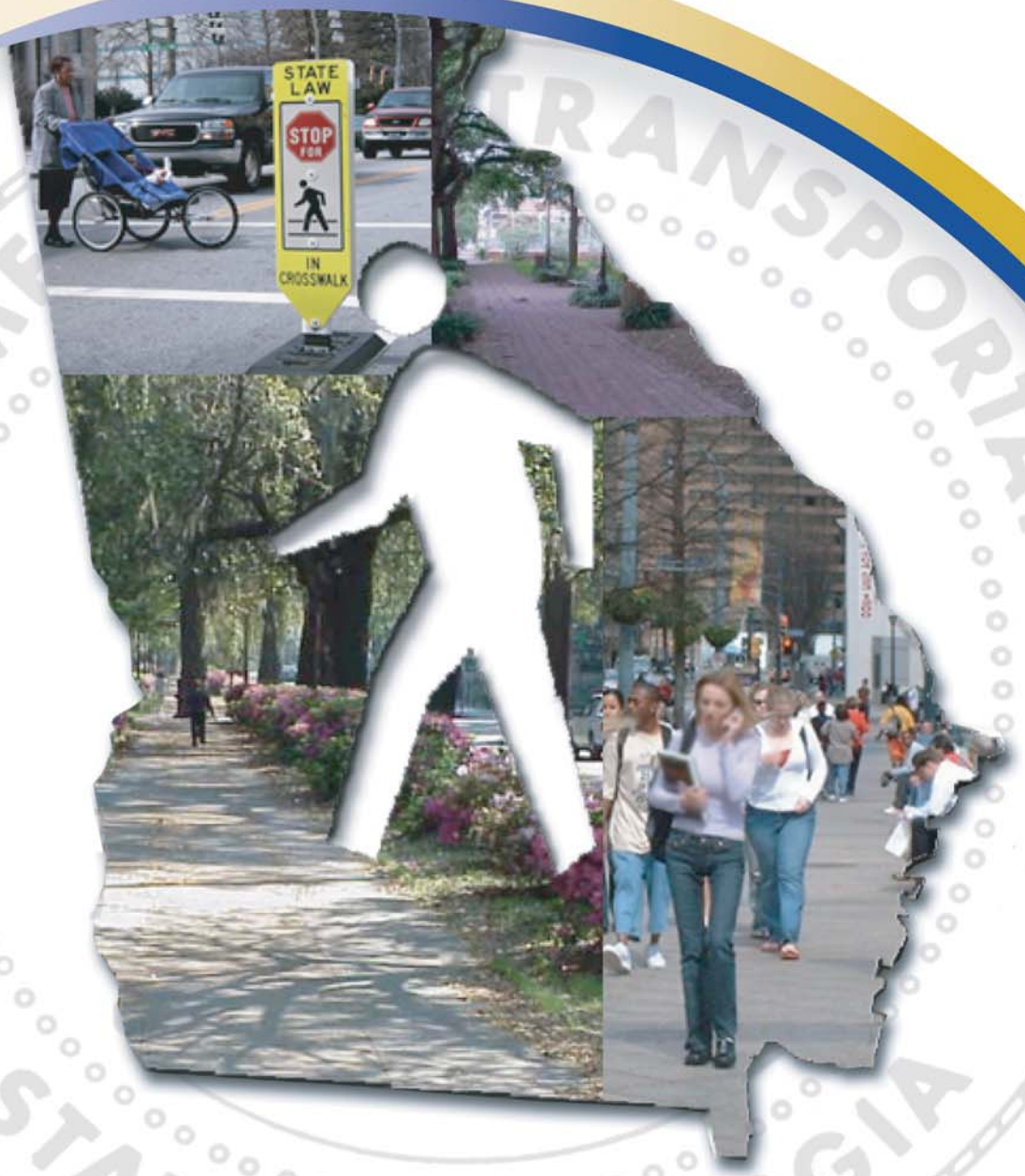
Georgia Guidebook
for Pedestrian Planning



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Acknowledgments and Credits

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EXECUTIVE SUMMARY

> *"Of all exercises walking is the best."*
>
> -Thomas Jefferson

Walking is an important transportation mode with many benefits. It serves as a means of transportation without creating adverse effects such as pollution, noise, or traffic congestion. Walking does not require the continuous construction of travel lanes, requires no tolls or parking spaces, and reduces the petroleum consumption normally associated with motorized transportation. In addition, walking is one of the most ideal forms of exercise as it helps people maintain an active lifestyle without placing undue stress on them physically.

This document contains information to help citizens and agencies evaluate and improve pedestrian facilities in regions throughout the State of Georgia. The *Georgia Guidebook for Pedestrian Planning* is intended as a tool to supplement existing assessment procedures. It is not intended as a prescriptive document, but rather as a source of information to help agencies and citizens implement improved pedestrian facilities.

This Guidebook reviews pedestrian prioritization procedures, discusses potential funding sources for pedestrian improvement projects, reviews current pedestrian laws in the State of Georgia, and provides information on how to improve the safety and usability of pedestrian facilities.

The Georgia Guidebook for Pedestrian Planning has been developed under the direction and sponsorship of the Georgia Department of Transportation and the Federal Highway Administration. It was developed over a two-year period with the guidance of an advisory panel. An extensive review was conducted on the state of the practice of pedestrian planning and an advisory group convened from a broad range of stakeholders to offer input on the material for the Guidebook. The Advisory Group met to brainstorm on a vision and objectives for pedestrian planning in the state of Georgia, and to assess findings as the project progressed through various stages. The Advisory Group also reviewed the draft document and provided feedback that was incorporated in the development of the final version of the Guidebook.

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GLOSSARY

ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
CID	Community Improvement District
CMAQ	Congestion Mitigation and Air Quality Program
GDOT	Georgia Department of Transportation
FHWA	Federal Highway Administration
ISTEA	Intermodal Surface Transportation Efficiency Act
LCI	Livable Centers Initiative
MPO	Metropolitan Planning Organization
NHS	National Highway System
PDF	Pedestrian Deficiency Factor
PPF	Pedestrian Potential Factor
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users
SPLOST	Special Purpose Local Option Sales Tax
SRTS	Safe Routes to School
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
TDM	Transportation Demand Management
TE	Transportation Enhancement Program
TEA-21	Transportation Efficiency Act for the 21st Century
TCSP	Transportation, Community, and System Preservation Program
TIP	Transportation Improvement Program
TMA	Transportation Management Association
TOD	Transit Oriented Development
VMT	Vehicle Miles Traveled

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CHAPTER 1 -- INTRODUCTION

What Is a Guidebook for Pedestrian Planning?

The State of Georgia is comprised of a diverse population with varying transportation needs. A robust transportation infrastructure system incorporates elements essential for equitable mobility. These elements should include facilities for motorized and non-motorized users. Fundamental to non-motorized transportation is the pedestrian facility. This document outlines methods for evaluating, funding and prioritizing pedestrian facilities.

Pedestrians in Woodruff Park, Atlanta

There are many agencies responsible for funding, building and maintaining the transportation infrastructure within the State of Georgia. As a result, this document is intended to serve the needs of all governing jurisdictions including state, regional, county, local, and private transportation organizations. For jurisdictions with existing pedestrian plans, this document is intended to supplement their current plans and procedures.

The purpose of this Guidebook is not to prescribe how local agencies should develop and prioritize pedestrian projects, but rather to elevate attention to the growing demand for pedestrian facilities and provide supplemental resources for jurisdictions to use in evaluating their transportation needs. The Guidebook addresses evaluation of pedestrian facilities based on perceived pedestrian deficiencies (safety hazards, system gaps and demands) as well as potential pedestrian issues including connectivity, integration, and funding limitations. The document also identifies potential funding sources, summarizes pedestrian laws in the State of Georgia, and provides guidelines for evaluating and improving the safety of proposed or existing features.

The demand for pedestrian facilities is growing across the United States in both urban and rural environments. A first step toward addressing these needs is recognizing the benefits of a robust pedestrian environment to the State of Georgia's residents and visitors.

How Does the Georgia Pedestrian & Streetscape Guide Fit In?

The Georgia Department of Transportation sponsored the development of the *Pedestrian & Streetscape Guide* (located on the Internet at: http://www.dot.state.ga.us/bikeped/). The

document provides information on how to design, construct, and maintain pedestrian facilities. It includes eleven design toolkits that address general design, accessibility, children and school zones access, a variety of pedestrian facility design characteristics, pedestrian access to transit, pedestrian needs and site design, and work zone pedestrian safety.

This Guidebook for Pedestrian Planning is intended to complement the *Pedestrian & Streetscape Guide*. Whereas the Pedestrian & Streetscape Guide focuses on physical design, construction, and maintenance, the Guidebook for Pedestrian Planning focuses on assessment and prioritization strategies. As a result, the two documents address separate components of the development of statewide pedestrian infrastructure targeted to meet the needs of communities.

Who Should Use This Document?

This document is intended as a resource for any Georgia agency (public or private) or entity responsible for evaluation and/or prioritization of transportation facilities.

The Importance of "Walkable Communities"

There are many benefits associated with achieving a pedestrian-friendly community. Benefits include:

- Improved health by regular walking;
- A viable alternative transportation mode for mobility and access;
- Improved use of available space;
- Reduced traffic congestion, air and noise pollution, petroleum consumption, and wear and tear normally associated with motorized transportation;
- A strengthened sense of community and livability that appeals to residents as well as visitors;
- More efficient land use patterns that can support public transportation and efficient delivery of services (i.e. water, sewer, roads, fire/police, etc.); and
- Improved mobility and access for those who rely on walking for transportation – the young, the elderly, the disabled, and the poor.

Walkable Communities in Savannah, GA

Everyone begins and ends a trip as a pedestrian. Walking is a fundamental form of transportation. It helps users to achieve and maintain physical and mental health. In addition,

pedestrian-friendly regions appeal to residents and visitors and strengthen the sense of community.

For many years, the transportation emphasis in the United States, including the State of Georgia, has been to promote facilities that can accommodate large volumes of motorized vehicles in order to enhance regional mobility; however, often a short trip can be best achieved on foot. Unfortunately, the historic emphasis on motorized transportation has resulted in facilities that may not always safely accommodate pedestrians -- even for the short trip.

A renewed focus on enhancing pedestrian access in Georgia will create a balanced and more "Complete Street" where all users, including pedestrians with disabilities, can be accommodated safely and equitably. By promoting the pedestrian trip, communities can benefit by a healthier population with more transportation options and an environmentally-friendly mode of transportation.

Plan Vision and Goals

In 1995, the Georgia State Transportation Board adopted several long term transportation goals that included the following (as outlined in the 1997 *Georgia Bicycle and Pedestrian Plan*):

- Promote non-motorized transportation as a means of congestion management;
- Promote non-motorized transportation as an environmentally-friendly means of mobility;
- Promote connectivity of non-motorized facilities with other modes of transportation;
- Promote bicycling and walking as mobility options in urban and rural areas of the state; and
- Encourage economic development opportunities that enhance bicycle and pedestrian mobility.

The development of the Georgia Guidebook on Pedestrian Planning is a result of these goals adopted a decade ago. The vision and goals of this Guidebook are therefore designed to support the overall statewide goals articulated by the State Transportation Board.

Vision for the Georgia Guidebook for Pedestrian Planning

In general, a vision should concisely define what a course of action is expected to accomplish. The vision of the Georgia Guidebook for Pedestrian Planning is as follows:

> *The Georgia Guidebook for Pedestrian Planning* envisions a transportation system where walking is a viable transportation choice and residents and visitors are able to walk safely and conveniently to accomplish their daily activities as well as maintain active and healthy lifestyles.

Goals for the Georgia Guidebook for Pedestrian Planning

Because many decisions affecting pedestrians are made at the local level, it is important that pedestrian planning occurs at the local and regional levels, as well as the state level. The Georgia Guidebook for Pedestrian Planning encompasses four broad goals. Each goal has specific supporting objectives. The Guidebook goals will assist regional and local agencies with pedestrian planning in order to:

- Enhance pedestrian safety on Georgia's transportation system.
- Provide for a more seamless integration of pedestrian facilities into Georgia's transportation system.
- Integrate planning for pedestrians more fully into agency planning and design processes for Georgia's urban and rural areas.
- Encourage the development of pedestrian-oriented environments for all Georgia's citizens and visitors.

To accomplish these goals, a series of objectives with supporting performance measures is essential. These are summarized as follows:

Goal #1: Enhance pedestrian safety on Georgia's transportation system

Objectives for Goal #1:

- Provide "Safe Routes to School" programs.
- Prioritize project investments from a total safety perspective.
- Strengthen and enforce traffic laws to protect pedestrians, including pedestrians with disabilities.
- Encourage the use of technology for law enforcement (e.g., speed cameras).
- Educate both pedestrians and motorists on pedestrian rights and rules of the road.
- Incorporate pedestrian facilities into transportation and recreational projects that provide for safe movement of all pedestrians, including pedestrians with disabilities.
- Provide resources on Georgia's pedestrian-related statutes on the Georgia Department of Transportation's website.
- Inventory crossings at uncontrolled intersections on arterial streets and develop improvement plan.
- Retrofit transit routes with sidewalks and safe crossings.

- Allocate equitable share of state's federal safety funds to mitigate pedestrian hazards.

Goal #2: Provide for a more seamless integration of pedestrian facilities into Georgia's transportation system

Objectives for Goal #2:

- Educate local communities on the value of providing pedestrian connectivity in new and existing developments.
- Eliminate physical barriers and gaps in existing sidewalk networks.
- Create sidewalk retrofit programs for roads where pedestrian movements are expected, and where existing sidewalks need repair.
- Adopt the "Complete Streets" concept whereby the transportation corridor addresses the needs of all users as a basic foundation for urban street design.
- Enhance a policy on context sensitive design as an important design approach to integrate Georgia transportation facilities with the adjacent land use character.
- Provide resources on the health and environmental benefits of walking to encourage local communities to adopt more proactive, pedestrian-friendly design policies.
- Integrate local pedestrian plans into the state, regional and area-wide transportation plans, TIPs and STIP.

Goal #3: Integrate planning for pedestrians more fully into agency planning and design processes for Georgia urban and rural areas

Objectives for Goal #3:

- Encourage metropolitan planning organizations (MPOs), regional development centers (RDCs), and community planning agencies to include pedestrian projects in their Transportation Improvement Programs (TIPs), Construction Work Programs (CWPs), and planning processes.
- Establish policies and formal agreements among relevant agencies (e.g., transportation, enforcement, school boards, etc.) that formalize pedestrian planning procedures.
- Educate local communities on the importance of removing procedural barriers that limit the consideration of pedestrian facilities in community development projects.
- Promote the use of the Georgia Pedestrian and Streetscape Guide.

Goal #4: Encourage the development of pedestrian-oriented environments for all of Georgia's cities and counties

Objectives for Goal #4:

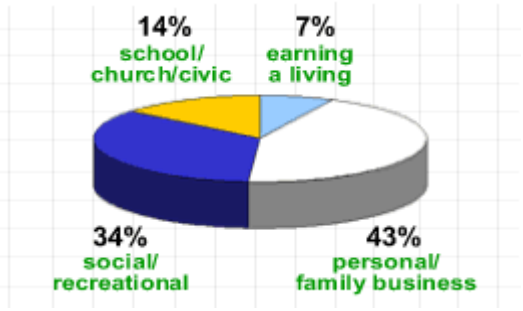
- Provide funding sources for planning, developing, and maintaining a high quality state, regional, and local pedestrian-friendly development.
- Give higher priority to facilities that enhance access to transit, mixed use, walkable mixed use centers, schools, hospitals and senior centers.
- Educate local cities, counties, school boards and other agencies responsible for land development on the value of adopting zoning codes that promote pedestrian-oriented, mixed use developments.
- Develop education, awareness, and outreach information for pedestrian planning and post on the Georgia Department of Transportation website, and provide links to pedestrian plans for local jurisdictions on this outreach website.

This Guidebook provides basic tools that can be implemented as a first step toward achieving these objectives and goals.

CHAPTER 2 -- PLANNING AND PRIORITIZING PROJECTS

This chapter discusses criteria for evaluating the current conditions of existing pedestrian facilities and identifying pedestrian needs. The chapter also discusses safety issues to be considered in pedestrian facility planning. A framework is presented to assist agencies with prioritizing the construction of needed pedestrian facilities, and a benefit/cost analysis procedure is presented to guide economic assessments to evaluate projects competing for limited funds.

Walking Trip Purpose



--Bureau of Transportation Statistics

The intent of a facilities inventory and condition assessment is to understand the condition and location of current pedestrian facilities. If your agency does not already have an inventory of pedestrian facilities, this information can be compiled over a period of time and the agency can still use the procedures discussed in this Guide for localized evaluation of pedestrian needs. The gap between the current and desired condition of existing pedestrian facilities, as characterized by a jurisdiction's vision and goals for pedestrian travel and recreation, reflect existing needs for pedestrian projects. An inventory and condition assessment may be conducted at a local, regional or statewide scale. The purpose in each case would be to identify existing pedestrian facility location, condition, connectivity, and maintenance issues in order to assess what projects are needed to evolve the pedestrian infrastructure system toward achieving the community's goals for the pedestrian environment. Because the budget is typically constrained for meeting the needs of the system, it is often necessary to have some rationale or criteria for prioritizing projects by focusing on system deficiencies and opportunities. Project prioritization analysis should involve economic constraints, safety, and user and community needs. This chapter includes a framework for prioritizing projects and guidance for conducting a benefit-cost assessment for pedestrian projects.

Evaluating Current Conditions for Existing Pedestrian Facilities

The Georgia Department of Transportation's *2000 Statewide Transportation Plan* defines pedestrian facilities as sidewalks and on-street facilities, walkways and trails, curb ramps, crosswalks, grade separations (e.g., underpasses and overpasses), wide shoulders (rural areas), traffic control devices, furnishings that create a pedestrian-friendly atmosphere, and other technologies, design features and strategies intended to encourage pedestrian travel (e.g., traffic

calming), planting strips, shelters and public art (GDOT, 2000). Pedestrian facilities typically consist of sidewalks and walkways. Sidewalks and walkways are designed as exterior routes to provide pedestrian accessibility. Walkways are generally pedestrian paths, including plazas and courtyards (ITE, 1998). A sidewalk is a paved pathway paralleling a highway, road, or street and is intended for pedestrian use (AASHTO, 2004). Demand paths, signed shared roadways and paved shoulders in some cases may function as pedestrian facilities, but are insufficient. An inventory of existing facilities should be developed before the comprehensive condition of facilities can be assessed. Such inventories, if not already available, are typically developed through field surveys. Inventory data for pedestrian facilities, such as the location, type and extent of facilities, may be collected using Global Positioning Systems (GPS) and stored in a database with Geographic Information Systems (GIS) capabilities. Examples of pedestrian inventories are included in Appendix E.

Resources

The Georgia Department of Transportation's (GDOT) *Pedestrian and Streetscape Guide* states that pedestrian facilities should be built in accordance with existing federal, state, and local standards as applicable. The Pedestrian and Streetscape Guide indicates that deviations from the standards may be necessary and acceptable; however a facility should not typically be built to less than the minimum standards described. Several documents that provide guidance and standards for pedestrian facility design also provide information that is useful when conducting needs assessments for pedestrian facilities. Table 1 presents an abridged list of resources for pedestrian facility design.

Factors Affecting Pedestrian Facility Condition

Several factors should be considered when conducting a condition assessment for pedestrian facilities. The objective is to identify deficiencies in existing facilities, i.e., to characterize how the existing facilities (or lack thereof) could prevent potential pedestrians from walking conveniently, comfortably, and safely to their desired destinations. Some of these factors are discussed below.

- *Do existing facilities/systems have the appropriate connectivity and continuity?* Complete systems of interconnected streets, pedestrian walkways, and other pedestrian facilities tend to increase pedestrian travel (*GDOT Pedestrian and Streetscape Guide*, 2003). Discontinuous sidewalks can create problems for pedestrians' access and safety (ITE 1998). People who have confined mobility via wheelchair and live in low income housing, apartment complexes or duplex housing may have discontinuous sidewalks between the complex and nearby commercial districts. Various guidelines and standards provide recommendations on the need for sidewalks. The Institute of Transportation Engineers' (ITE) guidelines, for example, base sidewalk requirements on land use, roadway functional classification, and dwelling unit densities (residential).

Discontinuities may be identified in areas where there is a demand for walking but no sidewalks exist.

- *Do the existing facilities follow design requirements?* Are the relevant guidelines and adopted standards followed and, if deviated from, is this design exception justified and documented? Table 1 lists several sources that contain guidelines and standards for pedestrian facility design. Design standards define attributes such as the widths and grades, etc., of facilities.

Table 1. Resources on Guidance and Standards for Pedestrian Facility Design

- *Design Standards, Zoning Codes and Development Codes of Local Jurisdictions*. Miscellaneous Sources.
- *Pedestrian and Streetscape Guide*. http://www.dot.state.ga.us/dot/plan-prog/planning/projects/bicycle/ped_streetscape_guide/index.shtml, Georgia Department of Transportation. Also found at www.dot.state.ga.us - click on "Bicycle and Pedestrian Transportation" under "Featured Links".
- *Guide for Planning, Design, and Operation of Pedestrian Facilities*. American Association of State Highway and Transportation Officials (AASHTO), 2004.
- *A Policy on Geometric Design of Highways and Streets*. American Association of State Highway and Transportation Officials (AASHTO), 2004.
- *Design and Safety of Pedestrian Facilities.* A Proposed Recommended Practice for the Institute of Transportation Engineers, Institute of Transportation Engineers (ITE), ITE Technical Council Committee 5A-5, 1998.
- *Designing Sidewalks and Trails for Access*. Part I of II. Reviewing Guidelines and Existing Practices. Federal Highway Administration, United States Department of Transportation (1999).
- *Manual on Uniform Traffic Control Devices,* Federal Highway Administration. United States Department of Transportation (2003).
- *American with Disabilities Act, 28 CFR Part 35, Nondiscrimination on the Basis of Disability in State and Local Government Services: Final Rule*. Washington, D.C.: U.S. Department of Justice. 1991.
- *Draft Guidelines for Accessible Rights-of-Way.* Access Board. Washington, D.C.: United States Architectural and Transportation Barriers Compliance Board. 2002.

- *Are there obstacles/barriers on existing facilities/systems?* Obstacles or barriers in the pedestrian environment are described as objects that limit the vertical passage space, protrude into the circulation route, or reduce the clearance width of the sidewalks. Obstacles include planters, public telephones, sign poles, snow, permanent trash receptacles, street furniture, trees and low-hanging tree limbs, bushes, and shrubs.

- *Are existing facilities well-functioning?* Do the facilities have adequate widths and sight distances, accessible grades, and alignment to avoid blind corners and assure good drainage? Poorly functioning pedestrian facilities can adversely affect their overall usefulness and the desire of pedestrians to use these facilities. Inadequate facilities can also constitute safety hazards for users of the system, particularly pedestrians with disabilities, children, and the elderly.

- *Are the existing facilities properly maintained?* Maintenance quality relates to the surface of the sidewalk. Sidewalks are prone to damage caused by environmental and other conditions. Maintaining sidewalks is an essential part of providing access to public rights-of-way. Sidewalks in poor condition can limit access or impact the health and safety of pedestrians. Overgrown plants, shrubbery, or trees can block the view of drivers at street corners making it difficult to see pedestrians or bicyclists. Several guidelines and standards exist on maintaining pedestrian facilities. For example, ITE (1998) recommends that local and state agencies adopt guidelines for the maintenance of pedestrian facilities that should include a regular program of inspection. Sidewalks should be inspected for changes in level caused by buckled materials, cracks, curbs without ramps, drainage grates, grooves in concrete, heaving and settlement due to frost, railroad tracks, tree roots breaking through the sidewalk surface, tree grates, and uneven transitions between streets, gutters and ramps. Poorly-maintained sidewalks can result in tripping hazards and violations of ADA standards. Changes in level can cause ambulatory pedestrians to trip or catch the casters of a manual wheelchair causing the wheelchair to come to an abrupt stop or overturn. People who are blind or who have low vision may not anticipate changes in level (ITE 1998, FHWA 1999). A common seasonal maintenance issue in the southern United States is leaf maintenance. In the fall, leaves often fall on sidewalks or are swept or blown onto sidewalks from adjacent areas such as yards, streets or driveways. If leaves remain in place they can become slippery and pose a significant hazard to the safety of facility users. Expeditious removal of leaves is an easy and effective regular sidewalk maintenance activity that can improve facility use and the safety of the pedestrian corridor.

- *Do the existing facilities/systems have appropriate signage?* Pedestrian facilities should be well delineated, signed and marked. Appropriate signage is particularly necessary to prevent safety hazards. Several standard references (see Table 1) outline standards for appropriate signage.

- *Are the existing facilities/systems consistent with the Americans with Disabilities Act?* The American with Disabilities Act (ADA) is a civil rights law guaranteeing non-discrimination in the provision of public programs and facilities. It requires that pedestrian facilities provide access for all users, including those with disabilities. If a pedestrian facility (such as a sidewalk or street crossing) is provided for able-bodied pedestrians, it also must accommodate pedestrians with disabilities. Each jurisdiction is required to develop a *Transition Plan* for making existing facilities accessible. It may be desirable to coordinate pedestrian planning with a jurisdiction's ADA Transition Plan. Kinney v. Yerusalem (1993) determined that a street resurfacing was an alteration that triggered the ADA requirement to install curb ramps at marked and unmarked crossings, and such work may be an opportunity to improve pedestrian facilities. A more recent ADA case, Barden v. City of Sacramento (2002), addressed the city's ADA Transition Plan and its implementation. This case set a nationwide precedent requiring cities and other public entities to make all public sidewalks accessible. As a result of the court's ruling in this case, public entities must address barriers such as missing or unsafe curb cuts throughout the public sidewalk system, as well as barriers that block access along the length of the sidewalks. Unmarked crosswalks where two streets intersect can be a problem, especially in lower-income communities where several individuals and households do not own automobiles; industrial areas where people park on one side of the street and walk across the street to access the building where they work; for individuals who walk from residential homes or apartments to work, near Head Start Schools; or for people who have limited English language skills.

- *Do the existing facilities cater to children and the senior citizen communities?* Children and older adults, who are most likely to rely on pedestrian travel for transportation, have a high risk of pedestrian fatalities or injuries. While 5-9-year old males are most at risk for pedestrian injuries, people over 65 are two to four times more likely than any other age group to die when involved in a pedestrian-motor vehicle collision (GDOT *Pedestrian and Streetscape Guide*, 2003). Appropriate references (see Table 1) should be consulted for standards on the location of pedestrian islands and signalization of pedestrian crosswalks, particularly where pedestrians have to cross several lanes. In addition, resting places/benches, shade trees, public bathrooms, drinking fountains and trash receptacles all contribute to enhancing the pedestrian environment.

Additional data that may be collected for a comprehensive pedestrian facility database may include security features (e.g., lighting along streets), safety risks (e.g., traffic volumes and speeds), cleanliness, levels of vandalism, litter and aesthetic conditions, the condition of public restrooms and other services along pedestrian facilities, as well as the condition of available street furniture. Where available, the interface with regional transit systems is also an important feature for a pedestrian database.

Identifying Pedestrian Needs for Regions

When planning on a regional basis, pedestrian networks within targeted areas such as around train stations, transit oriented developments, bus stops and schools must be considered. Pedestrian networks and facilities are necessary for neighborhoods, cities, and towns to provide safe access between destinations and encourage walking within appropriate distances. In particular, retrofitting transit routes with sidewalks and safe crossings would enhance the pedestrian environment in areas with high walkability potential and may increase transit use.

Pedestrians in Downtown Atlanta

While the assessment of existing pedestrian facilities and systems focuses on the needs of current users, this process may also identify ways to extend the facilities to serve future users better. This may include developing complete networks of pedestrian facilities in areas of the region with anticipated high walkability. Regional needs assessment must thus occur at a macro scale and include an assessment of existing conditions as well as regional trends, existing and proposed land uses, and anticipated opportunities for walking. Consideration must also be given to how pedestrian projects can be used to create or enhance pedestrian-oriented environments and improve walkability. Various factors that should be considered in a regional level analysis are discussed below.

- *Accessibility*: Accessibility measures the proximity of a location to pedestrian attractors (e.g., schools, parks, commercial centers, and major transit stops), and can help agencies identify areas and corridors with high potential for pedestrian activity. Pedestrian access zones can be established based on typical walking distances to attractors, and the number of attractors, in order to identify areas and corridors suitable for pedestrian access priority classification. *Safe Routes to School Programs* are an example of accessibility-based procedures for determining pedestrian needs.

  Another accessibility-based pedestrian design procedure relates to the Americans with Disabilities Act (ADA); these guidelines require the provision of accessibility to disabled persons. For example, these improvements could occur through upgrades of existing ramps and sidewalks or as part of resurfacing or other construction projects.

- *Connectivity*: Connectivity measures the degree to which the pedestrian network is connected to the street system and various destinations. It includes an assessment of how well the existing pedestrian networks comply with spacing requirements for accessways and the ease with which pedestrians can get to various destinations. The ease of street

crossing (measured by looking at the frequency of crossing opportunities, roadway capacity, motor vehicle speeds, the presence of signals, and the presence of pedestrian islands) is one measure of connectivity and would affect the degree to which pedestrians use existing facilities. The inability of pedestrians to cross streets easily would reduce walkability in any particular area or corridor, reduce system connectivity, and affect pedestrian safety.

- *Continuity*: Continuity measures whether or not there is a continuous sidewalk, which would be particularly important in pedestrian high access zones. Considered at a regional level, continuity would also refer to gaps in networks of sidewalks. Gaps in networks where there is a high potential for walkability would point to areas or corridors with a high priority for gap closures.

- *System Coverage*: System coverage captures the extent of pedestrian facilities available. Assessing the percent of sidewalks provided along arterials, major collectors, and neighborhood routes within pedestrian access zones could help determine the need to extend the existing system to capture latent pedestrian demand in areas of high pedestrian access or need. Areas where demand paths have been created, where no pedestrian facilities currently exist, would point to a natural demand for extending coverage. Where demand paths end, one may see people crossing several lanes of traffic to get to nearby neighborhoods. In many cases, demand paths are found near low-income housing, rental communities, industrial areas or bus stops. Individuals and households that do not own automobiles may often be seen walking along demand paths. The terminals of demand paths may provide cues on the appropriate pedestrian facilities to support safe pedestrian movements to walking destinations.

- *Demographic Analysis*: Understanding the demographics of residents of particular cities and regions is an important input for determining the types of pedestrian facilities that could enhance existing quality of life. Some areas may emerge as having a high potential for recreational pedestrian facilities. In other areas, dominated by lower-income populations that are transit dependent, the more pressing needs may be for pedestrian facilities that enhance transportation between destinations including transit terminals and other modes of transportation. Areas with a high concentration of disabled or elderly residents may require additional time on the crossing phase, or other technological adjustments. However it is important not to spend too much time or money on unnecessary demographic data. For example, lots of analysis has been done on the gender of the pedestrian or crash victim. This information is of limited value since there is not one engineering treatment used for women, and another for men.

- *Air Quality*: Regions with poor air quality may be suitable candidates for improved pedestrian activity if such activity could significantly reduce existing traffic congestion and subsequently demonstrate tangible improvements in air quality. Such improvements

would likely have to be coordinated at a regional scale with changes in land use planning that promote pedestrian-oriented developments, reduce the need for automobile travel and support the use of public transportation. In addition, agencies in such regions would need to address the potential effects of poor air quality on pedestrians as the region transitioned from a more automobile-centered to a more pedestrian-oriented environment.

Assessing Safety Issues for Pedestrians

> *Although pedestrian related crashes make up less than 1% of the total crashes in Georgia, they accounted for nearly 10% of the annual fatalities on Georgia roadways from 2000 through 2003.*
>
> -Georgia Department of Motor Vehicles

The safety evaluation of pedestrian infrastructure can be challenging since it is probable that most prospective pedestrians will completely avoid a location where they perceive a potential threat to their safety. In addition, many minor injury pedestrian crashes are often not reported to the police. As a result, evaluating a system using only reported pedestrian crash information is useful to identify known crash locations, but may not provide a comprehensive picture of the entire safety situation. Safety assessment of a pedestrian system requires evaluation of several characteristics. These characteristics are summarized below. Additional information on pedestrian safety and education strategies is provided in Chapter 5, including statistics on pedestrian fatalities within Georgia as well as potential countermeasures for addressing pedestrian safety problems.

First, the pedestrian facility can be separated into two categories: local access versus business access. It is important to consider the functional use of a pedestrian facility, as each type of facility has the propensity to attract a unique group of users. For example, facilities that are considered recreational, residential, or rural are primarily used for exercise and localized trips (walking the dog, running to the neighborhood store, etc.) or as a starting point for a longer multi-modal trip such as a connection to transit. For this type of facility, one of the most vulnerable users is the distracted child. As an example, safety concerns for this type of facility may be characterized by someone darting into the active travel lane unexpectedly. For instance, children tend to dart from parked cars in busy grocery store parking lots to return empty shopping carts to the front of the store or cart corral after groceries are loaded into the car. Often the mother has more than one child and stays in the car with a younger child or children. The business access-oriented pedestrian facility, on the other hand, is generally located in regions with adjacent dense commercial or mixed-use development. A typical facility user would be a commuter or customer, and any children in this area would likely be supervised closely by an adult. The following safety assessment indicators, therefore, are applicable to both types of facilities, but the weight of their importance may vary based on the anticipated use of the pedestrian system.

- *Pedestrian Crash Data:* As previously discussed, pedestrian crash data can be a useful indicator for known hazardous pedestrian locations. Such data provides important information regarding common types of crashes (see Chapter 5 for more information on this topic), and helps safety professionals understand better how and where common pedestrian crashes occur and what type of pedestrians are involved. The pedestrian crash data, however, does not offer a comprehensive picture of the total safety condition as many pedestrians avoid hazardous locations completely and many minor-injury pedestrian crashes are not reported.

- *Motor Vehicle Speed:* Roadway corridors with high motor vehicle operating speeds create hazardous conditions for pedestrians. A common safety statistic cited from research performed in the United Kingdom shows that there is a 5% chance that pedestrians struck by a vehicle traveling at 20 mph will die. For 30 mph conditions, the probability increases to 45%. For roads with operating speeds of 40 mph, there is an 85% likelihood that pedestrians impacted by a motor vehicle will die (UKDOT, 1987). These staggering statistics are due to the reduced stopping sight distance available to a higher speed vehicle and the resulting greater impact speed at the crash location.

- *Motor Vehicle Volume:* Streets characterized by high vehicle volumes create a greater exposure risk to the pedestrian (i.e., more vehicles to avoid when crossing the street). High volume conditions also affect the sense of community for a roadway corridor as the road essentially acts as a wall that separates the businesses or residences on each side of the road.

- *Sight Distance/Visibility:* In addition to stopping sight distance concerns due to high vehicle speeds (see motor vehicle speed discussion); roadside features often prohibit unobstructed views of pedestrians. This visibility is particularly important during the nighttime hours as well as at locations such as driveways or alleys where pedestrian visibility may be obstructed by landscaping, utility poles, walls, shelters, or similar roadside items.

- *Transit Corridors*: There is a strong correlation between transit corridors and pedestrian crashes. This is due to the high volume of pedestrians crossing the roadway to get to and from bus stops. Also, bus routes are often found along busy multi-lane roadways with high traffic volumes.

- *On-Street Parking:* Many traffic calming advocates promote on-street parking as a method to reduce vehicle speeds and subsequently create a safer road environment for pedestrians; however, on-street parking often obstructs the view by a driver of a pedestrian who steps between parked vehicles into the roadway. On-street parking also, by its very nature, requires the driver of the vehicle to step into an active roadway to enter and exit his or her vehicle. As a result, on-street parking can create hazards to pedestrians if due consideration is not given to the function of the adjacent roadway (high-volume-high-speed road versus low-volume-local access road). On street parking, however, does help physically to separate pedestrians walking adjacent to the street from moving motor vehicles (see "Sidewalk Proximity" discussion below).

- *Sidewalk Proximity to Motor Vehicle Lanes:* The orientation of pedestrian facilities, particularly sidewalks, to adjacent travel lanes can have a direct influence on pedestrian safety, and it clearly affects the pedestrians' perception of safety. Separating the sidewalks from the streets with a buffer (often used for landscaping) can substantially reduce the risk of pedestrian exposure and consequently improve safety. Other means for providing safety buffers may include the placement of bicycle lanes (for adults) between motor vehicle lanes and pedestrian facilities. While on-street parking (see previous discussion) creates possible visibility hazards, it does offer the benefit of further separating pedestrians from adjacent travel lanes.

- *Street Crossing Distance:* The required distance for a pedestrian to cross the street is directly related to the number and width of lanes on the roadway as well as the presence of pedestrian refuge islands or raised medians. Wider roads are more dangerous for pedestrians unless consideration is given to providing such refuge. GDOT uses 4 feet/second as a typical walking speed; however, areas with a high number of elderly or disabled pedestrians may require a different timing standard. The draft Accessibility Guidelines for Public Rights of Way reduces the typical walking speed used for crossing time calculations to 3 feet/second.

- *Crossings at Uncontrolled Intersections:* Crossings at uncontrolled intersections on arterial streets present various safety problems. Agencies may enhance pedestrian safety by developing an inventory of crossings on arterial streets to find crosswalks with safety problems and creating improvement plans to address existing deficiencies. Appendix E contains information on the City of Seattle's Crosswalk Inventory and Improvement Plan.

- *Traffic Signal Timing/Phasing:* In addition to pedestrian refuge areas, the timing of a traffic signal should assure adequate time for pedestrians to cross the roadway. In locations with high pedestrian volumes, an exclusive pedestrian signal phase further improves safety.

Different signalization schemes can have an effect on pedestrian safety at an intersection. Some schemes, such as exclusive pedestrian phasing and split phasing, need careful consideration to avoid confusing visually-impaired pedestrians. Protected phasing tends to provide the most straightforward operation for pedestrians, as pedestrians are provided with a dedicated walk phase concurrent with the through traffic movements. However, where permissive or protected/permissive signal phasing is provided, there is the additional conflict of left turning vehicles that could impact pedestrian safety: in particular, left-turning vehicles may be more aggressive in the turns under a permissive scenario since they are making the maneuver within gaps in the through traffic and may be distracted by the approaching traffic.

Where appropriate, modifications can be made to the timing plan or phasing at an intersection to enhance the pedestrian environment. Examples of such modifications include:

No Right on Red: Where allowed by law, the conflict between pedestrians and vehicles turning right on red occurs most often when the driver of a turning vehicle is looking to the left and does not perform an adequate search for pedestrians approaching from the right and crossing perpendicularly to the vehicle. In addition, the sound of vehicles turning right on red masks audible cues used by blind pedestrians to determine the beginning of the crossing phase.

Leading Pedestrian Indication: A leading pedestrian interval entails retiming the signal splits so that the pedestrian WALK signal begins a few seconds before the vehicular green. As the vehicle signal is still red, this allows pedestrians to establish their presence in the crosswalk before the turning vehicles, thereby enhancing the pedestrian right-of-way.

- *Reducing the Locations where Vehicles can Cross Pedestrian Paths:* Any location where a pedestrian must cross the direct path of a motor vehicle is a potential safety hazard. Safety can be enhanced at common roadway locations such as mid-block crossings or at intersections by reducing the likelihood of confusion. For example, a typical intersection conflict occurs when a pedestrian crosses the road at the same time as a vehicle turns onto the same road. At other locations such as driveways or parking lots, reducing the locations where pedestrians must cross vehicle paths will substantially improve safety. This can be achieved by using shared driveways, thereby reducing the number of driveways to cross, or by orienting pedestrian pathways in parking lots parallel to the primary direction of vehicular travel.

Prioritizing Pedestrian Projects

The Georgia Guidebook for Pedestrian Planning promotes a transportation system where walking is a viable transportation choice and residents and visitors are able to walk safely and conveniently both to accomplish their daily activities and maintain active, healthy lifestyles. In order to achieve this vision, the goals of the Georgia Guidebook for Pedestrian Planning are to:

1. Enhance pedestrian safety on Georgia's transportation system;
2. Provide for a more seamless integration of pedestrian facilities into Georgia's transportation system;
3. Integrate planning for pedestrians more fully into agency planning and design processes, and
4. Encourage the development of pedestrian-oriented environments.

The project prioritization framework will help communities to progressively achieve the goals and vision of the Guidebook. Communities may also modify the framework to include additional objectives that support their local visions.

The Pedestrian Project Prioritization Framework

Limited budgets make it necessary to develop project priorities in order to progressively accomplish goals in the most effective manner possible. A prioritization framework offers criteria for ranking projects according to their relative effectiveness in helping to achieve the community's vision for pedestrian travel and recreation. The prioritization framework is patterned along the lines of the City of Portland's Pedestrian Potential Factors and Deficiency Index Factors (Portland Pedestrian Master Plan 1998). This framework is based on two sets of factors: one set measures the *potential* of an area or corridor for pedestrian activity and the other measures existing *deficiencies* in the area or corridor relative to safe and convenient pedestrian travel. These factors are accumulated to produce an aggregate *Pedestrian Potential Factor* and *Pedestrian Deficiency Factor* respectively. These two aggregate factors are then compared for all competing areas, corridors or projects, to determine and prioritize the areas of the highest pedestrian potential and highest existing deficiencies as shown in Table 2.

Within the prioritization framework, a corridor characterized by numerous pedestrian/vehicle crashes, high vehicle speed and volume, no sidewalks and long distances between crossings, would have a higher deficiency index than a low speed, local street with no incidents -- and therefore should be prioritized for funding. If a street has both a high potential for generating walk trips but has no deficiencies, nothing would need to be changed, so funds could be appropriately used elsewhere.

For Pedestrian Deficiency Factors (PDFs), the ratings 1 through 5 in the prioritization framework depict conditions from very low to very high deficiency, respectively. Thus, for example, a street with inadequate sight distances/visibility would be rated *high* or *very high* on the PDF scale. Likewise, a corridor with relatively high speeds would be rated *high* on the PDF scale. Corridors or areas with the highest pedestrian deficiencies should have the highest PDFs.

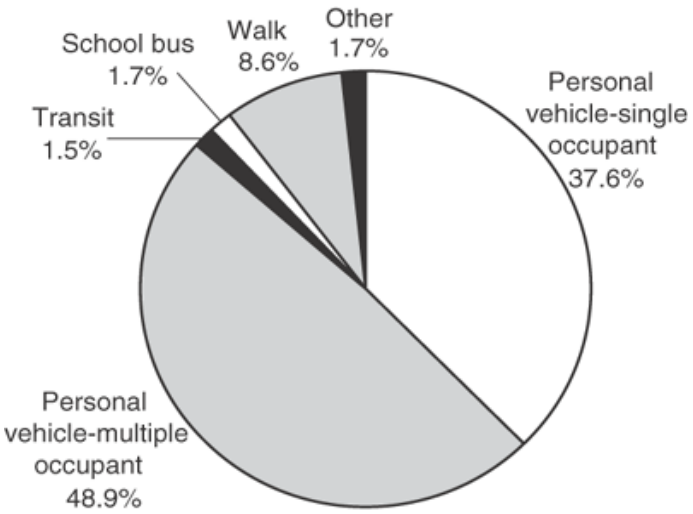
For Pedestrian Potential Factors (PPFs), the ratings 1 through 5 in the prioritization framework depict conditions from very low (non-favorable) to very high potential (highly favorable), respectively. Thus, for example, a proposed sidewalk extension that would close a gap in a local pedestrian network would be rated high or very high on the PPF scale in comparison with an extension that did not close gaps in any significant way. Likewise, a project that was already included in a local or regional agency's transportation plan would be rated higher than one that was not included in the plan. In essence, projects with the highest pedestrian potential should have the highest aggregate PPFs. Thus, projects with the highest PPF values and highest PDF value should receive the highest priority. Appendix A contains examples of how competing projects can be compared and rated using the Prioritization Framework.

Table 2. Georgia Guidebook for Pedestrian Planning Project Prioritization Framework

Prioritization Criteria / Score	1 Very Low	2 Low	3 Medium	4 High	5 Very High
PEDESTRIAN DEFICIENCY FACTORS					
GOAL 1: Enhance pedestrian safety on Georgia's transportation system					
▪ *Pedestrian Crashes or Crash Rates*					
▪ *Motor Vehicle Speed*					
▪ *Motor Vehicle Volume*					
▪ *Sight Distance/Visibility*					
▪ *On-Street Parking Influence on Safety*					
▪ *Sidewalk Proximity to Motor Vehicle Lanes*					
▪ *Street Crossing Distance*					
▪ *Traffic Signal Timing/Phasing*					
▪ *Conflict Point Density*					
Sum of Pedestrian Deficiency Factors (ΣPDF)					
PEDESTRIAN POTENTIAL FACTORS					
GOALS 2/3: Provide for a more seamless integration of pedestrian facilities into Georgia's transportation system/ Integrate planning for pedestrians more fully into agency planning and design processes					
▪ *Gap Closure*: Filling of gaps in existing pedestrian network					
▪ *Modal Connectivity*: Connection to another mode of transportation					
▪ *Need*: Potential or forecasted pedestrian flows					
▪ *Integration*: Part of a community's transportation plan					
GOAL 4: Encourage the development of pedestrian-oriented environment					
• *Connectivity-I*: Degree of connection to important land uses (e.g., public parks, commercial centers, mixed use developments, etc.)					
• *Connectivity-II*: Connection to schools (elementary, middle, high schools, colleges)					
• *Integration*: Part of a community's comprehensive plan or urban design strategy, ADA Transition Plan project, etc.					
Funding/Implementation					
• *Political Support*: Degree of community support					
• *Funding Availability*: Leveraged funding					
• *Commitment*: Part of ongoing project					
Sum of Pedestrian Potential Factors (ΣPPF)					
Σ Potential Factors + Σ Deficiency Factors = _____ [Prioritizes high potential, high deficiency projects]					

Benefits and Costs of Pedestrian Projects

According to the 2001 National Household Travel Survey (NHTS) pedestrian trips account for 8.6% of all daily trips made (USDOT, 2001). However, walking typically still only comprises between 1% and 4% of all trips in the United States (GDOT *Pedestrian and Streetscape Guide*, 2003). Thus, justifying pedestrian projects relative to other modal projects based purely on a typical benefit/cost assessment may be difficult outside areas with high potential for walkability, where walking is a practical and viable mode of transportation for daily activities, such as around livable centers and mixed use developments. However, assessing candidate pedestrian projects for various needs may be a valuable exercise, depending on available data. This exercise could have several objectives, including the following: to justify that a project is economically viable; or to determine the most economical project alternative for an established need, given several competing alternatives. Using benefit/cost analysis (BCA) to demonstrate that projects are economically viable entails assessing and comparing project costs and benefits. Once a list of economically feasible projects has been determined, projects on this list may then be evaluated using the Prioritization Framework, presented in the previous section, to determine the projects that have the highest pedestrian potential factors and pedestrian deficiency factors. Alternatively, an incremental BCA may be conducted to determine the best projects among all the feasible projects. The incremental BCA of two projects is the ratio of the difference in their benefits to the difference in their capital costs. This section discusses factors to consider when comparing pedestrian projects from the standpoint of economic efficiency. The section is presented to point agencies to available information for conducting BCA of pedestrian projects. Currently, there is no widely accepted guidance on BCA for pedestrian projects. However, procedures being used typically determine, estimate, aggregate and compare cost and benefit factors for candidate projects under consideration.



What is Benefit/Cost Analysis?

A benefit/cost analysis is a systematic evaluation of the advantages (benefits) and disadvantages (costs) of candidate investment alternatives. BCA evaluates incremental changes to answer the question: what additional benefits will result if this alternative is undertaken (in comparison with existing conditions or another candidate project), and what additional costs are needed to bring it about?

Every BCA requires the description of a base case (the existing alternative) and a/some proposed alternative(s). The proposed alternative refers to a specific and discrete set of activities that can be undertaken to improve the existing condition. These activities would result in a change in the base case and incur some costs as well as produce some benefits. Project benefits are typically derived from comparing the user costs associated with the base case to those of the alternative scenario prescribed. Transportation investments generally identify benefits in terms of reduced travel times, reduced vehicle operating costs, and reduced likelihood of crashes (safety). In order to place a value on safety and reduced travel time, monetary values must be assigned for life (i.e., the value of life) and time (i.e., value of time), respectively. Various agencies, e.g. the Federal Highway Administration, State DOTs, etc., have adopted standard values for these quantities that are routinely used in BCA and other analyses.

Costs incurred include initial or capital expenditures and maintenance costs (Mn/DOT). An appropriate analysis period should be specified for all alternatives. In essence, the analysis objective is to determine which project alternatives are feasible (i.e., which alternatives have a BCA ratio of 1 or greater) and then identify which of the feasible alternatives is the most cost-effective. Identifying the most cost-effective alternative involves conducting a marginal BCA for all the feasible alternatives. This analysis will identify the alternative with the highest incremental benefit per each additional unit of cost incurred.

What Factors are Important in a BCA of Pedestrian Projects?

While there is not much standard guidance available on conducting BCA for pedestrian facilities, relative to BCA analysis for other facilities, e.g., highways, criteria to be considered when evaluating the benefits and costs of pedestrian projects are found in a number of places as shown in Table 3. Determining the costs of pedestrian facilities can be straightforward; however, assessing the benefits can be quite complex.

The project plan for *Guidelines for Analysis of Investments in Bicycle Facilities* (NCHRP 7-14) outlines typical costs for bicycle facilities that may be applicable to pedestrian infrastructure. These costs include the following:

- Planning and design. These typically comprise 10 percent of construction costs and come in the form of design (preliminary, final) and permitting.
- Real estate costs.
- Construction. These costs can be broken into three types: (a) Administration and Inspection (approximately 8 percent of construction costs); (b) Pathway (grading, pavement, drainage, lighting, signs; and (c) Structures (including buildings, e.g., bike stations).

- Operations and maintenance including landscaping, striping, street repair, sidewalk repair and cleaning.

- Equipment, e.g., bike racks, pedestrian furniture (Equipment costs are typically not included in costs estimations for pedestrian facilities; however they constitute part of the overall life cycle costs of pedestrian facilities).

Such costs would typically be incurred for pedestrian facilities. Projects that include upgrading or installing pedestrian signals or signage would also include the costs of these activities.

Table 3. Guidance for Conducting Benefit/Cost Analysis for Non-Motorized Facilities

- NCHRP Project 7-14, Guidelines for Cost-Benefit Analysis of Investments in Bicycle Facilities, Project Workplan, November 17, 2003.

- NCHRP Report 456, Guidebook for Assessing Social and Economic Effects of Transportation Projects, Transportation Research Board, National Research Council, 2001.

- Transportation Research Circular, October 1997, Assessing the Economic Impact of Transportation Projects: How to Choose the Appropriate Technique for Your Project, Transportation Research Board, National Research Council.

- Mn/DOT Office of Investment Management, Benefit Cost Analysis for Transportation Projects, www.oim.dot.state.mn.us/EASS/.

- Elvik, R., *Which are the Relevant Costs and Benefits of Road Safety Measures Designed for Pedestrians and Cyclists*? Accident Analysis and Prevention, Vol. 32, No. 1, 01/00/2000: 37-45.

An important element of benefit-cost analysis is facility use as well as the diversion of users from other modes. These estimates form the basis for user travel time and cost savings as well as reduction in roadway congestion, energy consumption, air quality improvements, health benefits, etc. Estimating the benefits of pedestrian facilities would involve evaluating such benefits as the following: number of potential users of the facility (including users diverted from other facilities), user safety benefits, user health benefits, social transportation (i.e., public transportation to improve access to health and social service programs), air quality and energy benefits, option value and livability benefits, and agency benefits such as right of way preservation for future multimodal projects including pedestrian facilities (e.g., cost reductions from reducing displacements of homes or businesses). Broader issues that might be considered include potential impacts on tourism, economic development, urban revitalization, transportation

equity, sustainability, increased use of transit, and impacts relative to parking costs and more efficient land use decisions.

CHAPTER 3 -- PEDESTRIAN FACILITY FUNDING

The current transportation legislation: Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) provides the flexibility for States and Metropolitan Planning Organizations (MPOs) to fund pedestrian improvements from a variety of programs. The FHWA recommends funding pedestrian improvements as an incidental part of larger projects and reviewing funding sources to use the most appropriate monies for the project instead of relying primarily on the Transportation Enhancements (TE) Program. Bicycle and pedestrian projects are eligible for funding under the Congestion Mitigation and Air Quality Improvement (CMAQ) Program, Surface Transportation Program (STP), or other programs presented in this document. The Georgia Department of Community Affairs provides a good reference for funding programs within the State. The document is titled "Catalog of State Financial Assistance Programs" and is available on the Web at http://www.dca.state.ga.us/research/finasst.pdf.

Most Federal-Aid programs are for construction activities on the Federal-Aid Highway System. However, non-construction projects are eligible for funding under some programs such as the STP or CMAQ, as well as State and Community Highway Safety Grant Program funds. Bridge, Hazard Elimination, and emergency relief funds may be available for use on local or minor collector roads. In addition, bicycle and pedestrian coordinator positions may be able to utilize funding from the STP or CMAQ (FHWA, 1999). Many of the Federal programs require matching funds from the state or local government. This is typically an 80/20 percent Federal/local split except for specific conditions or programs identified later in this Chapter, such as the Safe Routes to School Program with 100 percent funding.

Federal transportation legislation provides that pedestrian projects have broad eligibility under federal aid funding categories, specifically including the following programs:

- *National Highway System*
- *Surface Transportation Program*
  - *Transportation Enhancements*
  - *TIP & STIP*
- *Highway Safety Improvement Program*
- *CMAQ*
- *Safe Routes to School*
- *Federal Lands*
- *Scenic Byways*
- *Recreational Trails Fund*

Federal and State Funding Opportunities

A significant source of project funding for infrastructure improvements, operations, and maintenance is generated through funds distributed by the Federal government through transportation legislation. Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation, passed in 2005, several revenue sources are available for pedestrian improvements. These funding programs include the STP, CMAQ, National Highway System, Federal Lands, Scenic Byways, Safe Routes to School, and Recreational Trails.

Lands, Scenic Byways, Safe Routes to School, Recreational Trails and National Highway System (NHS) Funds

These funds are for improvements to the National Highway System (NHS), which consists of an interconnected system of principal arterial routes that serve major population centers, international border crossings, airports, public transportation facilities, and other intermodal transportation facilities as well as other major travel destinations. These funds can be used to provide for pedestrian facilities constructed on land adjacent to NHS routes. Provisions for construction of walkways adjacent to highways can be found in 23 USC Section 217 (b) of the U.S. Code.

Surface Transportation Program (STP)

Funds within the Surface Transportation Program (STP) are distributed to the states for various purposes including construction, reconstruction, resurfacing of highways and bridges; safety improvements; transit capital projects; and transportation enhancements. Within this context, funding may be obtained for construction or improvement of pedestrian facilities or for construction of walkways. Non-construction projects may also be funded, including preparation of maps, brochures, or public service announcements. Originally introduced under the Transportation Equity Act for the 21st Century (TEA-21) and continued under SAFETEA-LU, "the modification of public sidewalks to comply with the Americans with Disabilities Act" is also an activity that is specifically eligible for the use of these funds. Also eligible new under SAFETEA-LU are projects relating to intersections that have disproportionately high accident rates; have high congestion; and are located on a Federal-aid highway. This may provide an additional avenue for pedestrian safety improvements using STP funds outside of the Transportation Enhancement Program for intersections with historically high pedestrian-vehicle crash rates.

Legislation for the STP is found in Section 1113 of SAFETEA-LU. Additional provisions for construction and non-construction activities related to pedestrian facilities are listed in Title 23 USC Section 217 (a) of the U.S. Statutes. These include provisions for modifications of sidewalks to comply with ADA. Realignment of programs under the SAFETEA-LU legislation resulted in the removal of safety programs (including the Hazard Elimination Highway Rail Crossing Program) from under the STP umbrella and their addition to the new stand-alone Highway Safety Improvement Program. The SAFETEA-LU legislation maintains the Transportation Enhancement Program within the STP at similar funding levels from TEA-21.

STP Set-Aside for Transportation Enhancements (TE)

Transportation Enhancement projects are projects or activities that add community or environmental value to surface transportation projects. Projects that fall into one of 12 categories (see list on following page) are considered enhancements and may be eligible for funding (as established by the U.S. DOT). The Transportation Enhancement Program is funded in SAFETEA-LU as an earmark amounting to 10% of the State's STP apportionment. Most Transportation Enhancement activities are also eligible under all Surface Transportation Program funds.

Allowable Uses for TE Program Funds

1. Provision of facilities for pedestrians or bicycles
2. Provision of safety and educational activities for pedestrians and bicyclists
3. Acquisition of scenic easements and scenic or historic sites (including historic battlefields)
4. Scenic or historic highway programs (including the provision of tourist and welcome center facilities)
5. Landscaping and other scenic beautification
6. Historic Preservation
7. Rehabilitation and operation of historic transportation buildings, structures or facilities (including historic railroad facilities and canals)
8. Preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian or bicycle trails)
9. Control and removal of outdoor advertising
10. Archaeological planning and research
11. Environmental mitigation
    a. to address water pollution due to highway runoff or
    b. reduce vehicle-caused wildlife mortality while maintaining habitat connectivity
12. Establishment of transportation museums

As noted in the list of 12 categories of eligible projects, TE Program funds may be used for provisions of facilities for pedestrians and bicycles (off-road or on-road facilities, including modification of existing public sidewalks to comply with the requirements of the Americans with Disabilities Act). It should be noted that traffic calming projects are not eligible for TE funds.

Per the State Transportation Board policy, Enhancement funds have a $1 million maximum per project and require a 20% local match. However, in-kind donations, cash contributions, right-of-way contributions, and other funding awards can be counted as the match (GDOT, 2004). New rules within SAFETEA-LU also permit flexibility in allowing the Federal 80% match to be aggregated for the program rather than being applied on an individual project basis.

Projects are selected on a biennial basis with funds divided equally among the Congressional districts. This program is highly competitive due to the range of eligible projects, with the volume of applications typically exceeding the available funding. Program legislation for transportation enhancements within the STP is provided in 23 USC Section 109 (a) (35). Local government projects must be sponsored by a governmental body, and upon selection, be adopted into the TIP. Private non-profit organizations are not able to sponsor a project but they can subcontract with a sponsor to implement a project.

Georgia's Transportation Enhancement Program, one of the most successful in the nation, includes projects such as walking and biking trails; streetscaping; historical preservation of transportation facilities and preservation of scenic sites and byways. Under this Program, up to 80% of a project's total cost is provided by designated federal funds, with the local sponsor funding the remainder. For Federal fiscal year 2000-2001, Georgia had 78 cities, 16 counties and numerous other sponsors who received Transportation Enhancement funding totaling approximately $54 million. For Federal fiscal year 2002-2003, Georgia had 94 cities, 20 counties and numerous other sponsors who shared $50 million in funding (GDOT, 2005, http://www.dot.state.ga.us /specialsubjects/tea-21/index.shtml). On average, bike and ped projects make up over 50% of all TE program projects and funding.

Highway Safety Improvement Program (HSIP)/Railway-Highway Crossings Program

The Highway Safety Improvement Program (HSIP) is new under the SAFETEA-LU transportation reauthorization, providing a standalone program for safety improvements. Previously, under TEA-21, programs funded by HSIP were contained within the STP where 10 percent of each State's STP funds were set-aside for the Hazard Elimination (23 USC Section 152) and Railway-Highway Crossing Program (23 USC Section 130) to address safety issues. Each State is required to implement a Hazard Elimination Program to identify and correct locations that may constitute a danger to motorists, bicyclists, and pedestrians. In relation to pedestrian improvements, hazard elimination funds are eligible for various activities including a survey of hazardous locations and for projects on any publicly owned pathway or trail, or any safety-related traffic calming measure.

Up to 10 percent of the HSIP funds may be used for "other safety activities including education and enforcement. However, to be eligible for the "other activities" the state must have a Strategic Highway Safety Plan (SHSP) that identifies and analyzes safety problems and opportunities. If a SHSP is not available, only projects allowable under USC Sections 130 and 152 (Hazard Elimination and Railway-Highway Crossings) are eligible. The federal share of Highway Safety Improvement Program projects is 90 percent.

Although bicycle and pedestrian projects are eligible for these funds, they have rarely been assigned funding in the past. These funds are typically used for roadway projects such as intersection realignment, rumble strips, traffic signals, or signage. However, GDOT has developed a Safety Action Plan that includes a pedestrian component and is proceeding with implementing this Plan. Through this Plan, GDOT has identified some high pedestrian crash locations and is moving forward with implementing countermeasures to improve pedestrian safety in these areas.

Safe Routes to School Program

Section 1404 of the SAFETEA-LU transportation legislation provides funding for Safe Routes to School Programs to benefit children in primary and middle schools. The purpose of the program is to enable children, including those with disabilities, to walk and bicycle to school. The intent is to make walking and cycling to school safe and appealing. This Program facilitates the planning, development and implementation of projects to improve pedestrian and bicycle safety

while reducing traffic, fuel consumption, and air pollution in the vicinity of schools. Eligible activities include sidewalk improvements, traffic calming and speed reduction improvements, pedestrian crossing improvements, off-street pedestrian facilities, and traffic diversion within approximately 2 miles of schools. Non-infrastructure related activities may also be eligible for funding including public awareness campaigns, traffic education and enforcement near schools, and student sessions on bicycle and pedestrian safety.

Funding is administered by formula based upon the states' relative share of total enrollment in primary and middle schools (i.e., kindergarten through 8th grade); however, no state will receive less than $1 million annually. Total Program funding is $612 million over 5 years with $100 million provided in 2006 and increasing by 25 million annually through 2008. Year 2009 funding is authorized at $183 million. Funds are administered within the State of Georgia by the Georgia Department of Transportation. The program is 100 percent funded by the federal government (no local match required).

Federal Fund Exchange

A promising method for implementing pedestrian projects includes the exchange of a portion of local gas tax revenues for regionally apportioned Federal STP funds. The advantage of the exchange lies in the ability to use the STP funds to construct pedestrian facilities outside of the roadway prism to which local gas tax revenues are otherwise restricted. In particular, this method of "flexing" revenues can be used to construct shared use pathways along canals, drainage washes, utility corridors, railway lines, and other non-roadway corridors.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

States are apportioned funding by the Congestion Mitigation and Air Quality Improvement Program (CMAQ) based upon county populations residing within ozone and carbon monoxide (CO) non-attainment and maintenance areas and the relative severity of the areas' air quality problems. Flexibility is allowed for public/private partnerships in projects and initiatives. Eligible programs include pedestrian/bicycle off-road or on-road facilities including modification of existing public walkways to comply with the Americans with Disabilities Act. However, FHWA requires an emissions analysis to reflect actual emissions benefits, which generally favors new facility projects over rehabilitation of existing facilities. The current draft Transportation Reauthorization Bill in Congress adds additional eligibility for CMAQ funds to be used for non-construction pedestrian safety projects. CMAQ funds have an 80% Federal participation (90% if used on Interstate Highway System). Provisions for the CMAQ Program are identified in SAFETEA-LU Sections 1103(d) and 1808, and in 23 USC Section 149, 104(b)(2), 126(c) of the U.S. Code.

Currently the Atlanta Regional Commission (ARC) performs the air quality modeling and projects are selected through a coordination process between the ARC and the State Air Quality Partners (GDOT, Environmental Protection Agency, and the Georgia Regional Transportation Authority). For non-attainment areas outside of the ARC region, the State Air Quality Partners conduct modeling and coordinate with the appropriate MPO to select projects.

Tips for Requesting CMAQ Funding for Pedestrian Projects

- If possible, complete emission analysis for project prior to application for funding requests to improve chances for funding.
- Establish a clear linkage between the proposed improvement and potential reductions in emissions.
- Specify neighborhood/transit station/school or other facility that will be impacted/contribute to auto trip reductions through the proposed pedestrian project.
- Identify distance of project from key transit stations, school facilities, etc., to assess potential for auto trip reductions.
- If possible, quantify potential VMT reductions from new pedestrian facility.
- Identify existing sidewalks proposed for reconstruction.

Pedestrian and bike projects generally have a lower probability of being selected for CMAQ funding because results of the emission models show lower potential emission decreases relative to other emissions control methods. In the past, some pedestrian and bicycle projects were funded if they were particularly transportation oriented, such as sidewalks that provided access to transit stations or schools.

Projects funded under CMAQ have typically been for new sidewalks parallel to roadway facilities. Replacement or modification of sidewalks are typically not funded under CMAQ due to a lower potential for reductions in vehicle miles traveled (VMT). New sidewalks around transit stations and schools are likely to score higher than other pedestrian projects, with a probability for impacts on emissions due to reductions in VMT. To improve chances of receiving funding through CMAQ, emissions analysis should be done prior to submitting a funding request. Estimates of potential reductions in VMT will help to make a stronger case that provides a nexus between the proposed project and emissions reductions. An example of one option for quantifying the potential use of a new pedestrian facility is utilizing survey flyers sent home to parents. These survey flyers could propose several different pedestrian improvement options (such as locations for new sidewalks) and ask specific questions to identify what route(s) would provide the highest pedestrian use. The survey could also be used to identify if parents would allow their children to walk to school if they currently do not, and aid in quantifying the potential for reduction in auto trips made to and from the school.

Federal Lands Highway Funds

Provisions for pedestrians and bicyclists are available under the various categories of the Federal Lands Highway Program in conjunction with roads, highways, and transit facilities that provide access to or within public lands, national parks and Indian reservations. Priorities for funding projects are determined by the appropriate Federal Land Agency or Tribal government. The projects must be transportation related and tied to a plan adopted by the State and MPO.

Pedestrian related funding under the Federal Lands fund is typically for construction of walkways or mixed use paths in conjunction with roadway projects. The Federal Highway Administration (FHWA) administers the Federal Lands Program. Thus, the FHWA regional office (i.e., the southern resource center) coordinates with whatever state or local jurisdiction is applying for grant funding.

Scenic Byways Program

The Scenic Byways Program provides funding for construction of facilities such as trailheads, multi-use paths, or way-finding signage along scenic highways. SAFETEA-LU sets out $175 million in funding for over 5 years (2005 – 2009) for the nationwide Program, with the Federal share of project funding at 80 percent. These funds are available for those routes designated within the scenic byways program as defined by USC Section 162(c)(4) of the U.S. Code. At the time this document was prepared, eight groups of roadways were identified as Scenic Byways within the State of Georgia. The Program is administered by GDOT.

Recreational Trails Fund

The National Recreational Trails Fund provides funds for projects identified on or consistent with the Statewide Comprehensive Outdoor Recreation Plan as required by the Land and Water Conservation Fund Act. These projects are typically limited to construction and maintenance of trails and pathways for recreational purposes. However, new eligibility is provided within SAFETEA-LU that allows for the use of Program funds for assessing trail conditions for accessibility and maintenance. Provisions for this fund are found in section 1109 of SAFETEA-LU and Title 23 USC Section 206 of the U.S. Code. The nationwide allocation for the Recreational Trails Program is $70 million for 2006, increasing by 5 million annually through 2009. Georgia's apportionment of funds under the expired TEA-21 legislation was approximately $1.5 million for 2005. The Recreational Trails Program, administered in Georgia by the Department of Natural Resources, requires a 20% local match and may be used for new trail construction or maintenance/rehabilitation of existing trails. Recreational Trails Program funds may be used to match other Federal program funds for purposes that would be eligible under the Recreational Trails Program.

High Priority Projects (HPP)

High priority projects are those added to the Transportation Bill and deemed by Congress to be a high priority for implementation. The SAFETEA-LU Transportation Bill identifies 5,091 projects nationwide, each with a specified amount of funding over the 5 years of SAFETEA-LU. The total program cost comes in around $14.8 billion over five years. Of the total "high priority project" funding, approximately $1 billion is earmarked for 750 pedestrian/bicycle/trail projects spread throughout the country. This is a dramatic increase from the TEA-21 legislation that provided funding for 110 pedestrian and bicycle projects nationwide at a cost of $188.5 million.

The Bill provides a little over $349 million to the State of Georgia over the five-year authorization period for 232 high priority projects. A number of exclusive pedestrian improvement projects are earmarked along with streetscape and beautification projects. Additional funding is also earmarked for sidewalk and other pedestrian improvements in

conjunction with larger roadway improvements. Funds are available only for the specific projects described in the Bill and the Federal share is typically 80% of the construction cost, with some exceptions.

Transportation, Community, and System Preservation Program (TCSP)

The Transportation, Community, and System Preservation Program (TCSP) was previously a pilot program authorized under TEA-21 to address the relationships among transportation, community, and system preservation plans and practices; and to identify private sector based initiatives to improve those initiatives. SAFETEA-LU reauthorizes the TCSP providing $270 million nationally over 5 years with $61.25 million allocated annually for years 2006-2009. Under the authorized Program, the Secretary would facilitate the planning, development, and implementation of strategies by States, Metropolitan Planning Organizations, Federally-recognized tribes, and local governments. The intent would be to integrate transportation, community, and system preservation plans and practices that improve the efficiency of the transportation system; reduce the impacts of transportation on the environment; reduce the need for costly future investments in public infrastructure; provide efficient access to jobs, services, and centers of trade; examine community development patterns and identify strategies to encourage private sector development patterns that achieve these goals.

Under TEA-21, the TCSP Preservation Pilot Program awarded funding to individual projects undertaken by States, Metropolitan Planning Organizations, and local governments. The current TCSP Program within SAFETEA-LU designates specific projects for the TCSP Program. The Congressional Conference Report accompanying the FY 2005 Omnibus Appropriations Act designated $25 million for 39 TCSP Program projects. The TCSP Program has solicited only those applications for projects specified by Congress in the Conference Reports accompanying the Omnibus Appropriations Act. The FHWA division office administers TCSP funds. The TCSP Program is subject to a 20% local match.

Highway Safety Funds

Pedestrian safety is a priority area for highway safety program funding at both the Federal and State levels. The Governor's Office of Highway Safety administers funding for safety-related programs in Georgia, including pedestrian and bicycle projects that improve safety along or across roadways, as well as pedestrian education. State grants are available for up to three years (with the first year of funding at 100% [zero local match], the second year requiring a 20% local match, and the third year requiring a 40% local match). Funds are generally prioritized by crash frequency from the previous year's crash data. Priority is assigned to projects based upon statewide ranking. Title 23 USC Section 402 provides requirements for highway safety grant programs. Title II, Section 2002 of TEA-21 provides an additional mechanism for expediting the approval process of funding for pedestrian related safety improvement projects.

Federal Transit Funding

Under Section 1603 of SAFETEA-LU and 49 USC Section 5307 and 23 USC of the U.S. Code, Federal transit funding may be used for pedestrian programs to provide access to transit facilities. This funding may come from Urbanized Area Formula Grants transit funds, Capital

Investment Grants and Loans and Formula Programs for other than Urbanized Area transit funds. The majority of the grant funds are divided among the two largest programs, Capital Investments and Urban Area Grants, which combined for 92% of the funds in 2000. The remainder of the grant funding is distributed among a variety of other formula based programs (such as Clean Fuels, State Planning and Research, etc.).

The Urbanized Area Formula Grant Program (Section 5307) provides capital, operating, and planning assistance for mass transportation. For areas of 50,000 to 199,999 in population, the formula is based on population and population density. For areas with populations of 200,000 and more, the formula is based on a combination of bus revenue vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles as well as population and population density.

The Capital Investments Program Fund (Section 5309) provides funding for the establishment of new rail or busway projects (new starts), the improvement and maintenance of existing rail and other fixed guideway systems, and the upgrading of bus systems. Capital assistance grants made to states and local agencies are funded up to 80% of the net project costs, unless the grant recipient requests a lower Federal grant percentage.

Highway Bridge Program

SAFETEA-LU replaces the former Bridge Replacement and Rehabilitation Program from TEA-21 with the new Highway Bridge Program. The Program provides funding that is primarily intended for use in replacing and rehabilitating highway bridges along with systematic preventative maintenance. Sidewalks can be built as part of bridge rehabilitation, as well as pathway undercrossings or bridges. The SAFTEA-LU legislation adds a requirement for pedestrian facilities on the bridge structure when bridges are rehabilitated or replaced, provided that there is pedestrian use at each end of the bridge and safe facilities can be provided at a reasonable cost. SAFETEA-LU requirements for the Highway Bridge Program are found in Section 1114 with additional provisions in Title 23 USC Sections 217(e) and 144.

Community Development Block Grants (CDBG)

The Community Development Block Grant (CDBG) Program is administered by the U.S. Department of Housing and Urban Development to assist low- to moderate-income neighborhoods. Residents of the neighborhood work closely with city staff to develop a plan for their awarded funds. A neighborhood can choose to spend CDBG monies on sidewalk installation and repair. For projects requiring under $300,000 no local matching funds are required. A 5% local match is required for grants between $300,000 and $500,000.

Local Development Fund

A program administered by the Georgia Department of Community Affairs, the Local Development Fund, provides funding for a variety of projects related to downtown development, historic preservation, and recreation facilities. Pedestrian improvements such as recreational pathways, sidewalk improvements in historical districts, or ADA-related improvements may be eligible. All Georgia cities and counties are eligible provided that they can commit local funds

as a match to the requested state funding or provide an in-kind donation equivalent to the dollar amount requested for the grant.

Georgia Heritage Grants

The Georgia Heritage Grants Program is a matching grant program for the rehabilitation of Georgia Register-listed historic properties and related activities. The Heritage Grants could be used to provide funding for pedestrian improvements in coordination with registered historic properties. This Program is administered through the Historic Preservation Division of the Georgia Department of Natural Resources.

Georgia Division of Public Health (GDPH)

The Georgia Division of Public Health (GDPH), part of the Georgia Department of Human Services, previously provided limited funding for several trail projects through their Chronic Disease Prevention and Health Promotion Program. These included paved recreational trails and paths to schools. The GDPH stopped funding walking trail projects in 2004; however they are still providing support to jurisdictions and local groups in planning, requesting grants and conducting fundraising activities, and conducting community involvement.

The Governor's Office of Highway Safety (GOHS)

The Governor's Office of Highway Safety (GOHS) offers funding through the State and Community Highway Safety Grant Program (Section 402). National Priority Program areas (program areas most effective in reducing crashes, injuries and fatalities) include the Pedestrian and Bicycle Safety Program and the Community Traffic Safety Program (CTSP). Agencies at the state, county, city and private/non-profit levels are eligible to apply. Contingent on congressional allocation of funding and satisfactory performance, projects funded by GOHS are eligible for continuous funding for a maximum of three years, unless otherwise negotiated. GOHS normally funds traffic safety projects at the rate of 100% the first year, 80% the second year and 60% the third year. Projects are evaluated annually for performance and a renewal application must be submitted and approved each year.

Local Level Funding Sources

General Funds

One of the local revenue sources of cities, towns, and counties available for use on pedestrian improvements is the general fund resulting from sales taxes, property taxes, and other miscellaneous taxes and fees. There are generally few restrictions on the use of these funds, which are utilized for a large variety of local budget needs. As such, there is typically high demand for these funds for numerous government services. Design and construction of sidewalks and pathways, through the use of this funding source, usually receive limited support from local governments unless their constituents lobby effectively for such use.

In some cases, a component of local general funds can be dedicated to transportation improvements including the construction and repair of sidewalks. For instance, some local

jurisdictions in various parts of the country use some general fund revenues to pay for sidewalk repair and wheelchair ramp installation.

In Sacramento, California, a legal ruling in the case of *Barden v. Sacramento* set a national precedent requiring cities and other public entities to make all public sidewalks accessible. As a result of the court's ruling in this case, public entities must address barriers such as missing or unsafe curb cuts throughout the public sidewalk system, as well as barriers that block access along the length of the sidewalks. The settlement in the case provides that for up to 30 years, the City of Sacramento will allocate 20% of its annual Transportation Fund to make the City's Pedestrian Rights of Way accessible to individuals with vision and/or mobility disabilities (DRA, 2004).

Community Improvement Districts (CIDs) or Business Improvement Districts (BIDs)

A Community Improvement District (CID) is a geographically defined area in which commercial property owners vote to impose additional ad valorem real estate taxes. These stakeholders take the future into their hands by determining how the additional funds will be spent to benefit their immediate area. CID funds enhance existing city/county services such as public safety and traffic solutions. In addition to leveraging their funds with Federal and state monies, CIDs allow community leaders to chart a course they determine for an area's economic growth and lasting vitality (Gwinnett Place CID, 2005).

Georgia Improvement Districts
Atlanta Downtown Improvement District: www.atlantadowntown.com
Buckhead CID: www.buckhead.net/cid
Cumberland CID www.commuterclub.com
Gwinnett Place CID: www.gwinnettplacecid.com
Highway 78 CID www.78cid.org
Midtown Improvement District www.midtownalliance.org
Perimeter CID: www.perimetercid.org
South Fulton CID www.come.to/southfultoncidwebsite/projects.html
Town Center CID: www.cobbrides.com/cidpg.htm

A primary advantage of a CID is the ability to focus on projects specific to its area. This enables businesses to address issues of direct importance to them. The role of the CID is to use its money locally to fund infrastructure improvements and to provide local matching funds for state and Federal programs.

Another advantage of the CID is that it provides funding support to begin the planning studies, develop the design, and complete all the background work. Without a CID, a project could take much longer, or not even be considered by government decision makers. By identifying issues of concern, such as mobility, streetscapes, personal safety, cleanliness, the CID allows for concerted advocacy in which projects can be placed on a fast track for completion. By acting as a unified corporate voice to champion a project for state and Federal support and by working in concert with public-sector planning experts, the CID projects are more likely to move forward.

There are currently at least nine improvement districts in Georgia, all in the Atlanta metro region. Funding from these CIDs is typically used to improve pedestrian and bicycle facilities, improve intersection operations, widen roads, add turn lanes, provide streetscaping/beautification, etc. Funding for various projects by each CID district depends on the area of the district and the demographics of the business community within the district from which the taxes are assessed. CIDs allow for a high level of flexibility in project selection and use of funds to meet community needs. A CID must be approved by the passage of law in the Georgia Assembly.

Livable Centers Initiative (LCI)

An important program for funding within the metro Atlanta area, the Livable Centers Initiative (LCI) is a quality growth program aimed at enhancing community livability and mobility. Initiated in 1999, the intent of the LCI is to provide funding for investment studies and transportation projects located in activity and town centers in the Atlanta region. The Program focuses on encouraging increased residential development, mixed-uses and connectivity in activity and town centers. Among LCI's fundamental concepts is an emphasis on pedestrians within the community including improving sidewalks, access, streetscaping, and other considerations.

Due to the success of the initial program, the Atlanta Regional Commission's Board authorized the extension of the LCI program as part of the 2030 Regional Transportation Plan (RTP) with an added focus on corridors and emerging centers as well as town centers and activity centers. The extension of the LCI would provide $5 million over five years to fund the study program. An amount of $350 million was initially provided to fund projects identified through the LCI program, with an additional $150 million proposed through the 2030 RTP. Of the total funding available, approximately $108 million is programmed for projects during the years 2003 through 2007.

The Livable Centers Initiative program is open for funding to government jurisdictions and non-profit organizations within the boundaries of the 18-county region under the planning authority of the Atlanta Regional Commission (ARC): the Atlanta Metropolitan Planning Organization (MPO). Jurisdictions must have Qualified Local Government (QLG) status to be considered for the LCI program. Study areas that will be given priority consideration include:

- Centers and corridors that incorporate brownfields and greyfields.
- Corridors that increase connectivity to existing LCI areas, transit station areas, and other major centers.
- Centers and corridors with relatively underutilized infrastructure.
- Corridors and centers that have or could have the density to support alternative transportation modes and mixed land uses.

Generally projects in greenfield areas such as parks or other areas that do not qualify as an emerging regional activity center will not be considered for LCI funding. This includes projects

such as trails or recreational improvements that are not part of an urban landscape. Local coordination with major stakeholders should also be integral to the project scope in order for the project to be considered for funding. Additional information can be found on the ARC's website at http://www.atlantaregional.com/qualitygrowth/lci.html.

Revenue and General Obligation Bonds

Bonds are usually considered a financing mechanism rather than revenue source, and debt service obligations should receive consideration before this mechanism is pursued. In this discussion, revenue and general obligation (G.O.) bonds are considered a funding source because when bond packages are presented for voter approval, they are often tied to specific facility or program improvements. For instance, a G.O. bond package can be forwarded to voters for citywide sidewalk and lighting improvements or for specific sidewalk, pathway, or other improvements that are clearly defined in the legal language of the ballot questions for the bond. In this respect, bonds should be considered a revenue source because identified pedestrian projects will be constructed according to truth-in-bonding requirements versus having to compete with numerous other local demands on general funds. Revenue bonds can also be considered a revenue source because specific projects will be "locked in" and constructed (provided revenue projections and cost estimates bear out as projects are developed).

Special Improvement Districts

Counties and cities may establish special improvement districts to provide funding for specified public improvement projects within the designated district. Property owners in the district are assessed for the improvements and can pay the amount immediately or over a span of 10 to 20 years. Street pavement, curb and gutter, sidewalks, and streetlights are some of the common improvements funded by special improvement districts.

Special Purpose Local Option Sales Tax (SPLOST)

SPLOST stands for Special Purpose Local Option Sales Tax. It is structured as an additional one percent sales tax on most goods bought in the corresponding county. A SPLOST program is administered at the county level, must be passed via voter referendum and be renewed once every five years by voter referendum to remain in effect. The proceeds of the tax must be spent for capital, non-operating outlays by the county government and participating municipal governments in the county.

Specific restrictions are placed on the uses of SPLOST revenues by the Georgia General Assembly. Among the allowable uses for SPLOST funds are capital improvements for roads, streets, and bridges which include pedestrian and bicycle facilities. A complete list of eligible project types can be found in Georgia Code Section 48-8-111 (see state legislature website at www.legis.state.ga.us). The SPLOST tax may not be used for operating expenses of a SPLOST project or of any other county or municipality government operations. This would include things like salaries and on-going maintenance projects.

A primary advantage of a SPLOST funding program is that it provides a mechanism for counties to address local capital improvements that may not otherwise receive competitive funding from

Federal/state programs. SPLOST funds may also be used as matching funds to leverage additional funding from some of the Federal programs such as STP, NHS, etc. Projects are typically established prior to voter referendum or on an annual basis. Pedestrian projects for which there is an interest in SPLOST funds should be forwarded to the local and/or county program manager to be included in the prioritization and selection process for the next voter referendum.

Controlling jurisdictions perform the selection of projects to meet the needs and priorities of the local communities, which may be different from those of the state as a whole. Project selections typically involve all key county stakeholders, such as the municipalities of a county working together to develop a project list that prioritizes competing projects based on factors such as community-wide need, economic benefits, cultural benefits, and potential effect on future operating budget.

Homestead Optional Sales and Use Tax (HOST)

Counties that do not levy a local-option sales tax are authorized to impose the homestead-option sales tax (HOST). The tax is similar to the SPLOST program in that a 1% sales tax is imposed. However, this tax must be imposed in conjunction with an additional homestead property tax exemption that reduces property taxes. Both the tax and the exemption must be approved by the voters. The sales tax is used to offset the loss in property tax revenue, with a 20% guaranteed set-aside for capital improvements including pedestrian projects such as sidewalk construction. Currently, only Dekalb and Rockdale Counties have a HOST in place.

Agreement for Improvements

It does not always make sense for a land developer or property owner to install the required improvements (including streets and sidewalks) at the time of development. If that is the case, one option is to file with the City or County an agreement to participate in paying the cost for future improvements. The required contribution is explicitly stated in the agreement, which is kept on file by the jurisdiction until the time of a capital improvement project. Agreements for future contributions are made in lieu of required improvements under the jurisdiction's development Code. For those jurisdictions utilizing such agreements, it is important that these are tracked to ensure that the funding is utilized accordingly.

Private Developers

The majority of local streets and sidewalks are paid for at the time of development by the developer who includes the cost in the sales price of the homes or properties. This also applies to bikeways, bicycle parking, and transit facilities. This way, the benefiting users are paying for the cost of the system installation. The local jurisdiction is then responsible for maintaining improvements within the public rights-of-way.

Parks and Recreation Funds

Local parks and recreation funds are generally derived from property and sales taxes and some fee revenues, and they are sometimes used directly for pathways or pathway related facilities,

including bathrooms, pocket parks, lighting, parking, and landscaping. Parks and recreation funds are also utilized to cover pathway maintenance costs incurred by these departments.

Flood Control District Funds

Pedestrian facilities can often serve "double duty" as part of Flood Control District projects. In many U.S. jurisdictions, paved maintenance roadways are often built along canal banks or along washes that also serve as shared use pathways for bicyclists, pedestrians, and others. These facilities can often serve as both transportation and recreation corridors.

Private Revenues

Private "revenues" may come in the form of dedications, exactions, monetary contributions, corporate underwriting, donations of right-of-way, and construction of facilities to meet specific zoning or land use code requirements. Private sources include corporate underwriting and individual and non-profit donations. Private corporations have historically provided money for trail projects. These contributions have been in the form of monetary donations, volunteer labor, and sponsorship of projects. Contributions and volunteering from local organizations can also provide much-needed maintenance and educational services. Companies such as REI, Powerbar, and Kodak have established grant programs for local greenway projects including trail construction and maintenance. These grants are usually small, on the order of $1,000 to $5,000. Discussed in some detail below, the Robert Wood Johnson Foundation and the PATH Foundation are both potential sources of funds for pedestrian projects.

Robert Wood Johnson Foundation

The Robert Wood Johnson (RWJ) Foundation is the nation's largest philanthropy devoted exclusively to improving the health and healthcare of all Americans. To that end, the Foundation provides grants for projects, programs, and research to improve the public health and quality of life. One of the four priority areas for funding through the Foundation is to promote healthy communities and lifestyles. Through this funding area, it may be possible to receive grant funding for planning or construction of pedestrian facilities.

The RWJ Foundation issues calls for proposals for its National Programs, where grants are awarded for projects such as field implementation of promising ideas, research on specific topics, or other projects dealing with the Foundation's goals. Outside of these National Programs, the Foundation also accepts independent (unsolicited) proposals. In order for independent proposals to be considered, they must:

- Address one of the Foundation's interest areas.
- Fall within the guidelines of the types of projects that are funded.
- Follow the foundation's general grant-making guidelines.

Grants for independent proposals are made throughout the year. There are no specific deadlines. Each year the Foundation funds about one in seven (or 15 percent) of the proposals submitted

that are not part of their competitive National Programs. Funding rates vary widely among National Programs. To receive RWJ Foundation grant funding, projects need to demonstrate a broader scope than a simple capital improvement. Eligible projects may include construction/implementation of innovative ideas or technologies, projects with a continued data collection element of health-related statistics, public education, and other exploratory projects.

PATH Foundation

The PATH Foundation is a non-profit organization with a mission to develop a system of interlinking greenway trails through metro Atlanta for commuting and recreating. PATH forms partnerships with several local governments in the Metro Atlanta area to build greenway trails for biking, jogging, and walking. PATH provides a knowledgeable staff to plan, design, build and maintain trail projects. In some cases, PATH will provide matching funds to finance the development of trails. More information can be found at the PATH website at www.pathfoundation.org.

Funding Summary

Table 4 summarizes SAFETEA-LU sources of funding and the specific pedestrian improvements that are eligible for these funds, and Table 5 presents a summary of Federal, state, local, innovative and private sources of funding.

Table 4. SAFETEA-LU Bicycle/Pedestrian Funding Opportunities

	NHS	STP	HEP	RHC	TEA	CMAQ	RTP	FTA	TE	BRI	402	PLA	TCSP	JOBS	FLH	BYW	SR2S
Bicycle and pedestrian plan		*										*	*				
Bicycle lanes on roadway	*	*	*	*	*	*		*	*	*					*	*	*
Paved shoulders	*	*	*	*	*	*				*					*	*	*
Signed bike route	*	*			*	*									*	*	*
Shared-use path/trail	*	*			*	*	*			*					*	*	*
Single track hike/bike trail							*										
Spot improvement program		*	*		*	*											*
Maps		*			*						*						
Bike racks on buses		*			*	*		*	*								
Bicycle parking facilities		*			*	*		*	*							*	*
Trail/highway intersection	*	*	*		*	*	*								*	*	
Bicycle storage/service center		*			*	*		*	*				*	*			
Sidewalks, new or retrofit	*	*	*	*	*	*		*	*	*					*	*	*
Crosswalks, new or retrofit	*	*	*	*	*	*		*	*						*	*	*
Signal improvements	*	*	*	*	*	*											*
Curb cuts and ramps	*	*	*	*	*	*											*
Traffic calming		*	*	*		*							*				*
Coordinator position		*											*				*
Safety/education position		*									*						*
Police patrol		*									*						*
Helmet promotion					*						*						*
Safety brochure/book					*						*						*
Training					*						*						*

KEY:

NHS	National Highway System	TE	Transit Enhancements
STP	Surface Transportation Program	BRI	Bridge
HEP	Hazard Elimination Program	402	State and Community Traffic Safety Program
RHC	Railway-Highway Crossing Program	PLA	State/Metropolitan Planning Funds
TEA	Transportation Enhancement Activities	TCSP	Transportation and Community and System Preservation Pilot Program
CMAQ	Congestion Mitigation/Air Quality Program	JOBS	Access to Jobs/Reverse Commute Program
RTP	Recreational Trails Program	FLH	Federal Lands Highways Program
FTA	Federal Transit Capital, Urban & Rural Funds	BYW	Scenic Byways
SR2S	Safe Routes To School		

Source: FHWA, 1999/Modified to reflect SAFETEA-LU

Table 5. Sources for Potential Pedestrian Facility Funding

Funding Programs	Project Types (Construction, Non-Construction, Both)	Required Matching Funds	Deadlines	Available Annual Funding	Contact & Website Information
Federal Funding					
Transportation Enhancement Activities (TEA)	Both	20%	Biennial by GDOT	$60 million over the 6-year legislative period	http://www.dot.state.ga.us/dot/ plan-prog/planning/projects/te/ index.shtml
Surface Transportation Program (STP)	Both	20% typically			
National Highway System (NHS)	Both	20%		Approximately $500 million annually	http://www.fhwa.dot.gov/tea21/ factsheets/nhs.htm
Federal Lands Highway Funds	Construction	None	July	Approximately $165 million annually	http://www.nps.gov/transportation/roads/index.htm
Highway Bridge Program	Construction	20%			
Safe Routes To School	Both	None		Minimum of $1 million annually	http://www.dot.state.ga.us/dot/plan-prog/planning/projects/bicycle/index.shtml
Highway Safety Improvement Program/Railroad/ Hwy At-Grade Crossing	Construction	Up to 10%			
National Recreation Trails Fund	Both	20%	Fall	Approximately $1.3 million statewide, maximum $100,000 per project	Contact: RTP Coordinator, Georgia State Parks Phone: 404-656-6536 http://www.gastateparks.org/grants
Congestion Mitigation / Air Quality Program	Both	20%	Varies	$43 Million (80% Federal Share)	http://www.dot.state.ga.us/DOT/plan-prog/planning/aq/CMAQ/
Transportation and Community and System Preservation Program (TCSP)	Both	20%		$25 million increasing to $61.25 million annually (80% Federal Share)	http://www.fhwa.dot.gov/tcsp
National Scenic Byways Program	Construction	20%	January	Approximately $25 million annually nationwide	Georgia Contact: State Scenic Byways Coordinator, Office of Planning, GDOT Phone: 404-656-5411 Other Info at: http://www.bywaysonline.org/byways/GA/
State Transportation Improvement Program (STIP)	Construction	Varies		Generally as part of roadway construction projects	http://www.atlreg.com/ transportationair/tip.html

Funding Programs	Project Types (Construction, Non-Construction, Both)	Required Matching Funds	Deadlines	Available Annual Funding	Contact & Website Information
Highway Safety Program	Both	0% (yr 1; 20% (yr 2); 40% (yr3)	On going	$15 million annually	http://www.gohs.state.ga.us/main.html
Kids Walk to Schools	Both			Funded through Atlanta region TIP. Program currently applicable only to ARC region. Schools do not receive funding directly; they have a program at their school administered by the ARC's contractor.	http://www.cdc.gov/nccdphp/dnpa/kidswalk/index.htm
Local Development Fund	Construction	Equivalent Local Match	Semi-Annual Competition in Spring and Fall	Each project not to exceed $10,000 ($20,000 for multi-community projects)	Program Manager: (404) 679-4789 or website: http://www.dca.state.ga.us/research/finasst.pdf
Georgia Community Greenspace Grant Funds	Construction	N/A			http://www.ganet.org/dnr/greenspace/pdfs/sources.pdf
Community Development Block Grant	Construction	None for projects under $300,000		Approximately $37 million annually	http://www.dca.state.ga.us/economic/financing/programs/section108.asp
Georgia Heritage Grants	Construction associated with Registered Historic property	None	Mid July	Approximately $300,000	Grants Coordinator: (404) 463-8434 or website: http://hpd.dnr.state.ga.us/content/displaycontent.asp?txtDocument=38
Innovative Financing					
Grant Anticipation Revenue Vehicle Bonds (GARVEE)	Both	11.50%	On going	Total debt not to exceed 30% of federal funds received annually	
Special Purpose Local Option Sales Tax (SPLOST)	Both	N/A	N/A	Local 1% sales tax	Contact County SPLOST coordinator

Funding Programs	Project Types (Construction, Non-Construction, Both)	Required Matching Funds	Deadlines	Available Annual Funding	Contact & Website Information
Community Improvement Districts (CID)	Both	N/A	N/A	Specific to each local CID	Links to each Georgia CID a provided on the Gwinnett CID website: http://www.gwinnettplacecid.com/background.asp
Private Funding					
Development Related Improvements	Construction	N/A	N/A	N/A	Local Jurisdiction
American Greenways Kodak Awards	Both	N/A	Early June	Each project not to exceed $2,500	http://www.conservationfund.org/
Robert Wood Johnson Foundation	Both	N/A	None for independent proposals	Varies	http://www.rwjf.org/applications
PATH Foundation	Construction	N/A			www.pathfoundation.org
Powerbar's Direct Impact on Rivers and Trails (DIRT)	Both	N/A	Early June	Project awards between $1,000 - $5,000	http://www.powerbar.com/
Recreational Equipment, Inc. (REI)	Both	N/A	On going	Each project not to exceed $2,500	www.rei.com

Federal/State Matching Requirements

In general, the Federal share of the costs of transportation projects is 80 percent, with 20 percent state or local match. However, there are exceptions to this requirement as described below.

- Federal Lands Highway projects and Section 402 Highway Safety funds are 100 percent federally funded.
- Hazard Elimination projects are 90 percent federally funded.
- Safe Routes to School projects are 100% federally funded.
- Individual STP Transportation Enhancement Activity projects can have a local match higher than 20 percent, but overall Federal share of each state's Transportation Enhancement Program must be 80 percent. In-kind services may be contributed as part of the 20 percent match. The State/GDOT does not provide any of the matching funding. Private donations, non-profits, or partnerships can provide or assist with the required local matching funds. Most Federal funding cannot be used to provide the TE match.

- States with higher percentages of Federal Lands have higher Federal shares in proportion to their percentage of Federal Lands:
    - Federal Land's highway projects are 100 percent Federal;
    - State and/or local funds to match Federal-aid may include in-kind contributions, including donations of funds, materials, services, or right-of-way. Funds from certain Federal programs may match Transportation Enhancement, Scenic Byways, and Recreational Trails program funds up to 100 percent (FHWA, 1999). State funds may not be used as a match for "off-pavement" projects (such as trails outside of the roadway prism).

Other Nationwide Examples of Local Pedestrian Funding Programs

The website walkinginfo.org, a pedestrian and bicycle information clearinghouse, provides several examples of programs implemented by local municipalities to raise funds for local pedestrian projects. These programs generally fit into three categories: special bond issuance, reallocation of local sales tax or a voted increase in sales tax; or use of annual capital improvement budgets. Examples are given below.

- San Diego County residents voted to impose a 1/2-cent sales tax for transportation purposes. Out of those funds ($171 million in year 2000); $1 million is set aside for bicycle projects. The tax is administered by the San Diego Association of Governments and is scheduled to expire in 2008.

- The City of Albuquerque, New Mexico and Bernalillo County both have a 5% set-aside of street bond funds which go to trails and bikeways. For the City, this has amounted to approximately $1.2 million every two years for these facilities. The City voters last year passed a 1/4 cent gross receipts tax for transportation which includes approximately $1 million per year for the next ten years for trail development. In addition, many of the on street facilities are being developed as a part of other road projects and bicycle facilities are being incorporated into the roadway budgets for new roads or resurfacing projects

- Pinellas County, Florida, built much of the Pinellas Trail system with a portion of a one-cent sales tax increase voted for by county residents.

- Seattle, Washington and King County voters approved a $100 million bond issue to protect open space in the urban area; $33 million was set-aside for trail development. The Seattle Department of Public Works used about $6 million per annum for the City's bike program.

- Denver, Colorado invested $5 million in its emerging trail network with a bond issue, which also funded the city's bicycle planner for a number of years.

- In Eagle County, Colorado (which includes Vail) voters passed a transportation tax that earmarks 10% for trails, about $300,000 a year.

- In Colorado Springs, Colorado, 20 percent of the new open space sales tax is designated for trail acquisition and development totaling $5-6 million per year.

CHAPTER 4 -- GEORGIA PEDESTRIAN LAWS

At the state level, there are a number of pedestrian laws that specifically describe the responsibilities of both pedestrians and motorists at locations where there is an interaction between the two modes, most specifically at pedestrian crossings. These laws help to provide the context in which the two modes should be able to operate safely. This Chapter provides a brief discussion on the rights and responsibilities of pedestrians and motorists. The sections of Georgia Code on which this information is based are provided in Appendix F.

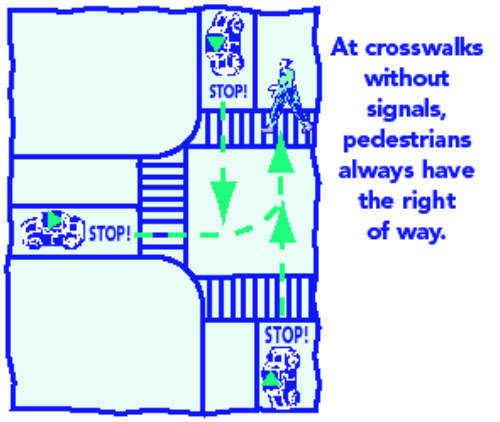
Legal Definition of a Crosswalk

In order to understand the legal responsibilities and rights of pedestrians pertaining to roadways, it is first important to understand what constitutes a crosswalk. A legal crossing location may exist even if it is not necessarily marked on the roadway. The 1992 Uniform Vehicle Code (Section 1-112) defines a crosswalk as:

(a) That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs, or in the absence of curbs, from the edges of the traversable roadway; and in the absence of a sidewalk on one side of the roadway, the part of a roadway included within the extension of the lateral lines of the existing sidewalk at right angles to the centerline.

(b) Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.

Thus, legal crosswalks exist at all public intersections where there is a sidewalk on at least one side of the street. The only way a crosswalk can exist at a mid-block location is if it is marked. Specifically, crosswalks serve as the pedestrian right-of-way across a street. The level of connectivity between pedestrian facilities is directly related to the placement and consistency of street crossings. Many pedestrians and motorists do not understand the legal definition of a crosswalk and think that there is no crosswalk unless it is marked (FWHA, 2000).



Motorist and Pedestrian Rights of Way

The following right of way information is provided by PEDS, an Atlanta area pedestrian advocacy organization. It is also available through a brochure from the Georgia Governor's Office of Highway Safety website at www.gahighwaysafety.org.

Who Has the Right of Way? What Motorists Should Know About Pedestrians' Rights

Motorists' Responsibilities

When a motorist meets a pedestrian in the road, who has the Right of Way? According to Georgia Law, when a pedestrian shows an intention to cross the street by stepping off the curb, motorists must stop and stay stopped to allow the pedestrian to cross when the pedestrian is within a marked crosswalk.

Intersections without Signals

In 1995, the Georgia Legislature changed the Crosswalk Law. Drivers approaching crosswalks with pedestrians in them must stop and stay stopped, not just yield to them.

At crosswalks without signals, pedestrians always have the right of way.

Intersections with Signals

Drivers turning right or left on green must stop and stay stopped for pedestrians. Before turning left, they must watch for pedestrians as well as oncoming traffic.

Before turning right on red, drivers must look to their passenger side. Someone could be walking in front of the car.

The flashing "Don't Walk" light provides a clearance time for pedestrians; it does not give drivers the right of way.

Respect Crosswalks

Know where the crosswalks are. Crosswalks exist on all four corners of most intersections in Georgia, whether or not they are marked by painted lines.

Drivers must not stop in the crosswalk. Instead, they must stop behind the stop bar so that pedestrians can cross the street safely.

When approaching a car in another lane that has stopped at a crosswalk, drivers must stop. A pedestrian is probably crossing the street in front of that car.

Sidewalks Are For Walking

Before pulling out of a driveway, parking lot or garage, drivers must stop behind the sidewalk and check for pedestrians who might be using the sidewalk.

When stopping, standing or parking a vehicle, drivers must stay off of sidewalks and avoid blocking the sidewalk area of driveways.

Use of Segways

The Segway is an Electronic Personal Assistive Mobility Device (EPAMDs). Electrically propelled, this two-wheeled device is designed to transport one person with a maximum speed less than 20 mph. In Georgia, this device is permitted on sidewalks and must adhere to all pedestrian laws. Users must yield the right of way to pedestrians on sidewalks; Segways may not travel on sidewalks at speeds higher than 7 mph; and Segways traveling above 7 mph should follow the same rules as cyclists (in the street, in the same direction as motor vehicles).

Sidewalks are for Pedestrians

Section 40-6-144 of the Georgia Code requires that "No person shall drive any vehicle upon a sidewalk or sidewalk area except upon a permanent or duly authorized driveway". The Georgia Code defines bicycles as vehicles; therefore this law applies not only to motor vehicles but to bicycles as well. Excluding multi-use paths, sidewalks are designed for pedestrian travel. Use by cyclists can raise safety issues in the interaction between pedestrians and bicyclists, and also for vehicles entering/exiting access point along the roadway where motorists may not be anticipating a cyclist to be present. Additional information on the rights and responsibilities for bicyclists is provided in the Georgia DOT publication, *Georgia Bike Sense.*

Due to some ambiguity about the definition of "vehicle", some local jurisdictions have enacted more explicit regulations prohibiting bicycles from using sidewalks within certain districts or jurisdictions. For example, within Athens-Clarke County, bicycles are prohibited from using the sidewalks in areas within a district zoned as business or in an area defined as a downtown tax district. In the City of Atlanta, bicycles are similarly restricted within the business districts and central business district. In addition, there is an age restriction imposed that prohibits anyone over the age of 13 from riding on any sidewalk in any zoning district. Where bicyclists are traveling on sidewalks, right of way should always be yielded to pedestrians.

Riding on the sidewalk is a significant contributing factor in bicycle/motor vehicle collisions. Once again, the perception is that someone is safer riding on the sidewalk than on the road - and many motorists and even law enforcement officers repeat that message. The problem is that bicyclists are not safer on the sidewalk because they become almost invisible to the motorist. When a driver turns, either left or right, or into a driveway or alley, they are simply not looking for, or expecting to encounter, a bicyclist. (bicyclinginfo.org, 2005). Since cyclists may be traveling 12mph to 20mph, a motorist has less reaction time to stop for a bicyclist crossing his/her path at an intersection or driveway, than for a pedestrian who may be traveling at 2mph – 3mph.

Trail and Path Regulations

Georgia has a number of recreational trails and shared use paths throughout the state that are built to accommodate pedestrians, cyclists, and other non-motorized users. An example of such a path is the Silver Comet Trail that stretches from west Atlanta to Alabama. Georgia Code does not specifically regulate the use of such paths, however it does specify that shared use paths must meet the minimum accepted design guidelines set forth by the American Association of State Highway and Transportation Officials (AASHTO) [Code Section 40-6-294 (d)]. Shared use paths, while not specifically regulated by law, require similar etiquette as would be used on the road. User should yield to pedestrians on foot and keep to the right so as to allow other users to pass on the left. All signs and markings should be obeyed and users should pull off to the side of the path if they intend to stop. The *Georgia Bike Sense* guide is available from GDOT and provides additional information on how path users -- cyclists, walkers and others -- can safely share the space.

CHAPTER 5 -- PEDESTRIAN SAFETY AND EDUCATION STRATEGIES

A fundamental question for users of pedestrian facilities is "How Safe is this Mode of Transportation?" To answer this question, it is helpful to understand which pedestrians are at the greatest risk, how common pedestrian safety problems can be addressed, and how a better understanding of pedestrian issues by the general public can enhance pedestrian safety. It is also important to understand the differences between pedestrian safety, due to exposure to the pedestrian infrastructure, and pedestrian security. Security is enhanced by promoting improved visibility (street lighting, open pedestrian-friendly facilities, etc.). Safety is enhanced by reducing the risk of exposure to pedestrians to crashes with other modes of transportation.

Who Is at Risk?

Traveler safety is an essential component of a successful transportation infrastructure system. In Georgia, approximately 74% of all pedestrian-involved crashes occur in urban environments; however, Table 6 shows that while only 26% of crashes involving pedestrians occur in rural areas, almost 42% of pedestrian fatalities happen in these same rural environments. This observation is generally due to the higher likelihood of high-speed vehicles at locations that do not have sidewalks or even paved shoulders available for pedestrian access in rural areas.

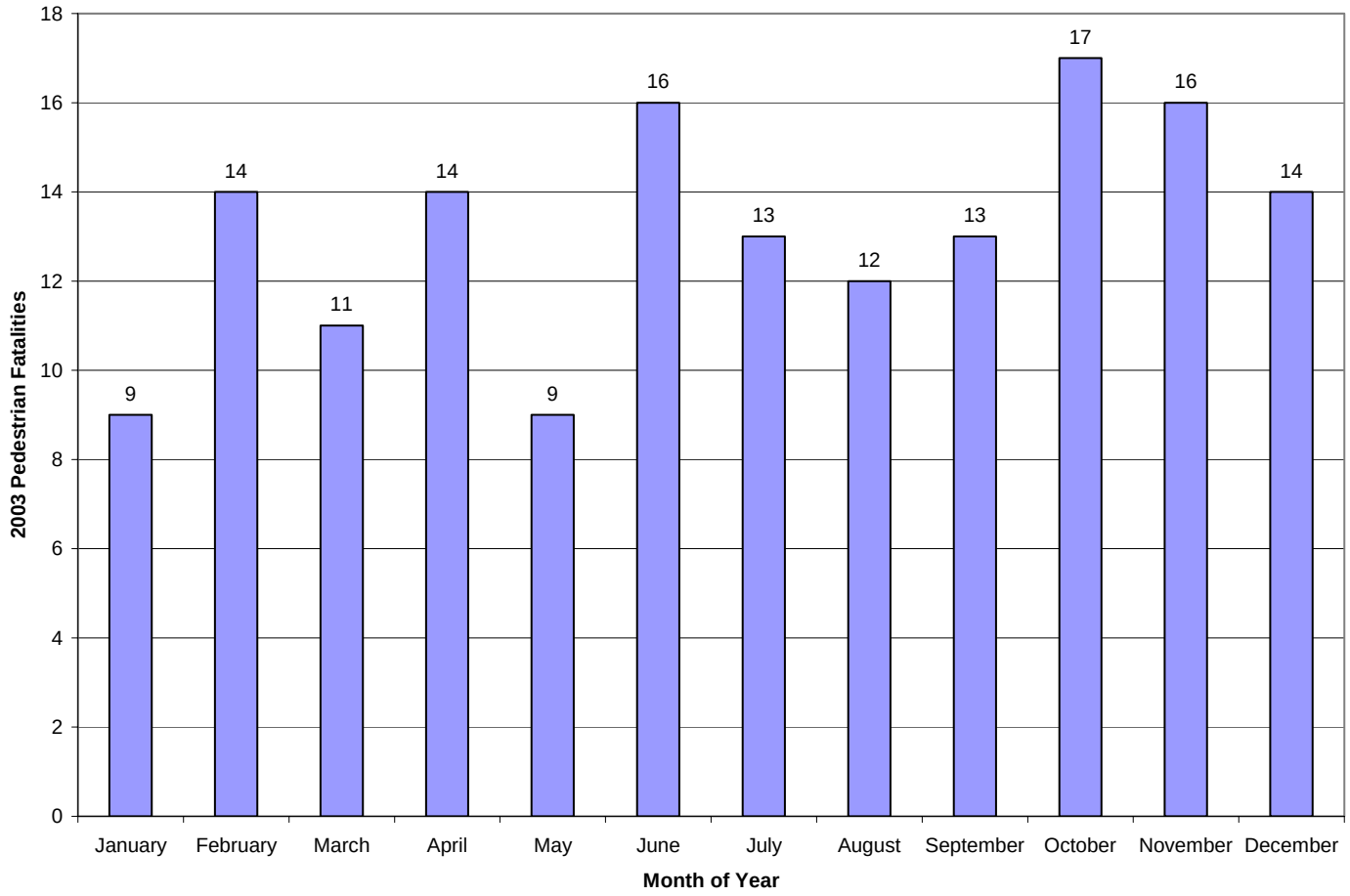
Table 6 shows that approximately 83% of pedestrians involved in a crash during the years spanning 2000 to 2003 were injured and 6% of pedestrians involved in a crash were killed. By comparison, for the approximately 1.3 million reported crashes (excluding pedestrian crashes) in Georgia for the same timeframe, approximately 27% of the crashes resulted in an injury or fatality. Of the total persons involved in these crashes, about 15% received some form of non-fatal injury; meanwhile less than 0.2 % resulted in a fatality. Even though the number of auto related injuries and deaths is much higher than pedestrian-related injuries and fatalities, cars give some level of protection to the passengers and provide a better chance of surviving the crash. Pedestrians remain much more vulnerable, with a greater chance of an injury or fatality when involved in a collision with a vehicle.

Table 6. Georgia Crashes by Area Type (2000 - 2003)

Area Type	Pedestrians Involved		Pedestrians Injured		Pedestrians Killed	
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
Rural	2,620	25.9	2,101	25.0	261	41.8
Urban	7,499	74.1	6,315	75.0	363	58.2
Total	10,119	100.0	8,416	100.0	624	100.0

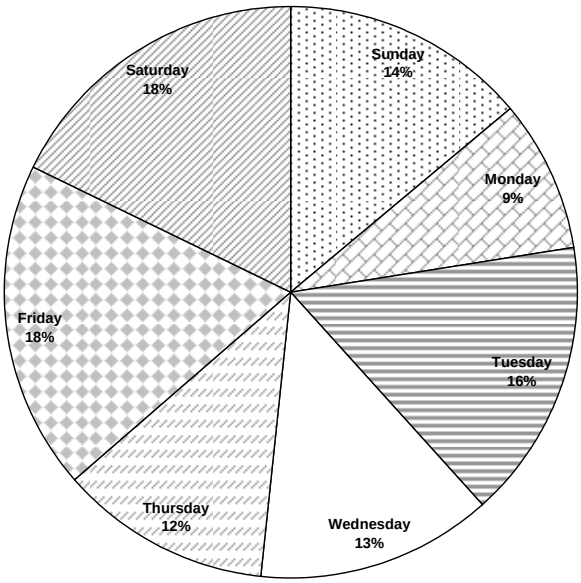
Source: Based on data from the Georgia Department of Motor Vehicle, Crash Analysis, Statistics & Information (CASI) Report

Pedestrian crashes occur every month of the year. Figure 1 shows the monthly distribution of Georgia fatal crashes in 2003. In general, nationwide pedestrian fatalities tend to be at their peak during September through January, months with less daylight each day and more inclement weather (Harkey & Zegeer, 2004).



Source: USDOT, National Center for Statistics & Analysis, Fatality Analysis Reporting System

Figure 1. Georgia 2003 Pedestrian Fatalities per Month



Source: USDOT, National Center for Statistics & Analysis, Fatality Analysis Reporting System

Figure 2. Georgia 2003 Pedestrian Fatalities per Day of Week

Figure 2 shows the distribution by day of the week of pedestrian fatalities in Georgia for the year 2003. As is typical nationwide, pedestrian crashes are generally over-represented on weekend days. For 2003, Friday, Saturday, and Sunday comprised 50% of the total fatal pedestrian crashes in Georgia.

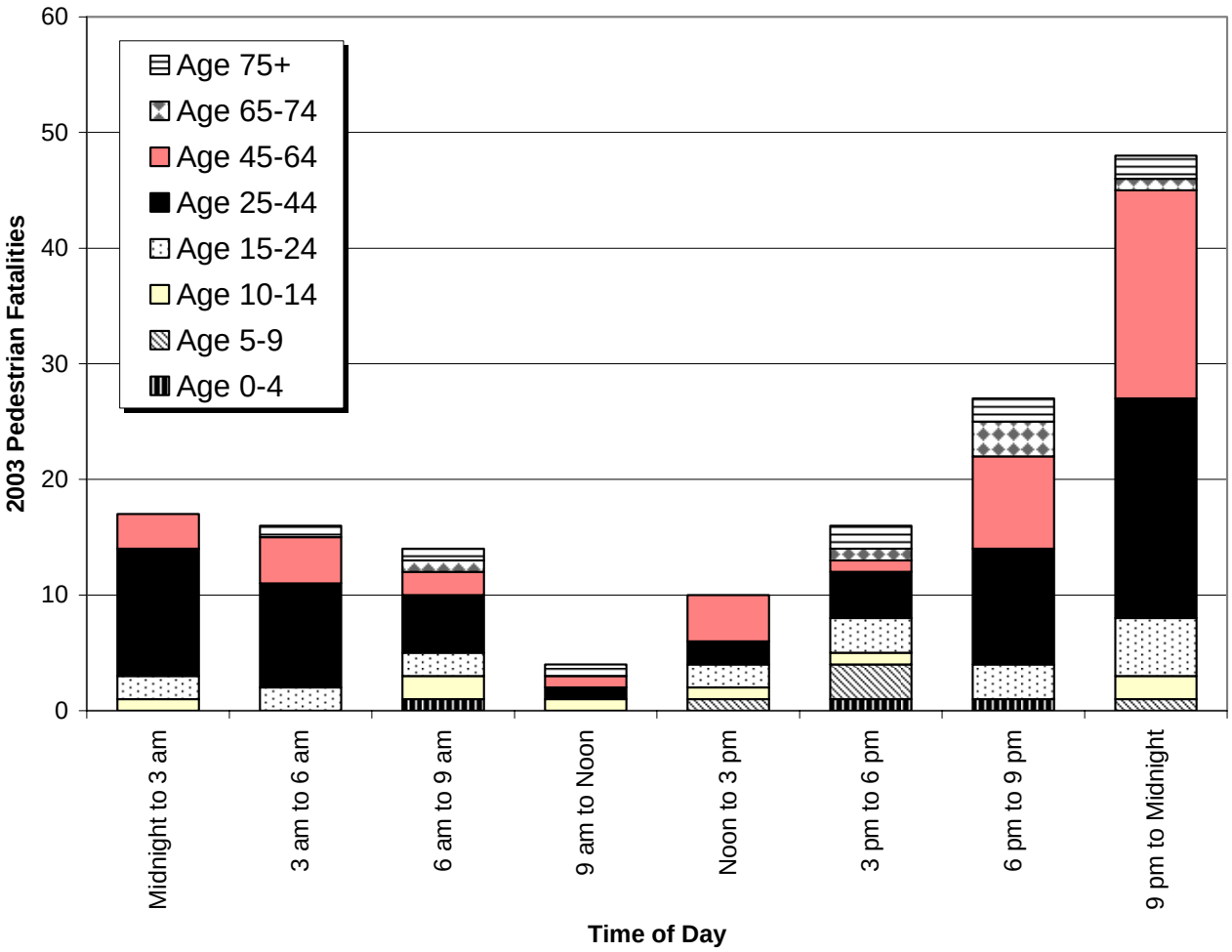
"More than one-third of all pedestrians 16 years of age or older killed in traffic crashes in 2003 had Blood Alcohol Content (BAC) levels 0.08 g/dl or higher."

-NHTSA, MADD

www.nhtsa.dot.gov

www.madd.org

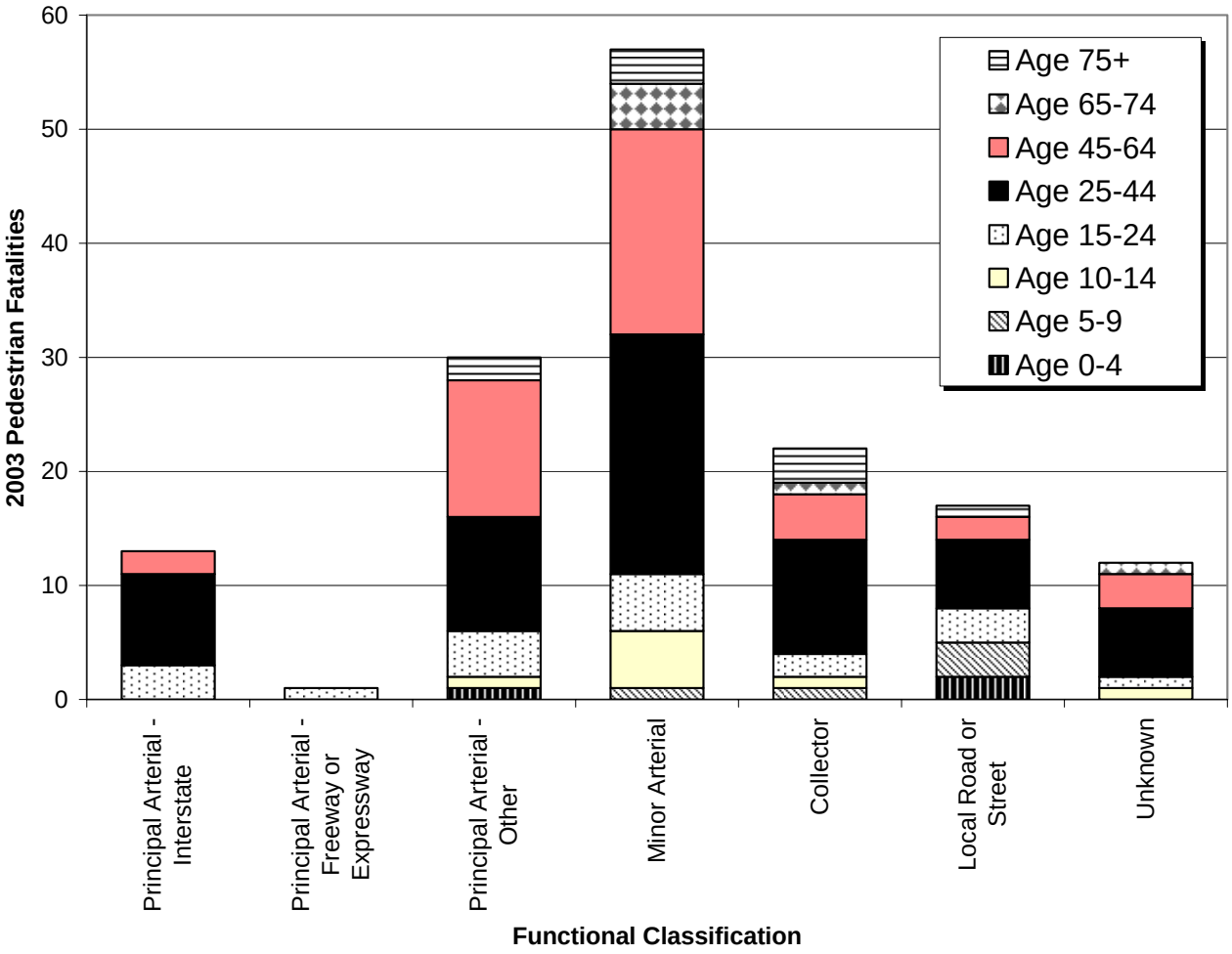
Figure 3 shows the time of day at which pedestrian fatalities occurred in Georgia during 2003. The largest number of fatalities occurred between 9 PM and midnight. This time period is typical for adult pedestrians or motorists who combine alcohol with their nighttime activities. Speeds are also typically lower between 3 PM and 6 PM, which would result in fewer crashes, and fewer life-threatening injuries when crashes do occur. Although pedestrian fatalities peak during nighttime hours, pedestrian-involved crashes generally peak between 3 PM and 6 PM (Harkey & Zegeer, 2004). This peak afternoon period is also the time of day when children between the ages of 5 and 9 are at the greatest risk.



Source: USDOT, National Center for Statistics & Analysis, Fatality Analysis Reporting System

Figure 3. Georgia 2003 Pedestrian Fatalities Age versus Time of Day

In 2003, more than 50% of the Georgia pedestrian fatalities occurred on higher-speed arterial roadways. Figure 4 depicts the distribution of fatal pedestrian injuries and the associated roadway functional classification as explained below. Values presented in Tables 3 and 4 represent the total number of pedestrian fatalities occurring within Georgia during the calendar year 2003. Fatal crashes for child pedestrians age 9 or younger occurred most frequently on local roads or streets. This age group is the most vulnerable to intersection and midblock crashes where the pedestrian abruptly dashes into the active roadway (Harkey & Zegeer, 2004).



Source: USDOT, National Center for Statistics & Analysis, Fatality Analysis Reporting System

Figure 4. Georgia 2003 Pedestrian Fatalities Age versus Functional Classification

The functional classification of a roadway is the method used to describe the purpose of the roadway in terms of mobility and access that translates into the design attributes of the roadway. The classifications span the spectrum from local neighborhood streets to Interstate facilities. At the local end, streets are smaller and focus less on mobility and more on access. However, the range of classifications progress, there is a gradual shift in roadway purpose culminating in Interstate-type facilities that focus on mobility with limited access. As mobility becomes more important, roadway size and vehicle speed generally both increase. Within the middle of the range, an arterial street can be a primary urban street or rural highway. Collector roadways are generally smaller and carry fewer vehicles and serve the primary purpose of providing the connection between the local roadways and the arterials.

Addressing Common Pedestrian Safety Problems

There are several common pedestrian-related crash types and the pedestrian risk for each type of crash may be reduced by implementing specific engineering countermeasures and enforcing traffic laws. A comprehensive list and discussion of these crash types can be located in the Federal Highway Administration publication *PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System* (Harkey & Zegeer, 2004). Table 7 shows a matrix of predominant pedestrian crash types and potential engineering countermeasures. There are also education and enforcement strategies that should be considered. These are discussed later in the chapter under the heading "Prioritizing Pedestrian Safety". Each countermeasure below is categorized as a pedestrian facility design, roadway design, intersection design, traffic calming initiative, traffic management strategy, signal and sign enhancement, or other measure not specific to these categories. The table includes 12 common pedestrian crash types. They are briefly defined as follows:

- *Dart /Dash:* This crash type occurs when a pedestrian walks or runs into the road at either an intersection or a midblock location and is struck by a moving vehicle.
- *Multiple Threat/Trapped:* The multiple threat or trapped crash happens when a pedestrian enters the roadway between slowed or stopped vehicles and then becomes trapped in the middle of the road and is struck by a vehicle.
- *Unique Midblock:* The unique midblock crash occurs when a pedestrian is either getting into or out of a stopped vehicle or crossing the road to or from attractors such as mailboxes, ice cream vendors, etc.
- *Through Vehicle at Unsignalized Location:* This type of crash occurs when a pedestrian is struck by a vehicle at either a midblock location or an unsignalized location and either the driver or the pedestrian failed to yield.
- *Bus-Related:* A bus-related pedestrian crash occurs when a motor vehicle impacts a pedestrian crossing the road to or from a commercial or school bus or while waiting near a bus stop.
- *Turning Vehicle:* This crash type occurs when a pedestrian is crossing an intersection, alley, or driveway and is struck by a vehicle turning right or left.
- *Through Vehicle at Signalized Location:* The through vehicle pedestrian crash occurs at a signalized location or a midblock location when a through moving vehicle impacts a pedestrian crossing the roadway.
- *Walking Along Roadway:* This crash type occurs when a pedestrian walking or running along a road is struck by a vehicle from the front or from behind.

- *Working/Playing in Road:* This crash occurs when a person is in the road for some purpose other than crossing or walking along the road (standing near a disabled vehicle, riding a play vehicle other than a bicycle, playing or working in the road) and is struck by a vehicle.
- *Non-Roadway:* A non-roadway crash occurs when a pedestrian is struck by a vehicle while he or she is standing or walking near the roadway edge, on a sidewalk, in an alley or driveway, or in a parking lot.
- *Backing Vehicle:* A backing vehicle crash occurs when a pedestrian is impacted by a backing vehicle on a street, in an alley or driveway, on a sidewalk, in a parking lot, or a similar location.
- *Crossing Expressway:* This type of crash occurs when a pedestrian is struck while crossing a limited-access expressway or expressway ramp.

Table 7. Potential Engineering Countermeasures for Pedestrian Crashes

Countermeasure	Crash Type Group											
	Dart/Dash	Multiple Threat / Trapped	Unique Midblock (mailbox, ice cream vendor, parked vehicles)	Through Vehicle at Unsignalized Location	Bus-Related	Turning Vehicle	Through Vehicle at Signalized Location	Walking Along Roadway	Working/ Playing in Road	Non-Roadway (sidewalk, driveway, parking lot, or other)	Backing Vehicle	Crossing Expressway
Pedestrian Facility Design												
Sidewalk / Walkway					x			x	x	x	x	
Curb Ramp				x	x	x	x	x				
Crosswalk Enhancements	x	x		x	x	x	x					
Transit Stop Treatments	x	x		x	x	x	x					
Roadway Lighting	x	x	x	x	x	x	x	x	x	x	x	x
Overpass / Underpass	x	x		x		x	x					x
Street Furniture	x				x			x				
Roadway Design												
Bike Lane/Shoulder	x	x	x	x	x			x	x	x		
Road/Lane Narrowing	x	x	x	x				x	x			
Fewer Lanes		x		x	x			x				
Raised Median	x	x	x	x		x	x					
One-Way Street						x	x					
Driveway Improvement										x	x	
Smaller Curb Radius				x		x				x		
Right-Turn Slip Lanes						x						
Intersection Design												
Modern Roundabout						x	x					
Modified T-Intersection						x						
Intersection Median Barrier		x		x		x	x					
Traffic Calming												
Curb Extension	x	x		x	x	x	x			x	x	
Choker	x			x								
Pedestrian Crossing Island	x	x		x	x	x	x					
Chicane	x		x	x					x			
Speed Humps	x		x	x					x			
Speed Table	x	x	x	x					x			

Countermeasure	Crash Type Group											
	Dart/Dash	Multiple Threat / Trapped	Unique Midblock (mailbox, ice cream vendor, parked vehicles)	Through Vehicle at Unsignalized Location	Bus-Related	Turning Vehicle	Through Vehicle at Signalized Location	Walking Along Roadway	Working/ Playing in Road	Non-Roadway (sidewalk, driveway, parking lot, or other)	Backing Vehicle	Crossing Expressway
Mini-Circle						x	x		x			
Raised Intersection				x		x	x					
Raised Pedestrian Crossing	x	x		x	x	x	x				x	
Gateway	x		x	x					x			
Landscape Options				x						x	x	
Paving Treatments				x		x	x					
Driveway Link/Serpentine	x			x					x			
Woonerf	x								x			
Traffic Management												
Diverter	x					x	x		x			
Full Street Closure	x					x	x		x			
Partial Street Closure	x					x	x		x			
Pedestrian Street	x			x					x			
Signals and Signs												
Traffic Signal	x	x		x	x	x	x					
Pedestrian Signal	x	x		x	x	x	x					
Pedestrian Signal Timing						x	x					
Signal Enhancement	x					x	x					
RTOR Restriction						x						
Advanced Stop Lines		x			x	x	x					
Sign Improvement	x	x	x	x	x	x	x	x	x	x		x
Other Measures												
School Zone Improvement	x	x		x	x	x	x	x		x		
Identify Neighborhood	x		x	x				x	x			
Speed-Monitoring Trailer	x		x	x			x	x	x			
Parking Enhancement	x		x	x	x	x	x			x	x	
Ped./Driver Education	x	x	x	x	x	x	x	x	x	x	x	x
Police Enforcement	x	x	x	x	x	x	x	x	x	x		x

- *Source: Based on information contained in "PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System" (FHWA, 2004)*

To determine the success of pedestrian safety initiatives, it is often beneficial to identify potential pedestrian safety performance objectives and means of achieving those objectives. Table 8 depicts several safety objectives and measures for achieving these target improvements. This information is based upon the Federal Highway Administration's *Pedestrian Facilities Users Guide* (2002) and should be consulted for additional clarification. The countermeasures are divided into seven categories:

- Pedestrian Facility Design
- Roadway Design
- Intersection Design
- Traffic Calming
- Traffic Management
- Signals and Signs
- Other Measures

Additional information for each countermeasure type can be found in the *Georgia Pedestrian & Streetscape Guide* (GDOT, 2003) and similar highway and pedestrian design references.

Table 8. Pedestrian Safety Performance Objectives and Countermeasures

	Pedestrian Facility Design	Roadway Design	Intersection Design	Traffic Calming	Traffic Demand Management	Signals and Signs	Other Measures
1. Reduce Speed of Motor Vehicles		▪ Add Bike Lane/Shld. ▪ Road Narrowing ▪ Reduce Number of Lanes ▪ Driveway Improvements ▪ Curb Radius Reduction ▪ Right-Turn Slip Lane ▪ On-street parking	▪ Modern Roundabouts	▪ Curb Extension ▪ Choker ▪ Chicane ▪ Mini-Circle ▪ Speed Humps ▪ Speed Table ▪ Raised Pedestrian Crossing ▪ Raised Intersection ▪ Driveway Link/Serpentine ▪ Woonerf		▪ Signal Enhancement (e.g., Adjust Signal Timing for Motor Vehicles) ▪ In-street crosswalk signs	▪ Speed-Monitoring Trailer ▪ School Zone Improvement
*Use in Conjunction With Other Treatments	▪ Street Furniture			▪ Landscaping Options ▪ Paving Treatments		▪ Sign Improvement	
2. Improve Sight Distance and Visibility for Motor Vehicles and Pedestrians	▪ Crosswalk Enhancements ▪ Roadway Lighting ▪ Move Poles, Newspaper Boxes, obstructive landscaping at Street Corners ▪ Curb extensions	▪ Add Bike Lane/Shoulder		▪ Curb Extension ▪ Speed Table ▪ Raised Pedestrian Crossing ▪ Raised Intersection ▪ Paving Treatments		▪ Sign Improvement (e.g., Warning Sign) ▪ Advanced Stop Lines	▪ Zoning/land-use ▪ Transit oriented development ▪ Complete street policies ▪ Siting policies for new schools

*These treatments may yield speed reductions when combined with other measures, but are not intended to be used as a stand alone speed reduction treatment.

	Pedestrian Facility Design	Roadway Design	Intersection Design	Traffic Calming	Traffic Demand Management	Signals and Signs	Other Measures
3. Reduce Volume of Motor Vehicles		▪ Reduce Number of Lanes		▪ Woonerf	▪ Incentives for alternative transportation ▪ Limit number of parking facilities and revise fee structure ▪ Diverters ▪ Full Street Closure ▪ Partial Street Closure ▪ Pedestrian Street		▪ Zoning, Land-use, TOD ▪ Complete street policies ▪ School citing policies
4. Reduce Exposure for Pedestrians	▪ Overpasses/ Underpasses ▪ Roadway/Sidewalk separation buffer or planting strip	▪ Road Narrowing ▪ Reduce Number of Lanes ▪ Raised Median ▪ Pedestrian Crossing Island	▪ Reduce curb radii ▪ Remove "free moving" right turn lanes ▪ Reduce or minimize double or triple turn lanes	▪ Curb Extension ▪ Choker ▪ Pedestrian Crossing Island	▪	▪ Pedestrian Signal Timing ▪ Accessible Pedestrian Signal ▪ Advance warning signs ▪ Flashing Beacons ▪ No Turn on Red ▪ Yield to Pedestrians sign ▪ Lead Pedestrian Interval (LPI) phase ▪ Eliminate unprotected left turns	

	Pedestrian Facility Design	Roadway Design	Intersection Design	Traffic Calming	Traffic Demand Management	Signals and Signs	Other Measures
5. Improve Pedestrian Access and Mobility	▪ Sidewalk/ Walkway ▪ Curb Ramps ▪ Crosswalk Enhancements ▪ Transit Stop Treatments ▪ Overpasses/ Underpasses ▪ Upgrade to ADA	▪ Raised Median ▪ Pedestrian Refuge Islands	Reduce curb radii	▪ Choker ▪ Pedestrian Crossing Island ▪ Curb Extensions	▪	▪ Traffic Signal ▪ Signal Enhancement ▪ Accessible Pedestrian Signal ▪ Pedestrian Signal Timing ▪ No turn on red ▪ No “free moving” right turns	▪ Land-use / TOD / mixed-use ▪ Urban design / subdivision design
6. Encourage Walking by Improving Aesthetics	▪ Street Furniture ▪ Roadway Lighting ▪ Landscaping Options	▪ Raised Median ▪ Pavers ▪ Crosswalk Design		▪ Gateway ▪ Landscaping ▪ Paving Treatments	▪ Create car free street or plaza (permanent or specific days or times)		▪ Identify Neighborhood ▪ Land-use ▪ Zoning
7. Improve Compliance With Traffic Laws	▪ Provide sidewalks ▪ Channelize crossings with signalized crossings, and ped crossing islands	▪ ▪ Narrower travel lanes	▪ Advance Stop Bar	▪ Choker ▪ Chicane ▪ Mini-Circle ▪ Speed Hump ▪ Speed Table		▪ Flashing Beacon ▪ School Zones ▪ In-Street Ped Xing Signs ▪ Pedestrian Countdown Signal	▪ Speed-Monitoring Trailer ▪ Ped./Driver Education ▪ Police Enforcement ▪ Red light cameras

	Pedestrian Facility Design	Roadway Design	Intersection Design	Traffic Calming	Traffic Demand Management	Signals and Signs	Other Measures
8. Eliminate Behaviors That Lead to Crashes	▪ Sidewalks ▪ Underpass / Overpass ▪ Highly visible crosswalks	▪ Pedestrian Refuge Island ▪ Raised Medians	▪ Tighten curb radii ▪ Roundabouts ▪ Shorten crossing distance ▪ Reduce exposure by eliminating the "3-legged crossing" (i.e. there should be crosswalks and ped heads at all legs of the intersection).	▪ Choker ▪ Chicane ▪ Mini-Circle ▪ Speed Hump ▪ Speed Table		▪ Pedestrian Signal Timing ▪ In Street Ped Xing Signs ▪ LPI ▪ Eliminate unprotected left turns ▪ Right on Red	▪ Ped./Driver Education ▪ Police Enforcement ▪ Improve lighting along roadway and at ped crossings ▪ Red light cameras

Source: Pedestrian Facilities Users Guide – Providing Safety and Mobility (FHWA, 2002)

Prioritizing Pedestrian Safety

In addition to engineering measures, education of pedestrians, drivers, and community leaders regarding pedestrian safety is essential. Education of pedestrians can occur for all age groups; however, a logical focus should be placed on educating school children and their parents on safe use of facilities, including rules for crossing safely at signalized and unsignalized locations. One popular initiative throughout the United States that focuses on education and law enforcement related to pedestrian safety are "Safe Routes to School" (SRTS) programs. More information on these important programs is available at www.walktoschool.org which is maintained by the Pedestrian and Bicycle Information Center (PBIC). Appendix E provides more resources on planning school walk routes and pedestrian safety. SAFETEA-LU provides funding for Safe Routes to School Programs to benefit children in primary and middle schools. The program is 100 percent funded by the federal government (no local match required). More information can be obtained at http://safety.fhwa.dot.gov/saferoutes/.

Education and awareness campaigns directed at pedestrians can also help in reducing certain types of crashes. Pedestrians can improve their own safety by wearing visible clothing at night, crossing at safe crossings, restricting use of cell phones or headphones, and refraining from abusing alcohol.

In addition, improving the behavior of motorists can improve pedestrian safety. Education of drivers can occur at the driver testing and licensing stage as well as through public awareness campaigns. Many drivers do not understand their legal responsibilities at crosswalks or when pedestrians are present in the roadway. Vehicle speed is one factor that plays a key role in the survivability of pedestrians involved in a crash with a vehicle. At 40 mph, there is an 85% chance that a pedestrian struck by a vehicle will be killed, whereas the fatality rate drops to 45% and 5% when hit by vehicles traveling at 30 mph and 20 mph, respectively. Improving driver behavior, and increasing speed limit enforcement, could result in fewer pedestrian crashes, and fewer serious injuries and fatalities. Enhancing education and awareness campaigns with legal enforcement is a particularly effective strategy for improving safety for pedestrians. Resources regarding pedestrian safety are available at walkinginfo.org.

Many governing jurisdictions do not place a priority on construction and maintenance of pedestrian facilities. In general, this is not an intentional oversight but rather a response to limited funds and increasing transportation demands. ADA requirements for improving existing facilities should also be considered. This effort can be dramatically expanded by including zoning and development regulation language that requires the inclusion of suitable pedestrian facilities as a requirement for private development. Appendix D includes sample language for these regulations.

The "Complete Streets" movement is also gaining ground and offers a useful platform for advancing pedestrian safety initiatives. Completing the streets means routinely accommodating travel by all modes. Complete streets are designed to balance safety and convenience for everyone using the road, including pedestrians and bicyclists. A network of complete streets improves the safety, convenience, efficiency and accessibility of the transportation system for all users.

Safe Routes to School (SRTS) programs provide opportunities for children to walk and bike safely to school. In several programs, neighborhood groups, parents and teachers, traffic engineers, local officials and in some cases, state Departments of Transportation (DOTs) are working together to make streets safer for pedestrians and cyclists along school routes, while encouraging parents and their children to take advantage of the many benefits of getting around on foot or by bike. Sedentary behaviors among children have contributed to rising obesity rates and escalating incidences of associated preventable diseases like diabetes and asthma. SRTS Programs are important for identifying and prioritizing pedestrian projects, in conjunction with other community design projects, to support the development of safe and convenient pedestrian facilities for school children (www.activeliving.org).

Most SRTS Programs employ the four "Es": Engineering, Enforcement, Education, and Encouragement. The *engineering* component focuses on making changes to the pedestrian and bicycle environment to promote safety, such as crosswalks, expanded or new sidewalks, traffic calming, and bicycle lanes. The *enforcement* component uses police enforcement and traffic laws around schools to change motor vehicle driver behavior that may endanger school children due to speeding or reckless driving. The *education* and e*ncouragement* components involve working directly with schoolchildren and their parents to foster interest and enthusiasm about walking to school and developing safe bicycling and walking behavior. A growing number of these programs also use the community outreach process to identify facility needs. Successful programs typically use the aforementioned 4 "Es" and also add *evaluation* as the fifth "E" and *empowerment* as the sixth "E".

CHAPTER 6 – LAND USE & ZONING POLICY/TRANSPORTATION DEMAND MANAGEMENT

One of the most important factors affecting pedestrian travel can be land use and zoning within a community. Travel patterns are affected by various land use factors, including density, mix of land uses, roadway connectivity and design, parking facility design, and building design. The land use and zoning that communities implement can have a direct influence on the degree to which people choose to travel as pedestrians. This Chapter provides information on land use and zoning policies that can help to improve the pedestrian environment. Additional examples of policies from around the country are provided in Appendix D.

Some communities have begun to develop and implement Transportation Demand Management (TDM) strategies that involve changing land use patterns directly, or support land use changes indirectly, and the feasibility and effectiveness of many TDM strategies are significantly affected by land use factors. For example, transit ridership tends to increase, and transit investments become more cost effective, with increased population density and supportive land use patterns.

Most people seldom think about how land use patterns develop or how such patterns affect their travel patterns, they simply know that certain travel activities are more or less convenient in certain areas, and so their travel patterns will respond. For example, if homes and worksites are within convenient walking distance of shops and restaurants, and it is a pleasant and safe walking environment, residents and employees will walk there for errands. (Proximity alone will not induce people to walk to do their errands, for instance, residents living near a suburban-style big box retail development may still drive due to the ample parking, lack of sidewalks through the parking lot, and generally unpleasant walking environment). Some employees will commute by transit or rideshare if they can reach services and retail by walking, but will drive if a car if one is needed to run errands during lunch breaks or after work. Land use patterns also affect the distance that people travel to reach destinations, regardless of the mode used (VTPI, 2005).

Convenience plays a major role for many people in their choice of travel modes. The Victoria Transportation Institute identifies convenience in reference to accessibility, that is, the time and money required to reach desired activities and destinations. For example, people often refer to a location that is easily reached by various forms of transportation as convenient, or they might say that walking or cycling is relatively convenient in a particular area. These all reflect land use impacts on transportation.

Density refers to the number of people or jobs in a given area (Campoli and MacLean, 2002). Clustering refers to related activities located close together, often in commercial centers. Density and clustering can be measured at various scales: region, county level, municipal jurisdiction, neighborhood, census tract, city blocks or individual campuses and buildings. Density and clustering can have significant impacts on travel patterns through the following mechanisms:

- **Land Use Accessibility.** The number of potential destinations located within a geographic area tends to increase with population and employment density, reducing travel distances and the need for automobile travel. For example, in low-density areas a school may serve an entire county, requiring most students to travel by motor vehicle. In higher density areas, schools may serve just one neighborhood, reducing average travel distances and allowing more students to walk or bike. Similarly, average travel distances for errands, commuting and business-to-business transactions can decline with density.
- **Transportation Choice.** Increased density tends to increase the number of transportation options available in an area due to economies of scale. Higher density areas tend to have sidewalks, bicycle facilities and transit service because increased demand makes them more cost effective. More transportation choices not only benefit children, the elderly, and the poor, but also keep people moving when one mode is temporarily clogged due to road construction, weather, or traffic conditions.
- **Space-Efficient Modes**. Automobile travel tends to require more road and parking space than other modes, particularly as traffic speeds increase, because each vehicle requires additional "shy distance." As a result, increased density tends to reduce traffic speeds, increase traffic congestion and increase parking costs, making driving relatively less attractive than alternative modes. Alternative transportation modes require fewer roadways; less parking, and less vehicular travel lanes are needed on arterials and collectors when communities are designed with a grid street network.

Pedestrian Related Ordinances and Policies

Assessment Districts and Conditions of Approval

One mechanism for ensuring that sidewalks and pedestrian facilities are implemented is to create special assessment districts that require pedestrian facility construction as a condition for approval of building permits. This system can be especially useful in areas where activities such as sidewalk construction primarily benefits local users, thus making it more difficult to allocate state or federal funding for construction activities. Where sidewalk and park construction that would primarily benefit adjacent properties is proposed or requested, full financial responsibility for such construction, including acquisition of rights-of-way, should be borne by the owners of benefiting property through either formation of a Special District or private construction. Upon successful formation of a District and approval of the improvement plan by the reviewing jurisdiction, construction of the improvement will be typically performed by private contractor.

The City of Canton, GA provides legislation in their Development Code that requires that all new construction and all new development projects within certain designated districts shall, as a condition precedent to the issuance of a building permit, be required to pay a sidewalk assessment fee based upon the linear footage of property frontage as identified on the development site plan. The developer is required to build the sidewalk at the same time as the development is built.

Zoning and Subdivision Regulations

Zoning policies allow municipalities to control the way land is developed through requirements for how a property may be developed based upon the land use designations. These requirements can include building setbacks, maximum heights, parking restrictions, and the development of the property frontage, which includes sidewalks. By utilizing zoning policies, a city or broader municipality can influence the pedestrian environment to help encourage pedestrian travel. Developing sidewalk policies is an important step in working toward a cohesive pedestrian network. Athens-Clarke County, GA provides requirements for sidewalk and parking location based upon both street classification and zoning district.

Pedestrian and bicycle travel is often an afterthought in the development process. The results are impassable barriers to pedestrian travel, both within and between developments. The examples below from the Federal Highway Administration show how local zoning ordinances can be amended to require more attention to the needs of pedestrians and bicyclists (FHWA Course on Bicycle and Pedestrian Transportation).

- **Subdivision Layout.** Residential subdivision layout (including Planned Unit Developments) should provide safe, convenient, and direct bicycle and pedestrian access to nearby (within ¼ mile for walking and 2 miles for bicycling) and adjacent residential areas, bus stops, and neighborhood activity centers, such as schools, parks, commercial and industrial areas, and office parks.
- **Cul-de-Sacs.** Cul-de-sacs have proven to be effective in restricting automobile through-traffic; however, they can also have the effect of restricting bicycle and pedestrian mobility unless public accessways are provided to connect the cul-de-sac with adjacent streets. Trail connections between cul-de-sacs and adjacent streets should be provided wherever possible to improve access for bicycles and pedestrians. Cul-de-Sacs also provide less connectivity than a grid network. The resulting street pattern is one with wide, multi-lane, higher-speed arterial and collector roads, which are more dangerous and less hospitable to bicycles and pedestrians.
- **Future Extension of Streets.** During the development of subdivisions of properties, streets, bicycle paths, and sidewalks should be designed to connect to adjacent properties that are also likely to be subdivided in the future, so that a secondary system of roads and sidewalks develops over time. When subdivisions are built with only one outlet to a main thoroughfare, the result is heavy traffic congestion and difficult intersections for motorists, cyclists and pedestrians.
- **Inclusion of Bicycle and Pedestrian Facilities in Piecemeal Development.** This is intended to ensure that pedestrian and bicycle facilities are included in projects that occur in a piecemeal fashion. For projects where only part of the land owned by the applicant is proposed for development, a sketch plan showing the tentative locations of streets, bicycle facilities, and public accessways should be submitted for the entirety of the land owned. "Stub-outs" should be constructed for bicycle and pedestrian facilities on-site, and the next construction phase should be designed to connect to this network.

- **Internal Bicycle/Pedestrian Circulation for Commercial and Business Developments.** Adequate provisions should be made for bicycle and pedestrian circulation between buildings and related uses on development sites. (The Americans with Disabilities Act (ADA) also contains regulations for on-site circulation).
- **Lot Coverage.** Zoning codes should be amended to raise the allowable lot coverage along bus routes and near transit stations to encourage intensification of uses and more efficient use of land in these areas.
- **Parking in High-Density Residential Developments.** In some high-density residential areas, existing regulations require off-street parking, and at the same time, a reduced lot frontage. This results in homefronts that primarily consist of garage doors. Ordinances should be modified to allow for rear-lot access (alleyways) or other innovative solutions in these areas.
- **Parking Reductions.** Parking codes should be modified to allow for a "reduced parking option" for developments that are located on bus routes or near transit stations and which provide facilities that encourage bicycling and walking. In general, shopping center parking lots should not be designed to handle volumes that occur only once or twice per year, but rather more typical volumes. Sharing of parking facilities between land uses and businesses should be encouraged in order to reduce the demand for additional parking. For instance, churches which generate little traffic during the week can allow retail customers to use their parking lot during the week, while retailers can allow church goers to use their parking spaces on Sundays and Saturday mornings when retail businesses are closed or business is slow.
- **Compliance with design standards.** Bicycle and pedestrian facilities should be designed to meet local and statewide design standards. All projects should meet the minimum standards established by AASHTO. The Georgia Pedestrian and Streetscape Guide is a useful tool for identifying accepted state design practices.

Example of land use and zoning regulations from Georgia:

The City of Rome, Georgia makes provisions for inclusion of sidewalks within new subdivision developments per the city's municipal Code. As a minimum requirement, the Code instructs that the following improvements shall be provided by the developer or at the developer's expense in every subdivision or development: sidewalks along each side of any curb and gutter street within or adjacent to a subdivision, or adjacent to any development, if inside the City of Rome; and along any arterial and collector streets adjacent to any subdivision or development in the unincorporated areas of Floyd County. Standards for sidewalk development include the following:

City of Rome Subdivision and Project Standards *(Excerpt)*:

a. Sidewalks shall be provided along arterial and collector streets within the City of Rome and on parcels that are contiguous to the City of Rome; to provide a safe and convenient means for pedestrian movements.
b. Where provided, sidewalks shall be located not less than one foot from the property line to prevent interference of encroachment by fencing, walls, hedges or other planting or structures placed on the property line at a later date. In single-family residential areas sidewalks shall be no less than four feet in width, constructed of concrete no less than four inches in depth, and located no less than three feet from the back of curb. In commercial areas sidewalks shall be no less than five feet in width, constructed of concrete no less than four inches in depth.
c. Concrete shall be 2,000 PSI at 28 days strength.
d. Sidewalks shall be backfilled and grassed.

From: City of Rome, Georgia, Unified Land Development Code, ARTICLE 6. SUBDIVISION AND PROJECT STANDARDS, Section 6.6.3 Sidewalks, Code of the City of Rome, Georgia.

Other examples can be found in Appendix D.

Commercial Development

The physical layout of a development can often make the difference in a person's choice to walk between stores or to adjacent developments. Careful attention should be given to the location of buildings as well as the configuration of parking lots. Several provisions can ensure a better walking environment in commercial and office developments as described below.

- **Building Setbacks.** Reducing building setbacks improves pedestrian access to buildings, and generates pedestrian activity and can create a more vibrant street or commercial center. In urban areas and central business districts especially, buildings should not be separated from the street by parking lots. A maximum setback requirement of 5 to 25 feet from the back of the sidewalk will force parking to the rear or side of properties, thereby improving pedestrian access and encouraging pedestrian activity. Parking, driving, and maneuvering areas should not be located between the main building entrance and the street.

- **Building Orientation and Facades.** Main building entrances should be oriented with the facade facing the street. When located near transit, entrances and paved walkways should lead directly to a transit stop. Safe, marked crossings should lead directly to building entrances that face the street (the need for a signalized vs. unsignalized, pedestrian refuge island, etc can be determined at the project planning level). Visual stimulation is very important to pedestrians -- long, blank walls with no openings onto the street discourage walking. Building facades should maintain continuity of design elements, such as windows, entries, storefronts, roof lines, materials, pedestrian spaces and amenities, and landscaping. Parking garages on streets should have ground-floor street frontage developed for office, retail, or other pedestrian-oriented uses.
- **On-Site Walkways.** For developments with multiple buildings and/or outparcels, all building entrances on the site should be connected by walkways to encourage walking between buildings and to provide a safe means of travel for pedestrians. Sidewalks between the building edge and parking lots should allow pedestrians safe and convenient access to building entrances without requiring them to walk within driving aisles of parking lots. In particular, for blind and disabled pedestrians, continuous walkways from the street to the building entrances should be provided.

- **Pedestrian Access between Adjacent Developments.** Sidewalks should connect uses on the development site to adjacent activity centers to encourage walking instead of driving between uses. Barriers such as fences or vegetation should not be placed so as to hinder access between developments. Interparcel access for vehicles reduces the need for multiple driveways and reduces pedestrian conflict points along the adjacent roadways. Where it makes sense, for developments with multiple buildings, direct pedestrian access to public transit should be provided by clustering buildings near transit stops.
- **Lighting.** Pedestrian-scale lighting should be designed to light the walkway, thereby increasing pedestrian safety. Pedestrian lighting should be used in addition to lighting provided for motorists' safety. The *Georgia Pedestrian and Streetscape Guide* recommends lighting levels between 0.5 and 2.0 footcandles along pedestrian travel ways depending on conditions. Refer to local agency guidelines for any applicable design standards. An example of various illumination levels for different lighting locations is provided below:

Table 9. Pedestrian Illumination Levels

Location of lighting		***Lux (lx)***	***Footcandles (fc)***
Sidewalks Along Roadsides:	**Commercial areas**	10	0.9
	Intermediate areas	6	0.6
	Residential areas	2	0.2
Sidewalks Distant From Roadsides:		5	0.5
Pedestrian Tunnels:		40	4.0

(FHWA Course on Bicycle and Pedestrian Transportation)

- **Improvements between the Building and the Street.** Design elements in the area between the building and the street are critical to successful pedestrian spaces. The streetscape should provide visual interest for the pedestrian. The area should be landscaped, which oftentimes can be paid for by the developer. Low maintenance landscape materials also help to manage the State's water resources.
- **Parking Lot Design.** Parking lots with fifty or more spaces should be divided into separate areas with walkways and landscaped areas in between, which are at least 10 feet in width. Pedestrian paths should be designed with minimal direct contact with traffic. Where pedestrian paths cross the traffic stream, raised speed tables that slow cars, while providing an elevated pedestrian walkway, should be provided. Additional recommendations for pedestrian-oriented parking lots are as follows:
- *Location*. Keep parking on one or two sides of the shopping center, away from the side that will generate the most pedestrian access. This pedestrian access point could be an office park, outparcel shopping or restaurant, or a residential area.
- *Direct Pedestrian Paths*. Provide a direct pedestrian path from parking lots and parking decks to the buildings they serve. Clearly delineate this path with striping, different

paving materials, or by situating the path through the center of a series of strategically placed parking islands.

- *Use of Landscaping*. Landscaping can be used to channel and organize the traffic flow in parking lots, as well as provide pedestrian refuge areas. Avoid open parking lots that allow cars to move in any direction. Buffer landscaping to be located so as not to preclude interparcel connections. One tree is also suggested for every ten parking spaces.
- *Bicycle Parking*. To encourage more bicycle trips and fewer motor vehicle trips, provide covered bicycle parking close to retail, commercial and office buildings. Bicycle ordinances, or bicycle requirements in subdivision regulations can help provide these facilities, however they are very inexpensive and often a developer or business owner will agree to install one even after their project is permitted or built.
- *Interparcel Connectivity.* Provide vehicular and pedestrian connections between buildings on adjacent parcels, and consolidate driveways.

Development Review

Land developers should be asked to submit a "Pedestrian and Bicycle Mobility Plan" early during the site plan review process. This Plan should provide an inventory of all existing and proposed land uses adjacent to the site, and illustrate a logical circulation plan for pedestrians and bicycles within the development and between adjacent land uses. This is particularly important if a development is near transit stops, or located near elderly or low-income housing, schools or universities. The questions below can help design professionals create site plans that are sensitive to the needs of pedestrians.

SITE PLAN CHECKLIST (FHWA Course on Bicycle and Pedestrian Transportation)

Overall System

- Does the plan meet ADA standards?
- Are utilitarian paths direct? Do they provide for connections to pedestrian magnets nearby? Can pedestrians take advantage of "shortcut paths" that encourage walking instead of driving?
- Does the pedestrian system consider the type and probable location of future development on adjacent or nearby parcels of land? Is there flexibility to provide direct connections to adjacent parcels; should that be desired in the future?
- Are building entrance areas convenient to the pedestrian? Are they clearly evident through design features, topography, signing, or marking?
- Are walkways along the street buffered from traffic as much as possible?

Safety and Security

- Are crossings of wide expanses of parking lot held to a minimum?

- Are pathways generally visible from nearby buildings and free from dark, narrow passageways?
- Is adequate pedestrian-scale lighting provided for nighttime security?
- Are sight lines at intersections adequate for pedestrian visibility? Are pedestrians able to see on-coming traffic, given typical speeds?
- Do pathways lead to road crossing points with the least conflict?
- In general, are pedestrian/vehicle conflict points kept to a minimum?
- Are pedestrians given adequate time to cross the road at intersections?

Lead by Example!

What can your local city or county do to encourage pedestrian activity and improve pedestrian access? *Don't just tell the developer to do it. Show leadership and commitment to better and safer pedestrian access by implementing good pedestrian policies and practices at the local government level*. Here are some examples:

- Keep public buildings downtown! Build new public buildings and maintain existing ones in downtown areas where pedestrian and transit access is generally best (for those cities with transit). These buildings include City Hall, Post Offices, Courthouses, and city and county buildings. Avoid relocating them on the edge of town off highway exits which are primarily only accessible by car. This also helps to keep downtowns relevant, and encourages investment in downtown.
- Design government buildings with parking in the rear, or with consolidated city lots or garages serving many buildings.
- Include bicycle racks and shower facilities in government buildings.
- Offer incentives for government employees to walk, bike or ride transit to work, and to walk to restaurants on their lunch break
- Sponsor bike/walk events for your employees, provide training/education courses or materials for your employees regarding the rights and responsibilities of pedestrians.

Transit Oriented Design

Transit Oriented Development (TOD) is a term used to describe walkable, mixed use urban development around rail stations and transit stops. These TODs have the potential to provide residents with improved quality of life and reduced household transportation expenses while providing the region with stable mixed-income neighborhoods that reduce environmental impacts and provide alternatives to traffic congestion. TOD directs denser development where the transportation infrastructure can accommodate it, while limiting growth in lower density areas with insufficient transportation infrastructure.

Transportation Demand Management Programs

While Transportation Demand Management (TDM) programs are not directly land use policy or zoning programs, they provide community benefits by reducing congestion, providing cost savings for roadway and parking facilities, and improving community livability. These benefits

are accomplished by improving transportation options, including pedestrian and bicycle travel, and reducing the reliance on single-occupant vehicles. TDM programs vary by location and could include financial saving incentives for reducing vehicle use.

The creation of pedestrian and bicycle networks can be valuable tools in working toward meeting TDM program goals by improving connections to transit and improving the viability of biking or walking as an alternative mode. As such, pedestrian projects may receive a higher priority for funding and implementation within TDM areas. Implementation of TDM programs can also be required as a condition of zoning variances, or in exchange for increase density or reduced parking requirements. For more information concerning TDM, visit the Clean Air Campaign website at www.cleanaircampaign.com/ or the GDOT Air Quality website at: http://www.dot.state.ga.us/DOT/plan-prog/planning/AQ/index.shtml.

- Pedestrian considerations are part of the TDM process at several different levels of the TDM strategies. Improvements to existing pedestrian infrastructure, encouraging shifts from motor vehicle to pedestrian travel, and smart growth and TOD development strategies are all tools that are used within a TDM program to help meet TDM goals including the reduction in reliance on single occupant vehicles. Table 10 summarizes typical TDM strategies. Although prepared for use in the Atlanta area, elements of the Table are applicable statewide.

Table 10. Potential Strategies for a TDM Program

Improved Transportation Choices	Incentives to Shift Modes	Land Use	Policy Reforms	Programs
-Address Security Concerns -Alternative Work Schedules -Bike and Ped Improvements -Bike/Transit Integration -Guaranteed Ride Home -Park & Ride -Ridesharing -Shuttle Services -Taxi Service Improvements -Telework -Transit Improvements -Universal Access	-Bike and Pedestrian Encouragement -Congestion Pricing -Distance-based Pricing -Commuter Financial Incentives -Fuel Tax Increases -HOV Preferences -Pay as You Drive Insurance -Parking Pricing -Road Pricing -Vehicle Use Restrictions	-Car-free Districts -Clustered Land Use -Location Efficient Development -New Urbanism -Parking Management -Smart Growth -TOD -Street Reclaiming	-Car-Free Planning -Comprehensive Transportation Market Reforms -Institutional Reforms -Least Cost Pricing -Regulatory Reform	-Access Mgt. -Campus-Transportation Mgt. -Data Collection & Surveys -Commute Trip Reduction -Freight-Transportation Mgt. -School Trip Mgt. -Special Event Mgt. -TDM Marketing

(http://www.atlantaregional.com/transportationair/TranDemMang.pdf#search='Georgia%20TDM%20Programs')

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APPENDICES

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Appendix A- Examples of How to Use the Georgia Guidebook for Pedestrian Planning

This section gives three examples of how local jurisdictions with different conditions and needs for their pedestrian environments can use the Georgia Guidebook for Pedestrian Planning ("the Guidebook") as a resource to address existing deficiencies, needs or opportunities.

Example 1: Developing a Pedestrian Facility Inventory and Condition Assessment and Identifying Funding Sources for Pedestrian Projects

Question:

- A small city in southern Georgia has outdated information on pedestrian facilities within the city. There is currently no formal pedestrian planning process or pedestrian plan. Following a pedestrian fatality at a recently improved intersection, several stakeholders have engaged the mayor and together determined that they must develop a proactive approach to improve the environment for pedestrians within the city. City Council members subsequently adopted a resolution to do so, and a Pedestrian Plan Task Force has been formed to work together with transportation officials to implement this resolution. After searching through several outdated records, they have found a number of files on pedestrian facilities in the jurisdiction, but the inventory information is not complete and there is no information on the condition of the facilities. Furthermore, recognizing that there are no designated funding sources for pedestrian facility improvements in the city, the transportation officials and Task Force members are very interested in identifying available resources that they can pursue for project improvements in the future. Because the City has no formal pedestrian plan, the transportation officials have decided to develop a Citywide Pedestrian Plan that will be integrated with the City's Transportation Plan. How can city officials and the Task Force use the Georgia Guidebook for Pedestrian Planning as a resource to achieve their objectives?

Answer:

- Chapter 1 of the Guidebook offers goals and objectives (Pgs 4-7) for the statewide pedestrian environment that can be useful as a point of departure for developing citywide pedestrian plan goals and objectives.

- Chapter 2 (Planning and Prioritizing Projects) of the Guidebook proposes that the starting point of any pedestrian planning process is to determine what exists (through an inventory and condition assessment), while determining what one would like to have (through the development of goals and objectives). Chapter 2 offers several factors that

should be considered when assessing the condition of pedestrian facilities. In particular, because of the general concern for the safety of pedestrians in this city, it would be important to conduct a safety assessment of the existing pedestrian system. Page 15 of the Guidebook provides details on the factors that should be considered when conducting a safety assessment of pedestrian facilities or systems.

- Because city officials and Task Force members are concerned about identifying funding for the city's anticipated pedestrian projects, Chapter 3 (Pedestrian Facility Funding) of the Guidebook will provide a useful starting point for researching the funding sources available for pedestrian projects. Pages 26-35 offer an extensive list of federal and state funding opportunities for both construction and reconstruction of new pedestrian facilities. The Guidebook also offers several examples of local level sources of funding on pages 35-40. In particular, Table 5 (Pgs 43-45) offers a compilation of various funding sources for different types of projects, the required matching funds, application deadlines, the funding available annually, and contact and website information for the programs. The funding sources described include federal, state and private programs. The Chapter also offers several examples of local funding sources for pedestrian projects from different parts of the country.

Example 2: Identifying and Prioritizing Pedestrian Projects

Question:

- A city in Georgia has adopted a pedestrian and bicycle element as part of its 20-year Comprehensive Plan to complete the installation of sidewalks alongside the thoroughfare system. The city has family-oriented neighborhoods, an extensive park system, a much-valued historic district, shopping and entertainment centers and several public places. A key strategy of the city's transportation plan is to connect these places using non-motorized transportation modes. Several pedestrian and bicycle projects have been identified in the 20-year Comprehensive Plan. The total construction cost has been estimated at above $100 million in FY 2000 dollars. The projects were identified using the criteria shown in Table A1 and ordered in terms of their implementation schedule based on three anticipated 5-year work programs that would occur in the short term, mid-range and long-range. Because the demand for projects is usually higher than the funds available for implementing projects, jurisdictions often need a methodology to prioritize candidate pedestrian projects. The approach taken by the city has been to prioritize the candidate projects in three broad implementation phases: short, medium and long-term. Suppose the city wants to prioritize further the projects in the three different categories, in order to distinguish the projects by their relative abilities to improve the existing pedestrian system to meet the city's desired criteria for their pedestrian system. How can the Georgia Guidebook for Pedestrian Planning serve as a useful resource?

Table A1: Project Identification and Priority Criteria

1	Improve safety at places with high incidence of accidents
2	Fill gaps in existing sidewalks
3	Connect schools to nearby residential areas
4	Link to public transportation
5	Coincide with high priority road improvement projects
6	Connect residential areas to commercial centers
7	Connect residential areas to parks
8	Connect residential areas to town centers
9	Connect parks to each other
10	Tie into existing and proposed projects from neighboring communities
11	Link facilities within the city to proposed and existing regional statewide systems

Answer:

- Chapter 2 of the Georgia Guidebook on Pedestrian Planning (Planning and Prioritizing Projects) provides a project Prioritization Framework that can be used in conjunction with the city's project identification and priority criteria. The project prioritization framework in the Guidebook presents several prioritization criteria that capture the statewide vision for the pedestrian environment. Several of the criteria used by the city (as shown in Table A1) can be placed within the prioritization framework provided in the Guidebook. For example, criteria 3, 6, 7, 8 and 9 in the city's criteria all relate to encouraging the development of pedestrian friendly environments in the statewide framework, which is located under Goal 4 of the Guidebook.

- The statewide project prioritization framework further offers the ability to distinguish between *pedestrian potential factors (PPFs)* and *pedestrian deficiency factors (PDFs).* PPFs are factors that have the potential to improve the pedestrian environment while PDFs refer to factors that obstruct the pedestrian environment from being fully effective. The city could use the statewide prioritization framework to distinguish between these two types of factors in order to prioritize projects that have the highest pedestrian potential and highest pedestrian deficiencies of all candidate projects within each of the three implementation phases. Such projects would be superior to candidate projects that have lower pedestrian potential and lower pedestrian deficiencies. In addition, the city could use the statewide framework to identify additional criteria to support other goals for their system that would enhance the quality of life of the city residents.

- The city could also use the framework presented to evaluate the completeness of different sets of criteria for assessing progress toward a particular goal. For example, using the statewide prioritization framework, the city might identify additional safety criteria that are important for improving the pedestrian environment in the desired manner.

Example 3: Improving Walkability and Promoting Walking as a Viable Mode of Transportation

Question:

- A rapidly growing county in Georgia has experienced a notable number of pedestrian fatalities in the recent few years, particularly along a major commercial corridor with severely poor conditions for pedestrian activity. In particular, there are no sidewalks on the street, no locations on the median where pedestrians can wait when crossing the arterial, and the street crossings are spaced so far apart that pedestrians find it more convenient to cross the arterial between designated street crossings. In light of the growing number of fatalities in this corridor, the County's Board of Commissioners has adopted a resolution to improve walkability and promote walking as a viable mode of transportation in the county. In addition the Board has appointed a task force to determine specific actions to achieve the county's goals for their pedestrian environment. How can the Georgia Guidebook for Pedestrian Planning serve as a useful resource for this county?

Answer:

- As one of their first action items, the task force has determined to develop an education campaign for both pedestrians and motorists on the rights of pedestrians on the highway system. Chapter 4 (Georgia Pedestrian Laws) of the Guidebook provides extensive coverage of the laws of Georgia as they pertain to both pedestrians and motorists. Understanding the pedestrian laws of the state is critical to enforcing the laws. The task force thus determines that they should target their education campaign not only to members of the general public but also to law enforcement officials who can play a significant role in improving pedestrian safety in the county.

- In addition, the task force determines that it would be worthwhile to identify and proactively implement countermeasures at various pedestrian crash sites. Chapter 5 (Pedestrian Safety and Education Strategies) of the Guidebook presents several factors the influence pedestrian safety. Table 7 (pages 58-59) in particular presents a comprehensive list of potential countermeasures for pedestrian crashes. Countermeasures are provided for pedestrian facility, roadway and intersection design, and traffic calming. In addition, Table 8 (Page 61) links pedestrian safety performance objectives with countermeasures. Thus, as the county develops their pedestrian plan, this table will be

helpful for identifying countermeasures to improve pedestrian safety at specific crash-prone locations in the network.

Example 4: Prioritizing Competing Projects

Wasco is a town with a population of approximately 10,000. The town has sidewalks and some pedestrian amenities within its core CBD; however, streets with unimproved frontages characterize the rest of the town. Most of the residential areas and other parts of the town have a paved road surface with graded or grass shoulders, without adjacent curb or sidewalk.

The city's current goal is to make strategic improvements that will provide some key pedestrian connections between the CBD and residential neighborhoods in addition to improving the existing pedestrian network near the downtown business district, which has seen a recent boom in new businesses. This summary identifies three potential improvements that have arisen from town staff and local citizen suggestions. These projects must be evaluated to identify and prioritize the projects for implementation based upon available funding.

The following sections give a brief description of each of the proposed projects and present a completed prioritization form for each project.

Project #1: Provide additional sidewalk along Edge Road

Currently, Edge Road has only a sidewalk on the south side of the roadway for a half-mile segment between Ridge Road and Pine Street. Development occurred on the north side of the street prior to implementation of a sidewalk ordinance within the city's Development Code requiring sidewalk construction in conjunction with new development. Over the past couple of years, additional residential development and some commercial development including restaurants and shops have occurred within approximately one mile of the study section of roadway. This has given rise to additional pedestrian traffic along Edge Road. Without a designated walking space, pedestrians are forced to cross to the south side of the street and typically choose to cross Edge Road at random unmarked locations. There have been two pedestrian crashes along Edge Road within the past three years; both injury crashes, but non-fatal.

Edge Road is a collector facility carrying an AADT of approximately 5,000 vehicles and has a two-lane cross-section. Eighty-fifth percentile speeds along Edge Road are approximately 32mph; the posted speed is 25 mph. Signalized intersections define both ends of the project area, with two unsignalized intersections at even spacing in between. Parking is available on both sides of Edge Road. No additional right-of-way is required. The project is currently listed in the city's transportation plan.

Proposed project improvements include:

- Construction of ½ mile of sidewalk with a sidewalk width of 5 feet and a 6-foot sidewalk setback from face of curb.
- Installation of striping for 10 new cross-walks
    - Two new North-South crosswalks and one East-West crosswalk for each of the two unsignalized intersections.
    - One new North-South crosswalk, and one East-West crosswalk at each of the two signalized intersections at the ends of the study area.

Estimated Project Cost: $150,000

Prioritization Worksheet for Project #1

Prioritization Criteria / Score	1 Very Low	2 Low	3 Medium	4 High	5 Very High
PEDESTRIAN DEFICIENCY FACTORS					
GOAL 1: Enhance pedestrian safety on Georgia's transportation system					
▪ *Pedestrian Crashes or Crash Rates*		**X**			
▪ *Motor Vehicle Speed*			**X**		
▪ *Motor Vehicle Volume*			**X**		
▪ *Sight Distance/Visibility*			**X**		
▪ *On-Street Parking Influence on Safety*		**X**			
▪ *Sidewalk Proximity to Motor Vehicle Lanes*					
▪ *Street Crossing Distance*			**X**		
▪ *Traffic Signal Timing/Phasing*					
▪ *Conflict Point Density*					
Sum of Pedestrian Deficiency Factors (ΣPDF)					**16**
PEDESTRIAN POTENTIAL FACTORS					
GOALS 2/3: Provide for a more seamless integration of pedestrian facilities into Georgia's transportation system/ Integrate planning for pedestrians more fully into agency planning and design processes					
▪ *Gap Closure*: Filling of gaps in existing pedestrian network					**X**
▪ *Modal Connectivity*: Connection to another mode of transportation			**X**		
▪ *Need*: Potential or forecasted pedestrian flows				**X**	
▪ *Integration*: Part of a community's transportation plan					**X**
GOAL 4: Encourage the development of pedestrian-oriented environment					
• *Connectivity-I*: Degree of connection to important land uses (e.g., public parks, commercial centers, mixed use developments, etc.)		**X**			
• *Connectivity-II*: Connection to schools (elementary, middle, high schools, colleges)				**X**	
• *Integration*: Part of a community's comprehensive plan or urban design strategy, ADA Transition Plan project, etc.					**X**
Funding/Implementation					
• *Political Support*: Degree of community support					**X**
• *Funding Availability*: Leveraged funding			**X**		
• *Commitment*: Part of ongoing project		**X**			
Sum of Pedestrian Potential Factors (ΣPPF)					**38**
Σ Potential Factors + Σ Deficiency Factors = ____54____ [Prioritizes high potential, high deficiency projects]					

Project #2 – Provide a Pedestrian Refuge at the Crossing of Hwy 40 at 16th Street

Highway 40 is a six-lane arterial facility carrying an AADT of approximately 13,000 vehicles. Eighty-fifth percentile speeds within the city limits are approximately 40 mph, with a posted speed of 35 mph. It has been found that a large number of pedestrians are crossing at the unsignalized intersection of Hwy 40 and 16th Street, which leads from a residential area to a popular community park. The crossing location used by most pedestrians is currently unmarked. Approximately 20 to 30 pedestrians use the crossing during the weekday evening hours from 6 to 8 p.m. and the intensity of pedestrian crossing is higher for the midday period on weekends. There are sidewalks along both sides of Highway 40. No parking is allowed along the highway.

Highway 40 has a raised concrete center median that provides access control along the portion of the roadway in the vicinity of 16th Street (i.e. access to/from 16th Street is right-in/right-out only). However, the median is currently only 3 feet wide and presents a potential safety hazard for those people who attempt to use the current median as a refuge area. The nearest signalized intersections are approximately 1/8 of a mile upstream and downstream from the ad-hoc crossing. One pedestrian/vehicle crash has been reported in the last three years. The crash resulted in a fatality due to the vehicle speeds.

The proposed improvement is to narrow the width of the travel lanes along Hwy 40 (in the vicinity of 16th Street) from 12 feet to 11 feet. This will allow the median width to be increased by 6 feet, up to a total width of 9 feet, without modifying the outside curb lines of the Hwy 40. The median would also be modified to provide a cut-through pedestrian refuge at the same elevation as the roadway. A new striped crossing would be provided with supporting signs in advance of the crossing. The project is not in the city's pedestrian plan.

Proposed project improvements include the following:

- Restripe Highway 40 in the vicinity of 16th Street to narrow the roadway lanes to 11 feet.
- Modify the width of the median to increase the width to 9 feet at the pedestrian refuge.
- Install striping and signing for the marked pedestrian crossing.

Estimated Project Cost: $150,000

Prioritization Worksheet for Project #2

Prioritization Criteria / Score	1 Very Low	2 Low	3 Medium	4 High	5 Very High
PEDESTRIAN DEFICIENCY FACTORS					
GOAL 1: Enhance pedestrian safety on Georgia's transportation system					
▪ *Pedestrian Crashes or Crash Rates*		X			
▪ *Motor Vehicle Speed*					X
▪ *Motor Vehicle Volume*					X
▪ *Sight Distance/Visibility*				X	
▪ *On-Street Parking Influence on Safety*				X	
▪ *Sidewalk Proximity to Motor Vehicle Lanes*					X
▪ *Street Crossing Distance*					X
▪ *Traffic Signal Timing/Phasing*					
▪ *Conflict Point Density*					X
Sum of Pedestrian Deficiency Factors (ΣPDF)					**35**
PEDESTRIAN POTENTIAL FACTORS					
GOALS 2/3: Provide for a more seamless integration of pedestrian facilities into Georgia's transportation system/ Integrate planning for pedestrians more fully into agency planning and design processes					
▪ *Gap Closure*: Filling of gaps in existing pedestrian network					X
▪ *Modal Connectivity*: Connection to another mode of transportation			X		
▪ *Need*: Potential or forecasted pedestrian flows			X		
▪ *Integration*: Part of a community's transportation plan	X				
GOAL 4: Encourage the development of pedestrian-oriented environment					
• *Connectivity-I*: Degree of connection to important land uses (e.g., public parks, commercial centers, mixed use developments, etc.)					X
• *Connectivity-II*: Connection to schools (elementary, middle, high schools, colleges)	X				
• *Integration*: Part of a community's comprehensive plan or urban design strategy, ADA Transition Plan project, etc.	X				
Funding/Implementation					
• *Political Support*: Degree of community support				X	
• *Funding Availability*: Leveraged funding		X			
• *Commitment*: Part of ongoing project	X				
Sum of Pedestrian Potential Factors (ΣPPF)					**28**
Σ Potential Factors + Σ Deficiency Factors = [Prioritizes high potential, high deficiency projects]	**____63____**				

Project #3 – Sidewalk Installation for Improved Route Continuity to School

Alexander Elementary School, serves a large residential community on the outer limits of the city. Students predominantly are driven to school by their parents. One particular neighborhood that the school serves is partially cut off from the other neighborhoods by a section of undeveloped land along Hawk Road. The frontages of the land on both sides of the roadway are generally unimproved with no sidewalk or other pedestrian facilities and limited paved shoulders. This section of unimproved frontage creates a roughly three-block section of disconnect in the pathway that leads from the neighborhood to the school. Without sidewalks along this roadway, parents are reluctant to allow their children to walk or bike to school from this neighborhood.

Hawk Road has a three-lane cross-section (two lanes in each direction with a two-way center turn lane) with an ADT of 7,000 vehicles. It serves as a collector facility and provides access to the school from the surrounding neighborhoods. The roadway is posted 25 mph in the vicinity of the study area, with 85th percentile speeds near 35 mph. No pedestrian crashes have been reported in the vicinity of the study area in the past three years.

Sidewalk installation is proposed to improve pedestrian connectivity, provide for a safe route to school, and increase the percent of children walking or biking to/from school by 20%. This project is listed in the city's transportation plan.

Proposed project improvements include the following:

- Roadside improvement (grading, drainage, etc)
- Sidewalk installation

Estimated Project Cost: $100,000

Prioritization Worksheet for Project #3

Prioritization Criteria / Score	1 Very Low	2 Low	3 Medium	4 High	5 Very High
PEDESTRIAN DEFICIENCY FACTORS					
GOAL 1: Enhance pedestrian safety on Georgia's transportation system					
▪ *Pedestrian Crashes or Crash Rates*		**X**			
▪ *Motor Vehicle Speed*		**X**			
▪ *Motor Vehicle Volume*		**X**			
▪ *Sight Distance/Visibility*			**X**		
▪ *On-Street Parking Influence on Safety*					**X**
▪ *Sidewalk Proximity to Motor Vehicle Lanes*					
▪ *Street Crossing Distance*					
▪ *Traffic Signal Timing/Phasing*					
▪ *Conflict Point Density*					
Sum of Pedestrian Deficiency Factors (ΣPDF)					**14**
PEDESTRIAN POTENTIAL FACTORS					
GOALS 2/3: Provide for a more seamless integration of pedestrian facilities into Georgia's transportation system/ Integrate planning for pedestrians more fully into agency planning and design processes					
▪ *Gap Closure*: Filling of gaps in existing pedestrian network					**X**
▪ *Modal Connectivity*: Connection to another mode of transportation			**X**		
▪ *Need*: Potential or forecasted pedestrian flows			**X**		
▪ *Integration*: Part of a community's transportation plan					**X**
GOAL 4: Encourage the development of pedestrian-oriented environment					
• *Connectivity-I*: Degree of connection to important land uses (e.g., public parks, commercial centers, mixed use developments, etc.)	**X**				
• *Connectivity-II*: Connection to schools (elementary, middle, high schools, colleges)				**X**	
• *Integration*: Part of a community's comprehensive plan or urban design strategy, ADA Transition Plan project, etc.					**X**
Funding/Implementation					
• *Political Support*: Degree of community support					**X**
• *Funding Availability*: Leveraged funding			**X**		
• *Commitment*: Part of ongoing project		**X**			
Sum of Pedestrian Potential Factors (ΣPPF)					**36**
Σ Potential Factors + Σ Deficiency Factors = [Prioritizes high potential, high deficiency projects]	**____50____**				

Other Considerations

The prioritization tool prioritizes high potential, high deficiency projects. By the priority indexes estimated, the projects in decreasing order of priority are – based on their respective pedestrian potential and pedestrian deficiency factors – project #2, project #1 and project #3. This ranking does not take into consideration the respective costs of each project. The costs must be factored into the decision making to estimate and compare that relative cost-effectiveness of the competing projects. In general, a project with a higher prioritization index and a lower cost will be more attractive. In addition, one must consider how the points are distributed between pedestrian deficiency and potential. Projects with very high pedestrian deficiency indexes will pose major risks to the users of the facility, and it may be critical for the decision maker to prioritize and address the deficiencies of such projects.

Georgia Guidebook for Pedestrian Planning Project Prioritization Framework (Blank)

Score Prioritization Criteria	1 Very Low	2 Low	3 Medium	4 High	5 Very High
PEDESTRIAN DEFICIENCY FACTORS					
GOAL 1: Enhance pedestrian safety on Georgia's transportation system					
▪ *Pedestrian Crashes or Crash Rates*					
▪ *Motor Vehicle Speed*					
▪ *Motor Vehicle Volume*					
▪ *Sight Distance/Visibility*					
▪ *On-Street Parking Influence on Safety*					
▪ *Sidewalk Proximity to Motor Vehicle Lanes*					
▪ *Street Crossing Distance*					
▪ *Traffic Signal Timing/Phasing*					
▪ *Conflict Point Density*					
Sum of Pedestrian Deficiency Factors (ΣPDF)					
PEDESTRIAN POTENTIAL FACTORS					
GOALS 2/3: Provide for a more seamless integration of pedestrian facilities into Georgia's transportation system/ Integrate planning for pedestrians more fully into agency planning and design processes					
▪ *Gap Closure*: Filling of gaps in existing pedestrian network					
▪ *Modal Connectivity*: Connection to another mode of transportation					
▪ *Need*: Potential or forecasted pedestrian flows					
▪ *Integration*: Part of a community's transportation plan					
GOAL 4: Encourage the development of pedestrian-oriented environment					
• *Connectivity-I*: Degree of connection to important land uses (e.g., public parks, commercial centers, mixed use developments, etc.)					
• *Connectivity-II*: Connection to schools (elementary, middle, high schools, colleges)					
• *Integration*: Part of a community's comprehensive plan or urban design strategy, ADA Transition Plan project, etc.					
Funding/Implementation					
• *Political Support*: Degree of community support					
• *Funding Availability*: Leveraged funding					
• *Commitment*: Part of ongoing project					
Sum of Pedestrian Potential Factors (ΣPPF)					
Σ Potential Factors + Σ Deficiency Factors = _____ [Prioritizes high potential, high deficiency projects]					

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APPENDIX B – SUMMARY OF LOCAL AGENCY EFFORTS

The following list identifies recent efforts within the State of Georgia related to pedestrian planning and legislation through July 2005.

Type of Plan: B&P=Bike & Pedestrian (including trails), P=Pedestrian, G=Greenway/Trails, LRTP W/BP = Long Range Transportation Plan or Comprehensive plan with a bike and/or pedestrian element

Area (County, City or Region)	Name of Plan	Date of Plan	Plan Coverage Area	Type of Plan
Alpharetta (Fulton County)	The Conceptual Greenways Plan	1994	City of Alpharetta	G
Atlanta	Atlanta Greenway Trail Corridor Plan	1992	City of Atlanta	G
Atlanta	Atlanta Commuter On-Street Bike Plan	1995	City of Atlanta	B&P, G
Augusta Region	ARTS Regional Bicycle and Pedestrian Plan	2003	Columbia & Richmond Counties, and parts of SC (Augusta MPO)	B&P
Bibb	Macon Area Transportation Study for 2025	2000	Macon Area MPO (include Bibb, parts of Jones County)	LRTP w/BP
Bibb	Macon Bikeways and Pedestrian Plan	1996	City of Macon	B&P
Bibb	Macon-Bibb County Bikeways and Pedestrian Plan	2003	Bibb County	B&P
Central Savannah River Area	Central Savannah River Area Comprehensive Economic Development Strategy	2002	Columbia, Glascock, Burke, Jefferson, Jenkins, Lincoln, McDuffie, Richmond, Screven, Taliaferro, Warren, Washington, Wilkes, Hancock	LRTP w/BP
Central Savannah River Area	Central Savannah River Area Regional Bicycle & Pedestrian Plan	2005	Columbia, Glascock, Burke, Jefferson, Jenkins, Lincoln, McDuffie, Richmond, Screven, Taliaferro, Warren, Washington, Wilkes, Hancock	B&P
Chatham	Chatham County Bikeway Plan	2000	Chatham County	B&G
Chattahoochee Flint Region	Chattahoochee Flint Regional Bicycle & Pedestrian Plan	2005	Carroll, Heard, Coweta, Meriwether, Troup	B&P

Area (County, City or Region)	Name of Plan	Date of Plan	Plan Coverage Area	Type of Plan
Chattahoochee River area	Chattahoochee River Greenway Corridor	2000	Along Chattahoochee River in Habersham, White, Lumpkin, Dawson, Hall, Forsyth, Gwinnett, Fulton, Cobb, Douglas, Carroll, Coweta, Heard, Troup, Harris and Muscogee Counties	G
Clarke	MACORTS 2030 Long Range Trans. Plan	2004	Clarke County, parts of Madison and Oconee Counties	LRTP w/BP
Coastal GA Region	Coastal GA Regional Bicycle & Pedestrian Plan	2005	Screven, Bulloch, Effingham, Bryan, Chatham, Long, Liberty, McIntosh, Glynn, Camden	B&P
Coastal GA Region	Coastal Georgia Greenway	2002	Bryan, Camden, Chatham, Glynn, Liberty, McIntosh	G
Cobb	Cobb County Bicycle/Transportation Plan	1993	Cobb County	B&P
Cobb County	Cobb County Plan and Map	2004	Cobb County	B/P & G
Cobb, Paulding, Polk	Silver Comet Trail Plan	2001	Paulding, Polk, Cobb	B&P
Columbus (Muscogee County)	Columbus Alternative Transportation System	1993	City of Columbus	B&P
Coosa Valley Region	Coosa Valley Regional Bicycle & Pedestrian Plan	2005	Dade, Walker, Catoosa, Chattooga, Floyd, Gordon, Bartow, Paulding, Polk, Haralson	B&P
Dalton (Whitfield County)	Dalton Multi-Modal Transportation Study	2003	City of Dalton	B&P, G
Dekalb	Dekalb County Bike Plan	2001	Dekalb County	B&P
Dougherty	DARTS 2025 Transportation Plan	1999	Albany-Dougherty MPO area	LRTP w/BP
Douglas	Douglas County Bicycle and Pedestrian Plan	2000	City of Douglasville & Douglas County	B&P
Fannin	Blue Ridge Bicycle/Pedestrian Way	2000	Fannin County	B&P
Fannin, Murray, Whitfield	Pinhoti Trail Study	1998	Whitfield, Murray, Fannin	G
Fayette	Fayette County Transportation Plan	1995	Fayette County	LRTP w/BP
Flowery Branch (Hall County)	Flowery Branch Historic District Streetscape/Bike Path Plan	2000	City of Flowery Branch	B&P

Area (County, City or Region)	Name of Plan	Date of Plan	Plan Coverage Area	Type of Plan
Floyd	Cedartown Master Plan: Community Enhancement and Transportation Study	2003	Cedartown	P&G
Floyd	Floyd/Rome Urban Transportation Study Long Range Transportation Plan	1997	Rome and Floyd County	LRTP w/BP
Floyd	Rome and Floyd County Trail Facilities Plan	2004	Rome and Floyd County	B/P & G
Floyd	Rome-Floyd Bikeways Plan	1994	Rome and Floyd County	B/P & G
Forsyth County	Forsyth County Bicycle Transportation and Pedestrian Walkways 2025 Plan	2005	Forsyth County	B/P & G
Fulton	Fulton County Bike and Pedestrian Plan	1995	Fulton County	B&P
GA Mtns Region	GA Mtns Regional Bicycle & Pedestrian Plan	2005	Union, Towns, Rabun, Forsyth, Dawson, Lumpkin, White, Habersham, Hall, Banks, Stephens, Franklin, Hart	B&P
Glynn County MPO region	Bicycle and Pedestrian Program Study	1994	Glynn County	B&P
Glynn County MPO region	Brunswick Area Transportation Study 2030 Transportation Plan	2005	Brunswick-Glynn County MPO Region	LRTP w/BP
Habersham, Rabun, Stephens, White	Multimodal Transportation Study	2003	Habersham, Rabun, Stephens, White	B/P&G
Heart of GA-Altamaha Region	Heart of GA-Altamaha Regional Bicycle & Pedestrian Plan	2005	Bleckley, Dodge, Wilcox, Laurens, Wheeler, Telfair, Johnson, Treutlen, Montgomery, Jeff Davis, Appling, Wayne, Evans, Tattnall, Toombs, Candler, Emanuel	B&P
Jenkins	Millen Historic Downtown Pedestrian Plan	2003	City of Millen (Jenkins County)	P
Lincoln	Mecca Regional Trails Plan	1999	South Carolina (Abbeville, McCormick, Edgeville, Greenwood) and Lincoln	B&P
Lower Chattahoochee Region	Lower Chattahoochee Regional Bicycle & Pedestrian Plan	2005	Harris, Talbot, Muscogee, Chattahoochee, Stewart, Quitman, Clay, Randolph, Crisp, Dooly, Macon, Marion, Schley, Sumter, Taylor, Webster	B&P
McIntosh Trail Region	McIntosh Trail Regional Bicycle & Pedestrian Plan	2005	Butts, Spalding, Pike, Lamar, Upson	B&P

Area (County, City or Region)	Name of Plan	Date of Plan	Plan Coverage Area	Type of Plan
Metro Atlanta/ ARC Region	2002 Atlanta Regional Bicycle Transportation and Pedestrian Walkways Plan	2002	Cherokee, Clayton, Cobb, Dekalb, Douglas, Fayette, Fulton, Gwinnett, Henry, Rockdale	B&P, G
Metro Atlanta/ ARC Region	2030 Regional Transportation Plan	2005	Cherokee, Clayton, Cobb, Dekalb, Douglas, Fayette, Fulton, Gwinnett, Henry, Rockdale	LRTP w/BP
Middle Flint Region	Middle Flint Regional Bicycle & Pedestrian Plan	2005	Taylor, Marion, Webster, Macon, Schley, Sumter, Dooly, Crisp	B&P
Middle Georgia Region	Middle Georgia Regional Bicycle & Pedestrian Plan	2005	Putnam, Baldwin, Wilkinson, Jones, Bibb, Twiggs, Monroe, Crawford, Peach, Houston, Pulaski	B&P
Midville (Burke County)	Midville Pedestrian Plan	2003	City of Midville	P
Monroe	Monroe County Bike Plan	1998	Monroe County	B&G
Muscogee	Columbus-Phenix City Year 2015 Transportation Plan	1996	Columbus-Phenix City area	B&P
Newton	Newton County Trails Master Plan	1998	Newton County	G
North GA Region	North GA Regional Bicycle & Pedestrian Plan	2005	Whitfield, Murray, Gilmer, Fannin, Pickens	B&P
Northeast GA Region	Northeast GA Regional Bicycle & Pedestrian Plan	2005	Elbert, Madison, Jackson, Barrow, Walton, Clarke, Oconee, Olgethorpe, Green, Morgan, Jasper, Newton	B&P
Peachtree City (Fayette County)	Peachtree City Plan System	1995	City of Peachtree City	B&P
Perry (Houston County)	Perry GA Master Plan	2002	City of Perry	LRTP w/BP
Pine Mountain (Harris County)	Pine Mountain Trails	1994	Pine Mountain	B&P
Powder Springs (Cobb County)	Community Enhancement Master Plan	1996	City of Powder Springs	B/P & G
Rockdale	Rockdale County Master Trails Plan	1998	Rockdale County	B&P
South GA Region	South GA Regional Bicycle & Pedestrian Plan	2005	Ben Hill, Turner, Irwin, Tift, Cook, Lanier, Echols, Lowndes, Brooks	B&P
Southeast GA Region	Southeast GA Regional Bicycle & Pedestrian Plan	2005	Berrien, Coffee, Atkinson, Clinch, Bacon, Ware, Pierce, Brantley, Charlton	B&P

Area (County, City or Region)	Name of Plan	Date of Plan	Plan Coverage Area	Type of Plan
Southwest GA Region	Southwest GA Regional Bicycle & Pedestrian Plan	2005	Terrell, Lee, Worth, Colquitt, Thomas, Grady Decatur, Seminole, Early, Miller, Baker, Mitchell, Dougherty, Calhoun	B&P
Stephens	Tugaloo Corridor Plan	1999	Stephens County	B/P & G
Ware	Waycross/Ware County Transportation Study	2000	Waycross and Ware County	LRTP w/BP
Warner-Robbins MPO region	Bicycle and Pedestrian Program Study	1994	Warner Robins Area, Houston County	B&P

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APPENDIX C – EXAMPLES OF PEDESTRIAN PROJECTS

I. Peachtree Pedestrian Crossing Improvements

Objectives

This project aims to plan, design and implement improvements to existing unsignalized pedestrian crossings along Peachtree Street at Poplar Street (a main crossing for pedestrians traveling between Georgia State University's (GSU) main campus and its Fairlie-Poplar campus. Poplar Street is pedestrian only access between Peachtree Street and Fairlie Street; Woodruff Park is located east of Peachtree Street, and Walton Street in Downtown Atlanta. This crossing serves people traveling between GSU's campuses, as well as people traveling between Underground Atlanta and the MARTA Five Points station and Fairlie-Poplar. This project evolved as a result of the City Center Livable Centers Initiative (LCI) planning effort and is being funded with Atlanta Regional Commission (ARC) LCI implementation funds and local matching funds from Atlanta Downtown Improvement District (ADID). The Peachtree Street corridor forms the spine of Downtown Atlanta and is itself a landmark for visitors, workers, students and residents. The street is a vital transportation corridor for both vehicular and pedestrian traffic. However, the limited number of signalized crossings and the high volume of pedestrians seeking to cross Peachtree Street hinder pedestrian traffic flow, vehicular traffic flow and create safety problems.

Status

The design has been completed for signalized crossings at the two unsignalized intersections. LCI Implementation funding as been awarded for the project. The required matching funding is being provided by the ADID. A total of $200,000 is programmed for the project: $20,000 for preliminary engineering and an additional $180,000 for construction.

(Based upon information from the Central Atlanta Progress/ Atlanta Downtown Improvement District (CAP/ADID) project manager and website: http://www.fairliepoplar.org/CapAdidInitiatives_PeachtreeMidBlock.asp)

II. Fulton County T184 Off System Safety Pilot Project - Pedestrian Improvement

Objectives

This project includes design and construction improvements and pedestrian accommodation upgrades such as new LED (light emitting diode) pedestrian heads, ADA ramps and striping of crosswalks at nine intersections in North and South Fulton County. Intersections involved are Flat Shoals Road at Hillandale, Flat Shoals Road at Hemperly Road, Flat Shoals Road a Kimberly Mill Road, Flat Shoals Road at Buffington Road, Kimball Bridge Road a Tuxford Drive, Kimball Bridge Road at South Kimball Bridge

Crossing, Old Alabama Road at Preston Oaks, Old Alabama Road at St. Brigid Catholic Church, and Old Alabama Road at Newtown Park.

Status

The design was initiated in October 2005 and construction is scheduled for July 2006. Design costs totaled approximately $54,000 and preliminary construction cost estimates are approximately $346,000.

(Based upon information from the Fulton County Transportation Improvement Program Status Report for the 2005 4th Quarter: http://pwmaps.co.fulton.ga.us/pmtwebt/ProgNews.aspx)

III. T139 Rogers Bridge Multi-use Trail

Objectives

The limits of this project are from the Chattahoochee River on Rogers Bridge Road to Bell Road and along Bell Road to McGinnis Ferry Road, including a 12-foot wide asphalt multi-use trail on Rogers Bridge Road from Chattahoochee River to Bell Road. A 10-foot wide asphalt multi-use trail with 2-foot concrete curb and gutter is included along the east side of Bell Road from Rogers Bridge Road to McGinnis Ferry Road, with a pedestrian bridge on Bell Road crossing the existing creek. Bell Road consists of two 12-foot travel lanes, one in each direction.

Status

The project obtained environmental approval in March 2004; preliminary plans were completed in May 2004, and right of way acquired in August 2005. Construction begun in March 2006 and is scheduled to be completed in August 2006. The project is estimated to cost approximately $1.7 million. Design costs totaled approximately $272,000, ROW costs $200,000; utilities $50,000 and construction is expected to cost about $1.2 million.

(Based upon information from the Fulton County Transportation Improvement Program Status Report for the 2005 4th Quarter: http://pwmaps.co.fulton.ga.us/pmtwebt/ProgNews.aspx)

IV. T156 Johns Creek Master Plan: Sidewalk/Bicycle Route

Objectives

The Fulton County Public Works Department initiated this master planning effort to develop a greenway master plan for the Johns Creek Community. The purpose of the plan is to develop a network of trails and greenway areas that best supports the vision of the Johns Creek Community. The information and recommendations from this study will aid Fulton County and the Johns Creek Community in making policy and project decisions with respect to non-motorized transportation improvements in the area. The

expected outcome of the study is a long term-plan that embraces safe non-vehicular pathways that accommodate pedestrians and cyclists, and provide connections to recreational opportunities. The plan will complement future developments, reduce recurring congestion and support economic growth while providing transportation choices to the residents, employees and visitors in the community

Status

The project is in study phase. A public open house meeting was held in December 2005 where the Draft Study was presented to the public. The cost of the study is approximately $126,000.

(Based upon information from the Fulton County Transportation Improvement Program Status Report for the 2005 4th Quarter: http://pwmaps.co.fulton.ga.us/pmtwebt/ProgNews.aspx)

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APPENDIX D – SAMPLE ZONING AND DEVELOPMENT REGULATION LANGUAGE

To implement the policies of a pedestrian plan, language should be provided in zoning and/or development regulations that support the pedestrian plan. An example would be requiring private developers who are developing residential neighborhoods to put sidewalks on BOTH sides of the street. Often, one of the complaints by jurisdictions is that they do not have enough money to implement pedestrian facilities. However, requiring construction of these facilities concurrently with new construction or substantial property improvements will go a long way toward facilitating improvement of the pedestrian network.

Portland, OR:

The City of Portland, Oregon created a document titled "Creating Public Streets and Pedestrian Connections through the Land Use and Building Permit Process." This document may be downloaded from the City website at: http://www.trans.ci.portland.or.us/survey/CreatingPublicStreets.pdf. The document provides specific criteria for determining street/pedestrian widths and improvements based upon each of the various zoning designations in the City. Portland makes the property owner responsible for installation and maintenance of sidewalks along their property frontage. Where sidewalks are missing or in disrepair, the City Engineer may request that the owner bring the sidewalks up to acceptable standards. If the owner does not comply within a designated time period, the City may then make the necessary improvements at the expense of the owner. A selection of code sections from the Portland City Code and City Charter is given below:

Excerpts from Portland City Code and Charter

Title 17.28.020 Responsibility for Sidewalks and Curbs.

A. The owner(s) of land abutting any street in the City shall be responsible for constructing, reconstructing, maintaining and repairing the sidewalks, curbs, driveways and parking strips abutting or immediately adjacent to said land, except as provided in Subsection B. Said property owner(s) shall be liable for any and all damages to any person who is injured or otherwise suffers damage resulting from the defective condition of any sidewalk, curb, driveway or parking strip adjacent to said land, or by reason of the property owner's failure to keep such sidewalk, curb, driveway or parking strip in safe condition and good repair. Said property owner(s) shall be liable to the City of Portland for any amounts which may be paid or incurred by the City by reason of all claims, judgment or settlement, and for all reasonable costs of defense, including investigation costs and Attorney fees, by reason of said property owners' failure to satisfy the obligations imposed by the Charter and Code of the City of Portland to maintain, construct, and repair such sidewalks, curbs, driveways and/or parking strips.

C. The City Engineer shall maintain general construction and maintenance specifications for sidewalks, curbs, driveways and/or parking strips. The City Engineer shall use the

specifications to determine compliance with this Chapter of Code. The City Engineer shall provide copies of the specification to any person upon request, and make the specifications available for public inspection during normal office hours.

Portland City Charter
Chapter 9-407 Sidewalk Improvements and Repairs; Duty of Owners.

Sidewalks may be improved either as a part of a general street improvement or by separate proceedings. The Council may determine the grade and width of all sidewalks, materials to be used and specifications for construction. It is the duty of all owners of land abutting any street in the City to construct, reconstruct and maintain in good repair the adjoining sidewalks. If the owner of any parcel of land allows an adjoining sidewalk to be out of repair, the City Engineer shall post notice on the property directing the owner, agent or occupant thereof immediately to repair it in accordance with City specifications. If the owner, agent or occupant of any parcel of land does not properly make the sidewalk repairs within the time designated in the notice, the City Engineer may make the repairs, keeping an account of the cost and reporting it to the Council with description of the parcel of land abutting the repaired sidewalk. The Council has the same general authority and supervision over sidewalk repairs as over street improvements. If the Council finds the costs reported by the City Engineer to be reasonable, it shall approve them and thereafter, at least once a year, by ordinance assess upon each of the parcels of land abutting repaired sidewalks, the cost of making the repairs with an additional overhead charge to defray the cost of notice, engineering and advertising. All such assessments may be combined in one assessment roll and they shall be entered in the docket of City liens and collected in the same manner as are other local improvement assessments. [New sec. Nov. 8, 1966; am. Nov. 3, 1992.]

Gresham, OR:

The City of Gresham, Oregon, also identifies specific improvement requirements in its Development Code pertaining to the requirement for sidewalks along public street frontage. In new subdivisions, sidewalks are required along both sides of the street and a monetary guarantee of completion is required to ensure that sidewalks will be constructed within two years of the date that the street is accepted by the City for ownership, regardless of whether or not the lot is developed within that timeframe. Excerpts from the City of Gresham Code are given below.

Excerpts from the City of Gresham (Oregon) Development Code

Section A5.506 - Sidewalks

(A) Public sidewalks are required on the public street frontage of all new residential construction, all commercial and industrial construction that requires a development permit and residential remodeling that involves substantial improvement as defined in Section 3.0010 of this document. Sidewalks will be required along street frontage of dedicated greenway areas. If required, their construction will be the responsibility of the applicant. Construction of sidewalks and driveways will be in accordance with the City of Gresham Public Works Standards. In a subdivision the applicant shall provide a guarantee of completion equal to 110% of the estimated cost to complete construction of sidewalks to assure complete

construction of all public sidewalks within two years of the date the street is accepted for ownership and operation.

(B) Sidewalks are generally buffered from the roadway to provide for the safety and comfort of pedestrians. Where planter strips are required, sidewalks shall be 6 inches off the right-of-way line (except cul-de-sacs). Where no planter strips are required, sidewalks shall abut curbs.

(C) If there are obstructions in the walk, a minimum of 3 feet wide sidewalk area free of obstruction must be maintained at all times. Where possible obstructions should be located outside required sidewalk area.

(D) All utilities with facilities in the sidewalk area shall locate their facilities to be in conformance with the 36 inch minimum horizontal clearance. A 7 foot vertical clearance above the sidewalk shall be maintained. Federal Americans with Disabilities Act (ADA) requirements shall supersede where in conflict with City standards.

(E) The Manager may allow modifications to standard sidewalk design and location for the following reasons:

(1) Topography

(2) To match existing sidewalks

(3) To preserve existing trees that are found to be of significant value

(4) Right-of-way constraints.

(F) Sidewalks may meander within the dedicated right-of-way or outside of the right-of-way within an easement with the approval of the Manager.

(G) New subdivisions shall have sidewalks on both sides of the street, unless the conditions in "E" above apply.

Atlanta, GA:

Within Georgia, the City of Atlanta provides code sections to regulate the installation and maintenance of sidewalks. The following selections from the City of Atlanta Municipal Code provide an additional example of regulations that can be implemented for pedestrian facilities.

Excerpts from the City of Atlanta Municipal Code

Sec. 134-52. Assessment against and collection of costs from abutting owners.
The entire expense of construction of sidewalks and curbing shall be assessed against the property abutting on the streets where sidewalks are constructed and shall be collected from the owners thereof.
(Code 1977, § 9-3083)

Sec. 134-53. Method of assessment.
(a) All assessments for construction of sidewalks and curbing shall be made on a property frontage basis by dividing the total cost of the construction by the total frontage abutting the construction to ascertain the cost per front foot and assessing each lot or parcel of abutting

property according to its frontage on construction.
(b) When private alleys between adjoining lots intersect with sidewalks, the assessment for curbing and sidewalks at the point where the alley intersects with the sidewalk shall be divided between the lots on each side of the alley, treating the private alley as belonging equally to the two adjoining lots. Private alleys belonging to only one of the adjoining lots shall be treated as part of that lot in making the assessment for curbing and sidewalk.
(Code 1977, §§ 9-3084, 9-3085)

Sec. 134-54. Collection of assessments.
(a) *Billing.* When curbing and sidewalks are laid under resolution or ordinance, an assessment schedule shall be made by the commissioner of public works, showing in detail the properties against which the assessments are made. When the assessment schedule is passed by the council, it shall then be transmitted to the chief financial officer, who shall make out bills against the persons liable and notify them of the assessments.
(b) *Grants to qualified property owners.* Notwithstanding subsection (a) of this section, the mayor or the mayor's designee is authorized to make grants to city residents owning property abutting on the streets where sidewalks are constructed when the income and other circumstances of such persons falls within established guidelines certified to by the committee on city utilities of the council for the purpose of paying for the costs of the improvements.
(Code 1977, § 9-3082(a), (c))

Sec. 138-14. Maintenance of sidewalk area.
(a) *Removal of snow and ice from sidewalks.* When there is an accumulation of ice, naturally or by artificial means, or snow sufficient to cover the sidewalks, the occupants or owners of the houses and other establishments fronting the sidewalks shall have the ice or snow cleared from the sidewalks in front of their establishments when an accumulation occurs, within a reasonable time after such accumulation.
(b) *Maintenance of unpaved portion of sidewalk space.* Whenever a sidewalk is paved and not all of the sidewalk space is covered by the pavement, but a space is left between the sidewalk and the curbs or between the sidewalk and property line or both or where there exist planted materials in the ground or in planters within such unpaved portion, the owner of the abutting property shall be responsible for maintenance of that space and for keeping it free of holes and weeds, level with the sidewalk and sodded with grass and for watering, pruning and maintaining the planted materials, whether such materials are planted in the ground or in planters placed in or alongside the sidewalk area. Upon the failure of that person to do so, the commissioner of public works may give written notice to the person to do so within ten days, and upon the failure of that person to comply, the person shall be cited to appear for a hearing to show cause for noncompliance, after which the commissioner shall have the property put in a condition complying with this section and shall notify the chief financial officer of the costs thereof. Execution shall issue against the owner of the property for the full amount of costs, which execution shall be collected by the chief financial officer as are all other executions issued by the city.
(c) *Paving of grass plots upon repaving sidewalks.* Whenever a sidewalk is repaved on a street which has a grass or dirt plot between the curb and the pavement, the commissioner of public works shall be authorized to extend the repavement to the curbline. If the extension to the curbline is repaved, the grass or dirt plot so paved shall be paved with the same material as the new pavement.
(d) *Damaged sidewalk abutting the right-of-way.* When the sidewalk abutting the right-of-

way is damaged, it is the obligation of the abutting property owner to repair such sidewalk upon notice from the department of public works. If after receiving such notice, the abutting property owner fails to repair the sidewalk within a reasonable time, the department of public works is authorized to make such repairs and assess the abutting property owner for costs incurred.
(Code 1977, §§ 9-3016, 9-3087, 9-3086; Ord. No. 2001-22, § 1, 3-14-01)

Sec. 138-15. Obstructing sidewalks by display or sale of goods

Except as otherwise provided in this Code, it shall be unlawful for any person to obstruct any sidewalk by placing thereon goods, wares, merchandise or other things of value for the purpose of display or advertising or to erect or use thereon any boxes, steps, stands or other structures or contrivances for the purpose of displaying goods, wares, merchandise or other things of value or to sell or offer for sale thereon any goods, wares, merchandise, service or other things of value. However, temporary use of the sidewalks as may be necessary to get merchandise into or away from places of business fronting on any such sidewalk shall not be held to be prohibited by this section. Nothing in this section shall be construed to prohibit peddling by licensed peddlers.

(Code 1977, § 9-3018; Ord. No. 2001-22, § 1, 3-14-01)
Cross references: Businesses, ch. 30.
State law references: Obstruction of roads, O.C.G.A. § 32-6-1 et seq.

Sec. 138-17. Design objectives for sidewalks.

Sidewalks installed in the public right-of-way shall be a minimum width of 60 inches, shall be located at the edge of the right-of-way and shall conform to all ADA requirements. Sidewalks shall be designed and installed in such a manner as to protect existing mature trees and to allow for the planting of future trees. In the event that topographical or other conditions do not allow for the installation of a 60-inch minimum sidewalk, the commissioner of public works is authorized to exercise his discretion to determine an appropriate resolution.
(Ord. No. 2001-22, § 1, 3-14-01)

Sec. 138-97. Construction of sidewalks, driveways and curbs in multifamily residential, commercial and industrial zoning districts.

(a) Before any building permit shall be issued for the construction of any structure on property within any planned development-housing (PD-H) district or any zoning district which permits multifamily residential, commercial or industrial uses, the owner shall agree to construct or have constructed sidewalks, driveways and curbs on all public streets within and abutting the property. This subsection does not apply to property already having such improvements in a condition satisfactory to the commissioner of public works. Failure to construct these improvements shall be grounds for denial of occupancy or use of the improvements constructed on the property. The director, bureau of buildings shall not issue an occupancy permit until the improvements are made. The plans and specifications for the sidewalks, driveways and curbs shall be submitted to and approved by the commissioner of public works prior to the issuance of the building permit.

(b) The requirements of subsection (a) of this section may be waived by the commissioner of public works upon a showing by the applicant of sufficient evidence that the proposed work includes only site improvements and no new construction of new occupiable space.

(c) The commissioner of public works may, in the commissioner's discretion, require the installation of curbs on property exempted pursuant to subsection (b) of this section in conformance with city standards if such is required for proper storm drainage on the abutting or adjacent properties.
(Code 1977, § 9-3092; Ord. No. 1996-28, § 1, 5-28-96; Ord. No. 2001-22, § 1, 3-14-01)

Decatur, GA:

Within Georgia, the City of Decatur provides code sections to regulate the installation and maintenance of sidewalks. The following selections from the City of Decatur Municipal Code provide examples of regulations that can be adopted for pedestrian facilities.

Excerpts from the City of Decatur Municipal Code

Chapter 86 - Streets, Sidewalks, and Other Public Places.

Sec. 86-2. Duty of merchants to keep streets and sidewalks clean.
It shall be the duty of the owners of drugstores, soda fountains, ice cream parlors, restaurants and other places of business to keep the sidewalks and streets in front of such places of business clean and free of papers, cups, and waste of any kind.
(Code 1967, § 20-1)

Sec. 86-3. Merchants, or others to keep produce, fruits or merchandise off sidewalks.
It shall be unlawful for any merchant or individual offering for sale any kind of produce, fruits or merchandise, to put the same in front of their respective places of business or premises on the sidewalks.
(Code 1967, § 20-2)

Sec. 86-4. Sidewalks not to be obstructed for more than 30 minutes.
No obstructions shall be placed on any sidewalks in the city for a period exceeding 30 minutes.
(Code 1967, § 20-3)

Sec. 86-5. Property owners to keep sidewalks clean.
It shall be the duty of all property owners, owning property abutting on streets where the sidewalks adjacent thereto have been paved, to keep such sidewalks clean in front of their respective properties, and, upon being notified by the chief of police of any dirty condition of such sidewalks, they shall be given ten days to clean such sidewalks.
(Code 1967, § 20-4)

Appendix A - Zoning

Section 7.8. C-1 local commercial district.

7.8.4. Neighborhood Commercial Special Pedestrian Regulations--C-1 Local Commercial Districts.

Purpose. The purpose of these regulations is to improve the environment in Decatur's Neighborhood Commercial Districts in the following ways:

-Encourage, protect and enhance the pedestrian environment.
-Improve the aesthetics of neighborhood commercial area.
-Provide for parking in a way that does not diminish the pedestrian environment.
-Encourage additional street level activity.
-Promote opportunities for residential and commercial development.

1. *Application.* These regulations shall apply to all properties located in C-1 Districts:
No permit for a new building or new site improvements shall be issued unless the proposed building or site improvement complies with these regulations.
For the purposes of this section, where two or more properties, lots or parcels are located within the same block or where two or more properties, lots or parcels have frontage on the same side of the street between two intersecting streets, and such properties, lots or parcels are under common ownership or control and/or are being developed in a single development operation or a series of coordinated development operations, such properties, lots or parcels shall be considered as a single property.
2. *Required streetscape improvements.* The Downtown Decatur Streetscape Design Guidelines shall be used as a guide in planning streetscape and site improvements in the C-1 Districts. Standard materials, details and specifications, including street trees, street lights, litter containers, benches and similar items, as described in the Downtown Decatur Streetscape Design Guidelines, shall be used for required streetscape improvements.
a. *Sidewalks.* Sidewalks shall be built along all public streets in the C-1 District. All sidewalks shall have a minimum width of 15 feet with a minimum clear zone of ten feet and a minimum street tree planting and street furniture zone of five feet.
Exception : Where the existing building line does not presently provide a minimum sidewalk width of 15 feet, the minimum sidewalk width may be reduced to the actual width of the existing sidewalk.
b. *Street tree and street furniture zone.* There shall be a continuous street tree and street furniture zone adjacent to the curb which shall not be less than five feet in width. In addition to the planting of trees as is required in this section, this zone is also intended for the placement of street furniture including light poles, litter receptacles and similar items. Trees shall be planted a maximum of 40 feet on center within the street tree and street furniture zone. Newly planted trees shall be a minimum of 33 1/2 inches in caliper measured six inches above ground level, and shall be limbed up to a minimum of six feet.
c. *Outdoor dining.* Accessory outdoor dining areas shall be permitted on a public or private sidewalk area where adjacent to and directly abutting a restaurant located in a building. However, the outdoor dining area shall not reduce the clear zone of a public sidewalk to a width of less than five feet. Tables, chairs, umbrellas and similar items shall be stored in the interior of the restaurant or in similar enclosed area so that a minimum clear zone of ten feet is unobstructed when the outdoor dining area is not in use because of inclement weather or when the restaurant is closed.

City of Savannah, GA:

In Georgia, the City of Savannah provides code sections to regulate the installation and maintenance of sidewalks. The following selections from the City of Savannah Municipal Code provide examples of regulations that can be implemented for pedestrian facilities.

Excerpts from City of Savannah Municipal Code

Sec. 4-1041. *Duty of lot owners to build.* Every owner of a lot, piece or parcel of ground within the corporate limits of the city, upon notice from the mayor and aldermen, shall be bound to place a good and sufficient pavement or sidewalk of the kind required by this chapter and other city ordinances, according to specifications furnished by the city, along the whole length and depth of the lot which fronts on any street or square of the city. The mayor and aldermen shall have the power to order such paving of sidewalk and repairs of the same as they may deem proper. Upon the failure of any person to comply with such order within the time prescribed, the mayor and aldermen may have the same done and levy and collect the expenses thereof by execution against the lands and goods and chattels of the owner of the lot, whether holding the same under leasehold title from the city or by title otherwise derived.

(Code 1977, § 4-1041)

Sec. 4-1042. *Duty of lot owners to repair.* It is hereby made the duty of the owner or lessee of any lot in the city to keep in good repair the sidewalk along the whole length and depth of such lot, including the iron boxes for gas and water connections in the sidewalk, which shall have metal covers, adapted to the sidewalk level.

(Code 1977, § 4-1042)

Sec. 4-1043. *Inspection and notice to repair defects.* The city manager shall, from time to time, cause every sidewalk in the city to be closely and systematically inspected, noting all defects and obstructions, and giving to the abutting property owner or lessee a notice in writing specifying the defect in the sidewalk and designating the character of work to be done, either by relaying or repaving, to put such sidewalk into good order and condition, and requiring such owner or lessee to do such necessary work within 30 days.

(Code 1977, § 4-1043)

Sec. 4-1044. *Repairs by city--Generally.* In the event that a notice given under section 4-1043 of this Code is not complied with within the time prescribed therein, the city shall proceed to have the necessary work done so as to put the sidewalk mentioned in such notice in good repair and condition, as directed by the city manager.

(Code 1977, § 4-1044)

Sec. 4-1045. Same--*Statement of expenses and execution therefor.* After the work has been done under the preceding section, the city shall have a written statement thereof given to the city treasurer showing the expense of such work, the locality and the name of the abutting property

owner. Thereupon, the city treasurer shall issue an execution against such owner and the abutting property for the amount of such expense, to be proceeded with as in cases of other executions.

(Code 1977, § 4-1045)

Sec. 4-1046. *Grade to be maintained.* No person shall be permitted to increase or lower the height of the sidewalk in front of his lot above or below the level or grade prescribed by the city.

In putting sidewalk in good order and repairing the same, all persons shall be required to maintain the grade as prescribed by the city, and no sidewalk shall be taken and held as in good order if any part of its surface is raised out of the proper grade by any cause or if the cellar areas are out of grade or if the sidewalk holds water in any part thereof.

(Code 1977, § 4-1046)

Peachtree City, GA

In Georgia, Peachtree City provides code sections on the construction, maintenance and repair of sidewalks. The following selections from the Peachtree Municipal Code provide examples of regulations that can be implemented for pedestrian facilities.

Excerpts from Peachtree City Municipal Code

ARTICLE VII. PUBLIC IMPROVEMENTS; ASSESSMENT

Sec. 7.1 *Improvement assessment.*

(a) Provision shall be made by ordinance for all sewer, sidewalk, street, alley, recreational path, way, or street curbing construction, maintenance or repairs if any part of the cost thereof is to be assessed against abutting or other real estate or the owners thereof.

(b) After the first reading of such ordinance, notice that it has been introduced shall be published one time by the city clerk in the legal organ of the city to appear at least eight (8) days before final passage of said ordinance. Said notice shall state that such ordinance has been introduced in the council and shall include a general description of the improvement, its location, estimated cost, and shall state that the actual cost or such part thereof as the ordinance provides, will be assessed against the abutting real estate and the owners thereof, or against such real estate and the owners thereof as shall be benefitted by such improvement, and that anyone objecting to such improvement, or objecting to the amount of his or her assessment may appear and make such objections at the next regular meeting of the council after the expiration of said eight (8) days. Notice shall also be sent by the city clerk via certified mail to the owners of such property at the street address of all real estate which is affected by the assessment. Receipt of the notice by the owner of the real estate is not required. Information concerning names of owners and street addresses obtained from the Fayette County Tax Commissioner's Office shall be deemed to be adequate for the purposes of providing this notice. No other or further notice of any kind shall be required, but if some other notice is given or ordered to be given, failure to give such additional notice shall not invalidate such ordinance or the assessment of such costs or the lien herein created against such abutting or other real estate nor the ordinance assessing the

costs of such improvement. The second reading of such ordinance shall not be waived until the expiration of said eight (8) days after said publication of notice required by this section. But after the expiration of said eight (8) day notice such ordinances may be taken up and adopted at any regular meeting of the council without further notice.

Sec. 7.2. *Improvement assessment against public property.*

When the city council orders any sewer, sidewalk, street, alley, recreational path, way, or street curbing paved or otherwise improved, upon which any public property abuts, the city council shall assess the cost of such improvements against said public property in the same manner and to the same extent as it does where private property is assessed. And when any sewer, sidewalk, street, alley, recreational path, way, or street curbing is paved or otherwise improved upon which public property abuts and the public officer or agency controlling such public property fails or refuses to pay the assessed cost of such improvements the city council shall enforce payment of the same by levy and sale, mandamus or other appropriate legal proceedings; provided, such action for collection of the assessed cost of such improvements upon which public property abuts may be defended by the authorities in control of said public property by proving that the amount claimed to be due, or some part thereof, is not justly due or owing by said authorities; and, provided further, that when any action is begun and said authorities admit that part of the amount claimed is due, the amount so admitted to be due shall be paid as a condition precedent before any defense shall be heard by any court.

Sec. 7.3. S*cope of improvement assessment.*

(a) Cost assessed against abutting or other property and the owners thereof for sewer, sidewalk, street, alley, recreational path, way, or street curbing shall, except as otherwise provided by this act, include all cost of such improvement, including necessary engineering, surveying, ditching, back filling, grading, blasting, dynamiting, pipe, and all other labor and materials, and shall include tearing up and reconstructing, re-paving, repairing and replacing of sewer, sidewalk, street, alley, recreational path, way, or street curbing, and extending, relocating and regrading for any of these, to the private property line of the property assessed.

(b) Expense of maintenance and repairs of street, alley, recreational path, or way shall not be assessed against abutting real estate, but cost of maintenance and repairs of sidewalk, curbing and service sewers may be so assessed.

Sec. 7.4. *Lien for improvement cost.*

(a) To secure costs of sewer, sidewalk, street, alley, recreational path, way, or street curbing assessed against abutting or other real estate and the owners thereof, and costs of repair of any of these, said city shall have a lien against such abutting real estate and the owners thereof, or against the real estate and the owners thereof for the primary benefit of which such improvement is made, from the date of adoption of the ordinance providing for the work and assessing the cost, which lien shall be prior and superior to all other except state, county and city taxes, and said city shall have the right to sell and transfer all such liens and claims to third parties, who shall be protected by the same lien and rights as the city has and holds against such property and the owners thereof.

(b) Nothing in this section shall be construed to deprive the property owner of the right of paying for said improvement in cash at the completion of the work if he desires to do so.

Sec. 7.5. *Installment payment of improvement assessments.*

When any sewer, sidewalk, street, alley, recreational path, way, or street curbing or other improvement shall be constructed, reconstructed, repaired or replaced, pursuant to an ordinance providing for the same and providing for assessment of the cost thereof, or a part thereof, against the abutting or other real estate, the owners thereof shall be allowed to pay for the same, except in case of repairs, as follows: One-fifth (1/5) cash and the balance in four (4) equal annual installments within the next four (4) years thereafter, with interest on said deferred installments at the rate of seven (7) percent per annum from the date of adoption of the final assessment ordinance.

Sec. 7.6. *Assessment of sidewalk, cost.*

sidewalk, shall be constructed on one side of a street and the cost thereof assessed against the abutting real estate and owners thereof on that side of such street if the owners of more than fifty (50) percent of the street frontage on that side of said street so request. Sidewalks may be constructed on either or both sides of a street, and the cost thereof shall be assessed against the abutting or other real estate and the owners thereof, without the consent of any of such abutting or other real estate owners when the city council deems it proper or desirable for such sidewalks to be laid and they are not laid for the primary benefit of persons other than such abutting or other real estate owner.

Sec. 7.7. *Due date of improvement assessments.*

Costs assessed against property and the owner thereof for sewer, sidewalk, street, alley, recreational path, way, street curbing or other like or similar work shall all become due and payable in full if any installment is not paid within sixty (60) days from the day it is due.

Sec. 7.8. *Execution for improvement assessments.*

The city council shall have full power and authority to enforce collection of amounts so assessed by execution against the real estate so assessed and the owner thereof at the date of the ordinance providing for the work, which execution, if not paid, shall be issued by the clerk of the city and levied on such real estate by the chief of police, as city marshal, or his lawful deputy, and after advertisement as in cases of sales for Peachtree City taxes, such property shall be sold at public outcry to the highest bidder for cash, if such execution and costs have not been previously paid; provided such property owner shall have the right to file an affidavit denying that the whole or some part of the amount for which the execution issued is owing or due, and stating what amount, if any, he admits to be owing, which amount so admitted to be owing shall be paid to the levying officer before the affidavit shall be received, which affidavit when received shall be returned to the Superior Court of Fayette County and there tried and the issue determined, as in case of illegalities, subject to all the penalties provided by law in cases of illegality filed for delay only.

Sec. 7.9. *Payment of street paving cost by railroads; street tax on public carriers.*

(a) Any street railroad company or other railway company having a track or tracks running along or across a street, alley, recreational path, or way of the city shall be required to pay the cost in full for paving or otherwise improving such street, alley, recreational path, or way

between their tracks and two (2) feet on each side thereof.

(b) Any bus company or other public transportation company shall also be liable for such street taxes as the council may lawfully impose.

APPENDIX E – PEDESTRIAN RESOURCES

The following lists identify resources for websites where information may be obtained related to pedestrian planning and design.

General Pedestrian Information

Resource	Source
Websites	
Federal Highway Administration Bicycle and Pedestrian Program	http://www.fhwa.dot.gov/environment/bikeped/index.htm
Healthy People 2010	http://www.health.gov/healthypeople/Document/html/uih/uih_bw/uih_4.htm#physactiv
National Center for Bicycling and Walking	http://www.bikewalk.org/
National Transportation Library Listing of Nationwide Ped/Bike Safety Programs	http://ntl.bts.gov/DOCS/ts91395e.html
Neighborhood Walkability Quiz	http://www.pbs.org/americaswalking/action/quiz.html
Pedestrian and Bicycle Information Center – National information Clearinghouse	http://www.walkinginfo.org
Safe Routes To School	http://www.walktoschool.org/
Victoria Transportation Policy Institute	www.vtpi.org
Videos/TV Programs	
America's Walking (Mark Fenton)	http://www.pbs.org/americaswalking/series/index.html

Design Guidance for Pedestrian Facilities

Location/Document	Source
Georgia Department of Transportation	
Georgia Pedestrian and Streetscape Guide	http://www.dot.state.ga.us/bikeped
American Association of State Highway and Transportation Officials (AASHTO)	
Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004)	Publication # GPF-1; ISBN # 1-56051-293-8 www.transportation.org
Federal Highway Administration	
Designing Sidewalks and Trails for Access	http://www.fhwa.dot.gov/environment/sidewalks/index.htm
Pedestrian and Bicycle Data Collection in U. S. Communities: Quantifying Use, Surveying Users, and Documenting Facility Extent	http://www.pedbikeinfo.org/pdf/casestudies/PBIC_Data_Collection_Case_Studies.pdf
Washington Department of Transportation	
WSDOT Pedestrian Facilities Guidebook: Incorporating Pedestrians into Washington's Transportation System	http://www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/PedFacGB.pdf
Florida Department of Transportation	
Florida Pedestrian Facilities Planning and Design Handbook	http://www.dot.state.fl.us/safety/ped_bike/ped_bike_standards.htm#Florida%20Ped%20Handbook
City of Portland, Oregon	
Pedestrian Design Guidelines	http://www.portlandtransportation.org/DesignReferences/Pedestrian/default.htm

Resources for ADA and other Special Needs

Location/Document	Source
The Access Board (U.S. Architectural and Transportation Barriers Compliance Board)	
Draft Guidelines for Accessible Rights-of-Way (June 17, 2002)	www.access-board.gov Documents are filed under "Publications", then "Public Rights-of-Way", then "Guidance Material" or For Technical Assistance Call: 1-800-872-2253
Building a True Community: Accessible Public Rights of Way. Final Report of the Public Rights of Way Advisory Committee (January 2001)	
[Video] *Accessible Sidewalks: Design Issues for Pedestrians With Disabilities.(1997)*	
Accessible Rights-of-Way: A Design Guide (November 1999)	
Pedestrian Access to Modern Roundabouts. (August 2003)	
Institute of Transportation Engineers (ITE)	
Electronic Toolbox for Making Intersections More Accessible for Pedestrians Who are Blind or Visually Impaired	http://www.ite.org/accessible
Washington State Department of Transportation (WSDOT)	
School Administrator's Guide to School Walk Routes and Pedestrian Safety	www.wsdot.wa.gov/bike/PDF/School_Admin_Guide.pdf

Georgia Pedestrian Resources

Location/Document	Source
Georgia Department of Transportation	
Statewide Bicycle and Pedestrian Initiative: Contacts, Links & Information	http://www.dot.state.ga.us/DOT/plan-prog/planning/projects/bicycle/info_links/index.shtml
City of Roswell	
Roswell Comprehensive Plan 2020 Transportation: Bicycle and Pedestrian Plan	http://www.roswellgov.com/
Forsyth County	
Forsyth County Bicycle and Walkways Plan 2025	http://www.forsythco.com/pdf/files/FC_BikePed-2025.pdf
Atlanta Regional Commission	
Inventory of Pedestrian Facilities Around Transit	http://www.atlantaregional.com/transportationair/bikeped.html
Atlanta Region Walk to School Program	
2002 Bicycle Transportation and Pedestrian Walkways Plan	
City of Atlanta Sidewalk Maintenance Program	http://www.atlantaga.gov/government/publicworks/sidewalkmain_091604.aspx
PEDS – Metro Atlanta Pedestrian Advocacy Group	http://www.peds.org

Examples of Pedestrian Inventories

Agency or Author / Document	Source
Lee County Metropolitan Planning Organization (FL)	
Instructions for Preparing a Comprehensive Countywide Inventory of Bicycle and Pedestrian Facilities	http://www.swfrpc.org/MPO/LRTP/Instructions.pdf
Franklin Regional Council of Governments (MA)	
Pedestrian Facility Inventory of Franklin County	http://www.frcog.org/pedinv.PDF
Atlanta Regional Commission (GA)	
Inventory of Pedestrian Facilities around Transit	http://www.atlreg.com/transportationair/bikeped.html#Ped%20Inventory
Pima Association of Governments (AZ)	
Tucson Region Sidewalk Inventory Project Report	http://www.pagnet.org/tpd/intermodal/pedestrian/SidewalkInventory2005.pdf
Hefferan, Jennifer R., and Lagerwey, Peter	
City of Seattle, WA, USA Crosswalk Inventory and Improvement Plan	Institute of Transportation Engineers, ITE Journal, January 2004
Washington State Department of Transportation	
Statewide Bicycle and Pedestrian Facility Inventory	http://www.wsdot.wa.gov/ta/operations/localplanning/pdf/Inventory.pdf

Other Domestic City/State Pedestrian Plans

Location/Document	Source
City of Portland, Oregon	
Pedestrian Master Plan- Portland Transportation	http://www.trans.ci.portland.or.us/Plans/PedestrianMasterPlan/default.htm
Oregon Department of Transportation	
Oregon Bicycle and Pedestrian Plan (1995)	http://www.odot.state.or.us/techserv/bikewalk/planimag/toc-imag.htm
Wisconsin Department of Transportation	
Wisconsin Pedestrian Policy Plan 2020	http://www.dot.wisconsin.gov/ projects/state/ped2020.htm
City of Madison, Wisconsin	
Madison, Wisconsin Pedestrian Transportation Plan	http://www.ci.madison.wi.us/transp/pdp.html
Washington Department of Transportation	
Washington's Bicycle and Pedestrian Plan	http://www.wsdot.wa.gov/ppsc/planning/pdf/bicycle.pdf
City of Vancouver, Washington	
Downtown Transportation Plan	http://www.city.vancouver.bc.ca/dtp/final.htm
Puget Sound Regional Council	
Regional Bicycle and Pedestrian Implementation Strategy for the Central Puget Sound Region.	http://www.psrc.org/projects/nonmotorized/bikestrategy.htm
University of North Carolina	
Bicycling and Walking in North Carolina, A Long-Range Plan	http://www.hsrc.unc.edu/pubinfo/ped_officeped.htm

International Pedestrian Plans and/or Pedestrian Resources

Location/Document	Source
City of Sidney, Australia	http://www.cityofsydney.nsw.gov.au/pdf/BikeActionPlanV3.pdf
Western Australia Department of Planning – Walking Website	http://www.dpi.wa.gov.au/walking/strategies.html
Queensland, Australia Transport Website	http://www.roadsafety.qld.gov.au/qt/LTASinfo.nsf/index/rs_pedestrians_homepage
Ped & Bike Transport Institute of Australia	http://www.pedbiketrans.asn.au/
Victoria, Australia – Transport Policy Institute	http://www.vtpi.org
Transport for London. Making London a Walkable City: The Walking Plan for London.	http://www.londontransport.co.uk/streets/downloads/pdf/walking-plan-2004.pdf

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Appendix F – Georgia Pedestrian Traffic Laws

At the state level, there are a number of pedestrian laws that specifically describe the responsibilities of both pedestrians and motorists at locations where there is an interaction between the two modes, most specifically at pedestrian crossings. These laws help to provide the context in which the two modes should be able to operate safely. Laws vary depending on whether the crossing is marked or signals are present, but typically fall into the general categories presented below. The following information breaks down the responsibilities of both the pedestrian and vehicle under a variety of scenarios. This information is taken from the un-annotated Georgia Code with the chapter and section numbers provided in brackets [##-#-# (x)] as a reference.

Pedestrians on the Roadway

- The driver of a vehicle shall stop and remain stopped to allow a pedestrian to cross the roadway within a crosswalk when the pedestrian is upon the half or approaching the half of the road of the direction the vehicle is traveling or onto which it is turning. For the purposes of this subsection, 'half of the roadway' means all traffic lanes carrying traffic in one direction of travel. [40-6-91 (a)]. Subsection (a) of this Code section shall not apply under the following condition:
    - Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right of way to all vehicles upon the roadway if he uses the roadway instead of such tunnel or crossing [40-6-92 (b)]

- No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close that it is impractical for the driver to yield [40-6-91 (c)].

- Whenever any vehicle is stopped at any marked or unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle [40-6-91 (d)].

- Where a sidewalk is provided, it shall be unlawful for any pedestrian to walk along and upon an adjacent roadway [40-6-96 (a)].

- Where a sidewalk is not provided but a shoulder is available, any pedestrian walking along and upon a highway shall walk only on the shoulder, as far as practicable from the edge of the roadway [40-6-96 (b)].

- Where neither a sidewalk nor a shoulder is available, any pedestrian walking along and upon a highway shall walk as near as practicable to an outside edge of the roadway, and, if on a two-lane roadway, shall walk only on the left side of the roadway [40-6-96 (c)].

- Unless stated otherwise, any pedestrian upon a roadway shall yield the right of way to all vehicles upon the roadway [40-6-96 (d)].

- No pedestrian shall enter or remain upon any bridge or approach thereto beyond the bridge signal, gate, or barrier after a bridge operation signal indication has been given [40-6-96 (e)].

- No pedestrian shall pass through, around, over, or under any crossing gate or barrier at a railroad grade crossing or bridge while such gate or barrier is closed or is being opened or closed [40-6-96 (f)].

Pedestrians Crossing Roadways at Pedestrian-Control Signal Locations

- When the word or symbol message WALK is present, pedestrians facing such signal may proceed across the roadway in the direction of the signal. Every driver of a vehicle shall stop and remain stopped for such pedestrians [40-6-22 (1)].

- When a flashing or steady DON'T WALK is present, 1) no pedestrian shall start to cross the roadway in the direction of such signal, 2) any pedestrian who has partially completed his crossing on the WALK signal shall proceed to sidewalk or safety island [40-6-22 (2)].

Pedestrians Crossing Roadways at No-Pedestrian-Control Signal Locations

- Unless otherwise directed by a pedestrian signal, pedestrians facing any green indication, except when the sole green indication is a turn arrow, may proceed across the roadway within any marked or unmarked crosswalk [40-6-21 (1C)].

- Pedestrians facing a steady circular yellow or yellow arrow signal are thereby advised that there is insufficient time to cross the roadway before a red indication is shown and no pedestrian shall then start to cross the roadway [40-6-21 (2B)].

- Pedestrians facing a steady circular red or red arrow signal indication shall not enter the roadway [40-6-21 (3E and 3G)].

Roadway Crossings with Pedestrian Restrictions

- Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right of way to all

vehicles upon the roadway unless he has already, and under safe conditions, entered the roadway [40-6-92 (a)].

- Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right of way to all vehicles upon the roadway if he uses the roadway instead of such tunnel or crossing [40-6-92 (b)].

- Between adjacent intersections at which traffic-control signals are in operation, pedestrians shall not cross at any place except in a marked crosswalk [40-6-92 (c)].

- No pedestrian shall cross a roadway intersection diagonally unless authorized by official traffic-control devices. When authorized to cross diagonally, pedestrians shall cross only in accordance with the official traffic-control devices pertaining to such crossing movements [40-6-92 (d)].

Laws Specific to Drivers Concerning Pedestrians

- Except when necessary to avoid conflict with other traffic, or in compliance with law or the directions of a police officer or official traffic-control device, no person shall stop, stand, or park a vehicle on a sidewalk, crosswalk, or within 20 feet of a crosswalk at an intersection [40-6-203].

- The driver of a vehicle emerging from an alley, building, private road, or driveway within a business or residential district shall stop such vehicle immediately prior to driving onto a sidewalk or onto the sidewalk area extending across such alley, building entrance, road, or driveway. In the event there is no sidewalk area, the driver shall stop at the point nearest the street to be entered where the driver has a view of approaching traffic thereon. The driver of a vehicle shall yield the right of way to any pedestrian on a sidewalk [40-6-144].

- No person shall drive any vehicle upon a sidewalk or sidewalk area except upon a permanent or duly authorized driveway [40-6-144].

- The driver of every vehicle shall yield the right of way to any blind pedestrian who is carrying a walking cane or stick white in color or white tipped with red or who is accompanied by a guide dog [40-6-94].

Segway Laws in Georgia

- The Segway is an Electronic Personal Assistive Mobility Device (EPAMDs). Electrically propelled, this two-wheeled device is designed to transport one person with a maximum speed of less than 20 mph.

- In Georgia, this device is permitted on sidewalks and must adhere to all pedestrian laws.

(Based upon information provided by Governors Highway Safety Association. http://www.statehighwaysafety.org/html/state_info/laws/segway_laws.html)

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