

## **Gwinnett County Greenway System Plan**

### **6A. Overview**

This section describes a program for creating and managing a system of greenways for Gwinnett County. Although part of the Open Space and Greenway Master Plan, it is also meant to serve as a stand-alone document that can be a guide for the developer of the greenway system. As such, some of the contents duplicate data found in other sections of the master plan report.

### **6B. History of Greenways in Gwinnett County**

The concept of developing a greenway system in Gwinnett County is not a new idea. As early as 1988, the Gwinnett County Department of Human Services commissioned a master plan for a trail system. The plan, known as the Gwinnett County Trail System, was developed by Robinson Fisher Associates, Inc. The plan's executive summary discusses the potential for developing over 200 miles of trails via existing utility corridors, gas pipelines, water and sewer easements, and natural corridors. The proposed system would have provided a trail within five miles by road of all homes, schools, workplaces and shopping areas in the County, and direct access to all major parks, activity centers and natural areas.

#### *Adopted Routes*

Following the development of this plan and an internal study by the County, a series of stream based corridors were identified for greenway trails and overland routes were developed for bicycle corridors. These routes were adopted as in the Gwinnett County Comprehensive Plan and are still part of the adopted plan for the County. These routes have been used in the development of subsequent master plan studies and transportation planning documents. (See Adopted County-wide Greenway and Bicycle Routes Map.)

#### *Further Planning Studies Developed by the County*

In 1995, the Gwinnett County Department of Planning and Development drafted a report entitled *Pedestrian, Bicycle and Greenways Plan for Gwinnett County, Third Draft*. The goal of the plan was, "To contribute to the overall quality of life and economic well being of Gwinnett County by developing and improving opportunities for walking and cycling." The plan recommends a "multifaceted" or comprehensive approach to developing an interconnected system of walkways, bikeways and greenways. Based on citizen input and research, the 1995 plan concluded that:

- Walking and bicycling play a significant role in an intermodal transportation system by reducing traffic congestion, connecting to transit park and ride lots, and improving air quality.
- Walking and bicycling can replace a short trip that would usually be made by automobile.

- Improving opportunities for walking and bicycling throughout the County reaps multiple "quality-of-life" benefits including health, economic, increases in tourism and environmental.
- Improving opportunities for walking and bicycling can help give Gwinnett County a competitive edge over other metropolitan areas in attracting and maintaining businesses.
- Walking is the most popular recreational activity of Gwinnett residents.
- Greenways are one of the most desired recreational facilities; bicycle trails rank second.
- Gwinnett citizens want to walk and bicycle from home.
- Gwinnett County sidewalk policies and regulations need to be improved to satisfy ADA regulations and be comparable to many other cities and neighboring counties.
- Bicycle lanes should be considered as part of road improvement projects. The construction cost of adding bicycle lanes to road projects is estimated at 5 to 8% of total project cost and significantly benefits motorists by providing room for disabled vehicles, service and delivery vehicles.

(See Proposed County-wide Greenway and Bikeway Routes from 1988 and 1995 map.)

#### *The Greenway Master Planning Process*

As part of this master planning effort, public input was solicited through a series of twelve public meetings, special interest group meetings and through the formation of a nine person Citizens' Steering Committee. The input received through these meetings resulted in many of the same findings and issues that were raised in the County's two previous greenway and trails planning efforts. The top five priorities for a greenspace program identified by the committee were:

1. Develop incentives for preservation of open space
2. Change zoning regulations to facilitate open space preservation
3. Link open space to neighborhoods, schools and public facilities
4. Protect river and stream corridors
5. Establish criteria for open space acquisition

When the Citizens' Steering Committee was asked to rank by preference activities listed in the Georgia Greenspace Program as permitted activities in open space, the top five choices were as follows:

1. Running
2. Open play
3. Picnicking
4. Biking
5. Hiking

The Citizens' Steering Committee discussed the level of public access that should be provided in open space properties. The committee expressed that it is not a requirement for expending public funds that all properties have public access. While it is desirable to allow public access to the majority of the open space, areas that should have limited access were identified as follows:

- Habitat for threatened or very sensitive species
- Fragile ecosystems
- Areas needed for water resource protection
- Archeological and historical sites that would be negatively impacted by excess public access
- Areas where habitat restoration is needed
- Stream corridors that are adjacent to existing subdivisions
- Farm land that is protected for the purpose of visual open space
- Wetland banks

Common themes frequently expressed by the public were the need for more greenspace acquisition, the need for land protection and the linkage of open space. A county-wide greenway system would help to address these issues, especially the concept of linkage. A greenway system would provide buffers from development along streams and around sensitive ecosystems and wildlife habitat. At the same time, it would provide opportunities for alternative transportation routes and connectivity among desired properties. Walking, biking and open play, which have been ranked high in previous studies, are still high priority activities that citizens want in the County.

It is clear that the development of a multi-objective greenway system should be a high priority. It is a missing element in the overall transportation and recreation services provided by Gwinnett County. In addition, a greenway system provides open space and water quality benefits that are also important to maintaining the high quality of life and economic prosperity of Gwinnett County.

#### *Greenway System Development*

Two elements critical to the success of building a greenway system include public education and coordination and cooperation among all the County agencies. To build support, the benefits of greenways for transportation, water quality, plant and animal habitat, open space and recreation must be demonstrated to the public. A key selling point is the positive effect that greenways have on neighboring property values. It may also be necessary to dispel myths that public trails will increase crime, reduce property values and bring undesirable elements into one's neighborhood.

A multi-agency approach to development will be required. The Department of Transportation has already included comprehensive system components for bicycle and sidewalk elements into its current Comprehensive Transportation Plan and has identified several off road multi-use paths. The engineering and implementation of

these routes should be coordinated with the additional routes proposed in this master plan. An interagency committee should be formed to prioritize all the greenway and pedestrian projects in order to begin to complete links among the County's resources in high priority zones, and then move throughout the County in an organized manner.

(See Proposed County-wide Greenway and Bicycle Routes Map.)

Throughout the implementation of the greenway system plan, the multi-agency committee should work together to update all department comprehensive plans to reflect system improvements. Regulations, ordinances and design standards for the greenway system should be developed by the committee to ensure consistency throughout the system. The committee should take the lead in working with allied staff in the municipalities to implement the same design standards throughout the County. As with all multi-agency efforts, there needs to be a lead agency. It is recommended that the lead agency be the Department of Community Services, Division of Parks and Recreation. It is also recommended that a staff person with Parks and Recreation serve as the Open Space Coordinator and work with other staff in the County and citizen groups who are interested in greenways.

The current role of the Recreation Authority should be expanded to include open space and greenways along with County park and recreation facilities. The Recreation Authority would serve as a conduit for public input on open space and greenways, and would aid the Parks and Recreation staff in making decisions pertaining to the design and implementation of greenway and open space facilities. The Recreation Authority should have the option of forming a subcommittee with representatives from the Recreation Authority and other interested citizens who want to focus on open space and greenway issues.

### *Greenway Funding*

The County currently has \$55 million in land acquisition funds for open space, \$22.5 million for acquisition and development of passive parkland and \$2.9 million in greenway development. The land purchased with these funds will enable the County to begin developing a greenway system to connect major open spaces and parks. The \$2.9 million that is currently budgeted for greenway development is a good start. However, the cost of developing a trail system throughout the County will cost many millions of dollars for facility and land acquisition outside of the large County-owned tracts.

Greenway development costs can vary widely depending on the terrain, number of road and stream crossings, and the nature of the soils where the trail will be constructed. Costs for individual trail sections can be as low as \$200,000 per mile and as high as \$1 million per mile. To begin to develop a system that meets the community's needs, a minimum of \$30 million should be spent on constructing multi-use off road

greenways over a ten-year period. In addition to the construction cost, funds will need to be appropriated for operations and maintenance of the greenways and open space.

#### *Summary of Development Actions*

- Educate the public on community benefits
- Update comprehensive plans, regulations and ordinances to reflect greenway development needs throughout the County
- Coordinate the engineering and implementation plans for the system
- Organize an interagency committee among the County departments
- Appoint the Department of Community Services, Division of Parks and Recreation as the lead agency on greenways and open space
- Assign a staff member within Parks and Recreation as the Open Space Coordinator
- Expand the role of the Recreation Authority to oversee open space and greenway projects
- Increase funding for implementation and operation of an Open Space and Greenway System

#### *Locating Greenways*

In planning the location of greenways, it is important to consider both connectivity of population centers and the natural features of the land. Many greenways are built in the riparian zone of streams and rivers because they are natural routes through the landscape, they contain an inherently attractive feature (the waterway itself), and they are often unsuitable for development due to flooding. Protecting wide riparian zones also preserves water quality and wildlife habitat, as described elsewhere in this report. It is recommended that floodplains and riparian zones be targets for acquisition in the near future, even if they are not used in the short term for public access greenways. Once these areas are under County ownership, they can be retrofitted with trails in the future.

Greenways should be designed to take advantage of other natural features of Gwinnett County. Additional information on the County's natural environment is provided in Section 2 of the Open Space and Greenway Master Plan.

## 6C. Design Standards

### *Pedestrian Users*

Walkers typically walk for exercise and recreation and often for utilitarian reasons, such as errands. This is especially true in downtown areas and dense residential/commercial districts. "Evidence indicates that walking among urban residents living in high density districts is far more prevalent than among suburbanites, and that a much higher proportion of short trips (less than one mile) are walked in central business districts than in the suburbs. It should be noted, however, that suburbs and outlying areas often lack sidewalks or trails... indications are that the relative convenience of other modes [of transportation] affects reliance on walking."<sup>1</sup>

The major impediments to walking as a means of transportation are universally considered to be distance and travel time. Walkers can typically cover three or four miles per hour at a moderate pace<sup>2</sup>, however, evidence indicates that walking trips are predominantly short. Recent studies indicate that 80% of walking trips are less than one mile and 94% are less than two miles.<sup>3</sup> Additionally, data indicates that specific physical aspects of the pedestrian environment affect an individual's choice to walk:

- *Sidewalks.* Suburban neighborhoods and areas on the fringe of cities frequently lack sidewalks and people walk less often in those situations. However, many suburban trips, such as shopping for a few groceries, enjoying a restaurant or theater, or a trip to the local bookstore, are short enough to be easily manageable on foot. There is evidence, although not comprehensive, that the limited availability and poor quality of sidewalks inhibits such uses.

In designing a sidewalk, the range of users must be considered. A child's awareness of sounds and where they come from, as well as peripheral vision, focus and concentration levels, are not fully developed until after the age of eight. Senior citizens typically do not have the sight, speed and reaction time abilities of mobile and alert younger adults. Facilities must be designed to ensure accessibility and safety for children, seniors and the disabled.<sup>4</sup>

- *Traffic Signals and Pedestrian Crossings.* The absence of traffic signals and striped pedestrian crossings, or complete vertical separation provided by pedestrian overpasses on highly traveled roads, impedes pedestrians. When coupled with wide roads and high-speed travel, this can make it impossible to safely cross the street, especially for children and older or disabled individuals. These issues are not insignificant—6,000 pedestrians are killed every year in this country (58% are

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<sup>1</sup> U.S. Department of Transportation, Federal Highway Administration. National Bicycling and Walking Study. Case Study Number 1: Reasons Why Bicycling and Walking Are Not Being Used More Extensively as Travel Modes. (Federal Highway Administration Publication Number FHWA-PD-92-041, 1994) 2

<sup>2</sup> *Ibid.*, 12

<sup>3</sup> *Ibid.*, 12

<sup>4</sup> North Central Texas Council of Governments. Bicycle and Pedestrian Facilities Planning and Design Guidelines. (Arlington, Texas, 1995) 1-11

working adults, 23% are age 65 or older and 19% are children under the age of 19), and 90,000 are injured. These injuries and fatalities cost \$20 billion each year.<sup>5</sup>

- *Street Lighting.* In some neighborhoods, particularly very urban neighborhoods, crime or the perception of potential crime, is a real concern for walkers. Improved lighting is considered one of the most effective ways to reduce these fears for facilities that are intended for use after sunset.
- *Attractive Places to Walk.* Walking is a slow or moderately paced activity, and it is frequently a solitary one. Therefore, pedestrians have the opportunity to really enjoy their environment. Features which enhance the walker's sensory experience, including park trails in scenic situations, historic elements, such as architecture and interpretive signs at significant sites, and concentrated activities such as farmers' markets or street fairs, have been clearly identified as methods to make walking more popular.

Typical regulations related to pedestrians include:

- Pedestrians are subject to traffic-control signals at intersections.
- Where traffic-control signals are not in place, the operator of a vehicle must yield the right-of-way to a pedestrian crossing within marked or unmarked crosswalk at intersections.
- Pedestrians must yield the right-of-way to all vehicles when crossing at any point other than marked crosswalks or intersections. Pedestrians must not cross at any place except in marked crosswalks between adjacent intersections that have traffic-control signals.

### *Bicycle Users*

Distance also has a significant impact on the choice to bicycle rather than use motorized transportation. Therefore, transportation planners assume that the farther one is from a destination, the less likely one is to prefer bicycling. The distance factor has become a common tool to help identify the market for non-motorized transportation. The accepted literature in the field has attempted to quantify average trip lengths; in the late 1970s, the paradigm was that most bicycle trips were less than two miles. In the early 1980s the paradigm was reinforced—studies showed that 90% of work trips taken by bicycle were two miles or less, as were 84% of other utilitarian trips. A 1990 study conducted in Denver found the mean bicycle trip length to be 2.1 miles.<sup>6</sup>

According to the National Bicycling and Walking Study, ". . . levels of bicycle commuting in twenty cities were compared across a number of objective physical, environmental and infra-structural features. The most significant variable appears to be

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<sup>5</sup> Federal Highway Administration. *Facts and Figures: National Overview*. (Project: AP-18, 1995 statistics)

<sup>6</sup>U.S. Department of Transportation, Federal Highway Administration. *National Bicycling and Walking Study. Case Study Number 1: Reasons Why Bicycling and Walking Are Not Being Used More Extensively as Travel Modes*. (Federal Highway Administration Publication Number FHWA-PD-92-041, 1994) 7

the dominating presence of a university . . . In fact, no other factor correlates so consistently with high levels of bicycle commuting."<sup>7</sup> However, even when excluding college towns, cities with higher rates of bicycle travel to and from schools and workplaces have, on average ". . .70% more bikeways per roadway mile and six times more bike lanes per arterial mile."<sup>8</sup>

Bicycle facilities should generally be made available for three levels of proficiency. Novice cyclists will be most comfortable on lightly traveled residential streets and on off-road, multi-use bike routes or greenways. Basic bicyclists, those who have gained confidence and proficiency and have been educated in issues related to bicycle and pedestrian safety, should be comfortable with signed, on-street bike routes in association with pedestrian routes. Basic bicyclists will, of course, also enjoy multi-use, off-road trails and vehicular/pedestrian/bike routes adjacent to arterial and collector roadways. Proficient bicyclists, experienced riders who bicycle for transportation, recreation, health and sport, will find all trail design levels appropriate including bike routes in rural areas that consist of wide, paved road shoulders.

Most states and communities treat bicycle riders the same as operators of motorized vehicles. Common rules and regulations that apply to bicycle riders are as follows:

- All bicycle riders are granted the rights and duties applicable to drivers of vehicles; bicyclists must obey all traffic control signals and signs, including no right turn or U-turn signs.
- Bicyclists must ride as near to the right side of the roadway as practical and may not ride more than two abreast except on paths set aside for the exclusive use of bicycles.
- When paths for bicycles are provided adjacent to the roadway, bicycle riders must use the paths and not the roadway.
- Bicyclists must yield the right-of-way to pedestrians when emerging from alleys, driveways or buildings and approaching a sidewalk. When in the roadway, they must yield the right-of-way to vehicles approaching the roadway.
- Bicyclists may not park bicycles in such a way that they impede pedestrian circulation on sidewalks or on multi-use trails.
- Bikes must be equipped with lights and reflectors if used at nighttime.
- Bicycles must be equipped with brakes that enable the rider to make the braked wheel skid on dry, level, clean pavement.

The Gwinnett County Comprehensive Transportation Plan completed in May of 2001 recommends bicycle and pedestrian improvements, including sidewalks, bike routes,

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<sup>7</sup>Ibid., 1

<sup>8</sup>Ibid., 1

bike lanes and multi-use trails. The standard sidewalk is to be built adjacent to roadways and is to provide connections for trips of under 0.5 miles. Long-distance bicycle trips are expected to rely on bike routes, which have limited roadway improvements and often use traffic lanes or roadway shoulders for bicyclists. Short distance trips will utilize more developed bike facilities including bike lanes and multi-use paths or trails. These will be built adjacent to smaller roads and provide access to community facilities such as schools and libraries.

## 6D. Trail Standards

The following standards are adapted from a number of sources, including AASHTO, and various state highway departments' planning and design guidelines for bicycle and pedestrian facilities.

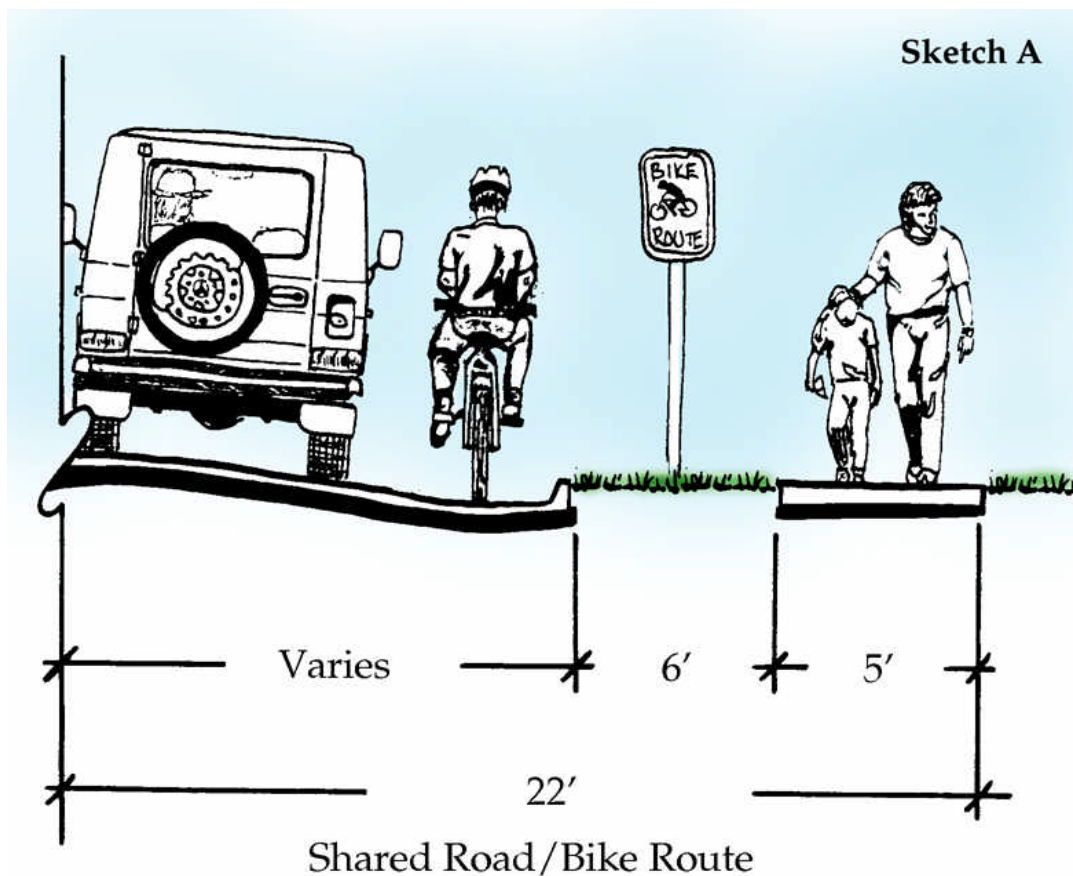
*Pedestrian Walks.* Pedestrian walks incorporate existing sidewalks with needed repairs, improvements and additions to provide safe connections and links between neighborhoods, schools, parks and other activity centers. These routes should be developed to a level appropriate for all pedestrians, including children, senior citizens and individuals with disabilities.

*Vehicular/ Pedestrian/ Bicycle Routes.* In addition to providing travel routes for walkers, pedestrian routes can also facilitate bicycling. Designated bicycle routes are suggested ways for a cyclist to get from a point of origin to a destination. A street does not necessarily have to be physically widened in order to be designated as a bicycle route. A street with standard 12' wide lanes can be designated as a bike route if certain conditions are met. To accomplish this, bicycle route signs should be placed at all areas where new traffic enters the roadway. The distance between signs should not be greater than two miles. In urban areas, directional arrows should be used at intersections to indicate whether the bicycle route continues through the intersection or turns right or left.<sup>9</sup> Bicycle route signs help encourage use and warn motorists that bicyclists may be using the road. These signed routes are considered appropriate for basic and proficient bicyclists.

The *Bike Route Sketch A* shows a typical urban situation where motor vehicles and bicycles share a single lane on streets with speed limits under 35 mph. It should be noted that standard dimensions shown in all succeeding illustrations identify minimum widths for specific applications. Where existing right-of-way is greater than that shown (ROWs are typically 40'-50' for small streets), or where trail construction will require land acquisition, the minimum widths can and should be exceeded, especially to increase safety and to allow for street trees. These sketches are general and conceptual. Design standards for on-street bike lanes should be developed after consideration of many factors, including vehicle operating speeds, traffic volume and composition, and the number of turning movements.

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<sup>9</sup>Greenways Incorporated and Lose & Associates, Inc. *The City of Murfreesboro Bicycle Plan*. (Murfreesboro, January, 1994) 45

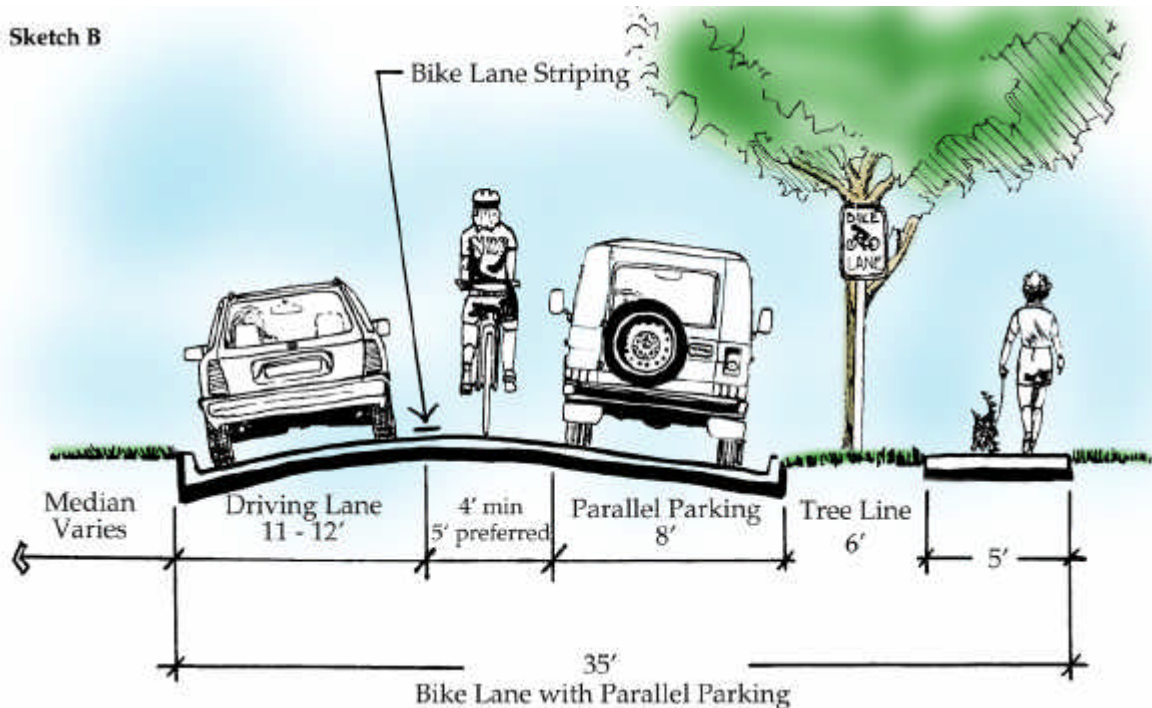


The primary function of streets and roads is to move people from place to place, not to store vehicles. When parking is removed, safety is improved. However, there will certainly be cases where on-street parking cannot be removed. Factors such as the number of businesses and residences, and the availability of both on-street and off-street parking, must be carefully considered as retrofits are planned. In cases where it is not practical or possible to eliminate on-street parking, the shared lane plus parking concept shown in *Sketch B* is appropriate—although this design may present problems in areas where the number and awareness of cyclists is not that great because of the danger of suddenly opened vehicle doors blocking the bike lane.

Vehicular/Pedestrian/Bicycle routes are planned for shared use with striped and signed bicycle lanes and separated sidewalks for pedestrians. These routes can accommodate cyclists in several ways. A restricted segment of a shared street or roadway for use by cyclists can include a colored stripe as separation between vehicles and bicycles. The stripe provides psychological rather than physical protection. However, the separation can also be raised to the level of a barrier—plant materials, guardrails or low curbing can be installed to physically separate bicycle and vehicular use.<sup>10</sup>

<sup>10</sup> George E. Fogg. *Park Planning Guidelines*. (National Recreation and Park Association, 1990) 36

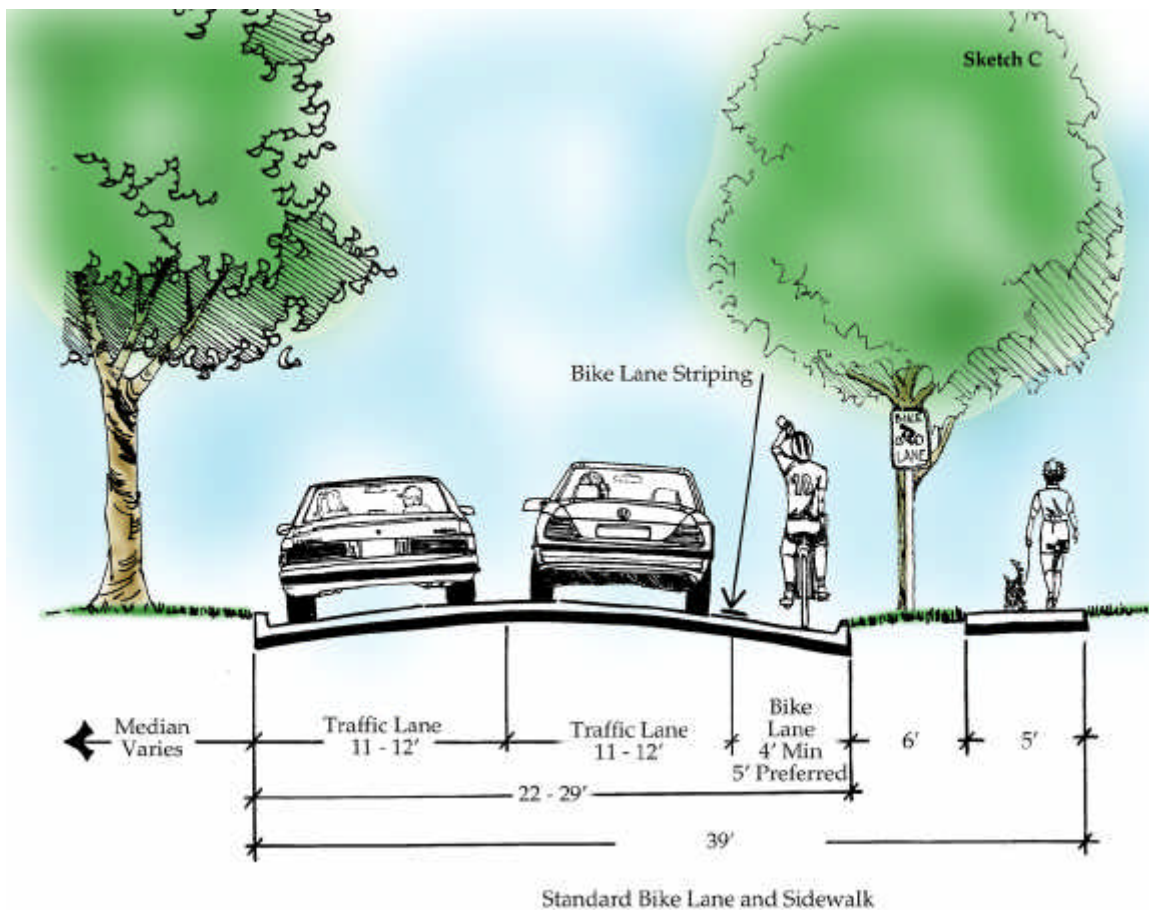
Vehicular/Pedestrian/Bicycle routes should be designed to accommodate all pedestrians, including children, senior citizens and individuals with disabilities. They are appropriate for use by basic and proficient bicyclists.



Vehicular/Pedestrian/Bicycle routes frequently depend upon existing roadways for their alignments, as they either share or closely follow these vehicular corridors. Therefore, design development phases of greenbelt implementation will determine the specific details of manipulating the existing circulation network to incorporate these routes. In the future, such routes should be designed in conjunction with all new, improved or reconstructed roadways to assure integrated and safe non-motorized use. "To varying extents, bicycles will be ridden on all roadways where they are permitted. Thus, all roadways must be built with the assumption that they will be used as shared lane facilities, with bicyclists and motorists traveling to the same destinations."<sup>11</sup> See *Sketch C, Typical Shared Uses*.

*Multi-use off-road trails* are typically 12' wide to provide two-way travel and serve a variety of users, including walkers, joggers, runners and bicyclists. In order to ensure safety and access for all users, the trail should be paved, depending upon the location. Pervious paving materials, that are ADA-compliant and accommodate wheeled equipment, should be used where it is appropriate. In areas where jurisdictional wetlands occur, the trail should transition to boardwalk. All on-grade trails will require a 2-foot cleared shoulder on both

<sup>11</sup> North Central Texas Council of Governments. *Bicycle and Pedestrian Facilities Planning and Design Guidelines*. (Arlington, Texas, 1995) 2-31

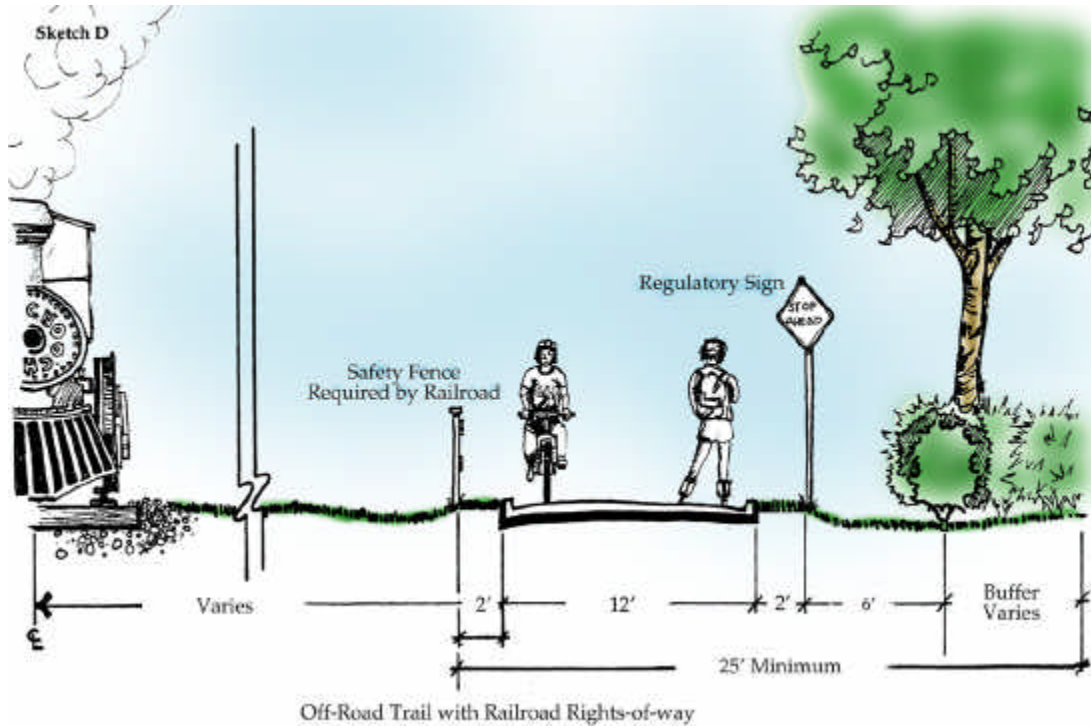


sides of the trail for maneuverability and safety. A painted centerline stripe to control travel direction should also be considered. Detailed design of the multi-use trails should follow AASHTO standards and criteria in order to accommodate bicycle travel at a maximum speed of 20 mph. The trail should also be designed to support vehicles weighing 6.5 tons at a maximum travel speed of 15 mph<sup>12</sup>, to provide for emergency and maintenance access. Multi-use trails should be designed to serve all pedestrians as well as basic, novice and proficient cyclists.

Multi-use trails can be in the floodplain of rivers, streams and creeks. Such trails should avoid the state required buffering and any wetlands. They provide access to and connections between historic and cultural sites, exceptional natural resources and other points of interest. Multi-use trails may follow roadways, but physical separation is established between motor vehicles and trail uses. Along portions of the trail, changes in elevation are required to conform with existing topography, avoid significant natural features such as rock outcroppings, or compensate for fill materials in floodplains. In these transition areas, porous or standard concrete ramped trails with supporting gabion walls should be

<sup>12</sup>Greenways Incorporated and Lose & Associates, Inc. *Master Plan Summary Report for the Stones River Greenway*. (Murfreesboro, TN, 1993) 17

employed. Trails should not exceed a five percent vertical slope in order to comply with ADA guidelines for accessibility and to maximize user comfort. Any trails that exceed five percent are considered ramps and must conform to specific ADA requirements relevant to handrails, length of run, landings and other issues. *Sketches D and E* illustrate typical off-road multi-use trails.



*Bicycle Routes*, according to the American Association of State Highway and Transportation Officials (AASHTO), are "...segment[s] of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers."<sup>13</sup> AASHTO defines bikeways as "... any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes."<sup>14</sup>

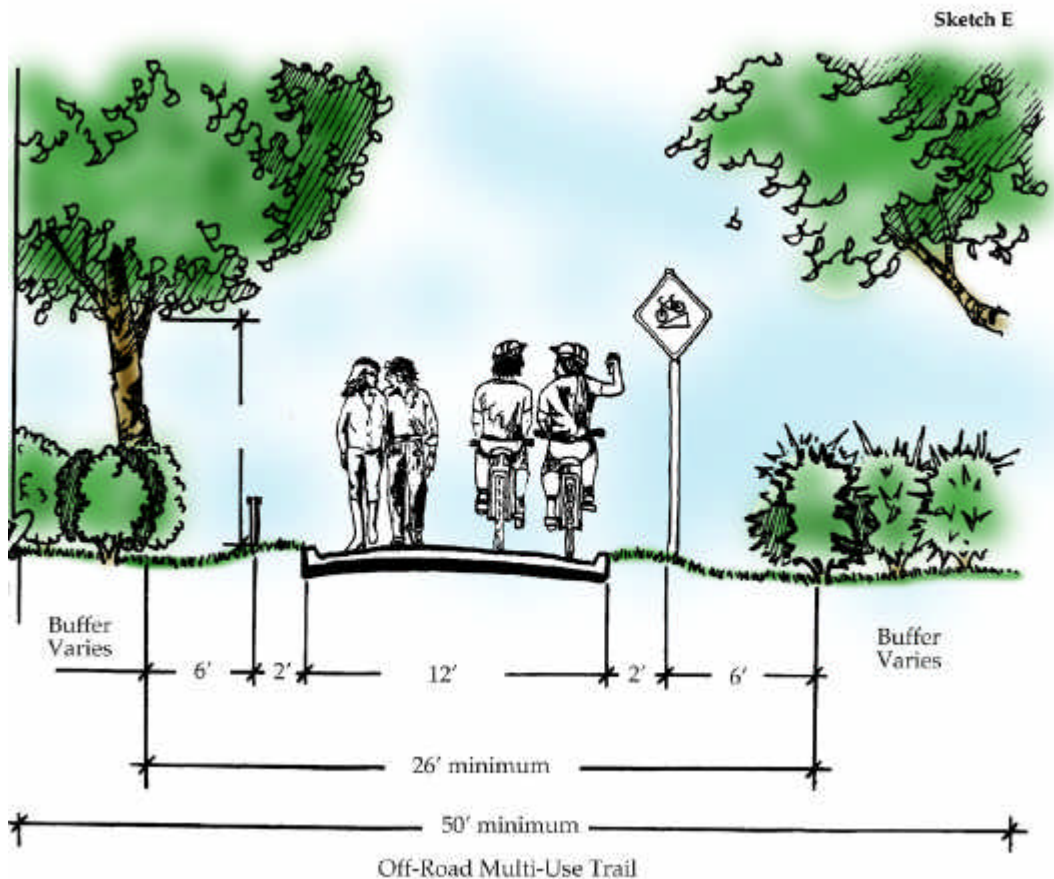
Bicycle routes incorporate wide, paved shoulders and are clearly signed as bicycle routes. Paved shoulders are recommended primarily for rural areas. Shoulders should be a minimum of 4'-6' wide to accommodate cyclists depending on traffic volumes, speed limit and amount of truck traffic. Paved shoulders should have the same pavement thickness and sub base as the adjacent roadway and should be regularly swept and kept free of potholes. When signed

<sup>13</sup> American Association of State Highway and Transportation Officials. *Guide for the Development of Bicycle Facilities*. (Washington, D.C., 1991) 3

<sup>14</sup> *Ibid.*, 3

as bicycle routes, adequate maintenance must be provided to ensure the safety of riders.<sup>15</sup>

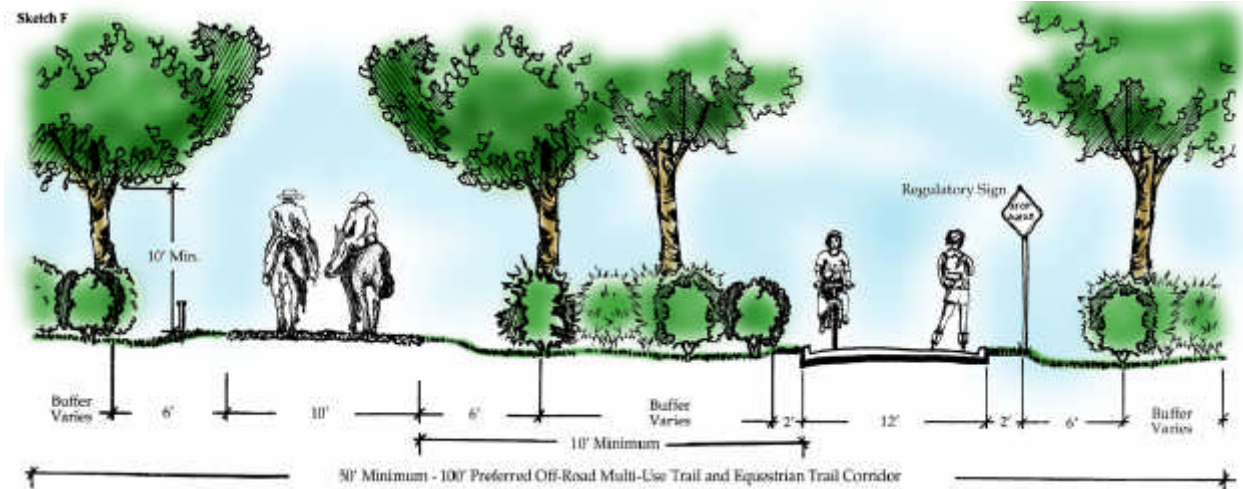
Planning for bicycle facilities must be considered as improvements in existing roads are made and as new travel ways are built. Relatively inexpensive roadway improvements can enhance bicycle safety and travel. As the greenway system is implemented, careful consideration must be given to removing obstructions or impediments on roadways that will become designated bicycle routes. Bicycle route signs should be installed only after shoulders are paved and, if necessary, widened. Unsafe grates should be replaced, debris must be removed, narrow lanes should be widened, rough pavements smoothed and high-speed vehicular travel addressed through traffic calming devices. Additionally, the differences among bicyclists' abilities and purposes for riding must be understood and considered as bicycle transportation improvements are made. Not all designated bicycle routes will be suitable for all riders. Novice bicyclists should not be encouraged to use these routes, but basic and proficient riders should be comfortable on designated bike routes that have received the requisite improvements for safety and comfort.



<sup>15</sup>Greenways Incorporated and Lose & Associates, Inc. *The City of Murfreesboro Bicycle Plan*. (Murfreesboro, January, 1994) 44

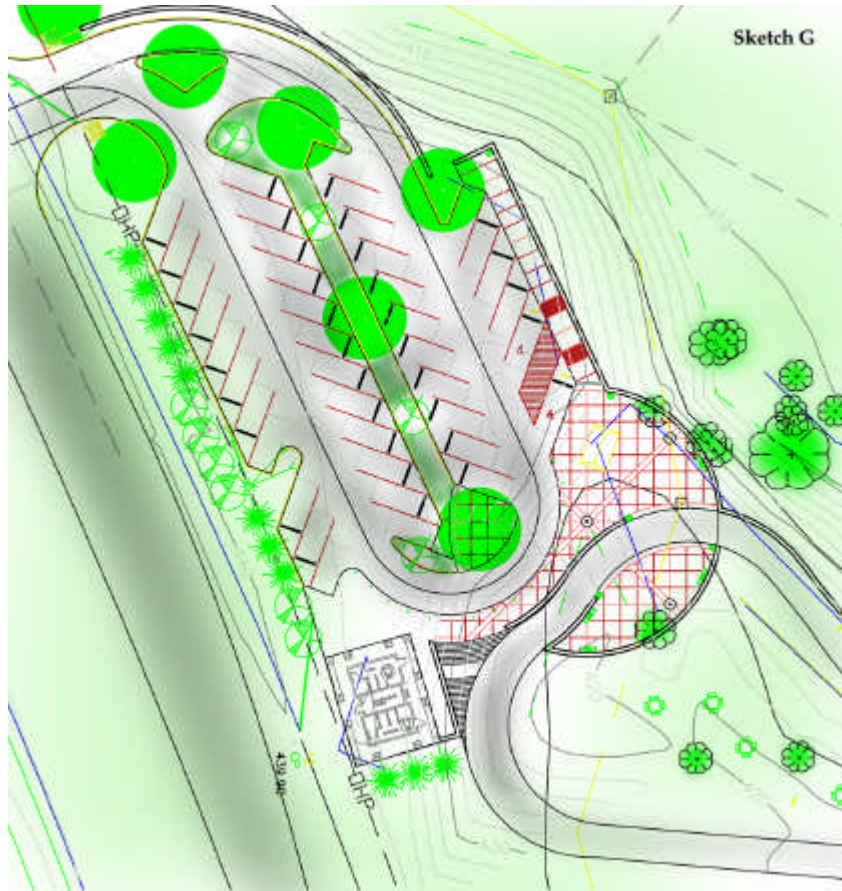
*Scenic Drives* are located in areas of the County that have significant aesthetic and natural qualities but are not as conducive to pedestrian and bicycle use due to excessive topography or other natural site constraints. Scenic drives should, where feasible, incorporate historic sites and existing highway historic site markers and provide interpretive waysides at critical points.

## 6E. Ancillary Trail Facility Standards



*Equestrian Paths.* Equestrian paths are a common element found in parks across America. In recent years, these paths have been expanded beyond park boundaries and included in greenway systems. Equestrian paths, when constructed in a greenway corridor, should be separated from the primary paved trails. This prevents a bicycle rider and horse encounter that can spook the horse. Equestrian paths should be a prepared natural surface, 10' wide to accommodate horses passing in opposite directions. Clearing for equestrian paths should be limited to removing limbs to a height of 10' above the trail, and those trees that fall directly in the path. At streams, horses should be allowed to cross at shallows. For large streams, covered bridges are recommended. Roadway crossings can be at grade on roads with very low traffic volumes or via tunnels constructed under high traffic roads. Where equestrian trails merge, or cross-paved trails, 3 rail wooden fencing is recommended to separate the two trail types for a minimum of 30' from the intersection. *See Sketch F.*

*Trailheads.* In simple terms, trailheads are trail access points. However, in terms of available facilities they can be extremely diverse. Trailheads will establish the trail user's first impression of the greenway system, therefore, their detailed design will be critical as construction documents are developed for implementation. Where possible, trailheads will be located in or adjacent to existing or planned parks so that public amenities such as restrooms, telephones, parking, picnic pavilions, playgrounds and general recreation facilities are already available. Frugal use of economic resources dictates this course. However, economy of means is not the only factor in this reasoning. By clustering recreational opportunities, the Gwinnett County community will have a greater range of choices to improve their health, quality of life and leisure time. *See Sketch G.*



The following general criteria apply to trailheads regardless of the level of development:

- 1) Circulation. Adequate, efficient and safe space must be provided for vehicles, bicycles and pedestrians to maneuver.
- 2) Parking. There must be an adequate number of spaces for the anticipated level of use of the particular facility including, where appropriate, spaces for RVs, buses, bicycles and small trailers for boats and canoes.
- 3) Structures. Again, depending on the anticipated level of use, buildings may be required. Structures may include gazebos, picnic shelters or pavilions, restrooms, maintenance and storage facilities, information booths and kiosks.
- 4) Emergency telephones.
- 5) Site furnishings including benches, trash receptacles and playgrounds.
- 6) Signs.
- 7) Fences and lockable security gates.
- 8) Security lighting.
- 9) Landscaping.
- 10) Connector trails to the main trail.
- 11) River access where appropriate.

*Trail Signage.* The primary purpose of trail signs is to aid and instruct users of the greenbelt system. Signs fall into three categories: regulatory, warning and guidance. Regulatory signs provide operational requirements and are used for traffic control. This category includes stop and yield signs, right-of-way signs, speed limit signs and exclusion signs. They are normally installed where specific regulations apply.

Warning signs function as their name implies—they identify existing or potentially hazardous conditions on or near the trail, and they caution users to reduce speed or dismount a bicycle for safety reasons. They are typically used near intersections, bridges, crossings and tunnels. Warning signs should also be employed to indicate significant grade changes, upcoming traffic control devices and changes in surface conditions.

Guidance signs instruct—they provide trailside information to orient users geographically. The typical "you are here" map is an excellent example of this category of sign. Guidance signs can be both directional and informational. Directional signs point out nearby support facilities and points of interest such as historic sites and unique natural resources. In this respect guidance signs are often referred to as interpretive signs.<sup>16</sup>

Trails are transportation corridors and for that reason recognizable transportation signs can be adapted for trail use. However, an independent sign "package" that coordinates all greenway-related signage should be developed in succeeding phases of the county-wide trail system design. The sign package facilitates several goals—most importantly, it reinforces an overall aesthetic image that incorporates the greenway logo and colors. With consistent application of greenway sign standards, trail users will quickly learn to recognize and comprehend trail components. The trails will be more user friendly, easier to navigate and safer.

*Wayside exhibits* are built adjacent to trails or at the terminus of a connecting trail. These areas contain interpretive signs that provide information on the natural environment or on cultural and historic points of interest in the vicinity. They also provide small areas where people can sit, relax and enjoy a quiet moment.

*Landscaping and gateways.* Landscaping will be required not only at trailheads but virtually all along the trail network. Greenway construction will require grubbing and clearing and some loss of existing vegetation. At first, this may seem regrettable, however, it also presents real opportunities for ecological restoration and beautification.

Where possible and practicable, native species should be preserved as trails are installed. However, invasive exotic species such as privet, honeysuckle, kudzu and multiflora roses should be removed. Additionally, damaged trees should be examined by certified arborists. Trees in extreme states of decline should be

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<sup>16</sup>Karen-Lee Ryan, editor. *Trails for the Twenty-First Century: Planning, Design, and Management Manual for Multi-Use Trails.* (Island Press: Washington, D.C., 1993) 122-123

removed, especially if they present safety hazards. Dominant native plants in the areas of disturbance can then be reintroduced and function to provide visual screens, walls, buffers and overhead canopies. The particular environment and intended purpose of landscaping will influence the overall plant palette and native trees do not have to be used exclusively—some situations will certainly benefit from more ornamental introductions. However, native vegetation should be considered wherever possible and especially in riparian areas where it can protect the environment and stabilize riverbanks. Indigenous plant material will be the most robust and will adapt best to local climate, soils and precipitation.

In most cases, a cleared area should be maintained for six feet on each side of trails. Therefore, new trees and shrubs should be planted so that they do not encroach upon that six foot cleared area. By maintaining this minimum six foot space, visibility will enhance user safety and tree roots will be less likely to damage trail surfaces. For reasons of security, dense shrub plantings should be avoided adjacent to the trail. Occasional open spaces will also increase security by providing clear routes for people to exit the trail in the event of emergencies.

The construction of the Greenway and Open Space System also presents opportunities to create gateways to cities and towns in Gwinnett County. Landscaping and signage can be extended from the greenway to major vehicular access points to individual communities. These gateways visually frame points of ingress and egress and can significantly improve the aesthetic impression on residents and visitors as they travel through the County. Gateways should utilize native plants and grasses when possible.

*Canoe portage* points provide facilities for canoe put-in and take-out. At a minimum, they include a paved access path to natural staging and launching areas. Additionally, a flow gauge should be provided to indicate the degree of safety for canoeing.<sup>17</sup> In some situations a minimal amount of shotcrete or concrete may be required to improve footing and access at the water and stream bank edge. In other situations a system of large steps or terraces can be constructed of recycled plastic and wood timbers to facilitate put-in and take-out at varying water levels.

Canoe portage points will, wherever possible, take advantage of existing park facilities or proposed trailheads for parking, picnicking, restrooms and other amenities. The launch areas should be as close as possible to the parking lot for convenience, but also be located in such a way as to protect the natural environment. In some situations, portage points will be independent of park facilities and will require dedicated parking. Roadway pull-offs with stacking room for two or three users may be adequate. In other cases, more developed parking amenities will be required. Again, the parking should be located as close as possible to launch areas for convenience. However, if parking lots are built too close to

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<sup>17</sup>Greenways Incorporated and Lose & Associates, Inc. Master Plan Summary Report for the Stones River Greenway. (Murfreesboro, TN, 1993) 18

shorelines, construction may significantly alter the site environment and contribute to soil erosion.<sup>18</sup> Where canoe access points are not built adjacent to existing park facilities, they can be expanded to fulfill the requirements of trailheads.

*Maintenance, Safety and Security* requires long-term commitment, consistency and enthusiastic public involvement. Regular maintenance ensures trail safety and reduces potential political liability. Additionally, regular maintenance will protect the community's significant investment in the greenbelt system by prolonging the life of trail facilities. According to generally accepted standards, the following tasks should be part of a maintenance schedule:

- 1) Signs and traffic markings for motorists and trail users must be inspected regularly and kept in good condition. Pavement markings must be kept clear and legible.
- 2) Sight distances, especially those leading to crossings and curves, should not be impaired by vegetation. Trees, shrubs and tall grass should be trimmed to meet sight-distance requirements based on a 20-mile-per-hour design speed. Adequate clearance must also be maintained overhead and on both sides of trails.
- 3) Trail surfaces should be patched on a regular basis—patches must be flush with the finish surface of the trail.
- 4) Trail damage from seasonal washouts and silt or gravel washes must be repaired as soon as possible after they occur. Recurring drainage problems should be identified and remedied. Culverts, catch basins and other drainage structures should be cleaned at least once a year.
- 5) Regular sweeping and cleaning will be required to keep the trail free of debris, including broken glass, loose gravel, leaves and trash.
- 6) Structures such as pavilions and restrooms should be inspected annually to ensure they are in good condition. Special attention must be paid to wood foundations and posts to determine if rot or termites are present. At the same time, site furniture and other support facilities should be inspected.
- 7) Mow trail shoulders and other selected areas on a scheduled basis depending upon season, species and rate of growth.
- 8) Remove storm-tossed limbs and fallen trees as soon as possible. Inspections should also occur after significant storms to determine whether tree damage poses any potential danger.

Refer to Section 3C for overall open space and greenway operations and management policies and strategies.

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<sup>18</sup>John Hultsman, Richard L. Cottrell and Wendy Z. Hultsman. *Planning Parks for People*. (Venture Publishing: State College, Pennsylvania, 1998) 73

## 6F. Proposed Greenway Corridors and System Description

### *System Components*

As discussed in the Design Standards Section of the master plan, a greenway system is made up of standard elements that are interconnected to create a separate transportation and recreation system for both short and long term trips. In developing the routing plan for the Gwinnett Open Space and Greenway System, we have divided the routes into two major groups: on-road systems and off-road systems. The on-road systems would contain sidewalks, bike routes, bike lanes and off-road paths that are constructed within the right-of-way of a road. The off-road systems are multi-use paths that are developed in rights-of-way that are shared with utilities or are acquired exclusively for the development of greenway paths. These off-road systems would fall within road right-of-ways only at points where they connect to road-based systems, or cross a public street. Off-road trails can include 12' paved trails, natural surface walking paths of various widths and 10' natural surface equestrian paths.

### *Right-of-Way Requirements for Off-Road Trails*

There are no established width standards for right-of-way acquisitions for off-road trails. However, based on previous greenway projects developed by Lose & Associates and research on other greenway projects across the country, it is recommended that the minimum width of greenway rights-of-way be 50'. With a 50' width, a vegetative buffer can be maintained along the trails. These buffers will provide a green corridor to be enjoyed by trail users and provide cover for wildlife to move within the corridor. When multiple trails will be developed in the corridor, such as a 12' paved trail and a natural surface equestrian trail, it is recommended rights-of-way be increased to a minimum of 75'. This will allow for separation between the two trails for improved safety and enjoyment for all users. Equestrian trails should not be combined with any type of bicycle trail for safety. Pedestrian activity on equestrian trails is not desirable, but is a common use of equestrian trails.

The placement of the rights-of-way is another important factor that must be considered. The development of a greenway system as part of a larger open space system provides opportunities for a variety of trail placements within the larger open space system. The trails can be built within buffer areas required for water quality protection, within floodplains purchased for flood storage, or outside the floodplains but still within river corridors. To minimize impact on water quality and flood storage, the best location for the trails would be within a zone that adjoins the outer edge of the floodplain. This would place the trails in a vegetative zone that is very diverse and would limit potential flooding of the trail. This will be most practical along the larger streams that have wide floodplains and along smaller streams that have limited development at this time. In areas where there are smaller floodplains and more development has occurred, the trails will most likely have to be closer to the streams and within the floodplain and, in some cases, within the stream buffers. In all cases, if the County does not own the property in fee simple, a right-of-way easement purchase will be required to construct

the trail. In locations where the trail right-of-way does not abut the river or stream, the area between the trail and the river or stream should be considered for inclusions in the right-of-way. This will prevent unwanted development from occurring between the trail and the river or stream. The net result is more open space that is protected.

On sections of the greenway that run overland via utility corridors, a smaller right-of-way can be acquired. For example, if a trail is to be built in a utility corridor that has a 100' easement, the trail right-of-way could be reduced to 25'. This would provide adequate area to construct the trail, and provide areas on each side of the trail as a safety buffer. When the County has to purchase the right-of-way for the trail, the reduced width would also reduce the overall cost. As trees and other large landscape materials are not desired within these utility easements, a vegetative buffer will not be possible. The potential for undesirable encroachments is much lower within the utility easements as the utility company limits development within their easements. If the rights-of-way granted within the utility easements are at no cost to the County, the County can request the full 50' right-of-way if they feel the potential for parking lots or other undesirable facilities are likely to encroach on the trails.

In all greenway projects there are areas where natural features or existing facilities limit the area in which a trail can be constructed. In these locations the right-of-ways often are reduced and fall just outside the trail safety zone. This is also true where boardwalks are constructed as part of the trail to cross large wetland systems. Because there is a very low potential for development adjacent to the boardwalk the County would not have to buy a large right-of-way to buffer the trail. However, acquisition of wetlands for interpretive use and protection of wetland systems is desirable.

### *Routing Plan*

In developing the routing plan the following design principles were applied:

High priorities for connections are parks, schools, public facilities and residential areas.

Routes should make connections through undeveloped property whenever possible.

Follow natural corridors, such as river and streams, to take advantage of floodplains that have less development.

When required, use road-based systems to make connections between off-road trails to complete looping opportunities or to link to high priority facilities.

Utilize existing utility transportation corridors for overland connections to stream and road-based trail systems.

Anticipate the impact of trail construction on undeveloped properties and locate trail to minimize impacts on future development.

Review existing planning documents and previously proposed trail and bicycle routes, and look at possible overlap and connection potential.

Using these design principles the greenway system has been routed throughout the County. The routing plan as proposed will provide connections to all the major parks in the County and most schools. Many of the proposed routes can be constructed with minimal impact on existing residential development but some connections are required through existing subdivisions. Developing routes through subdivisions was avoided where possible by using road-based sidewalk and bicycle connectors. However, these connections are not as desirable from the user standpoint nor are they as safe for children traveling to schools. Placing young children on road-based systems is not a choice most parents would prefer when the option to let them use off-road trails is available. For this reason, we would recommend that the highest priority for construction of facilities be for off-road trails that connect neighborhoods to parks and schools.

The off-road trails can be classified in two categories: primary trails and secondary trails. Primary trails are those trails that run for long distances and are served by many branch trails. Most of the primary trails follow major streams or creeks and collect secondary trails that follow smaller streams or connect to a single destination. There are some overland primary trails that follow major utility easements rather than stream corridors. The secondary trails are short trails that are provided to connect neighborhoods, commercial districts or single facilities to the primary trails. Both trail types would be the same size, but primary trails are expected to carry larger volumes of users.

The potential for development of the off-road trails will be greatest in the northern and eastern sections of the County where more open land exists and along the major streams where limited floodplain development has left open corridors. A good example of an open corridor is in the south central section of the County that is the Yellow River Corridor. Trails developed along the floodplain of the river and tributary streams have the potential to connect Bethesda Park, Five Forks Park and Yellow River Park. Starting at a point near Lawrenceville Highway and running southward to Yellow River Park this corridor is approximately 19.27 miles long. This type of corridor can be developed throughout the County along the Chattahoochee, Alcovy, Apalachee and Mulberry River systems, and along the Big Haynes, Suwanee, Ivy, No Business and Brushy Creek systems among others. A brief description of each of these primary trails is provided.

## 6G. Primary Trail Route Descriptions

### *Alcovy River Trail Route*

Located in the eastern part of the County, the Alcovy River trail is 13  $\frac{3}{4}$  miles long and runs from the Gwinnett County and Walton County line to Freemans Mill Elementary School. Starting at the County line, the trail follows the Alcovy River in a northwesterly direction primarily over large areas of undeveloped land, crossing New Hope Road, Brooks Road, Alcovy Road, Winder Highway and the railroad before crossing Highway 316. After crossing under Highway 316, the trail travels in a northerly direction across a couple of undeveloped parcels before the land becomes more residential. The trail crosses Hood Road and Old Fountain Road before intersecting with Prospect Church Road. The trail then follows Prospect Church Road for 1,400 feet to Old Peachtree Road for 4,000 feet to end at Freemans Mill Elementary School.

Many crossing trails, both on-road and off-road, connect to the Alcovy River Trail. These crossing trails provide access to numerous parks and schools. The entire 13  $\frac{3}{4}$ -mile trail is an off-road trail, except for the 1,400 feet along Prospect Church Road and the 4,000 feet along Old Peachtree Road. This trail has ten road crossings and two proposed trailheads.

### *Apalachee River Trail Route*

Located in the eastern part of the County, the Apalachee River trail is 12  $\frac{1}{2}$  miles long and runs from the Gwinnett County and Walton County line to Fort Daniel Elementary School. Starting at the County line, the trail follows the Apalachee River in a northwesterly direction primarily over large areas of undeveloped land, crossing Harbins Road and Kilcrease Road before crossing Highway 316. After crossing under Highway 316, the trail travels north across an undeveloped land crossing Lawrence Road, Winder Highway, the railroad and Apalachee Road. The trail then takes a westward jog around a subdivision before intersecting with Old Auburn Road. Moving north between subdivisions and around the Trophy Club at Apalachee Farms Golf Course, the trail crosses undeveloped land to connect to Bailey Woods Road. The trail transitions to an on-road system at this point and follows Bailey Woods Road the remaining 1,000 feet to Auburn Road. The final 7,500 feet of trail follows Auburn Road ending at Fort Daniel Elementary School.

A series of on-road and off-road trails near the City of Dacula, Dacula Park, Dacula Elementary School, Dacula Middle School and Dacula High School connect to the main trail. Little Mulberry Park is about a mile away from the main trail, so it connects to an off-road trail near Auburn Road. The entire 12  $\frac{1}{2}$ -mile trail is an off-road trail, except for the 1,000 feet along Bailey Woods Road and the 7,500 feet along Auburn Road. This trail has 15 road crossings and one proposed trailhead. It connects to 4 schools and 2 parks.

### *Big Haynes Creek Trail Route*

Located in the southern part of the County, the Big Haynes Creek trail is 9 ¼ miles long and runs from the Gwinnett County and Walton County line to Grayson Highway. From the County line, the trail follows the Big Haynes Creek north crossing Centerville Rosebud Highway, Lenora Road and Pate Road on the path to Temple Johnson Road. During this stretch, the trail follows the creek mainly across either undeveloped land or large developed tracts of land. After Temple Johnson Road, the trail encounters residential subdivisions that it meanders through, occasionally crossing undeveloped land when it is available, until it intersects with Athens Highway after crossing Summit Chase Drive. The trail then travels primarily across undeveloped land and larger tracts of land as it crosses Grayson Parkway, Pinehurst Road and Lakeview Road. Once again, the trail meanders through residential subdivisions, finding undeveloped land when it can, crossing Pinehurst View Drive, Hillside Drive and Great Oaks Drive. From Great Oaks Drive, the trail follows a stream across a large tract of developed land, around a cul-de-sac and along the border of undeveloped land to Grayson Highway.

The entire 9 ¼ mile long trail is an off-road trail. By on-road cross trails, Lenora Park, Norton Elementary School, Snellville Middle School, Britt Elementary School and South Gwinnett High School connect to the main trail. Summit Chase Golf Course connects via an off-road trail. This trail has 13 road crossings and two proposed trailheads.

### *Brushy Creek Trail Route*

Located in the northern part of the County, the Brushy Creek trail is 5 miles long and connects the Chattahoochee River Greenway to a proposed overland trail near the proposed Northern Arc. The trail, starting at the Chattahoochee River Greenway, meanders easterly along the creek to Peachtree Industrial Boulevard. From there, it proceeds in a northeasterly direction crossing McGinnis Ferry Road as it travels the northern border of two large apartment complexes. Continuing in that general direction, the trail eventually crosses Stonecypher Road where it moves north towards Suwanee Dam Road across undeveloped property. After crossing Suwanee Dam Road, the trail meanders northeasterly, primarily through undeveloped land, crossing Tench Road and intersecting with West Price Road. The trail's final leg follows West Price Road for 2,750 feet crossing a railroad and the proposed Northern Arc, until it ends by intersecting a proposed overland trail.

On the western edge of the trail, the Chattahoochee River National Recreation Area at Suwanee Creek is accessible by the connection to the Chattahoochee River Greenway. Midway along the trail, a trail could be established to connect the Suwanee Public Library and City Hall to the system. At the intersection with Tench Road, a series of proposed on-road trails to the north ties North Gwinnett High School to the system, while a series of planned off-road trails to the south ties George Pierce Park and Suwanee Elementary School to the main trail. There are also several cross routes along the way that could connect the Brushy Creek trail to the Suwanee Creek trail. The entire 5-mile trail is an off-road trail, except for the final 2,750 feet along West Price

Road. This trail has seven road crossings and passes one existing lake and two proposed trailheads. It connects a total of one park and one school to the main trail.

#### *Chattahoochee River Trail Route*

Located along Gwinnett County's northwestern border with Fulton County and Forsythe County, the Chattahoochee River trail is 22.5 miles long. It connects the Chattahoochee River National Recreation Area (NRA) at Holcomb Bridge to the Chattahoochee River National Recreation Area (NRA) at Bowmans Island and Buford Dam Park. The trail primarily follows the river on the Gwinnett County side, but occasionally crosses to the Fulton County side to connect to other Chattahoochee River NRAs along the way.

Other Chattahoochee NRAs that the trail may travel through are Jones Bridge, Medlock Bridge, Abbotts Bridge South, Abbotts Bridge North and Suwanee Creek. The Pinckneyville Arts Center, Jones Bridge Park and Settles Bridge Park are also on the trail. Nearby schools that could connect to the system through a series of on-road and off-road trails are Simpson Elementary School, Pinckneyville Middle School, Berkley Lake Elementary School, Chattahoochee Elementary School and Riverside Elementary School. Berkley Lake Nature Preserve and Sweetwater Park are also easily accessible through connecting trails.

The entire 22.5-mile trail is an off-road trail. Although this route has no road crossings, it does travel under seven existing bridges (Holcomb Bridge Road, Medlock Bridge Road, Pleasant Hill Road, Duluth Highway, McGinnis Ferry Road, Cumming Highway and Buford Dam Road) and one proposed bridge (proposed Northern Arc), while passing through eleven parks and two proposed trailheads. Seven other proposed trailheads also give easy access to the trail.

#### *Ivy Creek Trail Route*

Located in the northern part of the County, the Ivy Creek trail is 7 ½ miles long and connects George Pierce Park and the Suwanee Creek trail to Bogan Park. The trail, starting at George Pierce Park, runs southwesterly along Ivy Creek, crossing Westbrook Road and meandering through residential areas until it crosses under Interstate 985. Continuing along the creek in an easterly direction, the trail travels primarily through undeveloped property and crosses Woodward Mill Road and Buford Drive. As it passes just south of the Mall of Georgia at Mill Creek, the trail crosses Mall of Georgia Boulevard and Woodward Crossing Boulevard before crossing the proposed Northern Arc and Gravel Springs Road. The trail then migrates north through a mixture of undeveloped and developed large tract land. It crosses Kilgore Road and Hamilton Mill Road as it finally runs across a stretch of undeveloped land and into the southeastern corner of Bogan Park.

On the western leg of the trail, between George Pierce Park and the Mall of Georgia at Mill Creek, Suwanee Elementary School connects to the main trail through the Suwanee

Creek trail, and Rock Springs Elementary School connects by either crossing under Interstate 85 or following Buford Drive over Interstate 85 to Rock Springs Road. On the eastern leg of the trail, between the Mall of Georgia at Mill Creek and Bogan Park, Harmony Elementary School, Hamilton Mill Middle School and Hamilton Mill Elementary School connect to the main trail using a series of on-road trails. The entire 7 ½ mile trail is an off-road trail. This trail has 10 road crossings. Four proposed trailheads could access the main trail.

#### *No Business Creek Trail Route*

Located in the southern part of the County, the No Business Creek trail is 6 ¾ miles long and will connect Norris Lake Park to Britt Elementary School and South Gwinnett High School. The trail starting at Norris Lake will run northerly through a portion of Norris Lake Park along No Business Creek. Continuing along the creek through undeveloped property, the trail continues north, crossing Lee Road and Egypt Road. Then the trail follows No Business Creek as it meanders north between residential property and undeveloped land crossing Centerville Rosebud Road and Golf Links Drive in the process. After crossing Golf Links Drive, the trail will follow the northeastern edge of the Trophy Club of Gwinnett Golf Course until it crosses back into undeveloped property to Springdale Road. Continuing through undeveloped land, the trail begins to follow an unnamed tributary that crosses Lenora Church Road into Briscoe Park, just north of Pate Lake. For the first time, the trail becomes an on-road trail following Ravenwood Drive for 2,300 feet until it crosses Church Street and becomes an off-road trail traveling just to the south of Martins Lake to Skyland Drive. The trail's final leg follows Skyland Drive ½ mile to East Main Street where it ends, just after passing between Britt Elementary School and South Gwinnett High School.

On the southern leg of the trail, between Norris Lake and Centerville Rosebud Road, three off-road trails, following tributaries of No Business Creek, connect Yellow River Park, Lenora Park and Partee Elementary School to the main trail. On the middle leg of the trail, between Centerville Rosebud Road and Springdale Road, on-road trails connect the main trail to Norton Elementary School, Centerville Elementary School and Snellville Middle School. The entire 6 ¾-mile trail is an off-road trail, except for the 2,300 feet along Ravenwood Drive and the ½-mile along Skyland Drive. This trail has nine road crossings and passes four existing lakes, two parks, two schools and one golf course.

#### *Suwanee Creek Trail Route*

Located in the northern part of the County, the Suwanee Creek trail is 12 ½ miles long and connects the Chattahoochee River Greenway to Buford City Park. The trail, starting at the Chattahoochee River, runs south before taking a sharp turn towards the east and travels between residential subdivisions before crossing Peachtree Industrial Boulevard. The trail continues meandering eastward across primarily undeveloped land and some wetlands, crossing the railroad, Buford Highway, Burnette Road and McGinnis Ferry Road. It then travels just north of Annandale and through Suwanee

City Park before crossing Martins Farm Road. The trail then takes a turn north across undeveloped land before turning sharply east towards Lawrenceville Suwanee Highway.

After crossing Lawrenceville Suwanee Highway, the trail follows Suwanee Creek just to the north of Suwanee Elementary School and along the southern border of George Pierce Park. After exiting the park, the trail crosses Westbrook Road and passes between residential subdivisions before taking a more northeasterly track across undeveloped land or large tracts of land. It crosses Woodward Mill Road, the proposed Northern Arc and Sudderth Road before intersecting with Buford Drive. After crossing Buford Drive, the trail take a more northerly route across primarily undeveloped land crossing Old Highway 20, Maddox Road and Hamilton Mill Road in the process. Following the western shore of Black Branch Lake, the trail continues along Suwanee Creek until just before it reaches Thompson Mill Road where it takes a sharp turn west across undeveloped land to Buford Highway. After crossing Buford Highway, the trail follows a stream across to undeveloped land before crossing Suwanee Street into Buford City Park.

On the western leg of the trail, between the Chattahoochee River and George Pierce Park, the Chattahoochee River National Recreation Area at Suwanee Creek connects via the Chattahoochee River Greenway. On the eastern leg of the trail, between George Pierce Park and Buford City Park, Suwanee Elementary School, Lanier Middle School and Harmony Elementary School connect to the main trail using a series of off-road trails. Buford Nature Reserve and Bogan Park could also have connections to the main trail via off-road trails. The entire 12 ½ mile trail is an off-road trail. This trail has 14 road crossings, two proposed trailheads, crosses through two parks and connects to three schools.

#### *Yellow River Trail Route*

Located in the southern part of the County, the Yellow River trail is 24 ½ miles long and will connect Yellow River Regional Park to Collins Hill Community Park. Starting at the Gwinnett County and DeKalb County line on Centerville Highway, the trail follows the Yellow River around a subdivision, across undeveloped land, through Yellow River Park and between residential subdivisions before intersecting with Annistown Road. From there, the trail meanders north through residential subdivisions before crossing Stone Mountain Highway. Then the trail travels back and forth between residential subdivisions as it crosses Killian Hill Road, Five Forks Trickum Road and River Drive before crossing the western edge of Gwin Oaks Elementary School on its way to Ronald Reagan Parkway. After crossing Ronald Reagan Parkway, the trail follows the river through undeveloped wetlands, across Arnold Road, through large acre tracts and undeveloped land, crossing the railroad and Lawrenceville Highway before traveling between residential subdivisions to Sugarloaf Parkway. The trail then migrates north between residential subdivisions, across Old Norcross Road and under Highway 316 before intersecting with Riverside Parkway.

From this point, the trail becomes an on-road trail traveling about 1 ¼ miles on Riverside Parkway to McKendree Elementary School and then back to off-road following the northeast boundary of the school back to the Yellow River. The trail follows the river around a residential subdivision, across Lawrenceville Suwanee Highway and between several residential subdivisions before intersecting with Collins Hill Road. An on-road trail picks up from this point, follows Collins Hill Road for 1 ½ miles and then becomes off-road again. The off-road trail travels across undeveloped land to Little Suwanee Creek, which forms the southeastern boundary of Collins Hill High School and Collins Hill Aquatic Center. The final leg of the trail follows the creek across Collins Hill Road and ends along the western shore of Lake Forest in Collins Hill Community Park.

This is a highly developed corridor and there are many nearby schools and several parks to connect to via on-road and off-road trails. The section between Centerville Highway and Annistown Road contains Partee Elementary School, Annistown Elementary School and the Deshong Tract. From Annistown Road to Stone Mountain Highway, the school complex of Shiloh Elementary School, Shiloh Middle School and Shiloh High School is accessible. Head Elementary School, Knight Elementary School, Five Forks Middle School and Gwin Oaks Elementary are located between Killian Hill Road and Ronald Reagan Parkway and easily connect to the system. Bethesda Park and Five Forks Park are located along Ronald Reagan Parkway and are less than a mile from the main trail.

A cross trail connects Maxwell High School and Benefield Elementary School to the trail. McKendree Elementary School is at the intersection of an on-road trail and an off-road trail off Riverside Parkway and Creekland Middle School connects off the cross trail via Russell Road. Finally, the trail ends in a complex of schools and parks including Walnut Grove Middle School, Collins Hill High School, Collins Hill Aquatic Center and Collins Hill Community Park. The entire 24 ½ mile trail is an off-road trail, except for the 1 ¼ miles along Riverside Parkway and the 1 ½ miles along Collins Hill Road. This trail has 16 road crossings and passes three schools and four proposed trailheads.

See the next four maps titled, *Proposed Trail Routes*, to review the entire trail system and the location of trailheads. The trail routes shown on each map graphically illustrate previously master-planned routes and new routes proposed by this plan. The maps also differentiate routes that are part of a roadway system or are multi-use, off-road trails.

## 6H. Pilot Projects

Four pilot corridors are recommended in this master plan. These four corridors are geographically well distributed throughout the County and contain many of the design elements listed for consideration. These four projects have a high probability for success in that they will have limited impacts on established residential neighborhoods and will provide many miles of trails. Each of the four pilot projects represent a portion of a larger primary system previously described.

### *Harbins –Alcovy River Trail*

This trail corridor is located in the eastern section of the County near the Walton County border. The Harbins Area Trail will connect the new Palm Creek Park and Tribble Mill Park to the Harbins Park property. The primary trail route that will connect Tribble Mill Park to the Harbins property will follow the Alcovy River. This trail will run in an easterly direction from Tribble Mill Park along Tribble Creek to the Alcovy River, where the trail will run in a southeasterly direction to the Harbins property. Just before the trail reaches the Harbins property, Palm Creek intersects with the Alcovy River providing a trail route to reach Palm Creek Park. The connector trail will run in a westerly direction from the Alcovy River Trail to Palm Creek Park.

A second trail option between the Harbins property and Palm Creek Park is located farther north of the Palm Creek Trail connector. A tributary stream of Palm Creek provides a trail route that will enter the Harbins property on the northwestern side of the property, north of the intersection of New Hope Road and Luke Edwards Road. This route runs through primarily undeveloped properties and will provide a trail loop option between Palm Creek Park and the Harbins property. Once the trail is on the Harbins property, the trail continues in an easterly direction following a tributary of Cedar Creek. The trail then continues to a point where it intersects a utility corridor. The trail then continues in a southerly direction and intersects with the Alcovy River main trail. Many additional loop options will be possible on the Harbins property.

The proposed trail from Tribble Mill Park to the Harbins property crosses Callie Still Road. The Palm Creek Branch connection crosses only New Hope Road. The trail loop option connecting Palm Creek Park to the Harbins property will cross Luke Edwards and New Hope Roads to reach the property and cross Indian Shoal Road and Luke Edwards Road a second time inside the property boundaries to complete the loop. Harbins Elementary School can be connected to the park property via a proposed bicycle lane on New Hope Road.

### *Norris Lake/ Yellow River Trail*

This trail corridor is located in the southeastern corner of the County. This corridor is 6.5 miles long and will connect Yellow River Park to the recently purchased Norris Lake Park site and Lenora Park. The route will connect Annistown Elementary and Partee Elementary schools to the parks, using an overland route in an existing power line. The

trail starting at Annistown Elementary will run southeasterly in the power line and cross through Yellow River Park in two locations. At the northeastern corner of the park, the trail will go in an easterly direction and cross Centerville Highway, continue east crossing Lee Road and continue in the road right-of-way for approximately 1000', connecting to the Norris Lake Park property. The trail will then follow No Business Creek to a point where it connects with the Doc Moore Branch tributary, continuing in an easterly direction to Mark Livsey Road.

The trail now runs in a northerly direction, crossing undeveloped property, crossing Rosebud Drive and continuing to Lenora Church Road and into the park. The entire 6.5-mile route is off-road trail with the exception of the last 0.6 miles which would be an on-road trail. This route has a total of four roadway crossings. A total of 42 parcels of land are crossed with this trail. Of the total, 28 are undeveloped, six have improvements valued at \$1 to \$100,000 and eight have improvements valued at \$100,000 to \$300,000. The route passes three existing lakes. The number of properties can be reduced if the trail is routed through Yellow River Park rather than a section of the power line corridor.

If the trail is continued north of Lenora Park approximately 1.1-miles, Norton Elementary School can be added to the system. This section of trail would cross a total of 16 properties. Eight are undeveloped, three have improvements valued at \$1 to \$100,000 and five have improvements valued at \$100,000 to \$300,000 dollars. The improved properties are developed subdivision lots.

#### *Bay Creek Trail*

The Bay Creek Trail starts at Tribble Mill Park connecting to Bay Creek Park and ending at Vines Botanical Garden. This route is approximately 3.5 miles and connects three schools to the parks. Starting at the eastern park boundary just north of Ozora Road and running east, the trail crosses through several undeveloped properties at a point where it intersects with Ozora Road just above the Ozora Road and Chandler Road intersection. The trail will then run along Ozora Road and connect to McConnell Middle and Grayson Area Elementary schools. Running across the Grayson Area Elementary School property, the trail will cross several large residential lots, crossing Camp Mitchell Road and connect to Bay Creek Park. After running through the park, the trail continues in a southern direction across undeveloped property and crosses Logenville Highway and continues on to Grayson High School. After crossing through the school property, the trail terminates at Vines Botanical Garden. Several sections of the trail follow unnamed tributaries of Bay Creek and a section runs along Bay Creek.

The trail crosses a total of 13 properties, eight are undeveloped, one has improvements between \$1 to \$100,000, two have improvements between \$100,000 to \$300,000 and two are school properties with improvements over \$300,000.

### *Ivy Creek Trail Route*

Located in the northern part of the County, the Ivy Creek Trail connects George Pierce Park and the Suwanee Creek Trail to Bogan Park. The section proposed as the pilot project would run from George Pierce Park to the Mall of Georgia. The trail, starting at George Pierce Park, runs southwesterly along Ivy Creek, crossing Westbrook Road and meandering through an existing residential area and continues to Interstate 985. The trail crosses under Interstate 985 adjacent to Ivy Creek, continuing along the creek in an easterly direction. The trail travels primarily through undeveloped property and crosses continuous under Woodward Mill Road and Buford Drive. As it passes just south of the Mall of Georgia at Mill Creek, the trail terminates at Mall of Georgia Boulevard.

The trail connects to Suwanee Elementary School via the Suwanee Creek Trail. Rock Springs Elementary School connects by either crossing under Interstate 85, or following Buford Drive over Interstate 85 to Rock Springs Road via a trail developed in a utility easement. Once the trail reaches Rock Springs Road, a road-based trail connection would connect to the school.

## 6I. Phase 1 Implementation Plan and Cost Estimates

### *Harbins Alcovy River Trail*

It is recommended that the Harbins Alcovy River Trail be developed as a Phase 1 pilot project for the greenway system. This trail system can accommodate both hard surface multi-use trails and equestrian trails within the same corridor. The three parks that will be connected are large and suitable for internal equestrian trails and other support facilities required to accommodate equestrian programs. There is also space within the Harbins property to support non-paved bicycle trails. This pilot project will be one that offers a natural setting with limited suburban impact at this time.

It is recommended that along the Alcovy River, the entire floodplain and a 100' right-of-way be acquired for development of the trails. Along Palm Creek, Tribble Mill Creek and all tributary creeks used as trail routes, the entire floodplain and a 100' right-of-way should be acquired for development of the trails. Where the trails leave stream corridors and proceed across upland property, it is recommended that a minimum 50' right-of-way be acquired for the trails. The multi-use trail should be a 12' wide asphalt surface with grades meeting the current recommendations of the Americans with Disabilities Act (ADA) and the latest edition of the *Guide for Development of Bicycle Facilities* published by the American Association of State Highway and Transportation Officials (AASHTO). Paved trails should be routed to known wetlands and cultural resources to minimize impact on natural systems. The trails should have trash cans, bicycle racks and proper mapping to identify the routes at all trailhead access points and, as needed, along the trail. Benches should be provided at appropriate intervals and at trailheads.

Equestrian facilities should include trail routing maps when trail access points for equestrian trails are separate from paved trails. Equestrian trails should be compacted earth surface with horizontal and vertical clear zones for rider safety. Equestrian trails should be kept at a minimum of 10' of horizontal separation from paved trails. When less than 10' of horizontal separation is possible, a three-rail horse fence shall be installed between the two trails.

Both trails should have mile markers installed at .25 mile intervals to aid in locating trail users in case of emergencies. All stream crossings shall be by bridge or boardwalk on paved trails and at grade on equestrian trails. Regulatory and informational signs shall be installed on both trails on an as-needed basis.

Trailhead parking lots should be provided at access points along roadways and within the parks. Due to the special needs of horse trailers, it is recommended that all equestrian access points with trailer parking be located within park properties. A minimum of 24 parking spaces is recommended at trailheads without trailer parking and 48 parking spaces where trailer parking is provided. At major trailheads within parks, parking for 48 cars and 24 trailers is recommended as a minimum size. Where

combined trailhead parking lots are developed, the standard Gwinnett County Parks and Recreation small restroom building with a water fountain is recommended. It is also recommended that a small playground and standard octagonal picnic shelter be provided. The pavilion can serve as a staging area for special trail events and also be a rental structure for the County.

### *Ivy Creek Greenway*

The second Phase 1 pilot greenway that is recommended is the section of the Ivy Creek Greenway that will connect George Pierce Park with the Mall of Georgia. This section of trail will have a more suburban feel and will build upon the existing greenway system started by the City of Suwanee. A new dedicated trailhead should be constructed in George Pierce Park as the starting point of the Ivy Creek Greenway. The trailhead should accommodate a minimum of 48 cars. A playground and small restroom should be provided at the trailhead. The greenway will exit the park along Ivy Creek and should be developed in a minimum 50' right-of-way at the back edge of the floodplain where possible. When existing residential properties are adjacent to the floodplain and the trail would run close to the existing residences, the trail should be developed within the floodplain.

At Interstate 985 a tunnel under the interstate should be developed to accommodate the trail. The tunnel should include proper lighting to provide a safe and pleasant user experience. Once under the interstate, the trail will cross the F. Wayne Hill Water Resources Center property and no right-of-way will be required. The trail should be constructed on the east side of Ivy Creek between the creek and the interstate to minimize security concerns for the treatment plant. If desired, a security fence can be constructed on the west side of the creek to prevent access to the treatment plant. If security fencing is limited to directly adjacent to the treatment plant, a second trail route should be developed in the future on the west side of the creek to take advantage of the wooded areas around the plant. From this point to the mall, the trail will follow the creek, crossing an existing bridge and continuing to the Mall of Georgia.

Commercial areas located on Old Highway 20 adjacent to I-985 can be connected to the trail with a small spur trail that follows Ivy Creek. The spur trail would tie to the main trail where the main trail leaves Ivy Creek and continues to the treatment plant entry trailhead. This trail spur will serve as the future route around the mall to allow the trail to continue on to Bogan Park. Sidewalks will be required along Old Highway 20 to reach Buford Drive and crosswalks and traffic signals will be required for a safe pedestrian crossing. Once under Buford Drive, the trail will be allowed to leave the roadway and return to a multi-use trail section following Ivy Creek.

During the development of construction plans for the Ivy Creek Trail, the owners of the Mall of Georgia should be recontacted regarding internal pedestrian circulation options on mall property. It will be important to have connections across mall parking areas to the sidewalks and trails developed by the County.

A trailhead should be provided near the entry to the F. Wayne Hill Water Resources Center in Phase 1 of this project. On this project, this will be the second access point to the trail with the other being George Pierce Park. The two trailheads will be approximately 4 miles apart. If vehicular access is allowed to penetrate into the treatment site and the option of loop trails on the property is approved, a trailhead near the southern end of the property will be needed in the future. This would provide a total of three trailheads and the distance between trailheads will be reduced to approximately 2 miles. Options for a trailhead between George Pierce Park and I-985 are limited due to existing residential developments and few cross roads. If new cross roads are developed in this area in the future a small trailhead adjacent to the new road would be desirable for neighborhood access to the trail.