TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

This report presents the analyses of the anticipated traffic impacts associated with the proposed Hapeville Ford Plan Redevelopment, a 122-acre mixed-use development bounded by I-75 to the east, Henry Ford II Avenue to the north, and Airport Loop Road to the south and west. Hartsfield-Jackson Atlanta International Airport is located directly to the south and west of the site, across from Airport Loop Road. The proposed development is located within three jurisdictions: The City of Hapeville, the City of Atlanta, and unincorporated Clayton County. The majority of the site is located within the City of Hapeville. Because the project will include more than 400,000 square feet (SF) of mixed-use floor area, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review. This document is being submitted under GRTA's non-expedited review process.

The proposed development plan consists of 500,000 SF of data center, 2,274,800 SF of hotel space with a convention/conference center, 2,081,400 SF of office space, and 1,662,000 SF of retail space. A 4,000 space off-airport parking lot is also proposed to be located on the southern portion of the site. The development will replace the existing 2.8 million SF Ford automobile manufacturing plant, which ceased operation in 2006. The development is scheduled to be completed in a several phases, by the year 2020. Since development phasing is not known at this time, this review will report on the development as one phase.

The results of the detailed intersection analysis of the 25 study intersections for the 2020 No-Build (includes 2.5% per year background traffic growth from 2008 to 2011, 2% per year from 2012 to 2020, plus project trips from the Olde Towne Hapeville DRI #1108; however excludes trips generated by the Hapeville Ford Plant Redevelopment) and 2020 Build conditions (includes background traffic plus trips generated by the Hapeville Ford Plant Redevelopment) identify improvements that will be necessary in order to maintain the Level of Service standard (LOS D) within the study network. These improvements are listed by intersection below:

2020 No-Build recommended improvements (includes background growth but does not include the Hapeville Ford Plant Redevelopment DRI project traffic):

#2 – Loop Road @ Toffie Terrace

- Restripe the northbound lanes from one left-turn, one shared left-turn/through, and one shared through/right-turn lane to one exclusive left-turn, one exclusive through, and one shared through/right-turn lane.[1]

#6 – North Central Avenue @ Virginia Avenue

- Signalize and interconnect with intersection #7.
- Restripe the northbound approach from one lane to one exclusive left-turn and one shared through/right-turn lane.

#8 – North Central Avenue @ US Highway 41

- Signalize and interconnect with intersection #9.
- Restripe the northbound approach from one lane to one exclusive left-turn and one shared through/right-turn lane.

#9 – South Central Avenue @ US Highway 41

- Signalize and interconnect with intersection #8.
- Restripe the southbound approach from one lane to one exclusive left-turn and one exclusive right-turn lane.

#11 – Henry Ford II Avenue @ Perkins Street

- Signalize and interconnect with the intersection of North Central Avenue @ Perkins Street.
- Restripe the southbound approach from one lane to one exclusive left-turn and one shared through/right-turn lane.
- Signalize and interconnect the adjacent intersection of North Central Avenue @ Perkins Street with intersection #11.

#13 – Henry Ford II Avenue @ I-75 SB Ramps

- Reactivate the existing signal.

#21 – Charles W Grant Parkway @ US Highway 19/41

- Construct an additional northbound and southbound through lane.[2]

2020 No-Build Improvements Notes:

[1] While this improvement is not required to bring the level of service to an appropriate standard, it improves driver expectancy issues that may arise from the confusing pavement marking.

[2] GDOT project #0001817, programmed for 2011, includes grade separation for intersections #20 and #21 and realigning Charles W Grant Parkway with Conley Road. While a grade separation scenario was not modeled, it is likely that grade separation will eliminate the need for the recommended improvement. Since the grade separation project is already programmed, it is recommended that it be the chosen mitigation.

2020 Build recommended improvements (includes the Hapeville Ford Plant Redevelopment DRI project traffic):

#2 – Loop Road @ Toffie Terrace

- Construct an additional westbound through lane.

#5 – Airport Loop Road @ Atlanta Avenue

- Construct an exclusive southbound right-turn lane.

#8 – North Central Avenue @ US Highway 41

- Construct an additional exclusive eastbound left-turn lane.

#9 – South Central Avenue @ US Highway 41

- Construct an additional westbound through lane (to continue to Virginia Avenue).
- Construct an additional eastbound through lane.[1]

#11 – Henry Ford II Avenue @ Perkins Street

- Construct an additional westbound through lane (this lane will extend west to become the existing exclusive left-turn lane at Atlanta Avenue).

#12 – South Central Avenue @ Connector Road

- Signalize and restripe the southbound approach from one lane to one exclusive left-turn and one exclusive right-turn lane.
- Signalize and interconnect the adjacent intersection of North Central Avenue @ Connector Road.

#15 – Airport Loop Road @ Leslie Drive

- Install a traffic signal.
- Reconstruct the intersection to consist of the following:
    - Northbound – Two through lanes and an exclusive right-turn lane
    - Southbound – Two exclusive left-turn lanes and two through lanes
    - Westbound – Two exclusive left-turn lanes and an exclusive right-turn lane

#16 – Airport Loop Road @ Aviation Boulevard

- Channelize the exclusive westbound right-turn lane to allow for a shared through/right-turn lane (yield) and an exclusive right-turn lane (free-flow).
- Construct an additional exclusive southbound left-turn lane (creating triple lefts).[2]
- Reconstruct the exclusive northbound right-turn raised median (reduce in size) to allow three eastbound receiving lanes.[3]

#19 – Charles W Grant Parkway @ International Parkway/I-75 northbound on ramp

- Stripe an exclusive westbound left-turn lane and provide a westbound permitted/protected signal phase.

#20 – Charles W Grant Parkway @ Old Dixie Highway

- Construct an additional westbound through lane.[4]

#21 – Charles W Grant Parkway @ US Highway 19/41

- Construct an exclusive southbound right-turn lane.[5A]
- Construct an additional exclusive northbound left-turn lane (creating dual lefts).[5B]
- Construct an additional eastbound shared left-turn/right-turn lane.[5C]

Site Driveway #1 @ Henry Ford II Avenue (left-in/right-in/right-out)

- Northbound
  - One exclusive right-turn lane
- Eastbound
  - Two exclusive through lanes
  - One exclusive right-turn lane
- Westbound
  - One exclusive left-turn lane
  - Two exclusive through lanes

Site Driveway #2 @ Henry Ford II Avenue (full-movement, signalized)

- Northbound
  - One exclusive left-turn lane
  - One exclusive right-turn lane
- Eastbound
  - Two exclusive through lanes
  - One exclusive right-turn lane
- Westbound
  - One exclusive left-turn lane
  - Two exclusive through lanes

Site Driveway #3 @ Henry Ford II Avenue (left-in/right-in/right-out)

- Northbound
  - One exclusive right-turn lane
- Eastbound
  - Two exclusive through lanes
  - One exclusive right-turn lane
- Westbound
  - One exclusive left-turn lane
  - Two exclusive through lanes

Site Driveway #4 @ Henry Ford II Avenue (full-movement, signalized)

- Northbound
  - Two exclusive left-turn lanes
  - One exclusive right-turn lane
- Eastbound
  - Two exclusive through lanes
  - One exclusive right-turn lane
- Westbound
  - Two exclusive left-turn lanes
  - Two exclusive through lanes

Site Driveway #5 @ Henry Ford II Avenue (full-movement, signalized)

- Southbound
  - Two exclusive left-turn lanes
  - One exclusive right-turn lane
- Eastbound
  - One exclusive left-turn lane
  - Two exclusive through lanes
- Westbound
  - Three exclusive through lanes (third lane to drop at Atlanta Avenue)[6]
  - One exclusive right-turn lane

2020 Build Improvements Notes:

[1] This improvement may have right-of-way/obstruction constraints that make it difficult to achieve.

[2] This improvement is directly linked to the improvements made to the area as part of GDOT project #0007271. Upon completion of the portion of the project that serves the new international terminal and Airport Loop Road, triple left-turns will most likely not be needed to meet an acceptable level of service.

[3] This improvement is contingent on construction of [2] above.

[4, 5A, 5B, 5C 2] GDOT project #0001817, programmed for 2011, includes grade separation for intersections #20 and #21 and realigning Charles W Grant Parkway with Conley Road. While a grade separation scenario was not modeled, it is likely that grade separation will eliminate the need for the recommended improvement. Since the grade separation project is already programmed, it is recommended that it be the chosen mitigation.

[6] This improvement includes widening Airport Loop Road by one lane. If an additional curb-cut can be provided along Airport Loop Road, this main-line widening will not be needed to achieve an acceptable level of service.

1.0 PROJECT DESCRIPTION

1.1 Introduction

This report presents the analyses of the anticipated traffic impacts associated with the proposed Hapeville Ford Plan Redevelopment, a 122-acre mixed-use development bounded by I-75 to the east, Henry Ford II Avenue to the north, and Airport Loop Road to the south and west. Hartsfield-Jackson Atlanta International Airport is located directly to the south and west of the site, across from Airport Loop Road. The proposed development is located within three jurisdictions: The City of Hapeville, the City of Atlanta, and unincorporated Clayton County. The majority of the site is located within the City of Hapeville. Because the project will include more than 400,000 square feet (SF) of mixed-use floor area, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review. This document is being submitted under GRTA's non-expedited review process.

The proposed development plan consists of 500,000 SF of data center, 2,274,800 SF of hotel space with a convention/conference center, 2,081,400 SF of office space, and 1,662,000 SF of retail space. A 4,000 space off-airport parking lot is also proposed to be located on the southern portion of the site. The development will replace the existing 2.8 million SF Ford automobile manufacturing plant, which ceased operation in 2006. The development is scheduled to be completed in a several phases, by the year 2020. Since development phasing is not known at this time, this review will report on the development as one phase.

A detailed summary of the proposed land-uses and densities can be found below in **Table 1.**

Table 1
Proposed Land Uses

Data Center	500,000 SF
Hotel/Conference Center	2,274,800 SF
Hotel	1,440 Rooms (900 SF per room)
Conference/Convention Center	980,000 SF
Office	2,081,400 SF
Retail	1,662,000 SF
Off-Airport Parking	4,000 Spaces

Figure 1 and **Figure 2** provide a location map and an aerial photograph of the site.

1.2 Site Plan Review

The development will generally consist of low, mid, and high-rise buildings with first-floor street-level retail located in many of the buildings on the northern part of the site. Given the development's proximity to Hartsfield-Jackson Atlanta International Airport, Federal Aviation Administration height restrictions exist for most of the site. These restrictions are lowest in elevation along the southern portion of the site, where off-airport parking will be located. The proposed site is surrounded by I-75 on the east, South Central Avenue/Henry Ford II Avenue on the north, and Airport Loop Road on the south and west sides. Five site driveways and an improved connection at Leslie Drive and Airport Loop Road are proposed to provide access to the site. These proposed site driveway locations are provided in *Section 1.3 Site Access*. All loading activities are anticipated to occur internal to the site.

Sidewalks will be provided along Henry Ford II Avenue and along all internal site roadways. Bicycle routes or lanes will also be provided as appropriate, and will be coordinated with the City of Hapeville's bike path network.

The pedestrian and bicycle network internal to the site will also be extended west in locations where connections are made to Elm Street.

Figure 3 provides a small-scale copy of the site plan. A full-size site plan consistent with GRTA's Site Plan Guidelines is also being submitted as part of the Review Package.

1.3 Site Access

Existing Access –

Vehicular access to the existing Ford automobile manufacturing plant (vacant) is provided by three unsignalized full-movement driveways along Henry Ford II Avenue and by a direct connection to Leslie Drive. While the Ford plant was in operation, its primary driveway was the easternmost driveway along Henry Ford II Avenue, located approximately 630 feet west of the Interstate 75 southbound on-off ramps. The proposed development will eliminate all of the existing driveways (with the exception of this eastern-most driveway along Henry Ford II Avenue).

Although rail has ceased serving the site, two rail spurs branch off of the Norfolk Southern rail road that travels between North Central Avenue and South Central/Henry Ford II Avenue north of the site. One spur splits from the main Norfolk Southern line just east of South Street (along the western part of the site) and travels south into the site. The second spur splits from the main Norfolk Southern line just east of Elm Street further west, and travels south into the site. It is anticipated that these rail lines will be permanently abandoned.

Proposed Access –

Main internal circulation for the site will be achieved by a new road that travels from Site Driveway #5 on the west, to the Leslie Drive to the south. This road will connect each of the site driveways along Henry Ford II Avenue. Site Driveway #5 will be extended north to connect with the existing Elm Street. Additionally, an east/west connection is proposed to connect to Elm Street to the west; however, if and how this connection is made will be dependent on negotiations with adjacent property owners. See the referenced conceptual plan for a visual representation of access to the proposed development.

The site is proposed to have vehicular access at four driveways along Henry Ford II Avenue, one driveway along Airport Loop Road, and direct access onto Leslie Drive. Proposed Site Driveways #1 through #4 will be located along Henry Ford II Avenue and Site Driveway #5 (southern extension of Elm Street) will be located along Airport Loop Road. Their proposed location and operation[1] are as follows:

Site Driveway #1 – Left-in/right-in/right-out driveway, located approximately 200 feet east of Connector Road and 350 feet west of Site Driveway #2.

Site Driveway #2 – Full-movement signalized driveway, located approximately 350 feet east of Site Driveway #1 and 600 feet west of Site Driveway #3.

Site Driveway #3 – Left-in/right-in/right-out driveway, located approximately 600 feet east of Site Driveway #2 and 315 feet west of Site Driveway #4.

Site Driveway #4 – Full-movement signalized driveway, located approximately 315 feet east of Site Driveway #3 and 630 feet west of the Interstate 75 southbound on/off ramps. This driveway is at the same location as the existing main access point for the Ford plant.

Site Driveway #5 – Full-movement signalized driveway, located approximately 700 feet east of Union Avenue. This driveway is proposed to connect to Elm Street which travels north to Henry Ford II Avenue.

Site Access is also proposed to be provided via Leslie Drive which is located along Airport Loop Road, approximately 1,600 feet north of Aviation Boulevard.
All site driveways are anticipated to be internally connected and to permit access to any use within the site.

An additional east/west connection along the western portion of the site plan is desired; however, if, how, and where this occurs will be dependent on negotiations with adjacent property owners at a future date. See the referenced conceptual plan for a visual representation of access to the proposed development.

[1] Site Driveways #1 and #3 were modeled as right-in/right-out operation only. Left-turns into these driveways were added to the signalized Site Driveways #2 and #4. This was done in order to provide a conservative modeling approach to the driveways along Henry Ford II Avenue. Left-in maneuvers at the unsignalized intersections of #1 and #3 are desired because of their ability to provide congestion relief to the signalize driveways while also providing less delay for left-turning vehicles, especially during off-peak travel periods.

1.4 Bicycle and Pedestrian Facilities

A continuous sidewalk network is generally lacking in the immediate vicinity of the proposed development. Additionally, no roadway facilities currently provide bicycle lanes. The proposed development will include sidewalks throughout, provide continuous sidewalks along its frontage along Henry Ford II Avenue, and connect to existing sidewalk networks adjacent to the site.

1.5 Transit Facilities

The proposed development is located along South Central Avenue/Henry Ford II Avenue, which is also adjacent to North Central Avenue. Currently, two MARTA bus routes (72 and 95) provide service on these streets, with the nearest bus stop located along North Central Avenue at Connector Road. Route 72 connects the site to Tradeport Boulevard to the east and the MARTA College Park rail station to the west. Route 95 connects the site to the north and west to the West End MARTA rail station. During weekday peak hours, Route 72 operates on scheduled approximate 30-minute headways while Route 95 operates on scheduled 15-minute headways.

Clayton County's C-Tran provides service along Airport Loop Road in the vicinity of the proposed development. Bus Route 500 operates on scheduled 15-minute headways during weekday peak hours while Route 501 operates on scheduled one-hour headways during weekday peak hours. No C-Tran bus stops are currently located immediately adjacent to the proposed project.

2.0 TRAFFIC ANALYSES METHODOLOGY AND ASSUMPTIONS

2.1 Growth Rate

Background traffic is defined as expected traffic on the roadway network in future year(s) absent the construction and opening of the proposed project. Historical traffic count data from the Georgia DOT was reviewed for the area surrounding the proposed development, and growth rates along all roadways were agreed upon during the methodology meeting with GRTA, ARC, City of Hapeville, and GDOT staff. A 2.5% per year background traffic growth rate was used for all roadways within the study network from 2008 to 2011. This growth rate was lowered to 2% per year from 2012 to full project build out (2020). Trips associated with the previously approved Olde Towne Hapeville DRI #1108 were also included as background traffic. These background grown rates are consistent with GRTA's Letter of Understanding.

2.2 Traffic Data Collection

2008 weekday peak hour turning movement counts were conducted at seven (7) unsignalized and 18 signalized intersections between 7:00-9:00 AM and 4:00-6:00 PM. Additionally, Saturday midday peak hour turning movement counts were conducted at the same intersections between 11:00 AM and 1:00 PM. The weekday morning and afternoon, as well as Saturday midday peak hours varied between the 25 intersections. The AM, PM, and Saturday midday peak hours are provided in **Table 2**.

Table 2
Peak Hour Summary

	Intersection	AM Peak	PM Peak	SAT MD Peak
1	Central Avenue @ Irene Kidd Parkway	7:45-8:45	4:00-5:00	4:00-5:00
2	Airport Loop Road/Perry J Hudson Parkway @ Toffie Terrace	7:30-8:30	4:30-5:30	12:00-1:00
3	Airport Loop Road/Perry J Hudson Parkway @ Hartsfield Drive	7:30-8:30	5:00-6:00	12:00-1:00
4	Airport Loop Road/Perry J Hudson Parkway @ Delta Boulevard	7:30-8:30	5:00-6:00	12:00-1:00
5	Airport Loop Road/Perry J Hudson Parkway @ Atlanta Avenue	7:15-8:15	4:30-5:30	12:00-1:00
6	North Central Avenue @ Virginia Avenue	7:15-8:15	4:45-5:45	11:30-12:30
7	South Central Avenue @ Virginia Avenue	7:15-8:15	4:30-5:30	11:15-12:15
8	North Central Avenue @ US Highway 41	7:00-8:00	4:30-5:30	11:15-12:15
9	South Central Avenue @ US Highway 41	7:30-8:30	4:15-5:15	11:00-12:00
10	South Central Avenue @ Atlanta Avenue	7:15-8:15	4:15-5:15	11:00-12:00
11	Henry Ford II Avenue @ Perkins Street	7:15-8:15	4:30-5:30	11:00-12:00
12	Henry Ford II Avenue @ Connector Road	7:15-8:15	4:15-5:15	11:00-12:00
13	Henry Ford II Avenue @ I-75 SB On/Off Ramps	7:00-8:00	4:30-5:30	11:00-12:00
14	Henry Ford II Avenue @ I-75 NB On/Off Ramps	7:00-8:00	4:30-5:30	12:00-1:00
15	Airport Loop Road/Perry J Hudson Parkway @ Leslie Drive	7:30-8:30	5:00-6:00	11:00-12:00
16	Aviation Boulevard @ Airport Loop Road/Perry J Hudson Parkway	7:00-8:00	5:00-6:00	11:45-12:45
17	Aviation Boulevard/Charles W Grant Parkway @ I-75 SB On/Off Ramps	7:15-8:15	4:15-5:15	12:00-1:00
18	Aviation Boulevard/Charles W Grant Parkway @ I-75 NB/SB On/Off HOV Ramps	7:30-8:30	4:30-5:30	12:00-1:00
19	Aviation Boulevard/Charles W Grant Parkway @ International Parkway/I-75 NB On/Off Ramps	7:30-8:30	4:30-5:30	11:45-12:45
20	Aviation Boulevard/Charles W Grant Parkway @ Old Dixie Highway	7:30-8:30	4:45-5:45	12:00-1:00
21	Aviation Boulevard/Charles W Grant Parkway @ US Highway 19/41	7:15-8:15	4:30-5:30	12:00-1:00
22	US Highway 19/41 @ Conley Road	7:00-8:00	4:45-5:45	11:45-12:45
23	US Highway 19/41 @ I-285 EB Ramps	7:30-8:30	4:30-5:30	12:00-1:00
24	US Highway 19/41 @ I-285 WB Ramps	7:30-8:30	4:30-5:30	12:00-1:00
25	Jonesboro Road (SR 54) @ Conley Road	7:15-8:15	4:15-5:15	12:00-1:00

These study intersections are listed in *Section 3.4 Study Network Determination*. All raw count data is included in the Appendix.

2.3 Detailed Intersection Analysis

Level of Service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. **Table 3** illustrates LOS thresholds for unsignalized and signalized intersections. Level of service analyses were conducted at all intersections within the study network using *Synchro Professional, Version 6.0*.

Table 3
Level of Service Criteria
Unsignalized and Signalized Intersections

Unsignalized Intersections		Signalized Intersections	
Level-of-Service	**Average Control Delay (sec/veh)**	**Level-of-Service**	**Average Control Delay (sec/veh)**
A	≤ 10	A	≤ 10.0
B	> 10 and ≤ 15	B	> 10.0 and ≤ 20.0
C	> 15 and ≤ 25	C	> 20.0 and ≤ 35.0
D	> 25 and ≤ 35	D	> 35.0 and ≤ 55.0
E	> 35 and ≤ 50	E	> 55.0 and ≤ 80.0
F	> 50	F	> 80.0

Source: 2000 Highway Capacity Manual

Level of Service for signalized intersections is reported for the intersection as a whole. One or more movements at an intersection may experience a low LOS, while the intersection as a whole may operate at the LOS standard.

Level of Service for unsignalized intersections, with stop control on the minor street only, is reported for the side street approach. Low Levels of service for side street approaches are not uncommon, as vehicles may experience delay in turning onto a major roadway.

3.0 STUDY NETWORK

3.1 Gross Trip Generation

As stated in *Section 1.1*, the proposed development plan consists of 500,000 SF of data center, 2,274,800 SF of hotel space with a convention/conference center (1,440 hotel rooms with attached 980,000 SF of convention/conference center), 2,081,400 SF of office space, and 1,662,000 SF of retail space. A 4,000 space off-airport parking lot is also proposed to be located on the southern portion of the site. The development will replace the existing 2.8 million SF Ford automobile manufacturing plant, which ceased operation in 2006. Since development phasing is not known at this time, this review reports on a single phase completion by the year 2020.

As discussed and agreed upon with GRTA, ARC, City of Hapeville, and GDOT staff, trip generation for the data center, hotel, and office land uses was calculated using equations contained in the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Seventh Edition, 2003*. Average rates were used only when equations were not provided. It should be noted that some of these land uses have *ITE* trip generation information that is incomplete. Since *ITE* does not provide trip generation rates for convention/conference and off-airport parking land uses, rates were obtained from other sources. Methodology on trip generation rates and assumptions for each of the development's land uses is described below.

Data Center – Trip generation was obtained from on *ITE* land use code 170 (Utilities). Since *ITE* does not state daily rates, daily trip generation was estimated (rule of thumb) to be ten times that of the calculated PM peak hour. Additionally, an AM peak hour rate is provided; however, the in/out split is not. The AM peak hour in/out split was assumed to be the opposite of the PM peak hour split (55% in/45% out). Furthermore, Saturday trip generation and directional splits were based on the ratio of Saturday office trips to PM peak hour trips.

Hotel – *ITE* land use code 310 was used to estimate weekday AM, PM, and Saturday midday peak hour trip generation.

Convention/Conference Center – *ITE* does not provide trip generation rates for this land use. These estimates were made by using a Kimley-Horn and Associates, Inc. traffic study performed at a Convention Center in Broward County, Florida. The daily trips were based on a rate of 18.6 trips / 1000 SF. AM peak hour trips were based on a rate of 0.69 trips / 1000 SF, with 65% of the trips entering and 35% trips exiting during the AM peak hour. PM peak hour and Saturday midday trips were based on a rate of 2.47 trips / 1000 SF, with 8% entering and 92% exiting during the PM peak hour.

Office – *ITE* land use code 710 was used to estimate weekday AM, PM, and Saturday midday peak hour trip generation.

Retail – *ITE* land use code 820 was used to estimate weekday AM, PM, and Saturday midday peak hour trip generation.

Off-Airport Parking – The 4,000 space off-airport parking trips were based on counts performed at Hartsfield-Jackson Atlanta International Airport Park 'n' Ride Lot A. Since shuttle buses and general traffic are separated at Lot A, rates were calculated on a per space basis for both general purpose and shuttle bus activity. Saturday midday peak hour rates were obtained by assuming parking activity is approximately 70 percent of weekday activity (based on discussions with parking lot management).

Gross projected trips generated by the proposed Hapeville Ford Plant Redevelopment are displayed below in **Table 4**.

Table 4
Gross Trip Generation

Land Use	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour		Saturday MD	
		Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2020)									
Data Center (Utilities)	*170*	1,900	1,900	220	180	171	209	37	31
Hotel	*310*	6,258	6,258	681	435	451	399	664	589
Office	*710*	6,907	6,907	1,872	255	410	2,000	233	199
Retail	*820*	21,101	21,101	515	330	1,920	2,081	2,797	2,582
Convention Center	*N/A*	9,114	9,114	439	237	194	2,227	194	2,227
Airport Parking Lot	*N/A*	1,225	1,225	238	27	142	194	148	80
Total		**46,505**	**46,505**	**3,965**	**1,464**	**3,288**	**7,110**	**4,073**	**5,708**

3.2 Trip Distribution

The directional distribution and assignment of new project trips were generated through a combination of engineering judgment, a review of the land uses in the area (aerial mapping), and discussions with GRTA, ARC, GDOT, and City of Hapeville staff.

3.3 Level of Service Standards

For the purposes of this traffic analysis, a level of service standard of D was assumed for all intersections and segments within the study network. If, however, an intersection or segment currently operates at LOS E or LOS F during an existing peak period, the LOS standard for that peak period becomes LOS E, consistent with GRTA's Letter of Understanding.

3.4 Study Network Determination

A general study area was determined using GRTA's 7% rule. This rule recommends that all intersections and segments be analyzed which are impacted to the extent that the traffic from the proposed site is 7% or more of the service volume of the facility (at a previously established LOS standard) be considered for analysis. Given the size of this DRI and the nature of the adjacent roadway facilities, it was decided that the study area consist of fewer intersections than the 7% rule provides. The study area was agreed upon during and following methodology discussions with GRTA, ARC, GDOT, and City of Hapeville staff, and consists of the following intersections:

- Central Avenue @ Irene Kidd Parkway
- Airport Loop Road/Perry J Hudson Parkway @ Toffie Terrace
- Airport Loop Road/Perry J Hudson Parkway @ Hartsfield Drive
- Airport Loop Road/Perry J Hudson Parkway @ Delta Boulevard
- Airport Loop Road/Perry J Hudson Parkway @ Atlanta Avenue
- North Central Avenue @ Virginia Avenue
- South Central Avenue @ Virginia Avenue
- North Central Avenue @ US Highway 41
- South Central Avenue @ US Highway 41
- South Central Avenue @ Atlanta Avenue
- Henry Ford II Avenue @ Perkins Street
- Henry Ford II Avenue @ Connector Road
- Henry Ford II Avenue @ I-75 SB On/Off Ramps
- Henry Ford II Avenue @ I-75 NB On/Off Ramps
- Airport Loop Road/Perry J Hudson Parkway @ Leslie Drive
- Aviation Boulevard @ Airport Loop Road/Perry J Hudson Parkway
- Aviation Boulevard/Charles W Grant Parkway @ I-75 SB On/Off Ramps
- Aviation Boulevard/Charles W Grant Parkway @ I-75 NB/SB HOV Ramps
- Aviation Boulevard/Charles W Grant Parkway @ International Parkway/I-75 NB On/Off Ramps
- Aviation Boulevard/Charles W Grant Parkway @ Old Dixie Highway
- Aviation Boulevard/Charles W Grant Parkway @ US Highway 19/41
- US Highway 19/41 @ Conley Road
- US Highway 19/41 @ I-285 EB Ramp
- US Highway 19/41 @ I-285 WB Ramp
- Jonesboro Road (SR 54) @ Conley Road

Each of the above listed intersections was analyzed for Existing 2008 Conditions, the 2020 No-Build Conditions, and the 2020 Build Conditions. The 2020 No-Build conditions represent the existing traffic volumes grown at 2.5% per year from 2008 to 2011, 2% per year thereafter until full project build-out (2020), and projected project trips from the Olde Towne Hapeville DRI #1108. The 2020 Build conditions add the projected trips associated with the development to the 2020 No-Build conditions.

The additional proposed site access points listed below were only analyzed for 2020 Build Conditions:

- Henry Ford II Avenue @ Proposed Site Driveway #1
- Henry Ford II Avenue @ Proposed Site Driveway #2
- Henry Ford II Avenue @ Proposed Site Driveway #3
- Henry Ford II Avenue @ Proposed Site Driveway #4
- Airport Loop Road/Perry J Hudson Parkway @ Proposed Site Driveway #5

All of the study intersections were analyzed for the weekday AM and PM peak hours, as well as the Saturday midday peak hour.

3.5 Existing Facilities

Interstate 75

- I-75 is a north-south oriented interstate, bordering the eastern side of the project site, that extends towards the City of Atlanta to the north and towards Macon to the south.

Interstate 85

- I-85 is a north-south oriented interstate, located approximately 1 mile to the west of the project site, that extends towards the City of Atlanta to the north and towards Alabama to the south.

Interstate 285

- I-285 is an east-west oriented interstate, located approximately ¾ mile south of the project site, that connects with I-85 to the west and I-20 to the northeast.

Central Avenue

- Central Avenue is an east-west oriented roadway that begins approximately 2 miles northwest of the site at Irene Kidd Parkway and becomes South and North Central Avenue after Sylvan Road. Central Avenue is a 2-lane undivided roadway.

South Central Avenue

- South Central Avenue is an east-west oriented roadway that begins as Central Avenue before Sylvan Road, becomes South Central Avenue, and then becomes Henry Ford II Avenue at Perkins Street, approximately ¼ mile to the west of the site. South Central Avenue is an undivided 2-lane roadway.

North Central Avenue

- North Central Avenue is an east-west oriented roadway that begins as Central Avenue before Sylvan Road, and then becomes North Central Avenue. The roadway runs immediately adjacent to Henry Ford II Avenue, which borders the northern boundary of the site. North Central Avenue is an undivided 2-lane roadway.

Henry Ford II Avenue

- Henry Ford II Avenue is an east-west oriented roadway that begins as South Central Avenue before Perkins Road, becomes Henry Ford II Avenue, and then becomes Old Dixie Highway at Tradeport Boulevard. Henry Ford II Avenue borders the northern boundary of the site, and is an undivided 4-lane roadway.

Airport Loop Road/Perry J. Hudson Parkway

- Airport Loop Road, bordering the southern edge of the proposed development, is a roadway that follows the north and west perimeters of Hartsfield-Jackson International Airport. The roadway begins as Airport Boulevard on the east side of the Airport, becomes Airport Loop Road on the north side, and then ends on the western side of the airport. Airport Loop Road is an undivided 4-lane roadway.

Old Dixie Highway

- Old Dixie Highway is a north-south oriented roadway that begins as Henry Ford II Avenue before Tradeport Boulevard, becomes Old Dixie Highway approximately ¾ miles to the east of the site, then extends to US-41. Old Dixie Highway is an undivided 4-lane roadway.

Jonesboro Road

- Jonesboro Road is a north-south oriented roadway that begins at McDonough Boulevard and continues south towards Jonesboro. In the vicinity of the project, Jonesboro Road is a 4-lane roadway with a left-turn lane which exists about 2.5 miles to the east of the proposed development.

Aviation Boulevard/Charles W Grant Parkway

- Aviation Boulevard is an east-west oriented roadway that runs between Hartsfield-Jackson International Airport and US-41, about ¼ mile south of the proposed development. The roadway also provides access to I-75 HOV lanes. Aviation Boulevard begins as a 6-lane divided roadway at the airport, but narrows to a 4-lane undivided roadway after International Parkway.

Virginia Avenue

- Virginia Avenue is an east-west oriented roadway that begins at Main Street and ends at North Central Avenue, approximately ¾ miles to the west of the project site. In the vicinity of the airport, Virginia Avenue is a 4-lane roadway, with a left-turn lane. At Chestnut Street, the road narrows to a 2-lane undivided roadway.

US Highway 41

- US-41 is a north-south oriented roadway that follows Dogwood Drive, North Central Avenue, and Old Dixie Highway in the vicinity of the project. US Highway 41 is a 4-lane undivided roadway where it crosses I-75. Everywhere else in the vicinity of the project, US Highway 41 is a 2-lane undivided roadway.

Atlanta Avenue

- Atlanta Avenue is a north-south oriented roadway that begins at Airport Loop Road and ends at South Central Avenue, approximately ¼ miles to the west of the project site. Atlanta Avenue is a 2-lane undivided roadway.

Perkins Street

- Perkins Street is a north-south oriented roadway that begins at Chestnut Street and ends at North Central Avenue, approximately ¼ miles to the west of the project site. Perkins Street is a 2-lane undivided roadway.

Leslie Drive

- Leslie Drive is a north-south oriented roadway that begins at Airport Loop Road and extends into the project site. Perkins Street is a 2-lane undivided roadway.

Delta Boulevard

- Delta Boulevard is a north-south oriented roadway that begins at Hartsfield-Jackson International Airport and ends at Virginia Avenue. Delta Boulevard is a 2-lane undivided roadway, located approximately 1 mile to the northeast of the project site.

Hartsfield Drive

- Hartsfield Drive is a north-south oriented roadway that is located approximately 1 mile to the northwest of the proposed development. The roadway begins at Airport Loop Road/Perry J Hudson Parkway and ends at Virginia Avenue, where it becomes an access road to I-85. Hartsfield Drive is a 4-lane undivided roadway.

Toffie Terrace

- Toffie Terrace is a north-south oriented roadway that is located approximately 1 mile to the northwest of the proposed development. The roadway begins at Hartsfield-Jackson International Airport and ends at Virginia Avenue. Toffie Terrace is a 2-lane undivided roadway.

Conley Road

- Conley Road is an east-west oriented roadway that begins at US-41 and ends at Jonesboro Road, approximately 1 mile to the southeast of the proposed development. Conley Road is a 2-lane undivided roadway.

International Parkway

- International Parkway is a north-south oriented roadway that begins at Aviation Boulevard, approximately ½ miles to the southeast of the proposed development, and dead-ends into a FedEx distribution facility. International Parkway is a 2-lane undivided roadway.

Irene Kidd Parkway

- Irene Kidd Parkway is an east-west oriented roadway that begins at Main Street and ends at Harris Street. The roadway intersects with Central Avenue approximately 2 miles northwest of the project site. Irene Kidd Parkway is a 4-lane undivided roadway.

Roadway classification descriptions are provided in **Table 5**.

Table 5
Roadway Classification

Roadway	Road Type	Number of Lanes	Posted Speed Limit (MPH)	GDOT Functional Classification
Interstate 75	Two-Way	10	55	Urban Interstate Principal Arterial
Interstate 85	Two-Way	Varies (8-10)	55	Urban Interstate Principal Arterial
Interstate 285	Two-Way	10	55	Urban Interstate Principal Arterial
Irene Kidd Parkway	Two-Way	4	35	Urban Minor Arterial
Central Avenue	Two-Way	2	25	Urban Collector Street
Airport Loop Road	Two-Way	4	45	Urban Collector Street
Toffie Terrace	Two-Way	Varies (3-4)	40	Urban Local Street
Hartsfield Drive	Two-Way	Varies (3-4)	25	Urban Local Street
Delta Boulevard	Two-Way	4	45	Urban Local Street
Atlanta Avenue	Two-Way	2	20	Urban Local Street
North Central Avenue	Two-Way	2	25	Urban Minor Arterial
South Central Avenue	Two-Way	2	25	Urban Collector Street
Virginia Avenue	Two-Way	2	35	Urban Local Street
US-41	Two-Way	2	35	Urban Minor Arterial
Henry Ford II Avenue	Two-Way	Varies (2-3)	25	Urban Minor Arterial
Perkins Street	Two-Way	2	25	Urban Local Street
Connector Road	Two-Way	2	Not Posted	Urban Local Street
Leslie Drive	Two-Way	2	Not Posted	Urban Local Street
Aviation Boulevard/Charles W Grant Parkway	Two-Way	6	40	Urban Local Street
International Parkway	Two-Way	2	40	Urban Local Street
Old Dixie Highway	Two-Way	4	35	Urban Local Street
US Highway 19/41	Two-Way	2	25	Urban Minor Arterial
Conley Road	Two-Way	2	40	Urban Local Street
Jonesboro Road	Two-Way	4	40	Urban Minor Arterial

4.0 TRIP GENERATION

As stated earlier, trips associated with the proposed development were estimated using the *ITE Trip Generation Manual, Seventh Edition (2003)*, using equations where available, and using the methodologies described in *Section 3.1* for cases in which *ITE* rates were not available.

Mixed-use vehicle trip reductions were taken according to the *ITE Trip Generation Handbook, June 2004*. Total daily internal capture and vehicle trip reduction between all land uses (excluding the off-airport parking) was calculated to be 12.97 percent, whereas total PM peak hour internal capture are expected to be 9.66 percent.

As per the Letter of Understanding, alternative transportation mode (walking, bicycling, and transit) reductions were applied at 5 percent for the office and retail portions of the proposed development and 15 percent for the hotel and convention/conference center portions of the development, as agreed upon during methodology discussions with GRTA, ARC, GDOT, and City of Hapeville staff.

Pass-by vehicle trip reductions were taken for the proposed retail uses at ten percent of the adjacent street traffic (includes cumulative traffic along North Central Avenue, Henry Ford II Avenue, and Airport Loop Road) during daily, PM, and Saturday midday peak hours. This reduction is consistent with GRTA's 10 percent of adjacent street volume rule and is lower than the values recommended in the *ITE Trip Generation Handbook, 2004*.

The total (net) trips generated and analyzed in this report are listed below in **Table 6**.

Table 6
Net Trip Generation

Land Use	Daily Traffic		AM Peak Hour		PM Peak Hour		Saturday MD	
	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2020)								
Gross Trips	**46,505**	**46,505**	**3,965**	**1,464**	**3,288**	**7,110**	**4,073**	**5,708**
Mixed-Use Reductions	*-5,873*	*-5,873*	*-0*	*-0*	*-486*	*-486*	*-486*	*-486*
Alternate Mode Reductions	*-3,287*	*-3,287*	*-299*	*-140*	*-176*	*-567*	*-236*	*-521*
Pass-by Reductions	*-2,600*	*-2,600*	*0*	*0*	*-260*	*-260*	*-66*	*-66*
New Trips	**34,745**	**34,745**	**3,666**	**1,324**	**2,366**	**5,797**	**3,285**	**4,635**

5.0 TRIP DISTRIBUTION AND ASSIGNMENT

New trips were distributed onto the roadway network using the percentages agreed upon during methodology discussions with GRTA, ARC, GDOT, and City of Hapeville staff. The below regional trip distribution per land us was agreed upon:

Data Center/Office:

- To/from the north – 20%
- To/from the south – 40%
- To/from the east – 15%
- To/from the west – 25%

Hotel/Convention Center:

- To/from the north – 25%
- To/from the south – 20%
- To/from the east – 10%
- To/from the west – 45%

Retail:

- To/from the north – 30%
- To/from the south – 15%
- To/from the east – 20%
- To/from the west – 35%

Off-Airport Parking:

- To/from the north – 70% (General Use), 0% (Shuttle)
- To/from the south – 10% (General Use), 80% (Shuttle)
- To/from the east – 5% (General Use), 0% (Shuttle)
- To/from the west – 15% (General Use), 20% (Shuttle)

Figures 4.1 through **8** display the expected trip percentages for the development throughout the roadway study network. These percentages were applied to the new trips expected to be generated by the development (see Table 5, above), and the volumes were assigned to the roadway network. The expected peak hour turning movements generated by the proposed development are shown in **Figures 9.1** through **9.6**.

6.0 TRAFFIC ANALYSIS

6.1 Existing 2008 Traffic

The observed existing peak hour traffic volumes (as well as pedestrian volumes and heavy vehicle factors) were input into *Synchro 6.0*, along with the existing traffic signal cycle lengths, splits, and offsets, and an Existing 2008 Conditions analysis was performed. The results of the level of service analysis are displayed in **Table 7**.

The existing peak hour traffic volumes are shown in **Figures 10.1** through **10.4**.

Table 7
Existing 2008 Intersection Levels of Service
(delay in seconds)

	Intersection	Control	AM Peak Hour	PM Peak Hour	SAT Peak Hour
1	Central Avenue @ Irene Kidd Parkway	Signal	A (6.4)	A (6.1)	A (5.9)
2	Airport Loop Road/Perry J Hudson Parkway @ Toffie Terrace	Signal	C (22.7)	C (23.1)	B (16.5)
3	Airport Loop Road/Perry J Hudson Parkway @ Hartsfield Drive	Signal	B (19.9)	C (22.3)	B (14.0)
4	Airport Loop Road/Perry J Hudson Parkway @ Delta Boulevard	Signal	B (11.1)	B (12.9)	B (10.0)
5	Airport Loop Road/Perry J Hudson Parkway @ Atlanta Avenue	Signal	A (8.0)	B (16.0)	A (8.2)
6	North Central Avenue @ Virginia Avenue	Three-Way Stop Control	SB – A (9.9) EB – B (12.8) WB – B (11.2)	SB – B (11.0) EB – C (16.4) WB – C (16.2)	SB – A (9.1) EB – B (10.2) WB – A (9.2)
7	South Central Avenue @ Virginia Avenue	Signal	A (9.7)	B (11.2)	A (9.1)
8	North Central Avenue @ US Highway 41	Three-Way Stop Control	SB – A (9.7) EB – B (14.1) WB – B (11.7)	SB – B (12.5) EB – C (18.2) WB – B (14.1)	SB – A (9.3) EB – B (13.5) WB – B (10.6)
9	South Central Avenue @ US Highway 41	Two-Way Stop Control	EB – B (14.7) WB – B (14.2)	EB – C (19.0) WB – B (14.8)	EB – B (12.0) WB – B (11.3)
10	South Central Avenue @ Atlanta Avenue	Signal	A (9.2)	A (9.1)	A (7.3)
11	Henry Ford II Avenue @ Perkins Street	Three-Way Stop Control	NB – A (9.8) EB – A (9.8) WB – B (11.8)	NB – B (11.4) EB – B (14.7) WB – B (12.0)	NB – A (8.6) EB – A (8.2) WB – A (8.3)

Table 7
Existing 2008 Intersection Levels of Service
(delay in seconds)

	Intersection	Control	AM Peak Hour	PM Peak Hour	SAT Peak Hour
12	Henry Ford II Avenue @ Connector Road	Three-Way Stop Control	EB – B (12.7) WB – B (13.6)	EB – B (14.3) WB – B (11.2)	EB – B (11.1) WB – B (10.9)
13	Henry Ford II Avenue @ I-75 SB On/Off Ramps	Side Street Stop Control	NB – A (10.0)	NB – C (18.2)	NB – A (9.1)
14	Henry Ford II Avenue @ I-75 NB On/Off Ramps	Signal	A (8.3)	A (5.6)	A (5.9)
15	Airport Loop Road/Perry J Hudson Parkway @ Leslie Drive	Side Street Stop Control	WB – A (0.0)	WB – A (0.0)	WB – A (9.1)
16	Aviation Boulevard @ Airport Loop Road/Perry J Hudson Parkway	Signal	F (112.3)	D (37.9)	C (34.6)
17	Aviation Boulevard/Charles W Grant Parkway @ I-75 SB On/Off Ramps	Signal	B (12.0)	B (18.7)	B (10.3)
18	Aviation Boulevard/Charles W Grant Parkway @ I-75 NB/SB On/Off HOV Ramps	Signal	B (14.9)	B (10.3)	B (10.6)
19	Aviation Boulevard/Charles W Grant Parkway @ International Parkway/I-75 NB On/Off Ramps	Signal	B (16.0)	B (12.1)	B (10.2)
20	Aviation Boulevard/Charles W Grant Parkway @ Old Dixie Highway	Signal	B (14.2)	B (18.1)	B (13.9)
21	Aviation Boulevard/Charles W Grant Parkway @ US Highway 19/41	Signal	E (57.8)	F (181.5)	B (19.2)
22	US Highway 19/41 @ Conley Road	Signal	B (14.1)	B (10.1)	A (9.5)
23	US Highway 19/41 @ I-285 EB Ramps	Signal	B (12.3)	B (15.8)	A (8.3)
24	US Highway 19/41 @ I-285 WB Ramps	Signal	B (11.7)	A (7.2)	A (7.7)
25	Jonesboro Road (SR 54) @ Conley Road	Signal	B (13.1)	B (12.4)	B (12.4)

NB – Northbound Approach
SB – Southbound Approach
EB – Eastbound Approach
WB – Westbound Approach

As shown in Table 7, two intersections currently operate below the acceptable Level of Service (LOS D) as defined by GRTA's Letter of Understanding. The signalized intersection of Aviation Boulevard @ Airport Loop Road currently operates at LOS F during the AM peak hour. The signalized intersection of Aviation Boulevard @ US Highway 19/41 currently operates at LOS E during the AM peak hour and LOS F during the PM peak hour. Per GRTA's guidelines in the Letter of Understanding, these intersections' No-Build and Build LOS standards are therefore lowered to LOS E for the respective analysis periods.

6.2 2020 No-Build Traffic

To account for growth in the vicinity of the proposed development, the existing traffic volumes were grown at 2.5% per year along all roadway links within the study network from 2008 to 2011. A growth rate of 2.0% per year was applied from 2012 to 2020. Additionally, expected traffic associated with the Olde Towne Hapeville DRI #1108 was also applied to the roadway network.

These no-build volumes and existing signal cycle lengths, splits, and offsets were input into *Synchro 6.0* and an analysis of the projected 2020 No-Build conditions was performed. The results are displayed below in **Table 8.**

Table 8
2020 No-Build Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour	SAT Peak Hour
1	Central Avenue @ Irene Kidd Parkway	Signal	D	A (7.0)	A (7.4)	A (6.1)
2	Airport Loop Road/Perry J Hudson Parkway @ Toffie Terrace	Signal	D	C (28.6)	C (31.0)	B (16.9)
3	Airport Loop Road/Perry J Hudson Parkway @ Hartsfield Drive	Signal	D	C (22.9)	C (25.7)	B (14.5)
4	Airport Loop Road/Perry J Hudson Parkway @ Delta Boulevard	Signal	D	B (14.5)	B (15.7)	A (9.8)
5	Airport Loop Road/Perry J Hudson Parkway @ Atlanta Avenue	Signal	D	B (11.2)	C (34.7)	A (8.2)
6	North Central Avenue @ Virginia Avenue	Three-Way Stop Control	D	SB – B (14.8) EB – C (23.6) WB – C (20.7)	SB – C (15.3) EB – E (44.1) WB – F (70.6)	SB – B (10.5) EB – B (12.2) WB – B (11.0)
7	South Central Avenue @ Virginia Avenue	Signal	D	B (11.9)	B (15.9)	A (9.7)
8	North Central Avenue @ US Highway 41	Three-Way Stop Control	D	SB – B (13.0) EB – C (24.4) WB – C (19.9)	SB – E (39.5) EB – F (63.8) WB – E (41.8)	SB – B (10.8) EB – C (19.1) WB – B (14.3)
9	South Central Avenue @ US Highway 41	Two-Way Stop Control	D	EB – D (34.7) WB – D (32.0)	EB – F (Err) WB – F (237.7)	EB – B (13.5) WB – B (12.6)
10	South Central Avenue @ Atlanta Avenue	Signal	D	B (11.3)	B (12.3)	A (7.5)
11	Henry Ford II Avenue @ Perkins Street	Three-Way Stop Control	D	NB – B (13.8) EB – C (15.3) WB – C (22.1)	NB – C (18.8) EB – F (212.2) WB – E (45.7)	NB – A (9.2) EB – A (8.9) WB – A (9.2)

Table 8
2020 No-Build Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour	SAT Peak Hour
12	Henry Ford II Avenue @ Connector Road	Three-Way Stop Control	D	EB – C (17.0) WB – C (17.5)	EB – D (27.1) WB – B (12.3)	EB – B (12.0) WB – B (11.7)
13	Henry Ford II Avenue @ I-75 SB On/Off Ramps	Side Street Stop Control	D	NB – B (11.3)	NB – E (37.5)	NB – A (9.3)
14	Henry Ford II Avenue @ I-75 NB On/Off Ramps	Signal	D	A (9.2)	A (6.4)	A (6.1)
15	Airport Loop Road/Perry J Hudson Parkway @ Leslie Drive	Side Street Stop Control	D	WB – A (0.0)	WB – A (0.0)	WB – A (9.4)
16	Aviation Boulevard @ Airport Loop Road/Perry J Hudson Parkway	Signal	E/D/D (AM/PM/SAT)	F (161.5)	F (118.6)	D (36.3)
17	Aviation Boulevard/Charles W Grant Parkway @ I-75 SB On/Off Ramps	Signal	D	B (11.7)	C (23.5)	B (10.1)
18	Aviation Boulevard/Charles W Grant Parkway @ I-75 NB/SB On/Off HOV Ramps	Signal	D	B (19.8)	B (11.6)	B (10.7)
19	Aviation Boulevard/Charles W Grant Parkway @ International Parkway/I-75 NB On/Off Ramps	Signal	D	C (25.0)	B (13.6)	B (10.7)
20	Aviation Boulevard/Charles W Grant Parkway @ Old Dixie Highway	Signal	D	B (17.0)	C (27.7)	B (13.9)
21	Aviation Boulevard/Charles W Grant Parkway @ US Highway 19/41	Signal	E/E/D (AM/PM/SAT)	F (188.1)	F (309.0)	C (21.5)
22	US Highway 19/41 @ Conley Road	Signal	D	B (18.5)	B (18.7)	A (9.7)
23	US Highway 19/41 @ I-285 EB Ramps	Signal	D	B (14.3)	C (28.2)	A (8.8)
24	US Highway 19/41 @ I-285 WB Ramps	Signal	D	B (17.1)	A (7.2)	A (7.9)
25	Jonesboro Road (SR 54) @ Conley Road	Signal	D	B (16.9)	B (14.9)	B (14.1)

NB – Northbound Approach
SB – Southbound Approach
EB – Eastbound Approach
WB – Westbound Approach

Maintaining existing signal timings and roadway geometry, seven intersections are projected to operate below the acceptable level of service standard for the year 2020 No-Build Conditions. Intersection timings were made to each of the study intersections and operational improvements were made to specific intersections until each intersection's level of service was elevated to an appropriate range. The improvements made to the system to elevate the level of service to the acceptable standard are listed below, by intersection:

#2 – Loop Road @ Toffie Terrace

- Restripe the northbound lanes from one left-turn, one shared left-turn/through, and one shared through/right-turn lane to one exclusive left-turn, one exclusive through, and one shared through/right-turn lane.[1]

#6 – North Central Avenue @ Virginia Avenue

- Signalize and interconnect with intersection #7.
- Restripe the northbound approach from one lane to one exclusive left-turn and one shared through/right-turn lane.

#8 – North Central Avenue @ US Highway 41

- Signalize and interconnect with intersection #9.
- Restripe the northbound approach from one lane to one exclusive left-turn and one shared through/right-turn lane.

#9 – South Central Avenue @ US Highway 41

- Signalize and interconnect with intersection #8.
- Restripe the southbound approach from one lane to one exclusive left-turn and one exclusive right-turn lane.

#11 – Henry Ford II Avenue @ Perkins Street

- Signalize and interconnect with the intersection of North Central Avenue @ Perkins Street.
- Restripe the southbound approach from one lane to one exclusive left-turn and one shared through/right-turn lane.
- Signalize and interconnect the adjacent intersection of North Central Avenue @ Perkins Street with intersection #11.

#13 – Henry Ford II Avenue @ I-75 SB Ramps

- Reactivate the existing signal.

#21 – Charles W Grant Parkway @ US Highway 19/41

- Construct an additional northbound and southbound through lane.[2]

2020 No-Build Improvements Notes:

[1] While this improvement is not required to bring the level of service to an appropriate standard, it improves driver expectancy issues that may arise from the confusing pavement marking.

[2] GDOT project #0001817, programmed for 2011, includes grade separation for intersections #20 and #21 and realigning Charles W Grant Parkway with Conley Road. While a grade separation scenario was not modeled, it is likely that grade separation will eliminate the need for the recommended improvement. Since the grade separation project is already programmed, it is recommended that it be the chosen mitigation.

Given the above recommended improvements, the 2020 No-Build Improved Conditions intersection levels of service are displayed in **Table 9** below. The projected 2020 Non-Build Improved Conditions laneage and traffic volumes are shown in **Figures 11.1** through **11.4**.

Table 9
2020 No-Build IMPROVED Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour	SAT Peak Hour
1	Central Avenue @ Irene Kidd Parkway	Signal	D	A (7.0)	A (7.4)	A (6.1)
2	Airport Loop Road/Perry J Hudson Parkway @ Toffie Terrace	Signal	D	C (26.7)	D (43.7)[1]	B (17.4)[1]
3	Airport Loop Road/Perry J Hudson Parkway @ Hartsfield Drive	Signal	D	C (22.0)	C (24.6)	B (13.1)
4	Airport Loop Road/Perry J Hudson Parkway @ Delta Boulevard	Signal	D	B (13.9)	B (15.4)	A (9.8)
5	Airport Loop Road/Perry J Hudson Parkway @ Atlanta Avenue	Signal	D	B (11.2)	B (19.6)	A (8.2)
6	North Central Avenue @ Virginia Avenue	Signal	D	B (16.0)	B (17.3)	C (21.1)
7	South Central Avenue @ Virginia Avenue	Signal	D	B (19.3)	C (22.7)[2]	B (14.6)[2]
8	North Central Avenue @ US Highway 41	Signal	D	C (25.4)	D (39.9)	C (21.7)
9	South Central Avenue @ US Highway 41	Signal	D	D (46.8)	D (48.8)	B (14.8)
10	South Central Avenue @ Atlanta Avenue	Signal	D	B (11.4)	B (11.9)	A (7.5)
11	Henry Ford II Avenue @ Perkins Street	Signal	D	B (14.6)	D (37.9)	B (10.7)
12	Henry Ford II Avenue @ Connector Road	Three-Way Stop Control	D	EB – C (17.0) WB – C (17.5)	EB – D (27.1) WB – B (12.3)	EB – B (12.0) WB – B (11.7)
13	Henry Ford II Avenue @ I-75 SB On/Off Ramps	Signal	D	A (8.6)	A (7.0)	A (5.0)
14	Henry Ford II Avenue @ I-75 NB On/Off Ramps	Signal	D	A (9.2)	A (6.4)	A (6.1)
15	Airport Loop Road/Perry J Hudson Parkway @ Leslie Drive	Side Street Stop Control	D	WB – A (0.0)	WB – A (0.0)	WB – A (9.4)
16	Aviation Boulevard @ Airport Loop Road/Perry J Hudson Parkway	Signal	E/D/D (AM/PM/SAT)	E (59.3)	D (45.4)	D (36.0)
17	Aviation Boulevard/Charles W Grant Parkway @ I-75 SB On/Off Ramps	Signal	D	B (11.5)	C (23.5)	A (9.7)
18	Aviation Boulevard/Charles W Grant Parkway @ I-75 NB/SB On/Off HOV Ramps	Signal	D	B (16.0)	B (11.5)	B (10.7)

Table 9
2020 No-Build IMPROVED Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour	SAT Peak Hour
19	Aviation Boulevard/Charles W Grant Parkway @ International Parkway/I-75 NB On/Off Ramps	Signal	D	C (25.0)	B (13.6)	B (10.7)
20	Aviation Boulevard/Charles W Grant Parkway @ Old Dixie Highway	Signal	D	B (16.7)	C (32.2)[2]	B (14.0)[2]
21	Aviation Boulevard/Charles W Grant Parkway @ US Highway 19/41	Signal	E/E/D (AM/PM/SAT)	D (54.8)	E (60.7)	B (17.9)
22	US Highway 19/41 @ Conley Road	Signal	D	B (18.5)	B (18.7)	A (9.7)
23	US Highway 19/41 @ I-285 EB Ramps	Signal	D	B (14.0)	B (19.4)	A (8.8)
24	US Highway 19/41 @ I-285 WB Ramps	Signal	D	B (16.3)	A (7.2)	A (7.9)
25	Jonesboro Road (SR 54) @ Conley Road	Signal	D	B (16.4)	B (14.8)	B (13.9)

[1] Restriping decreases operation of the intersection; however, should reduce crashes and alleviate driver expectancy issues.
[2] Intersection operation at this specific intersection decreases from the No-Build conditions; however, operation at the adjacent interconnected signalized intersection is improved.

EB – Eastbound Approach
WB – Westbound Approach

6.3 2020 Build Traffic

The traffic associated with the proposed Hapeville Ford Plant Redevelopment was added to the 2020 No-Build volumes. These volumes, as well as optimized intersection signal timings and roadway improvements from the No-Build Conditions were then input into *Synchro 6.0*. Additionally, due to the large increase in traffic on certain movements which currently have little traffic (thus low peak hour factors), peak hour factors were adjusted at several locations to more accurately represent future arrival rates. The results of the analysis are displayed in **Table 10**. An analysis of the proposed five site driveways was also performed.

Table 10
2020 Build Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour	SAT Peak Hour
1	Central Avenue @ Irene Kidd Parkway	Signal	D	A (7.6)	B (10.3)	A (8.9)
2	Airport Loop Road/Perry J Hudson Parkway @ Toffie Terrace	Signal	D	E (57.5)	F (195.8)	C (20.1)
3	Airport Loop Road/Perry J Hudson Parkway @ Hartsfield Drive	Signal	D	D (38.7)	D (51.2)	B (13.3)
4	Airport Loop Road/Perry J Hudson Parkway @ Delta Boulevard	Signal	D	B (16.8)	C (32.5)	B (10.7)
5	Airport Loop Road/Perry J Hudson Parkway @ Atlanta Avenue	Signal	D	B (14.6)	E (76.3)	B (11.9)
6	North Central Avenue @ Virginia Avenue	Signal	D	B (17.6)	C (27.0)	C (21.7)
7	South Central Avenue @ Virginia Avenue	Signal	D	D (35.9)	D (53.6)	C (28.8)
8	North Central Avenue @ US Highway 41	Signal	D	F (135.6)	F (199.8)	F (146.9)
9	South Central Avenue @ US Highway 41	Signal	D	F (151.5)	F (192.0)	F (142.0)
10	South Central Avenue @ Atlanta Avenue	Signal	D	B (15.3)	D (35.5)	B (16.3)
11	Henry Ford II Avenue @ Perkins Street	Signal	D	E (62.5)	F (196.1)	F (198.0)
12	Henry Ford II Avenue @ Connector Road	Three-Way Stop Control Signal	D	EB – F (Err) WB – F (181.1)	EB – F (Err) WB – F (8203.0)	EB – F (Err) WB – F (8515.7)
13	Henry Ford II Avenue @ I-75 SB On/Off Ramps	Signal	D	B (16.9)	C (31.2)	B (13.2)
14	Henry Ford II Avenue @ I-75 NB On/Off Ramps	Signal	D	B (10.0)	B (11.9)	A (7.6)
15	Airport Loop Road/Perry J Hudson Parkway @ Leslie Drive	Side Street Stop Control	D	F (Err)	F (Err)	F (Err)
16	Aviation Boulevard @ Airport Loop Road/Perry J Hudson Parkway	Signal	E/D/D (AM/PM/SAT)	F (272.3)	F (89.6)	E (62.4)

Table 10
2020 Build Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour	SAT Peak Hour
17	Aviation Boulevard/Charles W Grant Parkway @ I-75 SB On/Off Ramps	Signal	D	C (24.2)	D (54.0)	B (17.1)
18	Aviation Boulevard/Charles W Grant Parkway @ I-75 NB/SB On/Off HOV Ramps	Signal	D	B (17.5)	B (13.2)	A (9.4)
19	Aviation Boulevard/Charles W Grant Parkway @ International Parkway/I-75 NB On/Off Ramps	Signal	D	F (93.8)	B (16.6)	B (13.0)
20	Aviation Boulevard/Charles W Grant Parkway @ Old Dixie Highway	Signal	D	E (73.6)	F (185.1)	D (42.3)
21	Aviation Boulevard/Charles W Grant Parkway @ US Highway 19/41	Signal	E/E/D (AM/PM/SAT)	F (140.9)	F (93.6)	C (28.0)
22	US Highway 19/41 @ Conley Road	Signal	D	B (19.6)	C (32.6)	B (11.6)
23	US Highway 19/41 @ I-285 EB Ramps	Signal	D	B (14.0)	B (18.8)	A (8.8)
24	US Highway 19/41 @ I-285 WB Ramps	Signal	D	B (16.9)	A (9.1)	A (8.8)
25	Jonesboro Road (SR 54) @ Conley Road	Signal	D	B (18.0)	B (16.5)	B (15.3)
26	Henry Ford II Avenue @ Site Driveway #1	Side Street Stop Control (Right-in/Right-out)	D	NB – C (24.3)	NB – F (656.7)	NB – F (753.9)
27	Henry Ford II Avenue @ Site Driveway #2	Signal	D	A (9.3)	E (64.3)	D (51.2)
28	Henry Ford II Avenue @ Site Driveway #3	Side Street Stop Control (Right-in/Right-out)	D	NB – C (19.2)	NB – F (Err)	NB – F (Err)
29	Henry Ford II Avenue @ Site Driveway #4	Signal	D	B (19.5)	F (291.6)	F (260.3)
30	Loop Road @ Site Driveway #5	Signal	D	B (19.8)	F (133.8)	D (41.5)

EB – Eastbound Approach
WB – Westbound Approach

As shown in Table 10, optimizing signal timings, maintaining roadway operational improvements from the 2020 No-Build Improved Conditions, and adding the traffic associated with the Hapeville Ford Plant Redevelopment project causes 16 of the study intersections to be projected to operate below the acceptable level of service standard during at least one peak hour scenario for the 2020 Build Conditions. Operational improvements were made to the roadway network until each intersection's level of service was elevated to an appropriate range. The 2020 Build improvements made to the system are listed below, by intersection:

2020 Build recommended improvements (includes the Hapeville Ford Plant Redevelopment DRI project traffic):

#2 – Loop Road @ Toffie Terrace

- Construct an additional westbound through lane.

#5 – Airport Loop Road @ Atlanta Avenue

- Construct an exclusive southbound right-turn lane.

#8 – North Central Avenue @ US Highway 41

- Construct an additional exclusive eastbound left-turn lane.

#9 – South Central Avenue @ US Highway 41

- Construct an additional westbound through lane (to continue to Virginia Avenue).
- Construct an additional eastbound through lane.[1]

#11 – Henry Ford II Avenue @ Perkins Street

- Construct an additional westbound through lane (this lane will extend west to become the existing exclusive left-turn lane at Atlanta Avenue).

#12 – South Central Avenue @ Connector Road

- Signalize and restripe the southbound approach from one lane to one exclusive left-turn and one exclusive right-turn lane.
- Signalize and interconnect the adjacent intersection of North Central Avenue @ Connector Road.

#15 – Airport Loop Road @ Leslie Drive

- Install a traffic signal.
- Reconstruct the intersection to consist of the following:
    - Northbound – Two through lanes and an exclusive right-turn lane
    - Southbound – Two exclusive left-turn lanes and two through lanes
    - Westbound – Two exclusive left-turn lanes and an exclusive right-turn lane

#16 – Airport Loop Road @ Aviation Boulevard

- Channelize the exclusive westbound right-turn lane to allow for a shared through/right-turn lane (yield) and an exclusive right-turn lane (free-flow).
- Construct an additional exclusive southbound left-turn lane (creating triple lefts).[2]
- Reconstruct the exclusive northbound right-turn raised median (reduce in size) to allow three eastbound receiving lanes.[3]

#19 – Charles W Grant Parkway @ International Parkway/I-75 northbound on ramp

- Stripe an exclusive westbound left-turn lane and provide a westbound permitted/protected signal phase.

#20 – Charles W Grant Parkway @ Old Dixie Highway

- Construct an additional westbound through lane.[4]

#21 – Charles W Grant Parkway @ US Highway 19/41

- Construct an exclusive southbound right-turn lane.[5A]
- Construct an additional exclusive northbound left-turn lane (creating dual lefts).[5B]
- Construct an additional eastbound shared left-turn/right-turn lane.[5C]

Site Driveway #1 @ Henry Ford II Avenue (left-in/right-in/right-out)

- Northbound
  - One exclusive right-turn lane
- Eastbound
  - Two exclusive through lanes
  - One exclusive right-turn lane
- Westbound
  - One exclusive left-turn lane
  - Two exclusive through lanes

Site Driveway #2 @ Henry Ford II Avenue (full-movement, signalized)

- Northbound
  - One exclusive left-turn lane
  - One exclusive right-turn lane
- Eastbound
  - Two exclusive through lanes
  - One exclusive right-turn lane
- Westbound
  - One exclusive left-turn lane
  - Two exclusive through lanes

Site Driveway #3 @ Henry Ford II Avenue (left-in/right-in/right-out)

- Northbound
  - One exclusive right-turn lane
- Eastbound
  - Two exclusive through lanes
  - One exclusive right-turn lane
- Westbound
  - One exclusive left-turn lane
  - Two exclusive through lanes

Site Driveway #4 @ Henry Ford II Avenue (full-movement, signalized)

- Northbound
  - Two exclusive left-turn lanes
  - One exclusive right-turn lane
- Eastbound
  - Two exclusive through lanes
  - One exclusive right-turn lane
- Westbound
  - Two exclusive left-turn lanes
  - Two exclusive through lanes

Site Driveway #5 @ Henry Ford II Avenue (full-movement, signalized)

- Southbound
  - Two exclusive left-turn lanes
  - One exclusive right-turn lane
- Eastbound
  - One exclusive left-turn lane
  - Two exclusive through lanes
- Westbound
  - Three exclusive through lanes (third lane to drop at Atlanta Avenue)[6]
  - One exclusive right-turn lane

2020 Build Improvements Notes:

[1] This improvement may have right-of-way/obstruction constraints that make it difficult to achieve.

[2] This improvement is directly linked to the improvements made to the area as part of GDOT project #0007271. Upon completion of the portion of the project that serves the new international terminal and Airport Loop Road, triple left-turns will most likely not be needed to meet an acceptable level of service.

[3] This improvement is contingent on construction of [2] above.

[4, 5A, 5B, 5C 2] GDOT project #0001817, programmed for 2011, includes grade separation for intersections #20 and #21 and realigning Charles W Grant Parkway with Conley Road. While a grade separation scenario was not modeled, it is likely that grade separation will eliminate the need for the recommended improvement. Since the grade separation project is already programmed, it is recommended that it be the chosen mitigation.

[6] This improvement includes widening Airport Loop Road by one lane. If an additional curb-cut can be provided along Airport Loop Road, this main-line widening will not be needed to achieve an acceptable level of service.

Given the above recommended improvements, the 2020 Build Improved Conditions intersection levels of service are displayed in **Table 11** below. The projected 2020 Build Improved Conditions laneage and traffic volumes are shown in **Figures 12.1** through **12.6**.

Table 11
2020 Build IMPROVED Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour	SAT Peak Hour
1	Central Avenue @ Irene Kidd Parkway	Signal	D	A (7.6)	B (10.2)	A (8.9)
2	Airport Loop Road/Perry J Hudson Parkway @ Toffie Terrace	Signal	D	D (39.4)	D (54.6)	B (15.3)
3	Airport Loop Road/Perry J Hudson Parkway @ Hartsfield Drive	Signal	D	D (38.6)	D (51.2)	B (12.1)
4	Airport Loop Road/Perry J Hudson Parkway @ Delta Boulevard	Signal	D	B (16.8)	C (32.5)	A (9.2)
5	Airport Loop Road/Perry J Hudson Parkway @ Atlanta Avenue	Signal	D	B (13.4)	C (23.6)	A (8.5)
6	North Central Avenue @ Virginia Avenue	Signal	D	B (17.2)	C (27.8)	C (21.9)
7	South Central Avenue @ Virginia Avenue	Signal	D	D (36.6)	D (54.9)	C (30.8)
8	North Central Avenue @ US Highway 41	Signal	D	C (26.2)	D (39.8)	D (41.5)
9	South Central Avenue @ US Highway 41	Signal	D	C (33.8)	D (42.8)	D (36.0)
10	South Central Avenue @ Atlanta Avenue	Signal	D	B (15.3)	D (35.5)	B (16.3)
11	Henry Ford II Avenue @ Perkins Street	Signal	D	C (30.2)	D (54.8)	D (42.6)
12	Henry Ford II Avenue @ Connector Road	Signal	D	B (17.8)	C (27.1)	C (26.8)
13	Henry Ford II Avenue @ I-75 SB On/Off Ramps	Signal	D	B (17.9)	C (28.8)	B (12.7)
14	Henry Ford II Avenue @ I-75 NB On/Off Ramps	Signal	D	B (10.0)	B (11.9)	A (7.6)
15	Airport Loop Road/Perry J Hudson Parkway @ Leslie Drive	Signal	D	D (49.2)	D (49.6)	C (25.4)
16	Aviation Boulevard @ Airport Loop Road/Perry J Hudson Parkway	Signal	E/D/D (AM/PM/SAT)	C (34.5)	D (47.1)	C (21.1)
17	Aviation Boulevard/Charles W Grant Parkway @ I-75 SB On/Off Ramps	Signal	D	B (17.3)	D (53.3)	B (15.4)
18	Aviation Boulevard/Charles W Grant Parkway @ I-75 NB/SB On/Off HOV Ramps	Signal	D	B (18.5)	B (13.2)	A (8.3)
19	Aviation Boulevard/Charles W Grant Parkway @ International Parkway/I-75 NB On/Off Ramps	Signal	D	C (34.7)	B (15.8)	B (14.0)
20	Aviation Boulevard/Charles W Grant Parkway @ Old Dixie Highway	Signal	D	C (25.0)	D (48.3)	C (25.4)

Table 11
2020 Build IMPROVED Intersection Levels of Service
(delay in seconds)

	Intersection	Control	LOS Standard	AM Peak Hour	PM Peak Hour	SAT Peak Hour
21	Aviation Boulevard/Charles W Grant Parkway @ US Highway 19/41	Signal	E/E/D (AM/PM/SAT)	D (51.0)	E (60.7)	C (31.9)
22	US Highway 19/41 @ Conley Road	Signal	D	B (19.0)	C (32.6)	B (10.5)
23	US Highway 19/41 @ I-285 EB Ramps	Signal	D	B (13.1)	B (16.9)	A (8.7)
24	US Highway 19/41 @ I-285 WB Ramps	Signal	D	B (15.4)	A (8.7)	A (7.9)
25	Jonesboro Road (SR 54) @ Conley Road	Signal	D	B (16.8)	B (16.3)	B (15.1)
26	Henry Ford II Avenue @ Site Driveway #1	Side Street Stop Control (Right-in/Right-out)	D	NB – B (11.9)	NB – E[1] (40.4)	NB – D (33.3)
27	Henry Ford II Avenue @ Site Driveway #2	Signal	D	C (23.4)	D (52.0)	D (42.2)
28	Henry Ford II Avenue @ Site Driveway #3	Side Street Stop Control (Right-in/Right-out)	D	NB – A (9.5)	NB – D (31.1)	NB – C (15.7)
29	Henry Ford II Avenue @ Site Driveway #4	Signal	D	D (51.0)	D (41.7)	C (32.0)
30	Loop Road @ Site Driveway #5	Signal	D	B (18.3)	D (47.8)	C (25.2)

[1] It is not uncommon for side street traffic to experience low Levels of Service during peak travel times.

NB – Northbound Approach

7.0 IDENTIFICATION OF PROGRAMMED PROJECTS

The *TIP, STIP, RTP, and GDOT's Construction Work Program* were searched for currently programmed transportation projects within the vicinity of the proposed development. Several projects are programmed for the area surrounding the study network. Area projects are displayed in **Table 12** and shown graphically in **Figure 13**. Information on the projects is included in the Appendix.

Table 12
Programmed Area Projects

GDOT # 0006273 ARC # FS-AR-180	2009	Pedestrian Improvements on Virginia Avenue to include sidewalks and crosswalks, landscaping, lighting, benches, trash receptacles, on-street parking, and bicycle racks from the western City limits to Doug Davis Drive.
GDOT # 770321 ARC # AR-268B	2010	Commuter rail services will provide Atlanta's suburbs and other nearby cities with a direct and convenient transportation option to downtown. The Atlanta/Griffin/Macon line has been identified as the state's highest priority for implementation of a network of commuter rail lines.
GDOT # 0001817 ARC # AR-510	2011	Construction of a grade separation placing C.W. Grant Parkway (f.k.a. Aviation Boulevard) under the Norfolk Southern railroad and Old Dixie Highway. The roadway will maintain four lanes, a 20 foot median, five-foot sidewalks, and curb and gutter. A connection between the grade-separated C.W. Grant Parkway and Old Dixie Highway is also included.
GDOT # TBD ARC # FS-210	2012	This project provides for pedestrian facilities on North Central Avenue from N. Whitney Avenue to Dearborn Plaza
GDOT # N/A ARC # AT-158	2020	This project will provide one additional travel lane in each direction along Southside Industrial Parkway between US 19/41 and Ruby Harper Parkway.
GDOT # 0001759 ARC # AR-H-050	2020	Addition of two managed lanes in both directions for 6.4 miles between Aviation Boulevard and SR 54. Dedicated ramps serving these lanes will be provided but locations have not been determined at this time.
GDOT # 0007271 ARC # AR-511A,C	2030	This HOV lane project includes the reconstruction of Aviation Boulevard and portions of its I-75 ramps, the I-75 NB/I-285 braided ramps, and I-75 SB collector-distributor road north of Aviation Boulevard. This is the first of three phases planned to complete the overall project. The purpose is to improve access to the eastern side of Hartsfield-Jackson Atlanta International Airport and overall operations in the vicinity of the affected interchanges.

The Hapeville Main Street Town Center LCI recommends numerous improvements to the area surrounding the project site. The only pre-qualified projects associated with the study are modifications to North Central Avenue.

GDOT project #0007271 is currently in concept phase and being circulated for signatures within the Federal Highway Administration. While the project consists of multiple new interstate ramp construction, the portion that affects the proposed development most dramatically are two new southbound on/off ramps that will connect to the collector/distributer system and Interstate 75. These ramps are currently programmed to connect to Airport Loop Road at the approximate location of the existing Leslie Drive. This new ramp connection will most likely cause Leslie Drive to either be realigned to some point north along Airport Loop Road or closed completely. The

development team is in the process of working with Airport officials to negotiate an appropriate location for a new curb-cut along Airport Loop Road in the event this connection is severed in the future.

GDOT project #0007271 is also proposed to provide direct ramp access into Aviation Boulevard west of Airport Loop Road. These new ramps are in anticipation of the new international terminal, which is slated for opening fourth quarter 2011. While the ramps will not be in place opening day, upon completion of the ramps, existing and future expected operational deficiencies at the intersection of Aviation Boulevard @ Airport Loop Road will be alleviated by these new ramps and other ramps providing motorists with multiple options on how to access Interstates 75 and 85.

8.0 INGRESS/EGRESS ANALYSIS

Access to the site is proposed at four locations along South Central Avenue/Henry Ford II Avenue and one location along Airport Loop Road. The site is also proposed to have direct access to Leslie Drive. Each driveway will provide access to the entire site, allowing patrons of all users to access the site from any access point. *Section 1.3 Site Access* provides a complete description of each site driveway.

While Site Driveways #1 and #3 were analyzed and modeled with right-in/right-out operation only, the recommended configuration for the driveways includes left-in operation as well. Allowing left-in maneuvers at these driveways will provide relief to the left-turn movements at the signalized Site Driveways #2 and #4, while also eliminating unnecessary delay for left turning vehicles, especially during off-peak times. Left-out movements at these two unsignalized intersections is recommended to be prohibited.

The driveway configurations modeled are conservative, since the left-turn volumes from the unsignalized driveways are added to the left-turn maneuver at Site Driveways #2 and #4. All site driveways are anticipated to operate at or above the acceptable Level of Service standard during each of the analysis scenarios, except for Site Driveway #1 during the PM peak hour. It is not uncommon for side street traffic to experience low Levels of Service during peak travel times.

9.0 INTERNAL CIRCULATION ANALYSIS

The proposed site plan consists of an internal roadway network that connects each of the site driveways. Parking will be provided via surface and structured parking. Leslie Drive will utilize the structured parking to travel under the site and maintain its connection throughout the site. Additionally, the off-airport parking will also be allowed access to the project's internal road network. In general, office and retail uses will be located along the northern portion of the site, hotel and convention/conference uses will occupy the center of the site, and off-airport parking will be located along the southern portion of the site.

Internal pedestrian access between all uses will also be provided.

10.0 COMPLIANCE WITH COMPREHENSIVE PLAN ANALYSIS

The City of Hapeville Land Use Plan, dated July 2006, designates this area as mixed-use.

11.0 NON-EXPEDITED CRITERIA

11.1 Quality, Character, Convenience, and Flexibility of Transportation Options

The proposed development is located along South Central Avenue/Henry Ford II Avenue and Airport Loop Road. Currently, two MARTA bus routes (72 and 95) provide service in the immediate vicinity of the site. Route 72 connects the site to Tradeport Boulevard to the east and the MARTA College Park rail station to the west. Route 95 connects the site to the north and west to the West End MARTA rail station. During weekday peak hours, Route 72 operates on scheduled approximate 30-minute headways while Route 95 operates on scheduled 15-minute headways.

Clayton County's C-Tran provides service along Airport Loop Road in the vicinity of the proposed development. Bus Route 500 operates on scheduled 15-minute headways during weekday peak hours while Route 501 operates on scheduled one-hour headways during weekday peak hours.

11.2 Vehicle Miles Traveled

Table 13 displays the reduction in traffic generation due to internal capture and alternative mode reductions, as well as pass-by trip reduction.

Table 13
Vehicle Mile Reduction

	Build-Out Total
Daily Gross Trip Generation	93,010
(-) Mixed-use reductions (internal capture)	-11,746
(-) Alternative modes	-6,575
(-) Pass-by trips	-5,200
Net Trips	69,489

11.3 Relationship Between Location of Proposed DRI and Regional Mobility

The proposed development is located near the convergence of three major interstates. Interstate 75, bordering the eastern side of the project site, provides access to Atlanta to the north and Macon to the south. Interstate 85, located to the west of the project site, provides access to Atlanta to the north and Alabama to the south. Interstate 285 is located south of the proposed development, providing access to west and east Atlanta as well as convenient access to Interstate 20.

Additionally, a Greyhound bus station is located adjacent to the west side of the proposed development. On a national level, travelers may access the station for bus transit to most other large metropolitan cities within the nation. On the regional level, bus routes travel to and from the following locations: North to Downtown Atlanta; east to Athens and Augusta; south to Macon, Columbus, and Montgomery; and west to Birmingham.

The proposed development's proximity to Hartsfield-Jackson Atlanta International Airport, the world's busiest airport, makes travel to other locations around the country and the world extremely convenient. The proposed development is anticipated to provide shuttle service which makes the transit from the airport to the various uses of the airport.

11.4 Relationship Between Proposed DRI and Existing or Planned Transit Facilities

The proposed DRI is within three miles of the north/south MARTA Airport rail station. It is highly likely that shuttle service will provide access to and from the station and the proposed development.

Additionally, the Norfolk Southern rail road that travels between North Central and South Central Avenues on the north side of the project may provide commuter rail to areas south of the Metropolitan area.

11.5 Transportation Management Area Designation

The proposed development is located within the Hartsfield Airport TMA (HATMA). HATMA is a transportation management association comprised of the businesses surrounding Hartsfield-Jackson International Airport. The TMA serves the airport and surrounding areas, providing increased transportation options to patrons. HATMA's services generally consist of various cash or material incentives promoting high-occupancy travel.

11.6 Offsite Trip Reduction and Trip Reduction Techniques

Mixed-use and pass-by trip reductions were taken according to the *ITE Trip Generation Handbook, 1998*. Approximately 12.97 percent of the gross daily trips are anticipated to be internal and approximately 9.66 percent of the gross PM peak hour trips are anticipated to be internal. An alternate mode reduction of 5% was applied for office and retail uses and a reduction of 15% was applied for the convention/conference center and hotel uses. Finally, pass-by trip reductions were taken for the proposed retail use based on the GRTA 10% of adjacent street traffic rule. *ITE* recommended rates exist for the PM retail scenario; however, this calculation yielded a reduction of trips greater than those allowed by GRTA, based on the 10% threshold of the traffic along North Central Avenue, South Central Avenue, and Airport Loop Road.

11.7 Balance of Land Uses – Jobs/Housing Balance

Please refer to the Area of Influence Analysis, located in *Section 12.0* of this report.

11.8 Relationship Between Proposed DRI and Existing Development and Infrastructure

The development is located in an area where the existing infrastructure is adequate to serve the needs of the development upon build-out (2020).

12.0 AREA OF INFLUENCE

This section will describe the Area of Influence (AOI) demographics, AOI average wage levels, expected AOI housing costs, and the availability of housing within the AOI that would reasonably position employees within the proposed DRI.

12.1 Criteria

As part of the non-expedited review process for a DRI, an Area of Influence Analysis must be performed to determine the impact of the proposed development on the balance of housing and jobs within the immediate area surrounding the proposed development. For this proposed development expansion, the non-expedited review criterion is as follows:

This section is included to satisfy the following GRTA Non-expedited review criteria:

7. The proposed DRI:

(b) Is located in an Area of Influence where the proposed DRI is reasonably anticipated to contribute to the balancing of land uses within the Area of Influence such that twenty-five percent (25%) of the persons that are reasonably anticipated to be employed in the proposed DRI have the opportunity to live within the Area of Influence;

12.2 Study Area Determination and Characteristics

The Area of Influence is comprised of the area within six road-miles of the proposed development. To determine the AOI, *TransCAD* was used to measure six road miles from the nearest intersection to the project (Loop Road at Leslie Road). The population and housing statistics for the AOI were determined by taking the area outlined in *TransCAD*, creating a boundary in GIS format, and overlaying the boundary with a GIS layer containing census tract information. The Area of Influence (located within Clayton County, DeKalb County, and Fulton County) can be seen in **Figure 14**. Information obtained from the census tracts can be seen in **Table 14.**

Table 14
Census Tract Information

Total Households	25,380
Population in Households	73,787
Average household size	2.91
Total Workers	26,541
Workers per Household	1.05
Owner Occupied	43.53%
Rental Occupied	56.47%

As can be seen from the table above, the total population within the Area of Influence is 73,787, residing within 25,380 households (an average of 2.91 people per household). The AOI area totals 48,934 acres.

The total number of expected employees within the proposed DRI was calculated to be **12,470 total employees**. This calculation was based on the following rates in **Table 15** below. The employment rates can be found in the *Area of Influence (AOI) Guidebook For Non-Expedited Reviews (April 10, 2003)*.

Table 15 Employment Rates		
Land Use and Density	**Employees per Unit**	**Number of Employees**
Hotel	0.9 * Rooms	1,296
Conference Center	0.9*SF/400	912
General Office	1/300	6,938
Shopping Center	1/500	3,324

12.3 DRI Employment and Salary Figures

The DRI is expected to employ approximately 12,470 workers in the following land uses: General Office, Hotel, and Retail. The numbers of workers for the office, hotel, and shopping center land uses are based on assumptions provided in the *Area of Influence (AOI) Guidebook for Non-Expedited Reviews, April 2003*.

For the office land use, employees are assumed to work in the following occupations: management, technical, office and administrative support, computers, and business and financial operations. The retail land use includes retail managers and retail salespersons. For the hotel land use, it is assumed that employment will be comprised of the following occupations: lodging managers, bellhops, housekeepers, desk clerks, and food preparers and servers.

Using the departmental and occupational guidelines provided by the client, along with the U.S. Department of Labor's *May 2005 Metropolitan Area Occupational Employment and Wage Estimates Atlanta-Sandy Springs-Marietta, GA*, salaries were approximated for each occupation. The following occupational codes were used for the above jobs:

11-9081 Lodging Managers
35-0000 Food Preparation and Serving Related Occupations
37-2012 Maids and Housekeeping Cleaners
39-6011 Baggage Porters and Bellhops
11-0000 Management Occupations
13-0000 Business and Financial Operations Occupations
15-0000 Computer Occupations
17-0000 Technical Occupations
41-1011 Managers of Retail Sales
41-2031 Retail Salespersons
43-0000 Office and Administrative Support Occupations

Household salary was calculated based on the computed workers per household ratio of 1.05 multiplied by the salary in each bracket. It is assumed then that each household has 1.05 workers who contribute to the monthly household salary. The affordable housing payment is calculated as 30% of the monthly household salary, as based on GRTA's *Area of Influence (AOI) Guidebook for Non-Expedited Reviews*. **Table 16** displays the department positions, the numbers of employees in each occupation, the monthly employee and household salaries, and the respective affordable housing payments.

Table 16
Employment, Salary, and Affordable Housing Payment by Occupation

Land Use	Occupation	Employees	Monthly Employee Salary	Monthly Household Salary	Affordable Housing Payment
General Office	Management Occupations	1388	$7,690	$8,075	$2,422
	Technical Occupations	1735	$5,020	$5,271	$1,581
	Office and Administrative Support	694	$2,541	$2,668	$800
	Computer Occupations	1388	$5,501	$5,776	$1,733
	Business and Financial Operations	1735	$5,049	$5,302	$1,590
Hotel	Lodging Managers	442	$5,446	$5,718	$1,715
	Baggage Porters and Bellhops	110	$1,539	$1,616	$485
	Maids and Housekeeping Cleaners	552	$1,419	$1,490	$447
	Hotel, Motel, and Resort Desk Clerks	552	$1,445	$1,517	$455
	Maintenance and Repair, General	110	$2,781	$2,920	$876
	Food Preparation and Serving	442	$1,403	$1,474	$442
Retail	Manager	665	$2,937	$3,084	$925
	Sales Clerk	2659	$1,932	$2,028	$608
	Total Employees	**12,470**	-	-	-

Given the above calculated salaries, each household is eligible for a specific housing tier within the Area of Influence. **Table 17** below displays the number of households that fall into each tier based on the household salary.

Table 17
Number of Households in the DRI by Range of Monthly Income

Range of Monthly Income for Housing	Number of Households
$499 or less	1,656
$500 to $599	0
$600 to $699	2,659
$700 to $799	0
$800 to $899	804
$900 to $999	665
$1,000 to $1,249	0
$1,250 to $1,499	0
$1,500 to $1,999	5,298
$2,000 or more	1,388
Total	**12,470**

12.4 AOI Occupied Housing Figures

An analysis of existing occupied housing was conducted based on 2000 Census data for owner- and renter-occupied housing. A GIS analysis identified approximately 26,000 owner-occupied units and 69,000 renter-occupied units in the AOI. **Table 18** below displays the housing units in comparable price tiers as are shown in Table 17. Owner-occupied housing includes housing with and without a mortgage. Renter-occupied housing includes all rental units with the exception of those with no cash rent.

Table 18
Selected Monthly Costs for All Occupied Housing Units in the AOI

Monthly Dollar Range	Owner-Occupied Housing Units in the AOI	Renter-Occupied Housing Units in the AOI	Total Occupied Housing Units in the AOI
$499 or less	7,928	47,340	9,811
$500 to $599	2,046	10,652	598
$600 to $699	2,638	7,320	462
$700 to $799	3,030	2,810	550
$800 to $899	2,635	673	813
$900 to $999	2,052	183	619
$1,000 to $1,249	3,286	76	863
$1,250 to $1,499	1,608	23	648
$1,500 to $1,999	659	16	489
$2,000 or more	193	27	252
Total	**26,075**	**69,120**	**95,195**

Using the households in the DRI per price tier information in Table 17 and the renter / owner distribution of occupied housing in the AOI in Table 18 above, a comparison was done to analyze the available housing by price range within the AOI against the number of households per price tier expected within the proposed DRI. This comparison is shown in **Table 19**.

Table 19
Comparison of Monthly Household Incomes and Monthly Costs of Housing Units in the AOI

Monthly Dollar Range	Total Occupied Housing Units in the AOI	Number of DRI Households with One or More Workers Working in the DRI	Difference in Number of Housing Units in AOI and Number of Households with Workers in DRI
$499 or less	9,811	1,656	8,155
$500 to $599	598	0	598
$600 to $699	462	2,659	-2,197
$700 to $799	550	0	550
$800 to $899	813	804	9
$900 to $999	619	665	-46
$1,000 to $1,249	863	0	863
$1,250 to $1,499	648	0	648
$1,500 to $1,999	489	5,298	-4,809
$2,000 or more	252	1,388	-1,136
Total	**15,105**	**12,470**	**2,635**

As can be seen from Table 18, adequate housing opportunities exist for not all wage-earning levels in the DRI for both owner and renter properties; however it is expected that approximately 74% of the employees of the DRI would be able to find housing within the AOI. Because the salaries of the employees are concentrated at the upper limits of the price tiers, considerable extra housing is available in lower price tiers if a household desires to choose a more conservative price range. Given this information, over 25% of the employees of the DRI have an opportunity to reside within the Area of Influence.

13.0 ARC'S AIR QUALITY BENCHMARK

The proposed development is a mixed-use development, containing a 500,000 square foot (SF) data center, 2,274,800 SF of hotel space with a convention/conference center, 2,081,400 SF of office space, 1,662,000 SF of retail space, and a 4,000 space off-airport parking facility on approximately 122 acres. Because office and retail uses are the dominant uses and the floor space to acreage ratio is approximately 0.7, the development meets the ARC criteria (1a) for a 4% VMT reduction.

The proposed development will also receive a mixed-use deduction. Office space is the primary use, but retail space makes up more than 10% of the floor area. Therefore, the development meets ARC criteria (2a) for a 4% VMT reduction.

The proposed development is located within ¼ mile from an existing MARTA bus stop, located at North Central Avenue. Therefore, ARC criteria (4) is met for a 3% VMT reduction.

The proposed development is anticipated to consist of shuttle service to Hartsfield-Jackson Atlanta International Airport. This connection to an employment/activity center/transit facility meets the ARC criteria (5a) for a 3% VMT reduction.

Because the proposed development is located within the Hartsfield Area Transportation Management Association, it meets ARC criteria (5 b) and is eligible for a 3% VMT reduction.

Finally, the proposed development will contain a complete pedestrian network within the site, and connections to pedestrian and bicycle paths as deemed appropriate by the City of Hapeville. Pedestrians will be able to access other uses within the proposed development via this network. This anticipated pedestrian and bicycle internal network that connects to adjoining uses, combined with the development meeting a Mixed-Use "target" meets the ARC criteria (6e) for a 5% VMT reduction.

The proposed development meets the ARC criteria for a total 22% VMT reduction. These reductions are displayed below in **Table 20**.

Table 20
ARC VMT Reductions

Mixed-Use Projects where Office is the dominant use	
Floor area ratio between 0.6 – 0.8	-4%
Retail is 10% of floor space	-4%
Project is located within ¼ mile of a bus stop	-3%
Shuttle service to Airport	-3%
Located within TMA	-3%
Bike/ped networks in development that meet one Density 'target'	-5%
Total Reductions	**22%**