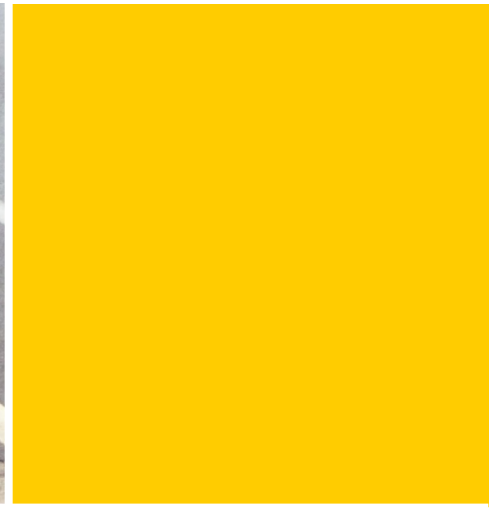
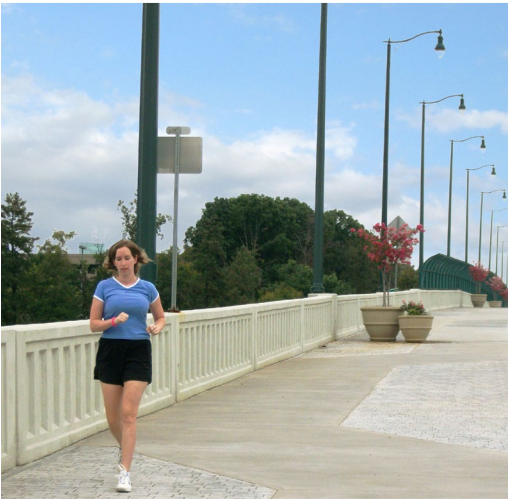




PERIMETER COMMUNITY
IMPROVEMENT DISTRICTS



commuter trail system master plan



prepared by |





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Acknowledgements:

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Atlanta Regional Commission

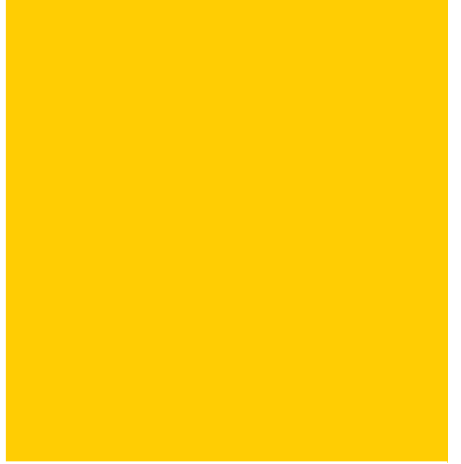
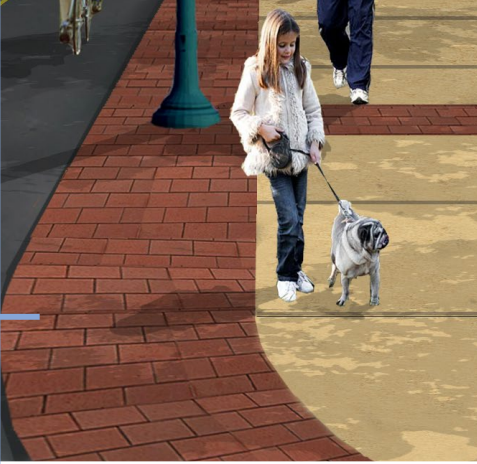
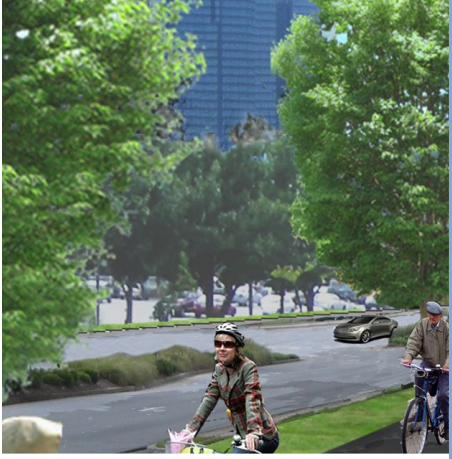
Metropolitan Atlanta Rapid Transit Authority (MARTA)

commuter trail system master plan

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master plan

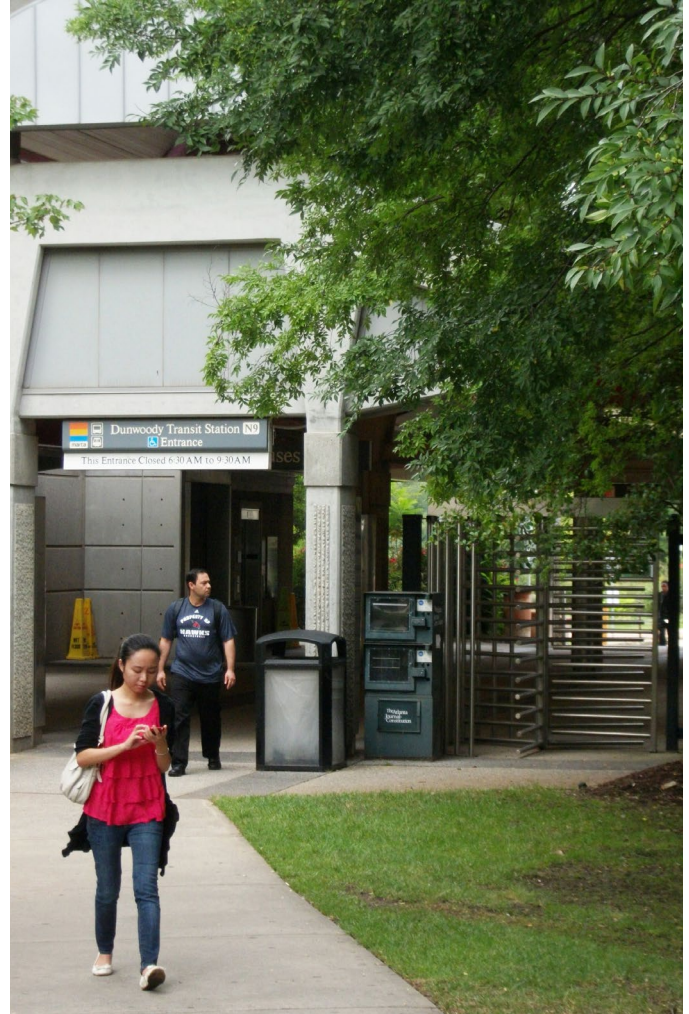


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section 1: purpose and overview

Perimeter's brand is established across the Southeast as a successful edge city, a desirable market for retail and office development, and, increasingly, as an innovative and amenity-rich center for active urban living. It has a high concentration of Class A office space, is home to the headquarters of several Fortune 500 corporations, has Metro Atlanta's highest concentration of medical facilities, and it is a major shopping destination for discerning consumers from multiple states. There is considerable value to maintain in Perimeter's property market, while there is also significant opportunity for growth. This value can be preserved by staying current with the expectations of residents, corporate recruiters, and civic leaders who are increasingly favoring areas that accommodate a "live, work, play" lifestyle.

Transportation will play an important part in Perimeter's ability to maintain and strengthen its position as a premier market area for office, retail, and residential properties. Employers and employees alike increasingly expect that their businesses be located where a wide range of commute options are available and enable a wide range of housing options. Integration into an effective regional transportation system is essential to Perimeter maintaining its position as a vibrant and desirable community in which to work, play, and live. Perimeter has optimized its connections to Metro Atlanta's freeway system, including the recently completed half-diamond interchange at Hammond Road and Georgia 400, and the brand new diverging diamond interchange at Ashford Dunwoody Road and Interstate 285. Perimeter is further well positioned by three MARTA rail stations within the boundaries of its two Community Improvement Districts (and two more in close proximity), though previous auto-centric development patterns make leveraging this advantage a continuing challenge. The prospect of getting from these stations to Perimeter's office complexes, shopping districts and residences is daunting to many. Numerous properties currently operate their own shuttle services to help employees and customers complete their commutes and other trips from the stations, and a separate study is currently underway to recommend strategies to connect shuttle service across Perimeter. The purpose of this Master Plan is to identify opportunities to increase transportation options by



*Commuters leaving the Dunwoody MARTA station on their way to work.
Photo credit: Lose & Associates, Inc.*



*Riders entering the Dunwoody MARTA station.
Photo credit: Lose & Associates, Inc.*

improving bicycle and pedestrian access to the stations and generally increase mobility for non-motorized users within Perimeter as well. While this Master Plan is primarily focused on aiding commuter trips by increasing the utility of MARTA for Perimeter workers and residents, the improvements recommended herein will also benefit commercial trips by providing better non-motorized access to areas shops and restaurants. The network of bicycle and pedestrian facilities can serve recreational purposes as well, adding to the quality of life for Perimeter's increasing residential community and providing an amenity to help employers attract and retain top talent.

This Master Plan will explain the development of the proposed Commuter Trail System, by placing it in a context of other Perimeter Area initiatives, identifying the users and travel flows the system will serve, and recommending specific projects for each corridor that will serve the needs of Perimeter area commuters as they travel between MARTA Rail stations and workplaces and as they and others visit perimeter area shops and restaurants. These recommendations respond to specific points which influence demand, including office developments, retail locations, MARTA Rail stations, and Perimeter's previously identified Walk Districts. The proposed Commuter Trail System serves these travel demand flows between these points by optimizing a broad variety of connection opportunities, including existing public rights-of-way, private roadways, open space both within and adjacent to developed parcels and stream corridors. The recommended projects are prioritized based on the demand they serve and the relative ease of their development. Cost estimates for each potential project are also provided.

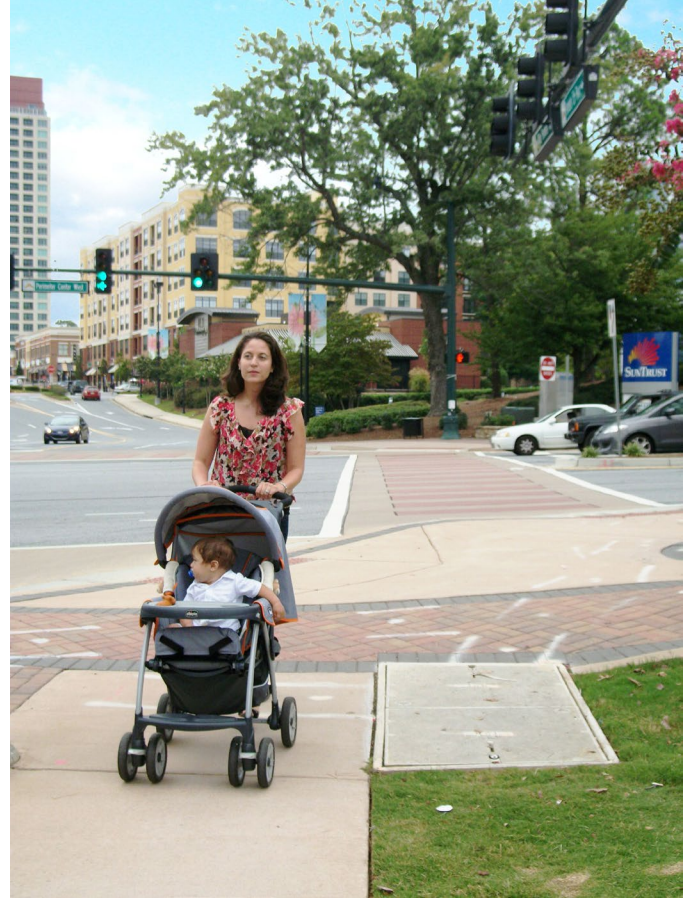
section 2: background

Prior Initiatives

Over the past decade, Perimeter has been active in crafting a vision and implementing supportive projects to help preserve and extend its position as a successful market for corporate headquarters, office developments, hotels, restaurants, shopping, and, increasingly, residential development. Beginning with the *Perimeter Focus* LCI report, and its subsequent update in 2005, Perimeter's vision of preserving its premier market status by adopting strategies for sustainable growth has included leveraging its existing transit connections by improving shuttle, bicycle, and pedestrian mobility to, from, and around the MARTA stations. In 2010, the *Perimeter @ the Center—Future Focus* LCI Update established goals and objectives that specifically name bicycle and pedestrian infrastructure as elements of Perimeter's continued success. "Pedestrian Friendly Environments" and multi-modal mobility were established as objectives to support the goal of "livability enhancements" while an additional goal of connectivity is supported by objectives of creating well planned networks of bicycle and pedestrian facilities that serve the area. Perimeter CIDs have also identified 10 Walkable Districts, described by 1500 foot radii around amenity clusters (retail, dining, etc.) which have been prioritized for development of pedestrian friendly infrastructure. This Master Plan builds upon these initiatives by identifying specific opportunities to create better networks of bicycle and pedestrian facilities, thus promoting inter-connectivity, creating viable mode options and realizing the objectives of these prior efforts. Perimeter CIDs have invested heavily in streetscape and intersection improvements in recent years to improve pedestrian mobility, and have also established Public Space Standards and invested hardscape elements and plant materials to make the area more attractive and inviting. The recommendations of the Master Plan build upon those initiatives and were carefully developed to be in harmony with the pedestrian-friendly intent and the aesthetic template already established around Perimeter.

Current Initiatives

This Master Plan is developed in harmony with two concurrent feasibility reports: a redesign of the Dunwoody MARTA station, and the development of recommendations for a shuttle/circulator service. This Master Plan identifies opportunities to connect the Dunwoody Station



*Pedestrian mobility is already a priority in the Perimeter area.
Photo credit: Lose & Associates, Inc.*

(as well as the others) to the centers of employment and retail activity across Perimeter via bicycle and pedestrian facilities, and recommends facility improvements on multiple approaches to the stations. Exact interface with station entrances will come later in the project design phases. Proposed circulator route development will be very compatible with many of the recommendations in this report, especially the transformation of the outside lanes of some four lane roadways into buffered bike/bus lanes that could potentially be shared with circulator buses. Any new corridors developed for circulator use should be considered for bicycle and pedestrian access as well.

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section 3: study process

Serving commuter trips is the immediate priority for the proposed Commuter Trail System. The system will also become a quality-of-life amenity for those who work or live in the area, providing space for physical activity and make it easier to patronize local shops and restaurants from area offices and homes. The intent of this system is to serve area workers and all potential bicyclists and walkers in the Perimeter area, by enabling them to choose transit if they commute from outside the districts. Additionally, the Commuter Trail System will enable the commutes of those who live in the Perimeter area and may wish to take transit to jobs outside of Perimeter, and the growing number of people who will both live and work within the Perimeter area or in nearby neighborhoods of Sandy Springs and Dunwoody.

This section details the types of trips the system is intended to serve, and how corridors which serve those trips have been identified. The identification of these demand-responsive corridors sets the stage for recommending the specific projects that will comprise the Commuter Trail System.

Commuters

Commuter travel is a priority consideration in the development of this system. Full integration with regional transit via MARTA, GRTA and other transit providers is an important element of Perimeter's long range goal of becoming the premier livable center in the Southeast. Seamless integration with transit allows current and future Perimeter employers to attract and retain a highly talented workforce. The availability of a reasonable commute experience is a major factor for job candidates when they are choosing between employment options. Commute conditions are also an important consideration as businesses consider relocating or remaining where they are. High quality bicycle and pedestrian facilities that connect area offices and residences with transit stations will help transit succeed as a viable option for Perimeter commuters. In addition to connecting local workers and local residents to transit, the Commuter Trail System will also facilitate commuting within Perimeter between residential areas and businesses. Eventually, the system could connect with adjacent neighborhoods of Dunwoody and Sandy Springs and to regional pathway systems extending into DeKalb, Fulton, and Cobb Counties.



Easy non-motorized access to shopping destinations is desired by many Perimeter workers and visitors. Photo credit: Lose & Associates, Inc.

Lunchtime Commerce

Other important trip types for Perimeter area workers are lunchtime shopping or dining trips. Successfully running errands or enjoying an unhurried lunch and making it back to the office within one hour is currently a serious challenge for employees at many of Perimeter's complexes. Long block lengths and busy roadways discourage walking, and the high proportion of single occupancy vehicles compounds the traffic related issues. The Commuter Trail System will include connections to enable these types of mid-day trips in addition to serving commuter trips connecting to transit and residences. Most facilities on the identified network will serve both kinds of trips, but close analysis has also identified potential linkages that could specifically serve lunchtime commerce trips that are not necessarily along the same desire lines as commuter trips.

Recreational Users

As the system develops and its various links start to form an interconnected network, recreational users will begin to use the facilities it provides. Whether lunchtime bicyclists and joggers who work in nearby offices, or evening and weekend users who live nearby, the system will attract many recreational users. The availability of the system for recreational use will add value as an attractive amenity for Perimeter area businesses and residents alike. The proximity of outdoor recreation opportunities will help employers attract and retain talent and add to the marketability of residential in-fill developments.

Serving a Mix of Users

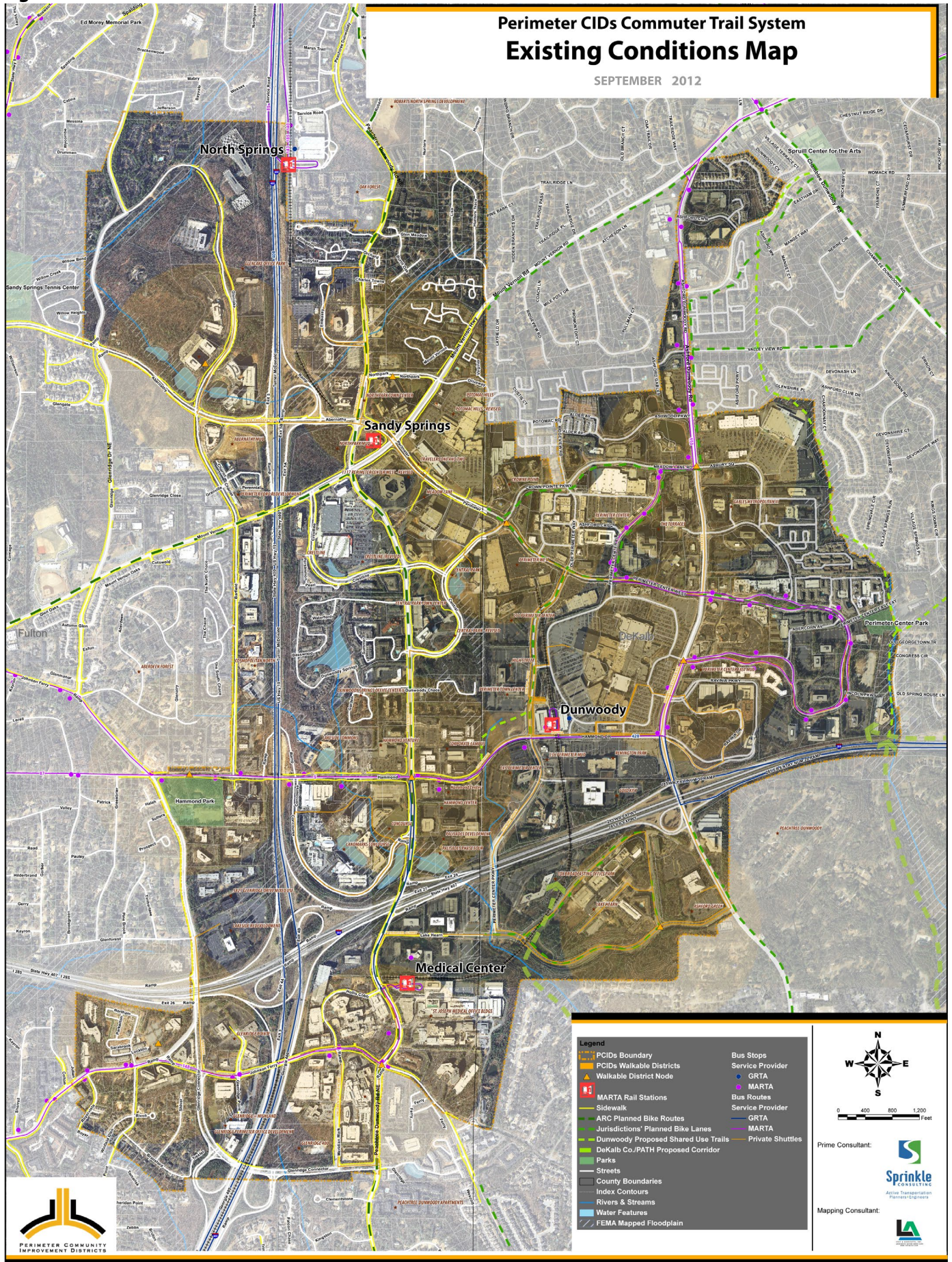
Because of the broad variety of users anticipated for the Perimeter CIDs Commuter Trail System, the pathway cross sections recommended below will accommodate multiple streams of users moving at different speeds. Commuters will feel that their efforts to make direct progress to catch a train will not be impeded by casual walkers using the trail, while those casual walkers will not need to worry about dodging bicyclists. All users will be aware of each other, but they will be in a relaxed environment that can accommodate many of them at once.

Review of Existing Conditions

As the first step of identifying needs and opportunities for helping Perimeter area commuters connect to the MARTA stations, the consultant team gathered data to develop a base map showing all existing roadways, existing and proposed bicycle facilities, existing side-

walks, MARTA Rail Stations and MARTA and other bus routes and stops. These transportation features were laid out over an aerial image which provides the context of building locations and open space. This map of existing conditions is shown in Figure 1. The map shows good existing sidewalk coverage throughout most of the area of the PCIDs and also depicts plans for future trails and pathways identified by DeKalb County and the City of Dunwoody. Bike lanes have been recently added on sections of Perimeter Center West, and Perimeter Center Boulevard. Such facilities are very useful, but something more is needed to really transform Perimeter into an area where non-motorized modes are truly a realistic option for all users and strongly complement Perimeter's MARTA connectivity. This base map shows much about where opportunities may be found to make connections with existing or future infrastructure, but it doesn't yet reveal where the need is greatest, or where the best places to start are found. For this type of understanding, an analysis of potential use was required.

Figure 1



Determining Demand

While an ideal system would have high quality access to all corners of the Perimeter market, fiscal and practical constraints make it prudent to prioritize those facilities which will serve the highest demand. To identify where travel demand for commute and lunchtime commerce trips are most intense, the project team analyzed land use patterns in the Perimeter area, using property tax assessment records, field observation and stakeholder input. This analysis enabled the development of a focused yet comprehensive system of commuter trail facilities to connect Perimeter's workforce with MARTA and other transit services.

Heat Map and Desire Paths—Connecting Jobs to Transit

A spatial representation of employment intensity was developed based on building square footage data, land use descriptions, typical per-employee spatial needs associated with those uses and observation of existing paths created by foot-traffic. The resulting job estimate associated with each office and retail property in the Perimeter area was then mapped as a job intensity value, showing a “heat map” or “employment topography” for the study area. The map of this analysis is shown in Figure 2.

The “heat map” depicting job locations in the Perimeter area was analyzed relative to the location of MARTA Rail stations to show where there are “desire paths” for non-motorized commuter travel—reasonably direct lines of travel that connect various points of high job intensity to the stations. These paths are shown relative to the “heat map” in Figure 3.

Serving Demand

The desire paths were then analyzed relative to the network of existing travel corridors. Roadways that closely paralleled commuter desire paths were identified for consideration of improvements to serve bicycling and walking commuters. Independent pathway corridors were then considered to serve the desire paths not closely parallel to an existing roadway corridor or other public right-of-way.

After the corridors were identified, the network was then analyzed to ensure that connections for lunchtime commerce trips (likely shorter and more pedestrian-oriented than commute trips) were adequately served. A number of locations were identified where additional connections could be made to link office parcels with retail parcels—connections not already served by a corridor coincident with commuter desire paths. The PCIDs' Walkability map, which shows walking distance to amenities, was further analyzed for sidewalk gaps within the areas around the 10 identified walkability nodes. Any gaps not already covered by commuter desire paths or lunchtime commerce paths were identified for sidewalk development.

Public and Stakeholder Involvement

The project was reviewed at preliminary and final stages by PCIDs staff, PCIDs board and stakeholders, as well as agency partners from the Cities of Dunwoody and Sandy Springs, DeKalb County, the Atlanta Regional Commission and MARTA. Perimeter CIDs staff also reviewed recommended independent alignment trails with the owners of potentially impacted parcels. All potential projects shown in the project lists in Section 5 have received preliminary support from owners of potentially impacted properties.



Convenient access to local dining establishments provides many benefits for Perimeter workers. Photo credit: Lose & Associates, Inc.

Figure 2

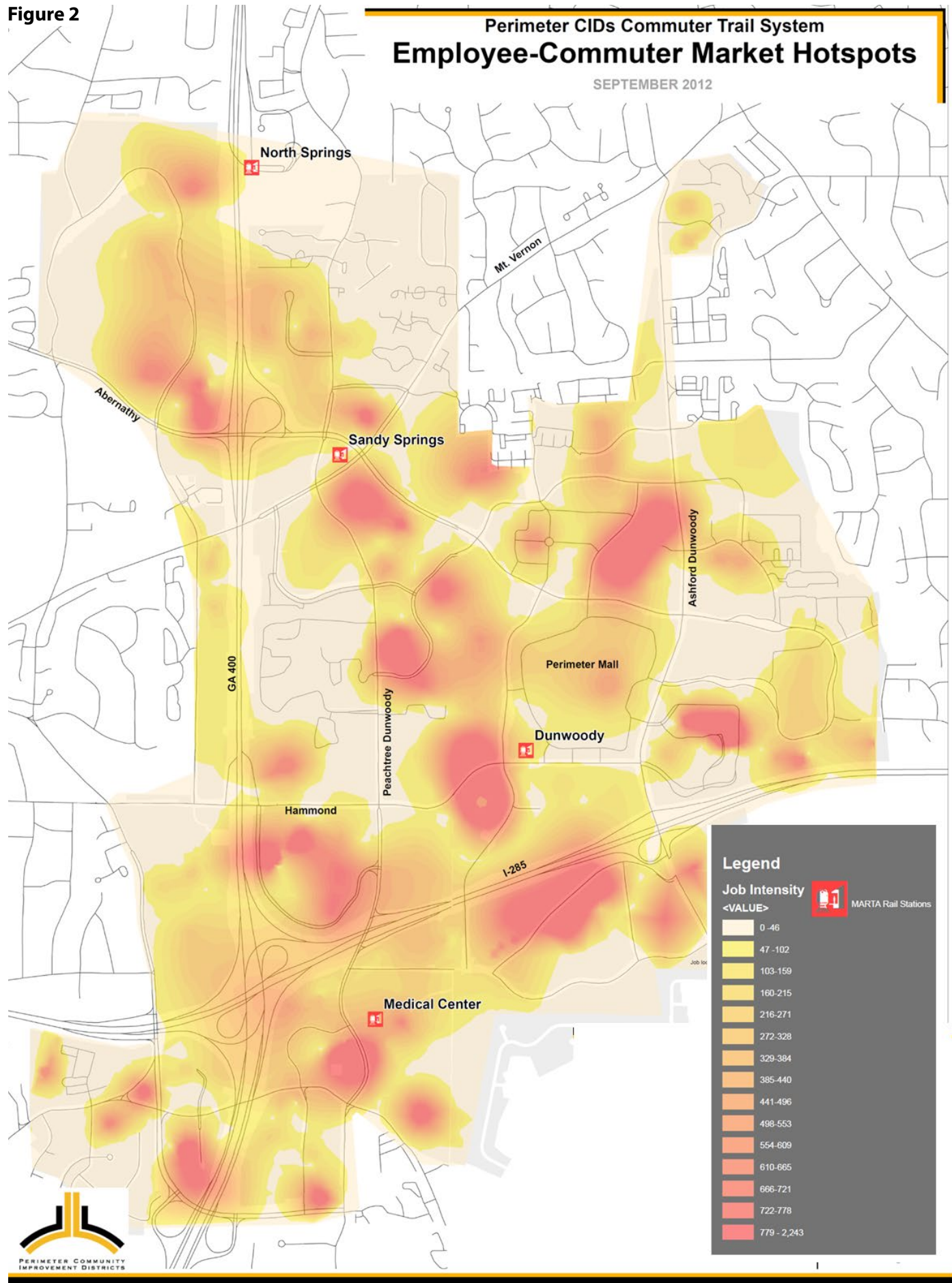
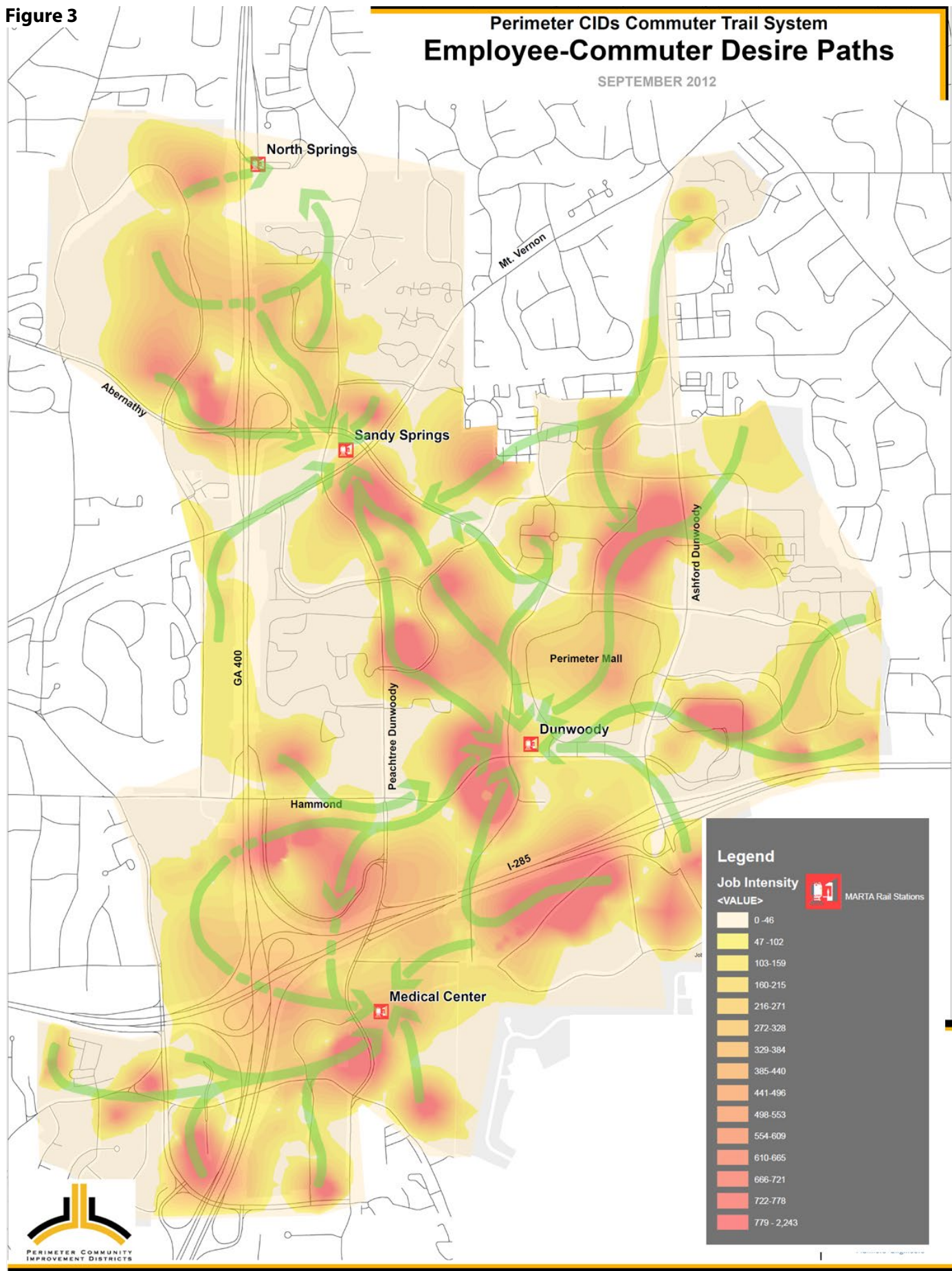


Figure 3



section 4: recommendations

Facility Types and Their Design Criteria

The demand analysis described in the preceding section has identified which corridors will most likely carry Perimeter Area workers to and from MARTA stations and area retail and dining establishments. This section describes the variety of infrastructure improvements that will actually make those connections and comprise the growing Commuter Trail System. The heart of system will be its shared use pathways, while other facilities will be sidewalks, low volume streets, buffered bike lanes and shared lane markings. Together, these facilities will form an interconnected network of bicycle and pedestrian facilities that provide attractive and comfortable connections between Perimeter's workplaces, transit stops, shops, and restaurants. An overview of the facility recommendations to serve commuter and lunchtime commerce flows (and also improve pedestrian conditions within the PCIDs 10 walkable districts) is shown on the map in Figure 4. Segment level recommendations are detailed in the tables found on pages 22-26.

Sidewalks

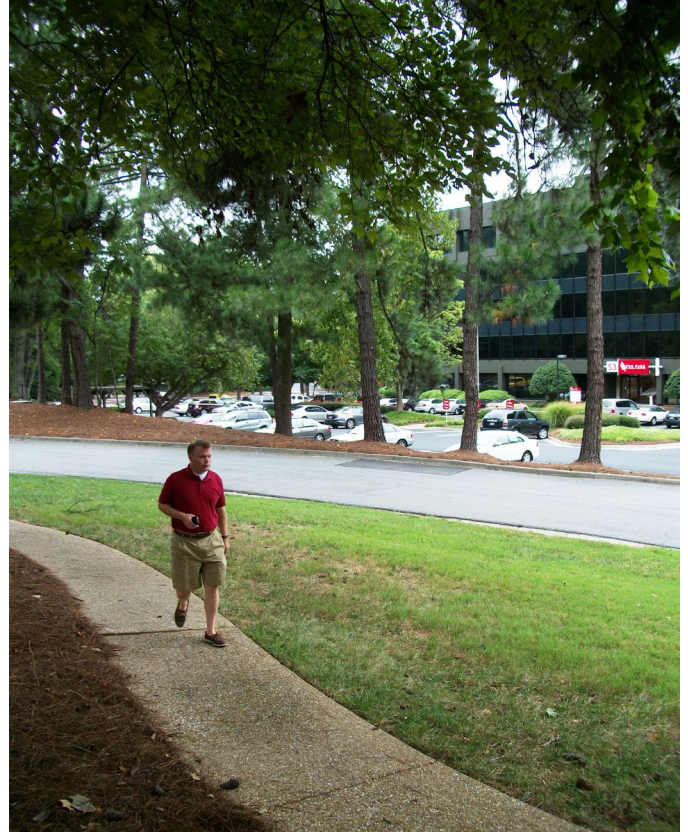
Analysis revealed several gaps in sidewalk coverage along roadways which provided mobility around and between the PCIDs' identified walkability nodes. These gaps can be filled with facilities that are consistent with the PCIDs' sidewalk design standards.

Existing Low Volume Streets

Two existing low volume streets have been identified which can serve the desire paths previously described. Their low speeds and low motor vehicle volumes should make these roadways very accommodating to bicycle travel "as is". Existing sidewalks serve pedestrian travel on these streets. (Additional wayfinding will be important on these streets, as they will not include an "obvious" bicycle facility.)

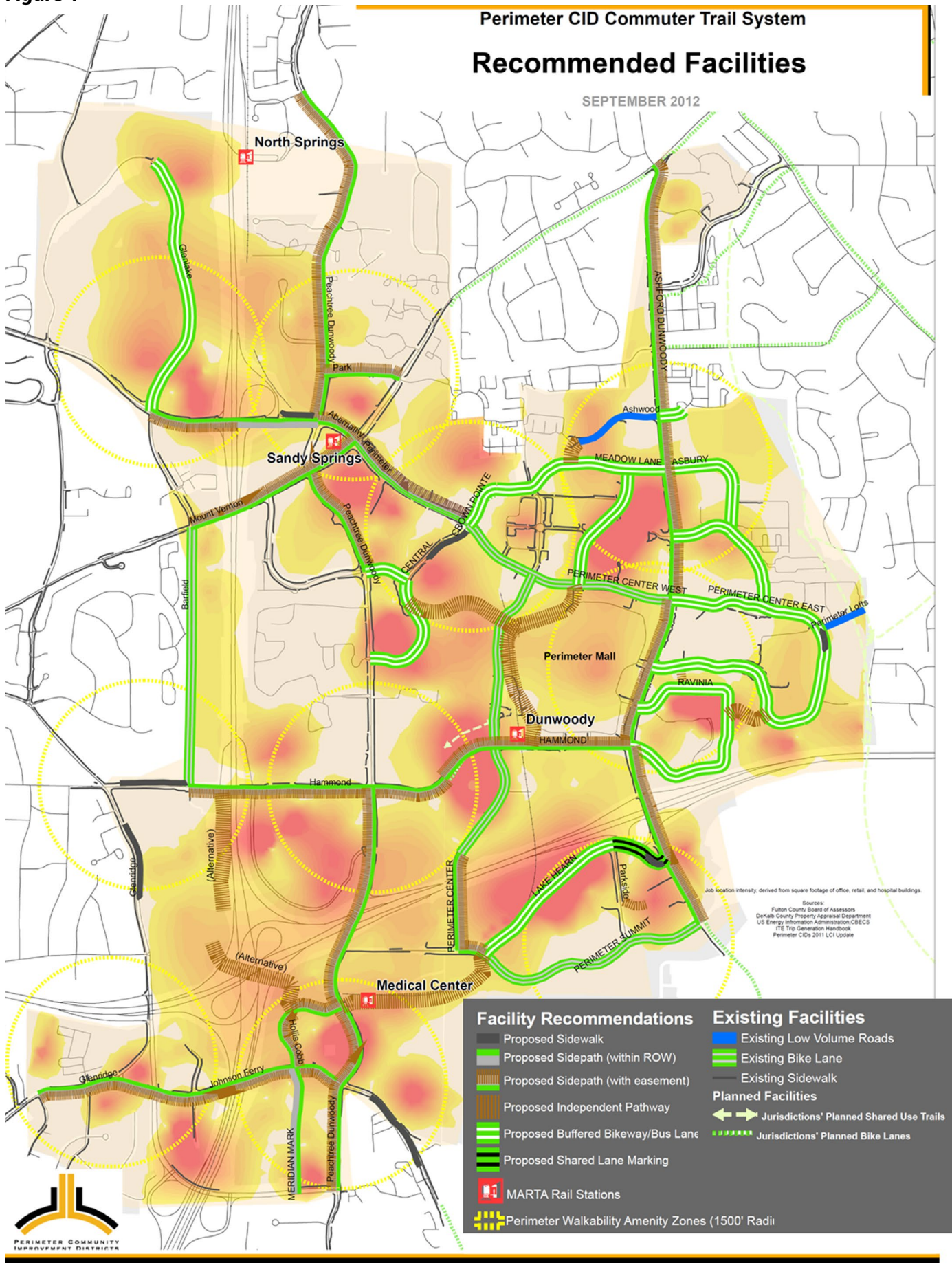
Buffered Bike/Bus Lanes

These facilities are recommended on existing four-lane roadways which could be re-striped into two-lane roadways flanked by an outer lane designed specifically for bicyclists and periodic buses or circulator vehicles. These recommendations have been made where existing data indicate that two lanes would be sufficient to carry existing traffic; final project development will be dependent upon full traffic studies, including



Perimeter's existing pedestrian facilities serve both commuters and recreational users. Photo credit: Lose & Associates, Inc.

Figure 4



turning movements and queues for the subject roadways. If the current outside lane is 12 feet wide, it could be converted in to a six-foot wide bike lane separated by a 6 foot wide buffer strip. Buses and circulator vehicles could drive in the lane also (using the full width, including the specially-striped buffer strip) and would share the space with bicyclists, either following or passing any bicyclists encountered. The outer lane should be signed and marked in a special way to encourage motorists to enter it in advance of right turns at driveways and intersections.

The roadways recommended in this Master Plan have been identified as candidates based on preliminary traffic count data which indicated volumes low enough to be carried by two lanes. Final determination of the suitability of this facility for each corridor will be determined by individual feasibility studies.

Pathways Adjacent to Roadways

Many of the desire paths identified in the demand analysis correspond closely to existing roadway corridors. This is good because it means much of the non-motorized travel demand for the Perimeter area could be accommodated within existing rights-of-way, if they are made safe and attractive for walking or cycling. While many of these corridors are subject to high volumes of motor-vehicle traffic, making in-street bicycling unattractive to most people, it may be possible to construct shared-use pathways adjacent to these roadways, thus attracting a broad variety of users. Separated pathway facilities adjacent to roadways (sometimes referred to as "sidepaths" or "cycle tracks") are very popular with the public because they accommodate bicycle travel separately from motor vehicles. These appeal to a broader skill range of bicyclists, including many who would not be comfortable riding in the street, even in a bike lane.

Figure 5

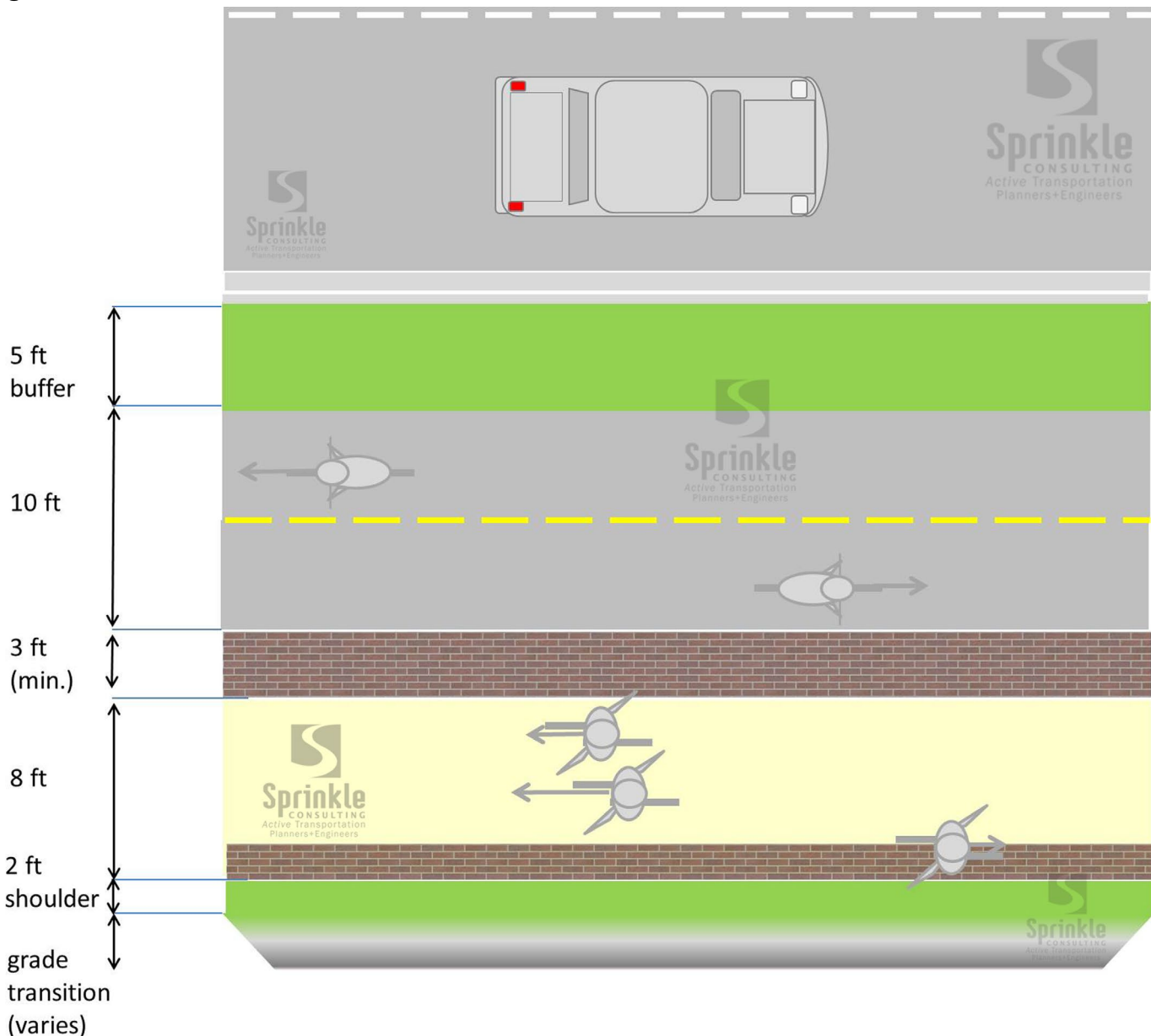


Conceptual Illustration by Sprinkle Consulting and Lose & Associates, Inc.

Pedestrian accommodation is a priority in the Perimeter area, and the area will benefit if bicycling is accommodated at a high level while still providing exemplary pedestrian accommodations. This would be best achieved by providing separate (but parallel) spaces for pedestrians and other higher speed users such as bicyclists. A view of a possible trail configuration is shown in Figure 5. The specific recommended dimensions of the Commuter Trail facilities are detailed in Figure 6. The bicycle pathway, positioned closer to the roadway but separated by at least 5 feet from the curb, is recommended to be at least 10 feet wide to accommodate regular, two-way travel by bicyclists, in-line skaters and users of other non-motorized devices. A separate, parallel pedestrian walkway is recommended on the

outside of the bicycle pathway (the side away from the roadway). It is recommended to line the sides of this pedestrian walkway with a paver brick pattern, both to comply with the existing PCIDs Public Space Standards for sidewalk design and to provide a tactile “shoreline” for the benefit of visually impaired pedestrians between the pedestrian way (sidewalk) and the bicycle pathway (a vehicular way according to Georgia Law). The pedestrian walkway is recommended to be at least 8 feet wide, not including the paver band which separates the walkway from the bicycle pathway. This facility will be wide enough to accommodate three pedestrians abreast comfortably, thus allowing two pedestrians to walk together, talking and socializing, and meet an oncoming pedestrian without any of them having to significantly alter their course or stride.

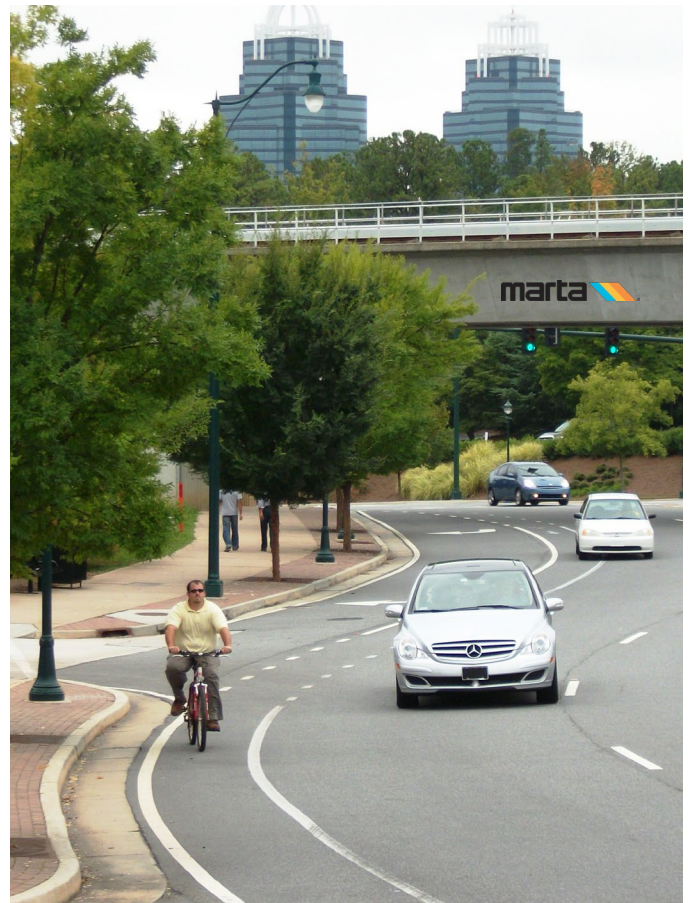
Figure 6



To allow for bicyclists and pedestrians to operate safely and comfortably, the total operating width of the parallel bicycle and pedestrian facilities should be at least 19 feet. The total corridor for these pathways will also need to encompass at least a five-foot wide separation from the roadway, and a two-foot shoulder on the far side of the pedestrian way, leading to a total corridor width of 28 feet plus any distance needed to transition back to existing grade at the project limits (for planning purposes it would be safe to assume a total need of 35 feet).

The bicycle portion of the facility described above will operate in a manner similar to a type of facility known as a “sidepath.” While these facilities are popular with the public because they are perceived as safer than riding in the roadway, design guides, such as the *AASHTO Guide for the Development of Bicycle Facilities*, caution that their design requires great care and attention, especially at driveways, cross streets, and signalized intersections because of known operational challenges. Many of these relate to potential conflicts with turning motor vehicles. Operationally, they are (minor) frontage roads. **While AASHTO does allow for this type of facility, it strongly recommends that any pathway which closely parallels a roadway be carefully designed to mitigate these known operational challenges.** Although design choices for specific projects can only be determined in the design phase, important design considerations will include geometric management of speeds on approach to conflict points (for both motorists and trail users) as well as the careful provision and maintenance of visibility triangles in advance of these points. The yielding obligation of the appropriate party (either motorists or trail users) must be clear to all and managed via careful geometric design and selection of appropriate traffic control. The safety of these facilities will depend on ensuring that motorists and trail users are fully aware of their respective obligations to yield and that they are enabled to yield because pathway conditions allow them to see impending conflicts and provide the space and time to react accordingly.

Away from these conflict points, these pathways must be separated from the roadway by at least five feet (measured from the face of the curb in most cases), or separated by a vertical barrier. In many places, it will be necessary to acquire an easement from the adjacent properties. To have sufficient space to construct the entirety of the pathway elements, the dimensions recommended above are necessary for safe operation consistent with AASHTO and other design guidance.



Perimeter already has bike lanes on some roadways. The Commuter Trail System will appeal to an even broader spectrum of bicyclists. Photo credit: Lose & Associates, Inc.



Example bike locker (top) and bike racks (bottom) approved for use by Perimeter CIDs Public Space Standards. Photo credit: Manufacturer's Images from PCIDs Public Space Standards.

Independent Pathways

A number of corridors will enable more direct connections to serve commuter demands than currently allowed by the corridors of the existing roadway network. Where the demand analysis showed desire lines that were not adequately served by existing rights of way and would require easements or other access across private parcels, connections have been identified that would serve this demand. The recommended independent alignment facilities shown on Figure 6 represent those potential alignments which have received initial agreement from the owners of impacted parcels. PCIDs will continue the initiative to work with property owners in order to ultimately serve all the demand flows identified in this Master Plan.

These corridors would be developed with the cooperation and direct involvement of the owners of property they traverse. The availability of direct routes is important element for non-motorized modes to become a realistic option for commuters and lunchtime diners and shoppers. Independent non-motorized corridors such as the ones recommended in this Master Plan are an important step toward the future of mobility in Perimeter. These corridors will resemble the roadside pathways in many ways. All recommended dimensions are the same. While these facilities are not adjacent to roadways, it is still necessary to include a five foot wide shoulder adjacent to the bicycle pathway in order to provide adequate recovery area before an errant bicyclist might encounter a steep drop-off or other trailside hazard.

The recommended independent pathway corridors are shown (brown dashed lines) on Figure 4 are listed in Table 1.

Short-link Corridors

A few "Short-link" corridors are planned to serve mostly lunchtime commerce trips between office and retail locations not already linked by a one of the prior facility types serving also serving high commuter demand. Because their primary purpose is not commuting, they are expected to have fewer bicyclists and be predominantly pedestrian-serving facilities. Nevertheless, they will be open to bicycles and should be designed to accommodate occasional bicycle travel. Their recommended width is thus 10 feet, and they will still need the five foot shoulders, which results in a total corridor width of 20 feet plus transition space (e.g. grading, embankments, etc.).

Other Improvements

In addition to building the Commuter Trail System in the corridors listed, there are several other steps to be taken in the Perimeter area to increase commuters' use of modes other than individual automobiles. These steps include multimodal accommodations at transit stops, bike sharing, wayfinding and informational displays, and connectivity with other trails and greenways. These additional elements will make biking and walking with transit more convenient and practical and thus increase the probability of widespread recognition of these modes as viable transportation options.

Multimodal Accommodation at MARTA Stations

MARTA proclaims itself as one of the few transit systems that allows unrestricted bicycle access to its trains, so many commuters will be able to ride their bikes from home, get on the train, and then complete their ride to the office. Depending on where they need to go from their train destination, however, they may wish to lock their bicycles at the station on either end of their trip. They may also keep bikes locked at one or both ends of their train ride. To serve transit-bike commuters, it is important to have secure, convenient, and user-friendly bike parking available at all Perimeter area MARTA

stations. Train station bike parking should be considered long-term parking, as those leaving their bikes as they board a train may be gone for several hours (or even overnight) and will not be in sight of their bicycles while they are parked. Long term bicycle parking should be sheltered from the elements and have a high level of security in the form of fully enclosed bike lockers or an enclosed lockable room, possibly including video monitoring or direct monitoring by MARTA staff or security personnel.

Other Bike Parking

Individual bike racks could be considered alongside the pathways near retail destinations that do not have their own bike parking facility, and also near MARTA bus stops, to serve riders when a bike rack on the bus is already full. Both the long term bike lockers and individual bike rack specified in Public Space Standards are very compatible with these recommendations.

Bike Share Program

A bike share program would also complement the Commuter Trail System, allowing those who do not own a bike to test finishing their MARTA commute with a bike ride or for visitors to make use of the Commuter

Figure 7



Conceptual Illustration by Sprinkle Consulting and Lose & Associates, Inc.



Emergency call boxes are already found around Perimeter. They are a recommended feature of the Commuter Trail System.
Photo credit: Lose & Associates, Inc.

Trail System. This amenity will also allow out of town visitors—either business travelers visiting corporate headquarters in Perimeter or destination shoppers enjoying the wide array of specialty shops in the district—to get around more easily, enjoy a casual lunch or dinner several blocks from their hotel, or to incorporate physical activity into an otherwise sedentary day of meetings or shopping. While a viable program may be dependent upon a more complete Commuter Trail System, initial planning can begin so that implementation may follow quickly upon completion of trail projects.

Commuter Information Along Routes

The experience of using the Commuter Trail System can be further enhanced with informational interfaces that assist commuters and other trail users as they make their way around Perimeter. Smart-phone compatible maps and navigation systems, wayfinding signage, informational kiosks, emergency call boxes, and transit status displays can enhance the experience of using the Commuter Trail System and increase the likelihood of people becoming regular users.

Wayfinding Signage

Directional and distance information should be deployed on guide signs where trail segments intersect, informing users of the best route to their destination from any given point. Terminal destinations for signage could include the MARTA Rail stations, as well as large office developments and retail centers. The *Manual on Uniform Traffic Control Devices* includes a range of options for bicycle-specific guide signs, which are smaller in size than standard highway guide signs and therefore less obtrusive in the landscape. These standard green and white signs could be supplemented with a custom plaque for identifying the Perimeter Commuter Trail System.

Informational Kiosks

Overview maps and community information should be installed in kiosks at selected points on the Commuter Trail System, such as at the MARTA Rail stations, near the Perimeter Mall, and at major intersections of the trail system. Displays could also include Quick Response (QR) codes which link users' to information about the system and the area via their smart phones and other mobile devices. Space within these kiosks could be reserved for advertising panels to help offset the cost of their installation and upkeep. An example of a potential PCIDs Commuter Trail System Kiosk is shown in Figure 7.

Emergency Callboxes

Many potential bicyclists and pedestrians are reluctant to travel by these modes—especially in early morning or evening commute hours—because they feel more vulnerable to crime than they would be in their automobiles that can be locked or accelerate away from an uncomfortable situation. Placement of emergency call boxes at regular intervals and at locations that are secluded or out of view from nearby roadways is highly recommended.

MARTA Train and Bus Status

Status displays for arriving MARTA buses and trains at informational kiosks or significant points on the network will help commuters pace themselves as they leave work to catch a train. Knowing that they either have time to stop in a shop or need to keep moving will help them integrate errands and shopping into their commute, making their use of the trail system more satisfying and practical. An example of a train status display is illustrated in Figure 7.

Connectivity to Other Nearby Trails, Parks and Greenways

The present recommended corridors of the Commuter Trail System will serve trips within the PCIDs area. However, they will ultimately link to planned bicycle facilities and trail projects connecting them to Sandy Springs, Dunwoody, and DeKalb County's larger networks.

Accommodation of Neighborhood Electrical Vehicles (NEVs)

Many communities are looking to accommodate travel by Neighborhood Electric Vehicles. Georgia Code (SS 40-6-362) allows for the operation of "low speed vehicles, which would include NEVs, on "any highway where the posted speed does not exceed 35 miles per hour." This would include many of the roads in the Perimeter area. NEVs may also be accommodated within some of the buffered bike/bus lanes identified in this Master Plan. At this time, it is not recommended that NEVs be admitted to the bicycle/pedestrian pathways. Introduction of motorized vehicles in to the pathway environment can degrade the pedestrian experience, and there is no existing national design guidance (e.g. AASHTO, ITE) for the mixing of NEVs with non-motorized users on pathways. Any pathway which may be considered for NEV access in the future will need to be widened and otherwise specifically designed to accommodate these vehicles and to adequately buffer pedestrians from NEVs, especially as they are often very heavy (in excess of 1,000 pounds) and operate very quietly.



Neighborhood Electrical Vehicles (NEVs)
Photo credit: e-ridetranslectric.com

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section 5: project lists and prioritization

The process of identifying corridors to serve demand described in Section 3 subsequently led to the identification of projects to serve that demand with commuter trail projects. These projects consist of both trails adjacent to roadways (listed in the tables on pages 22-24) and trails on independent alignments (listed on page 25). These projects have been prioritized according to criteria described in this section, which include potential demand, detour reduction, and construction challenges. While cost was not a prioritization factor, project costs were estimated and are listed on the prioritization tables for informational purposes. The table on page 26 lists sidewalk projects which will help meet the goal of having full sidewalk coverage on both sides of roadways within the PCIDs Walkability Amenity Zones.

The recommended projects have been prioritized according to their ability to serve potential demand for both commute and lunchtime commercial trips. Potential project corridors (including those adjacent to roadways and independent alignments) were assessed for two types of potential demand: serving a terminal market and an adjacent market. These were determined based their proximity to areas of job intensity (for both), and their potential role in connecting jobs to MARTA Rail stations (for “Terminal Market,” which looks primarily at end-to-end throughput), and their proximity to retail development (thus their utility in serving commercial trips, for “Adjacent Market,” which looks primarily at lateral adjacency and access). The proposed independent alignment projects were also analyzed for the degree to which they shortened the route to a MARTA station compared to the shortest route using only existing roadway connections. These aggregate benefits (two criteria for pathways adjacent to roadways, three independent alignments) were weighed against challenges that may complicate construction of the proposed facility, such as the degree of grading that would be required to level the project site to accommodate a pathway, potential impacts in to adjacent parcels (including parking impacts), potential tree relocation, and any existing infrastructure or other features that will make the development of the facility challenging.

Estimated project costs are based on recent Georgia and Southeastern typical costs, adapted to the specific features and aesthetic requirements of PCIDs Public Space Standards. PCIDs will pursue all available options

for project funding, including participation by developers and parcel owners, PCIDs direct funding, as well as assistance from ARC-distributed federal funds and FTA funding.

The costs listed below are estimated construction costs only, and do not include right-of-way or easement acquisition costs or costs of mitigating any property impacts. The base cost for the commuter trail typical section is variable depending on the degree of grading anticipated for each specific project corridor. The per-mile costs used are as follows:

- Commuter trail in area with negligible grading needed: \$1.66 Million
- Commuter trail in area with moderate grading needed: \$1.99 Million
- Commuter trail in area with significant grading needed, likely including embankments and/or retaining walls: \$3.12 Million

The per mile costs of sidewalk projects are as follows:

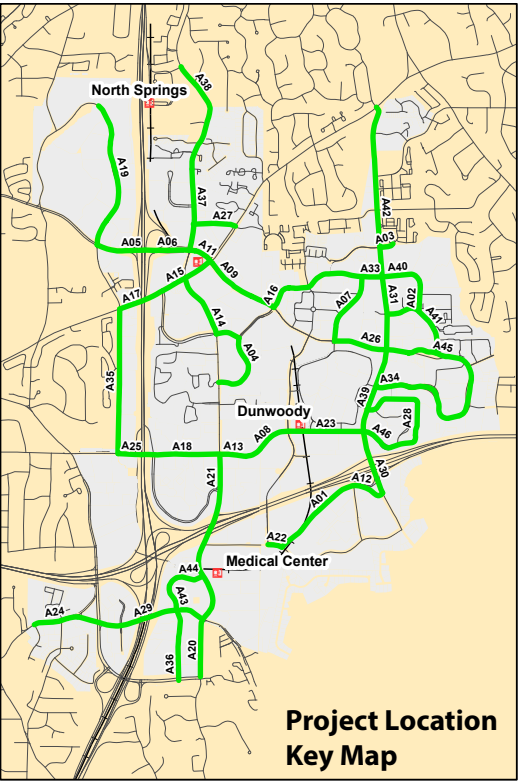
- Sidewalk in area with negligible grading needed: \$230,000
- Sidewalk in area with moderate grading needed: \$293,000
- Sidewalk in area with significant grading needed, likely including embankments and/or retaining walls: \$620,000

Mobilization and maintenance of traffic have been included as a percentage of the overall cost. Some smaller projects may be more costly than estimated due to fixed initial costs associated with mobilization and maintenance of traffic. Bundling of multiple small projects may minimize the cost impact of these factors.

Projects which involve construction of modification of bridges and other structures have had specific structural costs added to their per-mile calculations.

Table 1: Recommended Commuter Trails (adjacent to existing roadways)

Project ID Number	Street Name	From	To	Corridor	Length (Miles)	Facility	Recommendation	Terminal Market	Adjacent Market	Constructability Challenges	Priority Score	Estimated Construction Cost
								1 to 5	1 to 5	1 to 10		
A01	Lake Hearn Drive	Perimeter Summit	Parkside Pl	Pub. Road	0.5	Road Diet	Buffered bikeway/bus lane	5	2	0.67	18.00	\$25,000
A02	Asbury Square Rd NE	S. entry of Walmart	Perimeter Center N	Pub. Road	0.1	Road Diet	Buffered bikeway/bus lane (pending volume data)	1	3	0.30	16.67	\$5,000
A03	Ashford Parkway	Ashford Dunwoody	end	Pub. Road	0.1	Road Diet	Buffered bikeway	1	3	0.33	15.00	\$5,000
A04	Central Parkway	Peachtree Dunwoody	Tamworth	Pub. Road	0.4	Road Diet	Buffered bikeway/bus lane (AADT 6292) or Sidepath NB, medium challenge	5	5	2.11	7.11	\$20,000
A05	Abernathy	Glenlake	Hwy 400	Pub. Road	0.25	Path w/easement	Sidepath EB	4	3	1.67	6.60	\$414,772
A06	Abernathy	Hwy 400	Peachtree Dunwoody	Pub. Road	0.25	Path in ROW	Sidepath EB	4	2	1.67	6.00	\$496,487
A07	Perimeter Center Place	Perimeter Center West	Meadow Lane Road	Pub. Road	0.35	Road Diet	Buffered bikeway/TWLTL or Sidepath NB	4	4	2.11	5.68	\$17,500
A08	Perimeter Center West	Mt Vernon	Central Parkway	Pub. Road	0.4	Path w/easement	Sidepath WB	4	4	2.11	5.68	\$663,635
A09	Hammond	County Line	Perimeter Center Parkway	Pub. Road	0.2	Path w/easement	Sidepath WB	5	4	2.56	5.48	\$331,818
A10	Tamworth Dr	Peachtree Dunwoody	Central Parkway	Pub. Road	0.15	Road Diet	Buffered bikeway/bus lane (pending volume data) or Sidepath EB, medium challenge	3	3	1.67	5.40	\$7,500
A11	Abernathy	Peachtree Dunwoody	Mt Vernon	Pub. Road	0.1	Path w/easement	Sidepath EB	4	3	2.11	5.21	\$165,909
A12	Lake Hearn Drive	Parkside Pl	Ashford Dunwoody	Pub. Road	0.2	Road Diet	Shared Lane Markings	2	1	1.00	5.00	\$10,000
A13	Hammond	Peachtree Dunwoody	County Line	Pub. Road	0.2	Path w/easement	Sidepath WB	4	4	2.56	4.70	\$331,818
A14	Peachtree Dunwoody	Tamworth	Mt Vernon	Pub. Road	0.3	Path w/easement	Sidepath NB (to provide continuity with Tamworth/Central)	4	3	2.89	3.81	\$948,329
A15	Mount Vernon	Crestline Parkway	Abernathy	Pub. Road	0.3	Path w/easement	Sidepath WB	3	2	2.11	3.79	\$497,726
A16	Crown Pointe Parkway	Perimeter Center West	Old Perimeter Way	Pub. Road	0.2	Road Diet	Buffered bikeway/bus lane (pending volume data) or Sidepath EB	3	3	2.44	3.68	\$10,000
A17	Mount Vernon	Barfield Parkway	Crestline Parkway	Pub. Road	0.25	Path w/easement	Sidepath WB (plus cantilever deck for overpass)	3	1	2.11	3.32	\$1,414,772 (includes bridge modifications)
A18	Hammond	GA 400	Peachtree Dunwoody	Pub. Road	0.35	Path w/easement	Sidepath EB	4	3	3.33	3.30	\$695,081
A19	Glenlake	Abernathy	UPS	Pub. Road	0.6	Road Diet	Buffered bikeway/bus lane (AADT 10747) Sidepath NB, high challenge	4	4	3.67	3.27	\$30,000
A20	Peachtree Dunwoody	Glenridge Connector	I 285	Pub. Road	0.75	Path w/easement	Sidepath SB	3	2	2.44	3.27	\$1,489,460
A21	Peachtree Dunwoody	I 285	Hammond	Pub. Road	0.35	Path w/easement	Sidepath SB	3	2	2.44	3.27	\$695,081



Definitions
Terminal Market (5 = High, 1 = Low): The relative intensity of commuter oriented demand traveling the length of a segment, based on analysis of the segment’s position relative to MARTA stations and Job Intensity as illustrated in Figure 2.

Adjacent Market (5 = High, 1 = Low): The relative intensity of both retail oriented demand and job intensity lateral to a segment’s length, based on analysis of the segment’s position relative to retail use parcels identified in property records and Job Intensity as illustrated in Figure 2.

Constructability Challenges (1=Low, 5 = High, 10 = Very High): Relative estimated difficulty of trail development based on conditions near the project corridor, including likely grading intensity, existing tree cover, and development (parking lots, structures) on the margins of adjacent parcels, need for bridges/structures, etc.

Priority Score = ((2 X Terminal Market) + Adjacent Market)/Constructability Challenges.

Table 1: Recommended Commuter Trails (adjacent to existing roadways) - Continued

Project ID Number	Street Name	From	To	Corridor	Length (Miles)	Facility	Recommendation	Terminal Market	Adjacent Market	Construc-tability Challenges	Priority Score	Estimated Construction Cost
								1 to 5	1 to 5	1 to 10		
A22	Perimeter Summit	Perimeter Center Parkway	Lake Hearn Dr	Pub. Road	0.1	Path w/easement	Sidepath WB	3	3	2.78	3.24	\$316,110
A23	Hammond	Perimeter Center Parkway	Ashford Dunwoody	Pub. Road	0.35	Path w/easement	Sidepath WB	4	3	3.44	3.19	\$1,106,384
A24	Glenridge	Royervista	Johnsons Ferry	Pub. Road	0.3	Path w/easement	Sidepath EB	2	1	1.67	3.00	\$948,329
A25	Hammond	Barfield Parkway	GA 400	Pub. Road	0.15	Path w/easement	Sidepath EB (plus cantilever deck for overpass)	2	1	1.67	3.00	\$1,248,863 (includes bridge modifications)
A26	Perimeter Center West	Perimeter Center Place	Ashford Dunwoody	Pub. Road	0.25	Road Diet	Use existing bike lane Sidepath WB best option if additional facility desired	3	3	3.00	3.00	\$12,500
A27	N. Park Pl	Peachtree Dunwoody	Mt. Vernon	Pub. Road	0.2	Path w/easement	Sidepath WB	2	2	2.11	2.84	\$331,818
A28	Ravinia Parkway (n)	Ashford Dunwoody	SE corner of loop	Private Road	0.45	Road Diet	Buffered bikeway/bus lane (pending volume data) or Sidepath EB, high challenge	3	3	3.22	2.79	\$22,500
A29	Johnsons Ferry	Glenridge	Peachtree Dunwoody	Pub. Road	0.64	Path w/easement	Sidepath EB (overpass can be re-stripped/sidewalk reconfigured)	4	2	3.67	2.73	\$2,023,103
A30	Ashford Dunwoody	Perimeter Summit	Hammond/ Ravinia	Pub. Road	0.5	Path w/easement	Sidepath NB (plus cantilever deck on overpass)	3	2	3.00	2.67	\$1,829,544 (includes bridge modifications)
A31	Ashford Dunwoody	Perimeter Center West/ East	Meadow Lane	Pub. Road	0.35	Path w/easement	Sidepath NB	2	4	3.00	2.67	\$1,106,384
A32	Peachtree Dunwoody	Abernathy	N. Park Place	Pub. Road	0.1	Path w/easement	Sidepath SB	3	2	3.00	2.67	\$165,909
A33	Meadow Lane Road	Old Perimeter Way	Ashford Dunwoody	Pub. Road	0.4	Road Diet	Buffered bikeway/bus lane (pending volume data) or Sidepath EB, high challenge	3	3	3.67	2.45	\$20,000
A34	Perimeter Center E (S)	Ashford Dunwoody	Lincoln Parkway	Pub. Road	0.35	Road Diet	Buffered bikeway/bus lane (pending volume data) or Sidepath A35AWB	2	2	2.44	2.45	\$17,500
A35	Barfield Parkway	Hammond	Mt Vernon	Pub. Road	0.7	Re-stripe	Convert existing shoulders to bike lanes (markings, RT lanes/ints) or OR Path within ROW, OR path along SB GA 400	3	2	3.33	2.40	\$17,500
A36	Meridian Mark	Glenridge Connector	Johnsons Ferry	Pub. Road	0.34	Path in ROW	Sidepath SB (could be alternate to South end of Peachtree Dunwoody)	2	1	2.11	2.37	\$564,090
A37	Peachtree Dunwoody	N. Park Place	Glen Meadow Ct.	Pub. Road	0.4	Path w/easement	Sidepath SB	2	1	2.11	2.37	\$663,635

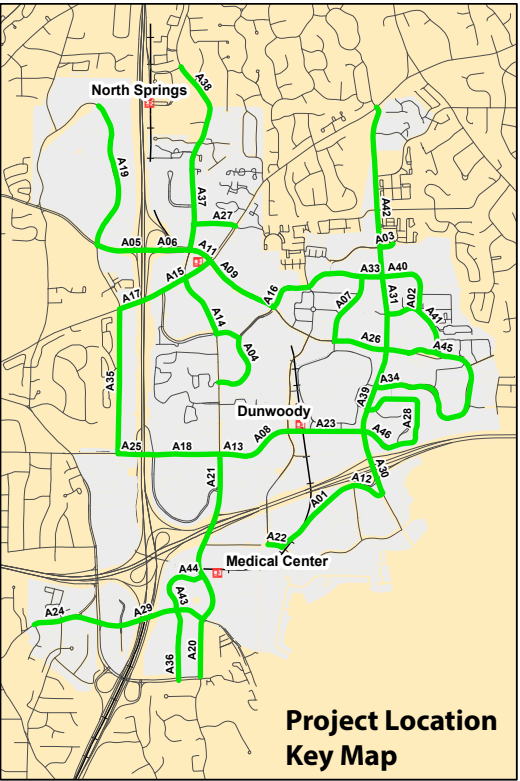


Table 1: Recommended Commuter Trails (adjacent to existing roadways) - Continued

Project ID Number	Street Name	From	To	Corridor	Length (Miles)	Facility	Recommendation	Terminal Market	Adjacent Market	Constructa-bility Chal-lenges	Priority Score	Estimated Construction Cost
								1 to 5	1 to 5	1 to 10		
A38	Peachtree Dunwoody	Glen Meadow Ct.	MARTA	Pub. Road	0.4	Path w/easement	Sidepath SB	2	1	2.11	2.37	\$663,635
A39	Ashford Dunwoody	Hammond/ Ravinia	Perimeter Center West	Pub. Road	0.41	Path w/easement	Sidepath SB	2	4	3.44	2.32	\$680,226
A40	Asbury Square Rd NE	Ashford Dunwoody	S. entry of Walmart	Pub. Road	0.25	Road Diet	Buffered bikeway/bus lane (pending volume data) or Sidepath EB, high challenge	2	4	3.67	2.18	\$12,500
A41	Perimeter Center N	Ashford Dunwoody	Perimeter Center E	Pub. Road	0.2	Road Diet	Buffered bikeway/bus lane (pending volume data) or Sidepath EB, medium challenge	1	2	2.11	1.89	\$15,000
A42	Ashford Dunwoody	Meadow Lane	Mt Vernon	Pub. Road	0.85	Path w/easement	Sidepath NB	2	2	3.22	1.86	\$2,686,933
A43	Hollis Cobb	Johnsons Ferry	Pk Garage Drive	Pub. Road	0.2	Path w/easement	Sidepath NB	3	1	3.78	1.85	\$632,220
A44	Hollis Cobb	Pk Garage Drive	Peachtree Dunwoody	Pub. Road	0.1	Path w/easement	Sidepath WB	3	1	3.78	1.85	\$198,595
A45	Perimeter Center E (N)	Ashford Dunwoody	Lincoln Parkway	Pub. Road	0.4	Road Diet	Buffered bikeway/bus lane (pending volume data) or	1	2	2.44	1.64	\$20,000
A46	Ravinia Parkway (s)	SE corner of loop	Ashford Dunwoody	Private Road	0.25	Road Diet	Buffered bikeway/bus lane (pending volume data) or Sidepath WB	1	1	3.22	0.93	\$12,500

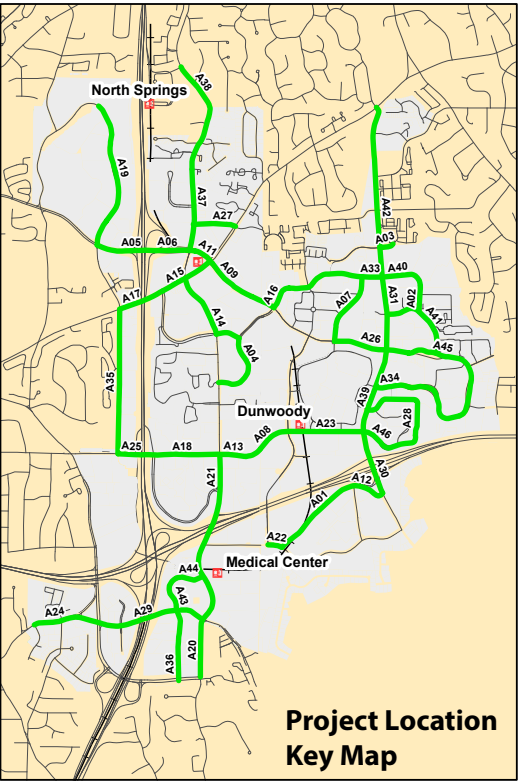


Table 2: Recommended Commuter Trails (independent alignments)

Project ID Number	Project Description	From	To	Pathway Length	Terminal Market	Detour Reduction Score	Adjacent Market	Constructability Challenges	Priority Score	Estimated Construction Cost
					5 to 1		5 to 1	1 to 10		
I1	Lake Hearn-Medical Center	Peachtree Dunwoody	Perimeter Summit Parkway	2400 ft	5	2.2	2	1	12.8	\$565,598.02
I2	Ravinia North	Ravinia Parkway	Perimeter Center East	325 ft	2	5.3	1	1	11.6	\$69,719.26
I3	Ashwood Pkwy-Meadow Lane	Meadow Lane	Ashwood Parkway	300 ft	1	9.8	1	1	10.8	\$109,977.39
I4	Ashford Green-Lake Hearn	Parkside Pl	Ashford Green	350 ft	2	7.6	1	2	8.1	\$111,792.56
I5	Central-Mall	Central Parkway	Perimeter Center Parkway	1675 ft	4	2.4	4	2	6.7	\$512,934.56
I6	Perimeter Mall West Side	Hammond	Perimeter Center West	3000 ft	4	1.2	3	2	3.8	\$1,031,053.77
I7	Lakeside-Hammond	NW corner of interchange	Hammond	1700 ft	2	2.9	1	2	3.4	\$643,691.39
I8	Ravinia East	Ravinia Parkway	Perimeter Center East	600 ft	2	1.1	1	1	3.3	\$750,674.26
I9	Lakeside-Medical Center	NW corner of Interchange	Hollis Cobb	1800 ft	2	3.3	0	10	0.7	\$5,625,000

Definitions

Terminal Market: See page 22.

Detour Reduction Score: The current distance between the terminal points along existing roadways divided by the length of the proposed new facility.

Adjacent Market: See page 22.

Constructability Challenges: See page 22.

Priority Score = ((Terminal Market x Detour Reduction Score) + Adjacent market) / Constructability Challenges.

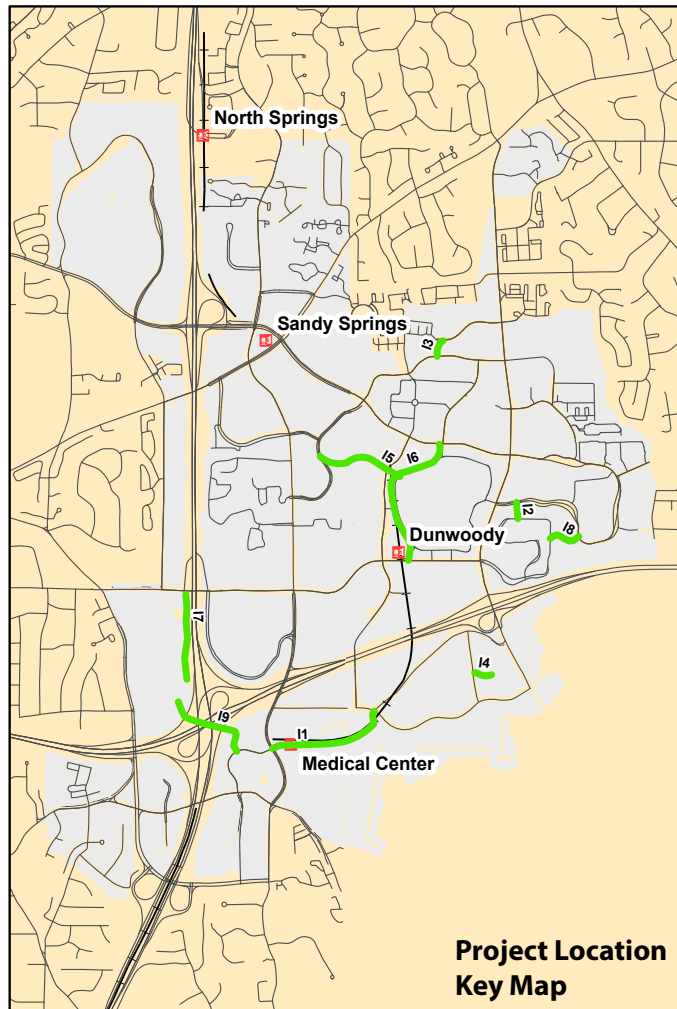


Table 3: Recommended Sidewalk Projects

Project ID Number	Working Name	From	To	Corridor Type	Length	Rec. Type	Estimated Construction Cost
S1	Abernathy (WB)	GA 400 Ramp	Peachtree Dunwoody	Pub. Road	500 ft	Sidewalk	\$21,581
S2	Central Parkway (EB)	Tamworth	Perimeter Center W	Pub. Road	750 ft	Sidewalk	\$32,372
S3	Glenridge Dr (NB)	Signal	Sutters Point	Pub. Road	1125 ft	Sidewalk	\$48,557
S4	Hammond Dr (WB)	Glenridge	Barfield	Pub. Road	975 ft	Sidewalk	\$42,083
S5	Johnsons Ferry (SB)	Peachtree Dunwoody	Old Johnsons Ferry	Pub. Road	1250 ft	Sidewalk	\$69,426
S6	Lake Hearn	Parkside Place	Ashford Dunwoody	Pub. Road	300 ft	Sidewalk	\$12,949
S7	Perimeter Center East (NB)	Lincoln Parkway	Perimeter Center Lofts	Pub. Road	300 ft	Sidewalk	\$12,949

