Dunwoody
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MEMORANDUM

To: Mayor and City Council

From: Michael Smith, Public Works Director

Date: November 14, 2016

Subject: **Presentation of Recommendations for the Hammond Drive Corridor**

ITEM DESCRIPTION

Presentation of recommendations for Hammond Drive corridor improvements between Glenridge Drive and Ashford Dunwoody Road.

BACKGROUND

Dunwoody has partnered with the City of Sandy Springs and the Perimeter Community Improvement District (PCID) to evaluate the existing conditions on Hammond Drive and to develop conceptual plans for transportation improvements that better accommodate current and future development on the corridor. The study area extends from Glenridge Drive in Sandy Springs to Ashford Dunwoody Road in Dunwoody.

The existing roadway generally consists of 4 through lanes west of the S.R. 400 interchange, 6 through lanes from S.R. 400 to Peachtree Dunwoody Road and 4 through lanes between Peachtree Dunwoody Road and the Dunwoody MARTA station. From the MARTA station to Ashford Dunwoody Road there are 3 eastbound through lanes and 2 westbound lanes. Sidewalks are present on both sides of the roadway for the length of the corridor but in many places the width is minimal and there is little to no buffer from the roadway. Currently there is no dedicated space for bicycles.

Based on the projected future traffic a third travel lane will be needed in each direction between Peachtree Dunwoody and Ashford Dunwoody. As freeway HOV lanes and transit services continue to expand it is possible that an HOV/transit lane on Hammond could move more commuters than a general purpose lane during peak travel times and provide additional incentives for transit usage and carpools through reduced travel times. Recommendations also include a separated cycle track to serve a wider range of cyclists and sidewalks, amenities, and landscaping consistent with PCID standards.

Public outreach consisted of meetings with property owners adjacent to the corridor and a public information meeting held at the Dunwoody City Hall.

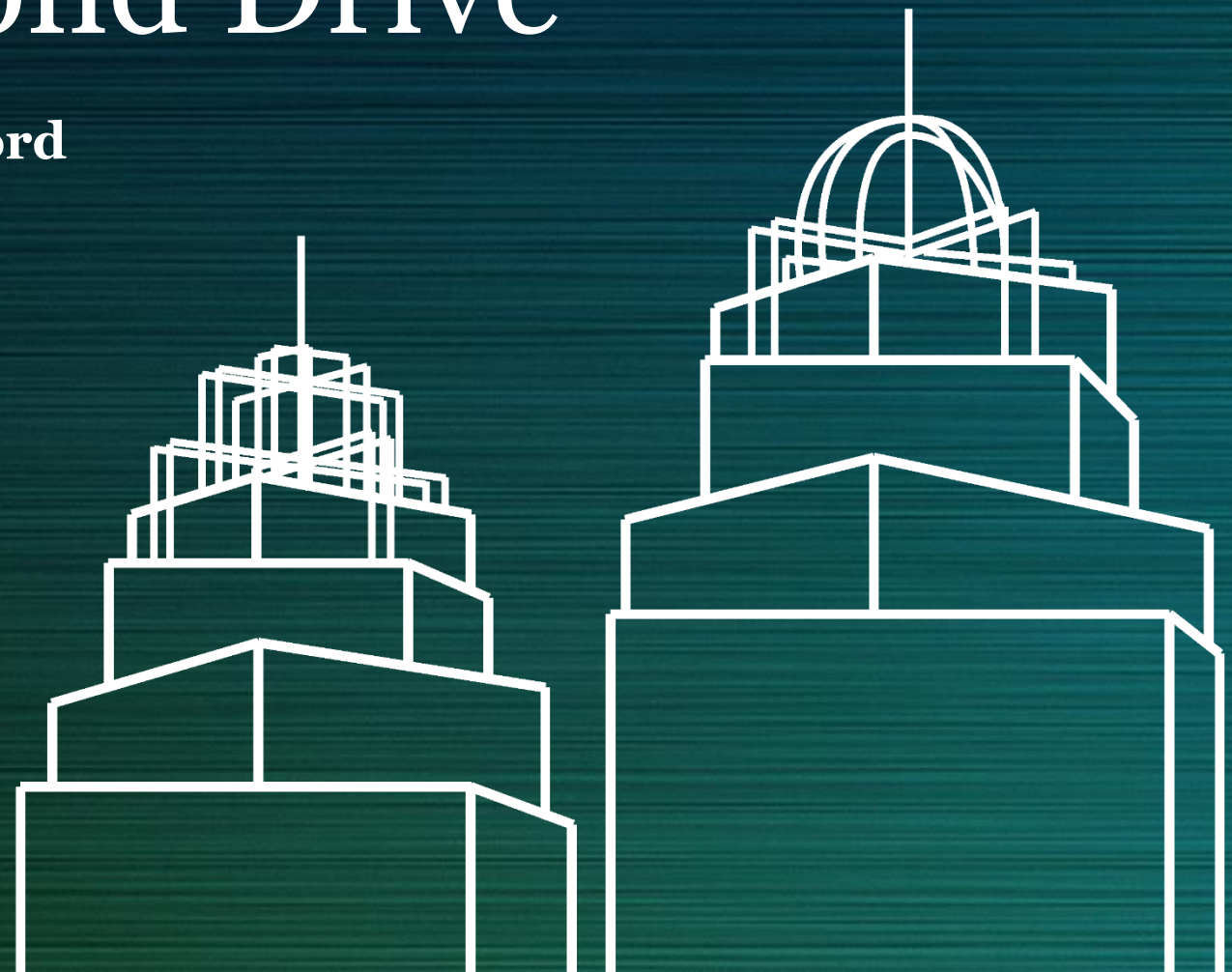
RECOMMENDED ACTION

Staff recommends incorporation of the conceptual plan into the city's upcoming comprehensive transportation plan update.

Concept for a Walkable and Livable Hammond Drive

(Between Glenridge Drive and Ashford Dunwoody Road)

November 14, 2016



Introduction

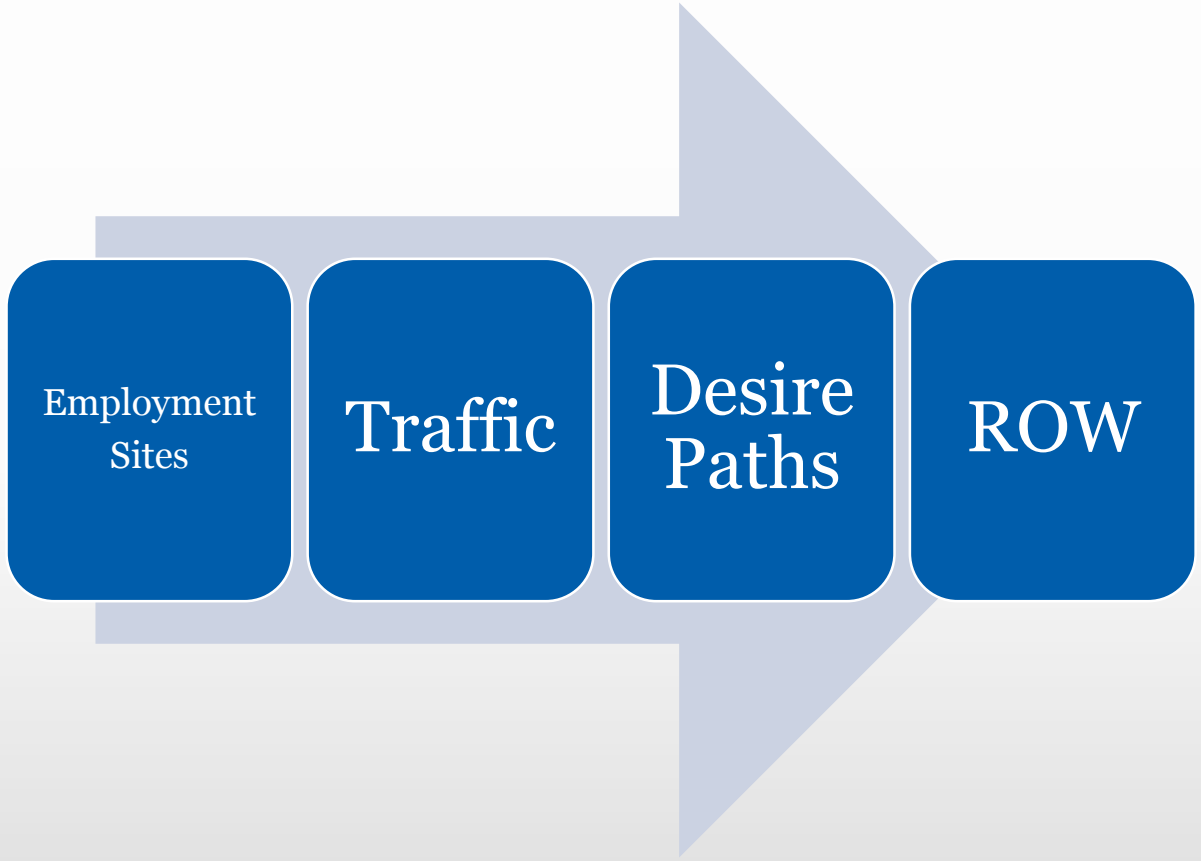
- **The effort is a partnership among the Cities of Sandy Springs and Dunwoody, along with the Perimeter CIDs.**
- **The project objective is to determine the desired corridor configuration to guide future development.**
- **The goal is to establish a walkable/livable center for residents, employees, patrons, visitors, etc.**
- **A public information open house (PIOH) was held on April 21st at Dunwoody City Hall.**

Study Process

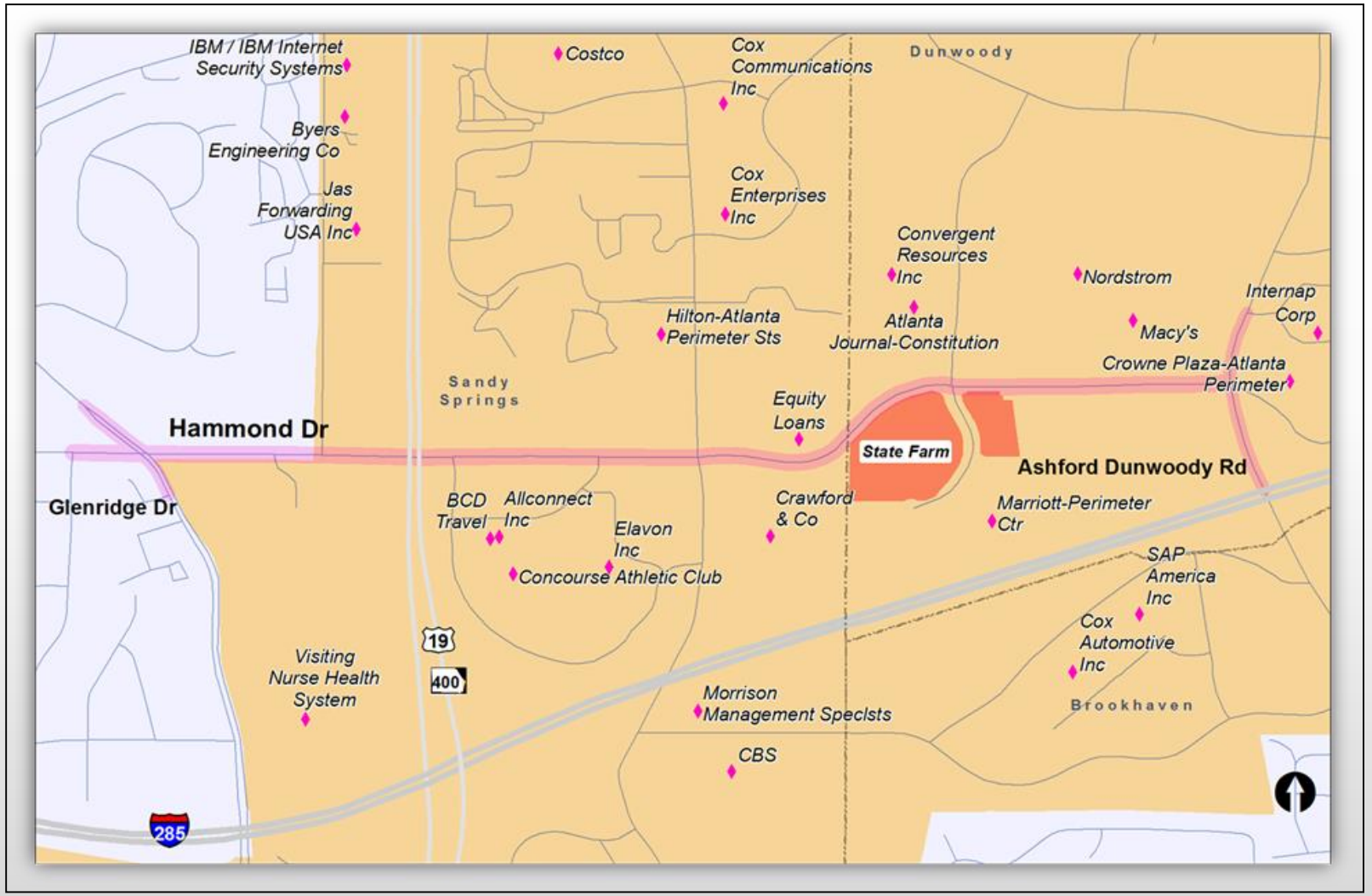
1. **Conducted traffic analysis to determine roadway width**
2. **Evaluated pedestrian and bicycle needs along corridor**
3. **Developed alternative typical sections**
4. **Received input**
   - **City staffs**
   - **PCIDs**
   - **Property Owners**
   - **Public**
5. **Finalized recommended alternative with staff input**

Design Inputs for Proposed Typical Roadway Sections

- ✓ **Major Employment Sites**
- ✓ **Traffic Analysis and Levels of Service**
- ✓ **Employee-Commuter Desire Paths**
- ✓ **Right-of-Way Constraints**
- ✓ **Considered New Roadway Connections**



Major Employment Sites



Development Data Used in Traffic Analysis

Approved developments in the study area are projected to add **over 4.9 million square feet of commercial space, 1,760 residential units, and 1,450 hotel rooms.** This additional development was accounted for in the traffic analysis.

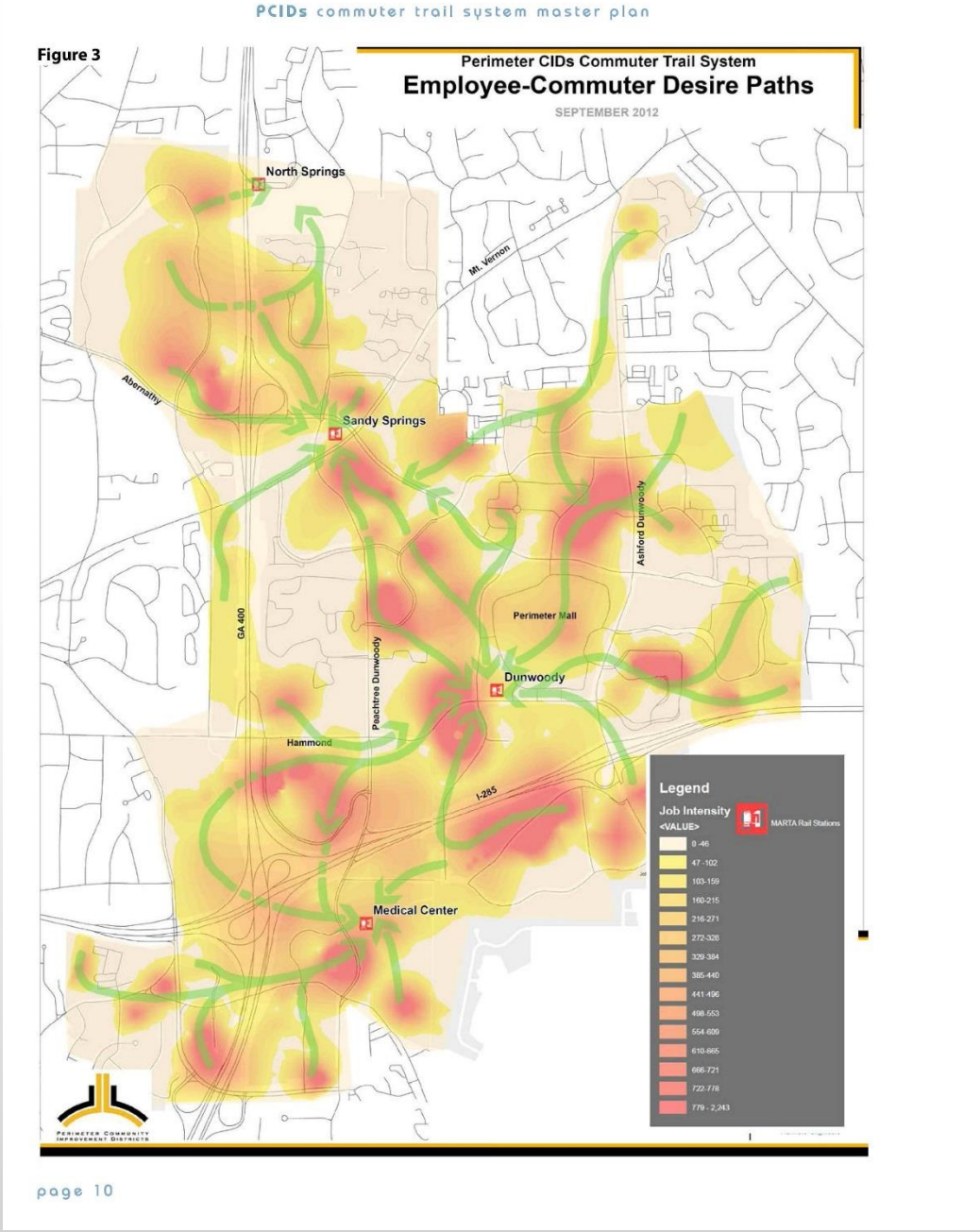
Land Use	Amount
Office (square feet)	4,076,858 sq. ft.
Retail (square feet)	590,200 sq. ft.
Restaurant (square feet)	202,452 sq. ft.
Conference Center (square feet)	63,442 sq. ft.
Apartment (units)	1,930 units
Condominium (units)	2,830 units
Hotel (rooms)	1,450 rooms

Existing and Future (2035) Roadway Levels of Service (With Corridor Improvements)

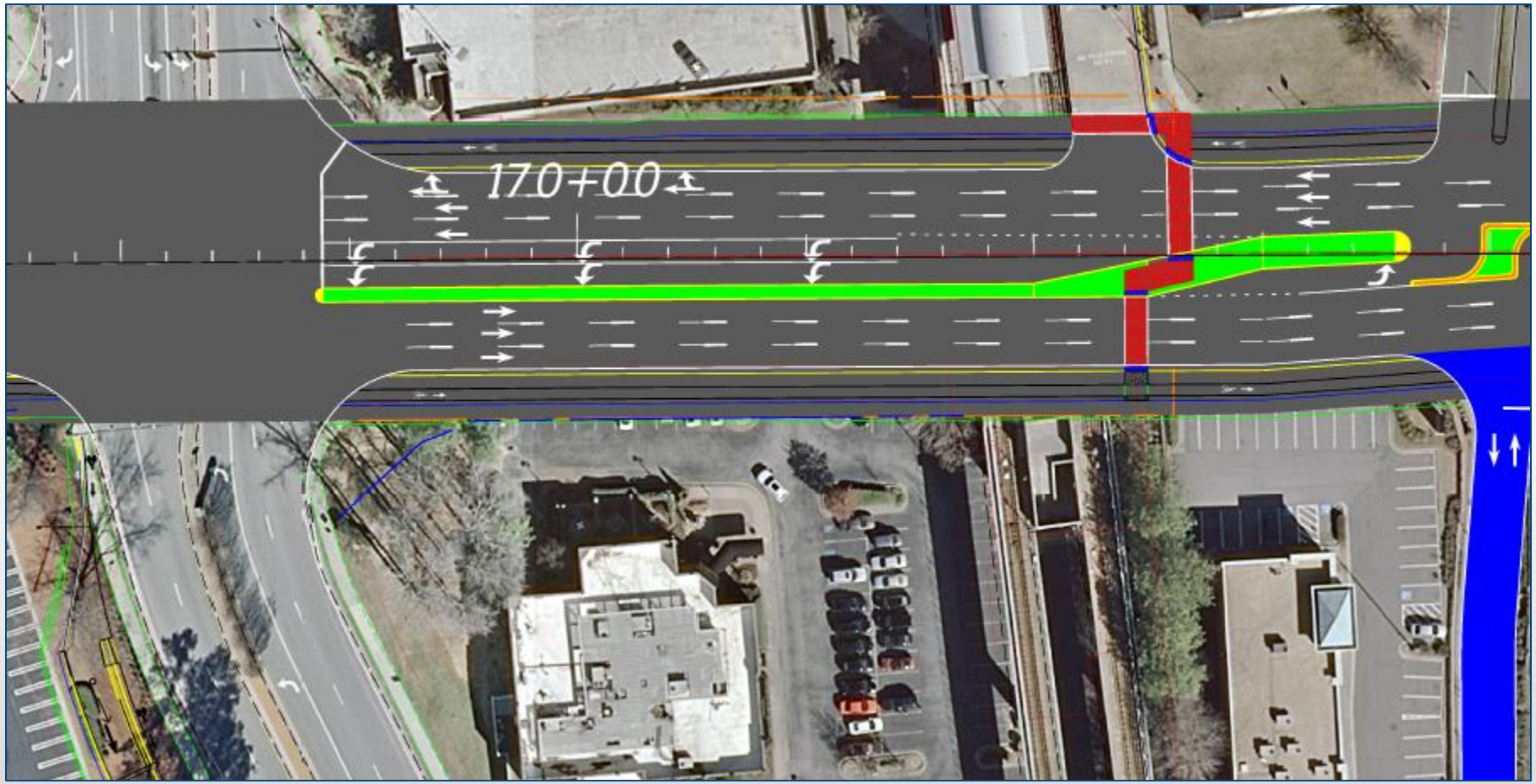
Intersection	Existing (2015)		Year 2035	
	AM Peak	PM Peak	AM Peak	PM Peak
Hammond Drive/Oxford Driveway	B	B	B	C
Hammond Drive/High Street Driveway	NA	NA	B	C
Hammond Drive/Perimeter Center Parkway	C	D	F	F
Hammond Drive/Perimeter Mall Entrance	A	B	A	A
Hammond Drive/Ashford Dunwoody Drive	C	E	E	F

Employee-Commuter Desire Paths

- **Green arrows show the desire paths connecting the most populated origins to the most popular destinations.**



Right-of-Way Constraints (*Typical Section D*) - MARTA



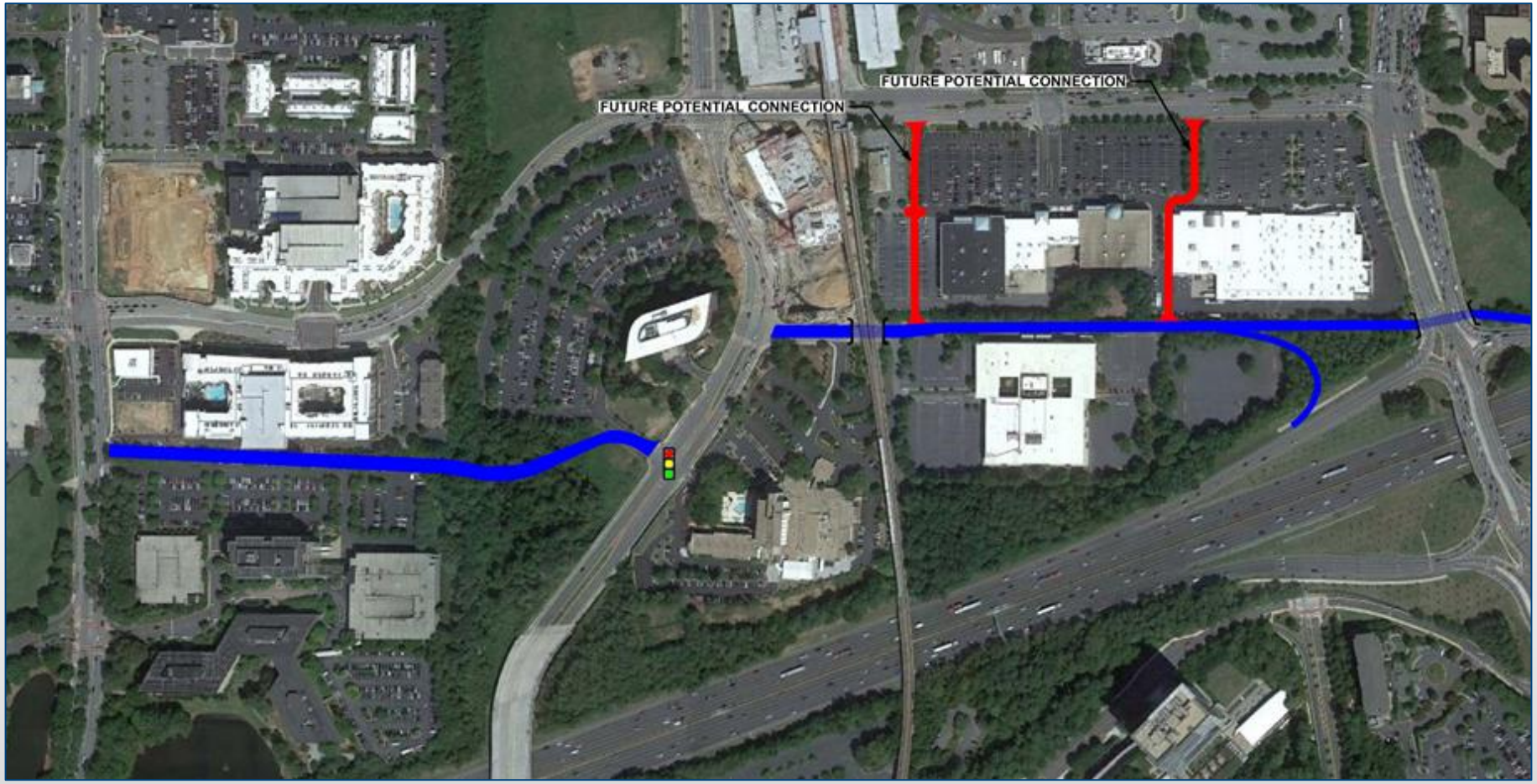
Considered New Connector Roadways

Recommendations

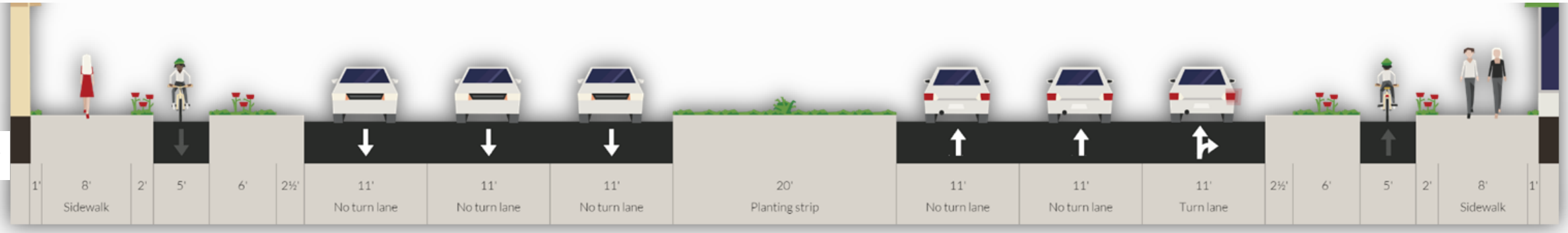
- Complete six (6) lane section on Hammond Drive
  - Leave Option for Special Use Lane – Transit-HOV Lane with additional lane
- As properties redevelop, enhance connectivity along Hammond Drive
- To promote alternative modes, separate bicycle and pedestrian facilities along Hammond Drive
- One-way cycle track in Sandy Springs with 11-foot travel lanes
- One-way cycle track in Dunwoody with 10-foot travel lanes due to constrained right-of-way

Recommendation
Complete Six Lanes along Hammond Drive

Recommendation
Enhance Connectivity

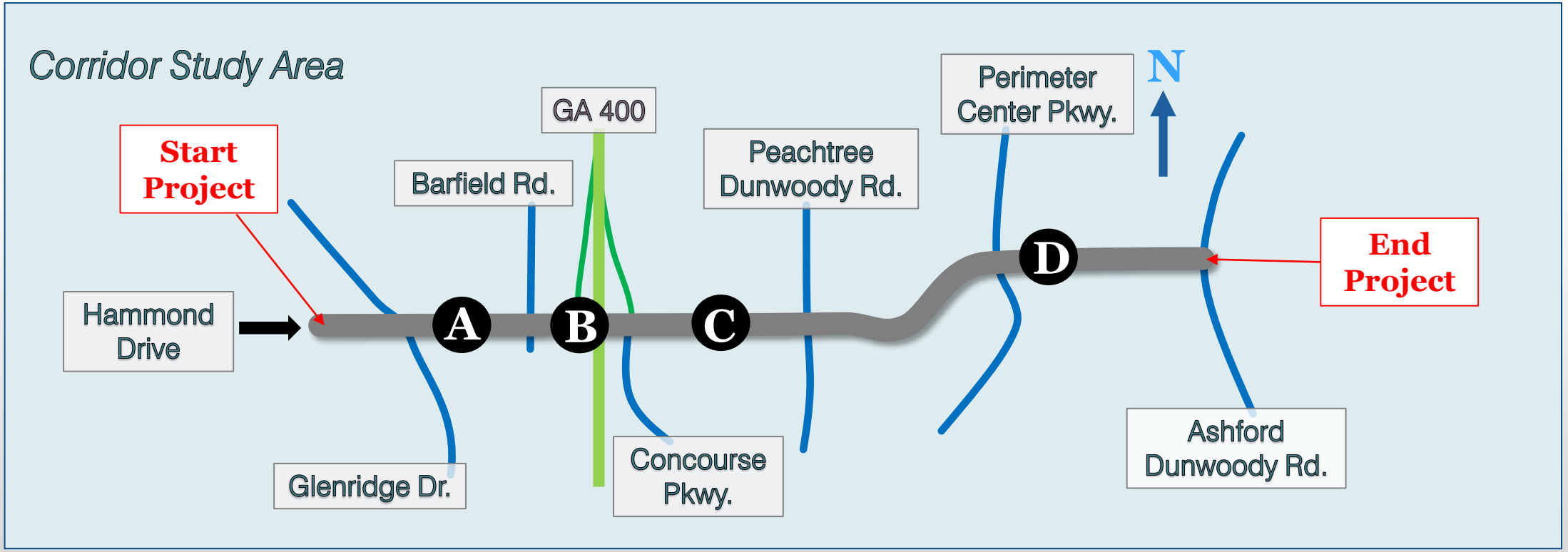


Recommendation
One-Way Cycle Tracks



Typical Roadway Sections

The study corridor is Hammond Drive from Glenridge Drive in Sandy Springs to Ashford Dunwoody Road in Dunwoody.

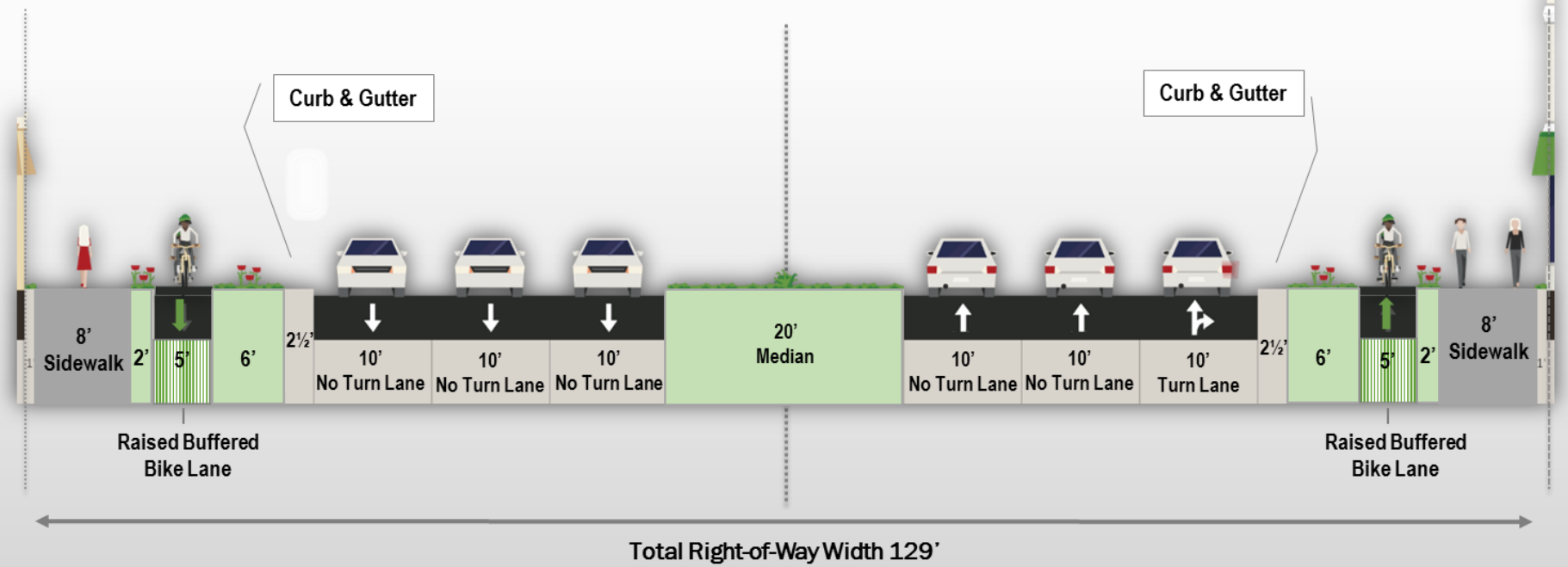


Typical Roadway Cross-Section C

Typical Roadway Cross-Section D

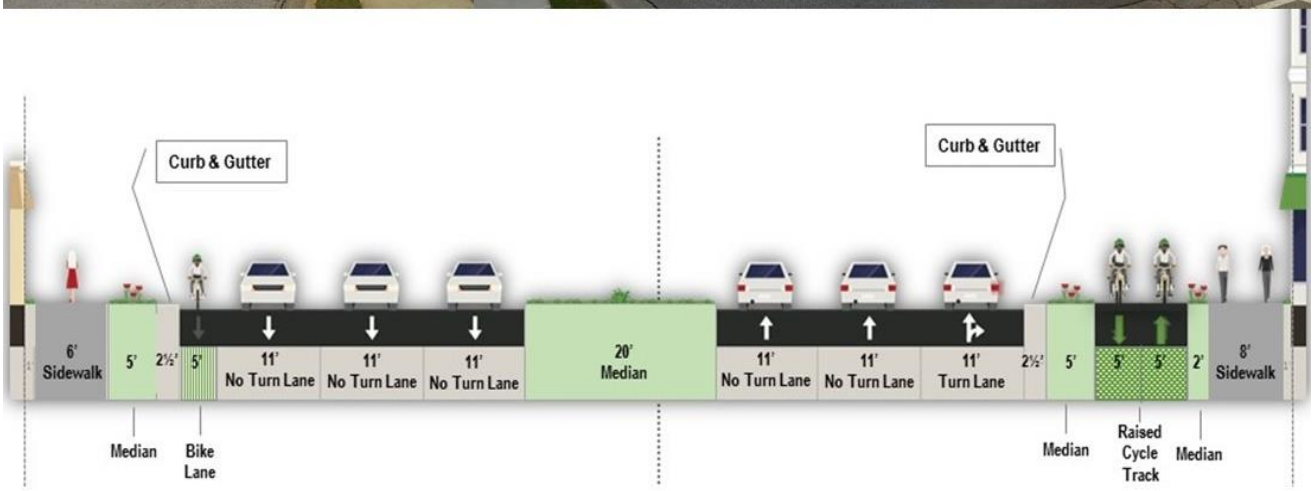
D HIGH STREET DRIVEWAY TO ASHFORD DUNWOODY ROAD

Total width: 129’
6 – 10’ Lanes
Raised, Buffered Bike Lane
Sidewalk



Public Involvement

- **PIOH held April 21st at Dunwoody City Hall**
  - **More than 30 residents, businesses and other stakeholders attended**
  - **Most indicated support for the project**
  - **Concerns included the changes in pedestrian roadway crossings and the transitions between each typical section**
- **Met with five (5) property owners in March 2016**



Hammond Drive Corridor Study

Prepared for:

Prepared by:

GRESHAM SMITH AND PARTNERS

DRAFT – November 4, 2016

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EXECUTIVE SUMMARY

Gresham, Smith and Partners, in conjunction with Sprinkle Consulting, Inc. has undertaken a multi-modal transportation analysis of the Hammond Drive corridor from Glenridge Drive in Sandy Springs, Georgia to Ashford Dunwoody Road in Dunwoody, Georgia, a distance of approximately 1.5 miles. Hammond Drive is currently a four (4) to six (6) lane urban arterial carrying approximately 16,000 to 27,000 vehicles per day. The corridor is poised to experience significant growth, with over 5.2 million square feet (s.f.) of commercial space, 4,800 residential dwelling units (d.u.'s), and 900 hotel rooms approved or planned along or adjacent to the Hammond Drive corridor.

One of the main visions for the area is to establish a walkable and livable center for employees, residents, patrons, and visitors. This vision can be achieved through the development of "complete streets." The complete streets concept integrates people and place in the planning, design, construction, operation, and maintenance of our transportation networks. Complete streets are designed to be safe and comfortable for all users, including pedestrians, bicyclists, transit riders, motorists, and individuals of all ages and capabilities.

The goals of the corridor study were as follows:

- Provide a high level of service for pedestrians and bicyclists.
- Acquire minimal right-of-way along Hammond Drive.
- Provide additional connectivity in the Perimeter area adjacent to Hammond Drive in order to provide alternatives to Hammond Drive, especially at the Hammond Drive/Ashford Dunwoody Road intersection.

The following is a list of recommended improvements to both accommodate additional traffic growth and to promote alternatives to automobile use in the Perimeter area:

- Provide wide continuous sidewalks on both sides of Hammond Drive between Glenridge Drive and Ashford Dunwoody Road.
- Provide a continuous bicycle path along Hammond Drive between Glenridge Drive and Ashford Dunwoody Road. For most of the corridor, this will be a separate facility (from both automobiles and pedestrians) to provide the highest level of service for both pedestrians and cyclists. Due to right-of-way constraints along the bridge over GA 400, a combined 12-foot multi-use trail is recommended.

- Provide a one (1) way cycle track on both sides of Hammond Drive from Glenridge Drive to Ashford Dunwoody Road, with the exception of the bridge over GA 400. Due to limited width on the GA 400, on-street bicycle lanes should be provided on both sides of Hammond Drive.
- Widen Hammond Drive to six (6) lanes from Peachtree Dunwoody Road to Ashford Dunwoody Road with dual left turn lanes at major signalized intersections.
- The option for a transit-HOV lane along Hammond Drive could provide more person throughput than a traditional general purpose lane with increased utilization of MARTA and GRTA transit in the Perimeter area and projected HOV traffic along Hammond Drive. It is recommended that the option to convert one (1) lane in each direction be further studied as plans for the regional managed lane system along GA 400 and I-285 are finalized over the next few years.
- In order to minimize right-of-way requirements and reduce distances for pedestrians to cross Hammond Drive, the use of reduced lane widths (11 feet wide in Sandy Springs and 10 feet wide in Dunwoody) and shared through-right turn lanes are recommended.
- In order to provide connectivity south of Hammond Drive and access to planned development, construction of both the East-West Connector and the Westside Connector is recommended.
- In order to provide connectivity between Hammond Drive and the proposed Westside Connector, it is recommended that when the Best Buy/Rooms to Go property redevelops, that north-south connections be built between Hammond Drive and the proposed Westside Connector. This will provide an alternative to Perimeter Center Parkway for vehicles using the Westside Connector to connect to Hammond Drive.

INTRODUCTION

Gresham, Smith and Partners has prepared a transportation study report to support the proposed roadway improvement concept for the Hammond Drive corridor between Glenridge Drive and Ashford Dunwoody Road in the Cities of Sandy Springs (in Fulton County) and City of Dunwoody (in DeKalb County). This transportation study report includes a description of the existing conditions along the corridor; traffic analysis, taking into account planned growth; pedestrian and bicycle flows; and the various alignment alternatives analyzed as part of this study.

This report documents the existing conditions along Hammond Drive, the traffic analysis and recommendations, the complete street analysis, and recommendations and typical sections, as well the public involvement process.

EXISTING CONDITIONS

LOCATION

The Hammond Drive study corridor is located within Perimeter Center, one of the most active business submarkets in the Southeast US. There are over 123,000 employees and 29 million square feet of office space and mixed-use development within Perimeter Center, as well as an abundance of retail, dining, and hospitality establishments, along with medium and high-density residential uses. The transportation infrastructure in Perimeter Center provides region-wide access from the activity center. Transportation assets include major arterial roadways, such as Hammond Drive; expressways, including Georgia 400 and I-285; four transit rail stations and several bus stops; and bicycle lanes and sidewalks. Perimeter Center has experienced significant development in recent years, which has spurred substantial population and job growth. This growth is anticipated to continue over the next several years as the activity center continues to experience new development and redevelopment. As this growth occurs, it will be critical that the transportation infrastructure in the area serves residents, workers, and visitors with a range of travel options.

In order to finance and accelerate needed transportation and infrastructure improvement projects, commercial properties in the activity center participate in a self-taxing district, the Perimeter Community Improvement Districts (PCIDs). The portion of Hammond Drive being studied falls within the PCIDs boundary.

Hammond Drive spans the Cities of Dunwoody and Sandy Springs. The portion of Hammond Drive under study extends from Glenridge Drive to the west (in Sandy Springs) to Ashford Dunwoody Road to the east (in Dunwoody), for a total of approximately 1.5 miles. A map of the Hammond Drive corridor, as well as its location relative to the Cities of Dunwoody and Sandy Springs and the PCIDs boundary, is shown in Figure 1.

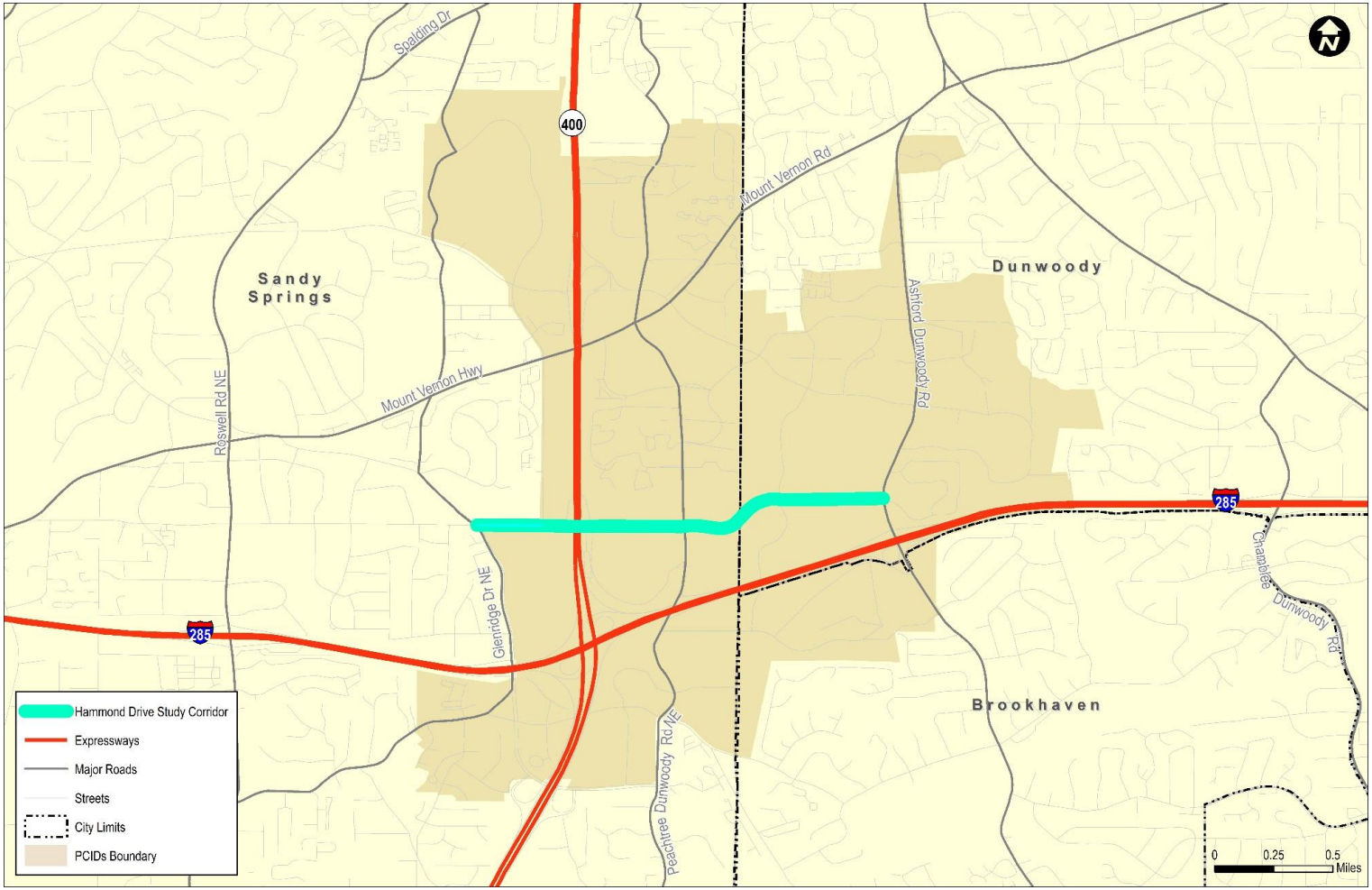

Figure 1. Location Map

ROADWAY DESCRIPTION

Hammond Drive is an east-west roadway that varies from four (4) to six lanes (6) in width and has both divided and undivided sections. Medians are located east of Barfield Road through the SR 400 interchange, from Peachtree Dunwoody Road to east of the Oxford Driveway, and east of Perimeter Center Parkway. There are turn lanes at most intersections, as well as into developments along the corridor. The speed limit along Hammond Drive is 35 miles per hour (35 mph).

Hammond Drive is classified as an urban minor arterial. Minor arterials typically serve trips of moderate length and provide a connection to a more region-wide network of roads. Minor arterials also include access points to adjacent development along the corridor, at a level greater than that of principal arterials but lower than that of collector roads.

SIGNALIZED INTERSECTIONS

There are a total of ten (10) existing signalized intersections along the Hammond Drive study corridor. Each of these intersections has pedestrian accommodations, including crosswalks and pedestrian signals. The signalized intersections along the study corridor are listed in Table 1 and referenced in Figure 2.

Table 1. Existing Signalized Intersections along Study Corridor

	Intersection	Pedestrian Facilities
1	Glenridge Drive	Crosswalks (4) and Pedestrian Signals (4)
2	Barfield Road	Crosswalks (3) and Pedestrian Signals (3)
3	Exit Ramp from GA 400 N	Crosswalks (2) and Pedestrian Signals (3)
4	Entrance Ramp to GA 400 N/ West Concourse Parkway	Crosswalks (3) and Pedestrian Signals (4)
5	Concourse Office Park	Crosswalks (4) and Pedestrian Signals (4)
6	Peachtree Dunwoody Road	Crosswalks (4) and Pedestrian Signals (4)
7	Entrance to 1160 Hammond Apartments/Oxford	Crosswalks (4) and Pedestrian Signals (4)
8	Perimeter Center Parkway	Crosswalks (4) and Pedestrian Signals (4)
9	Entrance to Perimeter Mall/Perimeter Expo Shopping Plaza	Crosswalks (4) and Pedestrian Signals (4)
10	Ashford Dunwoody Road	Crosswalks (4) and Pedestrian Signals (4)

Figure 2. Signalized Intersections along Study Corridor

CRASH DATA

According data from the Georgia Department of Transportation (GDOT) crash database, between 2009 and June 2015, there were a total of 942 crashes on the Hammond Drive study corridor. Nearly half of all crashes (49%) were rear end collisions, and about one-third (27%) were angle crashes. Sideswipe crashes represent about 17% of all crashes. This is shown in Table 2 and Figure 3.

Table 2. Crash Types along Study Corridor

Year	Crash Type						Total Crashes
	Angle	Head On	Rear End	Sideswipe – Same Direction	Sideswipe – Opposite Direction	Not a Collision with a Motor Vehicle	
2009	28	5	63	23	2	3	124
2010	20	2	37	7	0	3	69
2011	25	2	44	19	0	3	93
2012	53	2	76	23	1	4	162
2013	77	0	123	34	5	9	256
2014	41	1	88	33	2	2	170
2015*	15	1	33	16	0	1	68
Total	259	13	464	155	10	25	942
% of Total	27%	1%	49%	16%	1%	3%	

*Crash data collected from January through June of 2015.

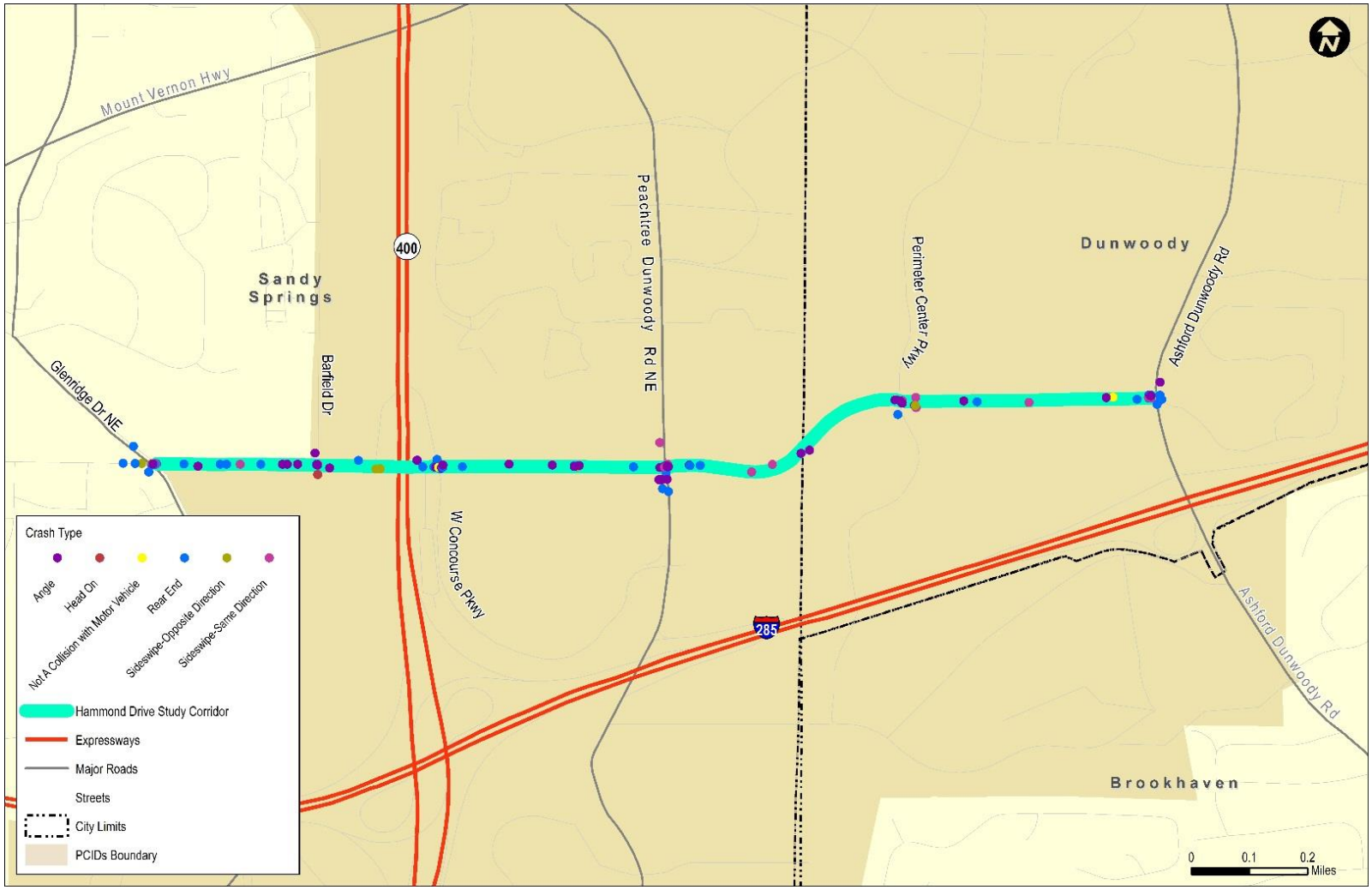

Figure 3. Crashes along Study Corridor

The vast majority of crashes occurred on dry (84%) roadway surfaces and during daylight hours (80%). Approximately 15% of crashes occurred at night (146 crashes) – 13 % of crashes occurred during lighted conditions at night, and 2% occurred during unlit conditions at night.

There were a total of five pedestrian crashes, each resulting on one injury, along the study corridor. Two occurred at Hammond Drive and Barfield Road. The other three pedestrian crashes occurred at the intersections of Peachtree Dunwoody Road, Concourse Parkway, and Ashford Dunwoody Road. There are no recorded collisions with bicyclists on the Hammond Drive Study corridor between 2009 and June 2015.

While most crashes (82%) resulted only in property damage, there were a total of 173 injury crashes that resulted 243 injuries. There were no fatal crashes along the study corridor during the period of analysis. Table 3 below shows the number of property damage, injury, and fatal crashes by year.

Table 3. Severity of Crashes along Study Corridor

Year	Severity			Total Crashes
	Property Damage Only	Injury	Fatal	
2009	106	18	0	124
2010	53	16	0	69
2011	69	24	0	93
2012	134	28	0	162
2013	220	36	0	256
2014	132	38	0	170
2015*	55	13	0	68
Total	769	173	0	942

*Crash data collected from January through June of 2015.

An analysis of contributing factors reveals that following too close was the most common factor in all crashes. This, sometimes in conjunction with other factors, was a partial cause of 411 crashes in total (44% of all crashes). Other common factors include changing lanes improperly (144 crashes or 15%) and failure to yield (139 crashes or 15%).

INTERSECTION CRASHES

The majority of crashes (845 crashes, or 90% of all crashes) along the study corridor occurred at major signalized intersections with Hammond Drive. The highest number of intersection crashes occurred at Ashford Dunwoody Road (276 crashes), followed closely by Peachtree Dunwoody Road (229 crashes). The following section provides details of crashes at these intersections between 2009 and June 2015.

Glenridge Drive

In total, 161 crashes occurred at the intersection of Hammond Drive and Glenridge Drive, representing about 17% of all crashes along the corridor. Thirty-nine people suffered injuries in 30 crashes at this intersection. Crashes at Glenridge Drive were primarily due to following too close (100), changing lanes improperly (24), and failure to yield (20). The most common type of crash at this location is rear end collision (95), which represents 59% of all crashes at the intersection. Other common crash types include sideswipes in the same direction (35) and angle crashes (23). Most of the crashes at Hammond Drive and Glenridge Drive occurred during daylight hours (136), and most occurred during dry conditions (135).

Barfield Road

A total of 68 crashes occurred at the intersection of Hammond Drive and Barfield Road, representing about 7% of all crashes along the corridor. Thirty-three people suffered injuries in 21 crashes at this intersection. Crashes at Barfield Road were primarily due to following too close (29) and failure to yield (13). The most common type of crash at this location is rear end collision (36), which represents 53% of all crashes at the intersection. Other common crash types include angle crashes (19) and collisions with objects other than motor vehicles (5). Of the collisions with objects other than motor vehicles, two collisions at the intersection were with pedestrians. Most of the crashes at Hammond Drive and Barfield Road occurred during daylight hours (52), and most occurred during dry conditions (58).

Entrance Ramp to GA 400 N/ West Concourse Parkway

In total, 50 crashes occurred at Hammond Drive and the GA 400 North entrance ramp/West Concourse Parkway, representing about 5% of all crashes along the corridor. Eighty-one people suffered injuries in 51 crashes at this intersection. Crashes at this intersection were primarily due to following too close (22), changing lanes improperly (8), and failure to yield (7). The most common type of crash at this location is rear end collision (25), which represents half of all crashes at the intersection. Other common crash types include angle crashes (16) and

sideswipes in the same direction (5). Most of the crashes at the intersection occurred during daylight hours (40), and most occurred during dry conditions (40).

Peachtree Dunwoody Road

A total of 229 crashes occurred at Hammond Drive and Peachtree Dunwoody Road, representing about 24% of all crashes along the corridor. Twelve people suffered injuries in nine crashes at this intersection. Crashes at Peachtree Dunwoody Road were primarily due to following too close (90), failure to yield (27), and changing lanes improperly (29). The most common type of crash at this location is rear end collision (103), which represents 45% of all crashes at the intersection. Other common crash types include angle crashes (92) and sideswipes in the same direction (24). Most of the crashes at the intersection occurred during daylight hours (188), and most occurred during dry conditions (195).

Perimeter Center Parkway

In total, 61 crashes occurred at Hammond Drive and Perimeter Center Parkway, representing about 6% of all crashes along the corridor. Nineteen people suffered injuries in 13 crashes at this intersection. Crashes at Perimeter Center Parkway were primarily due to following too close (24), failure to yield (11), and changing lanes improperly (7). The most common type of crash at this location is rear end collision (28), which represents 46% of all crashes at the intersection. Other common crash types include angle crashes (20) and sideswipes in the same direction (11). Most of the crashes at the intersection occurred during daylight hours (52), and most occurred during dry conditions (50).

Ashford Dunwoody Road

A total of 276 crashes occurred at Hammond Drive and Ashford Dunwoody Road, representing about 29% of all crashes along the corridor. Forty-five people suffered injuries in 37 crashes at this intersection. Crashes at Ashford Dunwoody Road were primarily due to following too close (132), changing lanes improperly (262), and failure to yield (20). The most common type of crash at this location is rear end collision (149), which represents 54% of all crashes at the intersection. Other common crash types include sideswipes in the same direction (59) and angle crashes (55). There was one pedestrian crash at the intersection that resulted in an injury. Most of the crashes at the intersection occurred during daylight hours (205), and most occurred during dry conditions (229).

TRANSIT SERVICE

Perimeter Center has public transit options for those who do not have personal vehicles or do not wish to travel in a personal vehicle. The Metropolitan Atlanta Rapid Transit Authority (MARTA) operates rail and bus service in DeKalb and Fulton Counties. There are four MARTA rail stations in the Perimeter Center area. The Dunwoody MARTA Station is located directly on the study corridor, at Hammond Drive and Perimeter Center Parkway. The Medical Center MARTA Station is located just south of Hammond Drive, along Peachtree Dunwoody Road. The Sandy Springs MARTA Station is located north of the study corridor, at the intersection of Perimeter Center West and Mount Vernon Highway. The North Springs MARTA Station is located at the far northern boundary of Perimeter Center along GA 400. The Red Line rail route runs between these four stations. This is shown in Figure 4.

The Hammond Drive study corridor is traversed by three local MARTA bus routes, Routes 5, 87, and 150. These are shown in Figure 4.

- In the southbound direction, Route 5 (Piedmont/Sandy Springs) begins at the Dunwoody MARTA Station and travels west on Hammond Drive. The route continues onto Glenridge Drive and proceeds onto Johnson Ferry Road, Roswell Road, and Piedmont Road to the Lindbergh MARTA Station. The route also travels in the northbound direction between the Lindbergh and Dunwoody MARTA Stations. The route operates seven days a week.
- In the northbound direction, Route 87 (Roswell Road/Morgan Falls) begins at the Dunwoody MARTA Station and travels west on Hammond Drive. The route continues northward on Roswell Road and proceeds south on GA 400 to the North Springs MARTA Station. The route also travels in the southbound direction between the North Springs and Dunwoody MARTA Stations. The route operates seven days a week.
- In the northbound direction, Route 150 (Perimeter Center/Dunwoody Village) begins at the Dunwoody MARTA Station and travels east on Hammond Drive. It turns northward at Ashford Dunwoody Road, traveling along Perimeter Center East, Perimeter Center West, Meadow Lane Road, and Mount Vernon Road to the Dunwoody Village Shopping Center. The route also travels southbound towards the Dunwoody MARTA Station. The route operates seven days a week.

There are a total of 12 MARTA bus stops along the Hammond Drive study corridor. They are located at:

- Hammond Drive and Glenridge Drive (2)
- Hammond Drive and Barfield Road
- Hammond Drive at Concourse Parkway (2)
- 1005 Hammond Drive
- Hammond Drive at Peachtree Dunwoody Road (3)
- 1150 Hammond Drive
- Hammond Drive at Perimeter Center Parkway
- Ashford Dunwoody Road at Hammond Drive

In addition to MARTA, the Georgia Regional Transportation Authority (GRTA) operates regional commuter buses, GRTA Xpress, in the area. These buses operate during weekdays. Two GRTA Xpress routes, Routes 428 and 400, traverse Perimeter Center. In the morning, Route 428 begins in west Conyers in DeKalb County and proceeds to Perimeter Center, with a stop at the Dunwoody MARTA Station on Hammond Drive. The reverse route operates in the afternoon. In the morning, Route 400 begins in Cumming in Forsyth County and travels along GA 400 with a stop at the North Springs MARTA Station before proceeding to Downtown Atlanta. The reverse commute operates in the afternoon. These are shown in Figure 4.

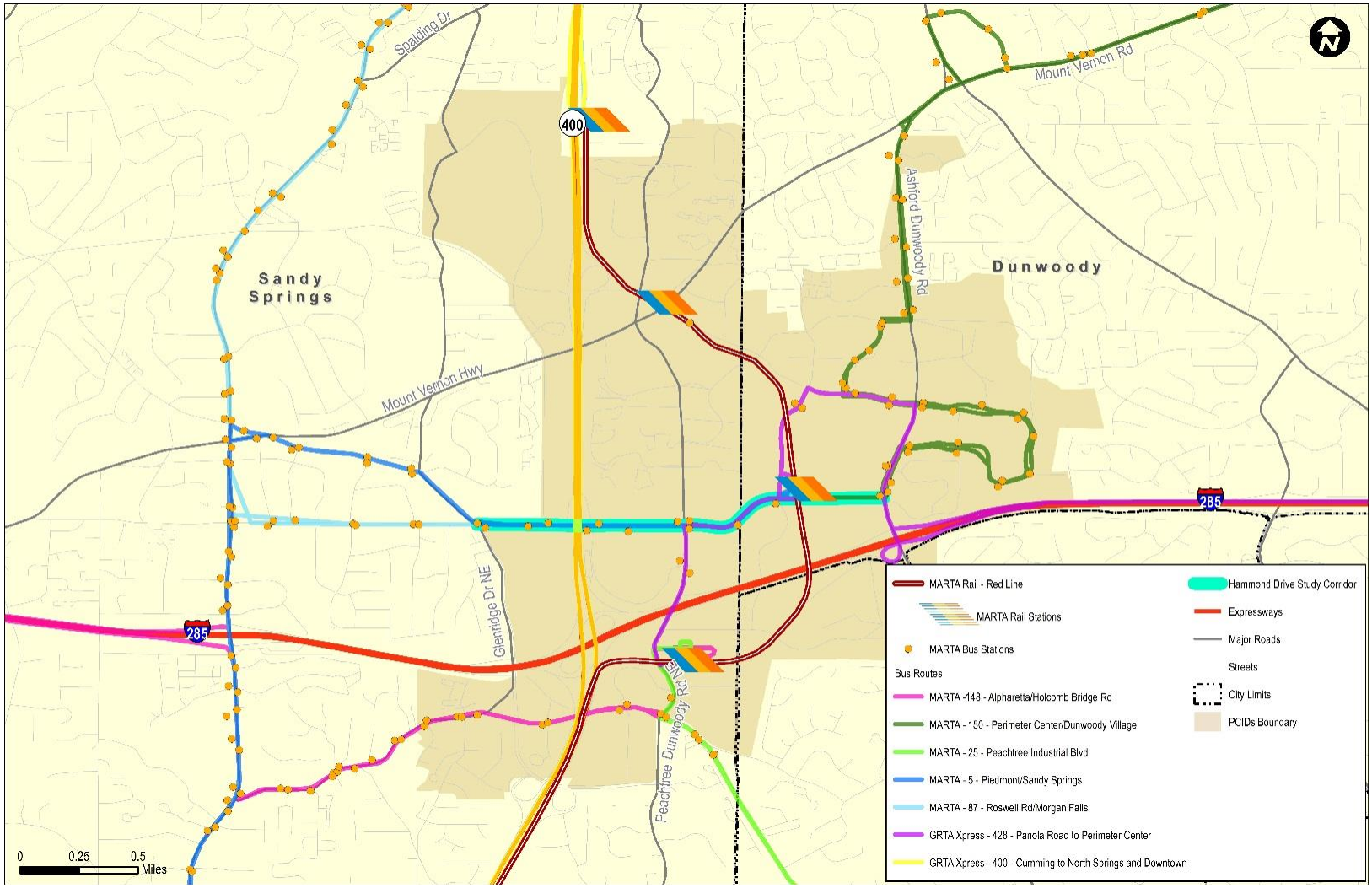

Figure 4. Transit Service in Study Area

BICYCLE AND PEDESTRIAN FACILITIES

The Perimeter Center area has a number of non-motorized transportation options to serve residents, workers, and visitors. Along the study corridor, there are sidewalks on both sides of Hammond Drive between Glenridge Drive and Ashford Dunwoody Road. Sidewalks along Hammond Drive connect to sidewalks on adjacent roads, including Glenridge Drive, Barfield Road, Peachtree Dunwoody Road, Perimeter Center Parkway, and Ashford Dunwoody Road. There are no existing bicycle lanes on Hammond Drive. There are bicycle lanes on either side of Perimeter Summit Parkway that cross the study corridor and tie into a more extensive bicycle network that includes portions of Perimeter Summit Parkway, Perimeter Center East, Perimeter Center West, Crestline Parkway, Central Park Drive, Meadow Lane Road, and Perimeter Center Lane. There are plans to construct a new bicycle lane on Peachtree Dunwoody Road south of I-285. Existing and planned bicycle and pedestrian facilities are shown in Figure 5.

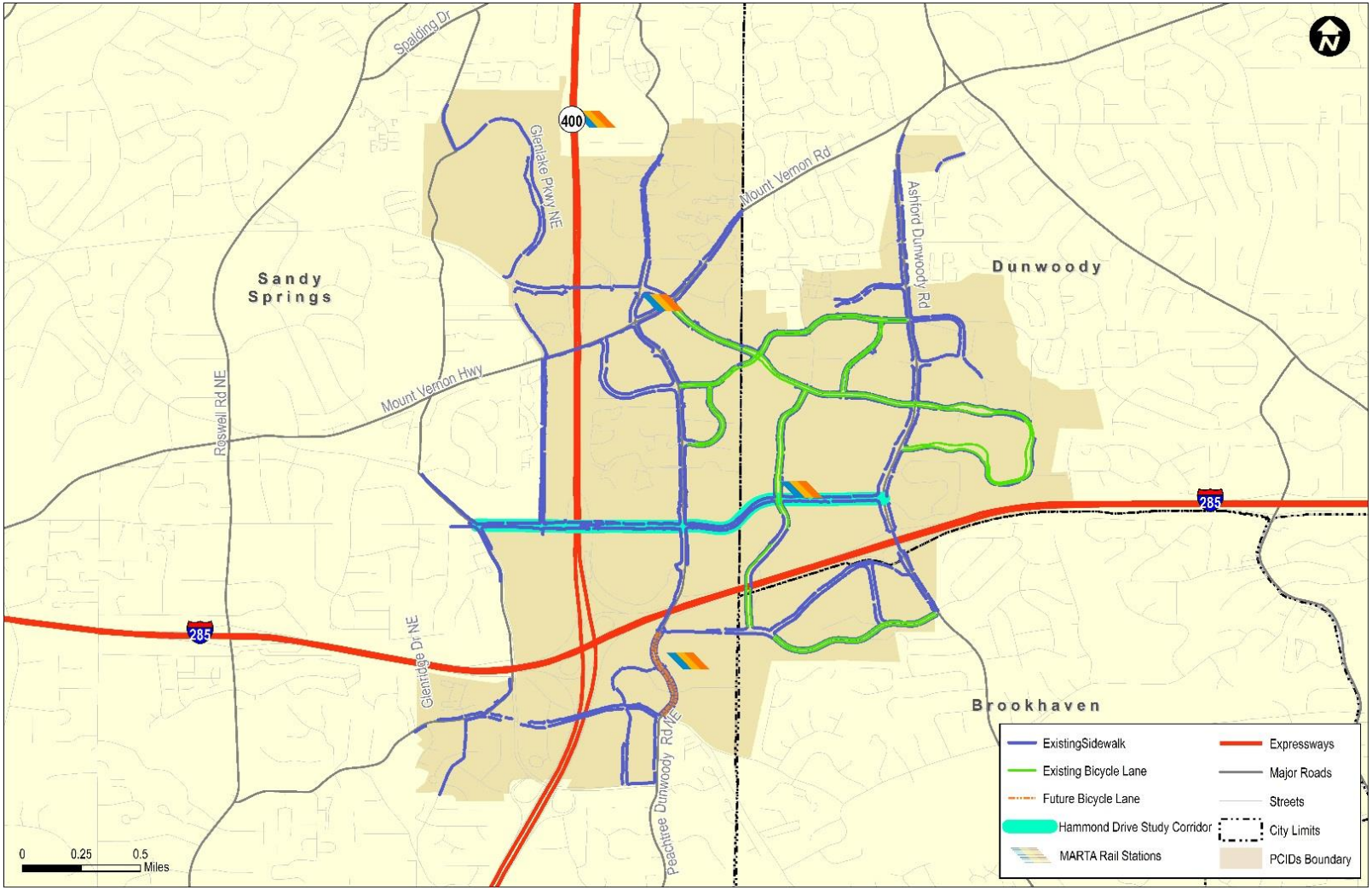

Figure 5. Bicycle and Pedestrian Facilities in Study Area

DEMAND ANALYSIS FOR NON-MOTORIZED TRANPORTATION

Hammond Drive between Glenridge Drive and Ashford Dunwoody Road is an important thoroughfare for automobile commuters accessing jobs and shopping destinations in the Perimeter Center market. Hammond Drive is an essential link for commuters driving from points north via GA 400 to workplaces on the south end of Perimeter Center, and is also an essential link for commuters who work throughout the Perimeter Center area and must access I-285 at Ashford Dunwoody Road. Hammond Drive is also an essential link for other travel modes and trip purposes, as well. While many agencies, including the Cities of Dunwoody and Sandy Springs and the PCIDs, are embracing the "Complete Streets" template as a basic expectation for most corridors, there is ample evidence that actual demand for non-motorized travel is significant along the Hammond Drive corridor and will continue to grow as expected trends play out over time. The following section describes the factors that contribute to that growing demand.

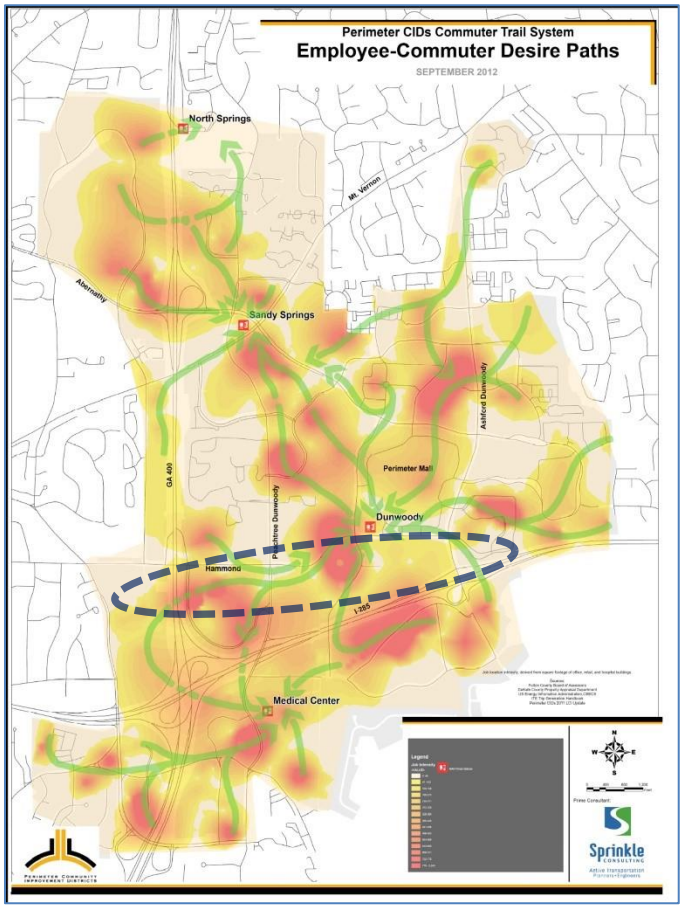

Figure 6. Hammond Corridor (blue ellipse) within PCIDs Commuter Trail Employment Demand Analysis (2012 Data)

Hammond Drive is, and will continue to be, an essential non-motorized link integral to transit commutes via MARTA rail, retail trips by workers and residents, and evening and weekend recreational trips by residents. As the "last mile" connector between the Dunwoody MARTA Station and several major office developments—such as Concourse and State Farm to the west and Ravinia to the East—Hammond Drive is critical to the utility of transit as a commute option for Perimeter Center workers, whether they complete their trips via shuttle trip, bike ride, or by walking. Hammond Drive is lined with retail properties, including the Publix at

Perimeter plaza just west of Peachtree Dunwoody Road, as well as Perimeter Mall and the Perimeter Expo Plaza (Rooms to Go/Best Buy/Marshall's) between the MARTA rail tracks and Ashford Dunwoody Road. Non-motorized access to these retail establishments is important for the growing residential population living close to the corridor, as well as for office workers who may need to run shopping errands at lunch time. Additionally, the aforementioned residential population is growing not only in Perimeter Center but specifically along Hammond Drive, and their access to recreational amenities such as the planned Perimeter Park @ Dunwoody Station and PATH 400 Greenway trail will likely make use of the Hammond Corridor. The figures that follow illustrate the specific contributing travel patterns that make up this existing and expected demand.

1) Transit to Work Commute Trip

In 2012, PCIDs commissioned the development of a Commuter Trails Master Plan. A primary goal of the plan's proposed network is to facilitate connections from MARTA rail stations to Perimeter Center workplaces. The study team conducted an analysis of employment concentrations in Perimeter Center to identify "desire paths" that link areas of high employment concentration to Perimeter's four MARTA stations (Figure 6). The presence of the Dunwoody MARTA Station and high-density employment nodes at Concourse, State Farm, and Ravinia contribute to many primary paths closely paralleling Hammond Drive. Additional commuter connection demand is found crossing Hammond Drive as workers from offices south of I-285 travel up Perimeter Center Parkway to access the MARTA station. The presence of these desire lines reflecting high demand for non-motorized travel along Hammond Drive led to the recommendation

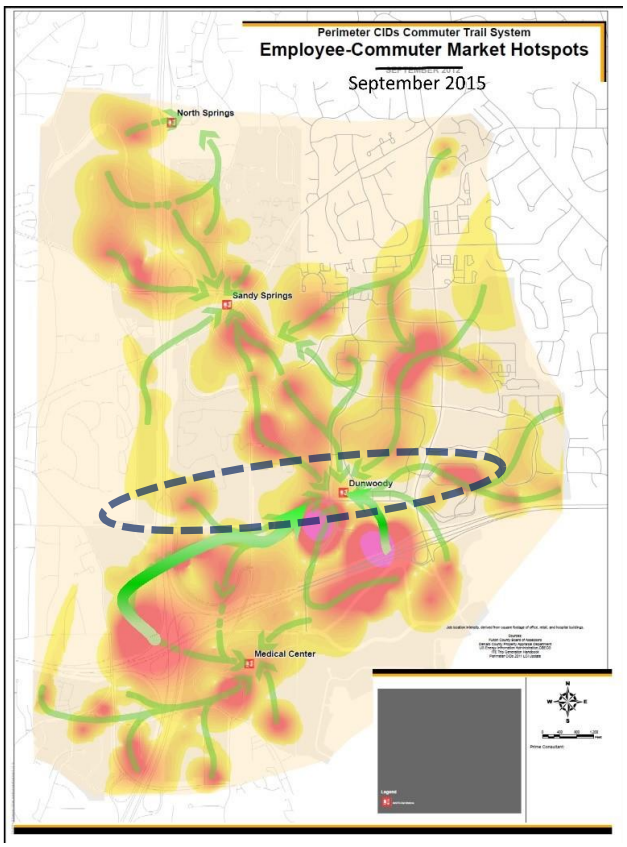

Figure 7. Hammond Corridor within updated Employment Demand Analysis (2015 Data including planned office developments)

of Commuter Trail facilities along Hammond Drive. The project team for the Hammond Drive Corridor Study updated the data used in the 2012 Commuter Trails Master Plan Analysis with the additional jobs anticipated from multiple office development projects planned in the proximity of the Hammond Corridor, including a large new office complex being built by State Farm immediately across Hammond Drive from the Dunwoody MARTA Station, as well as additional developments between Hammond Drive and I-285 ("Dunwoody Crown Towers" site), and west of GA 400 ("Lakeside"). These developments bring increased employment concentration to the corridor and their proximity to MARTA service strengthens the demand for non-motorized accommodation along Hammond Drive well into the future.

2) Retail and Dining Trips

The study team also analyzed concentrations of retail and dining destinations relative to employment concentrations within Perimeter Center. Retail square footage was extracted from the parcel data used to develop the original employment concentration map, and geo-located Google search results for "restaurant" and "food" in Perimeter Center were overlaid to develop desire paths for shopping and dining trips from employment nodes (Figure 8). Significant connections were found to coincide with the Hammond Drive corridor for this trip type as well.

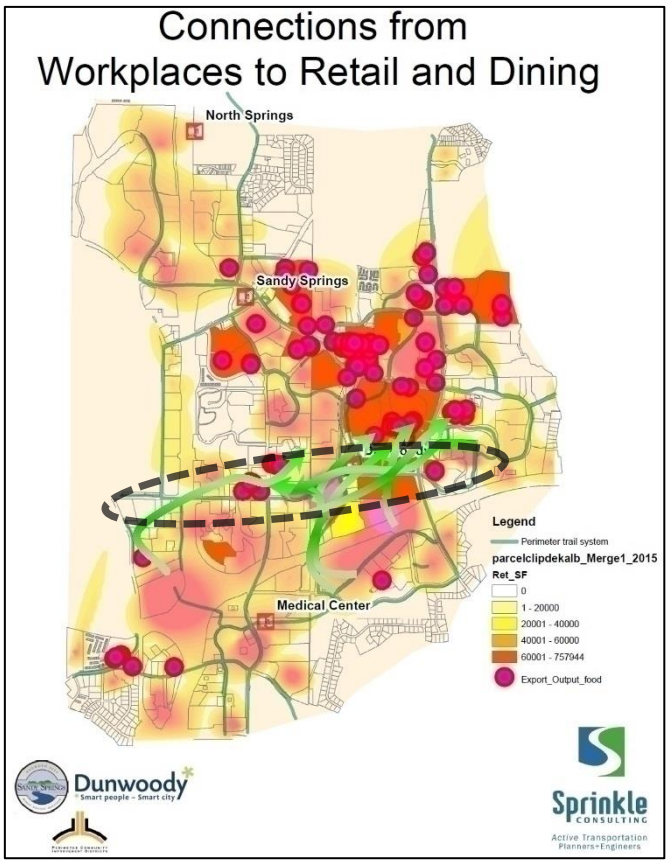

Figure 8. Hammond Corridor within updated Retail and Dining Demand Analysis.

3) Recreational Trips

The study team looked at the proximity and density of existing and proposed residential developments around the Hammond Drive corridor, and the proximity of two planned major recreational amenities – the

Perimeter Park @ Dunwoody Station and the PATH 400 Greenway trail (Figure 9). Perimeter Center has several areas of high-density residential development in close proximity to Hammond Drive. There are residential developments (1160 Hammond and Citizen) that have recently opened or are under construction between Peachtree Dunwoody Road and Perimeter Center Parkway, which each have frontage along Hammond Drive, while the existing Dunwoody Chace development is just ¼ mile north of Hammond Drive. Substantial additional residential density is expected with the Palisades and High Street developments in this same central node. The Lakeside development west of GA 400 will also contribute to residential density near the corridor. This density of residential development near Hammond Drive will contribute to local use of sidewalks and the Perimeter Trail system.

Perimeter Park @ Dunwoody Station will be developed on the east side of Perimeter Center Parkway just north of Hammond Drive, and the PATH 400 Greenway trail will connect to Hammond Drive near the corridor's interchange with GA 400. These new recreational amenities are close to the corridor, and residents will be able to travel via bicycling and walking along Hammond Drive to access them (Figure 9). Taken together, the continued development of residential properties in Perimeter and the introduction of major recreational attractors will contribute to increased recreational walking and biking along the Hammond Drive corridor.

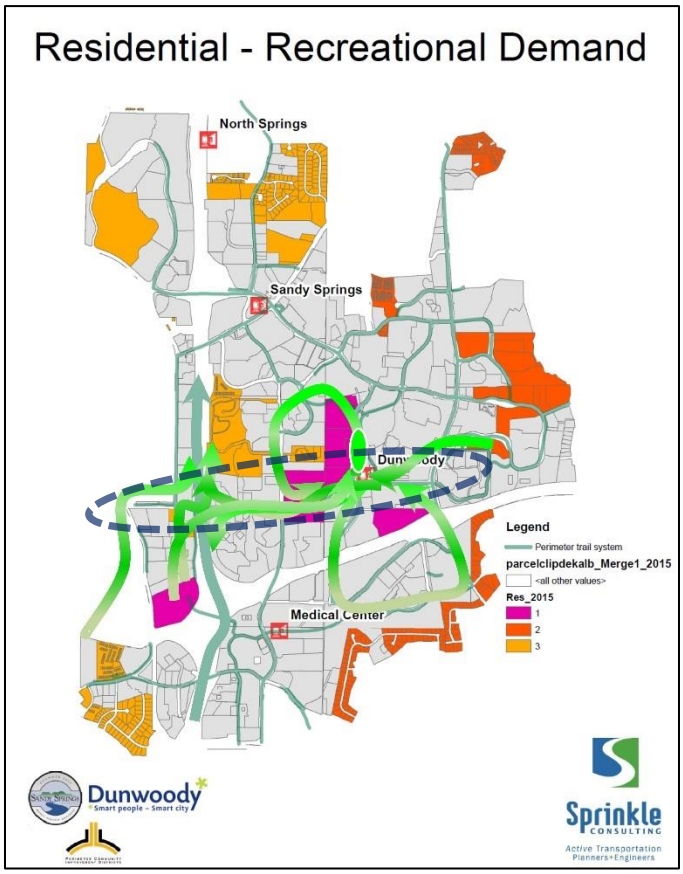

Figure 9. Hammond Corridor with Recreational Demand Analysis

Analysis of demand for various types of trips points to continually increasing demand for non-motorized travel throughout the Hammond Drive corridor, and facilities serving this demand should be included in the re-imagined Hammond Drive

corridor. Hammond Drive is already the primary corridor for "last mile" connections between the Dunwoody MARTA station and Perimeter Center workplaces. As more jobs are added in new office and retail developments close to the corridor, this function will only increase in importance. Hammond Drive is also an important link connecting Perimeter Center workplaces and residences with retail and dining establishments; these trips are short enough that they could be accomplished by biking or walking if accommodating facilities are provided. Demand for non-motorized recreational trips will also likely be significant along the corridor, given the proximity of existing and proposed residential developments and major recreational desitinations, which will necessarily be accessed via Hammond Drive from both nearby residences and offices.

MAJOR EMPLOYERS

As one of the Southeast US's most active submarkets, there are well over 100,000 employees in Perimeter Center, a figure which is expected to grow in the coming years. Table 4 and Figure 10 show the major employers in Perimeter Center.

Table 4. Major Employers in Perimeter Center

Employer	Number of Employees (estimated)
State Farm Insurance Company	6500
Northside Hospital-Atlanta	5000
IBM / IBM Internet Security Systems	3950
Scottish Rite Children's Hospital	3000
Intercontinental Hotels Group	2800
Cox Enterprises Inc	2005
Emory St Joseph Hospital	2000
United Parcel Svc Inc	1678
AirWatch	1400
Newell Rubbermaid Inc	1000

Employer	Number of Employees (estimated)
First Data Corp	1000
Cox Communications Inc	826
Cox Automotive Inc	771
Jas Forwarding USA Inc	700
Mercedes Benz USA	600
Visiting Nurse Health System	600
Nordstrom	450
Convergent Resources Inc	445
Crawford & Co	434
Macy's	411
Global Payments Inc	410
Document Technologies Inc	400
Ventyx	378
Atlanta Journal-Constitution	337
Arby's Restaurant Group Inc	330
Allconnect Inc	315
Axiall Corp	300
BCD Travel	300
Elavon Inc	300
Costco	300
Hanover Insurance Co	300
Noble Systems Corp	300
Southeastern Data Corp Inc	300
Krystal Co	260
Marriott-Perimeter Center	254

Employer	Number of Employees (estimated)
URS Corp	251
Internap Corp	245
Crowne Plaza-Atlanta Perimeter	245
Byers Engineering Co	225
Morrison Management Specialists	224
Intersect Group	212
Equity Loans	201
CBS	200
Christian Alcohol & Drug Rehab	200
Hilton-Atlanta Perimeter Sts	200
Home Depot	200
Q100 Radio	200
SAP America Inc	200
Systel Of Delaware	200
Concourse Athletic Club	190

Source: PCIDs

In addition to the major employers shown in Table 4, two large corporations are relocating their headquarters to Perimeter Center. State Farm Insurance Company, which currently has employees in Perimeter Center, is building a new office building, Park Center, on 17 acres along Hammond Drive in Dunwoody. It is anticipated that State Farm will have approximately 5,000 employees on-site once construction is complete, with additional employees to potentially follow. Mercedes Benz USA is also constructing a new headquarters facility in Perimeter Center, on 12 acres at Abernathy Road and GA 400. It is estimated that approximately 600 employees will work at the headquarters once complete. These developments are shown as "planned" major employers in Figure 10.

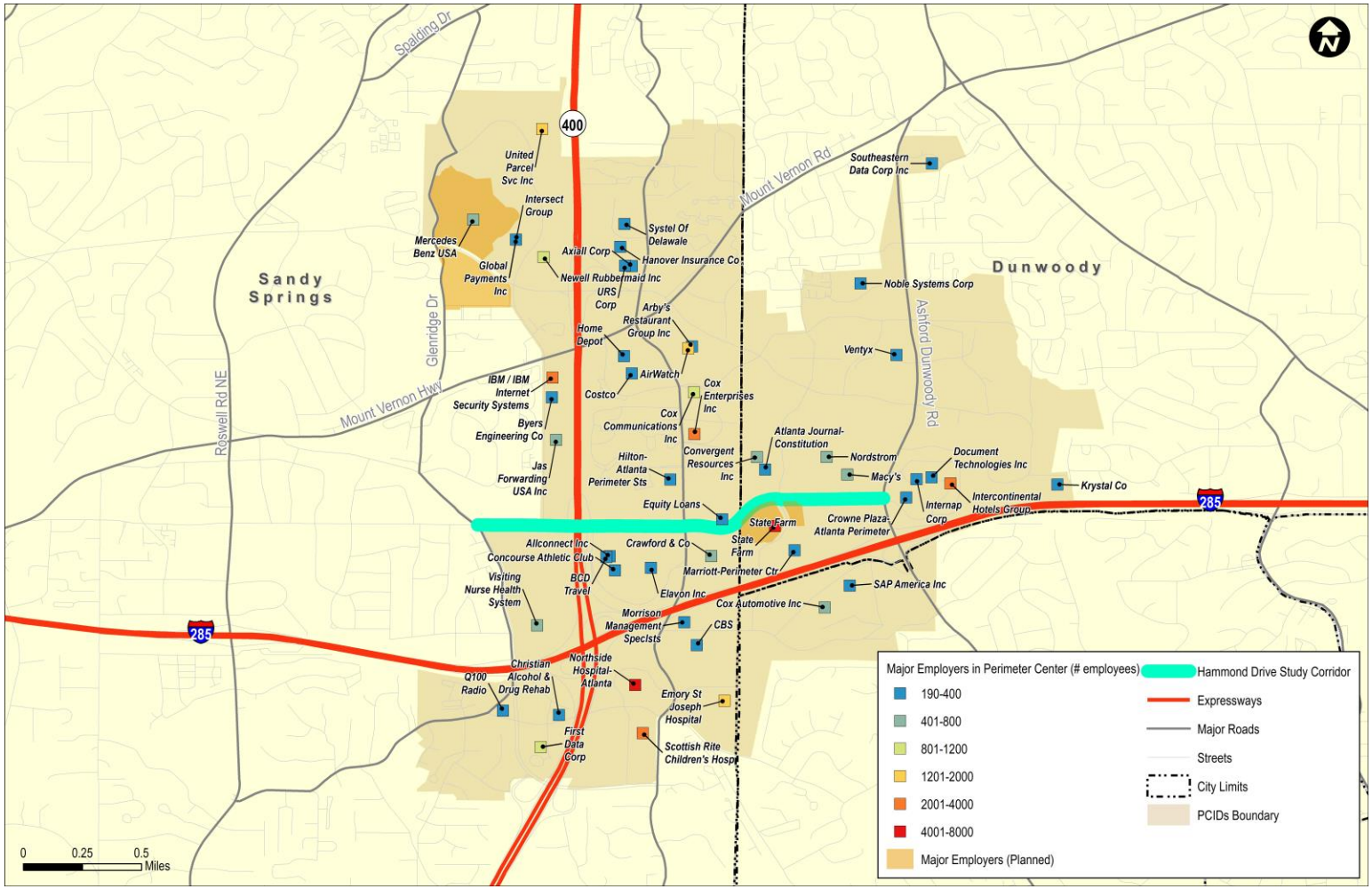

Figure 10. Major Employers in Perimeter Center

REVIEW OF EXISTING STUDIES

The following section summarizes existing plans and studies that have been undertaken in the City of Dunwoody and City of Sandy Springs and by PCIDs for the Hammond Drive study corridor and surrounding area.

City of Sandy Springs

Sandy Springs Comprehensive Transportation Plan (August 2008)

Hammond Drive from Mt. Vernon Parkway to the DeKalb County line is on Atlanta Regional Commission's (ARC's) Congestion Management System. The roadway level of service (LOS) ranges from D to E (daily) and from E to F in the PM peak period. With the existing and committed projects, LOS in 2030 is projected to worsen (LOS D to F) along Hammond Drive, with congestion impacting longer segments of the roadway.

Hammond Drive falls within a "Pedestrian Needs Area" due to its proximity to MARTA bus routes (within 0.25 mile), and a MARTA Rail Station, public schools, parks, and libraries (within 0.5 mile). In the bicycle needs assessment, Hammond Drive is assigned a "medium condition" for bicycling, which corresponds to a scoring system based on traffic volume, travel speeds, functional class, outside lane and shoulder width, and percent of truck traffic. A portion of Hammond Drive, from Roswell Road to Barfield Road, is designated as a potential strategic bicycle route.

The plan identifies numerous projects within Sandy Springs designed to improve congestion and create a more multimodal transportation network.

- Construct collector/distributor road system including Hammond Drive ramps at GA 400 (coordinate with GDOT's GA 400 improvements) (Short-term)
- Provide wide sidewalk connections for east-west movement across downtown Sandy Springs between Sandy Springs Circle and Boylston Drive, to include Hammond Drive, among other roadways (Short-term, City of Sandy Springs)
- Widen Hammond Drive from Glenridge Drive to Peachtree Dunwoody Road to increase roadway capacity and provide sidewalks on both sides (Short-term, City of Sandy Springs)

- Provide express transit service between downtown Sandy Springs and Perimeter Center via Hammond Drive (include one intercept parking structure as anchor point for service)
- Complete concept design and continue planning/engineering for Hammond Drive corridor between Glenridge Drive and Roswell Road [west of study corridor] to include automobile, pedestrian, transit, bicycle, and landscaping/aesthetics components (Short-term, City of Sandy Springs)
- Incorporate bike lane construction in other projects to provide cohesive and connected bicycle network, including Hammond Drive, among other roadways (Roswell Road to Barfield Road)

City of Sandy Springs Bicycle, Pedestrian and Trail Implementation Plan (December 2014)

In the bicycle and pedestrian needs assessment of this plan, Hammond Drive is given a score of "LOS D" for bicycle level-of-service and "LOS C" for pedestrian level-of-service. Any corridors where bicycle and pedestrian travel are emphasized or prioritized must have a score of LOS C or better. In the demand analysis, Hammond Drive falls within a "high bicycle demand" area. It falls within the medium to high range for pedestrian demand. These demand evaluations are based only on transportation (utilitarian) trips, not for recreational cycling, walking, or jogging.

By reviewing the level-of-service assessment and demand analysis together, the City determined the areas of improvement that were of highest priority. Five levels of priority were assigned, with "level one" representing the highest priority and "level five" representing the lowest priority. Hammond Drive is designated as a "Priority One" bicycle facility for most of its length. Preliminary recommendations include a separated bicycle facility (i.e., cycle tracks, sidepaths, or trails in exclusive ROW) from Glenridge Drive to GA 400; bicycle lanes and/or shared lane markings from GA 400 to Peachtree Dunwoody Road; and separated bicycle facility from Peachtree Dunwoody Road to the DeKalb County line. For the portion for Hammond Drive that coincides with the study corridor, no priority for pedestrian facilities is assigned, because there are existing sidewalk facilities.

The following bicycle projects are recommended for Hammond Drive:

- Sidepath on Hammond Drive from Barfield Road to Roswell Road (Project B41)
- Sharrows on Hammond Drive from the City Limits to Peachtree Dunwoody Road (Project B39)

- Sidepath on Hammond Drive from Peachtree Dunwoody Road to Barfield Road (Project B40)
- Sidepath on Hammond Drive from Roswell Road to Mt. Vernon Road (Project B42) [west of the study corridor]

The following pedestrian projects are recommended for Hammond Drive:

- Sidewalks (both sides) on Hammond Drive from Glenridge Drive to Sandy Springs Circle (Project S17) [west of the study corridor]

North Fulton County Comprehensive Transportation Plan – Transportation Resource Implementation Program (October 2010)

The North Fulton Comprehensive Transportation Plan (CTP) recommends a series of regional and multi-county projects for the North Fulton County area. The Hammond Drive study corridor coincides with one of these projects. This is a Tier I vehicular project, meaning that it will be funded from a $500 million pot of funding set aside in the Envision6 Regional Transit Plan (RTP) in North Fulton. Tier I also indicates that it is of the highest priority to North Fulton. This project is also in the CTP's five-year action plan, recommending that advanced preliminary engineering and (potentially) right-of-way acquisition be completed within this timeframe.

- Capacity Improvements to Hammond Drive (Project VH109)
    - Widen to 4 lanes from Roswell Road (SR 9) to Glenridge Drive and widen to 6 lanes from GA 400 to the DeKalb County border. Install bicycle lanes and sidewalks on both sides where widening occurs. Infill gaps in existing sidewalk from Mount Vernon Highway to Roswell Road (SR 9) and Glenridge Drive to GA 400 to create a continuous sidewalk network.
    - Notes to the project description include:
        - Five-foot sidewalks and buffer may vary
        - Five-foot bike lanes may be replaced with multi-use sidepath
        - Median width may vary

The CTP establishes a pedestrian and bicycle level-of-service goal of LOS B and LOS C for Hammond Drive. Bicycle recommendations for Hammond Drive indicate that an additional detailed corridor study is needed along the roadway.

Hammond Drive Widening Project (ARC FN-267, GDOT PI 0009981, Sandy Springs Capital Project No. T-0024)

In December 2014, the City of Sandy Springs Public Works Director and City Manager discussed expanding the scope of the Hammond Drive project. Originally, the project proposed widening and additional improvement on Hammond Drive between Roswell Road and Glenridge Drive. The City developed preliminary concepts and investigated the costs and challenges of the project, concluding that it would require significant additional investment to implement the project. The project was put on hold and the $500,000 federal earmark was reserved until the City could decide how to proceed. When GDOT staff recognized the inactivity and mentioned that the earmark would need to be removed, the City re-scoped the project to entail sidewalk improvements to match available funding. A new call for projects from the Atlanta Regional Commission (ARC) prompted the discussion to re-examine the scope. After discussion, the City determined that it would pursue the project once more. Out of this process came the Hammond Drive Corridor Study.

City of Dunwoody

Dunwoody Comprehensive Transportation Plan (March 2011)

As part of the needs assessment, the Dunwoody Comprehensive Transportation Plan (CTP) analyzed level-of-service on key roadway segments and intersections within the City. A portion of Hammond Drive, from Perimeter Center Parkway to the Perimeter Mall Entrance, is currently (2010) at LOS C and will worsen to LOS D (2020) and LOS E (2030) in the "no-build" scenario.

The Dunwoody CTP recognizes the planned widening of Hammond Drive (to six lanes) from the Fulton/DeKalb County line to Ashford Dunwoody Road as a long-range transportation project that has been planned/programmed. The plan also mentions the Perimeter CID's contribution to the project, which includes streetscape improvements along the corridor.

The CTP calls out the intersection of Hammond Drive and Ashford Dunwoody Road as a high-crash intersection in the City. Hammond Drive from Perimeter Center Parkway to the Perimeter Mall entrance has the third highest crash rate in the City, with 511 total crashes from 2005 to 2009 and a crash rate of 5,430 crashes per million vehicle miles traveled (VMT). This far exceeds the statewide crash rate for urban minor arterials (513 crashes per million VMT).

The CTP does not specifically recommend any projects along Hammond Drive.

Perimeter Center Overlay Districts Regulations (July 2015)

The Perimeter Center Overlay Districts Regulations were developed to promote the goals of the Perimeter Center Overlay Districts. Hammond Drive falls within zone PC-1, which is in the central core of the Perimeter area. Corresponding to the character of the area, this district allows the high intensity development with a high level of employment uses and active ground story uses and design that support pedestrian mobility. Transportation regulations in PC-1 set the maximum allowable block at 2,500 feet, with a recommended maximum of 1,800 feet. Streets within the district may function as minor parkways, primary streets, or secondary streets.

Perimeter CIDs

Hammond Drive Corridor Traffic Study (2008)

This plan studied Hammond Drive from Peachtree Dunwoody Road to Perimeter Center Parkway to examine the feasibility of two new signalized intersections to serve proposed new developments. One potential signal would be approximately 750 feet west of Perimeter Center Parkway (to support two new DRI developments). The other would be approximately 640 feet east of Peachtree Dunwoody Road. In order to complete the traffic analysis, the project team utilized four alternative roadway concepts with different locations for the traffic signals. The traffic analysis also took into account several DRIs with required transportation improvements at Peachtree-Dunwoody Road and Hammond Drive:

- Install a westbound right-turn lane along Hammond Drive
- Install a northbound right-turn lane along Peachtree Dunwoody Road
- Install an additional northbound left-turn lane (creating dual left-turn lanes) along Peachtree-Dunwoody Road
- Install an additional eastbound left-turn lane (creating dual left-turn lanes) along Hammond Drive

Each alternative was analyzed based on projected 2017 traffic conditions in the area. For each alternative, a series of intersection improvements were recommended to serve the projected traffic. The report analyzed the feasibility of each alternative and associated traffic improvements, and determined that Alternative 2 is the most viable for consideration.

Alternative 2: New traffic signal located approximately 610 feet west of the High Street/Novare traffic signal

- Provide six lanes along Hammond Drive (three through-lanes in each direction)
- Protect the additional ROW that is required along Hammond Drive
- Includes a ten-foot sidewalk with five-foot grass strip
- Hammond Drive at Concourse Parkway East:
    - Change existing northbound center lane from a shared left-turn/through lane to a through-only lane
    - Add protected/permitted left-turn phasing (green arrow) for northbound and southbound left-turns
- Hammond Drive at Peachtree Dunwoody Road:
    - Install a shared through lane/right turn lane westbound along Hammond Drive
    - Install an additional through-lane eastbound along Hammond Drive
    - Install a northbound right-turn lane along Peachtree-Dunwoody Road
    - Install dual left-turn lanes on all four approaches
- Hammond Drive at Perimeter Center Parkway
    - Change the westbound right-turn lane to a shared through/right-turn lane along Hammond Drive
    - Install a shared through/right-turn lane eastbound along Hammond Drive
    - Install an additional westbound left-turn lane along Hammond Drive (dual left turns)
    - Install an additional northbound left-turn lane along Perimeter Center Parkway (dual left turns)
- Hammond Drive at Corporate Campus/Oxford (located 610 west of previous intersection)
    - Install a westbound left-turn lane along Hammond Drive
    - Install an eastbound left-turn lane along Hammond Drive
- Hammond Drive at High Street/Novare
    - Install dual westbound left-turn lanes along Hammond Drive
    - Install an eastbound left-turn lane along Hammond Drive

Perimeter @ The Center – Future Focus: A Ten-Year LCI Update (November 2011)

In 2001, Perimeter Center underwent a planning effort under the Livable Centers Initiative (LCI) program. The ten-year update, produced in 2011, focuses on three areas: sustainable growth management, livability enhancements, and connectivity. Regarding transportation, established goals include integrating transit station improvements at MARTA stations; providing easy and convenient access to transit; enhancing walkable and pedestrian-friendly environments; creating well-connected pedestrian, bike, shuttle, and transit to and between uses, nodes, and neighborhoods; reducing transportation demand; and enable appropriate "complete streets."

Input from the stakeholders and community identified strengths and challenges of the Perimeter area. Listed below are the strengths and challenges that pertain to transportation.

Transportation-Related Strengths

- 3 MARTA stations within PCIDs
- Good regional and local connectivity, freeways and arterials in both the north-south and east-west directions
- Good multi-modal connectivity

Transportation-Related Challenges

- Needs more pedestrian connectivity
- Traffic congestion at some locations impedes traffic flow. Some locations are tricky to navigate and need better signage.
- Lacks connection to transit
- Needs walkable link from MARTA to various activities
- Pay attention to walkable districts within PCIDs
- Finer grain pedestrian connectivity to get rid of long blocks
- Inter-market circulation is a challenge – external freeway traffic affects accessibility and impacts the market
- Freeways divide the neighborhoods
- Not completely bike-friendly
- Breaking down the large-scale, auto-dependent block sizes to create a more pedestrian-accessible environment

The plan presents, in a narrative form, a series of recommendations to implements the goals of

the Perimeter area.

- Focus on retrofitting the suburban grid and character to an urban one, characterized by smaller, more walkable block sizes
- Improve walkability in ten identified districts in the PCIDs by improving sidewalks, signage, and pedestrian safety
- Expand sidewalks along main arterials
- Increase utilization of the three MARTA stations within the PCIDs by making the surrounding areas high-activity hubs that enhance transit ridership and create vibrant activity (consider MARTA's Transit-Oriented Development Guidelines)
- Focus on internal connectivity in connected districts and near transit stations through the provision of sidewalks
- Connect districts by enhancing sidewalks and bicycle lanes, incorporating multi-use paths (along creeks and freeways, and connecting to retail, parks, civic centers, etc.), and reducing block sizes
- Consider a consolidated shuttle system to serve workers and residents
- Provide rental bikes or Zip Cars at transit stations and key locations
- Incorporate "complete streets"
- Utilize effective pedestrian, transit, and auto-oriented wayfinding signage

Improvements to Hammond Drive, including widening to six lanes and bicycle and pedestrian facilities, are identified in the list of transportation projects. (Projects T-9 and T-10)

Commuter Trail System Master Plan

The Master Plan presents the development of a commuter trail system by identifying users and travel flows and recommending projects for each corridor. In a demand map of employer and commuter market "hotspots," areas north and south of Hammond Drive are identified as having a medium to high level of job intensity. The most significant concentration of job intensity is at the intersection of Hammond Drive and Peachtree Dunwoody Road, in the northwest and southwest quadrants of the intersection. Employee-commuter desire paths line Hammond Drive, with many converging on the concentration of job intensity at Hammond Drive and Peachtree Dunwoody Road.

The Master Plan recommends a commuter trail along Hammond Drive, from Barfield Road to Ashford-Dunwoody Road. The trail is divided into three projects:

- Hammond Drive from County Line to Perimeter Center Parkway – Westbound sidepath with easement (Project A09)
- Hammond Drive from Peachtree-Dunwoody Road to County Line - Westbound sidepath with easement (Project A10)
- Hammond Drive from Perimeter Center Parkway to Ashford-Dunwoody Road - Westbound sidepath with easement (Project A10)

The Master Plan also recommends new sidewalks along Hammond Drive, from Glenridge Drive to Barfield Road.

Dunwoody MARTA Connectivity Improvements (August 2011)

This plan was developed in order to enhance connectivity in the vicinity of the Dunwoody MARTA Station. The following recommendations pertain to Hammond Drive:

- Enhancement of the MARTA bridge across Hammond Drive
- Proposed mid-block crossing between the MARTA parking deck and retail area across Hammond Drive, just east of the MARTA bridge
- 20-foot pedestrian promenade along north side of Hammond Drive (between Perimeter Center Parkway and entrance to Perimeter Mall) with street-front retail
- Concept for Hammond Drive includes:
    - Six 11-foot travel lanes (three in each direction)
    - Eight-foot landscaped median
    - Six-foot sidewalks on both sides
    - Four-foot furniture/landscape zone between sidewalk and street
    - Large corner plaza with fountain on the northeast corner of the intersection of Hammond Drive and Perimeter Center Parkway

Public Space Standards

The Public Space Standards report establishes guidelines for the design of public spaces in the Perimeter area. The standards designate Hammond Drive as a "Thoroughfare" and recommends that the following standards be applied:

- Heavy landscaping
- Tree-lined medians
- Eight to ten-foot minimum sidewalks separate from travel lanes by a five-foot minimum planting strip
- Decorative street lights
- Median lights
- Pedestrian lights
- Street trees
- Fenced tree planters
- Pedestrian signage
- Bicycle lanes or "share the road" lanes

Circulator Shuttle Implementation Plan (2012)

The PCIDs developed the Circulator Shuttle Implementation Plan to determine the feasibility of running a consolidated shuttle service to serve the PCID area. The portion of Hammond Drive between Peachtree Dunwoody Road and Ashford Dunwoody Road already functions as a shuttle route for existing private shuttles in the area. The recommended route map for the "Diamond Level Circulator" places the study corridor (from Concourse Parkway to Ashford Dunwoody Road) on the "Green Route" and another portion of Hammond Drive (from Barfield Road to Ashford Dunwoody Road) on the "Barfield Route." It also proposes a "Sandy Springs Route" (with shared funding between Sandy Springs and Dunwoody) between the Dunwoody MARTA Station and a development near the intersection of Mount Vernon Highway and Roswell Road. The Diamond Level Circulator represents the final phase of circulator implementation and includes dedicated transit lanes along Hammond Drive from Concourse Parkway to Ravinia Parkway. To enhance operations, the report recommends queue jumper lanes at key intersections, including intersections along Hammond Drive.

EXISTING (YEAR 2015) TRAFFIC OPERATIONS

Existing AM and PM peak hour turning movement counts at the study area intersections were obtained from the City of Dunwoody, City of Sandy Springs and the PCIDs. The Existing (Year 2015) AM and PM peak hour turning movement counts are shown in Figure 11. Figure 12 schematically depicts the existing lane configurations and traffic control at the study area intersections.

Based on the existing lane configurations and traffic control presented in Figure 3, and the existing traffic volumes presented in Figure 4, peak hour traffic operations were analyzed at the study area intersections using the methodologies outlined in the 2010 Highway Capacity Manual (HCM) and the Synchro 8.0 software program. According to the HCM, there are six levels of service (LOS) by which the operational performance of an intersection may be described. These levels of service range between LOS "A" which indicates a relatively free-flowing condition and LOS "F" which indicates operational breakdown.

The results of the intersection levels of service analysis for the existing conditions are summarized in Table 5. As shown in Table 5, all study area intersections operate at a level of service (LOS) D or better in the AM and PM peak hours with the exception of the Glenridge Drive (LOS F in the PM peak hour), Peachtree Dunwoody Road (LOS E in the PM peak hour) and Ashford Dunwoody Road (LOS E in the PM peak hour). Appendix A contains the level of service worksheets.

Table 5. Existing (Year 2015) Intersection Level of Service

	Intersection	AM *LOS*	PM *LOS*
1	Hammond Drive/Glenridge Drive	D	F
2	Hammond Drive/Barfield Road	C	B
3	Hammond Drive/SB SR 400 Off-Ramp	B	A
4	Hammond Drive/NB SR 400 On-Ramp	B	D
5	Hammond Drive/Concourse Parkway East	B	B
6	Hammond Drive/Peachtree Dunwoody Road	D	E
8	Hammond Drive/Oxford Driveway	B	B
10	Hammond Drive/Perimeter Center Parkway	C	D
13	Hammond Drive/Perimeter Mall Entrance	A	B
14	Hammond Drive/Ashford Dunwoody Drive	C	E

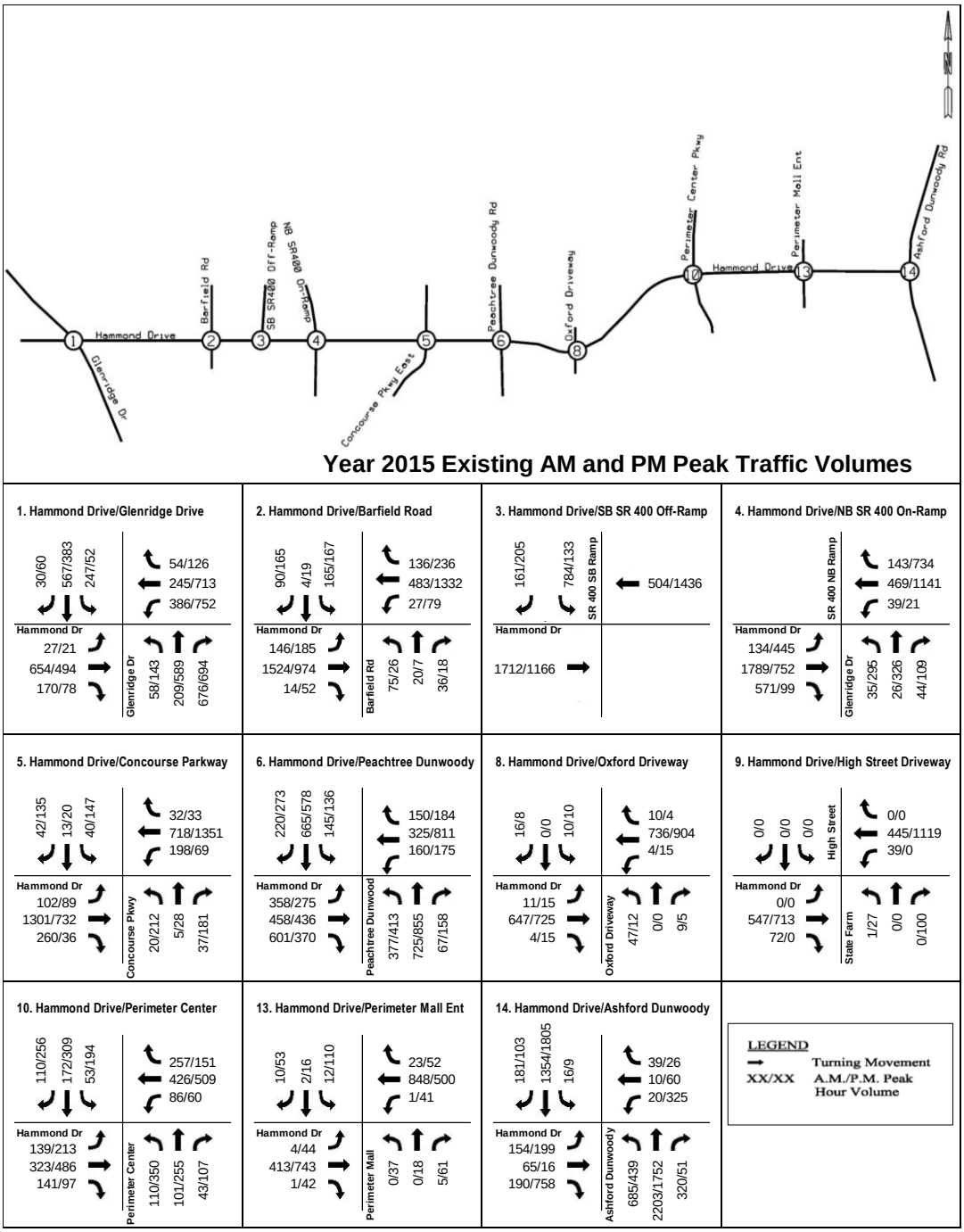

Figure 11. Exisitng (Year 2015) AM and PM Peak Hour TrafficVolumes

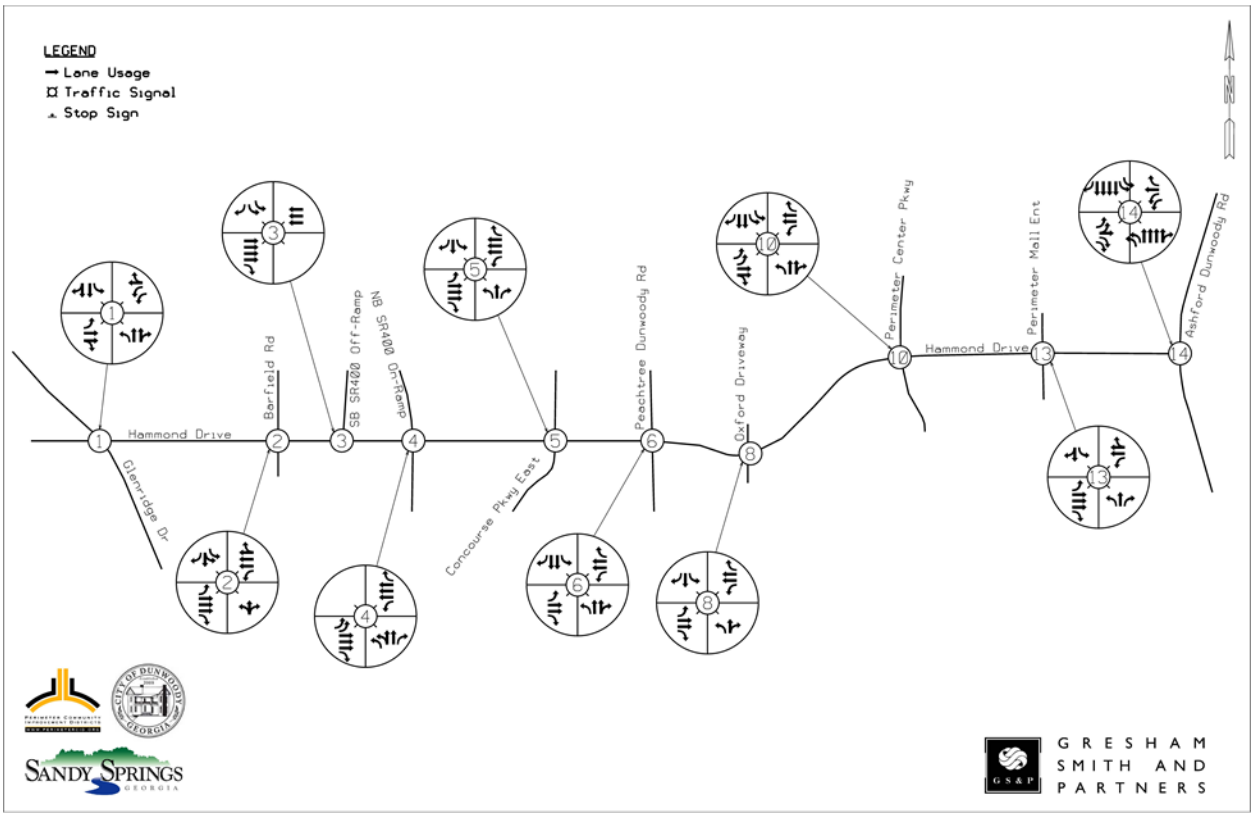

Figure 12. Existing Lane Configurations and Traffic Control

TRAFFIC ANALYSIS

A detailed traffic analysis was undertaken to determine the following:

- The impact of nine (9) approved or planned developments along the Hammond Drive Corridor;
- Whether the current four (4) lane section of Hammond Drive east of Peachtree Dunwoody Road needs to be widened to (6) lanes;
- The location for dual left turns along Hammond Drive at Peachtree Dunwoody Road and east of this intersection;
- Improvements to the Hammond Drive/Glenridge Drive intersection; and
- The impact of the proposed East-West Connector and the proposed Westside Connector on the traffic operations of Hammond Drive.

Information on the nine (9) approved or planned developments were obtained from the ARC and traffic studies prepared for these developments, as provided by the City of Dunwoody and City of Sandy Springs. The following is a list the approved and planned developments along the Hammond Drive corridor:

A. KDC State Farm Phase 1

B. DRI #1432 High Street

C. DRI #1152 Palisades

D. DRI #2501 Park Center (State Farm)

E. Gold Kist Site

F. DRI #883 Concourse

G. DRI #1603 Lakeside Redevelopment

H. DRI #1854 Hammond Center

I. Hanover

Figure 13 shows the location of these projects and Table 6 shows the type and amount of development in these projects. As shown in Table 6, there is a total of 4,076,858 square feet (s.f.) of office space, 590,200 s.f. of retail space, 202,452 s.f. of resturant space, 1,930

apartment units, 2,830 condominium units and 1,450 hotel rooms approved or planned along the Hammond Drive corridor.

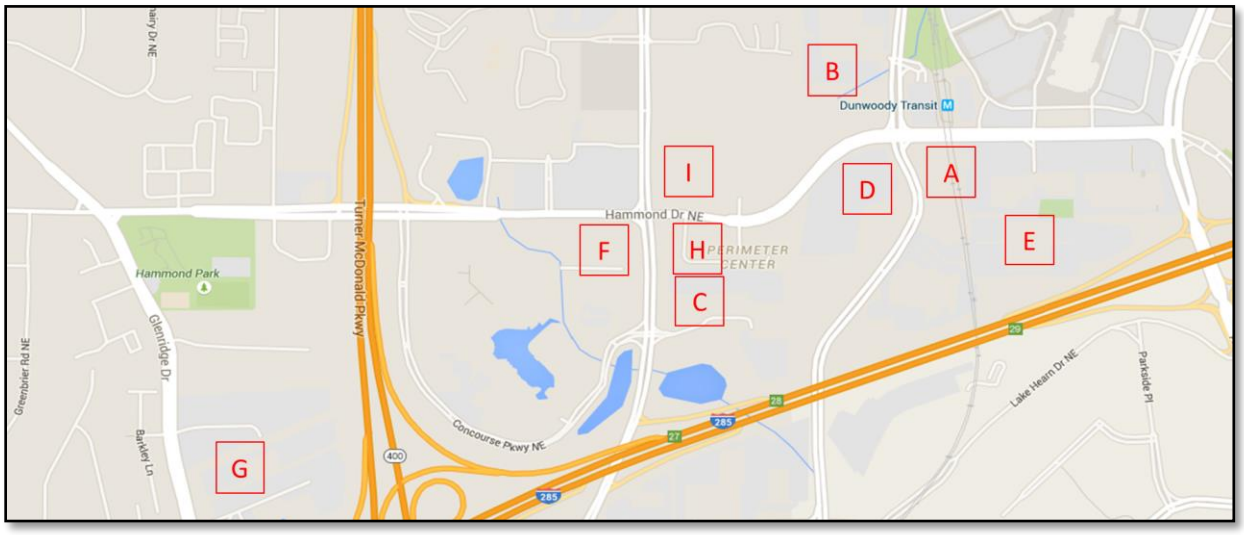

Figure 13. Location of Approved and Planned Developments

Table 6. Approved and Planned Development Land Use Densities

Development	Location	Office (s.f.)	Retail (s.f.)	Restaurant (s.f.)	Conference Center (s.f.)	Apartment (units)	Condo (Units)	Hotel (Rooms)
KDC State Farm Phase 1	A	585,000	17,000					175
DRI #1432 High Street	B	138,556	325,000	75,000		1,500	1,500	400
DRI #1152 Palisades	C		2,500	7,500		430		
DRI #2501 Park Center (State Farm)	D	1,399,302	55,000	27,000				
Gold Kist Site	E	1,134,000	43,700	32,452	63,442		380	650
DRI #883 Concourse	F		35,000	35,000			650	
DRI #1603 Lakeside Redevelopment	G	800,000	50,000				300	200
DRI #1854 Hammond Center	H	20,000	50,000	20,000				
Hanover	I		12,000	5,500				
Total		4,076,858	590,200	202,452	63,442	1,930	2,830	1,425

YEAR 2035 TRAFFIC FORECASTS

The Year 2035 peak hour traffic volumes were forecasted by growing the 2015 Existing Year peak hour traffic volumes at an estimated annual growth rate and adding the projected traffic from the nine (9) approved or planned developments. The annual growth rate was estimated from traffic volume information obtained from the GDOT's Annual Traffic Count Data. Historical AADT volumes and the corresponding growth rates calculated at two (2) traffic count (TC) locations along Hammond Drive were obtained from the GDOT's Annual Traffic Count Data website and are provided in Table 7.

Table 7. Historical Growth Rates along Hammond Drive

Year	TC 1215988 (Hammond Drive, East of Glenridge Drive)	TC 0897170 (Hammond Drive, West of Ashford Dunwoody Road)
1995	16,000	NA
1996	15,900	NA
1997	16,500	NA
1998	19,500	NA
1999	14,000	NA
2000	14,400	NA
2001	16,400	NA
2002	18,342	NA
2003	17,850	NA
2004	19,900	NA
2005	20,500	NA
2006	19,160	NA
2007	19,170	18,030
2008	19,060	17,930
2009	NA	17,570

2010	24,600	17,350
2011	24,570	16,620
2012	24,430	16,590
2013	26,440	16,960
2014	26,400	16,960
2015	28,400	16,300
Average	0.7% (Used 1.0 % as a minimum)	

Based on the growth rates calculated from the GDOT's Annual Traffic Count, a growth rate of one (1) percent was assumed to be representative of the future growth in traffic from outside the Hammond Drive corridor. The nine (9) approved and planned developments represents the growth in traffic from development along the Hammond Drive corridor over the next 20 years.

The following formula was used for the traffic projections:

$$F = P\,(1+i)^n + \text{Development Traffic}$$

Where:

F = future projected traffic volume, vehicles per hour

P = 2013 peak hour traffic volume, vehicles per hour

i = annual growth rate = 1 percent (0.01)

n = number of years in projection, 20 for 2035 (existing year 2035)

The Year 2035 peak hour traffic volumes along Hammond Drive are shown in Figure 14.

ROADWAY NETWORK SCENARIOS AND CONNECTIVITY

In order to accommodate future development along the Hammond Drive corridor and provide an alternative to Hammond Drive, two (2) connector roadways have been proposed south of Hammond Drive. These planned connections are shown in Figure 15. The first connector is called the East-West Connector, and connects Peachtree Dunwoody Road to Perimeter Center Parkway. This connector would provide additional access to the State Farm, Hammond Center and Palisades developments. The intersection with Peachtree Dunwoody Road would be limited to right in-right out. The intersection with Perimeter Center Parkway would be at the

existing intersection with the Marriott Hotel driveway and provide access to the State Farm development on the west side of Perimeter Center Parkway. Figure 16 shows the Year 2035 peak hour traffic volumes along Hammond Drive with the proposed East-West Connector.

The second connector is called the Westside Connector. This roadway would connect westbound I-285 to Perimeter Center Parkway. The Westside Connector will begin as an off-ramp off of the westbound I-285 Ashford Dunwoody Road off-ramp then go under Ashford Dunwoody Road and connect to the existing road at the Dunwoody Crown Towers site, and then intersect with Perimeter Center Parkway. There will also be a connection from the Westside Connector to the westbound Ashford Dunwoody on-ramp to I-285. This connector will provide an alternative to using the Ashford Dunwoody interchange to access Hammond Drive and the development along Perimeter Center Parkway. The connector is also expected to provide some relief to the Peachtree Dunwoody Road interchange with I-285. The Westside Connector will provide access to the Dunwoody Crown Towers site and the State Farm development.

While the Westside Connector does not directly align with the East-West Connector, the combination of the two roadways provide an alternative connection that parallels Hammond Drive between Ashford Dunwoody Road and Peachtree Dunwoody Road. This will provide access to the multiple developments along the south side of Hammond Drive, west of Perimeter Center Parkway. Figure 17 shows the Year 2035 peak hour traffic volumes along Hammond Drive with the proposed East-West Connector and the Westside Connector (i.e. both connectors).

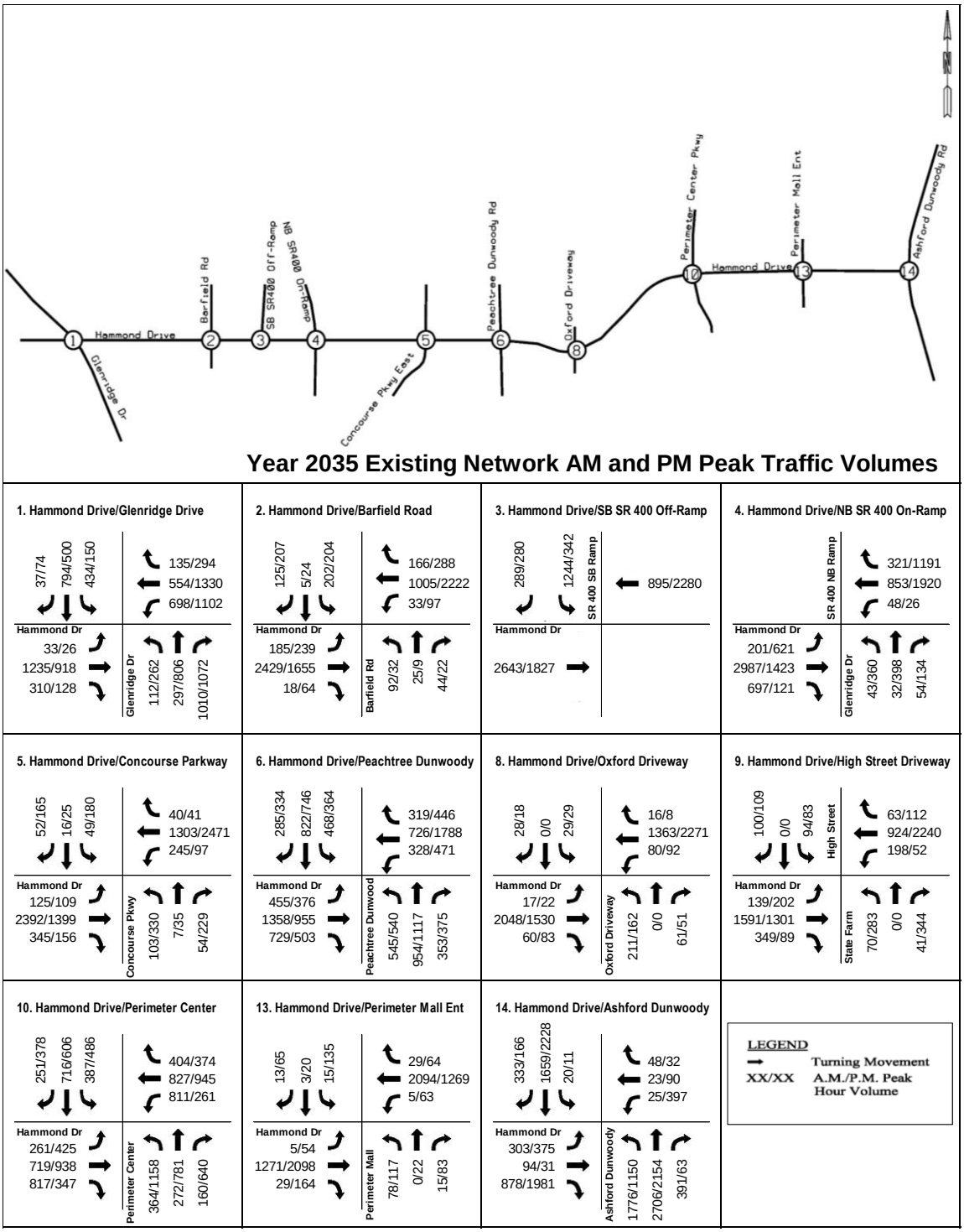

Figure 14. Year 2035 Existing Network AM and PM Peak Hour Traffic Volumes

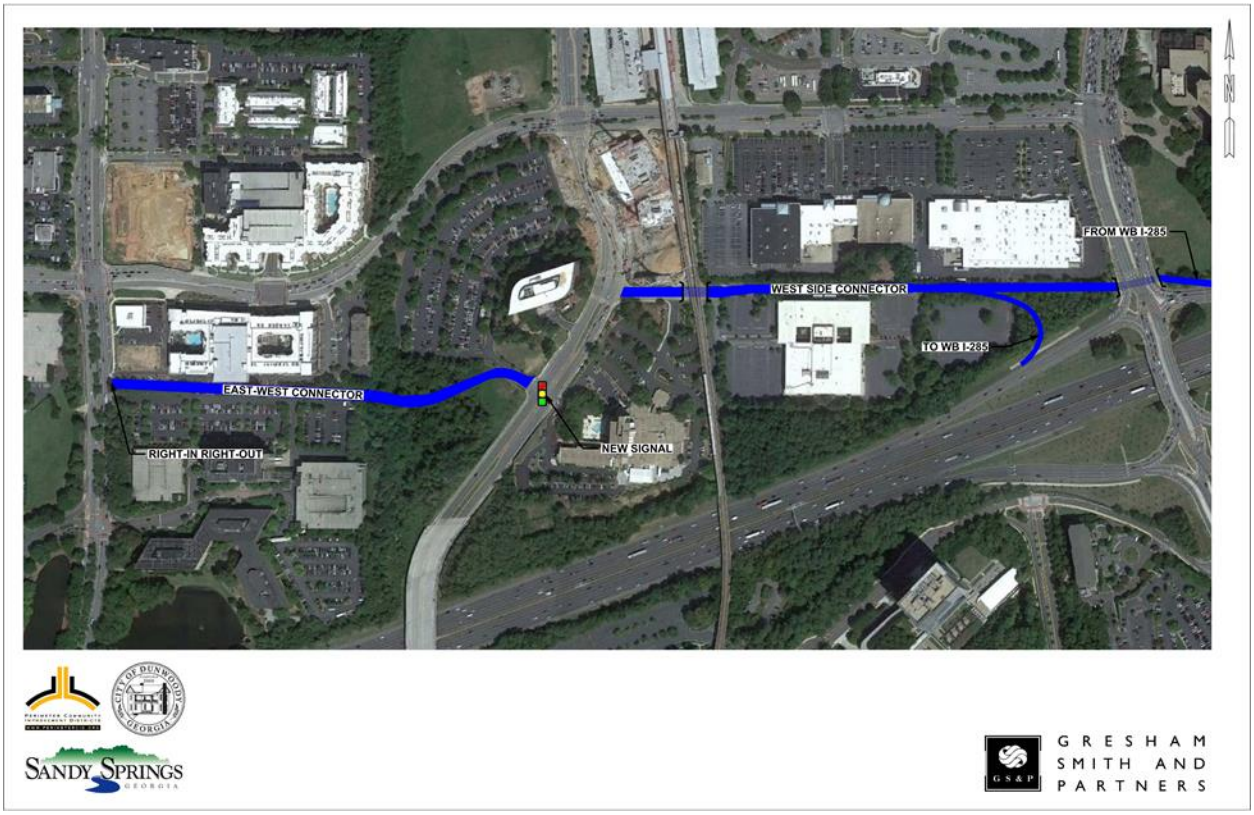

Figure 15. Future Planned Connections

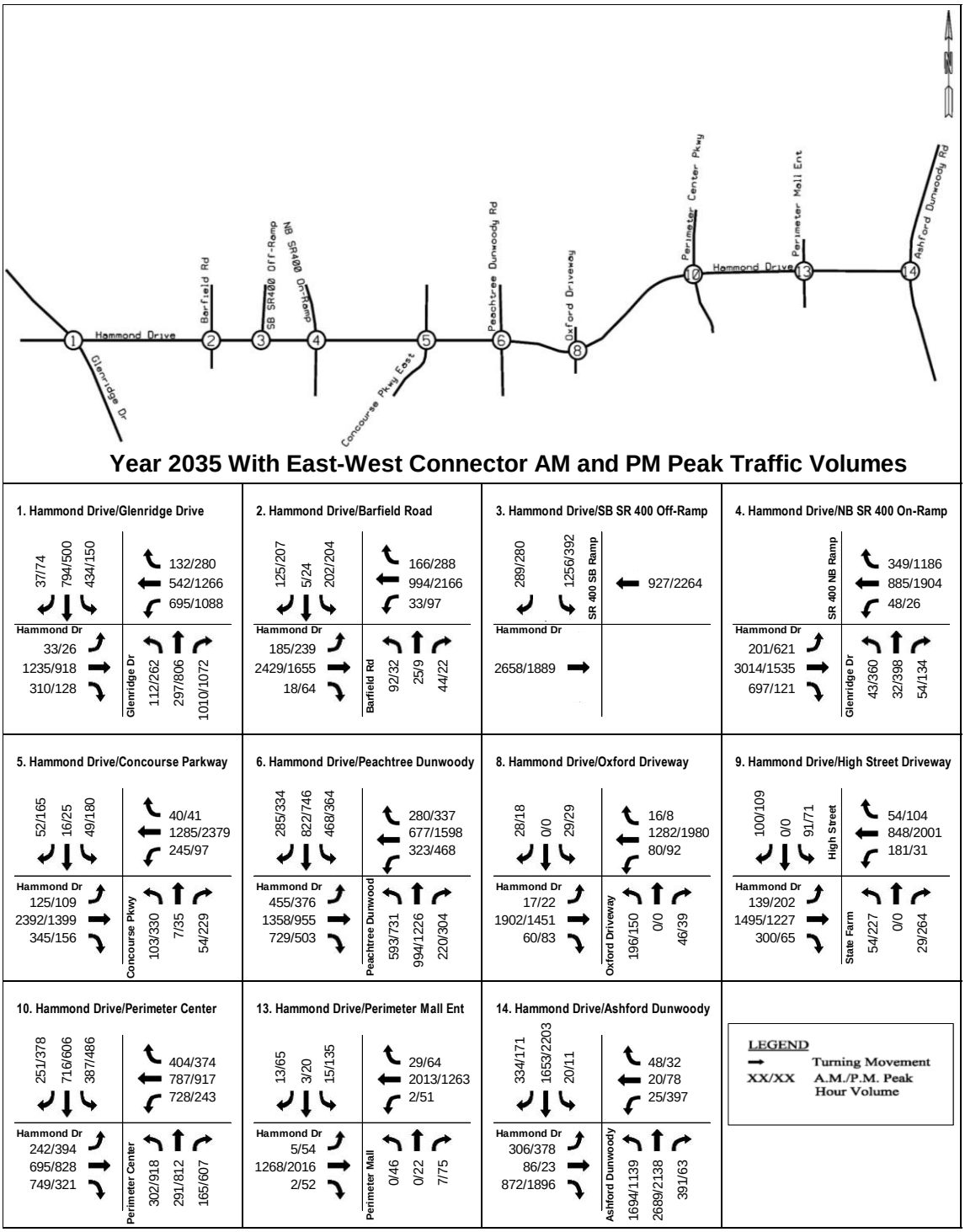

Figure 16. Year 2035 with East-West Connector AM and PM Peak Hour Traffic Volumes

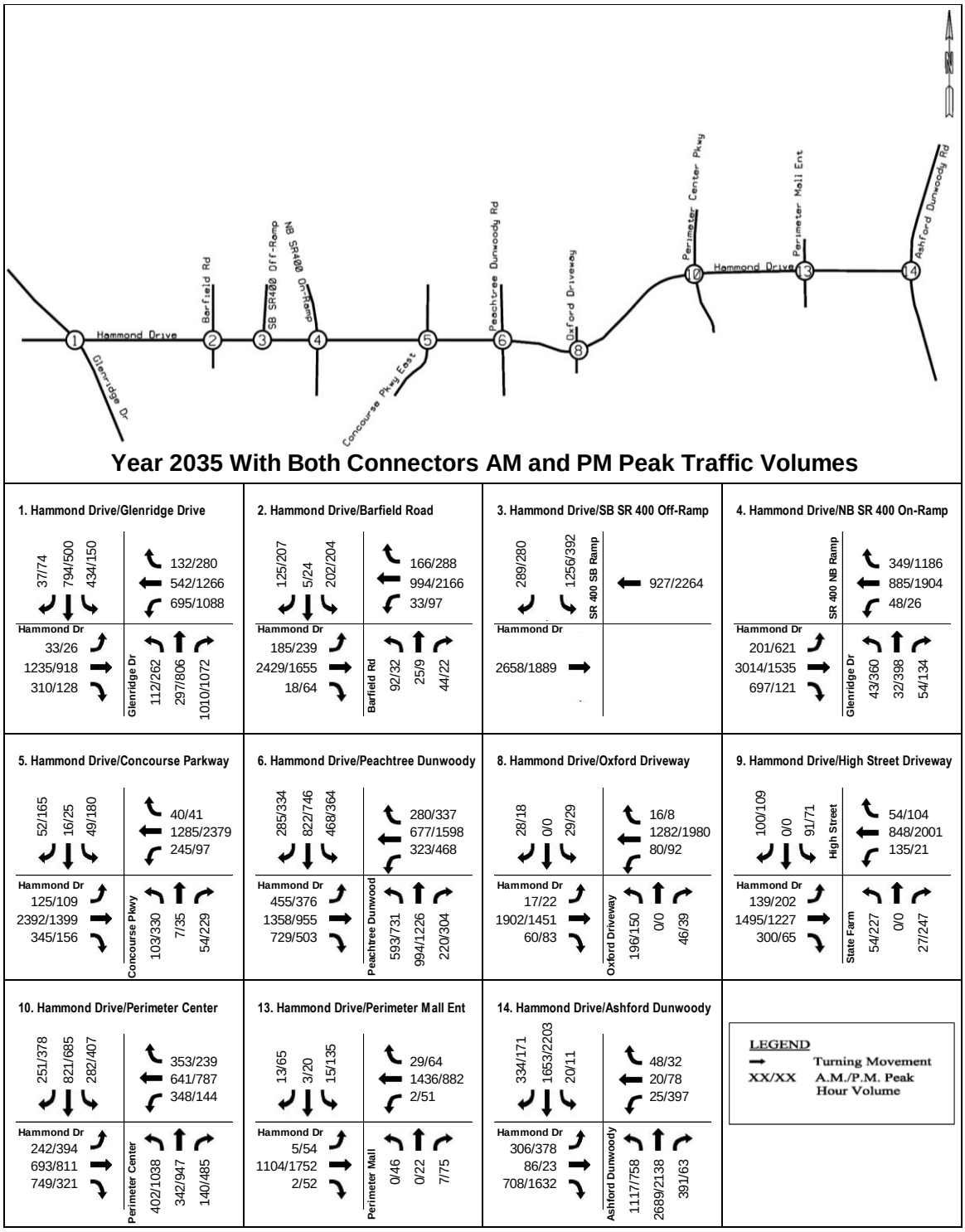

Figure 17. Year 2035 with Both Connectors AM and PM Peak Hour Traffic Volumes

As part of the traffic analysis, additional connectivity opportunities were evaluated. Two potential connections were identified during the traffic analysis process and are shown in Figure 18. Both of these connections would connect Hammond Drive to the proposed Westside Connector between Ashford Dunwoody Road and Perimeter Center Parkway. The purpose of these connections would be to provide additional circulation and allow vehicles using the proposed Westside Connector to access Hammond Drive at other locations other than Perimeter Center Parkway. This would reduce the amount of traffic along Perimeter Center Parkway and improve traffic operations at the Hammond Drive/Perimeter Center Parkway intersection. It is recommended that these connections be considered if the parcels on the south side of Hammond Drive redevelop between Ashford Dunwoody Road and Perimeter Center Parkway (Best Buy/Rooms to Go site).

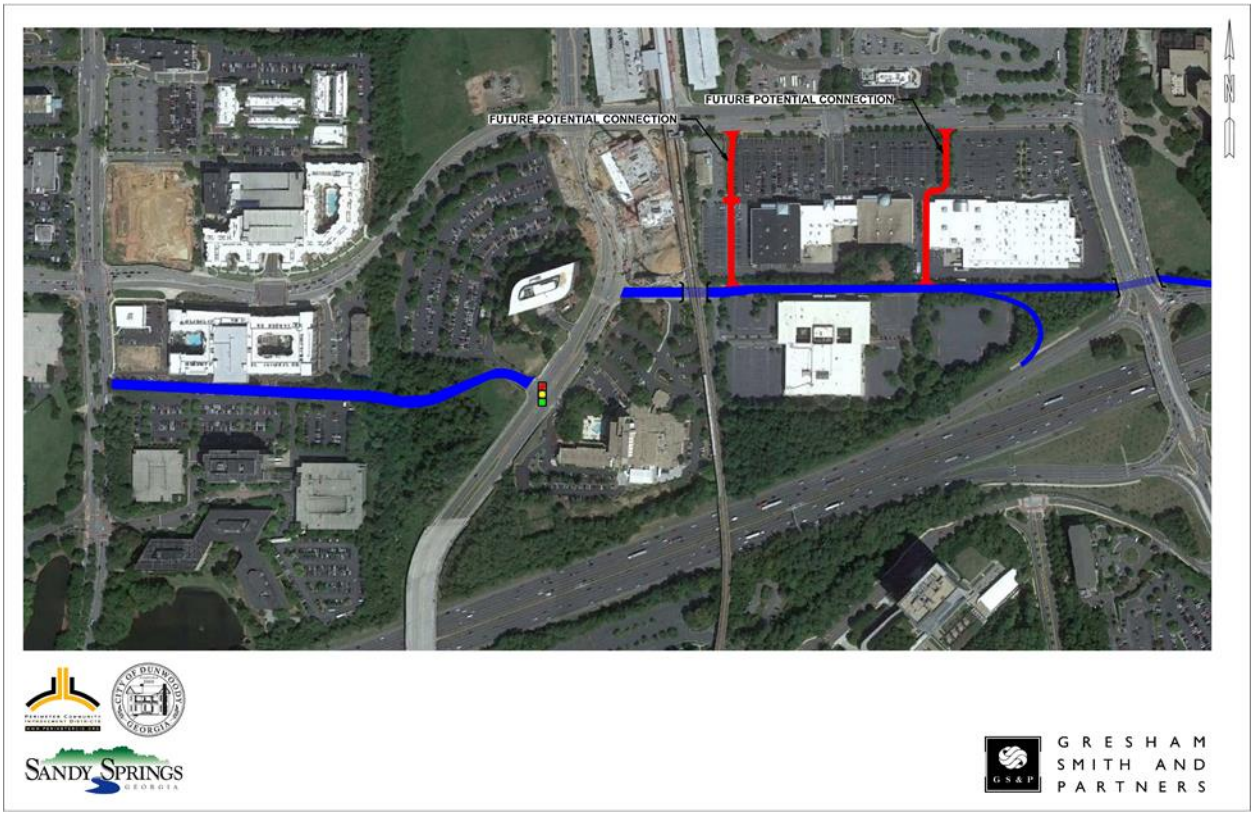

Figure 18. Future Potential Connections

FUTURE LEVEL-OF-SERVICE

Levels of service were calculated at the study area intersections based on the volumes shown in Figures 14, 16, and 17 (existing network, East-West Connector network, and the East-West Connector & Westside Connector network, respectively) and the future lane configurations and traffic control shown in Figure 19. The results of the level of service analysis are presented in Table 8. Appendix A contains the level of service worksheets.

Table 8. Year 2035 Intersection Levels of Service

Intersection		Existing Network with 6 Through Lanes & Turn Lanes		East-West Connector with 6 Through Lanes & Turn Lanes		Both Connectors with 6 Through Lanes & Turn Lanes	
		AM *LOS*	PM *LOS*	AM *LOS*	PM *LOS*	AM *LOS*	PM *LOS*
1	**Hammond Drive/Glenridge Drive**	F	E	F	E	F	E
2	**Hammond Drive/Barfield Road**	C	E	C	E	C	E
3	**Hammond Drive/SB SR 400 Off-Ramp**	C	A	C	A	C	A
4	**Hammond Drive/NB SR 400 On-Ramp**	B	F	B	F	B	F
5	**Hammond Drive/Concourse Parkway East**	C	C	C	C	C	C
6	**Hammond Drive/Peachtree Dunwoody Road**	F	F	F	F	F	F
8	**Hammond Drive/Oxford Driveway**	B	C	B	C	B	C
9	**Hammond Drive/High Street Driveway**	B	D	B	C	B	C
10	**Hammond Drive/Perimeter Center Parkway**	F	F	F	F	F	F
13	**Hammond Drive/Perimeter Mall Entrance**	C	B	C	A	A	A
14	**Hammond Drive/Ashford Dunwoody Drive**	F	F	F	F	E	F

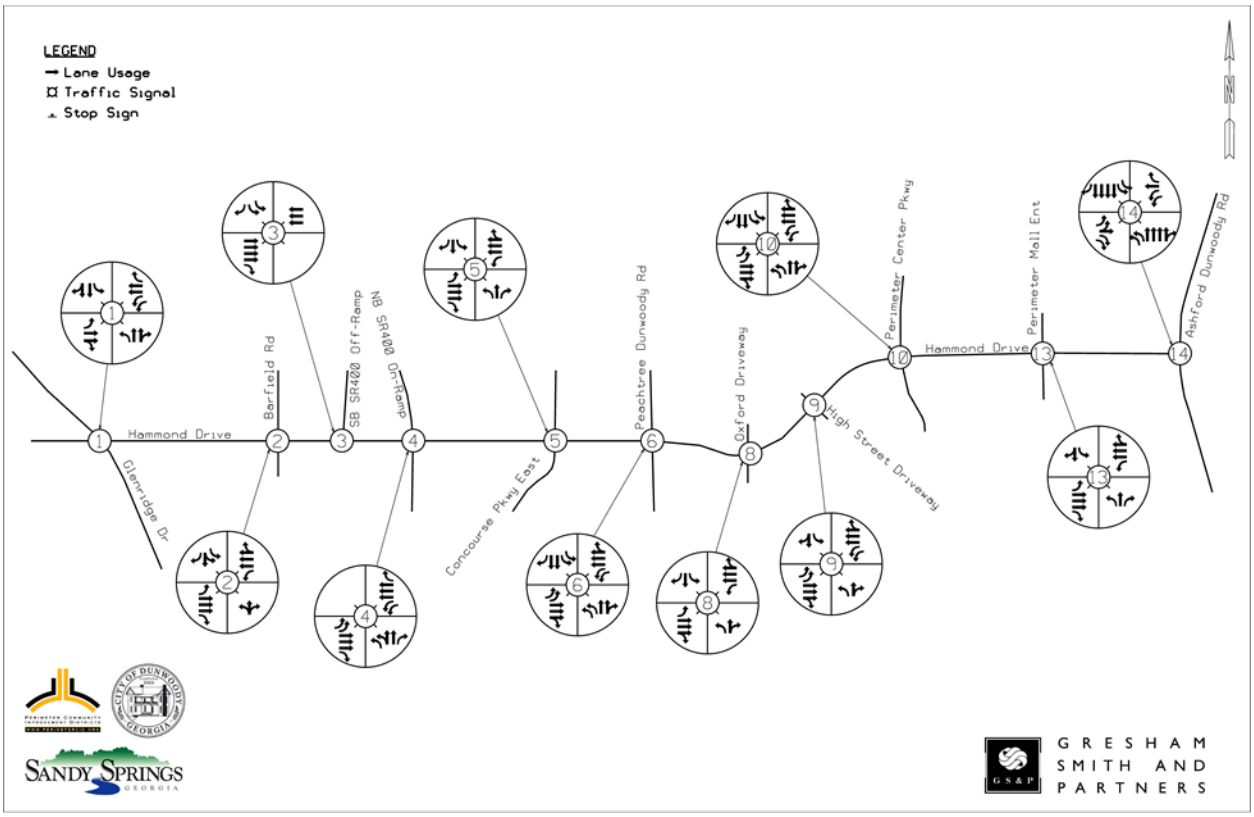

Figure 19. Future Lane Configurations and Traffic Control

TRANSIT AND HIGH OCCUPANCY VEHICLE (HOV) ANALYSIS

While transit was considered as part of this study, only transit options that could be reasonably accommodated within the right-of-way (or with very minimal additional right-of-way) were considered. Options such as light rail, people movers and other fixed rail options would require significant additional right-of-way (a minimum of 30 feet of additional right-of-way) and were therefore not considered.

One enhanced transit option that was considered along Hammond Drive was a transit-only lane east of GA 400 to Ashford Dunwoody Road. This lane would utilize the existing curb lane (outside lane) from GA 400 to Peachtree Dunwoody Road. Automobiles would be restricted to the two (2) inside lanes in each direction. East of Peachtree Dunwoody Road, the transit lane would utilize the proposed new lanes (the outside lane in each direction) along Hammond Drive.

Right turns would also be permitted in the transit lane at signalized intersections and driveways.

The planned managed lane system along GA 400 and I-285 provide an opportunity to more efficiently utilize this potential transit lane. In addition to transit vehicles, this lane could be marked and signed to allow usage by high-occupancy vehicles (HOV), or vehicles occupied by two or more people. This would provide more incentive for HOV users of the managed lane system, as it would provide a local connection from the regional managed lane system to the local roadway network in the Perimeter area.

A preliminary analysis was undertaken to estimate the number of people that would be expected to utilize a transit-HOV lane in the peak hour if it were provided. The results of this analysis were then compared to the number of people that a traditional auto lane would carry in the peak hour. While the transit-HOV lane would have fewer vehicles, this analysis compares the person throughput at different levels of transit utilization (i.e., high, medium, and low).

In order to estimate the number of people that would be expected to use the transit lane, the following assumptions were made:

- MARTA Bus Service (Existing Service) – Currently, there are three (3) routes along Hammond Drive. Routes 5, 87 and 150 all have an average headway of 15 minutes (or 4 vehicles per hour each). The capacity of a MARTA bus is 45 passengers.
- GRTA Coach Service (Planned Service) – Assumed GRTA coach route(s) having stops along Hammond Drive (beyond those stopping at the MARTA stops). These routes would have a combined headway of 15 minutes (or 4 vehicles per hour). The capacity of a GRTA coach is 45 passengers.
- Private Shuttles (Expanded Existing Service) – Assumed 34 private shuttle one-way trips per hour along Hammond Drive. These shuttles would go from the Dunwoody MARTA station to individual business locations. The capacity of the shuttle is 15 passengers.
- HOV Vehicles – Assumed vehicles occupied by a driver plus one or more passengers, or HOV-2+. See below for a detailed demand analysis.
- Three (3) utilization scenarios (high, medium and low) were developed to analyze the potential number of transit passengers that would utilize the transit lane. The assumed utilization for the GRTA service was lower in each scenario since it was assumed that a GRTA route would service other corridors in the Perimeter area (i.e. the north Perimeter

area, Medical Center area, etc.), and some passengers would not be on the coach bus when it arrives on Hammond Drive, or not have a destination along the Hammond Drive corridor.

Table 9 shows the number of potential transit passengers that would utilize the transit-only lane under the three (3) utilization scenarios. The projected person throughput of transit along Hammond Drive ranges from a high of 929 people in the peak hour to a low of 486 people in the peak hour.

Table 9. Potential Number of Transit Passengers Along Hammond Drive

Type of Transit	Vehicles per Hour	Headway (minutes)	Capacity (passengers per vehicle)	High Utilization		Medium Utilization		Low Utilization	
				Rate	Passengers per Hour	Rate	Passengers per Hour	Rate	Passengers per Hour
MARTA Bus	12	5.0	45	75%	405	50%	270	25%	135
GRTA Bus	4	15.0	45	50%	90	35%	63	25%	45
Private Shuttles	34	1.8	15	85%	434	70%	357	60%	306
Total	**50**	**1.2**		**929**		**690**		**486**	

A review of past and current research of HOV traffic in managed lane systems, along with discussions with other transportation professionals working on managed lane projects throughout the country, indicate that there are two (2) potential methodologies for estimating the number of high-occupancy vehicles that will utilize the planned managed lane system (on both GA 400 and I-285). These potential methodologies are as follows:

A. Utilize the Atlanta Regional Commission (ARC) regional travel demand forecasting model.
B. Estimate HOV demand based on design year traffic forecasts, estimates of managed lane traffic, and the percentage of HOV traffic that travel in the managed lanes.

A review of the ARC regional travel demand forecasting model indicated that the model was designed to evaluate regional HOV travel demand; it is not suited to evaluate arterial-level HOV

demand or produce local arterial HOV volume. The second methodology is based on actual projected traffic forecasts for the managed lane system, and estimates of HOV traffic based on actual surveys in the Atlanta region. Therefore, this methodology was preferable to estimate HOV traffic demand along Hammond Drive.

The following process was used to estimate HOV volumes (for both vehicles and person throughput) along Hammond Drive.

1. Design Year (Year 2039) AM and PM peak hour ramp volumes were utilized at the following locations, which directly serve Hammond Drive in the study area:[1]
    a. Hammond Drive Off-Ramp
    b. Hammond Drive On-Ramp
    c. Ashford Dunwoody - EB Off-Ramp
    d. Ashford Dunwoody - EB On-Ramp
    e. Ashford Dunwoody - WB Off-Ramp
    f. Ashford Dunwoody - WB On-Ramp
    g. Peachtree Dunwoody Off-Ramp
    h. Peachtree Dunwoody On-Ramp

    The Design Year (Year 2039) Ramp volumes are shown in Column A in Table 10.

2. Based on the modeling done for these projections, it is estimated that approximately 20 percent of the mainline GA 400 and I-285 traffic will utilize the managed lanes in the Design Year (Year 2039). Therefore, it was assumed that 20 percent of the ramp volumes would come from or go to the managed lane system. The Design Year (Year 2039) estimated managed lane ramp volumes are shown in Column B in Table 10.

3. The managed lane traffic volumes are made up of both single occupancy vehicles (SOV) that will pay a variable toll and HOV vehicles that will utilize the lanes for free. The percentage of SOV and HOV traffic was estimated based on actual SOV and HOV counts (using HOV-2+ as the criteria) in the existing managed lanes along I-85 in Gwinnett County. A study prepared by the Georgia Institute of Technology for GDOT indicates that 85% of the traffic in the managed lanes along I-85 are SOV traffic.[2] The remaining 15% of the traffic are high-

[1] *Future Year (2019 and 2039) Volume Projection, Methodology and Volume Diagrams for PI #0000784 and PI 3721850,* prepared by ARCADIS and approved August 4, 2014.

[2] Guensler, Randall. *Atlanta I-85 HOV-to-HOT Conversion: Analysis of Vehicle and Person Throughput*. Publication

occupancy vehicles. The percentage of HOV traffic was applied to the Year 2039 Managed Lane traffic forecasts at the ramps serving the Perimeter area. The Year 2039 estimated Managed Lane Ramp HOV traffic volumes are shown in Column C in Table 10.

Table 10. Design Year (Year 2039) Managed Lane and HOV Volumes on GA 400 and I-285 Ramps

Ramp		Column A Design Year 2039 Volumes (Total)		Column B Design Year 2039 Managed Lane Volumes		Column C Design Year HOV (2+ Occupancy) Lane Volumes - Ramp Volumes	
	Movement	AM	PM	AM	PM	AM	PM
Hammond Drive Off-Ramp	SBL	1,390	225	278	45	42	7
Hammond Drive On-Ramp	WBR	170	775	34	155	5	23
Ashford Dunwoody Road - EB Off-Ramp	EBL	1,960	1,260	392	252	59	38
Ashford Dunwoody Road - EB On-Ramp	SBR	855	1,910	171	382	26	57
Ashford Dunwoody Road - WB Off-Ramp	WBR	1,840	990	368	198	55	30
Ashford Dunwoody Road - WB On Ramp	SBL	810	1,515	162	303	24	45
Peachtree Dunwoody Road Off-Ramp	WBR	1,105	585	221	117	33	18
Peachtree Dunwoody Road On Ramp	SBL	360	925	72	185	11	28

4. These auto volumes at the interchanges were then assigned to the different roadway segments along Hammond Drive from the GA 400 ramps to Ashford Dunwoody Road. These HOV volumes are shown in Table 11.

5. The study showed that 83% of the HOV traffic is HOV-2 (driver plus one passenger), 13% is HOV-3 (driver plus two passengers), and 13% is HOV-4+ (driver plus three or more

FHWA-GA-13-10-03. Georgia Transportation Institute, August 2013.

passengers). Based on an estimated auto occupancy of 2.7 people per vehicle, the person throughput along Hammond Drive is shown in Table 11.

This analysis shows that the maximum number of people in high-occupancy vehicles in the managed lane system that would use a transit-HOV lane on Hammond Drive is 159 people in the AM peak hour. This figure will be added to the transit and shuttle bus passengers to determine the person throughput of a transit-HOV lane on Hammond Drive.

Table 11. Design Year (Year 2039) High Occupancy Vehicles and Persons Trips Along Hammond Drive

Location along Hammond Drive	Direction	Number of High-Occupancy Vehicles from Managed Lanes along Hammond Drive		Person Throughput from Managed Lanes along Hammond Drive	
		AM	PM	AM	PM
GA 400 to Concourse Parkway	EB	42	7	113	19
	WB	5	23	14	62
Concourse Parkway to Peachtree Dunwoody Road	EB	41	23	111	62
	WB	23	29	62	78
Peachtree Dunwoody Road to Oxford Drive	EB	45	29	122	78
	WB	29	36	78	97
Oxford Drive to High Street	EB	44	34	119	92
	WB	35	38	95	103
High Street to Perimeter Center Parkway	EB	33	40	89	108
	WB	43	34	116	92
Perimeter Center Parkway to Ashford Dunwoody Rd	EB	29	53	78	143
	WB	59	36	159	97
Maximum	EB	45	53	122	143
	WB	59	38	159	103

Based on the analysis shown in Tables 9 and 11, the projected person throughput for both transit and HOV usage along Hammond Drive ranges from a high of 1,062 people in the peak hour to a low of 627 people in the peak hour.

Based on LOS D, a typical curb lane along Hammond Drive would be expected to accommodate 735 vehicles. Using the Georgia statewide average auto occupancy of 1.097, this would result in an approximately 805-person capacity for the curb lane. Based on this analysis, a transit-HOV lane with high utilization would accommodate 32 percent more people than a traditional auto lane. With medium utilization of the transit-HOV lane, the transit-HOV lane would carry slightly more passengers than the traditional auto lane (3% more passengers). However, with low utilization of the transit vehicles in the transit-HOV lane, the traditional auto lane would accommodate more people than the transit-HOV lane.

The results of this preliminary analysis indicate that a transit-HOV lane could be a viable option along Hammond Drive east of GA 400. This would require a significant increase in transit service along the corridor and high utilization of the transit service along the corridor. Due to the uncertainty of additional transit service along Hammond Drive, the transit lane option is not recommended at this time. However, additional study is recommended to determine the feasibility, cost, and potential use of transit along Hammond Drive, and to determine if there would be regional and local support for this option.

The option for a transit-HOV lane along Hammond Drive could provide more person throughput than a traditional general purpose lane with increased utilization of MARTA and GRTA transit in the Perimeter area and projected HOV traffic along Hammond Drive. It is recommended that the option to convert one (1) lane in each direction be further studied as plans for the regional managed lane system along GA 400 and I-285 are finalized over the next few years.

PEAK SPREADING

As shown in Table 8, even with the widening of Hammond Drive to six lanes between Peachtree Dunwoody Road and Ashford Dunwoody Road and dual left turn lanes at major intersections (Peachtree Dunwoody Road, High Street Driveway and Perimeter Center), Hammond Drive is projected to operate over capacity (LOS F) during the AM and PM peak Hours. Additional analysis was performed to determine if there is available capacity to accommodate this traffic in the shoulder hours to the peak hour. This is called peak spreading, where the traffic from the peak hour spreads into the adjacent hour(s). In order to determine if there would be available capacity in the shoulder hours to the peak hour, an analysis of the Year 2035 link volume to capacity ratio (V/C Ratio) was calculated (at LOS D) for both the peak hour and the 2nd highest

hour for the AM and PM peak periods. This analysis was undertaken for the section with the highest peak hour volumes, GA 400 to Peachtree Dunwoody Road. As shown in Table 9, while the peak hours are near or over capacity, there is available capacity in the 2nd highest hour in the AM and PM peak periods. Therefore it is expected that traffic will spread to the adjacent hours from the AM and PM peak hour, thereby creating period of two (2) to three (3) hours.

Table 12. Peak Spreading Analysis

Hammond Drive - SR 400 to Peachtree Dunwoody Road – Year 2035 Volumes								
	AM Peak Volumes			PM Peak			Capacity @ LOS D	V/C Ratio
	Existing	Additional	Total	Existing	Additional	Total		
EB	1,156	1,235	2,391	992	808	1,800	2,520	0.95
WB	934	631	1,565	1,540	1,220	2,760	2,520	1.10
	2nd AM Peak			2nd PM Peak			Capacity @ LOS D	V/C Ratio
	Existing	Additional	Total	Existing	Additional	Total		
EB	1,081	741	1,822	873	606	1,479	2,520	0.72
WB	765	379	1,144	1,049	915	1,964	2,520	0.78

RECCOMMENDATIONS

Based on the traffic analysis for the Year 2035, the following improvements are recommended for Hammond Drive.

- Widen Hammond Drive to six (6) lanes from Peachtree Dunwoody Road to Ashford Dunwoody Road.
- The option for a transit-HOV lane along Hammond Drive could provide more person throughput than a traditional general purpose lane with increased utilization of MARTA and GRTA transit in the Perimeter area and projected HOV traffic along Hammond Drive. It is recommended that the option to convert one (1) lane in each direction be further studied as plans for the regional managed lane system along SR 400 and I-285 are finalized over the next few years.

- In order to accommodate heavy left turn volumes, dual left turn lanes are recommended at the following locations:
    - Eastbound and Westbound lefts at the Peachtree Dunwoody Road intersection
    - Eastbound and Westbound lefts at the High Street Driveway intersection
    - Westbound lefts at the Perimeter Center Parkway intersection
- In order to minimize required right-of-way, provide for enhanced pedestrian and bicycle facilities along Hammond Drive, and reduce walking distances for pedestrians crossing Hammond Drive, shared through-right turn lanes are recommended at the following locations:
    - Eastbound and Westbound rights at the Peachtree Dunwoody Road intersection
    - Eastbound and Westbound rights at the High Street Driveway intersection
    - Eastbound and Westbound rights at the Perimeter Center Parkway intersection
- In order to accommodate future approved and planned development along Hammond Drive and Perimeter Center Parkway, additional connectivity is required south of Hammond Drive between Ashford Dunwoody Road and Peachtree Dunwoody Road.
- An additional westbound through lane and westbound right turn lane is recommended at the Glenridge Drive intersection to accommodate future traffic growth along Hammond Drive.

COMPLETE STREETS ANALYSIS

OVERVIEW

Hammond Drive is an important artery in the Perimeter Center area. Average daily traffic volumes range from 16,000 to 27,000 vehicles and the corridor is home to several new and planned developments. One of the main visions for the area is to establish a walkable and livable center for employees, residents, patrons, and visitors. This vision can be achieved through development of "complete streets."

The concept of complete streets integrates people and place in the planning, design, construction, operation, and maintenance of our transportation networks. Complete streets are designed to be safe and comfortable for all users, including pedestrians, bicyclists, transit riders, motorists, and individuals of all ages and capabilities. These streets generally include sidewalks, bicycle lanes, transit stops, appropriate street widths and speeds, and are well-integrated with surrounding land uses. Complete street design elements that emphasize safety, mobility and accessibility for multiple modes may include sidewalks with crosswalks, bicycle lanes, landscaping, lighting, signaling systems, and adequate separation between sidewalks and streets.

Complete streets consider the context of the road including adjacent land uses, connection to transit and adjacent pedestrian and bicycle facilities, available right-of-way, roadway users and the goals of the local citizens. These concepts were applied to the Hammond Drive corridor to ensure that the needs of the pedestrian, bicyclist and transit users were considered along with auto driver. During meetings with the City of Dunwoody, City of Sandy Springs, and PCIDs, the following goals were developed:

- Provide a high level of service for pedestrians and bicyclist;
- Provide facilities that promote multi-modal alternatives;
- Connect to other planned bicycle and trail facilities within the City of Dunwoody and the City of Sandy Springs;
- Ensure that transit users have easy access to the Dunwoody MARTA station via walking or bicycling;

- Provide the widest pedestrian facilities in the vicinity of the Dunwoody MARTA station but can be less wide the further distance of the Dunwoody MARTA station ;
- Minimize the need for right-of-way along Hammond Drive.

Based on these goals and City policies, the following complete street strategies were developed:

- Where possible, separate pedestrian and bicycle facilities.
- Use of 10 foot lane widths in Dunwoody
- Use of 11 foot lane widths in Sandy Springs
- At major intersections, the planting strips could be narrowed slightly to accommodate additional turn lanes if required.

CONCEPTS EVALUATED

According to the FHWA publication *Separated Bike Lane Planning and Design Guide* (FHWA-HEP-15-025), there are six (6) options for accommodating bicycles along a roadway. These options include:

- Signed Routes (No Pavement Markings)
- Shared Lane Markings (i.e., Sharrows)
- On-Street Bike Lanes
- On-Street Buffered Bike Lanes
- Separated Bike Lanes (Cycle Track)
- Off Street Trails/ Sidepaths (i.e., Multi-Use Trail)

An image and description of each option is shown in Figure 20.

These six (6) options were evaluated to determine how they meet the goals of the Hammond Drive Corridor Study. Specifically, the goals to separate automobiles from bicycles and bicycles from pedestrians were considered a high priority. As shown in Table 13, both the on-street buffered bike lane and the cycle track meet these goals. However, while the on-street buffered bike lane separates automobiles and bicycles, the separation is only by roadway striping. There is no physical separation between automobiles and bicycles to protect cyclists from vehicle traffic. Given the relatively high vehicle speeds along Hammond Drive (which has a 35 mile per hour speed limit, with automobiles traveling in excess of 40 mph) and the heavy peak hour volumes, a physical separation is recommended. Therefore, the preferred option for

accommodating bicycles on Hammond Drive is the cycle track. Where right-of-way is limited (i.e., on the GA 400 Bridge) and expected pedestrian volumes are relatively low, an on-street bike lane with adjacent sidewalks is a viable option.

Figure 20. Bicycle Lane Options (Source: FHWA)

Table 13. Bicycle Facility Type Analysis

Type of Bicycle Facility	Separate Auto & Bicycle Facilities	Separate Bicycle & Pedestrian Facilities
Signed Routes	No	Yes
Shared Lane Markings	No	Yes
On-Street Bike Lanes	No	Yes
On-Street Buffered Bike Lanes	No Physical Barrier	Yes
Cycle Track (Separated Bike Lanes)	Physical Barrier	Yes
Multi-Use Trail	Physical Barrier	No

Cycle tracks can be designed as either two-way cycle tracks or one-way cycle tracks. The one-way cycle track option has two separate cycle tracks, or one on each side of the roadway. The two-way cycle track option has bicyclists traveling in both directions on the same facility. Typically, when drivers exit a driveway, they will look toward their left to see if there are bicyclists approaching. Two-way cycle tracks require motorists to look both to the right and left when exiting a driveway. (While motorists need to look in both directions for pedestrians as well, pedestrians are typically traveling much slower, and are less likely to come upon motorists unexpectedly.) Therefore, a two-way cycle track works best where there are long distances between driveways and intersections.

Between Glenridge Drive and Ashford Dunwoody Road, there are currently ten (10) signalized intersections and approximately 12 unsignalized driveways. Over the approximately 1.5-mile length of the corridor, this works out to an average of a driveway or signal every 360 feet. In order to reduce vehicle-cyclist conflicts, the one-way cycle track option is recommended for most of the Hammond Drive study corridor. Given the constrained right-of-way on the bridge over GA 400, cycle tracks are not feasible. In this section, it is recommended that on-street bike lanes be provided with appropriate transitions between the cycle tracks and the on-street bike lanes.

The other concept design issue related to the cycle track is the elevation of the cycle track. The cycle track can be at either the sidewalk level or the street level. It is recommended that the

cycle track along the study corridor be at the sidewalk level due to maintenance issues. If the cycle track were at the roadway level, it would create an area for trash and debris to collect. This could be a hazard to cyclists and create additional maintenance costs for the cities and PCIDs.

Based on the goals of the project, existing and future land uses, transit stop locations, projected traffic volumes, right-of-way constraints, and expected pedestrian usage along the corridor, these are the recommendations for pedestrian and bicycle facilities along the Hammond Drive corridor:

- Provide wide continuous sidewalks on both sides of Hammond Drive between Glenridge Drive and Ashford Dunwoody Road.
- Provide a continuous bicycle path along Hammond Drive between Glenridge Drive and Ashford Dunwoody Road. For most of the corridor, this will be a separated facility from both automobiles and pedestrians, to provide the highest level of service for both pedestrians and cyclists. Due to right-of-way constraints along the bridge over GA 400, on street bike lanes are recommended.
- Provide a one-way cycle track on both sides of Hammond Drive between Glenridge Drive and Ashford Dunwoody Road, with the exception of the bridge over GA 400.

RECOMMENDED ALTERNATIVE TYPICAL SECTIONS

Given the adjacent land uses, right-of-way constraints, number of driveways, required lane widths, and distance from the Dunwoody MARTA station, the Hammond Drive corridor was divided into the following four (4) sections:

- Glenridge Drive to West of Bridge over GA 400 (Section A)
- GA 400 Bridge (Section B)
- East of GA 400 Bridge to High Street Driveway (Section C)
- High Street Driveway to Ashford Dunwoody Road (Section D)

Figure 21 shows the location of the four (4) sections along the corridor.

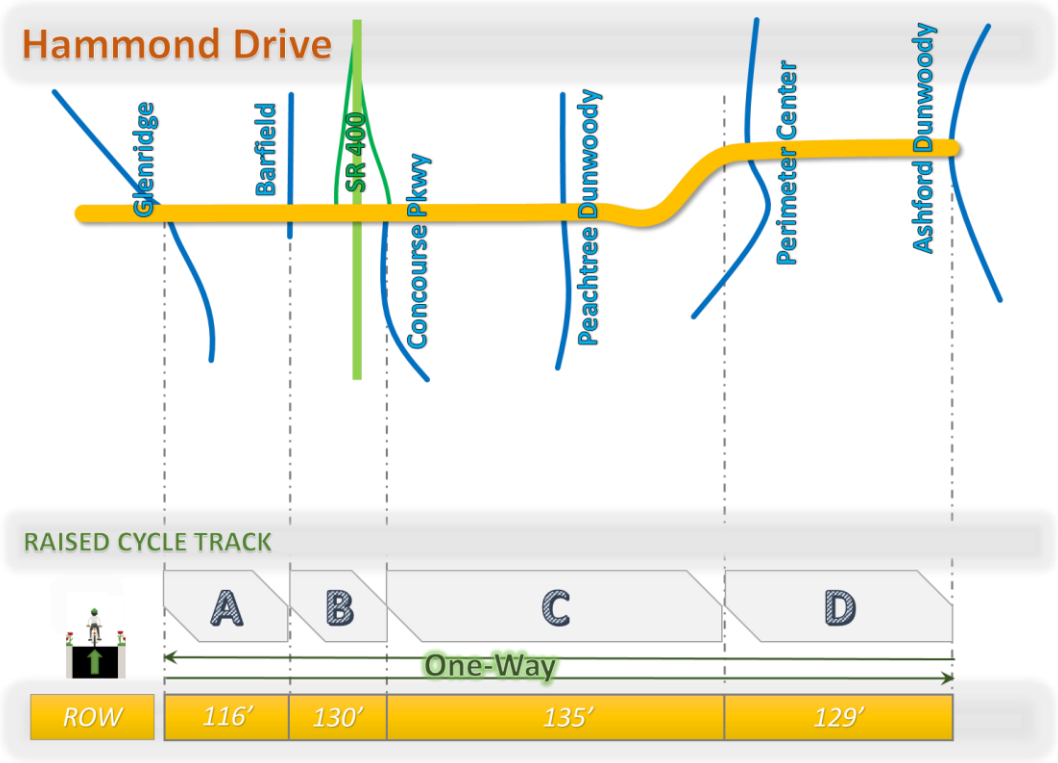

Figure 21. Hammond Drive Sections

The following is a discussion of the details of each section.

Glenridge Drive to West of Bridge over GA 400 (Section A)

On the west side of GA 400, the land uses are less intense than on the east side of GA 400 and transition to single-family residential to the west of Glenridge Drive. This section of Hammond Drive serves as a transition from the commercial land uses on the east side of GA 400 to the residential areas west of Glenridge Drive. Based on its location, existing right-of-way, and projected traffic volumes, a four (4) lane typical section is recommended. Given the less intense nature of the land uses along this section of Hammond Drive and the limited right-of-way, six (6) foot sidewalks are recommended.

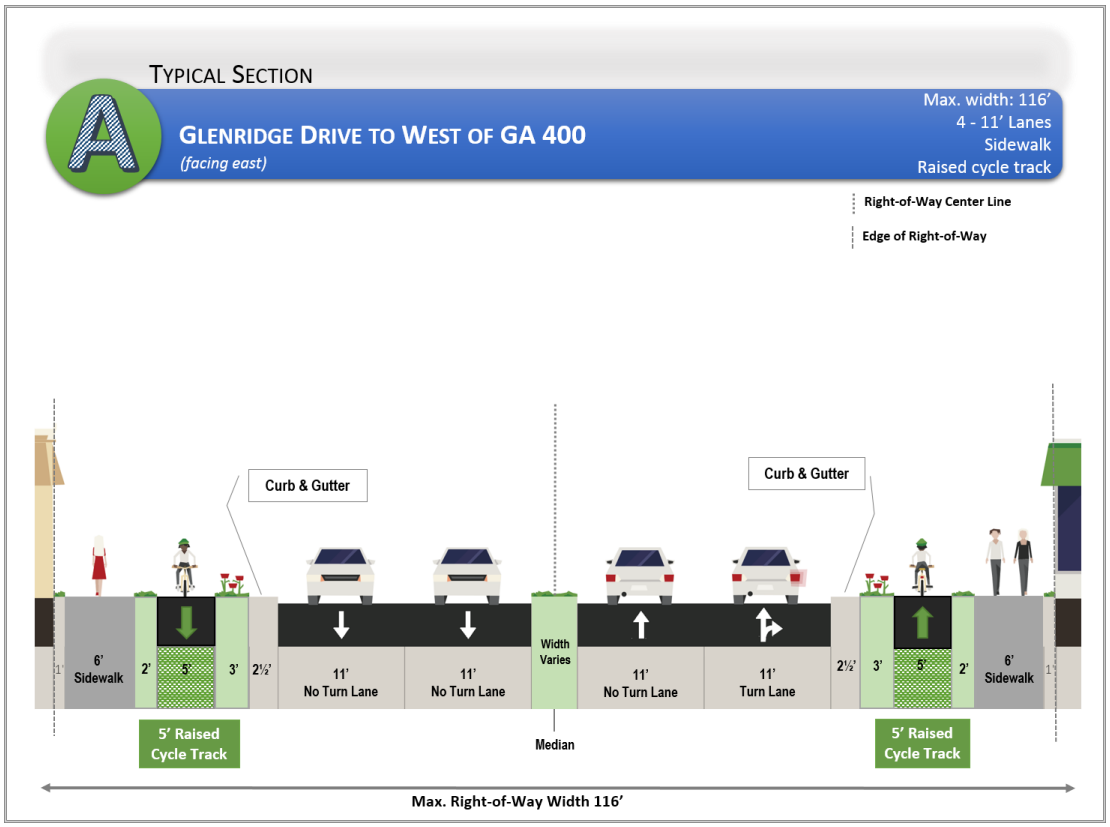

Figure 22. Section A Typical Section

GA 400 Bridge (Section B)

This section is physically constrained by the width of the bridge over GA 400. The approximate usable width of the bridge is 130 feet. Other constraints on the bridge include the City of Sandy

Spring's policy of a minimum 11-foot width for travel lanes, and the requirement to not remove any of the turn lanes on the bridge to maintain efficient traffic flow onto and off of the GA 400 ramps. One other factor that was considered was that walking distances between land uses on the east and west sides of the bridge are one-quarter mile or greater. Given these distances, only a relatively small number of pedestrians are likely to use this section of Hammond Drive. Given the lower level of pedestrian activity and the limited right-of-way, it is recommended that the existing five (5) foot sidewalks be maintained on the GA 400 Bridge. As discussed previously given the constrained ROW on the bridge over GA 400, cycle tracks are not feasible. In this section it is recommended that on-street bike lanes be provided with appropriate transitions between the cycle tracks and the on-street bike lanes.

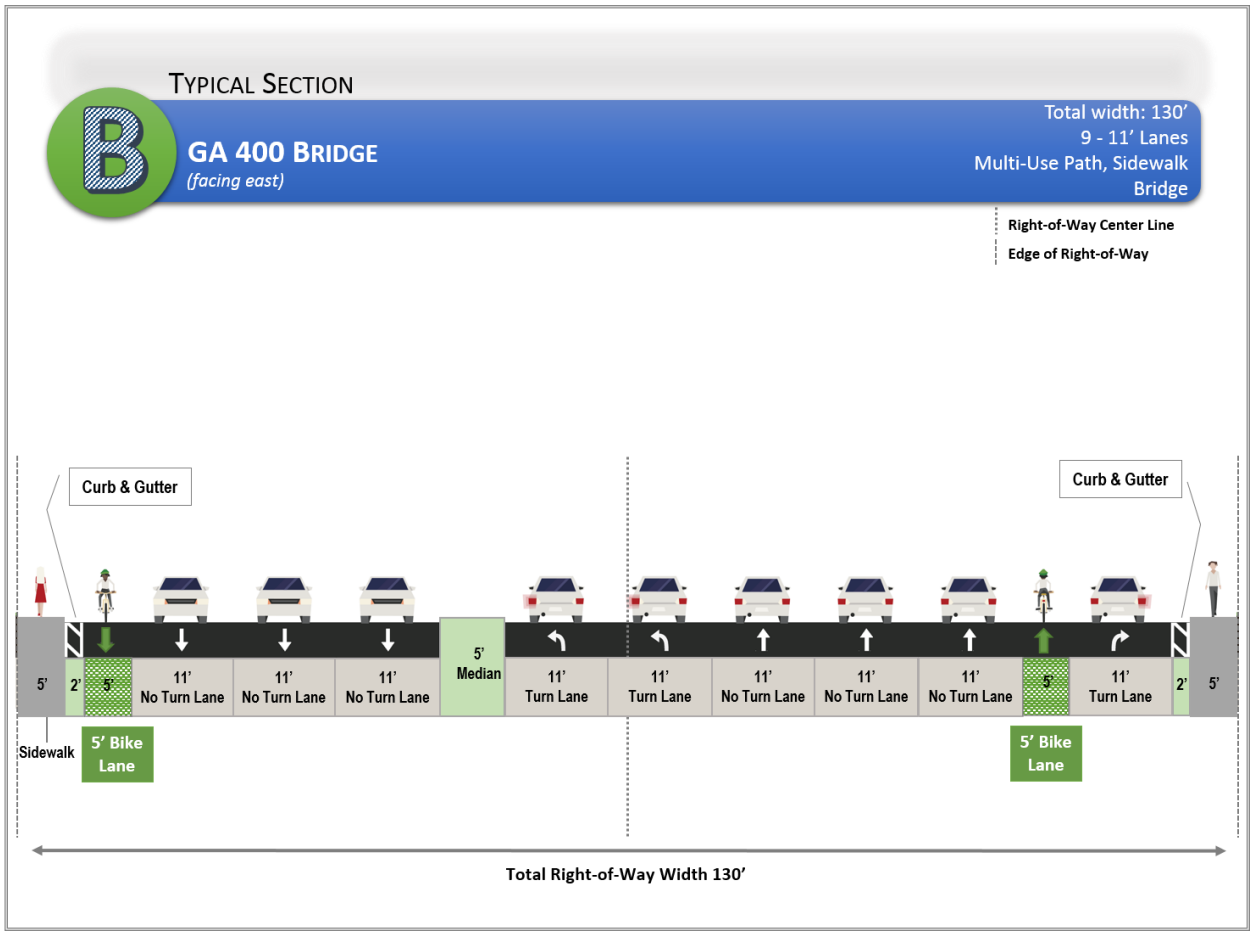

Figure 23. Section B Typical Section

East of GA 400 Bridge to High Street Driveway (Section C)

This section is currently six (6) lanes with turn lanes at the major signalized intersections from GA 400 to Peachtree Dunwoody Road. Currently, at Peachtree Dunwoody Road, the third eastbound lane becomes a dedicated right turn lane to transition to the existing four (4) lane section on the east side of Hammond Drive. In order to minimize right-of-way and reduce pedestrian crossing distances, it is recommended that the eastbound right turn lane be converted to a shared through-right turn lane. On the east side of GA 400, the on-street bike lanes are transitioned back to the one-way cycle tracks on both sides of Hammond Drive.

At the east end of this section is the transition between the Cities of Sandy Springs and Dunwoody. City of Dunwoody policy allows for 10-foot lanes, while in Sandy Springs, the minimum lane width is 11 feet. The High Street Driveway intersection will be the transition between the 11-foot lanes in Sandy Springs and the 10-foot lanes in Dunwoody.

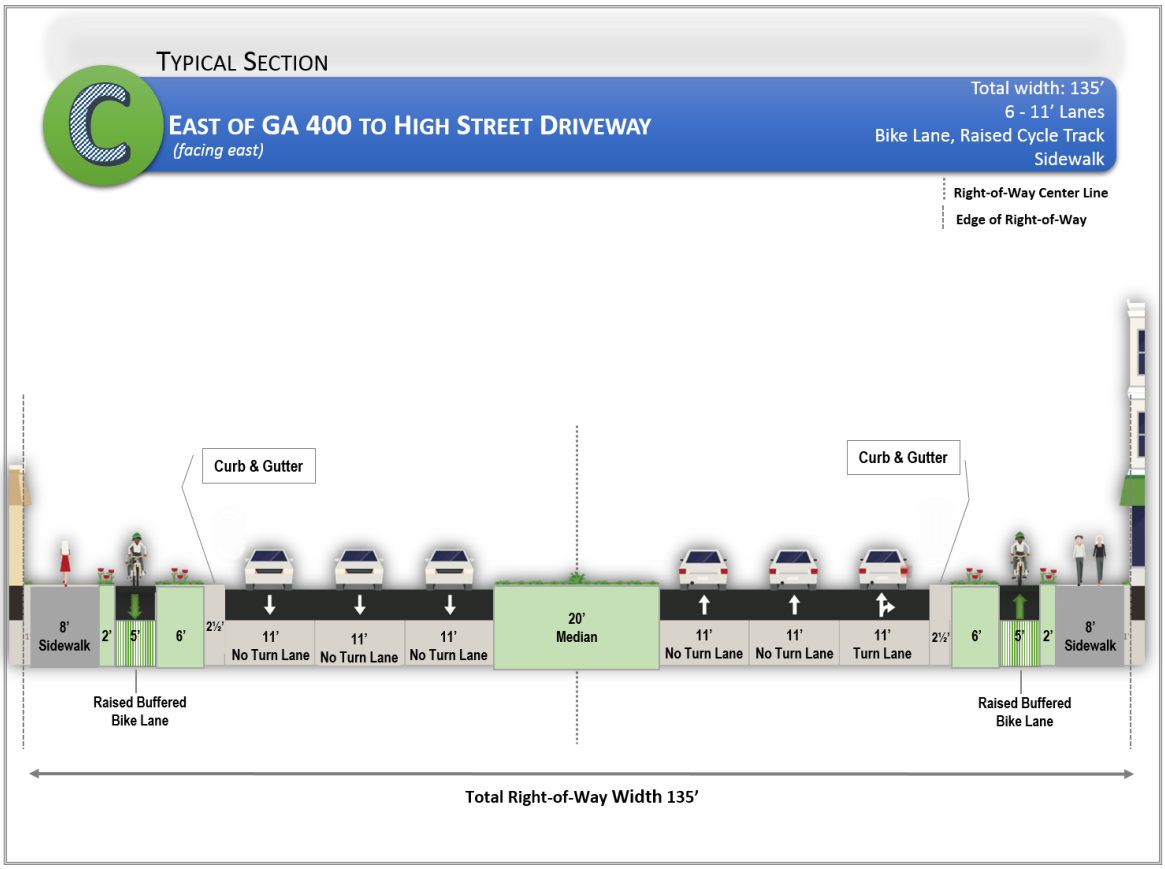

Figure 24. Section C Typical Section

High Street Driveway to Ashford Dunwoody Road (Section D)

City of Dunwoody policy allows for lane widths of 10 feet. These 10-foot lanes are recommended in this section due to limited right-of-way in the vicinity of the Dunwoody MARTA Station and Perimeter Mall. Figure 25 shows the typical section for Section D. Additional right-of-way beyond 129 feet may be required at intersections and major driveways to accommodate additional turn lanes. In locations where this is not available, the buffer area between the cycle track and the roadway should be reduced to accommodate the additional turn lanes. Eight (8) foot sidewalks are recommended due to relatively heavy pedestrian flows, given the proximity to the Dunwoody MARTA Station.

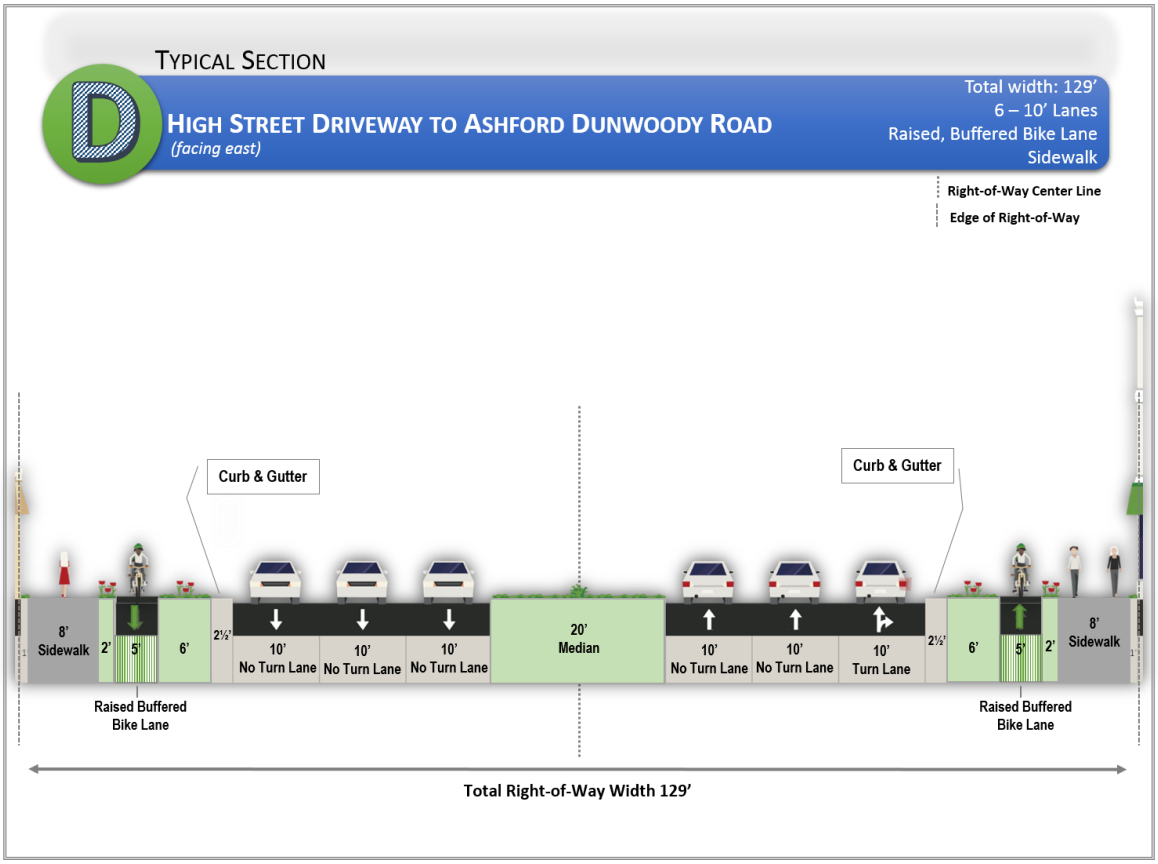

Figure 25. Section D Typical Section

A detailed concept plan has been developed for the Hammond Drive Corridor. Appendix B contains a copy of the detailed concept plan.

PUBLIC INVOLVEMENT SUMMARY

From the outset of the planning process, the City of Sandy Springs, City of Dunwoody, and PCIDs have demonstrated a strong commitment to public and community stakeholder outreach and engagement. This section summarizes the key players and results of the community engagement activities as part of the Hammond Drive Corridor Study.

STEERING COMMITTEE MEETINGS

The Steering Committee was comprised of staff from the City of Dunwoody, City of Sandy Springs, and PCIDs. The steering committee represented the respective cities and business community in the Perimeter area. A total of seven (7) steering committee meetings were held between May and December 2015. Table 11 shows the details of these meetings and the major items discussed.

Table 14. Steering Committee Meetings

	Meeting Date	Items for Discussion
1.	May 29, 2015	Project Kick-Off Meeting
2.	July 13, 2015	• Discussed project traffic issues • Reviewed data and GIS needs • Discussed goals for the project
3.	July 30, 2015	• Reviewed Public Involvement Plan • Reviewed GIS Data • Traffic Study Assumptions • Results of Preliminary Traffic Analysis • Discussed Pedestrian/Bicycle issues
4.	September 24, 2015	• Reviewed traffic assumptions • Reviewed updated pedestrian and bicycle demand "heat" map • Reviewed typical sections • Reviewed layout with bike lanes alternative

Meeting Date		Items for Discussion
5.	October 21, 2015	• Discussed design options and use of colored/textured pavement • Reviewed typical section for bridge over SR 400 • Discussed future public meetings
6.	November 23, 2015	• Reviewed typical sections • Discussed options for cycle track • Discussed future stakeholder meetings
7.	December 7, 2015	Review and approval of draft concept

PROPERTY OWNER MEETINGS

In February 2016, the project team met with major property owners along the corridor to discuss concerns and opportunities to improve the study corridor. These property owners include:

- Perimeter Mall
- Rooms to Go
- KDC (State Farm Developer)
- GID (High Street Developer)
- Kimco Realty

CITY COUNCIL PRESENTATIONS

In March 2017, the project team presented the results of the Hammond Drive Corridor Study to the Sandy Springs City Council. The project team gave a brief overview of the of the study and explained the results of the analyses conducted, including existing and future roadway LOS and employee-commuter desire paths. The project team then presented five typical cross-sections for (a) Glenridge Drive to Barfield Road, (b) Barfield Road to Concourse Parkway, (c) Concourse Parkway to Peachtree Dunwoody Road, and (d) Peachtree Dunwoody Road to Perimeter Center Parkway, and (e) Perimeter Center Parkway to Ashford Dunwoody Road. The project team explained that the project concept would be refined following comments received from the upcoming public information open house.

PUBLIC INFORMATION OPEN HOUSE

A Public Information Open House (PIOH) was held for the Hammond Drive Corridor Study on April 21, 2016 at the City of Dunwoody City Hall, in the Council Chambers. The open house began at 6:00 PM and concluded at 8:00 PM. The purpose of the open house was to get input from stakeholders about the potential future design of the Hammond Drive corridor from Glenridge Drive in the City of Sandy Springs to Ashford Dunwoody Road in the City of Dunwoody.

Area residents, businesses, property owners, and stakeholders were informed of the open house through email, direct mail to owners of property along the corridor or their agents, and through notification on the City websites, in local media publications, and through social media, as well. It was announced in the Atlanta Journal Constitution and the Dunwoody Reporter among other publications. Local groups also helped to spread the word to their neighbors, friends, and family.

More than 30 residents, business owners, and other stakeholders attended. The open house was also attended by representatives of the project team, including staff from the City of Dunwoody, the City of Sandy Springs, Perimeter Community Improvement Districts (PCIDs), and the consultant working on the project, Gresham, Smith and Partners.

STAKEHOLDER INPUT

Overall, attendees indicated support for the proposed designs for the corridor and the typical cross-sections. They expressed support for a generally more and/or better accommodations for cyclists and people walking, and there was general support for the multi-use trail components of the design. Some indicated that there is still room for improvement in terms of bicycle facilities.

Figure 26. A member of the project team discusses one segment of the corridor with attendees.

Some people expressed concern about the ability of cyclists to cross streets from the planned bike lanes and the transitions between the various typical cross-sections at each intersection along Hammond Drive. In particular, there are concerns about the proposed design requiring cyclists to cross from one side of Hammond Drive to the other. Some participants indicated a preference for combined, multi-use trails rather than separated paths in order to provide more turn lanes (in some areas) and landscaping, while others indicated that pedestrians and cyclists should be kept separate as much as possible. One attendee was concerned about the amount of parking that would be reduced in the eastern end of the corridor near Ashford Dunwoody Road.

Some comments also acknowledge that there is a need to better integrate bicycle facilities into the roads that lead into Hammond Drive in order to create a truly safer and more cohesive network. It was suggested that consideration should be given to a long-term, comprehensive plan for community improvements such as these.

LOCATION-SPECIFIC COMMENTS

It should be noted that at the time of the PIOH, the Hammond Drive corridor was divided into five sections. Following the PIOH, as design of the corridor proceeded, the decision was made to consolidate these into four (4) sections. The location-specific comments summarized below are based on the original five-section delineation of the study corridor.

Section A: Glenridge Drive to Barfield Road

Concern was expressed about the possibility that the proposed raised median could cause traffic congestion because it might block the westbound turn lane. It was noted that the majority of

westbound traffic turns south onto Glenridge and that additional consideration should be given to maintaining or better accommodating those movements. Similarly, it was noted that two turn lanes on eastbound Hammond Drive will facilitate better access to the Northside Hospital area (a.k.a. "Pill Hill"). Some participants also expressed concern about losing older growth trees in the area.

Support was also expressed for the design in this area, noting that it will be important to provide a sufficient buffer or barrier between vehicles and sidewalk and between vehicles and the proposed cycle track.

Section B: Barfield Road to Concourse Parkway

Figure 27. Attendees discuss the western segments of the corridor (in the City of Sandy Springs) with a member of the project team.

Some participants expressed support for the proposed design in this segment of the corridor, citing support for alleviating congestion and separating cars from sidewalk.

Other participants expressed concern about the combined area for pedestrians and cyclists. There was also some concern about cyclists having to travel back-and-forth across Hammond Drive to travel such a short distance. It was mentioned that this could inadvertently cause cyclists to ride in the road rather than have to deal with crossing back and forth, negating the benefits of the separated trail. It was suggested that more room could be provided by using proposed median space or narrower lanes to include either a continued cycle track or in-road bike lane.

It was suggested that consideration should be given to how the I-285/GA 400 project will affect Hammond Drive and the proposed improvements, particularly with the planned collector/distributor lane system.

Section C: Concourse Parkway to Peachtree Dunwoody Road

Reactions to this segment of the corridor were mixed. Support was expressed for how the proposed design will separate bikes from pedestrians and likely alleviate traffic congestion. Concerns were voiced over the way the trail on the north side of Hammond Drive ends at GA 400 and how people would safely cross to the other side in that area. It was also suggested that consideration should be given to having only one multi-use path that could provide better connectivity and opportunity for landscaping.

Section D: Peachtree Dunwoody Road to Perimeter Center Parkway

Support was generally expressed for this area; however, there were some concerns about how bicyclists using the bike lane on the north side would cross over to the cycle track in the Concourse Parkway section of the corridor. Similar comments were expressed for that segment. Other people indicated that they would prefer a multi-use trail or path and that changes to driveways or building entrances along this segment will help with traffic flow.

Section E: Perimeter Center Parkway to Ashford Dunwoody Road

Similar to comments made about previous segments, support was expressed for this segment of the corridor, although there were also concerns. It was noted that along with improvements to other corridors, the improvements proposed in this area would likely help through-traffic at all times of day.

Figure 28. Attendees review the easternmost segment of the corridor, from Perimeter Center Parkway to Ashford Dunwoody Road.

There were concerns about bicyclists, runners, and walkers having to change sides of the road in order to stay on the paths or trails. It was suggested that, as an example, the project team could examine the section of Mount Vernon Road eastbound where it merges with Ashford Dunwoody Road. In this area, cyclists arrive at the intersection and have nowhere to go, and may find themselves suddenly between two lanes of vehicles. It

was also suggested that a multi-use path would better serve this area than the separated paths, bike lanes, and sidewalks.

Another participant was concerned about the 10-foot travel lanes, citing the amount of truck traffic in this section of Hammond Drive. It was suggested that slightly wider lanes could be offset by reducing the 20-foot center median, the 8-foot sidewalk, or the 6-foot landscaped buffer to accommodate wider vehicles. There were also strong concerns about the amount of parking that would potentially be reduced on Hammond Drive at the shopping plaza where the Best Buy store is located.

APPENDIX A. CAPACITY ANALYSIS WORKSHEETS

(TO BE PROVIDED IN FINAL REPORT)

APPENDIX B. DETAILED CONCEPT PLAN