 677,700.00	

Medium Priority: Phase 2
Spur Trail to Potential Bridge at Morgan Falls and Great Park connection
4-6' wide soft surface trail

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	2400	LF	\$ 4.00	\$ 9,600.00	Allowance
2	Clearing and Grubbing	Included in Item 8				Allowance
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 15,000.00	\$ 15,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 9,000.00	\$ 9,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Miscellaneous	1	JOB	\$ 2,000.00	\$ 2,000.00	Allowance
7	Drainage	Included in Item 8				
8	Soft Surface Trail	0.27	MI	\$ 30,000.00	\$ 8,100.00	Allowance
9	Rest Areas	1	EA	\$ 15,000.00	\$ 15,000.00	Allowance
10	Signage	1	JOB	\$ 8,000.00	\$ 8,000.00	Allowance
11	Site Furniture	1	JOB	\$ 5,000.00	\$ 5,000.00	
12	Landscape	Included in Item 8				
13	Miscellaneous Extras					
	A) Privacy Fencing	1000	LF	\$ 20.00	\$ 20,000.00	Allowance
	B) Boardwalk- 6' wide	200	LF	\$ 250.00	\$ 50,000.00	Allowance
	B) Boardwalk Bridges, 12 lf each	4	EA	\$ 3,000.00	\$ 12,000.00	Allowance
	C) Prefabricated Bridge-40 lf span	1	EA	\$ 50,000.00	\$ 50,000.00	Allowance
	C) Emergency Phones	2	EA	\$ 1,200.00	\$ 2,400.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 206,100.00	Allowance
	Contingency-30%				\$ 61,830.00	Allowance
	Total Construction Costs				\$ 267,930.00	
Additional Items						
	Surveying	2.75	ACRES	\$ 1,000.00	\$ 2,750.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 26,793.00	\$ 26,793.00	Allowance
	Federal Permitting/NPS Coordination	1	JOB	\$ 24,113.70	\$ 24,113.70	
	R/W Total Costs	N/A	N/A	\$ -	\$ -	
	Subtotal Additional Items				\$ 53,656.70	
	Total Construction Costs + Additional Items				\$ 321,600.00	

Low Priority: Phase 1a
Hyde Farm Trailhead and Trails
4'-6' wide soft surface trail

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	2400	LF	\$ 4.00	\$ 9,600.00	Allowance
2	Clearing and Grubbing	Included in Item 8				Allowance
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 25,000.00	\$ 25,000.00	Allowance
5	Grading	Included in Item 8				Allowance
6	Utilities					
	A) Miscellaneous	1	JOB	\$ 2,000.00	\$ 2,000.00	Allowance
7	Drainage	Included in Item 8				
8	Soft Surface Trail	0.45	MI	\$ 30,000.00	\$ 13,500.00	Allowance
9	Trailhead w/ Gravel Parking Area -10 spaces	1	EA	\$ 40,000.00	\$ 40,000.00	Allowance
10	Signage	1	JOB	\$ 15,000.00	\$ 15,000.00	Allowance
11	Site Furniture	1	JOB	\$ 10,000.00	\$ 10,000.00	
12	Landscape	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
13	Miscellaneous Extras					
	A) Boardwalk Bridges, 12 lf each	3	EA	\$ 3,000.00	\$ 9,000.00	Allowance
	B) Emergency Phones	3	EA	\$ 1,200.00	\$ 3,600.00	Allowance
	Subtotal Construction Costs Items 1-13				\$ 147,700.00	Allowance
	Contingency-30%				\$ 44,310.00	Allowance
	Total Construction Costs				\$ 192,010.00	
Additional Items						
	Surveying	2.75	ACRES	\$ 1,000.00	\$ 2,750.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 40,000.00	\$ 40,000.00	Allowance
	Federal Permitting/NPS Coordination	1	JOB	\$ 17,280.90	\$ 17,280.90	
	R/W Total Costs	N/A	N/A	\$ -	\$ -	
	Subtotal Additional Items				\$ 60,030.90	

	Total Construction Costs + Additional Items			\$ 252,100.00	
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Low Priority: Phase 1b
Hyde Road from Lower Roswell to Hyde Farm
5' wide sidewalk and Curb and Gutter

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	2800	LF	\$ 4.00	\$ 11,200.00	Allowance
2	Clearing and Grubbing	Included in Item 8				Allowance
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 20,000.00	\$ 20,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 25,000.00	\$ 25,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Relocation of electric lines and power poles incl phone/cable service	2800	LF	\$ 40.00	\$ 112,000.00	
	B) Relocation of fire hydrants	2	EA	\$ 1,500.00	\$ 3,000.00	Allowance
	C) Relocation of water meters	2	EA	\$ 250.00	\$ 500.00	Allowance
7	Drainage	Included in Item 8				
8	Sidewalk Complete	0.53	MI	\$ 220,000.00	\$ 116,600.00	Allowance
9	Signage	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
10	Site Furniture	1	JOB	\$ 3,000.00	\$ 3,000.00	
11	Landscape	Included in Item 8				
12	Miscellaneous Extras					
	A) Retaining Walls-Average Height 2'	300	LF	\$ 80.00	\$ 24,000.00	Allowance
	B) Boardwalk bridge	1	JOB	\$ 5,000.00	\$ 5,000.00	Allowance
	Subtotal Construction Costs Items 1-12				\$ 325,300.00	Allowance
	Contingency-30%				\$ 97,590.00	Allowance
	Total Construction Costs				\$ 422,890.00	
Additional Items						
	Surveying	3.9	ACRES	\$ 1,000.00	\$ 3,900.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 42,289.00	\$ 42,289.00	Allowance
	R/W Total Costs	1	JOB	\$ 210,000.00	\$ 210,000.00	REFER TO APPENDIX
	Subtotal Additional Items				\$ 256,189.00	
	Total Construction Costs + Additional Items				\$ 679,100.00	

Low Priority: Phase 2
Boardwalk Spur Trail: Johnson Ferry Unit South
6' wide Boardwalk Trail and Soft Surface Trail

ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE	NOTES
1	Staking	500	LF	\$ 4.00	\$ 2,000.00	Allowance
2	Clearing and Grubbing	Included in Item 8				Allowance
3	Demolition					
	A) Miscellaneous demolition	1	JOB	\$ 3,000.00	\$ 3,000.00	Allowance
4	Erosion and Sediment Control	1	JOB	\$ 10,000.00	\$ 10,000.00	Allowance
5	Grading	Included in Item 8				
6	Utilities					
	A) Miscellaneous	1	JOB	\$ 1,000.00	\$ 1,000.00	Allowance
7	Drainage	Included in Item 8				
8	Soft Surface Trail	0.05	MI	\$ 30,000.00	\$ 1,500.00	Allowance
9	Signage	1	JOB	\$ 3,000.00	\$ 3,000.00	Allowance
10	Site Furniture	1	JOB	\$ 3,000.00	\$ 3,000.00	Allowance
11	Landscape	Included in Item 8				Allowance
12	Miscellaneous Extras					
	A) Boardwalk	400	LF	\$ 250.00	\$ 100,000.00	Allowance
	B) Boardwalk Bridges, 12 lf each	1	EA	\$ 3,000.00	\$ 3,000.00	
	C) Emergency Phones	1	EA	\$ 1,200.00	\$ 1,200.00	
	Subtotal Construction Costs Items 1-12				\$ 127,700.00	Allowance
	Contingency-30%				\$ 38,310.00	Allowance
	Total Construction Costs				\$ 166,010.00	
Additional Items						
	Surveying	0.5	ACRES	\$ 1,000.00	\$ 500.00	Allowance
	Design/Permitting/Construction Observation	1	JOB	\$ 25,000.00	\$ 25,000.00	Allowance
	Federal Permitting/NPS Coordination	1	JOB	\$ 14,940.90	\$ 14,940.90	
	R/W Total Costs	N/A	N/A	\$ -	\$ -	
	Subtotal Additional Items				\$ 40,440.90	
	Total Construction Costs + Additional Items				\$ 206,500.00	

SECTION 13B **PHASING PLANS**

The Chattahoochee River Multi-Use Trail and Chattahoochee River Recreation Trail will need to be implemented over a period of years because of their large size and scope. A phasing plan has been developed to prioritize segments of the trails in order to provide a logical progression for implementation. The phasing schedule takes into account the plans for adjacent and connecting trails within the region. The Chattahoochee River Multi-Use Trail and Recreation Trail are different types of trails, and should be pursued concurrently. They will require different sources of funding, and will be managed by different agencies within Cobb County. Cobb County DOT should pursue the hard surface multi-use trail, as well as plans for sidewalks along existing roadways. The Cobb Department of Parks and Recreation should pursue the off road soft surface recreation trails and coordinate the rehabilitation of existing facilities within the Chattahoochee National Recreation Area parks.

Recommendations

It is recommended that the phasing for the **Chattahoochee River Multi-Use Trail** should proceed as follows (*Refer to Map 13B-1*):

High Priority: 1-5 years for implementation

- 1) **Bentley Road and Terrell Mill Road , from Delk Road to proposed Rottenwood Creek Trail:** This multi use trail will be dependent on the completion of the Rottenwood Creek trail, which is scheduled for construction in 2005.
- 2) **a. Lower Roswell Road, from Willeo Creek to Johnson Ferry Road:** The priority of this multi-use trail segment may be changed if the City of Roswell fails to implement the Willeo Road segment of Roswell Riverwalk. Residents in this area have been pushing for a sidewalk or trail for many years. It will be the primary link to Roswell's Riverwalk and future trails north.
b. Timber Ridge Road from Lower Roswell to Jacksons Bluff: The addition of connecting sidewalks are dependent on the completion of the Lower Roswell Road Trail. It will also connect the elementary school and surrounding neighborhood into the multi-use trail.
- 3) **Windy Ridge Road and Cumberland Boulevard from Rottenwood Creek Trail to Spring Road:** The completion of these segments will facilitate the connection to the Silver Comet Connector and Silver Comet Trails. It will also tie in offices and retail establishments to the trail system, and connect with the Cumberland CID trail network.

Medium Priority 5- 10 years for implementation

- 1) **Delk Road, from Powers Ferry Road to Bentley Road:** The addition of this segment through a highly commercial area will provide a safe bicycle option to connect with the proposed Rottenwood Creek Trail and other segments of the Chattahoochee River Multi-Use Trail.

Low Priority 10 years+ for implementation

- 1) **Terrell Mill Road, from Lower Roswell Road (East Cobb Trail), to Powers Ferry Road:** Bicycle lanes in addition to sidewalks will promote safer bicycle access through this residential area and complete a continuous trail route from Willeo Road to Cobb Parkway. The process of right-of-way acquisition, and the removal of existing sidewalks, curb and gutter and landscaping will be required and could add to the timeframe. The road corridor has recently experienced renovations. This segment should be the final stage of the project because of the extensive work necessary to accommodate the trail link. The existing sidewalks will serve as a pedestrian connection in the meantime.
- 2) **Alternate crossing for Johnson Ferry Road:**
 - a. **Johnson Ferry Road: From Lower Roswell to Powers Road Intersection:** This option would be safe, however much less direct than crossing Johnson Ferry Road at Lower Roswell Road. Users would still have to cross the west side of Lower Roswell Road to proceed north along the East Cobb Trail.
 - b. **Trail Bridge over Johnson Ferry Road at Lower Roswell Road:** A trail bridge overpass would bypass this intersection and provide a safe crossing for trail users. This should be a last resort option due to the expense and difficulty of construction.

It is recommended that the phasing for the **Chattahoochee River Recreation Trail** should proceed as follows (*Refer to Map 13B-2*):

High Priority: 1-5 years for implementation

- 1) **a. Interstate North Parkway from Cochran Shoals to Powers Ferry:** The addition of sidewalks along this section of roadway would provide the first regional link to the proposed Rottenwood Creek Trail. It should be implemented after the Rottenwood Trail is constructed.
b. Interstate North Parkway connection to proposed Rottenwood Creek Trail: This critical connection should happen concurrently or immediately after the new sidewalks are constructed along Interstate North Parkway. It will complete the connection from the existing Cochran Shoals trail to the proposed Rottenwood Creek Trail. Ultimately, it will

also provide a pedestrian connection between the Chattahoochee River Multi-Use Trail and the Recreational Trail.

Medium Priority 5-10 years for implementation

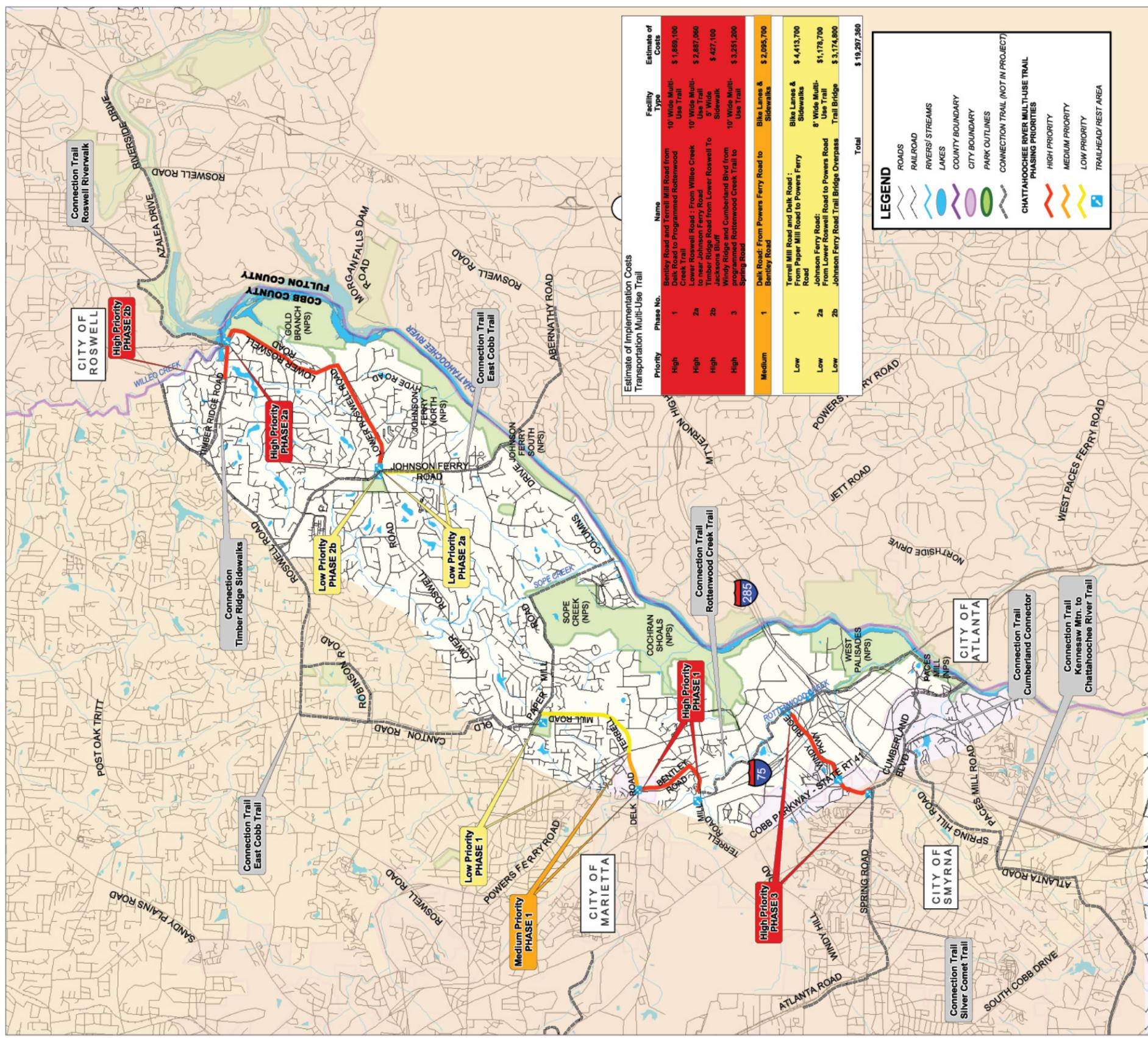
- 1) Renovation of existing soft surface trails and boardwalks, and trailheads in Johnson Ferry Unit North:** The existing trails in this area are underused and poorly maintained. Cobb DOT will need to work closely with NPS to renovate these existing soft surface and boardwalk trails, and renovate the trailhead area. It would also be useful to involve volunteer community and school groups in the rehabilitation of these trails to promote the use and appreciation of this valuable resource.
- 2) Spur trail to potential bridge at Morgan Falls and Great Park connection**
Cobb County will need to coordinate with Sandy Springs Revitalization Inc.(SSRI) to ensure that the proposed trail plans align with the trail bridge. The County and SSRI will also need to address any additional concerns of the adjacent property owners. A more detailed plan for the spur trail should be developed when and if the environmental assessment is approved for the potential Bridge at Morgan Falls. New trails within the National Park Service will require NEPA permitting. A trail within this area will also require review and approval from the ARC. The environmental and historical studies needed to complete this permitting may potentially be time-consuming and extensive. Any trail plans may need to be reconsidered if the trail bridge is not implemented.

Low Priority 10+ years for implementation

- 1) Hyde Road and Hyde Farm Area**
 - a. Hyde Farm Trailhead and Trails:** The status of the Hyde Farm buildings and +/- 90 acres of property is uncertain at this time. The property is currently private and owned by the Hyde family heirs and cannot be developed until decisions are made as to the intended use of the property. Cobb County will need to monitor the status of this property closely for the next few years. (Note: The Cobb County Commission has recently voted to attempt to direct funds to acquire the property.) Plans for trails and trailheads along this proposed segment may be increased in priority depending upon the state of the land ownership and development of the Hyde Property. If the National Park Service or another land preservation agency acquires the land, Cobb County will need to work with them to coordinate the trail and trailhead plans. It is not known whether the NPS will want help in implementing the trails and trailhead, or will complete it independently. If the site is sold for development, the County will need to act quickly to request public access or use easements through the property to complete this trail segment.
 - b. Hyde Road Sidewalk:** This sidewalk project should only be implemented after the plans for the Hyde Farm are initiated.

- 2) Boardwalk Spur Trail: Johnson Ferry Unit South:** While the Columns Drive sidewalks and shared use paths travel adjacent to this unit on Cobb DOT property, the creation of a boardwalk spur trail from the existing trails to Columns Drive will create an additional scenic route for trail users. This would provide an off road route for a segment of the Recreational Trail through this region.

As the phasing description and plan show, the trails will need to be developed in sections, rather than in their entirety. This will facilitate the funding of the trails and maximize trail connections with other trails being proposed in the area.



Estimate of Implementation Costs
Transportation Multi-Use Trail

Priority	Phase No.	Name	Facility Type	Estimate of Costs
High	1	Bentley Road and Terminal Mill Road from Delk Road to Programmed Rottenwood Creek Trail	10' Wide Multi-Use Trail	\$ 1,869,100
High	2a	Lower Roswell Road : From Wilcox Creek to near Johnson Ferry Road	10' Wide Multi-Use Trail	\$ 2,887,060
High	2b	Timber Ridge Road from Lower Roswell To Jacksons Bluff	5' Wide Sidewalk	\$ 427,100
High	3	Windy Ridge and Cumberland Blvd from Roswell to Rottenwood Creek Trail to Spring Road	10' Wide Multi-Use Trail	\$ 3,251,200
Medium	1	Delk Road: From Powers Ferry Road to Bentley Road	Bike Lanes & Sidewalks	\$ 2,095,700
Low	1	Terral Mill Road and Delk Road : From Paper Mill Road to Powers Ferry Road	Bike Lanes & Sidewalks	\$ 4,413,700
Low	2a	Johnson Ferry Road: From Lower Roswell Road to Powers Road	8' Wide Multi-Use Trail	\$ 1,178,700
Low	2b	Johnson Ferry Road Trail Bridge Overpass	Trail Bridge	\$ 3,174,800
Total				\$ 19,297,360

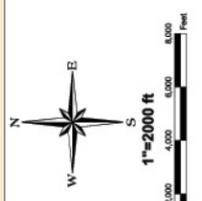
LEGEND

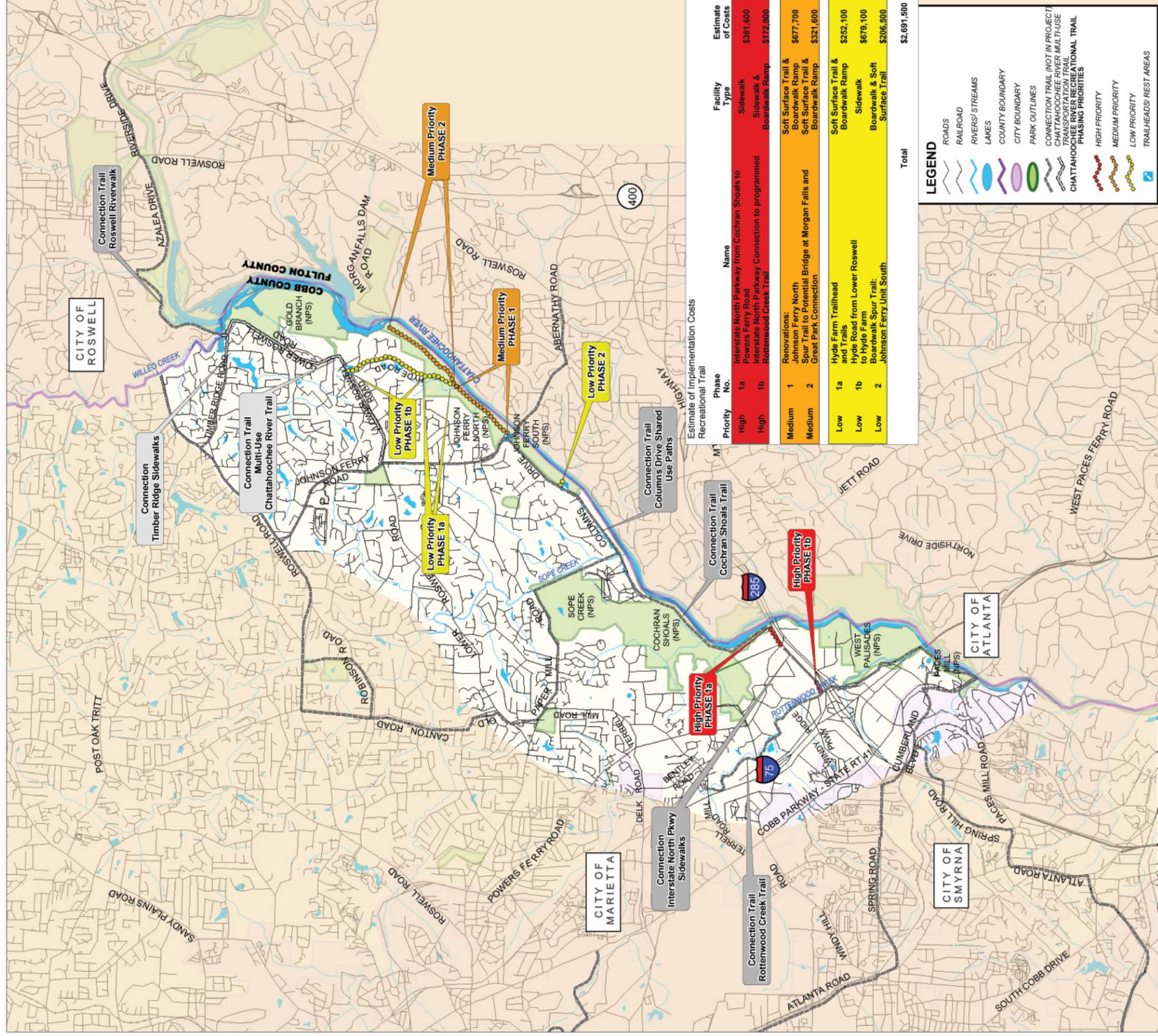
- ROADS
- RAILROAD
- RIVERS/STREAMS
- LAKES
- COUNTY BOUNDARY
- CITY BOUNDARY
- PARK OUTLINES
- CONNECTION TRAIL (NOT IN PROJECT)
- CHATTAHOOCHEE RIVER MULTI-USE TRAIL PHASING PRIORITIES
- HIGH PRIORITY
- MEDIUM PRIORITY
- LOW PRIORITY
- TRAILHEAD/ REST AREA

PREPARED FOR:
COBB COUNTY D.O.T.

PREPARED BY:
JORDAN
JONES &
GOULDING
PROJECT # 2108.006

**COBB COUNTY - CHATTAHOOCHEE TRAIL
FEASIBILITY STUDY
MULTI-USE TRAIL PHASING MAP
MAP 13B-1
FALL 2004**

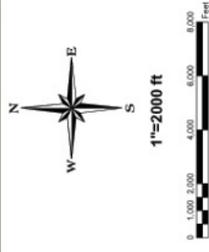




PREPARED FOR:
COBB COUNTY D.O.T.

PREPARED BY:
JORDAN
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GOULDING
PROJECT # 2108.006

**COBB COUNTY - CHATTAHOOCHEE TRAIL
FEASIBILITY STUDY
RECREATIONAL TRAIL PHASING MAP
MAP 13B-2
FALL 2004**



SECTION 14

POTENTIAL FUNDING SOURCES

Potential Funding Sources for Chattahoochee River Trail

CATEGORY	TITLE	SOURCE	CONTACT
Acquisition/ Recreation	Land & Water Conservation Fund 50% matching grants for acquisition of real property and development of facilities for general-purpose outdoor recreation. Not funded this year, but optimistic for future.	GA Department of Natural Resources (DNR)	Antoinette Norfleet 404-656-6534
Acquisition/Facility	Recreational Assistance Fund State grants for recreational purposes for the purchase of real property, facility development or rehabilitation of existing facilities.	GA Department of Natural Resources (DNR)	Antoinette Norfleet 404-656-6534
Acquisition/ Economic	Sustainable Economics Supports initiatives that promote the sustainable consumption of natural resources and help create policies that promote green taxes and encourage responsible business practices.	Merck Family Fund 303 Adams Street Milton, MA 02186	Jenny D. Russell Executive Director 617-696-3580 www.merckff.org merck@merckff.org
Acquisition/ Economic	Employment Incentive Program Grants for local government projects intended to facilitate and enhance job creation/retention mainly for those of low and moderate income. Eligible uses include public facilities such as water & sewer projects, trail spurs etc, and financing for fixed assets such as land, new facilities, and the rehabilitation of existing facilities.	GA Department of Community Affairs (DCA) Office of Financial Assistance 60 Executive Park South, NE Atlanta, GA 30329-2231	Andy Yarn Projects) Williamson Projects) Susan Arrington/ Brian (Infrastructure Loan & Lease
Acquisition/ Economic	Regional Economic Business Assistance Program Financial assistance to community or economic development projects. Regional/multi-county projects also encouraged.	GA Department of Community Affairs (DCA) Attn: Regional Economic Assistance Projects Business Financial Division 60 Executive Park South, NE Atlanta, GA 30329-223	REAP Program Coordinator www.dca.state.ga.us/economic/reap.html 404-679-1592
Sustainable Development	Sustainable Development Challenge Grant Program (SCDG) Grants given to projects that encourage communities to foster the connection between environmental protection, economic well-being and community prosperity. Grants require a 20% match from nonfederal funding sources, and in-kind contributions can count towards part of this match. (Not funded in 2003, possible funding in future years)	U.S. Environmental Protection Agency Sustainable Development Challenge Grant Program (SCDG) 401 M Street, SW Washington, DC 20460	Development, Community, and Environment Division (1808) US Environmental Protection Agency 1200 Pennsylvania Avenue NW Washington, DC 20460 202-566-2878 smartgrowth@epa.gov www.epa.gov/smartgrowth/funding.htm

Potential Funding Sources for Chattahoochee River Trail

CATEGORY	TITLE	SOURCE	CONTACT
Planting	<p>Global Relief Heritage Forest Program Funding for planting tree seedlings on public lands. Emphasis is placed on diversifying species, regenerating the optimal ecosystem for the site and implementing the best forest management practices.</p>	<p>American Forestry Association P.O. Box 2000 Washington, DC 20013</p>	<p>Attn: Karen Fedor x 224 202-955-4500</p>
Planning	<p>Technical Assistance, Applied research, GIS Mapping, etc. Pertinent examples of this assistance from UGA (Business Outreach Services and SBDC, Fanning Institute, Carl Vinson Institute of Government, Institute of Ecology, etc.) are: assistance in downtown redevelopment, economic development and restructuring, strategic problem solving, business training to existing business and new entrepreneurs, analysis and research on natural resource issues, environmental design, market studies, socio-economic data analysis, trade area definition, tourism product development and labor market analysis.</p>	<p>University of Georgia</p>	<p>Public Services Outreach www.uga.edu/services</p>
Environment/Youth	<p>Arthur Blank Foundation Provides grants for programs that utilize youth in increasing awareness about the importance of green spaces and natural resources for our enjoyment and livelihood. Priority is given to projects that provide opportunities for young people to take action in enhancing the environment.</p>	<p>The Arthur M. Blank Family Foundation 3290 Northside Parkway, N.W. Suite 600 Atlanta, Georgia 30327</p>	<p>404-239-0600 www.blankfoundation.org</p>
Environment	<p>Urban & Community Forestry Financial Assistance Program Provides grants for information and education, community natural resource management, organizational development and demonstration projects, which promote the awareness and/or development of urban trees and forests and green infrastructure.</p>	<p>Georgia Forestry Commission 5645 Riggins Mill Road Dry Branch, GA 31020</p>	<p>478-751-3500 www.gfc.state.ga.us/Services/UCF/FinancialAssistanceProgram.cfm</p>

Potential Funding Sources for Chattahoochee River Trail

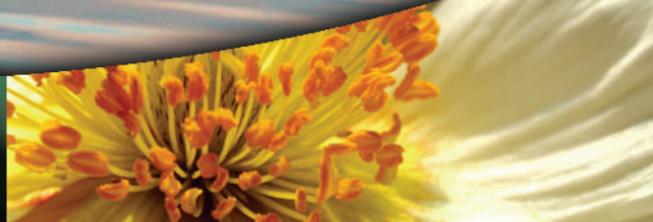
CATEGORY	TITLE	SOURCE	CONTACT
Trail/Sidewalk	Transportation Enhancement Program Federal grant (80% w/20% local match) with \$1 million cap per project. Applications will become available after TEA-21 is reauthorized, possibly late 2003, early 2004. Check GADOT website for updates.	GA Department of Transportation (GADOT) - Department of Planning No. 2 Capitol Square SW Atlanta, GA 30334	404-656-5267 www.dot.state.ga.us/
Greenway	American Greenways Kodak Awards Program Grants of \$500-2500 to local greenway projects. Grants can be used for almost any activity that serves as a catalyst for local greenway planning, design or development.	The Conservation Fund 1800 North Kent Street Suite 1120 Arlington, VA 22209	Kodak American Greenway Awards Program C/O The Conservation Fund 703-525-6300 Greenways@conservationfund.org www.conservationfund.org
Trail	Georgia DNR Recreational Trails Program Acquisition and/or development grant (80% federal/20% local) for recreational trails including new trail construction.	GA Department of Natural Resources (DNR)	Eric Hunter Grant Project Officer 404-656-3830
Trail	National Trails Endowment Grants for grassroots efforts to secure trail lands, and build and maintain footpaths. (Accepting applications in 2004)	American Hiking Association	mmsloan@americanhiking.org 301-565-6704
Trail	CDBG-Community Development Block Grant Neighborhood revitalization projects such as sidewalks, trails and transportation improvements.	H.U.D. & Department of Community Affairs 60 Executive Park, S., N.E. Suite 250 Atlanta, GA 30329	Susan McGee CDBG Program Director 404-679-3176 smcgee@dca.state.ga.us
Trail	Rivers, Trails, and Conservation Assistance Program(RTCA) Aids local groups which are undertaking conservation projects within their community including trail development and protection of rivers.	U.S. Dept. of the Interior, National Park Service Rivers, Trails, & Conservation Assistance Program (RTCA) 1849 C Street, NW, MS -3622 Washington, DC 20240	404-562-3175 www.nps.gov/rtca
Recreation	Local Development Fund Grants (50% match requirement) to fund community improvement activities such as downtown development, recreation improvements, tourism and related marketing activities.	GA Department of Community Affairs (DCA) 60 Executive Park South, NE Atlanta, GA 30329-2231	Cynthia Easley GADCA 404-679-4789

**Potential Funding Sources for
Chattahoochee River Trail**

CATEGORY	TITLE	SOURCE	CONTACT
Recreation	<p>Conservation Grants Program/Great Places Grants Conservation Grants Program funds projects with immediate and long term effects on protecting, enhancing, and encouraging access to recreation on public lands and waterways. Great Places Grants funds projects which represent efforts to protect muscle-powered recreation sites. Emphasis on projects which define new public messages for supporting outdoor recreational resources, with widespread participation. (Contact local REI store to get connected. REI no longer accepts unsolicited applications.)</p>	<p>Recreational Equipment Inc. (Contact local REI store)</p>	<p>www.rei.com (Select REI Gives)</p>
Transportation	<p>The Public Lands Highways Discretionary (PLHD) Program The intent of the program is to improve access to and within the Federal lands of the nation. The program has is pending reapproval with the extension of the Surface Transportation Extension Act. It includes 100% reimbursement for programs that benefit recreational development including transportation planning for tourism and recreational travel. It also includes adjacent vehicular parking areas, interpretive signage, acquisition of necessary scenic easements and scenic or historic sites, provision for pedestrians and bicycles, construction and reconstruction of roadside rest areas, including sanitary and water facilities, other appropriate public road facilities such as visitor centers..</p>	<p>U.S. Department of Transportation: Federal Highway Administration (FHWA)</p>	<p>Larry Beidel, Highway Engineer, Office of Program Administration Phone: (202) 366-4653 Fax: (202) 366-3988 larry.beidel@fhwa.dot.gov</p>

Potential Funding Sources for Chattahoochee River Trail

CATEGORY	TITLE	SOURCE	CONTACT
Community Development	<p>The Robert W. Woodruff Foundation Principal giving interests are focused on the following program areas: Elementary, secondary and higher education, Health care and education, Human services, Economic development and civic affairs, Art and cultural activities, Conservation of natural resources and environmental education. Grants generally are limited to tax-exempt charities and selected governmental agencies located and operating in Georgia. Awards for basic operating expenses usually are avoided.</p>	<p>The Robert W. Woodruff Foundation 50 Hurt Plaza, Suite 1200 Atlanta, Georgia 30303</p>	<p>Charles H. McTier President 404-522-6755 fdns@woodruff.org</p>
Community Development	<p>Georgia Cities Foundation Revolving Fund The mission of the Georgia Cities Foundation is to assist cities in their efforts to revitalize and enhance downtown areas by serving as a partner and facilitator in funding capital projects, technical assistance and training through a revolving loan fund. The Foundation is a non-profit subsidiary of the Georgia Municipal Association (GMA). The goal of the Foundation is to promote economically sustainable projects and build partnerships in order to help ensure the long-term health and economic vitality of the Georgia's downtown areas.</p>	<p>Georgia Cities Foundation 201 Pryor Street, SW Atlanta, GA 30303</p>	<p>Perry Hiott, Director, Research & Redevelopment Services 678-686-6207 Linda Wilkes, Manager, Reserach & Redevelopment Services 678-686-6243 Fax: 404-577-6663 Georgia residents Toll free: 888-488-4462 www.gmanet.com/gcf</p>
Community Development	<p>The Kresge Foundation Supports initiatives and provides challenge Grants for Community Projects. Cities, non-profit organizations and community groups are eligible for funding opportunities. Grants include Bricks and Mortar funding for construction, Science Initiatives, and partnerships to raise community capital for Non-profit groups.</p>	<p>The Kresge Foundation 3215 W. Big Beaver Road P.O. Box 3151 Troy, Michigan 48007-3151</p>	<p>Laura J. Trudeau LJTrudeau@Kresge.Org Program Officer 248-643-9630</p>



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