DEVELOPMENT OF REGIONAL IMPACT
(DRI #3133)
TRAFFIC STUDY
FOR
1400 LAKE HEARN DRIVE DEVELOPMENT

BROOKHAVEN, GEORGIA

Prepared for:

Pope & Land Real Estate
3330 Cumberland Blvd SE, Suite 300
Atlanta, GA 30339

Prepared By:

A&R Engineering Inc.
2160 Kingston Court, Suite O
Marietta, GA 30067
Tel: (770) 690-9255 Fax: (770) 690-9210
www.areng.com

August 28, 2020
A & R Project # 20-091

EXECUTIVE SUMMARY

Traffic impacts were evaluated for the added traffic from the proposed mixed-use development located at 1400 Lake Hearn Drive in Brookhaven, Georgia. The proposed development includes +/- 630 units of multi-family housing (mid-rise) and +/- 25,400 sf of commercial space.

The development proposes access on Lake Hearn Drive at the following locations:

- Driveway 1: existing full-access driveway for residential trips
- Driveway 2: proposed right-in/right-out driveway for commercial trips
- Driveway 3: proposed new full-access driveway for commercial trips
- Driveway 4: existing right-in/right-out driveway for residential trips

In addition to the site access points, this study includes the evaluation of traffic operations at the intersections of:

1. Lake Hearn Drive at Perimeter Center Parkway
2. Lake Hearn Drive at Perimeter Summit Parkway
3. Perimeter Summit Parkway at Parkside Place
4. Ashford Dunwoody Road at Perimeter Summit Parkway
5. Lake Hearn Drive at Parkside Place

Driveway 1 is recommended to be operated as designed in existing conditions, with one entering lane and two exiting lanes (left turn and right turn lanes). Driveways 2, 3, and 4 are to have one entering and one exiting lane. All full access driveways (driveways 1 and 3) are recommended to be stop controlled on the driveway approach, while the right-in/right-out driveways (driveways 2 and 4) are recommended to be yield controlled on the driveway approach. Entering and exiting movements are to be made from the existing lanes on Lake Hearn Drive, except for Driveway 3. Although a left turn lane is not required, it is recommended that a left turn lane with 100 ft storage be accommodated at Driveway 3.

The intersection of Lake Hearn Drive and driveway 2 is median divided and therefore does not need to align with the opposing driveway. Driveway 3 is slightly jogged with the opposing driveway and cannot be shifted to the west due to stream buffer requirements and cannot be shifted to the east due to existing concrete column which supports the MARTA train rail. The purpose of Driveways 2 and 3 is to provide adequate circulation for commercial trips since the existing driveways are proposed to be used for residential trips.

The study evaluated traffic operations under the following conditions: existing (2020), no-build (2023), and build (2023, includes site generated traffic). The results of the analysis show that in the existing conditions, all intersections are operating at a level-of-service of “D” or better. After the addition of background traffic growth and site generated traffic, the study intersections were operating at a comparable level of service as the existing conditions analysis.

According to the results of the analyses, the proposed development’s traffic impact at nearby intersections is insignificant. Therefore, there are no recommendations for system improvements or site mitigation improvements to improve operations at the study intersections. PCID has a planned improvement project to extend the eastbound left turn lane at the intersection of Ashford Dunwoody Road Perimeter Summit Parkway to address the existing queuing issue at this movement.

TABLE OF CONTENTS

LIST OF TABLES

Item **Page**

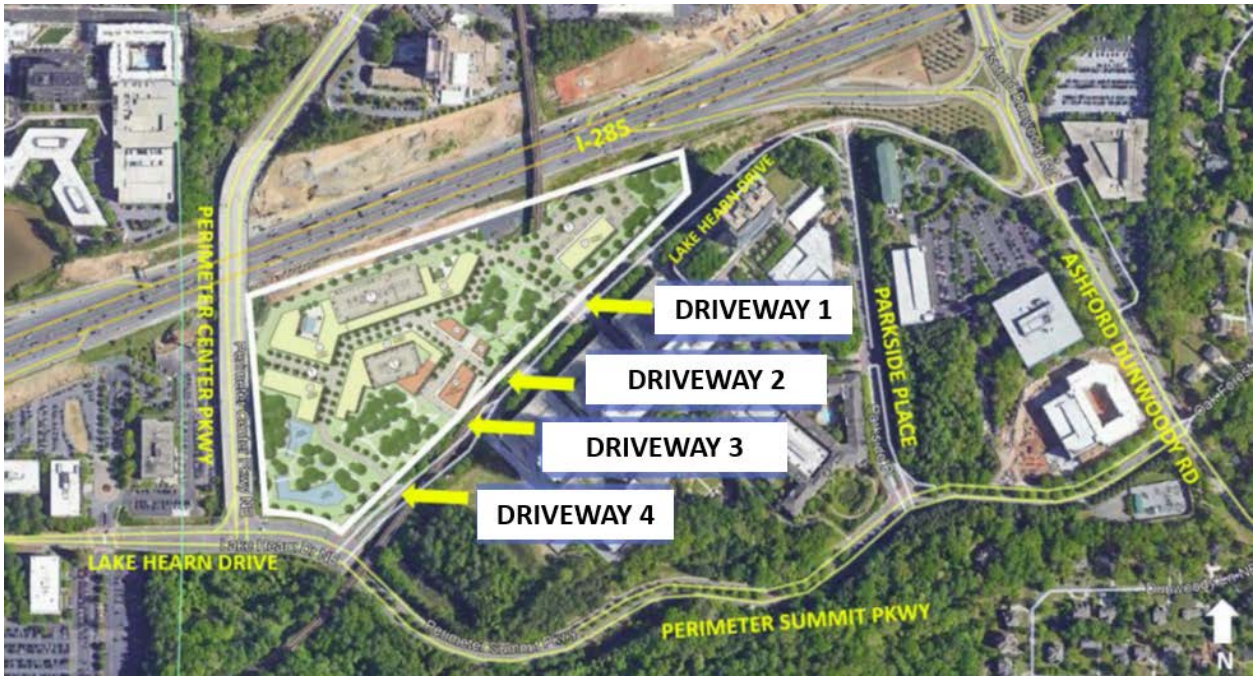
LIST OF FIGURES

Item **Page**

1.0 INTRODUCTION

The purpose of this study is to determine the traffic impact from the proposed mixed-use development located at 1400 Lake Hearn Drive in Brookhaven, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The proposed development includes +/- 630 units of multi-family housing (mid-rise) and +/- 25,400 sf of commercial space. In addition to the residential and commercial space, the development will include two parking decks and park areas (+/- 5.14 acres) with amenity and pedestrian access.

The site is located to the north east of Lake Hearn Drive. I-285 is located just north of the site and is accessible from the single point interchanges on Ashford Dunwoody Road and a partial interchange on Peachtree Dunwoody Road. The site is located to the west of Ashford Dunwoody Road and east of Perimeter Center Parkway



The development proposes access on Lake Hearn Drive at the following locations:

- Driveway 1: existing full-access driveway for residential trips
- Driveway 2: proposed right-in/right-out driveway for commercial trips
- Driveway 3: proposed new full-access driveway for commercial trips
- Driveway 4: existing right-in/right-out driveway for residential trips

The AM and PM peak hours have been analyzed in this study. In addition to the site access points, this study includes the evaluation of traffic operations at the intersections of:

1. Lake Hearn Drive at Perimeter Center Parkway
2. Lake Hearn Drive at Perimeter Summit Parkway
3. Perimeter Summit Parkway at Parkside Place
4. Ashford Dunwoody Road at Perimeter Summit Parkway
5. Lake Hearn Drive at Parkside Place

Recommendations to improve traffic operations have been identified as appropriate and are discussed in detail in the following sections of the report.

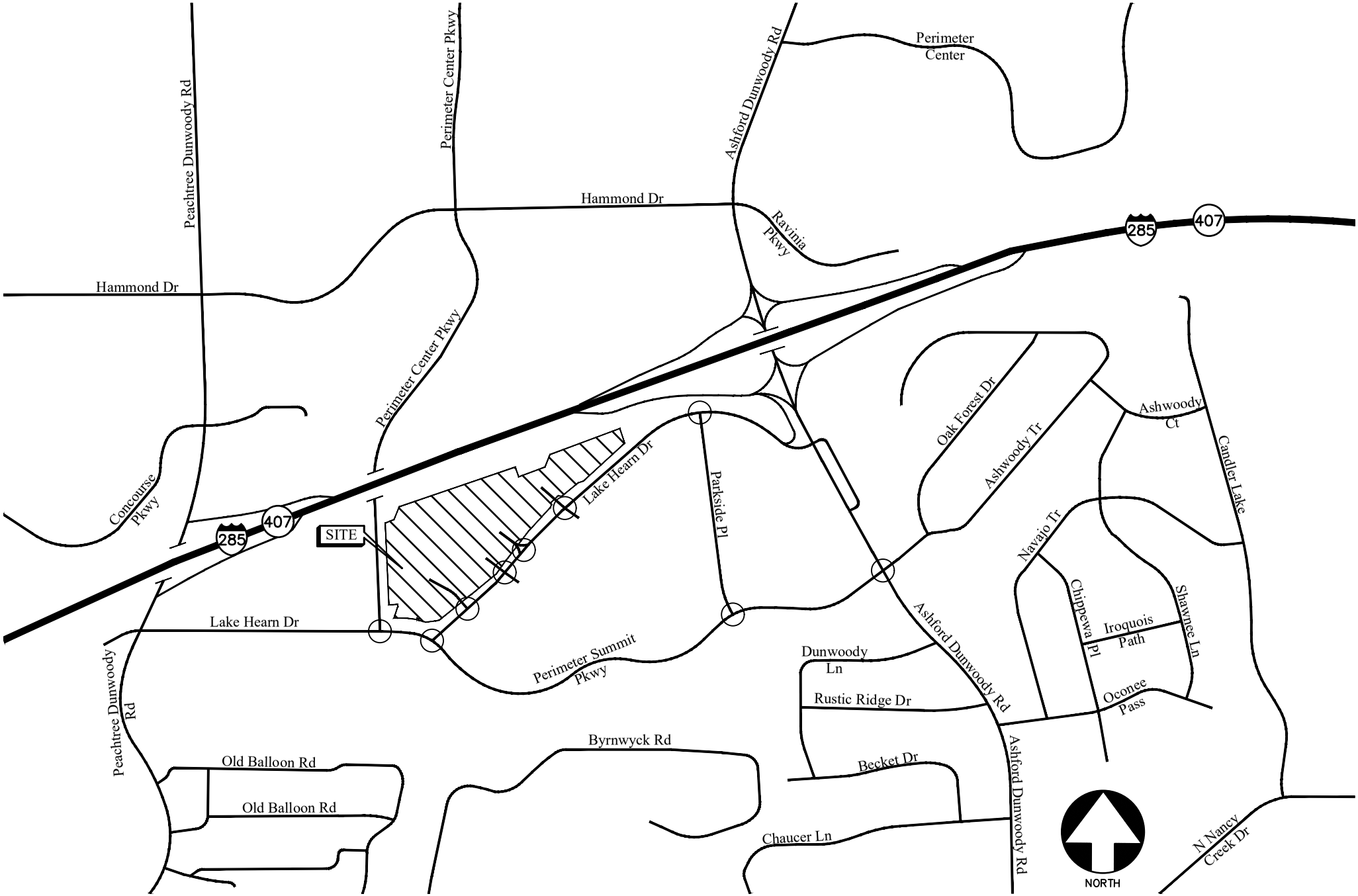
2.0 STUDY NETWORK DETERMINATION

The study network was determined by evaluating the amount of traffic that the proposed development will add to each roadway segment in the area. According to GRTA requirements, a roadway segment carries a "significant" amount of traffic if the project contributes 7% or more trips to the two-way daily service volumes of the roadway at the appropriate level of service standard. Upon agreement with GRTA a level of service standard of "D" was used for determining the study area network.

The traffic generated by the proposed project was then assigned to the area roadways using the trip distribution to determine the site-generated traffic on each roadway segment. The boundaries of the study network extend to the most distant intersections where at least 7% of the service volumes on the segment are attributed to project traffic. The following study intersections fell within the 7% rule and/or have been selected as being suitable for evaluation in discussions with GRTA, GDOT, DeKalb County, and the City of Brookhaven:

1. Lake Hearn Drive at Perimeter Center Parkway
2. Lake Hearn Drive at Perimeter Summit Parkway
3. Perimeter Summit Parkway at Parkside Place
4. Ashford Dunwoody Road at Perimeter Summit Parkway
5. Lake Hearn Drive at Parkside Place

The location of the development and the surrounding study network is shown in Figure 1. Other intersections within this corridor, such as unsignalized side streets, right-in / right-out driveways or private driveways have not been included in the study network.



LOCATION MAP AND STUDY INTERSECTIONS

FIGURE 1

A&R Engineering Inc.

2.1 Existing Roadway Facilities

The following is a brief description of each of the roadway facilities located in proximity to the site:

Lake Hearn Drive

Lake Hearn Drive is a four-lane, median-divided roadway with a posted speed limit of 35 mph in the vicinity of the site. Between Ashford Dunwoody Road and Parkside Place, Lake Hearn Drive is a two-lane, westbound, one-way roadway.

Perimeter Center Parkway

Perimeter Center Parkway is a north-south, four-lane, median-divided roadway with a posted speed limit of 35 mph in the vicinity of the site.

Perimeter Summit Parkway

Perimeter Summit Parkway is an east-west, four-lane, median-divided roadway with a posted speed limit of 35 mph in the vicinity of the site.

Parkside Place

Parkside Place is a north-south, four-lane, median-divided roadway with a posted speed limit of 30 mph.

Ashford Dunwoody Road

Ashford Dunwoody Road is a north-south, two-lane, undivided roadway to the south of Perimeter Summit Parkway. To the north of Perimeter Summit Parkway, Ashford Dunwoody Road becomes a multi-lane roadway as it approaches I-285. The posted speed limit on Ashford Dunwoody Road is 40 mph in the vicinity of the site. GDOT traffic counts (Station ID's 089-3585 & 089-3586) indicate that the daily traffic volume on Ashford Dunwoody Road in 2019 was 19,500 vehicles per day south of Perimeter Summit Parkway and 49,700 vehicles per day north of Hammond Drive. GDOT classifies Ashford Dunwoody Road as a Minor Arterial roadway.

Oak Forest Drive

Oak Forest Drive is an east-west, two-lane, undivided roadway with a posted speed limit of 25 mph.

2.2 Existing Bicycle and Pedestrian Facilities

The following is a brief description of each of the bicycle and pedestrian facilities located in proximity to the site:

Nearby local or regional trails

The following trails are located near the study area:

- Ashford Dunwoody Trail (PCID): Hammond Drive to Abernathy Road
- Path400: south of the study network, through Buckhead and Sandy Springs, respectively
- Brookhaven Park Trail: west of Peachtree Road, south of Windsor Parkway
- Briarwood Park Trail: west of Briarwood road (north of Buford Hwy)

- Blackburn Park Trail: north of S Johnsons Ferry Road at Donaldson Drive
- Perimeter Trail/Murphey Candler Park Trail: north and south of W Nancy Creek Drive to the west of Candler Lake East

Bicycle paths or sidewalks

Sidewalks and pedestrian facilities are present along the following roadways in the study network:

- Lake Hearn Drive: west of Parkside Place, Lake Hearn Drive has sidewalks on both sides of the roadway. To the east of Parkside Place, Lake Hearn Drive has a sidewalk on the south side of the road.
- Perimeter Center Parkway: sidewalks on both sides of the roadway.
- Perimeter Summit Parkway: sidewalks on both sides of the roadway.
- Parkside Place: sidewalks on both sides of the roadway.
- Ashford Dunwoody Road: sidewalks on both sides of the roadway.

Bike paths are present along the following roadways in the study network:

- Perimeter Summit Parkway: bike paths on both sides of the roadway.
- Perimeter Center Parkway: bike paths on both sides of the roadway.

2.3 Existing Transit Facilities

The proposed development is located between two MARTA train stations. The Medical Center MARTA train station is located approximately ¾ mile to the southwest of the site and the Dunwoody MARTA Station is located less than 1 mile north of the site.

3.0 Study Methodology

In this study, the methodology used for evaluating traffic operations at each of the subject intersections is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 6th edition (HCM 6). Since HCM 6th Edition methodology does not support the lane geometry and the signal phasing for the lane geometry at the intersections of Ashford Dunwoody Road at Perimeter Summit Parkway and Lake Hearn Drive at Parkside Place respectively, HCM 2000 results have been used for these two intersections. Synchro software, which utilizes the HCM methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of unsignalized and signalized intersections.

3.1 Unsignalized Intersections

For unsignalized intersections at which the side street or minor street is controlled by a stop sign, the criteria for evaluating traffic operations are the level-of-service (LOS) for the turning movements at the intersection and the level-of-service for the overall intersection. Level-of-service is based on the average controlled delay incurred at the intersection. Controlled delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled delay for unsignalized intersections, such as the availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

Level-of-service is assigned a letter designation from "A" through "F". Level-of-service "A" indicates excellent operations with little delay to motorists, while level-of-service "F" exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross safely, resulting in extremely long total delays and long queues. The level-of-service criteria for two-way stop-controlled and all-way stop-controlled (unsignalized) intersections are given in Table 1.

Table 1 – Level-of-service Criteria for Unsignalized Intersections

Level-of-service	Average Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: Highway Capacity Manual

3.2 Signalized Intersections

For signalized intersections, it is necessary to evaluate both capacity and level-of-service in order to evaluate the overall operation of the intersection. The capacity analysis of an intersection is performed by comparing the volume of traffic using the various lane groups at the intersection to the capacity of those lane groups. This results in a volume/capacity (v/c) ratio for each lane group. A v/c ratio greater than 1.0 indicates that the volume of traffic has exceeded the capacity available, resulting in a temporary excess of demand. Although the capacity of the entire intersection is not defined, a

composite v/c ratio for the sum of the critical lane groups within the intersection is computed. This composite v/c ratio is an indication of the overall intersection sufficiency.

Level-of-service for a signalized intersection is defined in terms of average controlled delay per vehicle, which is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for signalized intersections, based on average controlled delay, are shown in Table 2. Level-of-service "A" indicates operations with very low controlled delay, while level-of-service "F" describes operations with extremely high average controlled delay. Level-of-service "E" is typically considered to be the limit of acceptable delay, and level-of-service "F" is considered unacceptable by most drivers.

TABLE 2 – LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level-of-service	Average Control Delay (sec)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Source: Highway Capacity Manual

4.0 EXISTING 2020 TRAFFIC ANALYSIS

4.1 Existing Traffic Volumes

As a result of school closures and an increased number of people working from home to minimize the spread of COVID-19, we are unable to collect accurate data that is reflective of normal traffic patterns in the vicinity of the site. As an alternative to data collection, we are using historic turning movement traffic counts for the study intersections listed below. The historical counts will be increased to accommodate the background growth of 1% per year to project Existing 2020 traffic counts. Historical AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak hour TMC counts at the following study intersections were obtained from All Traffic Data:

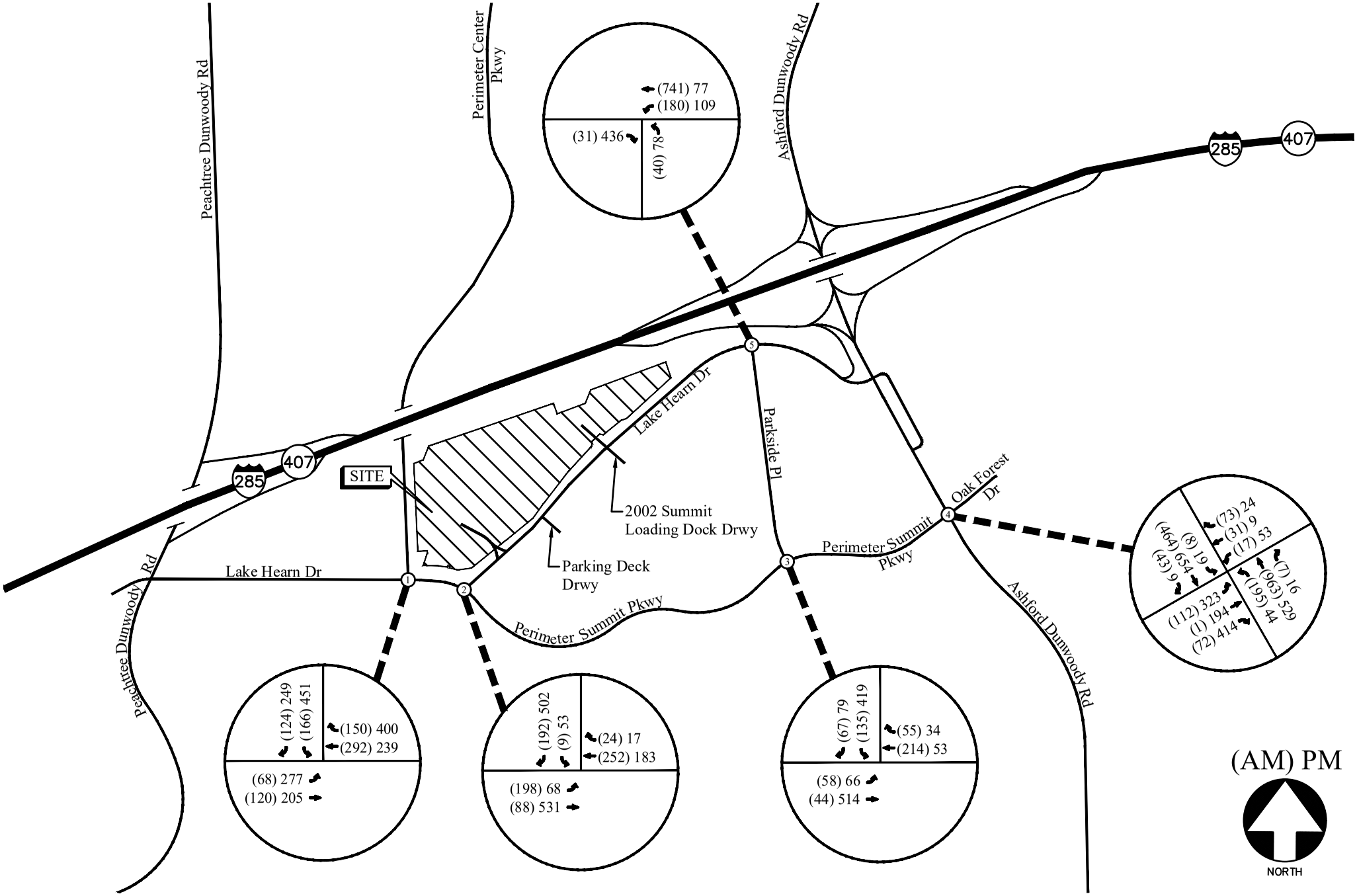
1. Lake Hearn Drive and Perimeter Summit Parkway: June 2017
2. Perimeter Center Parkway and Lake Hearn Drive: June 2017
3. Peachtree Dunwoody Road and Lake Hearn Drive: June 2017
4. Lake Hearn Drive at Parkside Place: June 2017
5. Lake Hearn Drive at Ashford Dunwoody Road: January 2019

The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersection were then determined. These volumes make up the peak hour traffic volumes for the 5 intersections listed above and are shown in Figure 2. The volumes in Figure 2 were increased for three years using a growth rate of 1 percent to obtain the existing 2020 AM and PM peak hour volumes at the 5 intersections and are shown in Figure 4.

2020 traffic counts (Figure 3) were obtained at the intersections of:

- Lake Hearn Drive at Northern Existing Driveway / 2002 Summit Loading Dock Driveway
- Lake Hearn Drive at Parking Deck Driveway

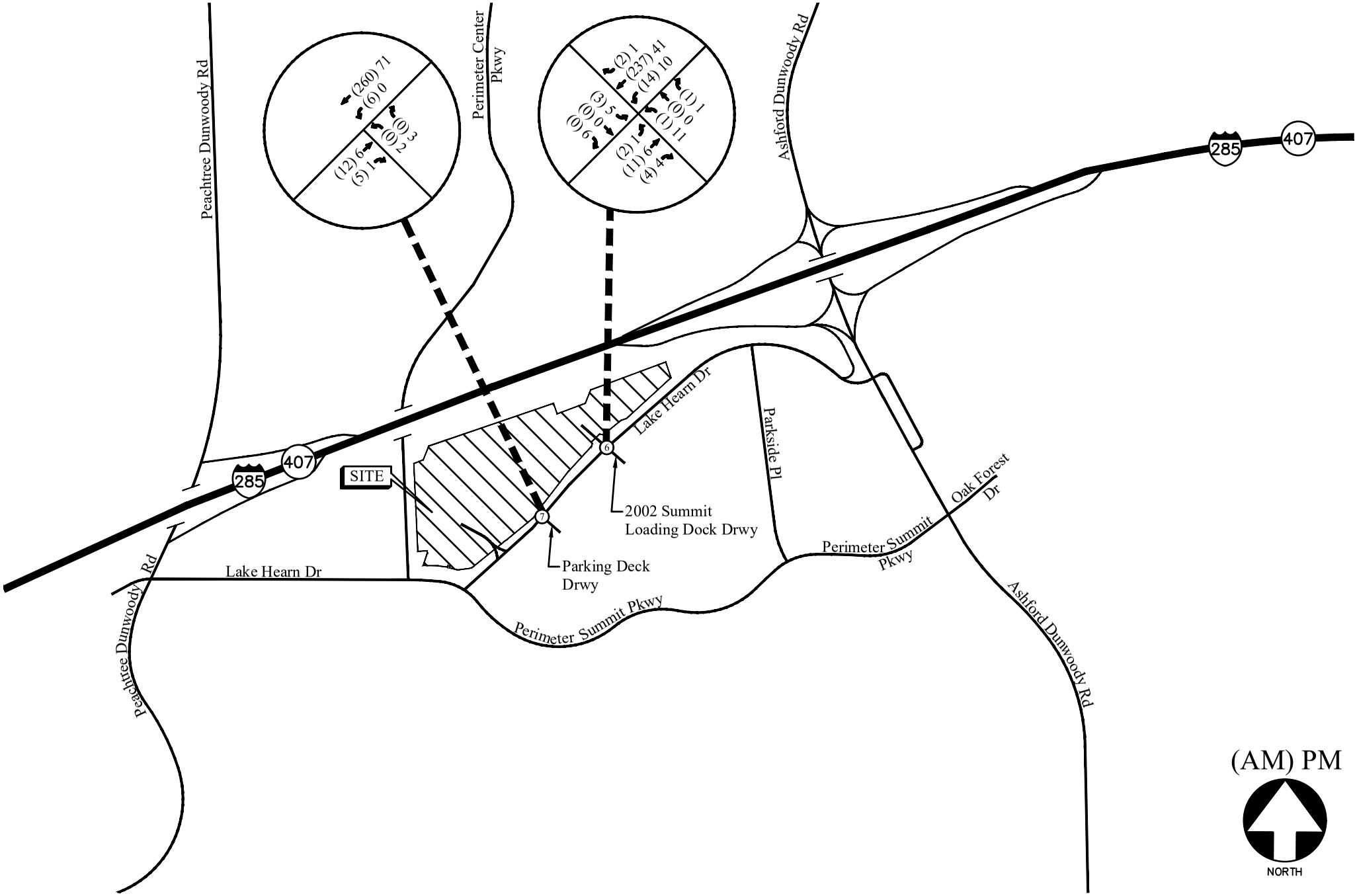
To adjust for the decreased traffic because of COVID-19, the entering and exiting trips to the above two intersection driveways were increased by 25%. The through volumes on Lake Hearn Drive at these driveways were derived from the 2020 projected counts at the Lake Hearn Drive at Perimeter Summit Parkway intersection. These adjusted volumes are also shown in Figure 4.



2017 WEEKDAY PEAK HOUR VOLUMES

FIGURE 2

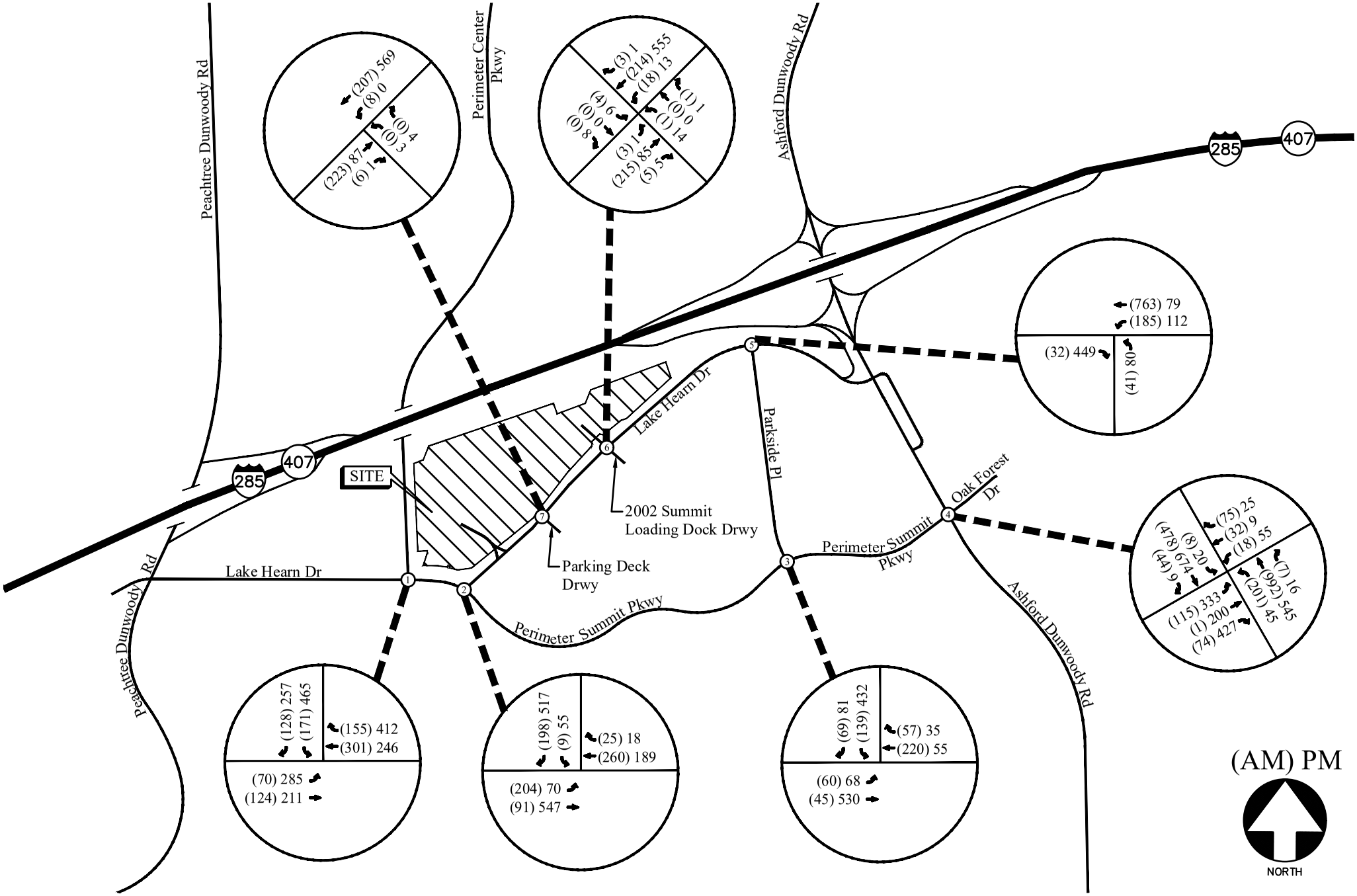
A&R Engineering Inc.



2020 WEEKDAY PEAK HOUR DRIVEWAY VOLUMES
(UNADJUSTED)

FIGURE 3

A&R Engineering Inc.



ADJUSTED EXISTING WEEKDAY PEAK-HOUR VOLUMES

FIGURE 4

A&R Engineering Inc.

4.2 Existing Traffic Operations

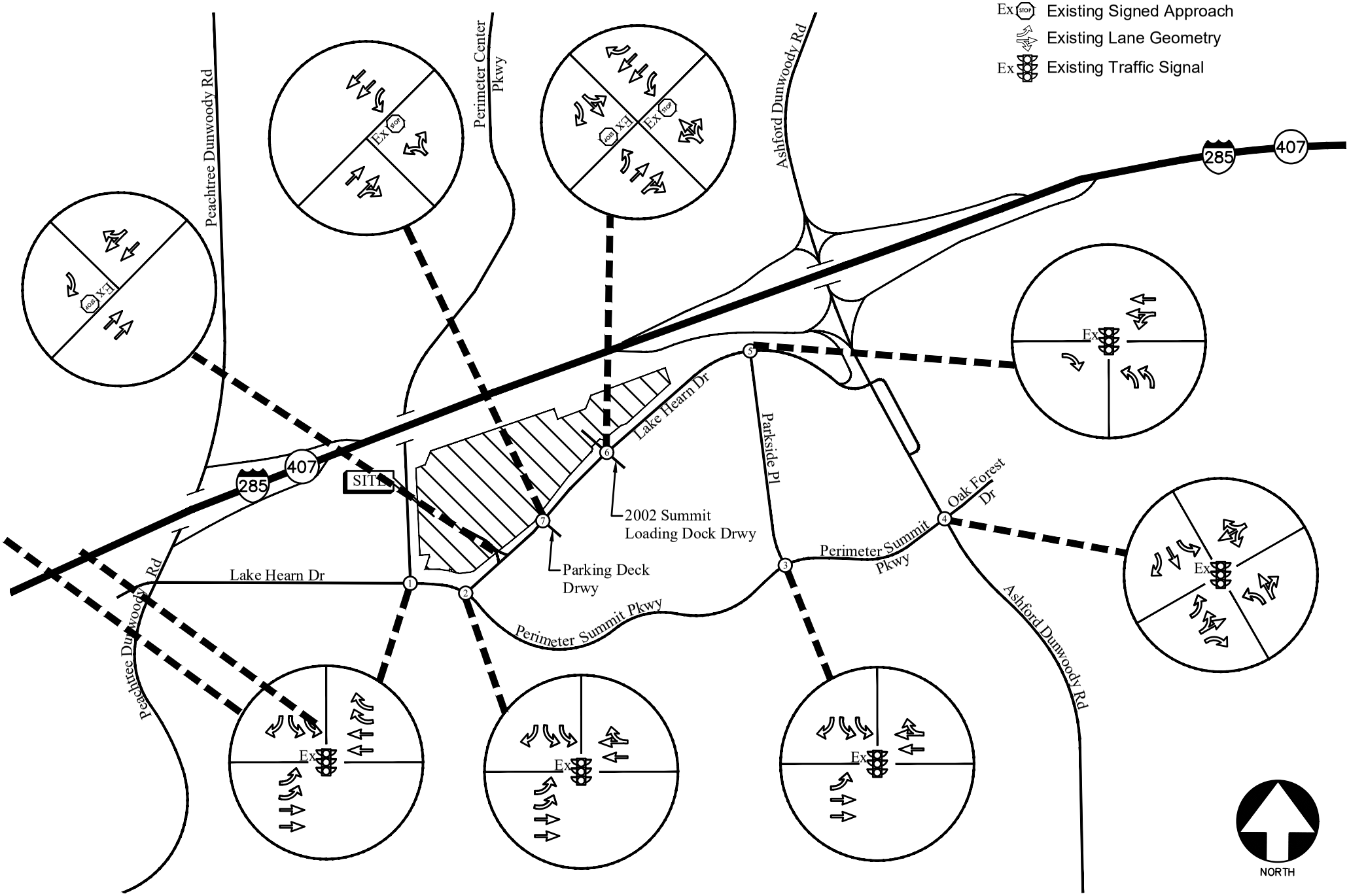
Existing 2020 traffic operations were analyzed at the study intersections using the volumes in Figure 4 in accordance with the HCM methodology. The results of the analyses are shown in Table 3.

TABLE 3 – EXISTING INTERSECTION OPERATIONS

	Intersection	Traffic Control	LOS		LOS Standard
			AM Peak Hour	PM Peak Hour	
1	**Lake Hearn Dr @ Perimeter Center Pkwy**	Signalized	**A**	**C**	**E**
	-Eastbound Approach		C	C	-
	-Westbound Approach		A	B	-
2	**Lake Hearn Dr @ Perimeter Summit Pkwy**	Signalized	**C**	**B**	**E**
	-Eastbound Approach		A	A	-
	-Westbound Approach		E	E	-
3	**Perimeter Summit Pkwy @ Parkside Pl**	Signalized	**A**	**A**	**E**
	-Eastbound Approach		A	A	-
	-Westbound Approach		A	A	-
4	**Ashford Dunwoody Rd @ Perimeter Summit Pkwy***	Signalized	**B**	**D**	***E***
	-Eastbound Approach		B	E	-
	-Westbound Approach		D	D	-
	-Northbound Approach		B	B	-
	-Southbound Approach		B	C	-
5	**Lake Hearn Dr @ Parkside Pl***	Signalized	**A**	**B**	**E**
	-Westbound Approach		A	A	-
	-Northbound Approach		D	D	-
6	**Lake Hearn Dr @ N. Existing Drwy / 2002 Summit Loading Dock Drwy**	Stop Controlled on EB and WB Approaches			
	-Eastbound Approach		B	B	E
	-Westbound Approach		B	B	E
	-Northbound Left		A	A	E
	-Southbound Left		A	A	E
7	**Lake Hearn Dr @ Parking Deck Drwy**	Stop Controlled on WB Approach			
	-Westbound Approach		A	A	E
	-Southbound Left		A	A	E

* HCM 2000 results

The results of existing traffic operations analysis indicate that all the study intersections are operating at level-of-service "D" or better in both the AM and PM peak hours. The existing traffic control and lane geometry for the intersections are shown in Figure 5.



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 5

A&R Engineering Inc.

5.0 PROPOSED DEVELOPMENT

The proposed development includes +/- 630 units of multi-family housing (mid-rise) and +/- 25,400 sf of commercial space. In addition to the residential and commercial space, the development will include two parking decks and park areas (+/- 5.14 acres) with amenity and pedestrian access.

5.1 Site Plan

A site plan is shown in Figure 6. A larger size drawing and a digital copy of the site plan are also provided with the DRI Package Submittal.

5.1.1 Planned Bicycle and Pedestrian Facilities

The on and/or off-site provisions for non-motorized travel included in the planned construction of the proposed development are as follows:

- The proposed development will be comprised of residential and commercial spaces. Pedestrian connections are proposed between the various uses on the site.
- The development plan includes several design elements that enhance the character and quality of the site by incorporating building orientation, parking locations, bicycle and pedestrian facilities, a mix of land uses.
- The convenience and flexibility of the site benefit from public access to adjacent streets and internal connectivity between parcels.

5.1.2 Planned Transit Facilities

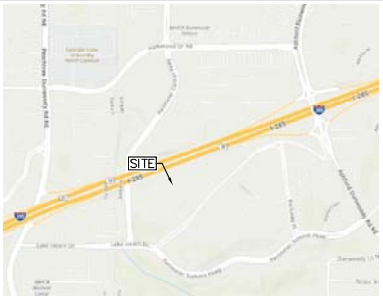
The site is located 1 mile to the south of the Dunwoody Marta train station and ¾ mile to the northeast of the Medical Center Marta train station. The proposed site is also located along the bus route for the Perimeter Connecter, which provides transportation to/from the Marta station among other destinations. The development is exploring options to include a bus stop at or inside the property to encourage additional alternative modes of transportation.

5.2 Consistency with Adopted Comprehensive Plan

The following is an explanation as to how the proposed DRI relates to the City of Brookhaven's 5 year Comprehensive Plan, in particular the transportation and capital improvement elements in the vicinity of the DRI study area. Based on the land uses proposed in the development, the development aligns with the following comprehensive plan goals:

1. Land Use + Transportation Coordination:
   The proposed mixed-use land uses (residential and commercial) align with the City of Brookhaven's goal of promoting urban design that promotes good health, active lifestyles, and has connectivity within the land uses.
2. A City of Parks
   The proposed site includes approximately 5.14 acres of public park space that will have pedestrian access.
3. Economic Development:
   The proposed site development creates the opportunity for new businesses to serve the workplaces and residents provides opportunity for employment in the local area.

LOCATION MAP



LOCAL ROAD MAP

1. OWNER/DEVELOPER	AMLI RESIDENTIAL 260 PEACHTREE ST., NW, SUITE 1700 ATLANTA, GEORGIA 30303 CONTACT: ANNIE HIRST, (770) 281-3357
2. CIVIL ENGINEER	*HAINES, GIPSON & ASSOCIATES, INC.* 1550 NORTH BROWN ROAD, SUITE 100 LAWRENCEVILLE, GA 30043 SCOTT SAMUEL, P.E. (770) 491-7550
3. TRAFFIC ENGINEER	*A&R ENGINEERING, INC.* 2160 KINGSTON COURT, SUITE O MARIETTA, GEORGIA 30067 ABDUL AMER, P.E. (770) 690-9255

DRI SITE INFORMATION	
SITE ACREAGE (ac.)	21.14
PROPOSED ZONING	MPD
DEVELOPMENT TYPE	MIXED USE
Front Setback to Lake Hearn Drive	10 ft.

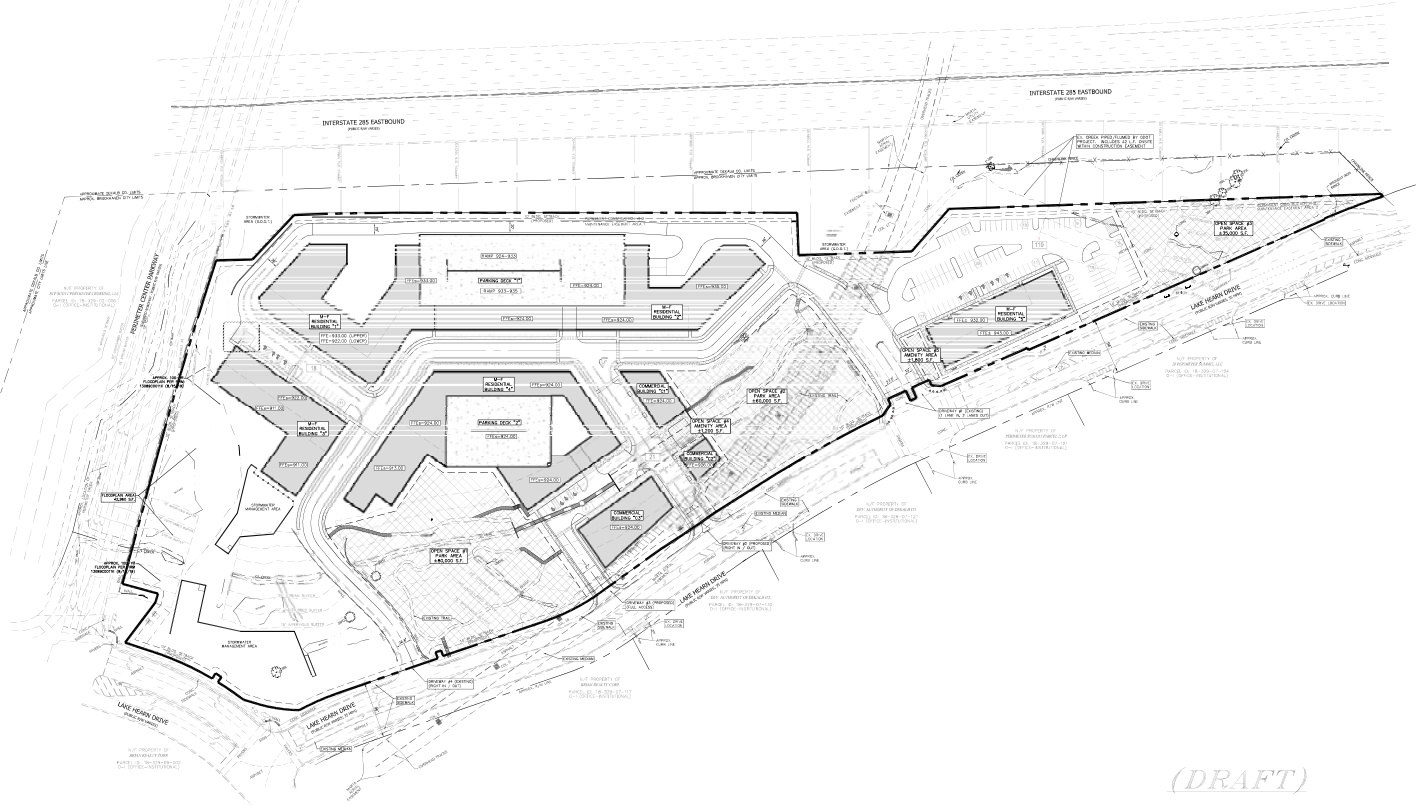
BUILDINGS	HEIGHT (STORIES)	FOOTPRINT S.F.	GROSS S.F.
Building "1"	5+Basement	35,100	185,971
Building "2"	5+Basement	34,500	184,140
Building "3"	5+Basement	22,650	123,967
Building "4"	4+Basement	39,700	142,515
Building "5"	5+Basement	17,260	91,073
Building "C1"	1 Story (Double Height)	5,406	5,406
Building "C2"	1 Story (Double Height)	2,619	2,619
Building "C3"	1 Story (Double Height)	11,078	11,078
Total Square Footage			746,169
Total Non-Residential			19,103
Residential Units			615
Residential Density			29.09
Floor Area Ratio (F.A.R.)			0.81
Workforce Housing (10%) Units			62

PARKING PROVIDED	LEVELS	FOOTPRINT S.F.	SPACES PROVIDED
Parking Deck "1"	6 Levels	21,900	790
Parking Deck "2"	4 Levels	42,800	240
Surface Parking	n/a	n/a	149
Total Spaces Provided			1,179

PARKING REQUIRED	RATIO	SQ. FT or # OF UNITS	SPACES REQUIRED
Restaurant	8.0 per 1,000 s.f.	19,500	156
Retail	2.5 per 1,000 s.f.	6,500	16
1-BR Unit	1 per unit	385	385
2-BR Unit	1.5 per unit	181	272
3-BR Unit	2.0 per unit	30	45
Total Spaces Required			874

BICYCLES SPACES REQUIRED	SHORT TERM	LONG TERM	SHORT TERM REQUIRED*	LONG TERM REQUIRED
Restaurant	0.5 per 1,000 s.f.	0.05 per 1,000 s.f.	10	1
Retail	0.5 per 1,000 s.f.	0.1 per 1,000 s.f.	3	1
1-BR Unit	0.1 per unit	0.2 per unit	39	77
2-BR Unit	0.1 per unit	0.2 per unit	3	6
Total Spaces Required			55	85
(* Short term max. is 30, use 30 for residential use)			43	

OPEN SPACE / PARK AREAS	SQ. FOOTAGE (s.f.)	ACREAGE (ac.)
Open Space #1 (PARK)	80,000	1.84
Open Space #2 (PARK)	60,000	1.38
Open Space #3 (PARK)	35,000	0.80
Open Space #4 (Amenity)	1,200	0.03
Open Space #5 (Amenity)	1,800	0.04
Total Open Space	178,000	4.09
Total Open Space (%)	19.3%	



(DRAFT)

OVERALL DRI SITE PLAN

GRAPHIC SCALE

100' 0 100' 200' 400'

(IN FEET)

1 Inch = 100 ft.

DEVELOPER AGREES TO SET ASIDE 10% OF THE MULTI-FAMILY RESIDENTIAL UNITS AS WORKFORCE HOUSING (62 UNITS).

DEVELOPER INTENDS TO COMPLY WITH SECTION 27-497(c)(2) TO SET ASIDE AT LEAST 15% OF THE DEVELOPMENT AS PUBLICLY ACCESSIBLE OPEN SPACE THAT COMPLIES WITH OPEN SPACE REGULATIONS OF 27-482.

STORMWATER MANAGEMENT SHALL ACCOUNT FOR ALL NEW AND EXISTING IMPERVIOUS SURFACE AREA LOCATED ON THE SUBJECT PROPERTY.

PLANS FOR D.R.I. REVIEW ONLY. NOT RELEASED FOR CONSTRUCTION.

GEORGIA811 Utilities Protection Center, Inc.

Know what's below. Call before you dig.

Dial 811 Or Call 800-282-7411

THE LOCATION OF ALL UTILITIES (ABOVE OR BELOW GROUND) SHOWN ON THESE DRAWINGS ARE APPROXIMATE & WERE OBTAINED FROM OBSERVATIONS AT THE SITE AND/OR FROM THE UTILITY OWNERS. HAINES, GIPSON & ASSOC., INC. DOES NOT GUARANTEE THAT LOCATIONS SHOWN ARE EXACT. IT SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY OR HIS AGENT AND/OR THE CONTRACTOR TO DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES (ABOVE OR BELOW GROUND) & TO NOTIFY UTILITY OWNERS BEFORE BEGINNING ANY CONSTRUCTION.

CAUTION-NOTE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CALL THE UTILITY COMPANIES AT LEAST 72 HOURS (BUT NOT MORE THAN 7 DAYS) BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE RELOCATION OF ALL THE UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

HGA HAINES GIPSON & ASSOCIATES Civil • Structural • Bridge

AMLI RESIDENTIAL

1400 LAKE HEARN RE-DEVELOPMENT

1400 LAKE HEARN PARKWAY
CITY OF BROOKHAVEN, GEORGIA

NO.	BY	DATE	DESCRIPTION

DRAWN BY: SES | CHECKED BY: RCL

DATE: 08/21/2020

SHEET TITLE: *OVERALL DRI SITE PLAN*

SHEET NUMBER: C-1

HGA JOB No. 2019-0340

Figure 6 – Site Plan

5.3 Project Phasing

This project has been evaluated for the complete build-out of the development in 2023.

5.4 Trip Generation

Trip generation estimates for the project were based on the rates and equations published in the 10th edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Use: *221 – Multifamily* Housing (Mid Rise) and *820 – Shopping Center*.

The ITE published pass-by rate for the land use shopping center was included in the trip generation calculation. A 4% reduction was included to account for the accessibility to public transit from the site.

The calculated total trip generation for the proposed development is shown in Table 4.

TABLE 4 – TRIP GENERATION FOR PROPOSED DEVELOPMENT

Land Use	Size	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
ITE 221 – Multifamily Housing (Mid-Rise)	730 Units	54	154	208	158	101	259
Mixed-Use Reduction		-8	-9	-17	-12	-9	-21
Alternate Mode Reduction [4%]		-2	-6	-8	-6	-4	-10
ITE 820 – Shopping Center	25,400 sf	101	63	164	95	102	197
Mixed-Use Reduction		-9	-8	-17	-12	-9	-21
Alternate Mode Reduction [4%]		-4	-3	-7	-4	-4	-8
Pass-by Trips (0%) 34%		0	0	0	-27	-30	-57
Total Trips (without Reductions)		155	217	372	253	203	456
New External Trips (with Reductions)		132	191	323	192	147	339

*Pass-by trips (AM) PM; 24 Hour pass-by trips estimated to be applied PM peak hour pass-by rate

The calculated trips that were previously generated by the existing call center building are included below in Table 5. The trip generation is based on the ITE Land Use: *715 – Single Tenant Office Building.*

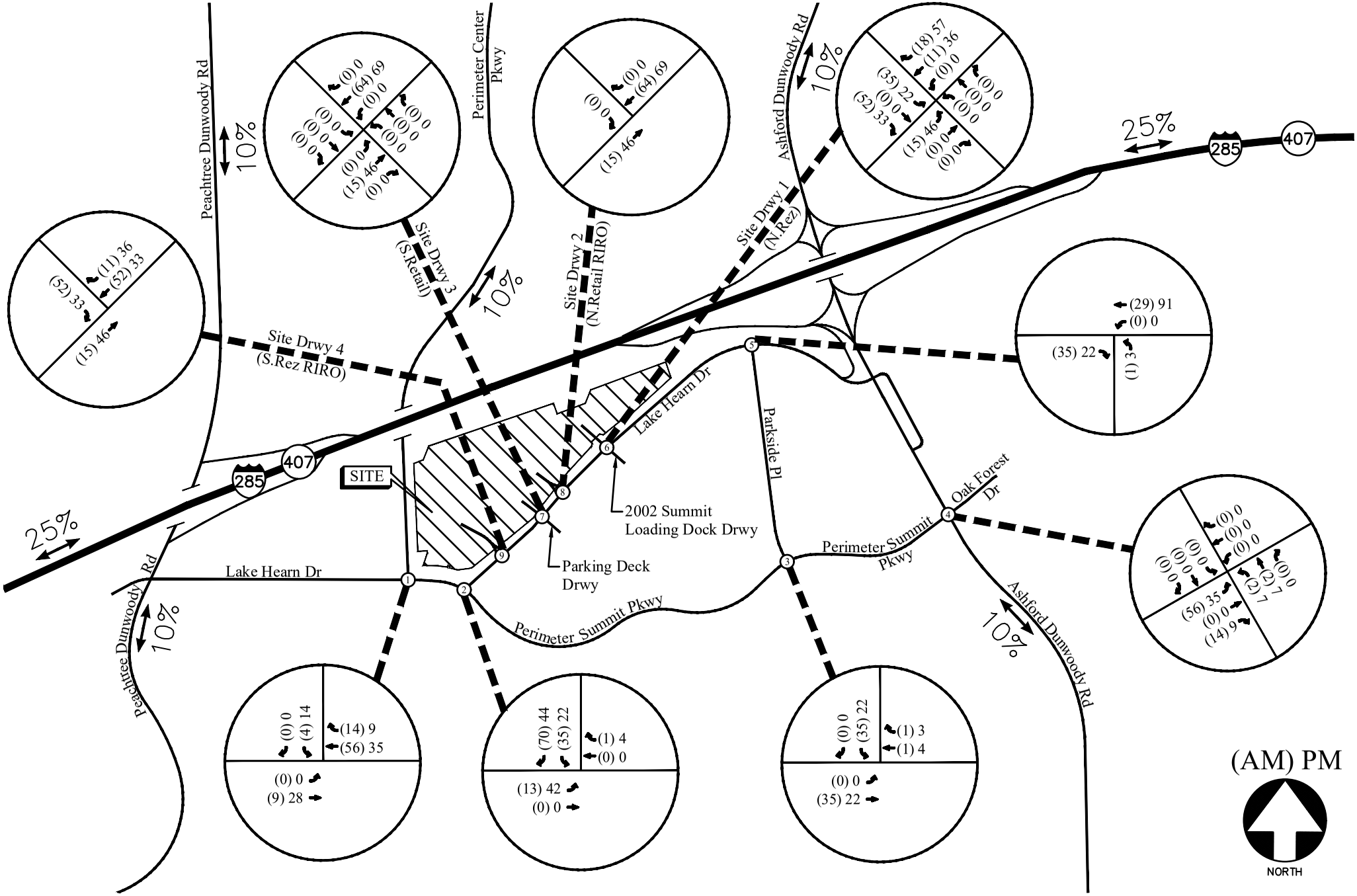
TABLE 5 - TRIP GENERATION FOR EXISTING BUILDING

Land Use	IV	A.M. Peak Hour			P.M. Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
715 - Single Tenant Office Building	292,000 sf	452	56	508	71	406	477
Alternate Mode of Transportation Reduction [4%]		-18	-2	-20	-3	-16	-19
Total Trips with Reduction		434	54	488	68	390	458

As shown in the tables above, the traffic that will be generated by the proposed development will be less than the traffic that was produced by the existing building during the AM and PM peak hours. The traffic counts that that were used in the study were conducted in 2017, while the existing building was still in use. However, to evaluate worst case traffic in the area, we did not deduct the existing building traffic from the traffic counts.

5.5 Trip Distribution

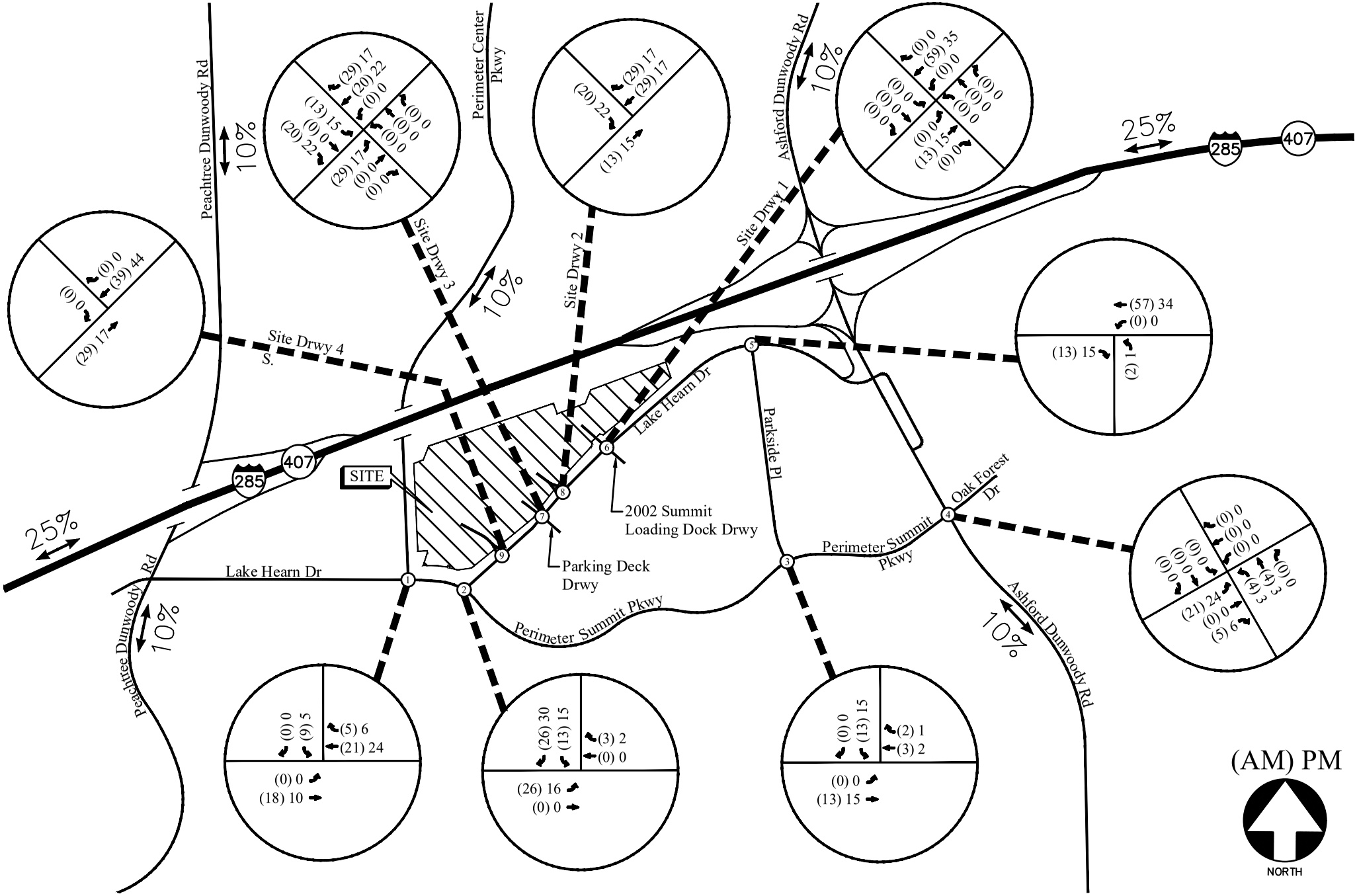
The trip distribution describes how traffic arrives and departs from the site. An overall trip distribution was developed for the site based on a review of GDOT ADT volumes and the locations of major roadways and highways that will serve the development. The site-generated peak hour traffic volumes, shown in Table 4, were assigned to the study area intersections based on this distribution. The outer-leg distribution and AM and PM peak hour new traffic generated by the site are shown in Figure 7 (Residential Trips) and Figure 8 (Retail Trips). Pass-by volumes are shown in Figure 9.



TRIP DISTRIBUTION AND SITE-GENERATED WEEKDAY PEAK HOUR VOLUMES (RESIDENTIAL)

FIGURE 7

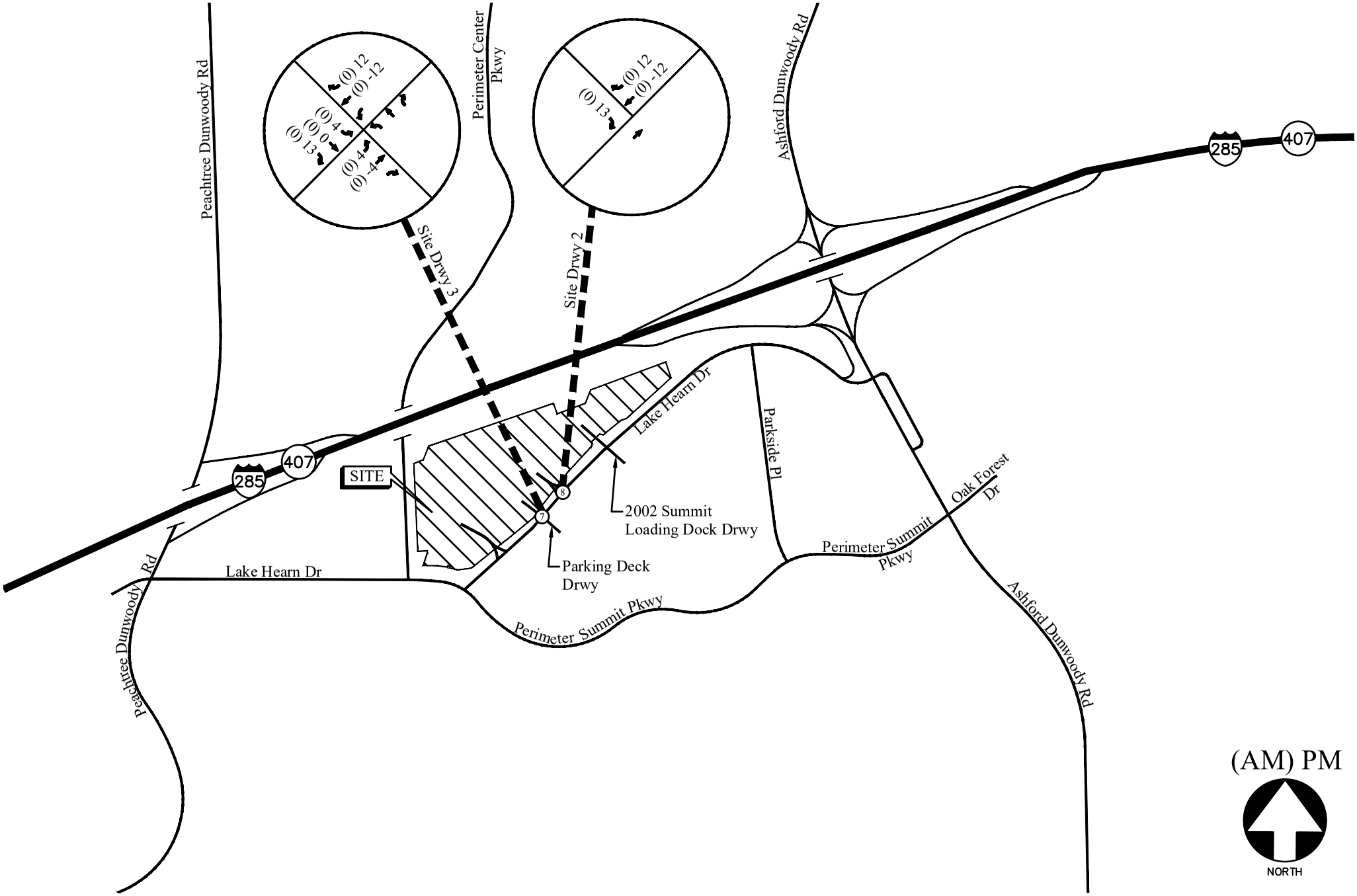
A&R Engineering Inc.



TRIP DISTRIBUTION AND SITE-GENERATED WEEKDAY PEAK HOUR VOLUMES
(COMMERCIAL)

FIGURE 8

A&R Engineering Inc.



SITE PEAK HOUR PASS-BY VOLUMES

FIGURE 9

A&R Engineering Inc.

6.0 FUTURE 2023 TRAFFIC ANALYSIS

The future 2023 traffic operations are analyzed for the "Build" and "No-Build" conditions. This provides a basis of reference for determining both the contribution of the site to overall traffic conditions and if additional improvements are needed to provide sufficient site access and capacity for passing traffic.

Improvements that are identified as "System Improvements" address deficiencies that are found within the existing road network prior to any impacts from the proposed development's added traffic. Improvements that are identified as "Site Mitigation Improvements" address further impacts that are a result of the proposed development's added traffic.

6.1 Annual Traffic Growth

To evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. Based on previous DRI (DRI #2567) submitted in the vicinity of the proposed development, a background growth rate of 1% was used in the analysis. This growth factor was applied to the existing traffic volumes between collector and arterial roadways to estimate the future year traffic volumes prior to the addition of site-generated traffic. The resulting Future "No-Build" volumes on the roadway are shown in Figure 10.

6.2 Future "No-Build" Conditions

The "No-Build" (or background) conditions provide an assessment of how traffic will operate in the study horizon year without the study site being developed as proposed, with projected increases in through traffic volumes due to normal annual growth. The Future "No-Build" volumes consist of the existing traffic volumes (Figure 3) plus increases for annual growth of through traffic.

6.2.1 Planned and Programmed Improvements in Study Area

The following improvements have been identified in the Regional Transportation Plan (Plan 2040), GDOT TransPi, and/or the local comprehensive transportation plan. These improvements are within the vicinity of the proposed development.

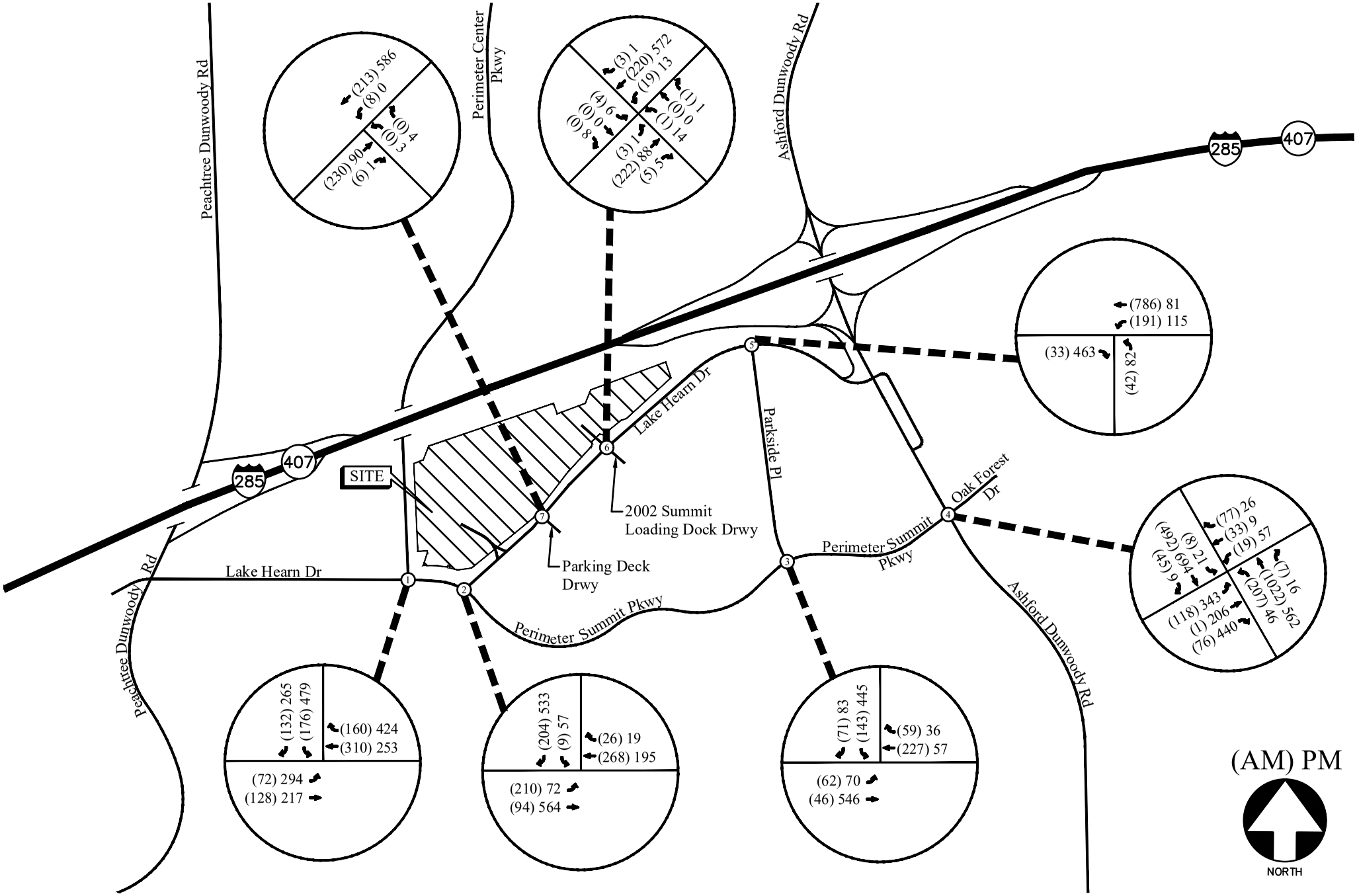
TABLE 6 – PLANNED AND PROGRAMMED IMPROVEMENTS

Project ID	Project	Type of Improvement	Program Year	Source
0000784	I-285 @ SR 400; INC CD LNS FM ROSWELL RD TO ASHFORD DUNWOODY	Reconstruction/ Rehabilitation	-	GDOT GeoPi
0006883	CR 4861/HAMMOND DR FM ASHFORD DUNWOODY RD TO FULTON CO LN	Reconstruction/ Rehabilitation	2052	GDOT GeoPi
0016062	PEACHTREE DUNWOODY ROAD FROM HAMMOND DRIVE TO CRESTLINE PKWY	No additional information provided by GDOT		GDOT GeoPi
0017430	ASHFORD-DUNWOODY ROAD EB RAMP @ I-285	Reconstruction/ Rehabilitation	2021	GDOT GeoPi
0013138	ASHFORD DUNWOODY ROAD & DRESDEN DRIVE-ITS SYS EXPANSION	Reconstruction/ Rehabilitation	-	GDOT GeoPi
0001758	I-285 FM PACES FERRY TO HENDERSON MILL; SR 400 – EXPRESS LANE	Reconstruction/ Rehabilitation	2028	GDOT GeoPi
PCID	EASTBOUND LEFT LANE EXTENSION ON PERIMETER SUMMIT PKWY AT ASHFORD DUNWOODY RD	Median shortening and tree removal to accommodate queue length	-	Ann Hanlon, PCID
PCID	EXTENSION OF I-285 EASTBOUND RAMP	Reconstruction/ Rehabilitation	-	Ann Hanlon, PCID
PCID	IMPROVEMENTS ON ASHFORD DUNWOODY RD TO PERIMETER SUMMIT PKWY AND ADDITION OF WALKING TRAIL	Reconstruction/ Rehabilitation	-	Ann Hanlon, PCID

None of the listed improvements will have a significant negative impact to the study area at full build-out of the proposed development.

6.3 Future "Build" Conditions

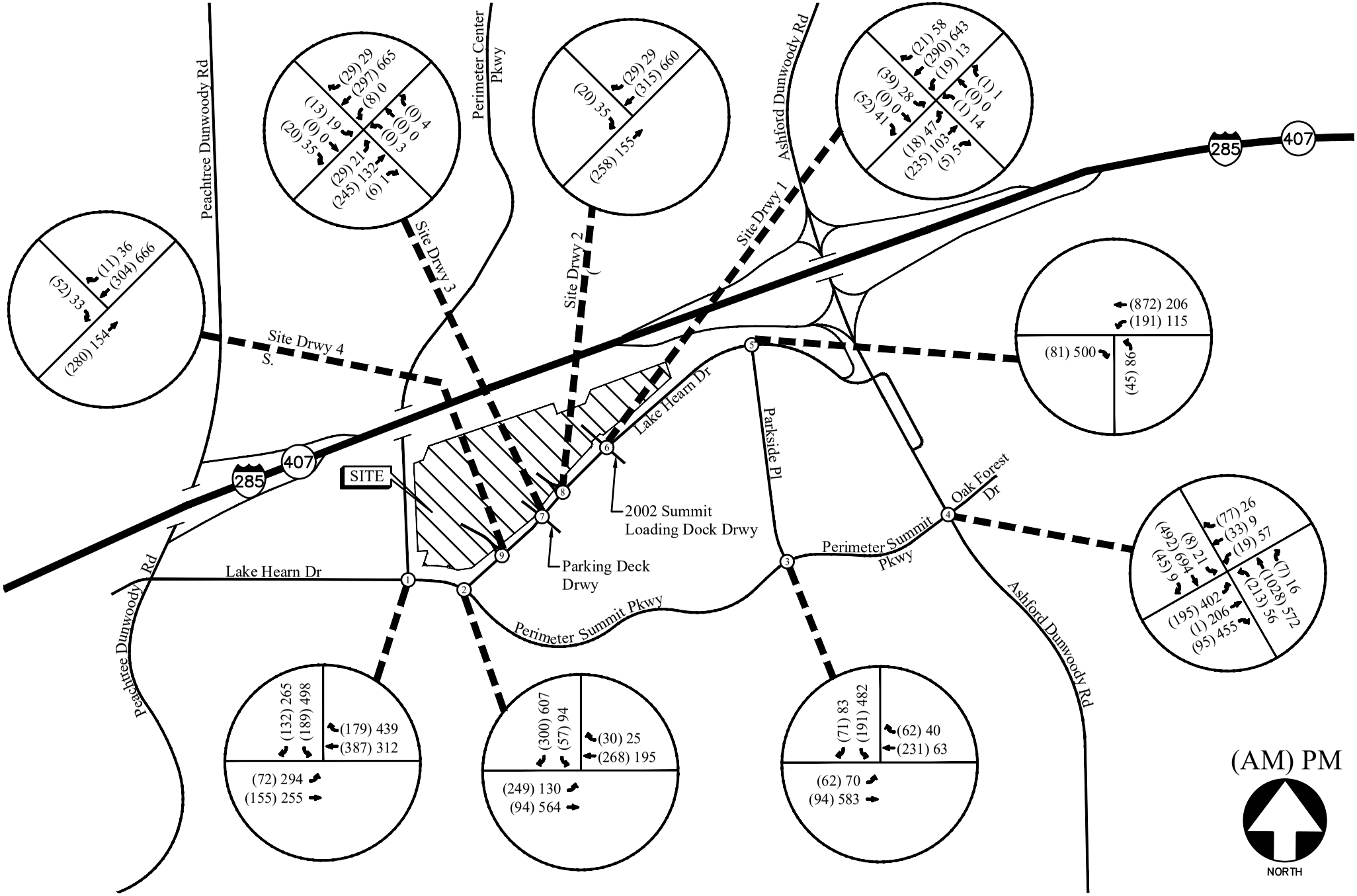
The "Build" or development conditions include the estimated background traffic from the "No-Build" conditions plus the added traffic from the proposed development. In order to evaluate future traffic operations in this area, the additional traffic volumes from the site (Figures 7 and 8) and pass-by volumes (Figure 9) were added to base traffic volumes (Figure 10) to calculate the future traffic volumes after the construction of the development. These total future traffic volumes are shown in Figure 11.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 10

A&R Engineering Inc.



FUTURE (BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 11

A&R Engineering Inc.

6.3.1 Site Access Configuration

The following access configuration was utilized when modeling the proposed site driveway intersections:

- Driveway 1: existing full-access driveway for residential trips
- Driveway 2: proposed right-in/right-out driveway for commercial trips
- Driveway 3: proposed new full-access driveway for commercial trips
- Driveway 4: existing right-in/right-out driveway for residential trips

6.4 Future 2023 Traffic Operations

The future 2023 "No-Build" and "Build" traffic operations were analyzed using the volumes in Figure 10 and Figure 11, respectively. The results of the future traffic operations analysis are shown in Table 7.

TABLE 7 – FUTURE INTERSECTION OPERATIONS

	Intersection	Future Condition: LOS				LOS Standard
		NO-BUILD		BUILD		
		AM Peak	PM Peak	AM Peak	PM Peak	
1	**Lake Hearn Dr @ Perimeter Center Pkwy**	**A**	**C**	**A**	**C**	
	-Eastbound Approach	C	A	B	C	**E**
	-Westbound Approach	A	D	A	B	-
						-
2	**Lake Hearn Dr @ Perimeter Summit Pkwy**	**C**	**B**	**C**	**B**	
	-Eastbound Approach	B	A	D	A	**E**
	-Westbound Approach	E	E	A	E	-
						-
3	**Perimeter Summit Pkwy @ Parkside Pl**	**C**	**A**	**C**	**A**	**E**
	-Eastbound Approach	A	A	A	A	-
	-Westbound Approach	D	A	D	A	-
4	**Ashford Dunwoody Rd @ Perimeter Summit Pkwy***	**C**	**D**	**D**	**D**	***E***
	-Eastbound Approach	B	E	B	E	-
	-Westbound Approach	D	D	D	D	-
	-Northbound Approach	B	B	C	B	-
	-Southbound Approach	B	C	B	C	-
5	**Lake Hearn Dr @ Parkside Pl***	**A**	**B**	**A**	**B**	**E**
	-Westbound Approach	A	A	A	A	-
	-Northbound Approach	E	D	D	D	-
6	**Lake Hearn Dr @ Site Drwy 1 (N. Residential Drwy) / 2002 Summit Loading Dock Drwy**					
	-Eastbound Approach	B	B	B	C	E
	-Westbound Approach	B	B	B	C	E
	-Northbound Left	A	A	A	A	E
	-Southbound Left	A	A	A	A	E
7	**Lake Hearn Dr @ Site Drwy 3 (S. Retail Drwy) / Parking Deck Drwy**					
	-Eastbound Approach	-	-	B	C	E
	-Westbound Approach	A	A	A	B	E

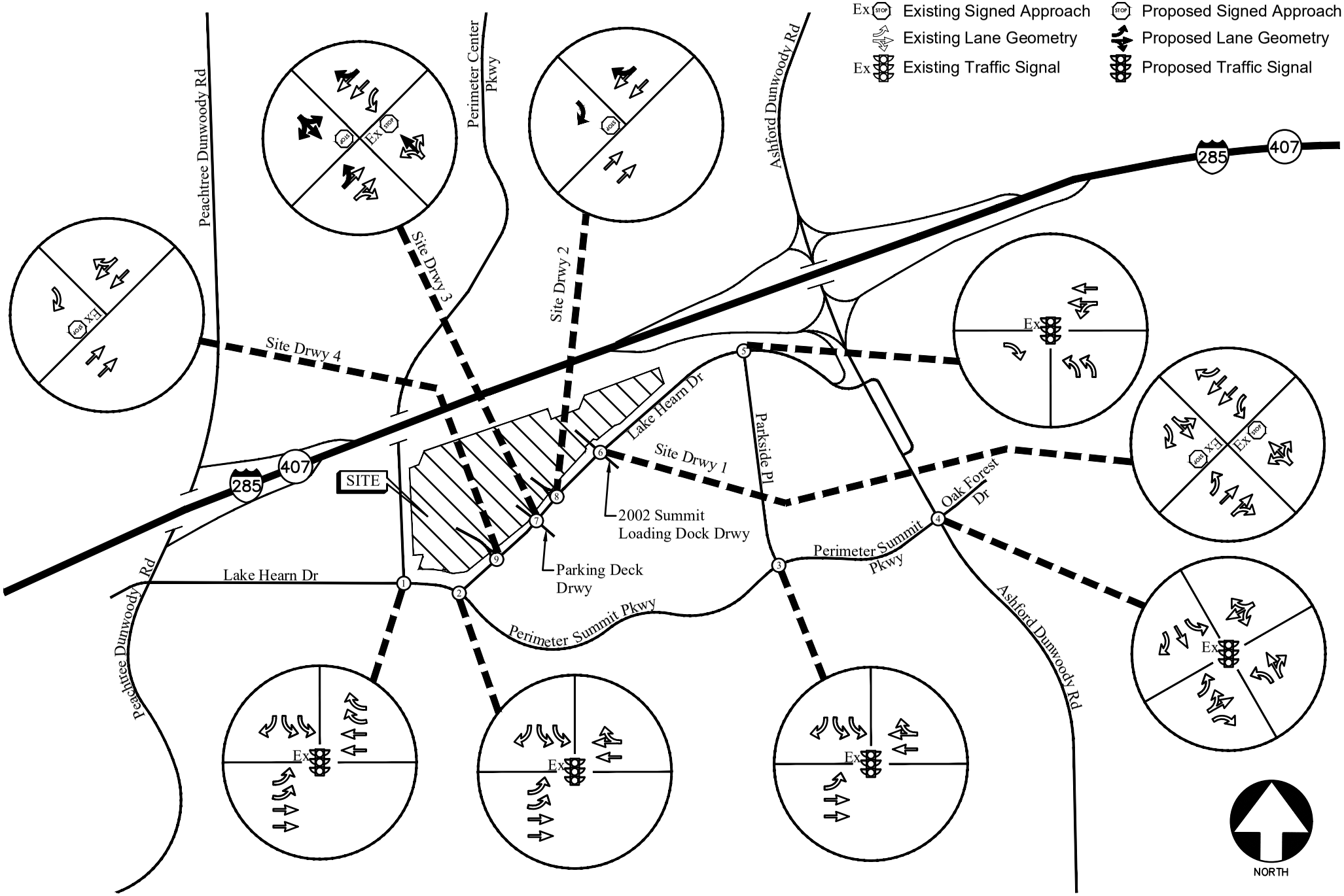
	-Northbound Left -Southbound Left	- A	- A	A A	A A	E E
8	**Lake Hearn Dr @ Site Drwy 2 (N. Retail RIRO Drwy)** -Eastbound Approach	-	-	A	B	E
9	**Lake Hearn Dr @ Site Drwy 4 (S. Residential RIRO Drwy)** -Eastbound Approach	-	-	B	B	E

* HCM 2000 results

The results of future traffic operations analysis indicate that all the study intersections are projected to operate at level-of-service "D" or better in both the AM and PM peak hours in the future "no-build" and "build" conditions. The difference between the results of the "no-build" and "build" analysis are insignificant. All intersections will continue to operate with an acceptable delay during AM and PM peak hours.

Perimeter Community Improvement District (PCID) has a planned improvement project at the intersection of Ashford Dunwoody Road and Perimeter Summit Parkway. The existing eastbound left turn lane on Perimeter Summit Parkway will be extended to increase available left turn lane storage. This will be accommodated by removal of existing trees and shorting of the existing median. A 95th-percentile analysis at this intersection indicated that in the available storage was not sufficient to accommodate queuing for the eastbound left turn movement during the PM peak hour in the existing, "no-build", and "build" conditions.

Recommendations on traffic control and lane geometry are shown graphically in Figure 12.



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 12

A&R Engineering Inc.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the added traffic from the proposed mixed-use development that will be located at 1400 Lake Hearn Drive in Brookhaven, Georgia.

The development proposes access on Lake Hearn Drive at the following locations:

- Driveway 1: existing full-access driveway for residential trips
- Driveway 2: proposed right-in/right-out driveway for commercial trips
- Driveway 3: proposed new full-access driveway for commercial trips
- Driveway 4: existing right-in/right-out driveway for residential trips

Driveway 1 is recommended to be operate as designed in existing conditions, with one entering lane and two exiting lanes (left turn and right turn lanes). Driveways 2, 3, and 4 are to have one entering and one exiting lane. All full access driveways (driveways 1 and 3) are recommended to be stop controlled on the driveway approach, while the right-in/right-out driveways (driveways 2 and 4) are recommended to be yield controlled on the driveway approach. Entering and exiting movements are to be made from the existing lanes on Lake Hearn Drive, except for Driveway 3. Although a left turn lane is not required, it is recommended that a left turn lane with 100 ft storage be accommodated at Driveway 3.

The intersection of Lake Hearn Drive and driveway 2 is median divided and therefore does not need to align with the opposing driveway. Driveway 3 is slightly jogged with the opposing driveway and can't be shifted to the west due to stream buffer requirements and can't be shifted to the east due to existing concrete column which supports the MARTA train rail. The purpose of Driveways 2 and 3 is to provide adequate circulation for commercial trips since the existing driveways are proposed to be used for residential trips.

A comparison between trips generated by the existing building and the proposed development shown in Tables 4 and 5 in Section 5.4 show that the traffic that will be generated by the proposed development will be less than the traffic that was produced by the existing building during the AM and PM peak hours. The traffic counts that that were used in the study were conducted in 2017, while the existing building was still in use. However, to evaluate worst case traffic in the area, existing building traffic was not deducted from the traffic counts used in this analysis.

The study evaluated traffic operations under the following conditions: existing (2020), no-build (2023), and build (2023, includes site generated traffic). The results of the analysis show that in the existing conditions, all intersections are operating at a level-of-service of "D" or better. After the addition of background traffic growth and site generated traffic, the study intersections were operating at a comparable level of service as the existing conditions analysis.

According to the results of the analyses, the proposed development's traffic impact at nearby intersections is insignificant. Therefore, there are no recommendations for system improvements or site mitigation improvements to improve operations at the study intersections. PCID has a planned improvement project to extend the eastbound left turn lane at the intersection of Ashford Dunwoody Road Perimeter Summit Parkway to address the existing queuing issue at this movement.

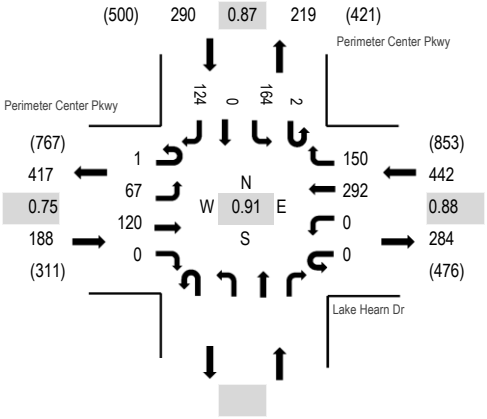
Appendix

Intersection Traffic Counts

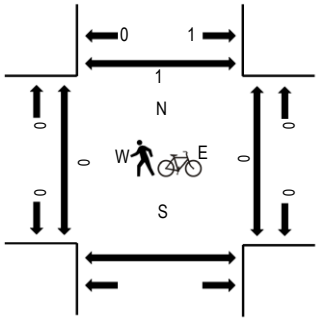
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 2 Perimeter Center Pkwy & Lake Hearn Dr AM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:45 AM - 09:00 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Perimeter Center Pkwy Eastbound				Lake Hearn Dr Westbound				Northbound				Perimeter Center Pkwy Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	2	17	0	0	0	50	23					0	16	0	21	129	744	0	0		0
7:15 AM	0	10	16	0	0	0	67	47					1	23	0	24	188	841	0	0		0
7:30 AM	0	11	22	0	0	0	61	37					0	26	0	24	181	897	0	0		0
7:45 AM	0	17	28	0	0	0	73	53					1	44	0	30	246	914	0	0		0
8:00 AM	0	12	19	0	0	0	85	28					0	43	0	39	226	920	0	0		0
8:15 AM	0	18	31	0	0	0	84	49					1	36	0	25	244		0	0		0
8:30 AM	1	11	33	0	0	0	57	33					1	29	0	33	198		0	0		1
8:45 AM	0	26	37	0	0	0	66	40					0	56	0	27	252		0	0		0

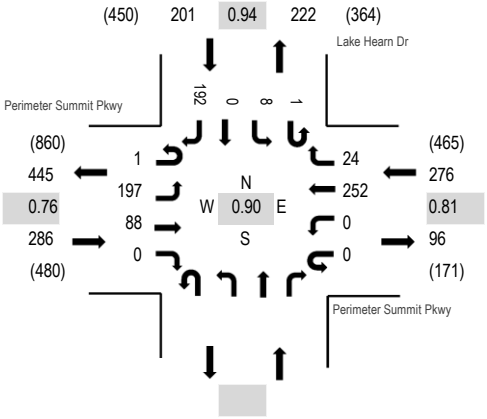
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0					0	0	0	0	0
Lights	1	67	113	0	0	0	282	139					1	158	0	123	884
Mediums	0	0	7	0	0	0	10	11					1	6	0	1	36
Total	1	67	120	0	0	0	292	150					2	164	0	124	920

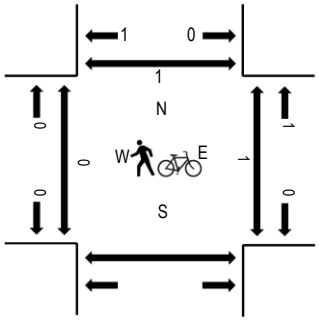
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 3 Lake Hearn Dr & Perimeter Summit Pkwy AM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:45 AM - 09:00 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Perimeter Summit Pkwy Eastbound				Perimeter Summit Pkwy Westbound				Northbound				Lake Hearn Dr Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	21	14	0	0	0	30	3					0	0	0	41	109	632	0	5		0
7:15 AM	0	27	12	0	0	0	47	5					0	1	0	73	165	707	0	1		0
7:30 AM	0	33	15	0	0	0	41	4					0	2	0	59	154	748	0	0		0
7:45 AM	1	43	28	0	0	0	53	6					0	3	0	70	204	754	0	0		0
8:00 AM	0	44	17	0	0	0	47	6					0	4	0	66	184	763	0	0		1
8:15 AM	1	41	26	0	0	0	78	7					0	0	0	53	206		0	0		0
8:30 AM	0	46	17	0	0	0	58	5					0	1	0	33	160		0	0		0
8:45 AM	0	66	28	0	0	0	69	6					1	3	0	40	213		0	1		0

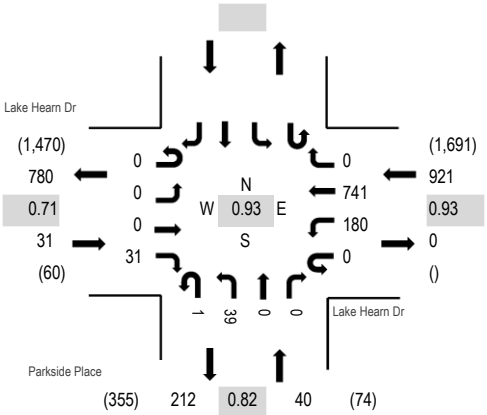
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0					0	0	0	0	0
Lights	0	194	79	0	0	0	239	24					1	7	0	184	728
Mediums	1	3	9	0	0	0	13	0					0	1	0	8	35
Total	1	197	88	0	0	0	252	24					1	8	0	192	763

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

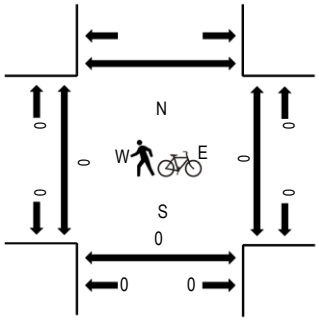
Location: 6 Parkside Place & Lake Hearn Dr AM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 08:00 AM - 08:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Lake Hearn Dr Eastbound				Lake Hearn Dr Westbound				Parkside Place Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	0	5	0	22	142	0	0	1	0	0					170	883	0	0	0	
7:15 AM	0	0	0	6	0	35	176	0	0	9	0	0					226	981	0	0	0	
7:30 AM	0	0	0	5	0	45	185	0	1	9	0	0					245	992	0	0	0	
7:45 AM	0	0	0	7	0	45	182	0	0	8	0	0					242	965	0	0	0	
8:00 AM	0	0	0	13	0	50	197	0	0	8	0	0					268	942	0	0	0	
8:15 AM	0	0	0	6	0	40	177	0	0	14	0	0					237		0	0	0	
8:30 AM	0	0	0	9	0	31	166	0	0	12	0	0					218		0	0	0	
8:45 AM	0	0	0	9	0	26	172	0	0	12	0	0					219		0	0	0	

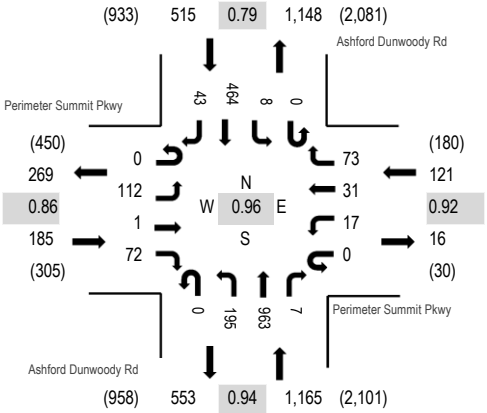
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	1	0	0	0	0	0	0					1
Lights	0	0	0	26	0	178	731	0	1	39	0	0					975
Mediums	0	0	0	5	0	1	10	0	0	0	0	0					16
Total	0	0	0	31	0	180	741	0	1	39	0	0					992

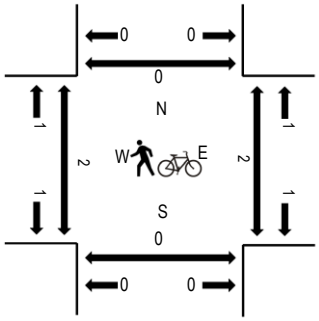
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 8 Ashford Dunwoody Rd & Perimeter Summit Pkwy AM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:45 AM - 09:00 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Perimeter Summit Pkwy Eastbound				Perimeter Summit Pkwy Westbound				Ashford Dunwoody Rd Northbound				Ashford Dunwoody Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	14	0	11	0	0	0	5	0	23	158	0	0	3	73	6	293	1,533	0	0	0	0
7:15 AM	1	23	1	7	0	1	5	9	0	23	195	1	0	0	89	18	373	1,711	0	0	0	0
7:30 AM	0	9	0	12	0	1	2	14	0	31	213	2	0	2	89	19	394	1,836	1	1	0	0
7:45 AM	1	27	0	14	0	2	5	15	0	36	251	3	0	2	106	11	473	1,943	0	1	0	0
8:00 AM	0	35	1	18	0	2	6	20	0	37	242	1	0	0	102	7	471	1,986	1	0	0	0
8:15 AM	0	22	0	18	0	5	10	18	0	62	249	2	0	0	99	13	498		0	1	0	0
8:30 AM	0	28	0	12	0	4	7	21	0	55	240	3	0	2	119	10	501		1	0	0	0
8:45 AM	0	27	0	24	0	6	8	14	0	41	232	1	0	6	144	13	516		0	1	0	0

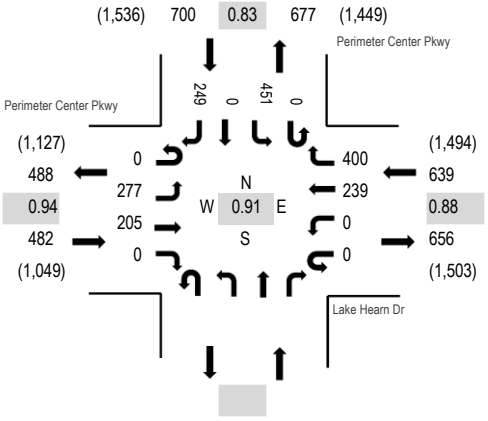
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
Lights	0	108	0	69	0	16	30	72	0	194	954	6	0	8	442	42	1,941
Mediums	0	4	1	3	0	1	1	1	0	1	9	1	0	0	19	1	42
Total	0	112	1	72	0	17	31	73	0	195	963	7	0	8	464	43	1,986

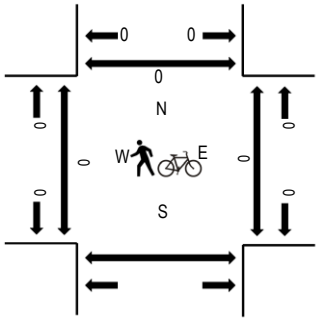
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 2 Perimeter Center Pkwy & Lake Hearn Dr PM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Perimeter Center Pkwy Eastbound				Lake Hearn Dr Westbound				Northbound				Perimeter Center Pkwy Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	31	70	0	0	0	73	96					0	66	0	38	375	1,499	0	0		0
4:15 PM	0	30	45	0	0	0	50	93					0	71	0	41	330	1,578	0	0		0
4:30 PM	1	43	58	0	0	0	80	87					1	118	0	57	445	1,695	0	0		0
4:45 PM	0	31	48	0	1	0	45	107					1	83	0	33	349	1,752	0	0		0
5:00 PM	0	67	55	0	0	0	64	131					0	94	0	43	454	1,821	0	0		0
5:15 PM	0	75	38	0	0	0	68	103					0	108	0	55	447	1,738	0	0		0
5:30 PM	0	75	53	0	0	0	56	98					0	144	0	76	502	1,679	0	0		0
5:45 PM	0	60	59	0	0	0	51	68					0	105	0	75	418		0	0		0
6:00 PM	0	54	46	0	0	0	41	65					1	101	0	63	371		0	0		0
6:15 PM	0	67	42	0	0	0	52	65					0	98	0	64	388		1	0		1

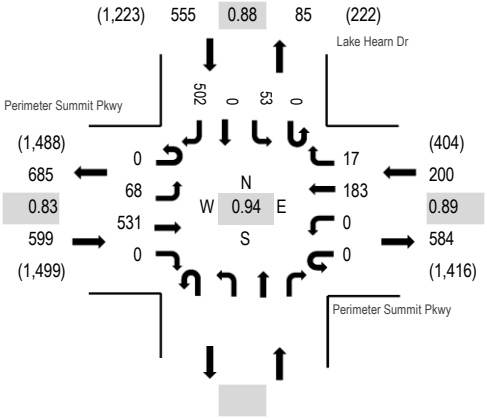
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	2	0					0	0	0	0	2
Lights	0	276	201	0	0	0	231	397					0	448	0	249	1,802
Mediums	0	1	4	0	0	0	6	3					0	3	0	0	17
Total	0	277	205	0	0	0	239	400					0	451	0	249	1,821

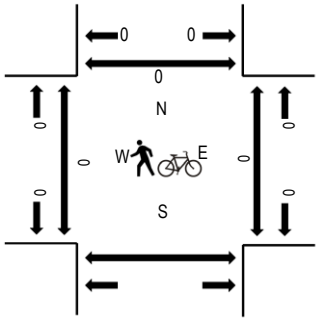
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 3 Lake Hearn Dr & Perimeter Summit Pkwy PM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Perimeter Summit Pkwy Eastbound				Perimeter Summit Pkwy Westbound				Northbound				Lake Hearn Dr Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	6	126	0	0	0	36	0					0	17	0	134	319	1,257	0	2		0
4:15 PM	0	3	113	0	0	0	26	0					0	13	0	117	272	1,291	0	0		0
4:30 PM	0	5	170	0	0	0	42	2					0	13	0	128	360	1,354	0	0		0
4:45 PM	0	10	124	0	0	0	44	5					0	17	0	106	306	1,351	0	0		0
5:00 PM	0	15	129	0	0	0	51	0					0	14	0	144	353	1,335	0	0		0
5:15 PM	0	38	108	0	0	0	46	10					0	9	0	124	335	1,255	0	0		0
5:30 PM	0	34	162	0	0	0	36	2					0	8	0	115	357	1,181	0	0		0
5:45 PM	0	35	127	0	0	0	35	3					1	4	0	85	290		0	0		0
6:00 PM	0	30	119	0	0	0	30	4					0	6	0	84	273		0	1		0
6:15 PM	0	19	126	0	0	0	32	0					0	11	0	73	261		0	0		0

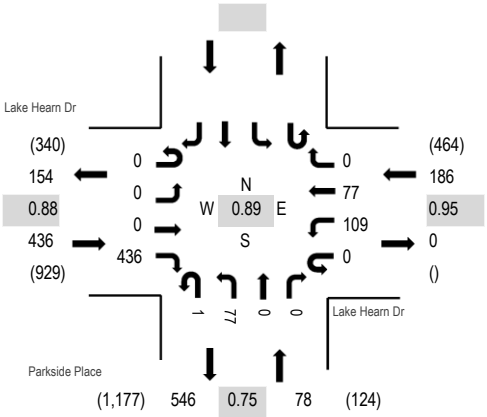
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0					0	0	0	1	1
Lights	0	65	523	0	0	0	179	16					0	52	0	495	1,330
Mediums	0	3	8	0	0	0	4	1					0	1	0	6	23
Total	0	68	531	0	0	0	183	17					0	53	0	502	1,354

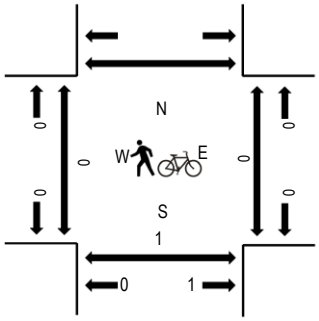
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 6 Parkside Place & Lake Hearn Dr PM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Lake Hearn Dr Eastbound				Lake Hearn Dr Westbound				Parkside Place Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	0	112	0	21	25	0	1	4	0	0					163	598	0	0	0	
4:15 PM	0	0	0	66	0	22	26	0	1	1	0	0					116	632	0	0	0	
4:30 PM	0	0	0	90	0	21	33	0	1	7	0	0					152	690	0	0	0	
4:45 PM	0	0	0	100	0	31	23	0	0	13	0	0					167	700	0	0	0	
5:00 PM	0	0	0	124	0	35	21	0	0	17	0	0					197	655	0	0	0	
5:15 PM	0	0	0	112	0	23	17	0	1	21	0	0					174	602	0	0	0	
5:30 PM	0	0	0	100	0	20	16	0	0	26	0	0					162	548	0	0	1	
5:45 PM	0	0	0	77	0	24	9	0	0	12	0	0					122		0	0	0	
6:00 PM	0	0	0	83	0	21	28	0	1	11	0	0					144		0	0	0	
6:15 PM	0	0	0	65	0	25	23	0	0	7	0	0					120		0	0	0	

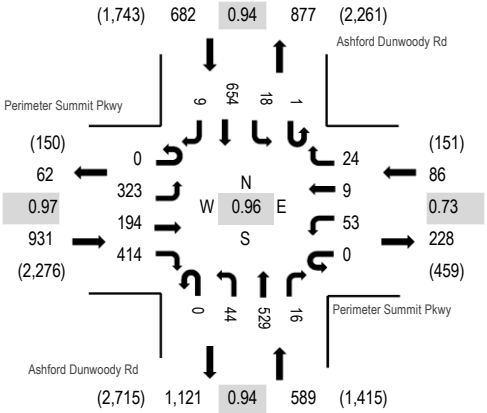
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0					0
Lights	0	0	0	434	0	108	74	0	1	73	0	0					690
Mediums	0	0	0	2	0	1	3	0	0	4	0	0					10
Total	0	0	0	436	0	109	77	0	1	77	0	0					700

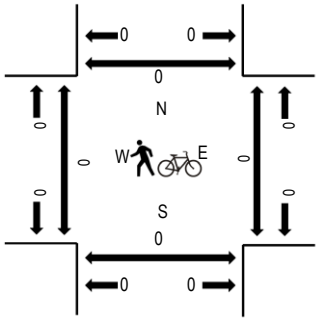
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 8 Ashford Dunwoody Rd & Perimeter Summit Pkwy PM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 05:15 PM - 06:15 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Perimeter Summit Pkwy Eastbound				Perimeter Summit Pkwy Westbound				Ashford Dunwoody Rd Northbound				Ashford Dunwoody Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	113	13	85	0	1	2	3	0	6	137	7	0	5	187	4	563	2,198	0	0	0	0
4:15 PM	0	114	19	104	0	6	1	4	0	18	113	3	0	5	165	2	554	2,191	0	0	0	0
4:30 PM	0	111	17	80	0	1	2	1	0	9	127	2	0	5	179	5	539	2,231	0	0	0	0
4:45 PM	0	89	36	87	0	11	0	5	0	10	124	3	0	10	162	5	542	2,246	0	0	0	0
5:00 PM	0	104	38	90	0	10	0	1	0	12	136	3	1	6	154	1	556	2,276	0	0	0	0
5:15 PM	0	98	37	92	0	7	3	5	0	10	143	4	1	3	189	2	594	2,288	0	0	0	0
5:30 PM	0	71	58	111	0	18	4	8	0	14	120	1	0	0	147	2	554	2,237	0	0	0	0
5:45 PM	0	75	47	97	0	17	0	4	0	11	141	8	0	9	161	2	572		0	0	0	0
6:00 PM	0	79	52	114	0	11	2	7	0	9	125	3	0	6	157	3	568		0	0	0	0
6:15 PM	0	94	48	103	0	15	1	1	0	4	106	6	0	5	154	6	543		0	0	0	0

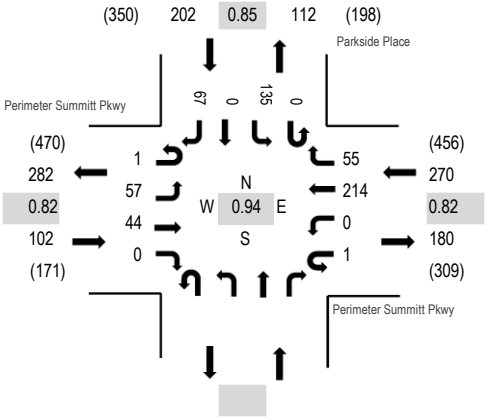
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Lights	0	321	194	413	0	53	9	24	0	44	523	16	1	18	646	8	2,270
Mediums	0	2	0	1	0	0	0	0	0	0	6	0	0	0	8	0	17
Total	0	323	194	414	0	53	9	24	0	44	529	16	1	18	654	9	2,288

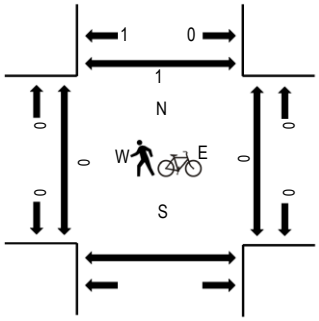
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 7 Parkside Place & Perimeter Summitt Pkwy AM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:15 AM - 08:30 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Perimeter Summitt Pkwy Eastbound				Perimeter Summitt Pkwy Westbound				Northbound				Parkside Place Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	4	5	0	0	0	25	6					0	21	0	9	70	403	0	0		0
7:15 AM	0	9	8	0	1	0	40	9					1	22	0	11	101	470	0	0		0
7:30 AM	0	12	4	0	0	0	31	19					0	20	0	15	101	522	0	0		0
7:45 AM	0	12	15	0	0	0	42	13					1	33	0	15	131	558	0	0		0
8:00 AM	0	15	10	0	1	0	42	8					0	46	0	15	137	574	0	0		1
8:15 AM	0	15	12	0	0	0	60	22					0	19	0	25	153		0	0		0
8:30 AM	0	13	6	0	0	0	51	14					0	38	0	15	137		0	0		0
8:45 AM	1	14	16	0	0	0	61	11					0	32	0	12	147		0	0		0

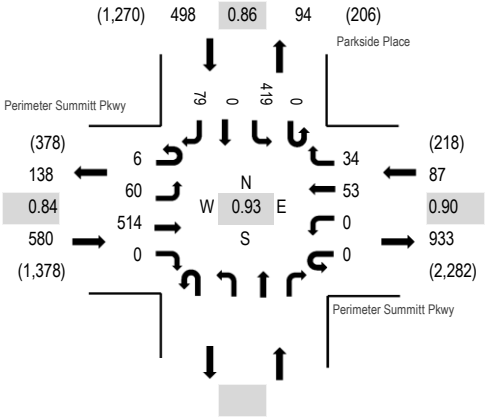
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0					0	0	0	0	0
Lights	1	49	41	0	1	0	210	55					0	130	0	58	545
Mediums	0	8	3	0	0	0	4	0					0	5	0	9	29
Total	1	57	44	0	1	0	214	55					0	135	0	67	574

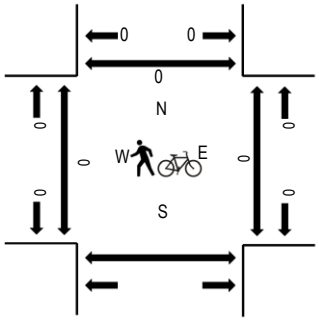
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 7 Parkside Place & Perimeter Summitt Pkwy PM
Date and Start Time: Tuesday, June 20, 2017
Peak Hour: 05:15 PM - 06:15 PM
Peak 15-Minutes: 06:00 PM - 06:15 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Perimeter Summitt Pkwy Eastbound				Perimeter Summitt Pkwy Westbound				Northbound				Parkside Place Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	13	128	0	1	0	16	2					0	126	0	21	307	1,142	0	0		0
4:15 PM	0	10	126	0	0	0	12	12					0	87	0	16	263	1,129	0	0		0
4:30 PM	0	14	120	0	0	0	20	4					0	119	0	27	304	1,159	0	0		0
4:45 PM	3	12	116	0	0	0	17	4					0	81	0	35	268	1,153	0	0		0
5:00 PM	1	10	96	0	0	0	20	7					0	135	0	25	294	1,146	0	0		0
5:15 PM	3	14	128	0	0	0	14	9					0	101	0	24	293	1,165	0	0		0
5:30 PM	0	14	108	0	0	0	16	10					0	132	0	18	298	1,137	0	0		0
5:45 PM	2	10	127	0	0	0	12	8					0	87	0	15	261		0	0		0
6:00 PM	1	22	151	0	0	0	11	7					0	99	0	22	313		0	0		0
6:15 PM	0	18	131	0	0	0	10	6					0	83	0	17	265		0	0		0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	1	0					0	0	0	0	1
Lights	6	59	512	0	0	0	52	34					0	419	0	75	1,157
Mediums	0	1	2	0	0	0	0	0					0	0	0	4	7
Total	6	60	514	0	0	0	53	34					0	419	0	79	1,165

A & R Engineering. Inc.

2160 Kingston Court, suite 'O'
Marietta, GA 30067

TMC DATA
Lake Hearn Dr @ Parking Lot Drwy
7-9 am | 4-6 pm

File Name : 20200098
Site Code : 20200098
Start Date : 8/11/2020
Page No : 1

Groups Printed- Cars, Buses & Trucks

	Lake Hearn Dr Northbound				Lake Hearn Dr Southbound				Eastbound				Parking Lot Drwy Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	6	0	6	2	34	0	36	0	0	0	0	0	0	0	0	42
07:15 AM	0	3	1	4	0	47	0	47	0	0	0	0	0	0	0	0	51
07:30 AM	0	1	0	1	0	64	0	64	0	0	0	0	0	0	0	0	65
07:45 AM	0	7	1	8	3	78	0	81	0	0	0	0	0	0	0	0	89
Total	0	17	2	19	5	223	0	228	0	0	0	0	0	0	0	0	247
08:00 AM	0	3	3	6	2	68	0	70	0	0	0	0	0	0	0	0	76
08:15 AM	0	1	1	2	1	50	0	51	0	0	0	0	0	0	0	0	53
08:30 AM	0	5	0	5	2	38	0	40	0	0	0	0	1	0	0	1	46
08:45 AM	0	1	0	1	2	28	0	30	0	0	0	0	0	0	0	0	31
Total	0	10	4	14	7	184	0	191	0	0	0	0	1	0	0	1	206
*** BREAK ***																	
04:00 PM	0	1	0	1	0	18	0	18	0	0	0	0	1	0	1	2	21
04:15 PM	0	1	1	2	0	14	0	14	0	0	0	0	1	0	1	2	18
04:30 PM	0	3	0	3	0	21	0	21	0	0	0	0	0	0	1	1	25
04:45 PM	0	1	0	1	0	18	0	18	0	0	0	0	0	0	0	0	19
Total	0	6	1	7	0	71	0	71	0	0	0	0	2	0	3	5	83
05:00 PM	0	2	0	2	1	14	0	15	0	0	0	0	2	0	1	3	20
05:15 PM	0	0	0	0	0	14	0	14	0	0	0	0	0	0	0	0	14
05:30 PM	0	3	0	3	0	15	0	15	0	0	0	0	2	0	0	2	20
05:45 PM	0	3	0	3	0	12	0	12	0	0	0	0	4	0	0	4	19
Total	0	8	0	8	1	55	0	56	0	0	0	0	8	0	1	9	73
Grand Total	0	41	7	48	13	533	0	546	0	0	0	0	11	0	4	15	609
Apprch %	0	85.4	14.6		2.4	97.6	0		0	0	0		73.3	0	26.7		
Total %	0	6.7	1.1	7.9	2.1	87.5	0	89.7	0	0	0	0	1.8	0	0.7	2.5	

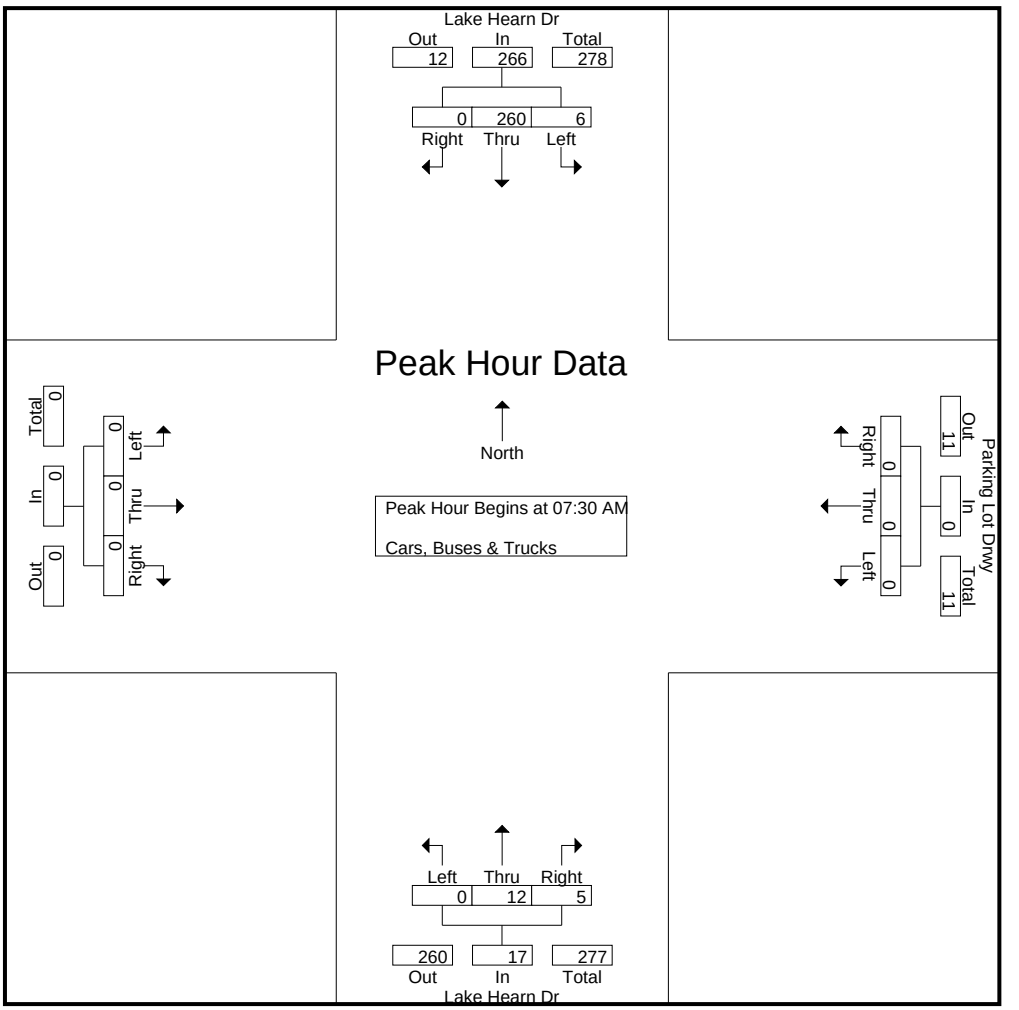
A & R Engineering. Inc.

2160 Kingston Court, suite 'O'
Marietta, GA 30067

TMC DATA
Lake Hearn Dr @ Parking Lot Drwy
7-9 am | 4-6 pm

File Name : 20200098
Site Code : 20200098
Start Date : 8/11/2020
Page No : 2

	Lake Hearn Dr Northbound				Lake Hearn Dr Southbound				Eastbound				Parking Lot Drwy Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	1	0	1	0	64	0	64	0	0	0	0	0	0	0	0	65
07:45 AM	0	**7**	1	**8**	**3**	**78**	0	**81**	0	0	0	0	0	0	0	0	**89**
08:00 AM	0	3	**3**	6	2	68	0	70	0	0	0	0	0	0	0	0	76
08:15 AM	0	1	1	2	1	50	0	51	0	0	0	0	0	0	0	0	53
Total Volume	0	12	5	17	6	260	0	266	0	0	0	0	0	0	0	0	283
% App. Total	0	70.6	29.4		2.3	97.7	0		0	0	0		0	0	0		
PHF	.000	.429	.417	.531	.500	.833	.000	.821	.000	.000	.000	.000	.000	.000	.000	.000	.795



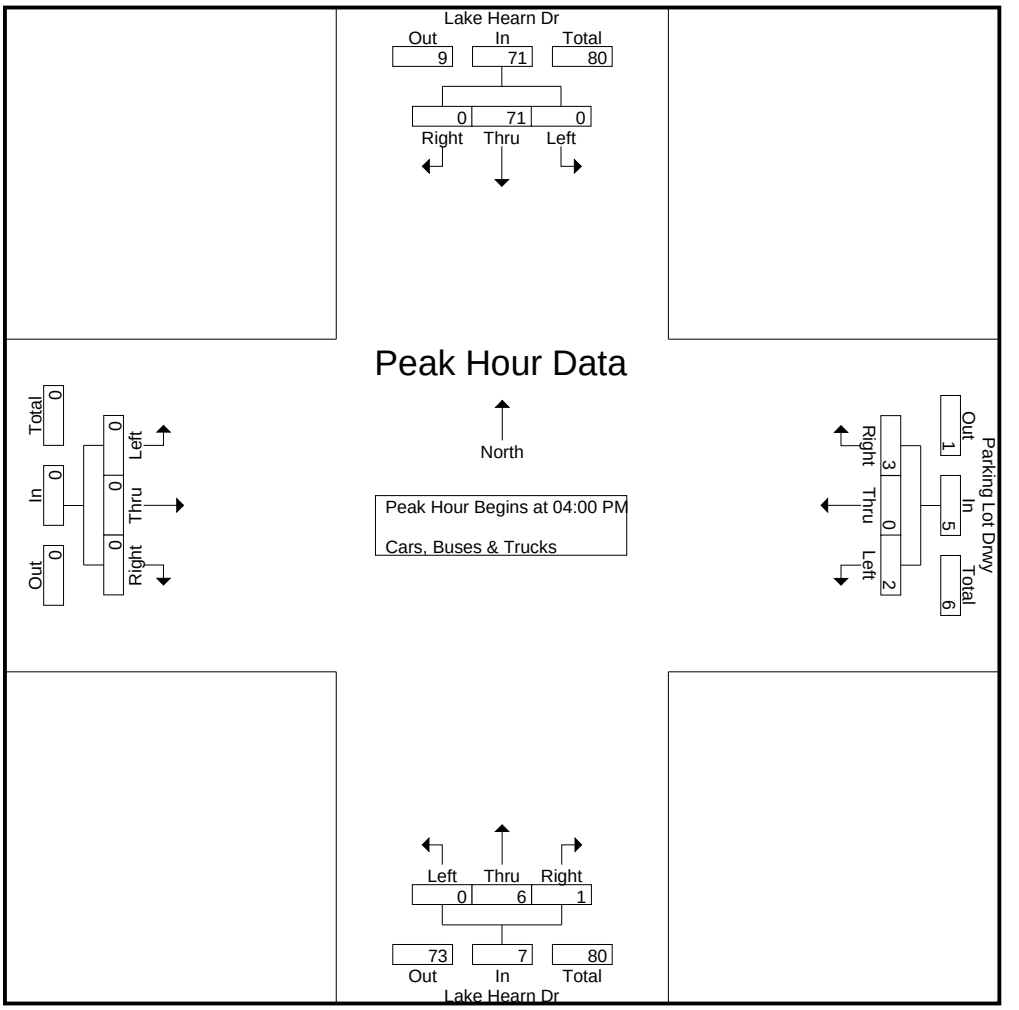
A & R Engineering. Inc.

2160 Kingston Court, suite 'O'
Marietta, GA 30067

TMC DATA
Lake Hearn Dr @ Parking Lot Drwy
7-9 am | 4-6 pm

File Name : 20200098
Site Code : 20200098
Start Date : 8/11/2020
Page No : 3

	Lake Hearn Dr Northbound				Lake Hearn Dr Southbound				Eastbound				Parking Lot Drwy Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	1	0	1	0	18	0	18	0	0	0	0	**1**	0	**1**	**2**	21
04:15 PM	0	1	**1**	2	0	14	0	14	0	0	0	0	1	0	1	2	18
04:30 PM	0	**3**	0	**3**	0	**21**	0	**21**	0	0	0	0	0	0	1	1	**25**
04:45 PM	0	1	0	1	0	18	0	18	0	0	0	0	0	0	0	0	19
Total Volume	0	6	1	7	0	71	0	71	0	0	0	0	2	0	3	5	83
% App. Total	0	85.7	14.3		0	100	0		0	0	0		40	0	60		
PHF	.000	.500	.250	.583	.000	.845	.000	.845	.000	.000	.000	.000	.500	.000	.750	.625	.830



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA
Lake Hearn Dr @ Center Drwy
7-9 am | 4-6 pm

File Name : 20200101
Site Code : 20200101
Start Date : 8/18/2020
Page No : 1

Groups Printed- Cars, Buses & Trucks

	Center Drwy Northbound				Center Drwy Southbound				Lake Hearn Dr Eastbound				Lake Hearn Dr Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	58	3	63	63
07:15 AM	0	0	0	0	0	0	1	1	0	1	0	1	1	50	5	56	58
07:30 AM	0	0	0	0	0	0	1	1	0	3	0	3	3	52	1	56	60
07:45 AM	1	0	0	1	0	0	0	0	1	1	0	2	3	78	1	82	85
Total	1	0	0	1	0	0	2	2	1	5	0	6	9	238	10	257	266
08:00 AM	1	0	0	1	0	0	0	0	0	3	1	4	6	58	0	64	69
08:15 AM	1	0	0	1	1	0	0	1	1	4	3	8	2	49	0	51	61
08:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	5	31	1	37	38
08:45 AM	1	0	1	2	1	0	0	1	0	5	1	6	6	21	0	27	36
Total	3	0	1	4	2	0	0	2	1	13	5	19	19	159	1	179	204
*** BREAK ***																	
04:00 PM	1	0	8	9	0	0	0	0	0	1	0	1	0	10	0	10	20
04:15 PM	1	0	2	3	0	0	0	0	0	3	0	3	1	15	0	16	22
04:30 PM	0	0	3	3	0	0	1	1	1	2	0	3	0	15	0	15	22
04:45 PM	1	0	1	2	0	0	0	0	0	0	0	0	0	11	0	11	13
Total	3	0	14	17	0	0	1	1	1	6	0	7	1	51	0	52	77
05:00 PM	2	0	1	3	6	0	0	6	1	1	1	3	1	14	0	15	27
05:15 PM	0	0	2	2	3	0	1	4	0	2	2	4	3	10	0	13	23
05:30 PM	1	0	1	2	2	0	0	2	0	2	1	3	2	10	1	13	20
05:45 PM	2	0	2	4	0	0	0	0	0	1	0	1	4	7	0	11	16
Total	5	0	6	11	11	0	1	12	1	6	4	11	10	41	1	52	86
Grand Total	12	0	21	33	13	0	4	17	4	30	9	43	39	489	12	540	633
Apprch %	36.4	0	63.6		76.5	0	23.5		9.3	69.8	20.9		7.2	90.6	2.2		
Total %	1.9	0	3.3	5.2	2.1	0	0.6	2.7	0.6	4.7	1.4	6.8	6.2	77.3	1.9	85.3	

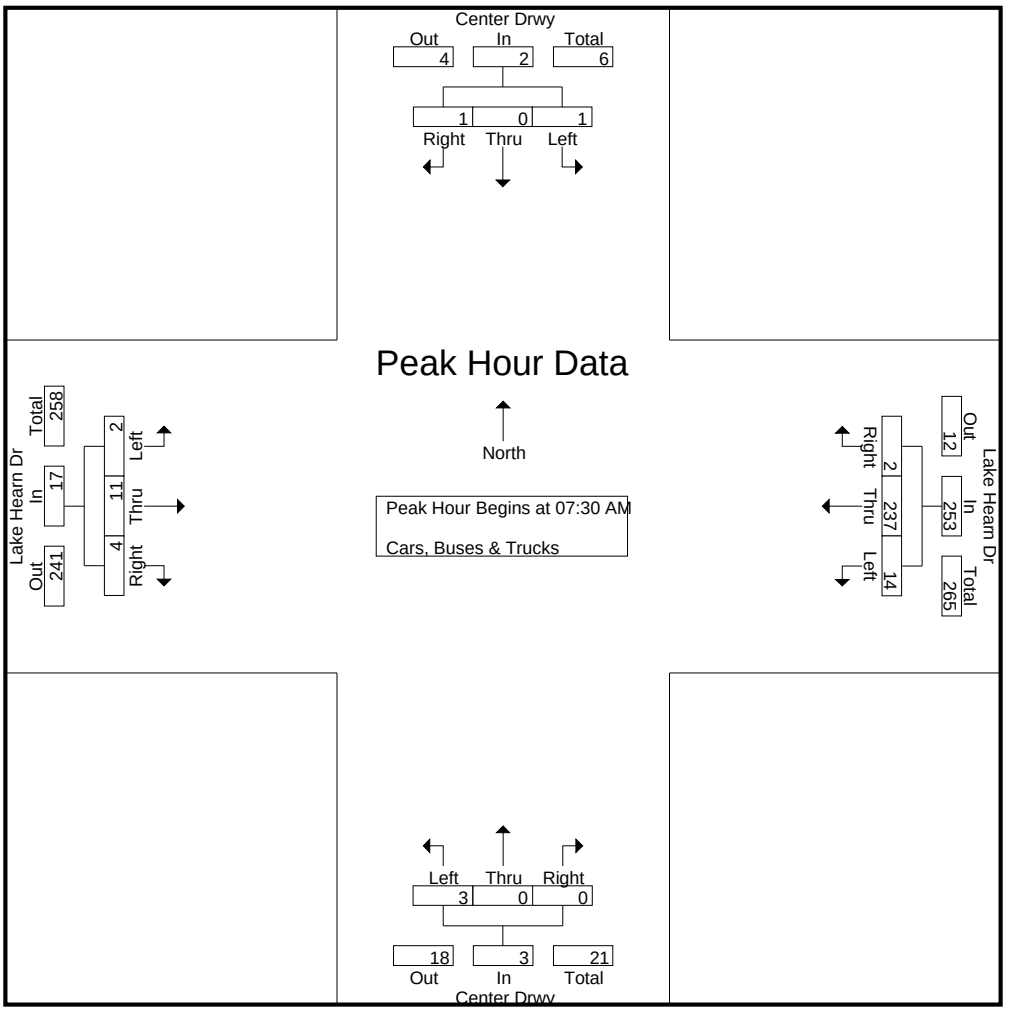
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA
Lake Hearn Dr @ Center Drwy
7-9 am | 4-6 pm

File Name : 20200101
Site Code : 20200101
Start Date : 8/18/2020
Page No : 2

	Center Drwy Northbound				Center Drwy Southbound				Lake Hearn Dr Eastbound				Lake Hearn Dr Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	**1**	**1**	0	3	0	3	3	52	**1**	56	60
07:45 AM	**1**	0	0	**1**	0	0	0	0	**1**	1	0	2	3	**78**	1	**82**	**85**
08:00 AM	1	0	0	1	0	0	0	0	0	3	1	4	**6**	58	0	64	69
08:15 AM	1	0	0	1	**1**	0	0	1	1	**4**	**3**	**8**	2	49	0	51	61
Total Volume	3	0	0	3	1	0	1	2	2	11	4	17	14	237	2	253	275
% App. Total	100	0	0		50	0	50		11.8	64.7	23.5		5.5	93.7	0.8		
PHF	.750	.000	.000	.750	.250	.000	.250	.500	.500	.688	.333	.531	.583	.760	.500	.771	.809



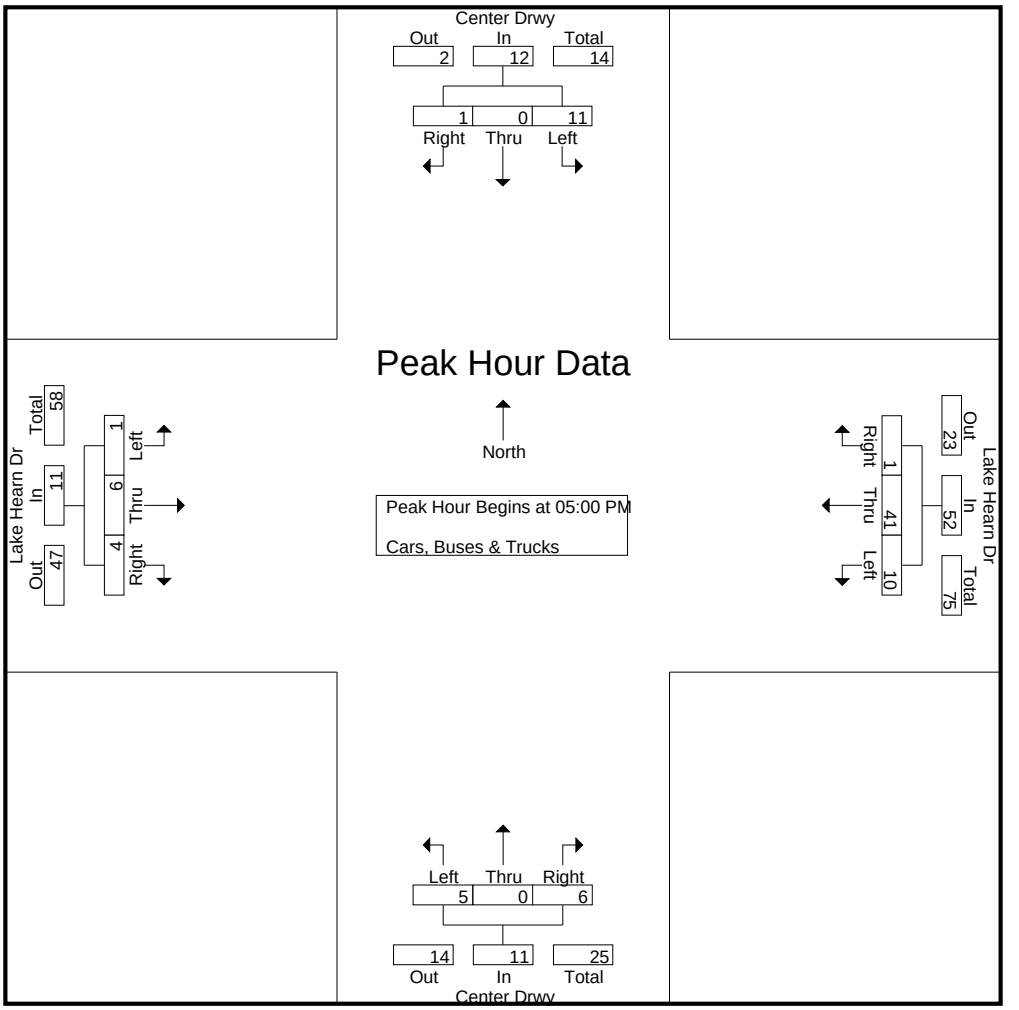
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O',
Marietta, GA 30067

TMC DATA
Lake Hearn Dr @ Center Drwy
7-9 am | 4-6 pm

File Name : 20200101
Site Code : 20200101
Start Date : 8/18/2020
Page No : 3

	Center Drwy Northbound				Center Drwy Southbound				Lake Hearn Dr Eastbound				Lake Hearn Dr Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**2**	0	1	3	**6**	0	0	**6**	**1**	1	1	3	1	**14**	0	**15**	**27**
05:15 PM	0	0	**2**	2	3	0	**1**	4	0	**2**	**2**	**4**	3	10	0	13	23
05:30 PM	1	0	1	2	2	0	0	2	0	2	1	3	2	10	**1**	13	20
05:45 PM	2	0	2	**4**	0	0	0	0	0	1	0	1	**4**	7	0	11	16
Total Volume	5	0	6	11	11	0	1	12	1	6	4	11	10	41	1	52	86
% App. Total	45.5	0	54.5		91.7	0	8.3		9.1	54.5	36.4		19.2	78.8	1.9		
PHF	.625	.000	.750	.688	.458	.000	.250	.500	.250	.750	.500	.688	.625	.732	.250	.867	.796



GRTA Letter of Understanding

August 1, 2020

Philip Tague, President
AMLI Residential
260 Peachtree Road NW, Suite 1700
Atlanta, GA 30303

RE: **DRI #3133 Lake Hearn**

Dear Mr. Tague:

The purpose of this letter is to inform you of the GRTA staff recommendation regarding your request for expedited review of DRI #3133 Lake Hearn Development of Regional Impact (DRI). Based on the information presented during the Pre-Review Meeting held virtually on July 27, 2020 and the post-methodology meeting packet received from A&R Engineering on July 23, 2020, the DRI will be approved for expedited review under the DRI Procedures and Principles for GRTA Development of Regional Impact Review Section 3-102.F., Livable Centers Initiative. A Trip Generation and Access Analysis are required as part of the review under these criteria. Some of the following items were discussed in the meeting and should assist you and your team in preparing the DRI Review Package. Additional information may be requested for submittal in conjunction with DRI Review Package. Please see the notes below for this basic information.

Project Overview

- This proposed project is located in the City of Brookhaven, north of Lake Hearn Drive, south of I-285 and east of Perimeter Center Parkway. The project proposes redeveloping the site of a former Cox office building.

- The DRI trigger for this development is a rezoning.

- The proposed development consists of approximately 630 multi-family units, 25,400 SF of commercial and 5 acres of open space.

- The site is currently served by two existing driveways on Lake Hearn Drive. The project proposes adding two additional entrances on Lake Hearn Drive located in between the two existing entrances. The proposed additional driveways will require MARTA coordination since they will travel underneath the elevated MARTA heavy rail line that traverses the proposed development's property. Of the proposed additional driveways, the southern one is proposed as a full access driveway while the other is a proposed right-in, right-out driveway.

- Trip generation is estimated at 5,800 gross daily trips based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition, 2017.*

- The project will be built in one phase, to be completed by 2023.

Methodology for Analysis

- All intersections identified as within the study network shall be analyzed during the AM and PM peak period for (1) existing conditions, (2) future "no-build" conditions and (3) future "build" conditions. This DRI shall be reviewed in one phase completed by 2023.

- A 1% annual background traffic rate shall be used for all roadways.

- During the COVID19 response, capacity analysis shall be based on turning movement counts approved by the local government and Georgia Department of Transportation. All counts, if older than a year old, shall be grown by the background growth traffic rate annually unless otherwise specified.

- The Level of Service (LOS) standard for all analysis shall be LOS E given the location within a Regional Center Unified Growth Policy Map designation.

- Default values should not be assumed in the traffic modeling. Existing conditions shall be taken into account.

- The applicant shall research TIP, STIP, RTP, and GDOT's construction work program, as well as any local government plans (SPLOST, CIP, etc.), to determine the open-to-traffic date, sponsor, cost of the project, funding source(s), for future roadway projects in the project vicinity. This information shall be included within the traffic analysis. This information shall also be included in the site plan analysis.

STUDY NETWORK

1. Lake Hearn Drive at Perimeter Center Parkway
2. Lake Hearn Drive at Perimeter Summit Parkway
3. Lake Hearn Drive at Parkside Place
4. Ashford Dunwoody Road at Perimeter Summit Parkway
5. Perimeter Summit Parkway at Parkside Place

Note: The specific study network intersections shall incorporate changes to the final site unless approved otherwise.

ADDITIONAL INFORMATION

Every roadway segment and intersection listed above will be analyzed for "required improvements." If the existing LOS for the segment or intersection is below the applicable level of service for a particular time period (e.g., A.M. peak period, P.M. peak period, etc.), then the measured LOS service for that segment and time periods is the standard by which the "base" and "future" traffic conditions will be designed. For example, if the City's LOS standard is LOS D, but an intersection or segment currently operates at LOS E for a certain peak period, then the LOS standard for that intersection or segment for "base" and "future" conditions becomes LOS E (only for that intersection and only for that peak period). The "base" is the phase year traffic without the development traffic (also called future "no-build" conditions) and the "future" is the phase year with the development traffic (also called future "build" conditions). As required in the technical guidelines, specific "required improvements" will be identified to bring the "base" LOS and "future" LOS for every roadway segment and intersection up to the applicable LOS standard. If the existing LOS for the segment or intersection is LOS F, then the future "no-build' and future "build" LOS standard will be LOS E. The improvements required to achieve the desired LOS standard will be provided in a table and graphic within the study. The traffic study should indicate the existing roadway laneage at each studied intersection as well as the laneage required (to meet the LOS standard) for future "no-build" and future "build" conditions. The improvements may include both programmed improvements and improvements identified in the study.

The planned and programmed improvement should indicate the project sponsor, the anticipated funding by source (federal, state, city/county, developer, CID, etc.), the year open-to-traffic, and estimate of the total project cost. All other required improvements identified in the study should, to the extent known, identify the cost, sponsor, funding, and timing. If any of these elements are not known, please state as "unknown."

The future "no-build" and the future "build" analyses should NOT automatically include/assume the additional lanes/capacity associated with planned and programmed improvement projects unless those roadway projects are currently under construction. Instead, the traffic consultant should recommend the additional laneage required to satisfy the level of service standard.

DRI REVIEW PACKAGE CHECKLIST

Please use the DRI Review Package Checklist to help you prepare your GRTA DRI Review Package for expedited review of your application. The Checklist reflects the understandings set forth in this letter, and is incorporated into this letter by reference.

The site plan shall be prepared in accordance with Section 4-104 of the DRI Review Package Technical Guidelines and it shall be dated, and shall be at a scale of 1"= 200' or larger (showing more detail). The site plan shall be consistent with GRTA's Site Plan Information Guidelines, which represents the minimum required information on site plans.

The applicant shall indicate on the site plans all adjacent land uses, current zoning, and future land use as indicated on the future land use map. Additionally, all existing and proposed sidewalks, existing and proposed pedestrian trails, and existing and proposed roadway laneage should be indicated on the site plan.

DRI REVIEW PACKAGE SUBMITTAL

At the time you are ready to submit your DRI Review Package to GRTA, please note the following:

- Provide one (1) paper copy of all materials – of the Transportation analysis and of the Site Plan
- Provide one (1) CD-ROM with electronic versions of all submittal documents:
  - Provide a PDF of each document
  - Provide the native format for each document
    - .dwg is the preferred CAD format (AutoCAD)
    - .doc is the preferred word processing format (Word)
    - .xls is the preferred spreadsheet format (Excel)
    - .sy8, .sy9, sy10 are the preferred capacity analysis format (Synchro)

As part of the completeness certification process, please have your consultant forward one copy of the completed GRTA DRI Review Package (traffic analysis, site plan, CD) to the GDOT District Office, Regional Commission and local government Planning & Development and Transportation group (contact information provided below). GRTA shall be copied on each of the transmittal letters. During the COVID19 response, please submit the information above to all stakeholders electronically. In addition, physically mail the information above to those listed below whenever you feel comfortable going to a mailing facility.

Expedited Review Recommendation

Once the DRI Review Package, along with the DCA Additional Information Form, has been submitted and determined complete, GRTA staff will make a recommendation regarding your request for expedited review under Section 2-202.B of the *Procedures and Principles for GRTA Development of Regional Impact Review*.

DRI Review Package should be copied to the following in addition to GRTA:

GRTA	ATLANTA REGIONAL COMMISSION	CITY OF BROOKHAVEN	PERIMETER CID	GDOT DISTRICT 7
Andrew Spiliotis 245 Peachtree Center Ave. Suite 2200 Atlanta, GA 30303	Greg Giuffrida International Tower 229 Peachtree St. NE Suite 100 Atlanta, GA 30303	Aronda Smith 4362 Peachtree Road NE Brookhaven, Georgia 30319	Ann Hanlon 1100 Abernathy Road, NE, 500 NorthPark, Lobby Suite 15 Sandy Springs, Georgia 30328	Paul Denard 5025 New Peachtree Road. NE Chamblee, GA 30341

If you have any questions, please feel free to contact me (404) 893-6171 or by email at aspiliotis@srta.ga.gov.

Sincerely,

Andrew Spiliotis, Transportation Planner
GRTA

cc: Jon West, DCA
Andrew Smith, ARC
Greg Giuffrida, ARC
Marquitrice Mangum, ARC
Annie Gillespie, GRTA
Parker Martin, GRTA
Greg Floyd, MARTA
Paul DeNard, GDOT
Justin Hatch, GDOT
Josh Montefusco, GDOT
Megan Wilson, GDOT
Daniel Parker, GDOT
Ann Hanlon, Perimeter CID
John Gurbal, Perimeter CID
Aronda Smith, Brookhaven
Don Sherrill, Brookhaven
Hari Karikaren, Brookhaven
Kevin Korth, Brookhaven
Linda Abaray, Brookhaven
Patrice Ruffin, Brookhaven
Caitlin Shankle, Sandy Springs
Kristen Wescott, Sandy Springs
Marty Martin, Sandy Springs
Matthew Anspach, Sandy Springs
Ginger Sottile, Sandy Springs
John Amsberry, Sandy Springs
Eli Veith, Dunwoody
Richard McLeod, Dunwoody
Michael Smith, Dunwoody
Carl Westmoreland, MMM Law
Henry Bailey, MMM Law
Kirk Billings, Pope and Land
Annie Evans Hirst, AMLI
Philip Tague, AMLI
Abdul Amer, A&R Engineering
Naila Amer, A&R Engineering
Morgan Walraven, A&R Engineering

Fact Sheets for Planned and Programmed Improvements

CR 4861/HAMMOND DR FM ASHFORD-DUNWOODY RD TO FULTON CO LN

Project ID:	0006883	Notice to Proceed Date:	
Project Manager:	Albert V. Shelby III	Construction Percent Complete:	%
Office:	Program Delivery	Current Completion Date:	
County:	DeKalb	Work Completion Date:	
Congressional District:	006	Construction Contract Amount:	
State Senate District.:	040	Construction Contractor:	
State House District:	079	**Preconstruction Status Report**	
Project Type:	Reconstruction/Rehabilitation	**Construction Status Report**	
Project Status:	Construction Work Program		
Right of Way Authorization:		Contact Us	

Project Description:

Activity	Program Year	Cost Estimate	Date of Last Estimate
UTL (Utilities)	2052	$7,385,277.00	1/6/2009
ROW (Right of Way)	2052	$5,613,277.00	1/6/2009
PE (Preliminary Engineering)	2052	$520,095.10	5/6/2009
CST (Construction)	2052	$6,501,188.79	5/6/2009

I-285 @ SR 400; INC CD LNS FM ROSWELL RD TO ASHFORD DUNWOODY

Project ID:	0000784	Notice to Proceed Date:	
Project Manager:	Marlo Letrice Clowers	Construction Percent Complete:	%
Office:	Innovative Prog. Delivery	Current Completion Date:	
County:	DeKalb, Fulton	Work Completion Date:	
Congressional District:	006	Construction Contract Amount:	
State Senate District.:	006, 040	Construction Contractor:	
State House District:	052, 080	**Preconstruction Status Report**	
Project Type:	Reconstruction/Rehabilitation	**Construction Status Report**	
Project Status:	Construction Work Program		
Right of Way Authorization:		Contact Us	

Project Description:
The proposed project would reconstruct the system to system interchange by modifying the existing ramps and bridges. The proposed new interchange would be designed to accommodate operational improvements on I-285 and SR 400 and would not preclude the addition of managed lanes on both corridors in the future. This project is part of the revive 285 Environmental Impact Statement (EIS), PI # 0001758.

Activity	Program Year	Cost Estimate	Date of Last Estimate
PE (Preliminary Engineering)	2006	$343,450.00	7/22/2014
SCP (Scoping)	2013	$2,000,000.00	
PE (Preliminary Engineering)	2014	$7,197,210.99	7/22/2014
ROW (Right of Way)	2015	$9,265,419.10	2/18/2015
PE (Preliminary Engineering)	2015	$25,060,000.00	7/22/2014
ROW (Right of Way)	2016	$102,795,823.00	2/18/2015

ASHFORD-DUNWOODY ROAD EB RAMP @ I-285

Project ID:	0017430	Notice to Proceed Date:	
Project Manager:	Heidi Schneider	Construction Percent Complete:	%
Office:	Program Delivery	Current Completion Date:	
County:	DeKalb	Work Completion Date:	
Congressional District:	006	Construction Contract Amount:	
State Senate District.:	040	Construction Contractor:	
State House District:	080	**Preconstruction Status Report**	
Project Type:	Reconstruction/Rehabilitation	**Construction Status Report**	
Project Status:	Construction Work Program		
Right of Way Authorization:		Contact Us	

Project Description:
At the intersection of Ashford Dunwoody Road and I-285, a third lane is proposed on the eastbound ramp which connects with I-285 northbound. The additional lane is needed to relieve congestion that occurs during the PM peak travel time. The 3rd right lane on the ramp will be on the side between the existing ramp and I-285. The proposed project will not impact the signal but may alter the location of the signal loop.

Activity	Program Year	Cost Estimate	Date of Last Estimate
CST (Construction)	2021	$2,000,000.00	

NCHRP 457 Left Turn Lane Analysis

LEFT TURN LANE ANALYSIS
per NCHRP 457 standards

The following left turn lane analysis was used to determine the need for dedicated turn bays at the proposed site driveway locations that are not located on State Routes.

Methodology

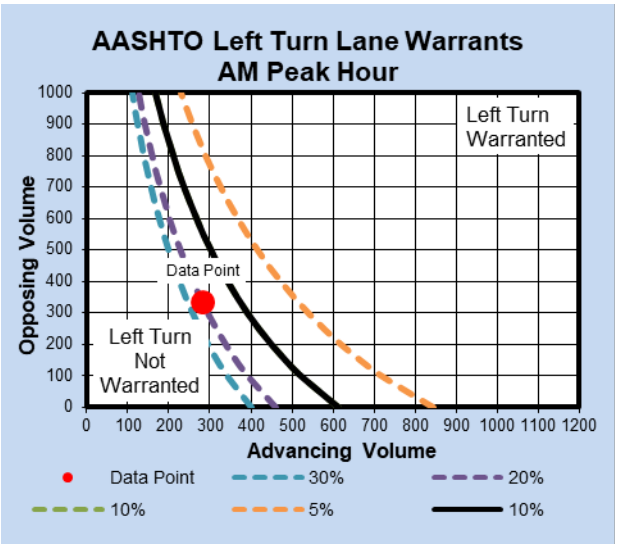
The guidelines outlined in NCHRP 457 are in the form of sets of different volume combinations, specifically, the advancing volume, the percentage of left turns in the advancing volume, and the opposing volume. These warrants are based on maximum allowable probabilities that one or more through vehicles are present in the queue formed by the left-turning vehicles that is waiting for a suitable gap. The warrants, as reported in NCHRP 457, were developed for the approach speeds of 40, 50 and 60 mph and left turn volumes that are 5%, 10%, 20%, and 30% of the advancing stream.

NCHRP 457 Thresholds (Figure 2-5, pg 22), 40 MPH				
Opposing Volumes	Advancing Volumes (by left turn %)			
	5%	10.0%	20.0%	30.0%
100	720	515	390	340
200	640	470	350	305
400	510	380	275	245
600	410	305	225	200
800	330	240	180	160

An interpolation of the thresholds is needed for other volumes and percentages that are not in the table.

Results

A graphic of the peak hour turning movements for the site, as they relate to the NCHRP criteria are provided in the following figures.



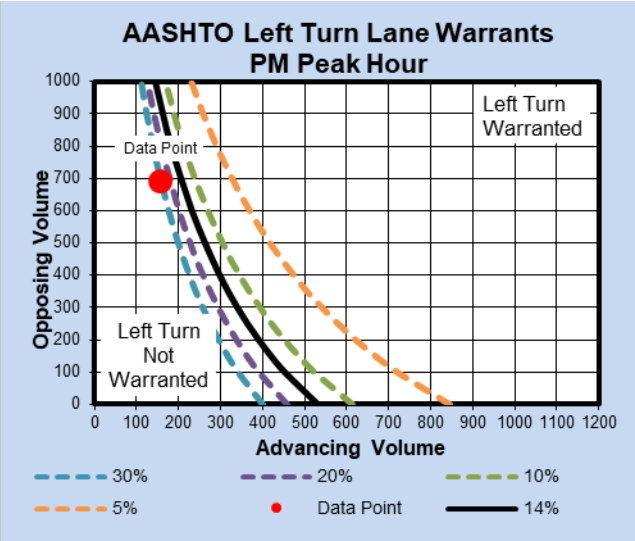


Figure 1 – NCHRP Left Turn Lane Guidelines: Lake Hearn Dr @ Site Drwy 3 (S. Retail Drwy)

Findings

The results of the analysis show that the probability of one or more vehicles queuing behind a waiting left-turn vehicle is below the 2% probability criterion. Also, the delay for a shared left / through lane approach is anticipated to be very low with a level-of-service "A". Therefore, unless stopping sight distance (415 feet for 35 mph) is obstructed on the northbound approach, a left turn lane is not warranted per NCHRP 457 criteria at the proposed southern driveway to the retail portion of the development.

NCHRP 457 Right Turn Lane Analysis

RIGHT TURN LANE ANALYSIS
per NCHRP 457 guidelines

The following right turn lane analyses were used to determine the need for dedicated turn bays at the proposed site driveway locations that are not located on State Routes.

Methdology

Guidelines for determining when to provide a right-turn bay on the major road of a two-way stop-controlled intersection are provided in Hasan, T. and Stokes, R.W. "Guidelines for Right-Turn Treatments at Unsignalized Intersections and Driveways on Rural Highways" (Transportation Research Record 1579). These guidelines were based on an evaluation of the operating and collisions costs associated with the right turn maneuver relative to the cost of construction. The operating costs included those of road-user fuel and delay. Separate guidelines were developed for two-lane and four-lane roadways, which are found in the NCHRP Report 457 “Evaluating Intersection Improvements: An Engineering Study Guide”.

Results

An evaluation of site traffic in relation to these guidelines is shown graphically in the following figures.

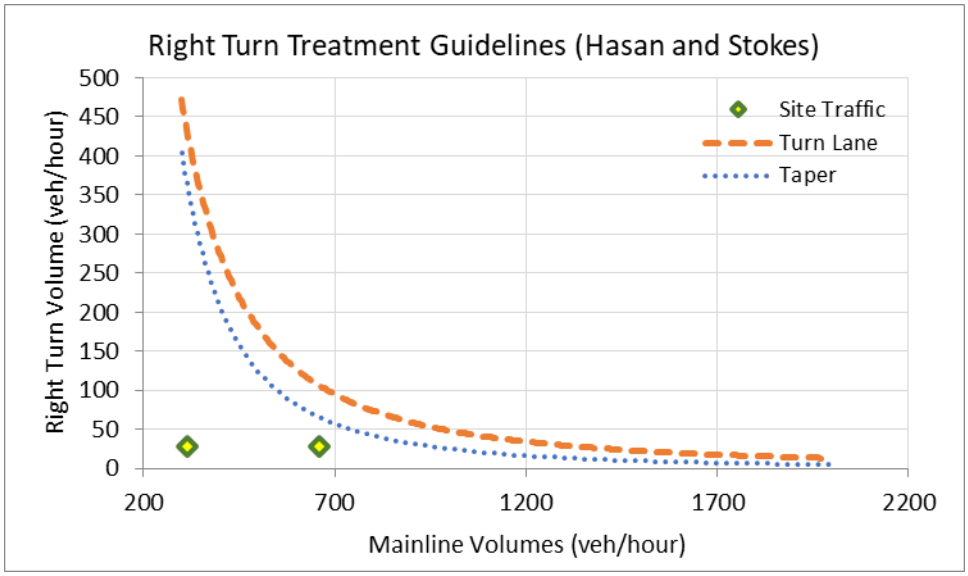


Figure 1 – NCHRP Right Turn Lane Guidelines: Lake Hearn Dr @ Site Drwy 2 (N. Retail RIRO)

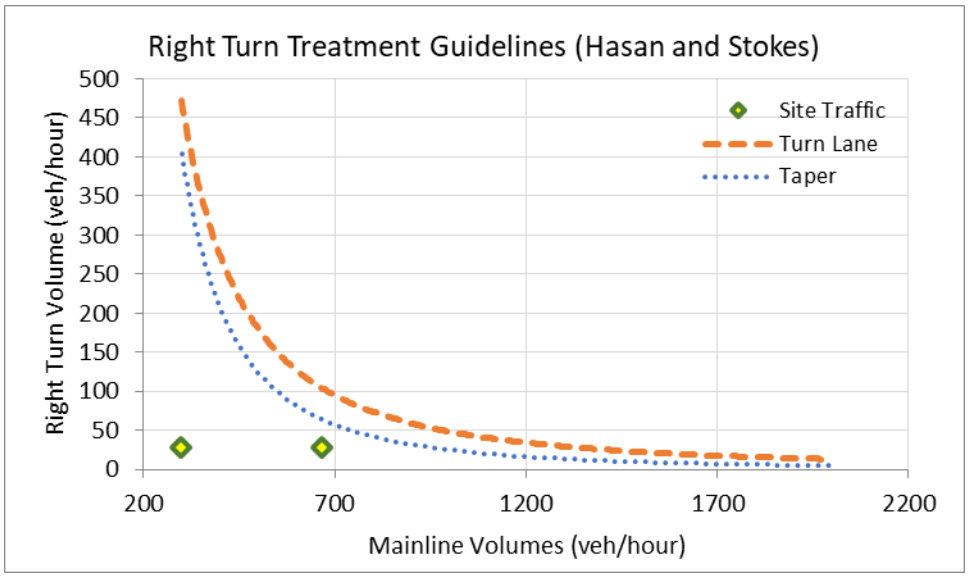


Figure 2 – NCHRP Right Turn Lane Guidelines: Lake Hearn Dr @ Site Drwy 3 (S. Retail Drwy)

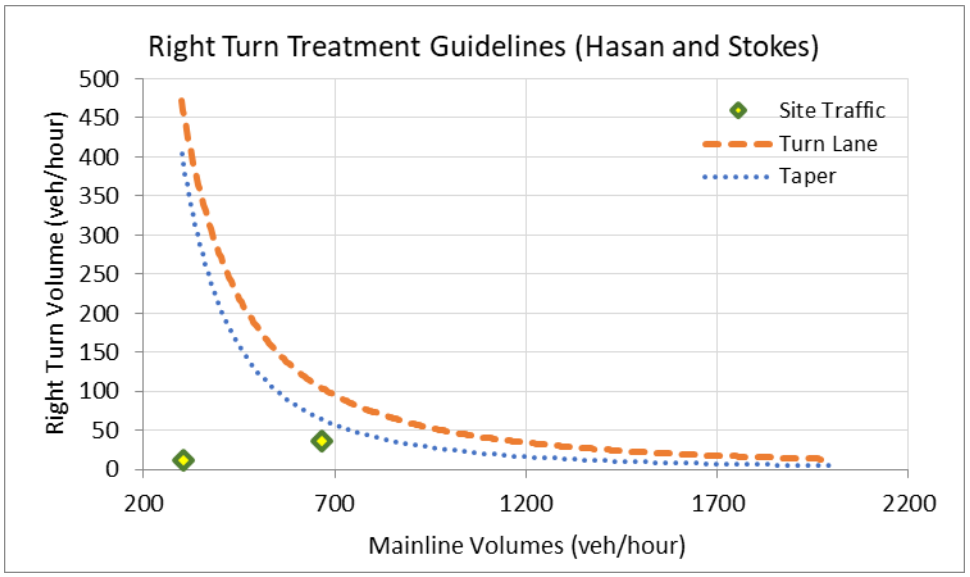
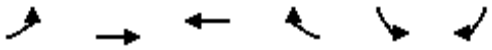


Figure 3 – NCHRP Right Turn Lane Guidelines: Lake Hearn Dr @ Site Drwy 4 (S. Residential RIRO)

Findings

The low volumes and speeds on the roadway would lessen the need for deceleration outside of the through lane. Therefore, unless stopping sight distance (335 feet for 35 mph) is obstructed on the southbound approach, a right turn lane is not warranted on the mainline at Site Driveway 2, Site Driveway 3 and Site Driveway 4 using the criteria in the NCHRP Report 457.

Existing Intersection Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	124	301	155	171	128
Future Volume (veh/h)	70	124	301	155	171	128
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	77	136	331	170	188	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	133	3391	3091	2427	0	
Arrive On Green	0.04	0.95	1.00	1.00	0.00	0.00
Sat Flow, veh/h	3456	3647	3647	2790	0	
Grp Volume(v), veh/h	77	136	331	170	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1395		
Q Serve(g_s), s	2.6	0.2	0.0	0.0		
Cycle Q Clear(g_c), s	2.6	0.2	0.0	0.0		
Prop In Lane	1.00			1.00		
Lane Grp Cap(c), veh/h	133	3391	3091	2427		
V/C Ratio(X)	0.58	0.04	0.11	0.07		
Avail Cap(c_a), veh/h	446	3391	3091	2427		
HCM Platoon Ratio	1.00	1.00	2.00	2.00		
Upstream Filter(I)	1.00	1.00	0.94	0.94		
Uniform Delay (d), s/veh	56.7	0.1	0.0	0.0		
Incr Delay (d2), s/veh	3.9	0.0	0.1	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.7	0.2	0.1	0.1		
LnGrp LOS	E	A	A	A		
Approach Vol, veh/h		213	501			
Approach Delay, s/veh		22.0	0.1			
Approach LOS		C	A			

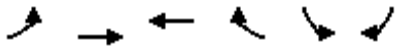
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			10.1	109.9
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		66.5			15.5	45.5
Max Q Clear Time (g_c+I1), s		2.2			4.6	2.0
Green Ext Time (p_c), s		3.6			0.1	10.6

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

User approved changes to right turn type.

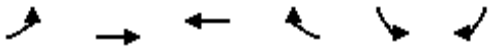
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	204	91	260	25	9	198
Future Volume (veh/h)	204	91	260	25	9	198
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	227	101	289	28	10	220
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2612	3391	499	48	0	0
Arrive On Green	1.00	1.00	0.15	0.15	0.00	0.00
Sat Flow, veh/h	3456	3647	3369	315	0	
Grp Volume(v), veh/h	227	101	156	161	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1814		
Q Serve(g_s), s	0.0	0.0	9.8	9.9		
Cycle Q Clear(g_c), s	0.0	0.0	9.8	9.9		
Prop In Lane	1.00			0.17		
Lane Grp Cap(c), veh/h	2612	3391	271	276		
V/C Ratio(X)	0.09	0.03	0.58	0.58		
Avail Cap(c_a), veh/h	2612	3391	555	567		
HCM Platoon Ratio	1.67	1.67	1.00	1.00		
Upstream Filter(I)	0.95	0.95	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	47.2	47.3		
Incr Delay (d2), s/veh	0.0	0.0	8.6	8.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.9	5.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	55.9	56.0		
LnGrp LOS	A	A	E	E		
Approach Vol, veh/h		328	317			
Approach Delay, s/veh		0.0	55.9			
Approach LOS		A	E			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			96.2	23.8
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		63.5			20.5	37.5
Max Q Clear Time (g_c+I1), s		2.0			2.0	11.9
Green Ext Time (p_c), s		2.5			0.8	6.4

Intersection Summary			
HCM 6th Ctrl Delay		27.5	
HCM 6th LOS		C	



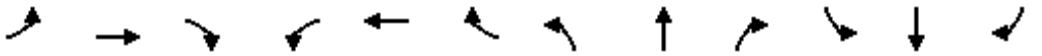
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	45	220	57	139	69
Future Volume (veh/h)	60	45	220	57	139	69
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	48	234	0	148	73
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1106	3358	3015		0	0
Arrive On Green	0.04	0.94	0.85	0.00	0.00	0.00
Sat Flow, veh/h	1781	3647	3741	0	0	
Grp Volume(v), veh/h	64	48	234	0	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	0		
Q Serve(g_s), s	0.3	0.1	1.1	0.0		
Cycle Q Clear(g_c), s	0.3	0.1	1.1	0.0		
Prop In Lane	1.00			0.00		
Lane Grp Cap(c), veh/h	1106	3358	3015			
V/C Ratio(X)	0.06	0.01	0.08			
Avail Cap(c_a), veh/h	1273	3358	3015			
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	0.5	0.2	1.2	0.0		
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.5	0.2	1.3	0.0		
LnGrp LOS	A	A	A			
Approach Vol, veh/h		112	234	A		
Approach Delay, s/veh		0.3	1.3			
Approach LOS		A	A			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		100.0			9.7	90.3
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		55.5			13.5	36.5
Max Q Clear Time (g_c+I1), s		2.1			2.3	3.1
Green Ext Time (p_c), s		1.0			0.1	5.4

Intersection Summary	
HCM 6th Ctrl Delay	1.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	1	74	18	32	75	201	992	7	8	478	44
Future Volume (vph)	115	1	74	18	32	75	201	992	7	8	478	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.92		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	1583		1699		1770	1861		1770	1863	1583
Flt Permitted	0.95	0.95	1.00		0.99		0.35	1.00		0.16	1.00	1.00
Satd. Flow (perm)	1681	1687	1583		1699		655	1861		294	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	120	1	77	19	33	78	209	1033	7	8	498	46
RTOR Reduction (vph)	0	0	71	0	52	0	0	0	0	0	0	20
Lane Group Flow (vph)	60	61	6	0	78	0	209	1040	0	8	498	26
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	4	4		8	8		5	2			6	
Permitted Phases			4				2			6		6
Actuated Green, G (s)	9.8	9.8	9.8		11.0		82.7	82.7		68.2	68.2	68.2
Effective Green, g (s)	9.8	9.8	9.8		11.0		82.7	82.7		68.2	68.2	68.2
Actuated g/C Ratio	0.08	0.08	0.08		0.09		0.69	0.69		0.57	0.57	0.57
Clearance Time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	137	137	129		155		535	1282		167	1058	899
v/s Ratio Prot	0.04	c0.04			c0.05		0.03	c0.56			0.27	
v/s Ratio Perm			0.00				0.24			0.03		0.02
v/c Ratio	0.44	0.45	0.05		0.50		0.39	0.81		0.05	0.47	0.03
Uniform Delay, d1	52.5	52.5	50.8		51.9		8.7	13.1		11.5	15.3	11.4
Progression Factor	0.24	0.24	0.18		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.2	2.3	0.2		2.6		0.5	5.7		0.5	1.5	0.1
Delay (s)	14.6	14.7	9.2		54.5		9.2	18.8		12.0	16.8	11.4
Level of Service	B	B	A		D		A	B		B	B	B
Approach Delay (s)		12.5			54.5			17.2			16.3	
Approach LOS		B			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	185	763	41	0
Future Volume (vph)	0	0	185	763	41	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				0.99	0.95	
Satd. Flow (prot)				3505	3433	
Flt Permitted				0.99	0.95	
Satd. Flow (perm)				3505	3433	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	199	820	44	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1019	44	0
Turn Type			pm+pt	NA	Prot	
Protected Phases			1	6	8	
Permitted Phases			6			
Actuated Green, G (s)				103.1	5.9	
Effective Green, g (s)				103.1	5.9	
Actuated g/C Ratio				0.86	0.05	
Clearance Time (s)				5.5	5.5	
Vehicle Extension (s)				5.0	3.0	
Lane Grp Cap (vph)				3011	168	
v/s Ratio Prot				c0.29	c0.01	
v/s Ratio Perm						
v/c Ratio				0.34	0.26	
Uniform Delay, d1				1.7	55.0	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.1	0.8	
Delay (s)				1.7	55.8	
Level of Service				A	E	
Approach Delay (s)	0.0			1.7	55.8	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	1	0	1	3	215	5	18	214	3
Future Vol, veh/h	4	0	0	1	0	1	3	215	5	18	214	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	90	-	-	80	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	0	1	0	1	3	234	5	20	233	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	396	518	117	400	519	120	236	0	0	239	0	0
Stage 1	273	273	-	243	243	-	-	-	-	-	-	-
Stage 2	123	245	-	157	276	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	538	460	913	535	460	909	1328	-	-	1325	-	-
Stage 1	710	683	-	739	703	-	-	-	-	-	-	-
Stage 2	868	702	-	829	680	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	530	452	913	528	452	909	1328	-	-	1325	-	-
Mov Cap-2 Maneuver	530	452	-	528	452	-	-	-	-	-	-	-
Stage 1	709	673	-	738	702	-	-	-	-	-	-	-
Stage 2	865	701	-	816	670	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	10.4	0.1	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1328	-	-	530	-	668	1325	-	-
HCM Lane V/C Ratio	0.002	-	-	0.008	-	0.003	0.015	-	-
HCM Control Delay (s)	7.7	-	-	11.8	0	10.4	7.8	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	0	-	-

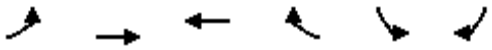
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	223	6	8	207
Future Vol, veh/h	0	0	223	6	8	207
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	242	7	9	225

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	377	125	0	0	249	0
Stage 1	246	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	597	902	-	-	1314	-
Stage 1	772	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	593	902	-	-	1314	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	875	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1314	-
HCM Lane V/C Ratio	-	-	-	0.007	-
HCM Control Delay (s)	-	-	0	7.8	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	285	211	246	412	465	257
Future Volume (veh/h)	285	211	246	412	465	257
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	313	232	270	453	511	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	391	3391	2826	2218	0	
Arrive On Green	0.11	0.95	0.26	0.26	0.00	0.00
Sat Flow, veh/h	3456	3647	3647	2790	0	
Grp Volume(v), veh/h	313	232	270	453	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1395		
Q Serve(g_s), s	10.6	0.4	6.9	15.2		
Cycle Q Clear(g_c), s	10.6	0.4	6.9	15.2		
Prop In Lane	1.00			1.00		
Lane Grp Cap(c), veh/h	391	3391	2826	2218		
V/C Ratio(X)	0.80	0.07	0.10	0.20		
Avail Cap(c_a), veh/h	706	3391	2826	2218		
HCM Platoon Ratio	1.00	1.00	0.33	0.33		
Upstream Filter(I)	1.00	1.00	0.74	0.74		
Uniform Delay (d), s/veh	51.9	0.1	11.6	14.7		
Incr Delay (d2), s/veh	3.8	0.0	0.0	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.8	0.0	2.5	5.7		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.7	0.2	11.7	14.8		
LnGrp LOS	E	A	B	B		
Approach Vol, veh/h		545	723			
Approach Delay, s/veh		32.1	13.6			
Approach LOS		C	B			

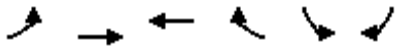
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			19.1	100.9
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		67.5			24.5	37.5
Max Q Clear Time (g_c+I1), s		2.4			12.6	17.2
Green Ext Time (p_c), s		6.4			1.0	9.0

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

User approved changes to right turn type.

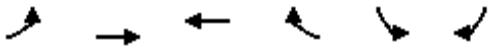
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	547	189	18	55	517
Future Volume (veh/h)	70	547	189	18	55	517
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	582	201	19	59	550
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2707	3391	411	38	0	0
Arrive On Green	1.00	1.00	0.13	0.13	0.00	0.00
Sat Flow, veh/h	3456	3647	3378	307	0	
Grp Volume(v), veh/h	74	582	108	112	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1815		
Q Serve(g_s), s	0.0	0.0	6.8	6.9		
Cycle Q Clear(g_c), s	0.0	0.0	6.8	6.9		
Prop In Lane	1.00			0.17		
Lane Grp Cap(c), veh/h	2707	3391	222	227		
V/C Ratio(X)	0.03	0.17	0.49	0.49		
Avail Cap(c_a), veh/h	2707	3391	511	522		
HCM Platoon Ratio	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.86	0.86	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	48.9	49.0		
Incr Delay (d2), s/veh	0.0	0.1	7.4	7.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.4	3.6		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.1	56.3	56.5		
LnGrp LOS	A	A	E	E		
Approach Vol, veh/h		656	220			
Approach Delay, s/veh		0.1	56.4			
Approach LOS		A	E			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			99.5	20.5
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		51.5			11.5	34.5
Max Q Clear Time (g_c+I1), s		2.0			2.0	8.9
Green Ext Time (p_c), s		17.4			0.1	4.2

Intersection Summary			
HCM 6th Ctrl Delay		14.2	
HCM 6th LOS		B	



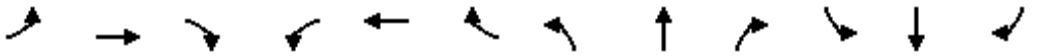
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	68	530	55	35	432	81
Future Volume (veh/h)	68	530	55	35	432	81
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	570	59	0	465	87
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1284	3358	3008		0	0
Arrive On Green	0.04	0.94	0.85	0.00	0.00	0.00
Sat Flow, veh/h	1781	3647	3741	0	0	
Grp Volume(v), veh/h	73	570	59	0	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	0		
Q Serve(g_s), s	0.4	1.1	0.3	0.0		
Cycle Q Clear(g_c), s	0.4	1.1	0.3	0.0		
Prop In Lane	1.00			0.00		
Lane Grp Cap(c), veh/h	1284	3358	3008			
V/C Ratio(X)	0.06	0.17	0.02			
Avail Cap(c_a), veh/h	1447	3358	3008			
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	0.4	0.2	1.2	0.0		
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.5	0.3	1.2	0.0		
LnGrp LOS	A	A	A			
Approach Vol, veh/h		643	59	A		
Approach Delay, s/veh		0.3	1.2			
Approach LOS		A	A			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		100.0			9.8	90.2
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		49.5			13.5	30.5
Max Q Clear Time (g_c+I1), s		3.1			2.4	2.3
Green Ext Time (p_c), s		16.6			0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	0.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	333	200	427	55	9	25	45	545	16	20	674	9
Future Volume (vph)	333	200	427	55	9	25	45	545	16	20	674	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1747	1583		1738		1770	1855		1770	1863	1583
Flt Permitted	0.95	0.99	1.00		0.97		0.22	1.00		0.32	1.00	1.00
Satd. Flow (perm)	1681	1747	1583		1738		402	1855		602	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	347	208	445	57	9	26	47	568	17	21	702	9
RTOR Reduction (vph)	0	0	356	0	14	0	0	1	0	0	0	4
Lane Group Flow (vph)	274	281	89	0	78	0	47	584	0	21	702	5
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	4	4		8	8		5	2			6	
Permitted Phases			4				2			6		6
Actuated Green, G (s)	19.5	19.5	19.5		10.8		73.2	73.2		62.6	62.6	62.6
Effective Green, g (s)	19.5	19.5	19.5		10.8		73.2	73.2		62.6	62.6	62.6
Actuated g/C Ratio	0.16	0.16	0.16		0.09		0.61	0.61		0.52	0.52	0.52
Clearance Time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	273	283	257		156		303	1131		314	971	825
v/s Ratio Prot	c0.16	0.16			c0.05		0.01	c0.32			c0.38	
v/s Ratio Perm			0.06				0.09			0.03		0.00
v/c Ratio	1.00	0.99	0.35		0.50		0.16	0.52		0.07	0.72	0.01
Uniform Delay, d1	50.2	50.2	44.6		52.0		27.1	13.3		14.2	22.0	13.8
Progression Factor	0.70	0.70	1.12		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	54.8	50.7	0.8		2.5		0.2	1.7		0.4	4.7	0.0
Delay (s)	89.9	85.7	50.8		54.6		27.3	15.0		14.6	26.7	13.8
Level of Service	F	F	D		D		C	B		B	C	B
Approach Delay (s)		71.3			54.6			15.9			26.2	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	112	79	80	0
Future Volume (vph)	0	0	112	79	80	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				0.97	0.95	
Satd. Flow (prot)				3438	3433	
Flt Permitted				0.97	0.95	
Satd. Flow (perm)				3438	3433	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	126	89	90	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	215	90	0
Turn Type			pm+pt	NA	Prot	
Protected Phases			1	6	8	
Permitted Phases			6			
Actuated Green, G (s)				100.5	8.5	
Effective Green, g (s)				100.5	8.5	
Actuated g/C Ratio				0.84	0.07	
Clearance Time (s)				5.5	5.5	
Vehicle Extension (s)				5.0	3.0	
Lane Grp Cap (vph)				2879	243	
v/s Ratio Prot				c0.06	c0.03	
v/s Ratio Perm						
v/c Ratio				0.07	0.37	
Uniform Delay, d1				1.7	53.2	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.0	1.0	
Delay (s)				1.7	54.2	
Level of Service				A	D	
Approach Delay (s)	0.0			1.7	54.2	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	8	14	0	1	1	85	5	13	555	1
Future Vol, veh/h	6	0	8	14	0	1	1	85	5	13	555	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	90	-	-	80	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	9	15	0	1	1	92	5	14	603	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	679	730	302	427	729	49	604	0	0	97	0	0
Stage 1	631	631	-	97	97	-	-	-	-	-	-	-
Stage 2	48	99	-	330	632	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	338	348	694	512	348	1009	970	-	-	1494	-	-
Stage 1	436	473	-	899	814	-	-	-	-	-	-	-
Stage 2	959	812	-	657	472	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	335	345	694	502	345	1009	970	-	-	1494	-	-
Mov Cap-2 Maneuver	335	345	-	502	345	-	-	-	-	-	-	-
Stage 1	436	469	-	898	813	-	-	-	-	-	-	-
Stage 2	957	811	-	643	468	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.7	12.2	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	970	-	-	335	694	519	1494	-	-
HCM Lane V/C Ratio	0.001	-	-	0.019	0.013	0.031	0.009	-	-
HCM Control Delay (s)	8.7	-	-	16	10.3	12.2	7.4	-	-
HCM Lane LOS	A	-	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.1

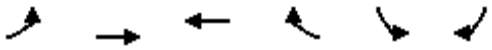
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	4	87	1	0	569
Future Vol, veh/h	3	4	87	1	0	569
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	4	95	1	0	618

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	405	48	0	0	96	0
Stage 1	96	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	574	1011	-	-	1496	-
Stage 1	917	-	-	-	-	-
Stage 2	718	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	574	1011	-	-	1496	-
Mov Cap-2 Maneuver	574	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	718	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	762	1496	-
HCM Lane V/C Ratio	-	-	0.01	-	-
HCM Control Delay (s)	-	-	9.8	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Future “No-Build” Intersection Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	128	310	160	176	132
Future Volume (veh/h)	72	128	310	160	176	132
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	141	341	176	193	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	134	3391	3090	2426	0	
Arrive On Green	0.04	0.95	1.00	1.00	0.00	0.00
Sat Flow, veh/h	3456	3647	3647	2790	0	
Grp Volume(v), veh/h	79	141	341	176	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1395		
Q Serve(g_s), s	2.7	0.2	0.0	0.0		
Cycle Q Clear(g_c), s	2.7	0.2	0.0	0.0		
Prop In Lane	1.00			1.00		
Lane Grp Cap(c), veh/h	134	3391	3090	2426		
V/C Ratio(X)	0.59	0.04	0.11	0.07		
Avail Cap(c_a), veh/h	446	3391	3090	2426		
HCM Platoon Ratio	1.00	1.00	2.00	2.00		
Upstream Filter(I)	1.00	1.00	0.94	0.94		
Uniform Delay (d), s/veh	56.7	0.1	0.0	0.0		
Incr Delay (d2), s/veh	4.1	0.0	0.1	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.9	0.2	0.1	0.1		
LnGrp LOS	E	A	A	A		
Approach Vol, veh/h		220	517			
Approach Delay, s/veh		22.0	0.1			
Approach LOS		C	A			

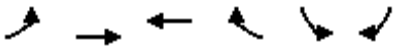
Timer - Assigned Phs	2			5	6
Phs Duration (G+Y+Rc), s	120.0			10.1	109.9
Change Period (Y+Rc), s	5.5			5.5	5.5
Max Green Setting (Gmax), s	66.5			15.5	45.5
Max Q Clear Time (g_c+I1), s	2.2			4.7	2.0
Green Ext Time (p_c), s	3.7			0.1	11.0

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

User approved changes to right turn type.

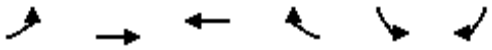
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	210	94	268	26	9	204
Future Volume (veh/h)	210	94	268	26	9	204
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	233	104	298	29	10	227
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2595	3391	515	50	0	0
Arrive On Green	0.25	0.31	0.16	0.16	0.00	0.00
Sat Flow, veh/h	3456	3647	3367	316	0	
Grp Volume(v), veh/h	233	104	161	166	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1813		
Q Serve(g_s), s	6.2	2.4	10.1	10.2		
Cycle Q Clear(g_c), s	6.2	2.4	10.1	10.2		
Prop In Lane	1.00			0.17		
Lane Grp Cap(c), veh/h	2595	3391	280	285		
V/C Ratio(X)	0.09	0.03	0.57	0.58		
Avail Cap(c_a), veh/h	2595	3391	570	582		
HCM Platoon Ratio	0.33	0.33	1.00	1.00		
Upstream Filter(I)	0.95	0.95	1.00	1.00		
Uniform Delay (d), s/veh	13.6	2.7	46.8	46.9		
Incr Delay (d2), s/veh	0.0	0.0	8.3	8.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.1	5.2		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.6	2.7	55.2	55.3		
LnGrp LOS	B	A	E	E		
Approach Vol, veh/h		337	327			
Approach Delay, s/veh		10.2	55.3			
Approach LOS		B	E			

Timer - Assigned Phs	2			5	6
Phs Duration (G+Y+Rc), s	120.0			95.6	24.4
Change Period (Y+Rc), s	5.5			5.5	5.5
Max Green Setting (Gmax), s	63.5			19.5	38.5
Max Q Clear Time (g_c+I1), s	4.4			8.2	12.2
Green Ext Time (p_c), s	2.6			0.7	6.7

Intersection Summary		
HCM 6th Ctrl Delay		32.4
HCM 6th LOS		C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	46	227	59	143	71
Future Volume (veh/h)	62	46	227	59	143	71
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	49	241	0	152	76
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1468	3358	533		0	0
Arrive On Green	0.74	0.94	0.15	0.00	0.00	0.00
Sat Flow, veh/h	1781	3647	3741	0	0	
Grp Volume(v), veh/h	66	49	241	0	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	0		
Q Serve(g_s), s	0.0	0.1	6.2	0.0		
Cycle Q Clear(g_c), s	0.0	0.1	6.2	0.0		
Prop In Lane	1.00			0.00		
Lane Grp Cap(c), veh/h	1468	3358	533			
V/C Ratio(X)	0.04	0.01	0.45			
Avail Cap(c_a), veh/h	1468	3358	1297			
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	2.0	0.2	38.8	0.0		
Incr Delay (d2), s/veh	0.0	0.0	2.8	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.9	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.0	0.2	41.5	0.0		
LnGrp LOS	A	A	D			
Approach Vol, veh/h		115	241	A		
Approach Delay, s/veh		1.2	41.5			
Approach LOS		A	D			

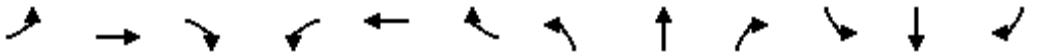
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		100.0			79.5	20.5
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		55.5			13.5	36.5
Max Q Clear Time (g_c+I1), s		2.1			2.0	8.2
Green Ext Time (p_c), s		1.0			0.1	5.2

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

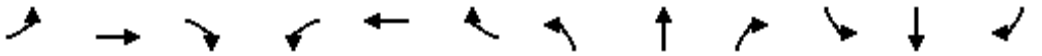
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	1	76	19	33	77	207	1022	7	8	492	45
Future Volume (vph)	118	1	76	19	33	77	207	1022	7	8	492	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.92		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	1583		1700		1770	1861		1770	1863	1583
Flt Permitted	0.95	0.95	1.00		0.99		0.33	1.00		0.14	1.00	1.00
Satd. Flow (perm)	1681	1687	1583		1700		621	1861		257	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	123	1	79	20	34	80	216	1065	7	8	512	47
RTOR Reduction (vph)	0	0	72	0	52	0	0	0	0	0	0	21
Lane Group Flow (vph)	61	63	7	0	82	0	216	1072	0	8	513	26
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	4	4		8	8		5	2			6	
Permitted Phases			4				2			6		6
Actuated Green, G (s)	9.9	9.9	9.9		11.2		82.4	82.4		66.4	66.4	66.4
Effective Green, g (s)	9.9	9.9	9.9		11.2		82.4	82.4		66.4	66.4	66.4
Actuated g/C Ratio	0.08	0.08	0.08		0.09		0.69	0.69		0.55	0.55	0.55
Clearance Time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	138	139	130		158		526	1277		142	1030	875
v/s Ratio Prot	0.04	c0.04			c0.05		0.04	c0.58			0.28	
v/s Ratio Perm			0.00				0.25			0.03		0.02
v/c Ratio	0.44	0.45	0.05		0.52		0.41	0.84		0.06	0.50	0.03
Uniform Delay, d1	52.4	52.5	50.7		51.8		9.2	13.9		12.4	16.5	12.2
Progression Factor	0.26	0.26	0.26		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.2	2.3	0.2		3.1		0.5	6.7		0.8	1.7	0.1
Delay (s)	15.7	16.2	13.4		54.9		9.8	20.6		13.1	18.2	12.2
Level of Service	B	B	B		D		A	C		B	B	B
Approach Delay (s)		15.0			54.9			18.8			17.7	
Approach LOS		B			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	1	76	19	33	77	207	1022	7	8	492	45
Future Volume (vph)	118	1	76	19	33	77	207	1022	7	8	492	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.92		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1687	1583		1700		1770	1861		1770	1863	1583
Flt Permitted	0.95	0.95	1.00		0.99		0.33	1.00		0.14	1.00	1.00
Satd. Flow (perm)	1681	1687	1583		1700		621	1861		257	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	123	1	79	20	34	80	216	1065	7	8	512	47
RTOR Reduction (vph)	0	0	72	0	52	0	0	0	0	0	0	21
Lane Group Flow (vph)	61	63	7	0	82	0	216	1072	0	8	513	26
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	4	4		8	8		5	2			6	
Permitted Phases			4				2			6		6
Actuated Green, G (s)	9.9	9.9	9.9		11.2		82.4	82.4		66.4	66.4	66.4
Effective Green, g (s)	9.9	9.9	9.9		11.2		82.4	82.4		66.4	66.4	66.4
Actuated g/C Ratio	0.08	0.08	0.08		0.09		0.69	0.69		0.55	0.55	0.55
Clearance Time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	138	139	130		158		526	1277		142	1030	875
v/s Ratio Prot	0.04	c0.04			c0.05		0.04	c0.58			0.28	
v/s Ratio Perm			0.00				0.25			0.03		0.02
v/c Ratio	0.44	0.45	0.05		0.52		0.41	0.84		0.06	0.50	0.03
Uniform Delay, d1	52.4	52.5	50.7		51.8		9.2	13.9		12.4	16.5	12.2
Progression Factor	0.26	0.26	0.26		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.2	2.3	0.2		3.1		0.5	6.7		0.8	1.7	0.1
Delay (s)	15.7	16.2	13.4		54.9		9.8	20.6		13.1	18.2	12.2
Level of Service	B	B	B		D		A	C		B	B	B
Approach Delay (s)		15.0			54.9			18.8			17.7	
Approach LOS		B			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	191	786	42	0
Future Volume (vph)	0	0	191	786	42	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				0.99	0.95	
Satd. Flow (prot)				3505	3433	
Flt Permitted				0.99	0.95	
Satd. Flow (perm)				3505	3433	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	205	845	45	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1050	45	0
Turn Type			pm+pt	NA	Prot	
Protected Phases			1	6	8	
Permitted Phases			6			
Actuated Green, G (s)				103.1	5.9	
Effective Green, g (s)				103.1	5.9	
Actuated g/C Ratio				0.86	0.05	
Clearance Time (s)				5.5	5.5	
Vehicle Extension (s)				5.0	3.0	
Lane Grp Cap (vph)				3011	168	
v/s Ratio Prot				c0.30	c0.01	
v/s Ratio Perm						
v/c Ratio				0.35	0.27	
Uniform Delay, d1				1.7	55.0	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.1	0.9	
Delay (s)				1.8	55.8	
Level of Service				A	E	
Approach Delay (s)	0.0			1.8	55.8	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	1	0	1	3	222	5	19	220	3
Future Vol, veh/h	4	0	0	1	0	1	3	222	5	19	220	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	90	-	-	80	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	0	1	0	1	3	241	5	21	239	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	408	533	120	412	534	123	242	0	0	246	0	0
Stage 1	281	281	-	250	250	-	-	-	-	-	-	-
Stage 2	127	252	-	162	284	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	528	451	909	524	451	905	1322	-	-	1317	-	-
Stage 1	702	677	-	732	699	-	-	-	-	-	-	-
Stage 2	863	697	-	824	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	520	443	909	517	443	905	1322	-	-	1317	-	-
Mov Cap-2 Maneuver	520	443	-	517	443	-	-	-	-	-	-	-
Stage 1	701	666	-	731	698	-	-	-	-	-	-	-
Stage 2	860	696	-	811	664	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	10.5	0.1	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1322	-	-	520	-	658	1317	-	-
HCM Lane V/C Ratio	0.002	-	-	0.008	-	0.003	0.016	-	-
HCM Control Delay (s)	7.7	-	-	12	0	10.5	7.8	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	0	-	-

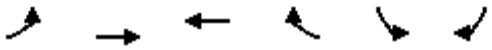
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	230	6	8	213
Future Vol, veh/h	0	0	230	6	8	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	250	7	9	232

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	388	129	0	0	257	0
Stage 1	254	-	-	-	-	-
Stage 2	134	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	588	897	-	-	1305	-
Stage 1	765	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	584	897	-	-	1305	-
Mov Cap-2 Maneuver	584	-	-	-	-	-
Stage 1	765	-	-	-	-	-
Stage 2	872	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1305	-
HCM Lane V/C Ratio	-	-	-	0.007	-
HCM Control Delay (s)	-	-	0	7.8	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	294	217	253	424	479	265
Future Volume (veh/h)	294	217	253	424	479	265
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	323	238	278	466	526	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2322	3391	841	660	0	
Arrive On Green	0.67	0.95	0.24	0.24	0.00	0.00
Sat Flow, veh/h	3456	3647	3647	2790	0	
Grp Volume(v), veh/h	323	238	278	466	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1395		
Q Serve(g_s), s	4.1	0.4	7.8	18.4		
Cycle Q Clear(g_c), s	4.1	0.4	7.8	18.4		
Prop In Lane	1.00			1.00		
Lane Grp Cap(c), veh/h	2322	3391	841	660		
V/C Ratio(X)	0.14	0.07	0.33	0.71		
Avail Cap(c_a), veh/h	2322	3391	1081	849		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.74	0.74		
Uniform Delay (d), s/veh	7.1	0.1	37.9	42.0		
Incr Delay (d2), s/veh	0.0	0.0	0.8	4.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.4	0.0	3.5	6.7		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.2	0.2	38.7	46.7		
LnGrp LOS	A	A	D	D		
Approach Vol, veh/h		561	744			
Approach Delay, s/veh		4.2	43.7			
Approach LOS		A	D			

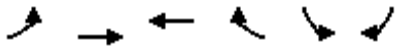
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			86.1	33.9
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		67.5			25.5	36.5
Max Q Clear Time (g_c+I1), s		2.4			6.1	20.4
Green Ext Time (p_c), s		6.6			1.2	8.0

Intersection Summary						
HCM 6th Ctrl Delay			26.7			
HCM 6th LOS			C			

Notes

User approved changes to right turn type.

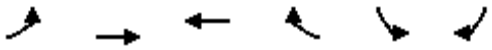
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	564	195	19	57	533
Future Volume (veh/h)	72	564	195	19	57	533
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	77	600	207	20	61	567
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2707	3391	410	39	0	0
Arrive On Green	1.00	1.00	0.13	0.13	0.00	0.00
Sat Flow, veh/h	3456	3647	3371	314	0	
Grp Volume(v), veh/h	77	600	111	116	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1814		
Q Serve(g_s), s	0.0	0.0	7.0	7.2		
Cycle Q Clear(g_c), s	0.0	0.0	7.0	7.2		
Prop In Lane	1.00			0.17		
Lane Grp Cap(c), veh/h	2707	3391	222	227		
V/C Ratio(X)	0.03	0.18	0.50	0.51		
Avail Cap(c_a), veh/h	2707	3391	511	522		
HCM Platoon Ratio	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.86	0.86	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	49.0	49.1		
Incr Delay (d2), s/veh	0.0	0.1	7.9	8.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.6	3.7		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.1	56.9	57.0		
LnGrp LOS	A	A	E	E		
Approach Vol, veh/h		677	227			
Approach Delay, s/veh		0.1	57.0			
Approach LOS		A	E			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			99.5	20.5
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		51.5			11.5	34.5
Max Q Clear Time (g_c+I1), s		2.0			2.0	9.2
Green Ext Time (p_c), s		18.1			0.1	4.4

Intersection Summary						
HCM 6th Ctrl Delay			14.4			
HCM 6th LOS			B			



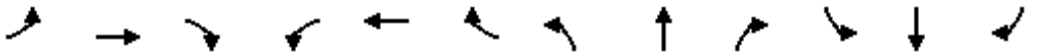
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	546	57	36	445	83
Future Volume (veh/h)	70	546	57	36	445	83
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	75	587	61	0	478	89
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1282	3358	3007		0	0
Arrive On Green	0.04	0.94	0.85	0.00	0.00	0.00
Sat Flow, veh/h	1781	3647	3741	0	0	
Grp Volume(v), veh/h	75	587	61	0	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	0		
Q Serve(g_s), s	0.4	1.1	0.3	0.0		
Cycle Q Clear(g_c), s	0.4	1.1	0.3	0.0		
Prop In Lane	1.00			0.00		
Lane Grp Cap(c), veh/h	1282	3358	3007			
V/C Ratio(X)	0.06	0.17	0.02			
Avail Cap(c_a), veh/h	1444	3358	3007			
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	0.5	0.2	1.2	0.0		
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.5	0.3	1.2	0.0		
LnGrp LOS	A	A	A			
Approach Vol, veh/h		662	61	A		
Approach Delay, s/veh		0.3	1.2			
Approach LOS		A	A			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		100.0			9.9	90.1
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		50.5			13.5	31.5
Max Q Clear Time (g_c+I1), s		3.1			2.4	2.3
Green Ext Time (p_c), s		17.3			0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	0.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	343	206	440	57	9	26	46	562	16	21	694	9
Future Volume (vph)	343	206	440	57	9	26	46	562	16	21	694	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1747	1583		1737		1770	1855		1770	1863	1583
Flt Permitted	0.95	0.99	1.00		0.97		0.20	1.00		0.31	1.00	1.00
Satd. Flow (perm)	1681	1747	1583		1737		368	1855		576	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	357	215	458	59	9	27	48	585	17	22	723	9
RTOR Reduction (vph)	0	0	351	0	14	0	0	1	0	0	0	4
Lane Group Flow (vph)	282	290	107	0	81	0	48	601	0	22	723	5
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	4	4		8	8		5	2			6	
Permitted Phases			4				2			6		6
Actuated Green, G (s)	19.5	19.5	19.5		11.0		73.0	73.0		62.1	62.1	62.1
Effective Green, g (s)	19.5	19.5	19.5		11.0		73.0	73.0		62.1	62.1	62.1
Actuated g/C Ratio	0.16	0.16	0.16		0.09		0.61	0.61		0.52	0.52	0.52
Clearance Time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	273	283	257		159		286	1128		298	964	819
v/s Ratio Prot	c0.17	0.17			c0.05		0.01	c0.32			c0.39	
v/s Ratio Perm			0.07				0.09			0.04		0.00
v/c Ratio	1.03	1.02	0.42		0.51		0.17	0.53		0.07	0.75	0.01
Uniform Delay, d1	50.2	50.2	45.1		51.9		28.8	13.6		14.5	22.8	14.0
Progression Factor	0.68	0.68	1.12		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	62.6	59.3	1.1		2.8		0.3	1.8		0.5	5.3	0.0
Delay (s)	96.8	93.5	51.7		54.7		29.1	15.4		15.0	28.2	14.0
Level of Service	F	F	D		D		C	B		B	C	B
Approach Delay (s)		75.8			54.7			16.4			27.6	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	45.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	115	81	82	0
Future Volume (vph)	0	0	115	81	82	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				0.97	0.95	
Satd. Flow (prot)				3438	3433	
Flt Permitted				0.97	0.95	
Satd. Flow (perm)				3438	3433	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	129	91	92	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	220	92	0
Turn Type			pm+pt	NA	Prot	
Protected Phases			1	6	8	
Permitted Phases			6			
Actuated Green, G (s)				100.4	8.6	
Effective Green, g (s)				100.4	8.6	
Actuated g/C Ratio				0.84	0.07	
Clearance Time (s)				5.5	5.5	
Vehicle Extension (s)				5.0	3.0	
Lane Grp Cap (vph)				2876	246	
v/s Ratio Prot				c0.06	c0.03	
v/s Ratio Perm						
v/c Ratio				0.08	0.37	
Uniform Delay, d1				1.7	53.1	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.0	1.0	
Delay (s)				1.7	54.1	
Level of Service				A	D	
Approach Delay (s)	0.0			1.7	54.1	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	8	14	0	1	1	88	5	13	572	1
Future Vol, veh/h	6	0	8	14	0	1	1	88	5	13	572	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	90	-	-	80	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	9	15	0	1	1	96	5	14	622	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	700	753	311	440	752	51	623	0	0	101	0	0
Stage 1	650	650	-	101	101	-	-	-	-	-	-	-
Stage 2	50	103	-	339	651	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	326	337	685	501	338	1006	954	-	-	1489	-	-
Stage 1	424	463	-	894	811	-	-	-	-	-	-	-
Stage 2	957	809	-	649	463	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	323	334	685	490	335	1006	954	-	-	1489	-	-
Mov Cap-2 Maneuver	323	334	-	490	335	-	-	-	-	-	-	-
Stage 1	424	459	-	893	810	-	-	-	-	-	-	-
Stage 2	955	808	-	635	459	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.9	12.3	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	954	-	-	323	685	507	1489	-	-
HCM Lane V/C Ratio	0.001	-	-	0.02	0.013	0.032	0.009	-	-
HCM Control Delay (s)	8.8	-	-	16.4	10.3	12.3	7.4	-	-
HCM Lane LOS	A	-	-	C	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.1

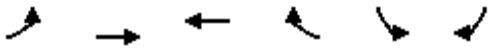
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	4	90	1	0	586
Future Vol, veh/h	3	4	90	1	0	586
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	4	98	1	0	637

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	418	50	0	0	99	0
Stage 1	99	-	-	-	-	-
Stage 2	319	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	563	1008	-	-	1492	-
Stage 1	914	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	563	1008	-	-	1492	-
Mov Cap-2 Maneuver	563	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	710	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	753	1492	-
HCM Lane V/C Ratio	-	-	0.01	-	-
HCM Control Delay (s)	-	-	9.8	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Future "Build" Intersections Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	155	387	179	189	132
Future Volume (veh/h)	72	155	387	179	189	132
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	170	425	197	208	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	134	3391	3090	2426	0	
Arrive On Green	0.04	0.95	1.00	1.00	0.00	0.00
Sat Flow, veh/h	3456	3647	3647	2790	0	
Grp Volume(v), veh/h	79	170	425	197	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1395		
Q Serve(g_s), s	2.7	0.3	0.0	0.0		
Cycle Q Clear(g_c), s	2.7	0.3	0.0	0.0		
Prop In Lane	1.00			1.00		
Lane Grp Cap(c), veh/h	134	3391	3090	2426		
V/C Ratio(X)	0.59	0.05	0.14	0.08		
Avail Cap(c_a), veh/h	446	3391	3090	2426		
HCM Platoon Ratio	1.00	1.00	2.00	2.00		
Upstream Filter(I)	1.00	1.00	0.89	0.89		
Uniform Delay (d), s/veh	56.7	0.1	0.0	0.0		
Incr Delay (d2), s/veh	4.1	0.0	0.1	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.9	0.2	0.1	0.1		
LnGrp LOS	E	A	A	A		
Approach Vol, veh/h		249	622			
Approach Delay, s/veh		19.4	0.1			
Approach LOS		B	A			

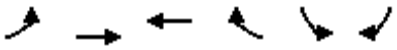
Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			10.1	109.9
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		68.5			15.5	47.5
Max Q Clear Time (g_c+I1), s		2.3			4.7	2.0
Green Ext Time (p_c), s		4.6			0.1	14.1

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Notes

User approved changes to right turn type.

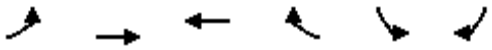
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	249	94	268	30	57	300
Future Volume (veh/h)	249	94	268	30	57	300
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	277	104	298	33	63	333
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	346	3391	2609	287	0	0
Arrive On Green	0.17	1.00	0.81	0.81	0.00	0.00
Sat Flow, veh/h	3456	3647	3322	355	0	
Grp Volume(v), veh/h	277	104	163	168	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1807		
Q Serve(g_s), s	9.2	0.0	2.3	2.4		
Cycle Q Clear(g_c), s	9.2	0.0	2.3	2.4		
Prop In Lane	1.00			0.20		
Lane Grp Cap(c), veh/h	346	3391	1436	1460		
V/C Ratio(X)	0.80	0.03	0.11	0.12		
Avail Cap(c_a), veh/h	619	3391	1436	1460		
HCM Platoon Ratio	1.67	1.67	1.00	1.00		
Upstream Filter(I)	0.95	0.95	1.00	1.00		
Uniform Delay (d), s/veh	48.8	0.0	2.4	2.4		
Incr Delay (d2), s/veh	4.1	0.0	0.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.7	0.7		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.9	0.0	2.6	2.6		
LnGrp LOS	D	A	A	A		
Approach Vol, veh/h		381	331			
Approach Delay, s/veh		38.5	2.6			
Approach LOS		D	A			

Timer - Assigned Phs	2			5	6
Phs Duration (G+Y+Rc), s	120.0			17.5	102.5
Change Period (Y+Rc), s	5.5			5.5	5.5
Max Green Setting (Gmax), s	62.5			21.5	35.5
Max Q Clear Time (g_c+I1), s	2.0			11.2	4.4
Green Ext Time (p_c), s	2.6			0.8	7.3

Intersection Summary		
HCM 6th Ctrl Delay		21.8
HCM 6th LOS		C



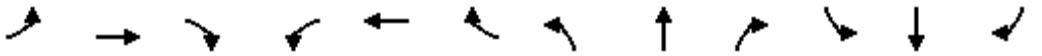
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	583	63	40	482	83
Future Volume (veh/h)	70	583	63	40	482	83
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	75	627	68	0	518	89
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1285	3391	3092		0	0
Arrive On Green	0.04	0.95	0.87	0.00	0.00	0.00
Sat Flow, veh/h	1781	3647	3741	0	0	
Grp Volume(v), veh/h	75	627	68	0	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	0		
Q Serve(g_s), s	0.4	1.2	0.3	0.0		
Cycle Q Clear(g_c), s	0.4	1.2	0.3	0.0		
Prop In Lane	1.00			0.00		
Lane Grp Cap(c), veh/h	1285	3391	3092			
V/C Ratio(X)	0.06	0.18	0.02			
Avail Cap(c_a), veh/h	1506	3391	3092			
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	0.4	0.2	1.0	0.0		
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.3	1.0	0.0		
LnGrp LOS	A	A	A			
Approach Vol, veh/h		702	68	A		
Approach Delay, s/veh		0.3	1.0			
Approach LOS		A	A			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			10.1	109.9
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		58.5			19.5	33.5
Max Q Clear Time (g_c+I1), s		3.2			2.4	2.3
Green Ext Time (p_c), s		19.9			0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	0.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	402	206	455	57	9	26	56	572	16	21	694	9
Future Volume (vph)	402	206	455	57	9	26	56	572	16	21	694	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1740	1583		1737		1770	1855		1770	1863	1583
Flt Permitted	0.95	0.98	1.00		0.97		0.19	1.00		0.30	1.00	1.00
Satd. Flow (perm)	1681	1740	1583		1737		353	1855		550	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	419	215	474	59	9	27	58	596	17	22	723	9
RTOR Reduction (vph)	0	0	348	0	14	0	0	1	0	0	0	4
Lane Group Flow (vph)	310	324	126	0	81	0	58	612	0	22	723	5
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	4	4		8	8		5	2			6	
Permitted Phases			4				2			6		6
Actuated Green, G (s)	20.5	20.5	20.5		11.0		72.0	72.0		60.9	60.9	60.9
Effective Green, g (s)	20.5	20.5	20.5		11.0		72.0	72.0		60.9	60.9	60.9
Actuated g/C Ratio	0.17	0.17	0.17		0.09		0.60	0.60		0.51	0.51	0.51
Clearance Time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	287	297	270		159		277	1113		279	945	803
v/s Ratio Prot	0.18	c0.19			c0.05		0.01	c0.33			c0.39	
v/s Ratio Perm			0.08				0.12			0.04		0.00
v/c Ratio	1.08	1.09	0.47		0.51		0.21	0.55		0.08	0.77	0.01
Uniform Delay, d1	49.8	49.8	44.8		51.9		30.6	14.3		15.2	23.8	14.6
Progression Factor	0.65	0.65	0.77		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	75.3	77.9	1.2		2.8		0.4	2.0		0.6	5.9	0.0
Delay (s)	107.7	110.4	35.7		54.7		31.0	16.3		15.7	29.7	14.6
Level of Service	F	F	D		D		C	B		B	C	B
Approach Delay (s)		77.7			54.7			17.6			29.1	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	115	206	86	0
Future Volume (vph)	0	0	115	206	86	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				0.98	0.95	
Satd. Flow (prot)				3477	3433	
Flt Permitted				0.98	0.95	
Satd. Flow (perm)				3477	3433	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	129	231	97	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	360	97	0
Turn Type			pm+pt	NA	Prot	
Protected Phases			1	6	8	
Permitted Phases			6			
Actuated Green, G (s)				100.2	8.8	
Effective Green, g (s)				100.2	8.8	
Actuated g/C Ratio				0.84	0.07	
Clearance Time (s)				5.5	5.5	
Vehicle Extension (s)				5.0	3.0	
Lane Grp Cap (vph)				2903	251	
v/s Ratio Prot				c0.10	c0.03	
v/s Ratio Perm						
v/c Ratio				0.12	0.39	
Uniform Delay, d1				1.8	53.0	
Progression Factor				1.00	0.76	
Incremental Delay, d2				0.0	1.0	
Delay (s)				1.8	41.4	
Level of Service				A	D	
Approach Delay (s)	0.0			1.8	41.4	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	0	52	1	0	1	18	235	5	19	290	21
Future Vol, veh/h	39	0	52	1	0	1	18	235	5	19	290	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	90	-	-	80	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	0	57	1	0	1	20	255	5	21	315	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	525	657	158	498	678	130	338	0	0	260	0	0
Stage 1	357	357	-	298	298	-	-	-	-	-	-	-
Stage 2	168	300	-	200	380	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	435	383	859	455	373	896	1218	-	-	1302	-	-
Stage 1	633	627	-	686	666	-	-	-	-	-	-	-
Stage 2	817	664	-	783	612	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	424	371	859	415	361	896	1218	-	-	1302	-	-
Mov Cap-2 Maneuver	424	371	-	415	361	-	-	-	-	-	-	-
Stage 1	623	617	-	675	655	-	-	-	-	-	-	-
Stage 2	803	653	-	720	602	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	11.4	0.6	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1218	-	-	424	859	567	1302	-	-
HCM Lane V/C Ratio	0.016	-	-	0.1	0.066	0.004	0.016	-	-
HCM Control Delay (s)	8	-	-	14.4	9.5	11.4	7.8	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	0	20	0	0	0	29	245	6	8	297	29
Future Vol, veh/h	13	0	20	0	0	0	29	245	6	8	297	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	0	22	0	0	0	32	266	7	9	323	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	554	694	178	514	707	137	355	0	0	273	0	0
Stage 1	357	357	-	334	334	-	-	-	-	-	-	-
Stage 2	197	337	-	180	373	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	415	365	834	443	359	886	1200	-	-	1287	-	-
Stage 1	633	627	-	653	642	-	-	-	-	-	-	-
Stage 2	786	640	-	804	617	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	403	351	834	419	345	886	1200	-	-	1287	-	-
Mov Cap-2 Maneuver	403	351	-	419	345	-	-	-	-	-	-	-
Stage 1	613	623	-	633	622	-	-	-	-	-	-	-
Stage 2	762	620	-	778	613	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	0	0.9	0.2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1200	-	-	587	-	1287	-	-
HCM Lane V/C Ratio	0.026	-	-	0.061	-	0.007	-	-
HCM Control Delay (s)	8.1	0.1	-	11.5	0	7.8	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	0	258	315	29
Future Vol, veh/h	0	20	0	258	315	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	0	280	342	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	171	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	843	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	843	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	843	-
HCM Lane V/C Ratio	-	0.026	-
HCM Control Delay (s)	-	9.4	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.1	-

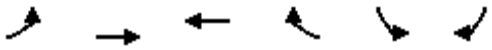
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	52	0	280	304	11
Future Vol, veh/h	0	52	0	280	304	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	57	0	304	330	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	165	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	723	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	723	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	723	-
HCM Lane V/C Ratio	-	0.078	-
HCM Control Delay (s)	-	10.4	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.3	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	294	255	312	439	498	265
Future Volume (veh/h)	294	255	312	439	498	265
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	323	280	343	482	547	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	401	3391	2815	2210	0	
Arrive On Green	0.12	0.95	0.26	0.26	0.00	0.00
Sat Flow, veh/h	3456	3647	3647	2790	0	
Grp Volume(v), veh/h	323	280	343	482	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1395		
Q Serve(g_s), s	10.9	0.5	8.8	16.2		
Cycle Q Clear(g_c), s	10.9	0.5	8.8	16.2		
Prop In Lane	1.00			1.00		
Lane Grp Cap(c), veh/h	401	3391	2815	2210		
V/C Ratio(X)	0.80	0.08	0.12	0.22		
Avail Cap(c_a), veh/h	706	3391	2815	2210		
HCM Platoon Ratio	1.00	1.00	0.33	0.33		
Upstream Filter(I)	1.00	1.00	0.68	0.68		
Uniform Delay (d), s/veh	51.7	0.1	12.5	15.2		
Incr Delay (d2), s/veh	3.8	0.0	0.1	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.9	0.0	3.6	6.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.5	0.2	12.5	15.4		
LnGrp LOS	E	A	B	B		
Approach Vol, veh/h		603	825			
Approach Delay, s/veh		29.8	14.2			
Approach LOS		C	B			

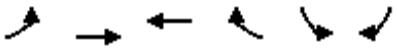
Timer - Assigned Phs	2			5	6
Phs Duration (G+Y+Rc), s	120.0			19.4	100.6
Change Period (Y+Rc), s	5.5			5.5	5.5
Max Green Setting (Gmax), s	67.5			24.5	37.5
Max Q Clear Time (g_c+I1), s	2.5			12.9	18.2
Green Ext Time (p_c), s	7.9			1.0	10.1

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

User approved changes to right turn type.

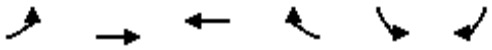
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	564	195	25	94	607
Future Volume (veh/h)	130	564	195	25	94	607
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	138	600	207	27	100	646
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2707	3391	396	51	0	0
Arrive On Green	1.00	1.00	0.13	0.13	0.00	0.00
Sat Flow, veh/h	3456	3647	3260	408	0	
Grp Volume(v), veh/h	138	600	115	119	0.0	
Grp Sat Flow(s),veh/h/ln	1728	1777	1777	1797		
Q Serve(g_s), s	0.0	0.0	7.3	7.4		
Cycle Q Clear(g_c), s	0.0	0.0	7.3	7.4		
Prop In Lane	1.00			0.23		
Lane Grp Cap(c), veh/h	2707	3391	222	225		
V/C Ratio(X)	0.05	0.18	0.52	0.53		
Avail Cap(c_a), veh/h	2707	3391	481	487		
HCM Platoon Ratio	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.86	0.86	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	49.1	49.2		
Incr Delay (d2), s/veh	0.0	0.1	8.4	8.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.7	3.9		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.1	57.5	57.9		
LnGrp LOS	A	A	E	E		
Approach Vol, veh/h		738	234			
Approach Delay, s/veh		0.1	57.7			
Approach LOS		A	E			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			99.5	20.5
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		49.5			11.5	32.5
Max Q Clear Time (g_c+I1), s		2.0			2.0	9.4
Green Ext Time (p_c), s		17.8			0.3	4.3

Intersection Summary			
HCM 6th Ctrl Delay		13.9	
HCM 6th LOS		B	



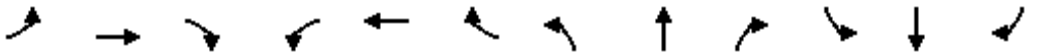
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	583	63	40	482	83
Future Volume (veh/h)	70	583	63	40	482	83
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	75	627	68	0	518	89
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1285	3391	3092		0	0
Arrive On Green	0.04	0.95	0.87	0.00	0.00	0.00
Sat Flow, veh/h	1781	3647	3741	0	0	
Grp Volume(v), veh/h	75	627	68	0	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	0		
Q Serve(g_s), s	0.4	1.2	0.3	0.0		
Cycle Q Clear(g_c), s	0.4	1.2	0.3	0.0		
Prop In Lane	1.00			0.00		
Lane Grp Cap(c), veh/h	1285	3391	3092			
V/C Ratio(X)	0.06	0.18	0.02			
Avail Cap(c_a), veh/h	1506	3391	3092			
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	0.4	0.2	1.0	0.0		
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.3	1.0	0.0		
LnGrp LOS	A	A	A			
Approach Vol, veh/h		702	68	A		
Approach Delay, s/veh		0.3	1.0			
Approach LOS		A	A			

Timer - Assigned Phs		2			5	6
Phs Duration (G+Y+Rc), s		120.0			10.1	109.9
Change Period (Y+Rc), s		5.5			5.5	5.5
Max Green Setting (Gmax), s		58.5			19.5	33.5
Max Q Clear Time (g_c+I1), s		3.2			2.4	2.3
Green Ext Time (p_c), s		19.9			0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	0.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	402	206	455	57	9	26	56	572	16	21	694	9
Future Volume (vph)	402	206	455	57	9	26	56	572	16	21	694	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1740	1583		1737		1770	1855		1770	1863	1583
Flt Permitted	0.95	0.98	1.00		0.97		0.19	1.00		0.30	1.00	1.00
Satd. Flow (perm)	1681	1740	1583		1737		353	1855		550	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	419	215	474	59	9	27	58	596	17	22	723	9
RTOR Reduction (vph)	0	0	348	0	14	0	0	1	0	0	0	4
Lane Group Flow (vph)	310	324	126	0	81	0	58	612	0	22	723	5
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	4	4		8	8		5	2			6	
Permitted Phases			4				2			6		6
Actuated Green, G (s)	20.5	20.5	20.5		11.0		72.0	72.0		60.9	60.9	60.9
Effective Green, g (s)	20.5	20.5	20.5		11.0		72.0	72.0		60.9	60.9	60.9
Actuated g/C Ratio	0.17	0.17	0.17		0.09		0.60	0.60		0.51	0.51	0.51
Clearance Time (s)	5.5	5.5	5.5		5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	287	297	270		159		277	1113		279	945	803
v/s Ratio Prot	0.18	c0.19			c0.05		0.01	c0.33			c0.39	
v/s Ratio Perm			0.08				0.12			0.04		0.00
v/c Ratio	1.08	1.09	0.47		0.51		0.21	0.55		0.08	0.77	0.01
Uniform Delay, d1	49.8	49.8	44.8		51.9		30.6	14.3		15.2	23.8	14.6
Progression Factor	0.65	0.65	0.77		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	75.3	77.9	1.2		2.8		0.4	2.0		0.6	5.9	0.0
Delay (s)	107.7	110.4	35.7		54.7		31.0	16.3		15.7	29.7	14.6
Level of Service	F	F	D		D		C	B		B	C	B
Approach Delay (s)		77.7			54.7			17.6			29.1	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	115	206	86	0
Future Volume (vph)	0	0	115	206	86	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				0.98	0.95	
Satd. Flow (prot)				3477	3433	
Flt Permitted				0.98	0.95	
Satd. Flow (perm)				3477	3433	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	129	231	97	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	360	97	0
Turn Type			pm+pt	NA	Prot	
Protected Phases			1	6	8	
Permitted Phases			6			
Actuated Green, G (s)				100.2	8.8	
Effective Green, g (s)				100.2	8.8	
Actuated g/C Ratio				0.84	0.07	
Clearance Time (s)				5.5	5.5	
Vehicle Extension (s)				5.0	3.0	
Lane Grp Cap (vph)				2903	251	
v/s Ratio Prot				c0.10	c0.03	
v/s Ratio Perm						
v/c Ratio				0.12	0.39	
Uniform Delay, d1				1.8	53.0	
Progression Factor				1.00	0.76	
Incremental Delay, d2				0.0	1.0	
Delay (s)				1.8	41.4	
Level of Service				A	D	
Approach Delay (s)	0.0			1.8	41.4	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	0	41	14	0	1	47	103	5	13	643	58
Future Vol, veh/h	28	0	41	14	0	1	47	103	5	13	643	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	90	-	-	80	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	0	45	15	0	1	51	112	5	14	699	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	885	946	350	595	1007	59	762	0	0	117	0	0
Stage 1	727	727	-	217	217	-	-	-	-	-	-	-
Stage 2	158	219	-	378	790	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	239	260	646	388	239	994	846	-	-	1469	-	-
Stage 1	381	427	-	765	722	-	-	-	-	-	-	-
Stage 2	828	721	-	616	400	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	226	242	646	342	223	994	846	-	-	1469	-	-
Mov Cap-2 Maneuver	226	242	-	342	223	-	-	-	-	-	-	-
Stage 1	358	423	-	719	679	-	-	-	-	-	-	-
Stage 2	777	678	-	568	396	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	15.5	2.9	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	846	-	-	226	646	358	1469	-	-
HCM Lane V/C Ratio	0.06	-	-	0.135	0.069	0.046	0.01	-	-
HCM Control Delay (s)	9.5	-	-	23.4	11	15.5	7.5	-	-
HCM Lane LOS	A	-	-	C	B	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	0	35	3	0	4	21	132	1	0	665	29
Future Vol, veh/h	19	0	35	3	0	4	21	132	1	0	665	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	0	38	3	0	4	23	143	1	0	723	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	857	929	378	552	945	72	755	0	0	144	0	0
Stage 1	739	739	-	190	190	-	-	-	-	-	-	-
Stage 2	118	190	-	362	755	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	251	266	620	416	260	975	851	-	-	1436	-	-
Stage 1	375	422	-	794	742	-	-	-	-	-	-	-
Stage 2	874	742	-	629	415	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	244	258	620	382	252	975	851	-	-	1436	-	-
Mov Cap-2 Maneuver	244	258	-	382	252	-	-	-	-	-	-	-
Stage 1	364	422	-	771	720	-	-	-	-	-	-	-
Stage 2	845	720	-	590	415	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.5	11.2	1.4	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	851	-	-	402	585	1436	-	-
HCM Lane V/C Ratio	0.027	-	-	0.146	0.013	-	-	-
HCM Control Delay (s)	9.3	0.1	-	15.5	11.2	0	-	-
HCM Lane LOS	A	A	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	35	0	155	660	29
Future Vol, veh/h	0	35	0	155	660	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	38	0	168	717	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	359	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	638	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	638	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	638	-
HCM Lane V/C Ratio	-	0.06	-
HCM Control Delay (s)	-	11	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.2	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	33	0	154	666	36
Future Vol, veh/h	0	33	0	154	666	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	36	0	167	724	39

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	362	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	542	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	542	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	542	-
HCM Lane V/C Ratio	-	0.066	-
HCM Control Delay (s)	-	12.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.2	-

Traffic Volume Worksheets

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

1. Lake Hearn @ Perimeter Ctr

A.M. Peak Hour

Condition	- Northbound				Perimeter Center Parkway Southbound				Lake Hearn Drive Eastbound				Lake Hearn Drive Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	166	0	124	290	68	120	0	188	0	292	150	442
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	0	0	0	171	0	128	299	70	124	0	194	0	301	155	456
No-Build 2023 Volumes:	0	0	0	0	176	0	132	308	72	128	0	200	0	310	160	470
New Residential Trips:	0	0	0	0	4	0	0	4	0	9	0	9	0	56	14	70
New Retail Trips:	0	0	0	0	9	0	0	9	0	18	0	18	0	21	5	26
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	0	0	0	189	0	132	321	72	155	0	227	0	387	179	566

P.M. Peak Hour

Condition	- Northbound				Perimeter Center Parkway Southbound				Lake Hearn Drive Eastbound				Lake Hearn Drive Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	451	0	249	700	277	205	0	482	0	239	400	639
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	0	0	0	465	0	257	722	285	211	0	496	0	246	412	658
No-Build 2023 Volumes:	0	0	0	0	479	0	265	744	294	217	0	511	0	253	424	677
New Residential Trips:	0	0	0	0	14	0	0	14	0	28	0	28	0	35	9	44
New Retail Trips:	0	0	0	0	5	0	0	5	0	10	0	10	0	24	6	30
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	0	0	0	498	0	265	763	294	255	0	549	0	312	439	751

Number of Years = 3 (2017 to 2020)
Number of Years = 3 (2020 to 2023)
Growth Factor (%) = 1

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

2. Lake Hearn @ Lake Hearn

A.M. Peak Hour

Condition	- Northbound				Lake Hearn Drive Southbound				Lake Hearn Drive Eastbound				Perimeter Summit Parkway Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	9	0	192	201	198	88	0	286	0	252	24	276
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	0	0	0	9	0	198	207	204	91	0	295	0	260	25	285
No-Build 2023 Volumes:	0	0	0	0	9	0	204	213	210	94	0	304	0	268	26	294
New Residential Trips:	0	0	0	0	35	0	70	105	13	0	0	13	0	0	1	1
New Retail Trips:	0	0	0	0	13	0	26	39	26	0	0	26	0	0	3	3
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	0	0	0	57	0	300	357	249	94	0	343	0	268	30	298

P.M. Peak Hour

Condition	- Northbound				Lake Hearn Drive Southbound				Lake Hearn Drive Eastbound				Perimeter Summit Parkway Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	53	0	502	555	68	531	0	599	0	183	17	200
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	0	0	0	55	0	517	572	70	547	0	617	0	189	18	207
No-Build 2023 Volumes:	0	0	0	0	57	0	533	590	72	564	0	636	0	195	19	214
New Residential Trips:	0	0	0	0	22	0	44	66	42	0	0	42	0	0	4	4
New Retail Trips:	0	0	0	0	15	0	30	45	16	0	0	16	0	0	2	2
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	0	0	0	94	0	607	701	130	564	0	694	0	195	25	220

Number of Years = 3 (2017 to 2020)
Number of Years = 3 (2020 to 2023)
Growth Factor (%) = 1

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

3. Perimeter Summit @ Parkside

A.M. Peak Hour

Condition	- Northbound				Parkside Place Southbound				Perimeter Summit Parkway Eastbound				Perimeter Summit Parkway Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	135	0	67	202	58	44	0	102	0	214	55	269
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	0	0	0	139	0	69	208	60	45	0	105	0	220	57	277
No-Build 2023 Volumes:	0	0	0	0	143	0	71	214	62	46	0	108	0	227	59	286
New Residential Trips:	0	0	0	0	35	0	0	35	0	35	0	35	0	1	1	2
New Retail Trips:	0	0	0	0	13	0	0	13	0	13	0	13	0	3	2	5
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	0	0	0	191	0	71	262	62	94	0	156	0	231	62	293

P.M. Peak Hour

Condition	- Northbound				Parkside Place Southbound				Perimeter Summit Parkway Eastbound				Perimeter Summit Parkway Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	419	0	79	498	66	514	0	580	0	53	34	87
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	0	0	0	432	0	81	513	68	530	0	598	0	55	35	90
No-Build 2023 Volumes:	0	0	0	0	445	0	83	528	70	546	0	616	0	57	36	93
New Residential Trips:	0	0	0	0	22	0	0	22	0	22	0	22	0	4	3	7
New Retail Trips:	0	0	0	0	15	0	0	15	0	15	0	15	0	2	1	3
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	0	0	0	482	0	83	565	70	583	0	653	0	63	40	103

Number of Years = 3 (2017 to 2020)
Number of Years = 3 (2020 to 2023)
Growth Factor (%) = 1

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

4. Ashford @ Perimeter Summit

A.M. Peak Hour

	Ashford Dunwoody Road Northbound				Ashford Dunwoody Road Southbound				Perimeter Summit Parkway Eastbound				Oak Forest Drive Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	195	963	7	1165	8	464	43	515	112	1	72	185	17	31	73	121
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	201	992	7	1200	8	478	44	530	115	1	74	190	18	32	75	125
No-Build 2023 Volumes:	207	1022	7	1236	8	492	45	545	118	1	76	195	19	33	77	129
New Residential Trips:	2	2	0	4	0	0	0	0	56	0	14	70	0	0	0	0
New Retail Trips:	4	4	0	8	0	0	0	0	21	0	5	26	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	213	1028	7	1248	8	492	45	545	195	1	95	291	19	33	77	129

P.M. Peak Hour

	Ashford Dunwoody Road Northbound				Ashford Dunwoody Road Southbound				Perimeter Summit Parkway Eastbound				Oak Forest Drive Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	44	529	16	589	19	654	9	682	323	194	414	931	53	9	24	86
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	45	545	16	606	20	674	9	703	333	200	427	960	55	9	25	89
No-Build 2023 Volumes:	46	562	16	624	21	694	9	724	343	206	440	989	57	9	26	92
New Residential Trips:	7	7	0	14	0	0	0	0	35	0	9	44	0	0	0	0
New Retail Trips:	3	3	0	6	0	0	0	0	24	0	6	30	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	56	572	16	644	21	694	9	724	402	206	455	1063	57	9	26	92

Number of Years = 3 (2017 to 2020)
Number of Years = 3 (2020 to 2023)
Growth Factor (%) = 1

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

5. Lake Hearn @ Parkside

A.M. Peak Hour

	Parkside Place Northbound				- Southbound				Lake Hearn Drive Eastbound				Lake Hearn Drive Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	40	0	0	40	0	0	0	0	0	0	31	31	180	741	0	921
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	41	0	0	41	0	0	0	0	0	0	32	32	185	763	0	948
No-Build 2023 Volumes:	42	0	0	42	0	0	0	0	0	0	33	33	191	786	0	977
New Residential Trips:	1	0	0	1	0	0	0	0	0	0	35	35	0	29	0	29
New Retail Trips:	2	0	0	2	0	0	0	0	0	0	13	13	0	57	0	57
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	45	0	0	45	0	0	0	0	0	0	81	81	191	872	0	1063

P.M. Peak Hour

	Parkside Place Northbound				- Southbound				Lake Hearn Drive Eastbound				Lake Hearn Drive Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	78	0	0	78	0	0	0	0	0	0	436	436	109	77	0	186
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	80	0	0	80	0	0	0	0	0	0	449	449	112	79	0	191
No-Build 2023 Volumes:	82	0	0	82	0	0	0	0	0	0	463	463	115	81	0	196
New Residential Trips:	3	0	0	3	0	0	0	0	0	0	22	22	0	91	0	91
New Retail Trips:	1	0	0	1	0	0	0	0	0	0	15	15	0	34	0	34
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	86	0	0	86	0	0	0	0	0	0	500	500	115	206	0	321

Number of Years = 3 (2017 to 2020)
Number of Years = 3 (2020 to 2023)
Growth Factor (%) = 1

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

6. Lake Hearn @ N. Rez Drwy

A.M. Peak Hour

	Lake Hearn Drive Northbound				Lake Hearn Drive Southbound				Site Drwy 1 (N. Residential Drwy Eastbound				2002 Summit Loading Dock Drwy Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Traffic Counts during Covid-19:	2	11	4	17	14	237	2	253	3	0	0	3	1	0	1	2
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	3	215	5	223	18	214	3	235	4	0	0	4	1	0	1	2
No-Build 2023 Volumes:	3	222	5	230	19	220	3	242	4	0	0	4	1	0	1	2
New Residential Trips:	15	0	0	15	0	11	18	29	35	0	52	87	0	0	0	0
New Retail Trips:	0	13	0	13	0	59	0	59	0	0	0	0	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	18	235	5	258	19	290	21	330	39	0	52	91	1	0	1	2

P.M. Peak Hour

	Lake Hearn Drive Northbound				Lake Hearn Drive Southbound				Site Drwy 1 (N. Residential Drwy Eastbound				2002 Summit Loading Dock Drwy Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Traffic Counts during Covid-19:	1	6	4	11	10	41	1	52	5	0	6	11	11	0	1	12
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	1	85	5	91	13	555	1	569	6	0	8	14	14	0	1	15
No-Build 2023 Volumes:	1	88	5	94	13	572	1	586	6	0	8	14	14	0	1	15
New Residential Trips:	46	0	0	46	0	36	57	93	22	0	33	55	0	0	0	0
New Retail Trips:	0	15	0	15	0	35	0	35	0	0	0	0	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	47	103	5	155	13	643	58	714	28	0	41	69	14	0	1	15

Number of Years = 3 (2017 to 2020)
Number of Years = 3 (2020 to 2023)
Growth Factor (%) = 1

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

7. Lake Hearn @ S. Retail Drwy

A.M. Peak Hour

Condition	Lake Hearn Drive Northbound				Lake Hearn Drive Southbound				Site Drwy 3 (S. Retail Drwy) Eastbound				Parking Deck Drwy Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Traffic Counts during Covid-19:	0	12	5	17	6	260	0	266	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	223	6	229	8	207	0	215	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	230	6	236	8	213	0	221	0	0	0	0	0	0	0	0
New Residential Trips:	0	15	0	15	0	64	0	64	0	0	0	0	0	0	0	0
New Retail Trips:	29	0	0	29	0	20	29	49	13	0	20	33	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	29	245	6	280	8	297	29	334	13	0	20	33	0	0	0	0

P.M. Peak Hour

Condition	Lake Hearn Drive Northbound				Lake Hearn Drive Southbound				Site Drwy 3 (S. Retail Drwy) Eastbound				Parking Deck Drwy Westbound			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Traffic Counts during Covid-19:	0	6	1	7	0	71	0	71	0	0	0	0	2	0	3	5
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	87	1	88	0	569	0	569	0	0	0	0	3	0	4	7
No-Build 2023 Volumes:	0	90	1	91	0	586	0	586	0	0	0	0	3	0	4	7
New Residential Trips:	0	46	0	46	0	69	0	69	0	0	0	0	0	0	0	0
New Retail Trips:	17	0	0	17	0	22	17	39	15	0	22	37	0	0	0	0
Retail Pass-by Trips:	4	-4	0	0	0	-12	12	0	4	0	13	17	0	0	0	0
Future 2023 Traffic Volumes:	21	132	1	154	0	665	29	694	19	0	35	54	3	0	4	7

Number of Years =	3	(2017 to 2020)
Number of Years =	3	(2020 to 2023)
Growth Factor (%) =	1	

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

8. Lake Hearn @ N. Retail RIRO

A.M. Peak Hour

	Lake Hearn Drive Northbound				Lake Hearn Drive Southbound				ite Drwy 2 (N. Retail RIRO Drwy Eastbound				- Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	223	0	223	0	215	0	215	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	230	0	230	0	222	0	222	0	0	0	0	0	0	0	0
New Residential Trips:	0	15	0	15	0	64	0	64	0	0	0	0	0	0	0	0
New Retail Trips:	0	13	0	13	0	29	29	58	0	0	20	20	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	258	0	258	0	315	29	344	0	0	20	20	0	0	0	0

P.M. Peak Hour

	Lake Hearn Drive Northbound				Lake Hearn Drive Southbound				ite Drwy 2 (N. Retail RIRO Drwy Eastbound				- Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	91	0	91	0	569	0	569	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	94	0	94	0	586	0	586	0	0	0	0	0	0	0	0
New Residential Trips:	0	46	0	46	0	69	0	69	0	0	0	0	0	0	0	0
New Retail Trips:	0	15	0	15	0	17	17	34	0	0	22	22	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	-12	12	0	0	0	13	13	0	0	0	0
Future 2023 Traffic Volumes:	0	155	0	155	0	660	29	689	0	0	35	35	0	0	0	0

Number of Years =	3	(2017 to 2020)
Number of Years =	3	(2020 to 2023)
Growth Factor (%) =	1	

20-091 Lake Hearn Drive Development - Brookhaven, GA

Traffic Volumes

A&R Engineering
August 2020

9. Lake Hearn @ S. Rez RIRO

A.M. Peak Hour

	Lake Hearn Drive Northbound				Lake Hearn Drive Southbound				Site Drwy 4 (S. Residential RIRC Eastbound				- Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	229	0	229	0	207	0	207	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	236	0	236	0	213	0	213	0	0	0	0	0	0	0	0
New Residential Trips:	0	15	0	15	0	52	11	63	0	0	52	52	0	0	0	0
New Retail Trips:	0	29	0	29	0	39	0	39	0	0	0	0	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	280	0	280	0	304	11	315	0	0	52	52	0	0	0	0

P.M. Peak Hour

	Lake Hearn Drive Northbound				Lake Hearn Drive Southbound				Site Drwy 4 (S. Residential RIRC Eastbound				- Westbound			
Condition	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
2017 Traffic Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Traffic Counts during Covid-19:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	1	1	1		1	1	1		1	1	1		1	1	1	
Estimated Existing 2020 Volumes:	0	88	0	88	0	572	0	572	0	0	0	0	0	0	0	0
No-Build 2023 Volumes:	0	91	0	91	0	589	0	589	0	0	0	0	0	0	0	0
New Residential Trips:	0	46	0	46	0	33	36	69	0	0	33	33	0	0	0	0
New Retail Trips:	0	17	0	17	0	44	0	44	0	0	0	0	0	0	0	0
Retail Pass-by Trips:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future 2023 Traffic Volumes:	0	154	0	154	0	666	36	702	0	0	33	33	0	0	0	0

Number of Years = 3 (2017 to 2020)
Number of Years = 3 (2020 to 2023)
Growth Factor (%) = 1