Transportation Analysis-Draft

Majestic Airport Center III Expansion
DRI# 2356
Union City, Georgia

Prepared for:
Majestic Realty Co.

Prepared by:
Kimley-Horn and Associates, Inc.
Atlanta, GA

July 2013
019679001

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EXECUTIVE SUMMARY

This report presents the analysis of the anticipated traffic impacts of a proposed 160-acre development (Majestic Airport Center III Expansion DRI) comprised of a high-cube warehouse/distribution building located along the west side of Buffington Road and south of Flat Shoals Road in Union City, Georgia. This report is being prepared as part of a submittal requesting rezoning with the City of Union City. Because the project will exceed 500,000 square feet and is within the "wholesale & distribution" category, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) review. The ARC Unified Growth Policy Map identifies the area as a Developing Rural Area. The current zoning is G-C (General Commercial) and is proposed to be changed to M-1 (Light Industrial).

The proposed development is expected to consist of approximately 1,600,000 square feet of high-cube warehouse and is scheduled to be completed in one phase with build-out by the year 2015. The projected Trip Generation is between 1,000-3,000 trips per day, which normally would qualify for expedited review. However, this is considered a re-review of an existing DRI 705 Majestic Airport Center III with a GRTA Notice of Decision issued on April 6, 2005.

Based on the 2013 "Existing" conditions, the three signalized intersections currently operate at or above the acceptable Level of Service standard (LOS D).

The results of the detailed intersection analysis for the 2015 "No-Build" and 2015 "Build" conditions indicated that the Level of Service standard (LOS D) could be maintained for the three signalized intersections.

The following intersection geometry and improvements are recommended at the project site driveways:

Buffington Road @ Proposed Driveway #1 (Intersection #4)

- Construct a southbound right-turn lane along Buffington Road.

Buffington Road @ Proposed Driveway #2 (Intersection #5)

- Construct a southbound right-turn lane along Buffington Road.
- Construct the Oakley Industrial Boulevard extension as a three-lane road.

1.0 PROJECT DESCRIPTION

1.1 Introduction

This report presents the analysis of the anticipated traffic impacts of a proposed 160 acre development (Majestic Airport Center III Expansion DRI) located on Buffington Road near Flat Shoals Road in Union City, Georgia. **Figure 1** shows the site location. The approximate 1,600,000 square foot warehousing development is bounded by Flat Shoals Road to the north, Buffington Road to the east, I-85 to the west, and an existing industrial warehousing facility to the south. This report is being prepared as part of a submittal requesting rezoning with the City of Union City. Because the development project will exceed 500,000 square feet and is within the "wholesale & distribution" category, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) review. The ARC Unified Growth Policy Map identifies the area as Regionally Important Resources within a Developing Rural Area. The current zoning is G-C (General Commercial) and is proposed to be changed to M-1 (Light Industrial). The Uniform Growth Policy Map can be found in **Appendix A.** This development is considered a re-review of the existing DRI 705- Majestic Airport Center III with a GRTA Notice of Decision issues on April 6, 2005.

The proposed development is expected to consist of approximately 1,600,000 square feet of warehouse and is scheduled to be completed in one phase with build-out by the year 2015.

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

Table 1
MAC III Expansion DRI
Proposed Land Uses

High-Cube Warehousing	1,600,000 SF

Figure 2 and **Figure 3** provide aerial photographs of the site.

1.2 Site Plan Review

The project site is located in southern Fulton County and is located south of Flat Shoals Road and west of Buffington Road. The development plan consists of two warehouse/distribution buildings. The existing site is currently vacant and has a warehouse/distribution building directly south of the site.

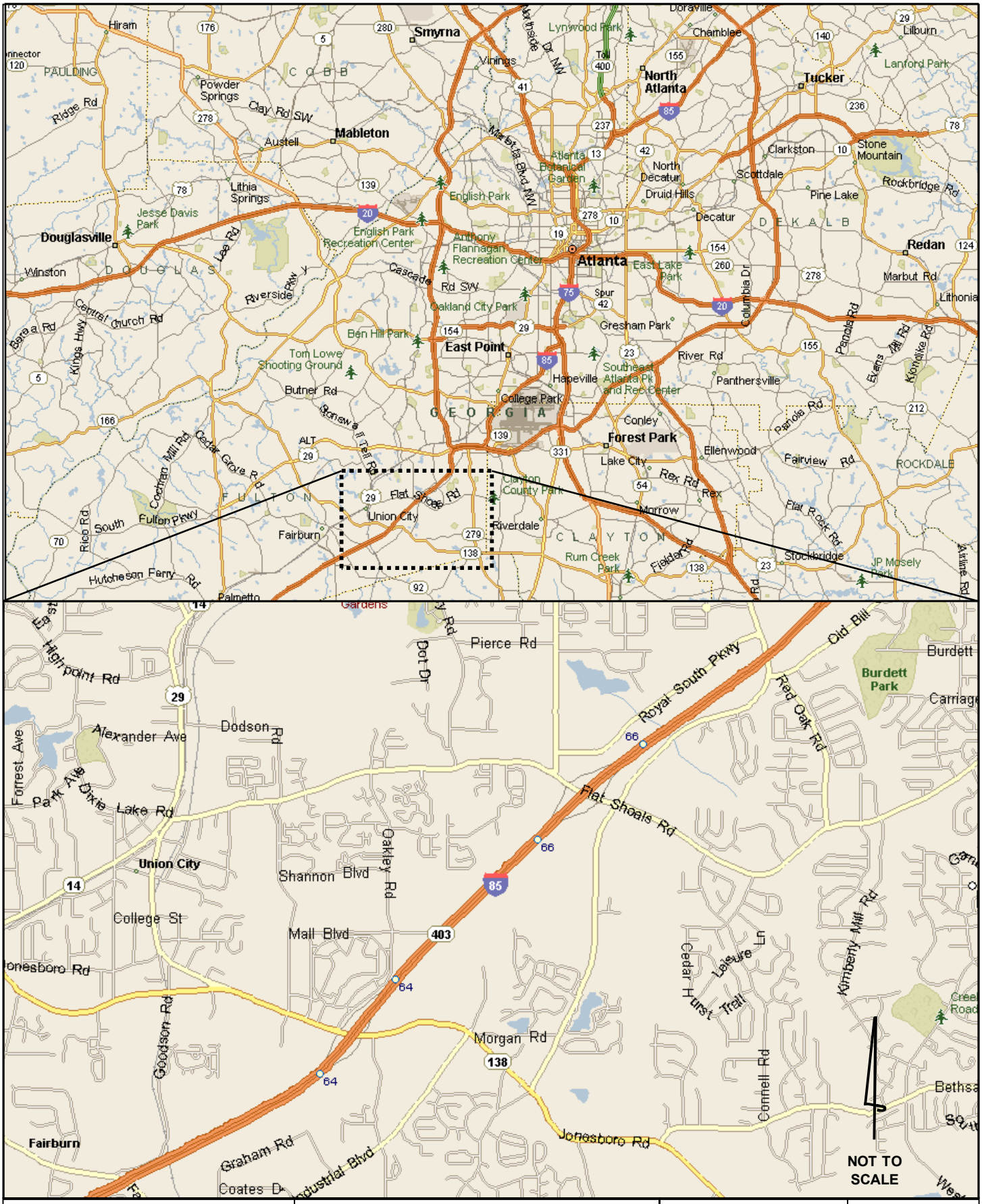
Figure 4 is a small-scale copy of the site plan. A full-size site plan consistent with GRTA's Site Plan Guidelines is also being submitted as part of the Review Package.

1.3 Site Access

Vehicular access to the development is proposed at one location along Buffington Road. The proposed site driveway is located about 1,000 feet south of the Flat Shoals Road and Buffington Road intersection. The intersection of Buffington Road and the site driveway will be an unsignalized full-movement intersection. A second driveway is proposed to connect the development to the existing industrial facility to the south (Majestic Airport Center III). This driveway will ultimately become the extension of Oakley Industrial Boulevard.

The site driveways mentioned above provides access to all parking on the site. Parking will be provided throughout the development as follows:

Employee Parking Provided:	519 spaces
Trailer Parking Provided:	466 spaces
Dock Doors:	(+/-) 290 doors



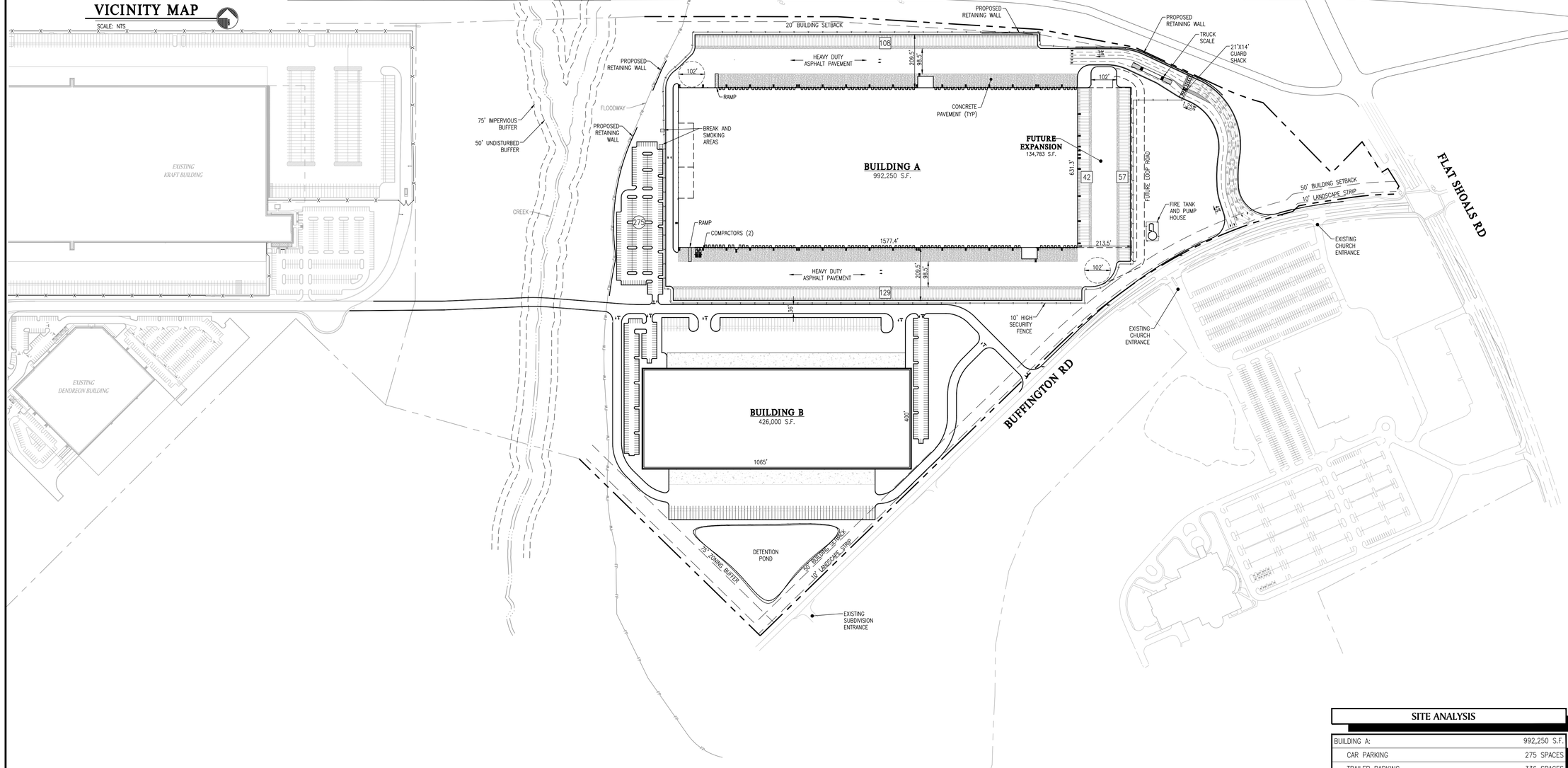
Kimley-Horn and Associates, Inc.	**MAC III Expansion DRI Transportation Analysis**	**Site Location**	**Figure 1**

Kimley-Horn and Associates, Inc.	MAC III Expansion DRI Transportation Analysis	Site Aerial Zoomed-Out	Figure 2

Kimley-Horn and Associates, Inc.	MAC III Expansion DRI Transportation Analysis	Aerial Zoomed-In	Figure 3

VICINITY MAP

SCALE: NTS



PRELIMINARY SITE PLAN

NORTH

0 100' 200' 400' 800'

SCALE: 1"= 200'

SITE ANALYSIS

BUILDING A:	992,250 S.F.
CAR PARKING	275 SPACES
TRAILER PARKING	336 SPACES
DOCK DOORS	141 DOORS
BUILDING B:	426,000 S.F.
CAR PARKING	244 SPACES
TRAILER PARKING	130 SPACES
DOCK DOORS	±149 DOORS

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SUITE 200
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www.paulsonmitchell.com

PAULSON MITCHELL INCORPORATED

PROJECT:

PROPOSED DEVELOPMENT

FLAT SHOALS RD &
BUFFINGTON RD.

LAND LOTS 80, 81 & 82
9F DISTRICT
UNION CITY, GEORGIA

FOR:

MAJESTIC REALTY COMPANY
One Securities Centre
3490 Piedmont Road NE, Suite 210
Atlanta, GA 30305
(404) 467-5255

REVISIONS

2012140p12.dwg 07.02.13

PRELIMINARY SITE PLAN

SHEET **PS.12**

1.4 Bicycle and Pedestrian Facilities

Limited sidewalks currently exist along Buffington Road as well as the south side of Flat Shoals Road. Pedestrian facilities also exist along all approaches of the Buffington Road and Flat Shoals Road intersection. There are no designated bicycle facilities in the vicinity of the proposed site.

1.5 Transit Facilities

There is currently a MARTA bus route that provides transit to the proposed site. Bus Route #89 – Flat Shoals Road/ Scofield Road ends at the South Fulton Park and Ride. The South Fulton Park and Ride is about one mile north-west of the proposed development off Royal S Parkway. MARTA bus stops are located at the intersection of Flat Shoals Road and Buffington Road. Any trips using the South Fulton Park and Ride are assumed to be negligible. A map of the route has been provided in **Appendix B**.

2.0 TRAFFIC ANALYSES METHODOLOGY AND ASSUMPTIONS

2.1 Growth Rate

Background traffic is defined as expected traffic on the roadway network in future year(s) absent the construction and opening of the proposed project. Historical traffic count data from the Georgia DOT was reviewed for the area surrounding the proposed development and all data showed negative growth over the past five years. A conservative growth rate of 1.0% per year along all roadways was agreed upon in the GRTA Letter of Understanding.

2.2 Traffic Data Collection

Year 2013 peak hour turning movement counts were conducted at the Flat Shoals Road/Buffington Road intersection between 7:00-9:00 AM and 4:00-6:00 PM on June 18, 2013. Morning and evening peak hours were identified as 7:45-8:45 AM and 5:00-6:00 PM. Because data collection occurred when school was not in session, a conservative factor of 15% was added to the counts to account for any seasonal variations.

All raw count data is included in **Appendix D**.

2.3 Detailed Intersection Analysis

Level-of-service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists perceptions within a traffic stream. The Highway Capacity Manual defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. Level of service analyses were conducted at all intersections within the study network using Synchro Professional, Version 8.0.

Levels of service for signalized intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low level of service, while the intersection as a whole may operate acceptably.

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

3.0 STUDY NETWORK

3.1 Gross Trip Generation

The proposed development is expected to consist of an approximately 1,600,000 square feet of high-cube warehouse/distribution facility. The development is scheduled to be completed in one phase with build-out by the year 2015.

Traffic for the various land uses was estimated by using trip generation equations and rates contained in the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Ninth Edition, 2012*. Gross trips generated are displayed below in **Table 2**.

Table 2
MAC III Expansion DRI
Gross Trip Generation

Land Use	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2015)							
1,600,000 SF High-Cube Warehouse	152	1,344	1,344	137	61	63	141
Total		**1,344**	**1,344**	**137**	**61**	**63**	**141**

*NOTE: The daily truck percentage of development traffic is expected to be approximately 38%. Trucks are expected to account for approximately 24% and 31% of morning and evening peak hour traffic, respectively.

3.2 Trip Distribution

The directional distribution and assignment of new project trips was based on the project land use, a review of land use densities and road facilities in the area, combined with engineering judgment and discussions with staff at the Pre-Application meeting.

3.3 Level of Service Standards

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

3.4 Study Network Determination

The general study area was refined during the Pre-Application meeting and includes the following intersections:

- Flat Shoals Road @ Buffington Road (signalized)
- Flat Shoals Road @ I-85 Northbound Ramps
- Flat Shoals Road @ I-85 Southbound Ramps
- Buffington Road @ Proposed Driveway #1 (across from existing church driveway)
- Buffington Road @ Proposed Driveway #2 (future Oakley Industrial Boulevard)

All study intersections were analyzed for the weekday AM and PM peak hour.

Each of the above listed intersections was analyzed for the Existing 2013 Condition, the 2015 "No-Build" Condition, and the 2015 "Build" Condition. The 2015 "No-Build" condition represents the existing traffic

volumes grown at 1.0% per year for two years. The 2015 "Build" condition adds the projected trips associated with the MAC III Expansion DRI development to the 2015 "No-Build" condition.

3.5 Existing Facilities

This portion of Flat Shoals Road is a four-lane, undivided roadway with turn lanes at intersections and is classified as an urban minor arterial by the Georgia Department of Transportation (GDOT). The posted speed limit along Flat Shoals Road in the study area is 45 MPH. The portion of Buffington Road within the study area is a two-lane, undivided roadway and is classified as an urban minor arterial by GDOT. The posted speed limit along Buffington Road in the study area is 45 MPH.

3.6 Proposed Transportation Improvements

Section 7.0 lists four proposed roadway projects in the area. None of these transportation projects were assumed in the 2015 "No-Build" or 2015 "Build" conditions analysis per GRTA's guidelines.

4.0 TRIP GENERATION

As stated earlier, trips associated with the proposed development were estimated using the trip generation equations and rates contained in the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Ninth Edition, 2012*. There were no mixed-use or pass-by trip reductions taken. No alternate modes of transportation reductions were taken as well.

For the purposes of this traffic impact study, the truck trips generation rates for High-Cube Warehouse/Distribution Center were utilized for determining car and truck trips. The total trips generated and analyzed in the report are listed below in **Table 3**.

Table 3
MAC III Expansion DRI
Net Trip Generation

	Daily Traffic		AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2015)						
Gross Trips	**1,344**	**1,344**	**137**	**61**	**63**	**141**
Truck Volumes	512	512	33	15	20	44
Car Volumes	832	832	104	46	43	97
New Trips	**1,344**	**1,344**	**137**	**61**	**63**	**141**

5.0 TRIP DISTRIBUTION AND ASSIGNMENT

New trips were distributed onto the roadway network using the percentages agreed to during the Pre-Application meeting. **Figure 5** displays the expected distribution percentages for the car traffic of the development throughout the roadway network, and **Figure 6** displays the expected distribution percentages for the truck traffic of the development throughout the roadway network.

LEGEND

- Turning Movement
- Existing Traffic Signal
- XX% In Assignments
- (XX%) Out Assignments

Note: All car traffic was assigned to Proposed Driveway #2

NOT TO SCALE

Figure 5

Car Trip Distribution & Assignment

MAC III Expansion DRI Transportation Analysis

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LEGEND

- Turning Movement
- Existing Traffic Signal
- XX% In Assignments
- (XX%) Out Assignments

Note: 70% of truck traffic was assigned to Proposed Driveway #1 and 30% was assigned to Proposed Driveway #2

NOT TO SCALE

Figure 6

Truck Trip Distribution & Assignment

MAC III Expansion DRI Transportation Analysis

Kimley-Horn and Associates, Inc.

6.0 TRAFFIC ANALYSIS

6.1 Existing Traffic

The existing traffic volumes are shown in **Figure 7**. These volumes were inputted in Synchro 8.0 and an Existing Conditions analysis was performed. The results are displayed in **Table 4**.

Table 4
Flat Shoals Distribution Center DRI
2013 Existing Intersection Levels of Service
(delay in seconds)

	Intersection	Control	Approach	AM Peak Hour	PM Peak Hour
1	Flat Shoals Road @ Buffington Road	Signal	*Intersection*	*B (18.7)*	*C (20.2)*
2	Flat Shoals Road @ I-85 Northbound Ramps	Signal	*Intersection*	*B (10.9)*	*B (16.5)*
3	Flat Shoals Road @ I-85 Southbound Ramps	Signal	*Intersection*	*B (11.8)*	*C (28.5)*

As shown in **Table 4**, all three signalized intersections currently operate at or above the acceptable Level of Service standard (LOS D) during both the AM and PM peak hours.

6.2 2015 No-Build Traffic

The existing traffic volumes were grown at 1.0% for 2 years along all roadway links within the study network. The 2015 "No-Build" traffic volumes were input in Synchro 8.0 and analyses of the projected "No-Build" conditions were performed. The results are displayed in **Table 5.** The projected volumes for the year 2015 "No-Build" conditions are shown in **Figure 8.**

Table 5
Flat Shoals Distribution Center DRI
2015 "No-Build" Intersection Levels of Service
(delay in seconds)

	Intersection	Control	Approach	AM Peak Hour	PM Peak Hour
1	Flat Shoals Road @ Buffington Road	Signal	*Intersection*	*B (19.7)*	*C (21.0)*
2	Flat Shoals Road @ I-85 Northbound Ramps	Signal	*Intersection*	B (19.8)	B (16.5)
3	Flat Shoals Road @ I-85 Southbound Ramps	Signal	*Intersection*	*B (14.5)*	*C (38.9)*

As shown in **Table 5**, the three signalized intersections are projected to operate above the acceptable Level of Service standard (LOS D) during the AM peak hour for year 2015 "No-Build" conditions.

LEGEND

- Turning Movement
- Existing Traffic Signal
- XX% AM Peak Hour Traffic Volumes
- (XX%) PM Peak Hour Traffic Volumes

NOT TO SCALE

Figure 7

2013 Existing Traffic Volumes

MAC III Expansion DRI Transportation Analysis

Kimley-Horn and Associates, Inc.

LEGEND

- Turning Movement
- Existing Traffic Signal
- XX% AM Peak Hour Traffic Volumes
- (XX%) PM Peak Hour Traffic Volumes

NOT TO SCALE

MAC III Expansion DRI
Transportation Analysis

2015 No-Build
Traffic Volumes

Figure 8

Kimley-Horn and Associates, Inc.

6.3 2015 "Build" Traffic

The traffic associated with the proposed development was added to the 2015 "No-Build" volumes. These volumes were then input into the 2015 "No-Build" roadway network and analyzed with Synchro 8.0. The results of the analyses are displayed in **Table 6**. The projected volumes for the year 2014 "Build" conditions are shown in **Figure 9**.

Table 6
Flat Shoals Distribution Center DRI
2015 "Build" Intersection Levels of Service
(delay in seconds)

	Intersection	Control	Approach	AM Peak Hour	PM Peak Hour
1	Flat Shoals Road @ Buffington Road	Signal	*Intersection*	*C (25.7)*	*C (33.7)*
2	Flat Shoals Road @ I-85 Northbound Ramps	Signal	*Intersection*	*A (9.8)*	*A (9.8)*
3	Flat Shoals Road @ I-85 Southbound Ramps	Signal	*Intersection*	*B (15.3)*	*C (46.8)*
4	Buffington Road @ Proposed Driveway #1	Two-Way Stop (EB/WB)	*Eastbound*	*C (18.4)*	*E (38.1)*
5	Buffington Road @ Proposed Driveway #2	Two-Way Stop (EB)	*Eastbound*	*C (17.7)*	*E (41.7)*

As shown in **Table 6**, the three signalized intersections will operate at or above the acceptable Level of Service standard (LOS D) during both the AM and PM peak hours for the 2015 "Build" conditions. Therefore, no additional improvements are necessary.

The proposed project driveways were analyzed for the 2015 "Build" Conditions, and the results of the analysis are also presented in **Table 6**. The projected volumes and recommended intersection geometries are listed below:

Buffington Road @ Proposed Driveway #1 (Intersection #4)

- Construct a southbound right-turn lane along Buffington Road.

Buffington Road @ Proposed Driveway #2 (Intersection #5)

- Construct a southbound right-turn lane along Buffington Road.
- Construct the Oakley Industrial Boulevard extension as a three-lane road.

LEGEND

- Turning Movement
- Existing Traffic Signal
- XX% AM Peak Hour Traffic Volumes
- (XX%) PM Peak Hour Traffic Volumes

NOT TO SCALE

Figure 9

2015 Build Traffic Volumes

MAC III Expansion DRI
Transportation Analysis

Kimley-Horn and Associates, Inc.

Table 6 Flat Shoals Distribution Center DRI 2015 "Build" Intersection Levels of Service (delay in seconds)					
Intersection		**Control**	**Approach**	**AM Peak Hour**	**PM Peak Hour**
1	Flat Shoals Road @ Buffington Road	Signal	*Intersection*	*C (21.2)*	*C (31.1)*
			NB	C (20.7)	C (25.9)
			SB	C (33.2)	D (38.2)
			EB	B (10.7)	C (30.4)
			WB	C (29.9)	C (30.9)
2	Flat Shoals Road @ I-85 Northbound Ramps	Signal	*Intersection*	*A (9.8)*	*A (9.7)*
			NB	C (21.0)	D (49.4)
			SB	--	--
			EB	A (9.0)	A (3.5)
			WB	A (8.1)	B (18.3)
3	Flat Shoals Road @ I-85 Southbound Ramps	Signal	*Intersection*	*B (13.6)*	*C (32.6)*
			NB	--	--
			SB	C (22.0)	D (41.5)
			EB	B (16.8)	C (34.5)
			WB	A (4.5)	C (20.5)
4	Buffington Road @ Proposed Driveway #1	Two-Way Stop (EB/WB)	*Eastbound*	*C (18.4)*	*E (38.1)*
5	Buffington Road @ Proposed Driveway #2	Two-Way Stop (EB)	*Eastbound*	*C (17.7)*	*E (41.7)*

As shown in **Table 6**, the three signalized intersections will operate at or above the acceptable Level of Service standard (LOS D) during both the AM and PM peak hours for the 2015 "Build" conditions. Therefore, no additional improvements are necessary.

The proposed project driveways were analyzed for the 2015 "Build" Conditions, and the results of the analysis are also presented in **Table 6**. The projected volumes and recommended intersection geometries are listed below:

Buffington Road @ Proposed Driveway #1 (Intersection #4)

- Construct a southbound right-turn lane along Buffington Road.

Buffington Road @ Proposed Driveway #2 (Intersection #5)

- Construct a southbound right-turn lane along Buffington Road.
- Construct the Oakley Industrial Boulevard extension as a three-lane road.

7.0 IDENTIFICATION OF PROGRAMMED PROJECTS

The ARC's Transportation Improvement Plan (TIP), GDOT Statewide TIP (STIP), *Plan 2040* Regional Transportation Plan (RTP), and Fulton County's Comprehensive Transportation Plan were researched for currently programmed transportation projects within the vicinity of the proposed development. Several projects are planned for the area surrounding the study network. Information on the projects is included in the **Appendix C**.

2013:	FS-142	Buffington Road at Morning Creek – Replacement of an existing bridge over Morning Creek (safety improvement; will not add capacity)
2030:	FS-AR-183	I-85 South at DR 138 (Jonesboro Road) – Addition of turn lanes at the ends of the exit ramps and widening the SR 138 bridge to include turn lanes
TBD:	ASP-FA-343	SR 138 (Jonesboro Road) Widening from Stockbridge Road to I-85 South
TBD:	ASP-FS-202	Oakley Industrial Boulevard Widening and Extension from Gullatt Road to Flat Shoals Road

8.0 INGRESS/EGRESS ANALYSIS

Vehicular access to the development is proposed along Buffington Road. The site driveways mentioned above provides access to all parking on the site. Proposed Driveway #1 (Intersection #4), located along Buffington Road, is proposed to be a full-movement, unsignalized driveway located directly across from the existing intersection of a church located along the east side of Buffington Road approximately 1,000 feet south of the existing signalized intersection of Buffington Road and Flat Shoals Road. Proposed Driveway #2 (Intersection #5) will eventually become the extension of Oakley Industrial Boulevard. This full-movement, unsignalized intersection will be located approximately 700 feet south of Proposed Driveway #1.

Proposed Driveway # 1 should be lined up with the existing southern church driveway. Employee parking driveways off the future Oakley Industrial Boulevard should be lined up to eliminate offset intersections.

9.0 INTERNAL CIRCULATION ANALYSIS

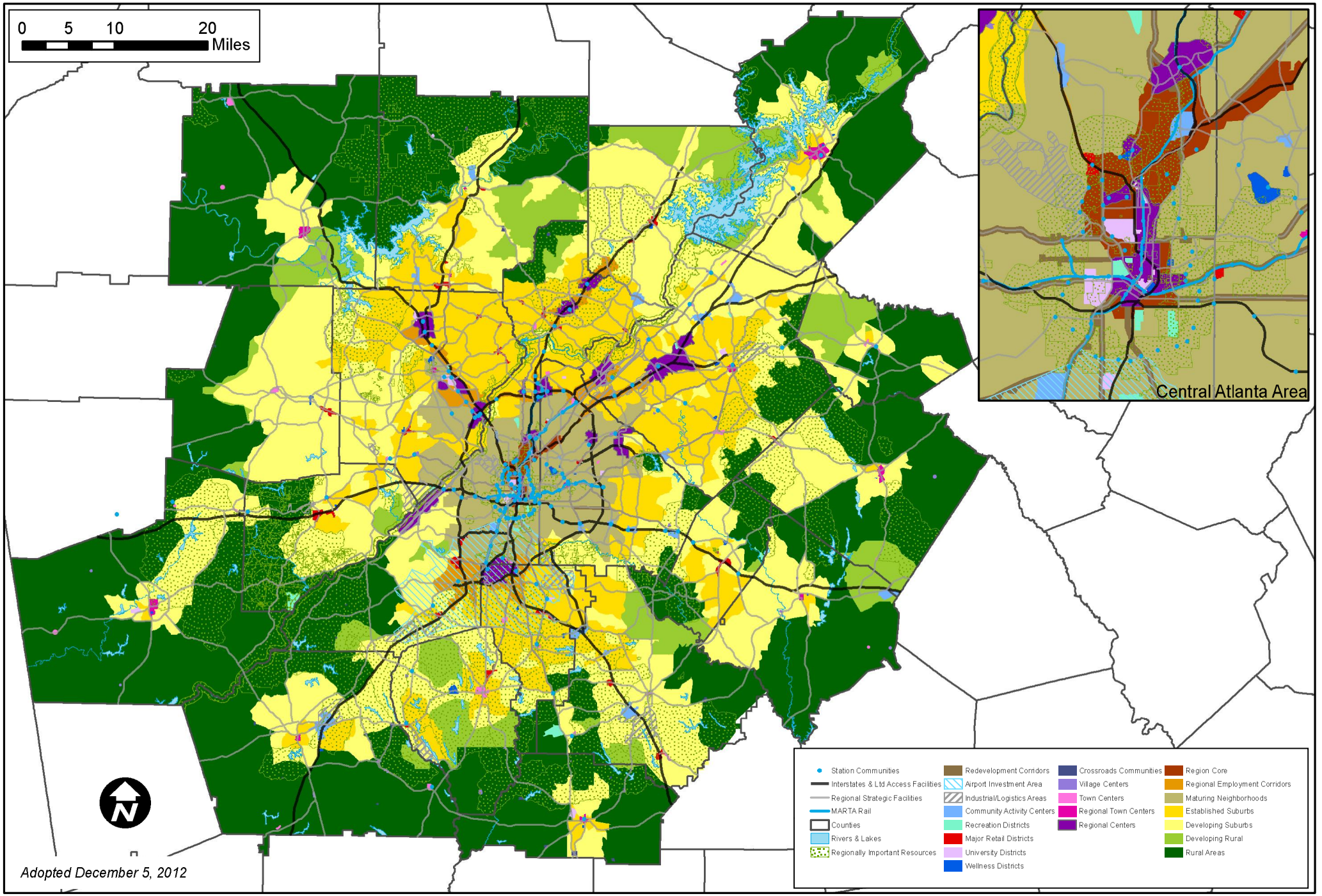
The MAC III Expansion development is not mixed-use in nature and will have no mixed-use reductions taken.

Vehicular circulation on the site will be driven much by user demands. Industrial users will likely desire the separation of employee and truck parking and circulation, requiring separate driveways. Also, security needs may require gated entries. Any gated entries should be located to provide adequate queuing to prevent vehicles from backing up onto the public road.

Appendices

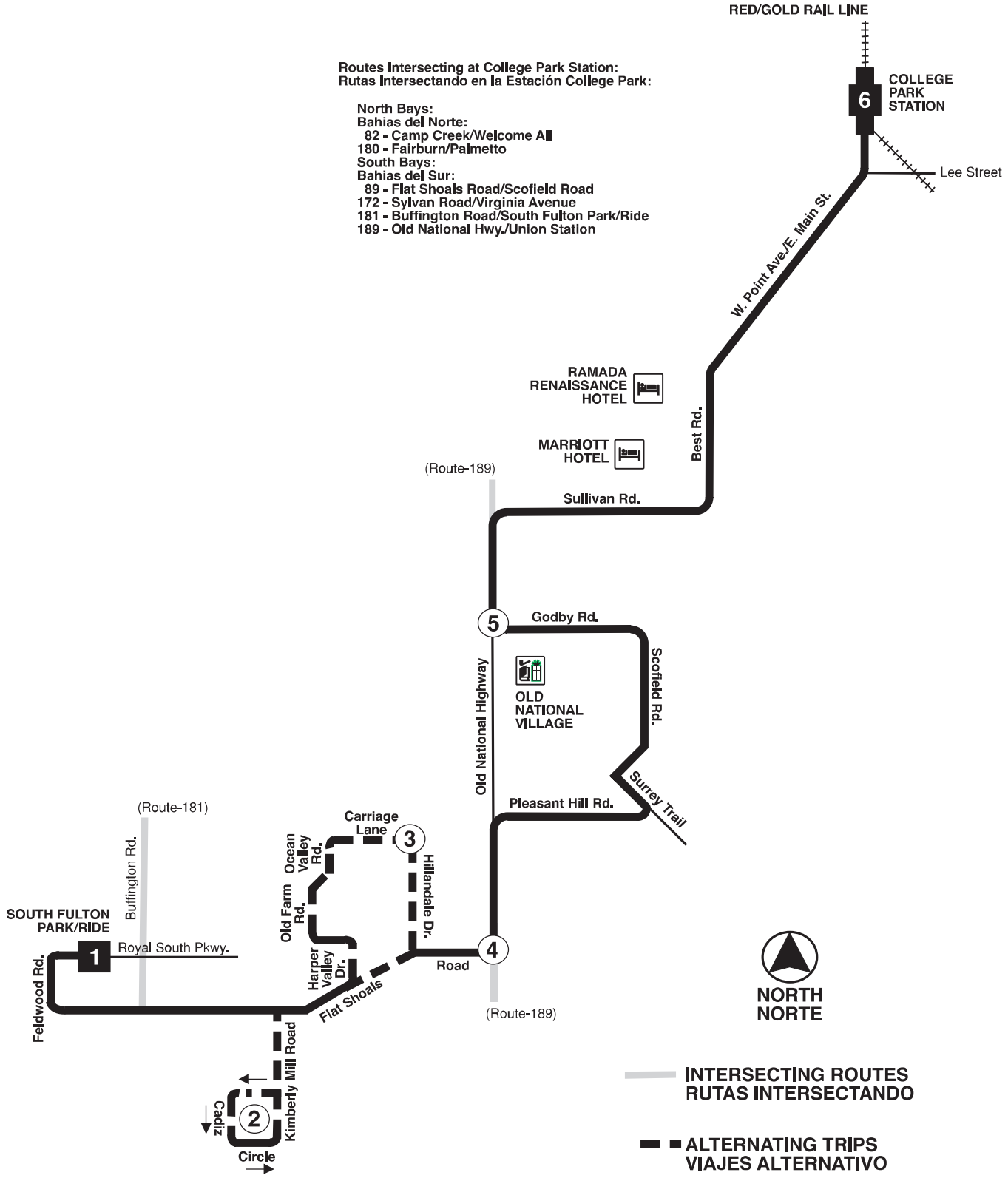
Appendix A
Uniform Growth Policy Map

PLAN 2040 Unified Growth Policy Map



Adopted December 5, 2012

Appendix B
Transit Access

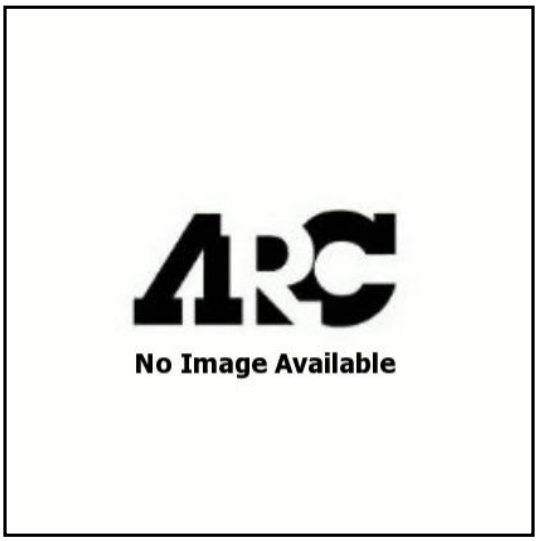

RED/GOLD RAIL LINE
Routes Intersecting at College Park Station:
Rutas Intersectando en la Estación College Park:
North Bays:
Bahias del Norte:
82 - Camp Creek/Welcome All
180 - Fairburn/Palmetto
South Bays:
Bahias del Sur:
89 - Flat Shoals Road/Scofield Road
172 - Sylvan Road/Virginia Avenue
181 - Buffington Road/South Fulton Park/Ride
189 - Old National Hwy./Union Station
6
COLLEGE PARK STATION
Lee Street
W. Point Ave./E. Main St.
Best Rd.
RAMADA RENAISSANCE HOTEL
MARRIOTT HOTEL
(Route-189)
Sullivan Rd.
5
Godby Rd.
Scofield Rd.
OLD NATIONAL VILLAGE
Old National Highway
Surrey Trail
Pleasant Hill Rd.
(Route-181)
Carriage Lane
3
Ocean Valley Rd.
Old Farm Rd.
Hillandale Dr.
Buffington Rd.
SOUTH FULTON PARK/RIDE
1
Royal South Pkwy.
Harper Valley Dr.
4
Road
Feldwood Rd.
Flat Shoals
(Route-189)
Kimberly Mill Road
Cadiz
2
Circle
NORTH
NORTE
INTERSECTING ROUTES
RUTAS INTERSECTANDO
ALTERNATING TRIPS
VIAJES ALTERNATIVO

Appendix C
Programmed Projects

ASP-FA-343

Aspirations Plan PROJECT FACT SHEET

Short Title	SR 138 WIDENING FROM STOCKBRIDGE ROAD TO I-85 SOUTH
GDOT Project No.	TBD
Federal ID No.	N/A
Status	Aspirations
Service Type	Roadway / General Purpose Capacity
Sponsor	TBD
Jurisdiction	Fayette County
Analysis Level	Not modeled
Existing Thru Lane	4
Planned Thru Lane	6



Network Year TBD

Corridor Length 13.4 miles

Detailed Description and Justification

Phase Status & Funding Information	Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
				FEDERAL	STATE	BONDS	LOCAL/PRIVATE
ALL TBD		TBD	**$141,000,000**	$0,000	$0,000	$0,000	$141,000,000
			$141,000,000	**$0,000**	**$0,000**	**$0,000**	**$141,000,000**

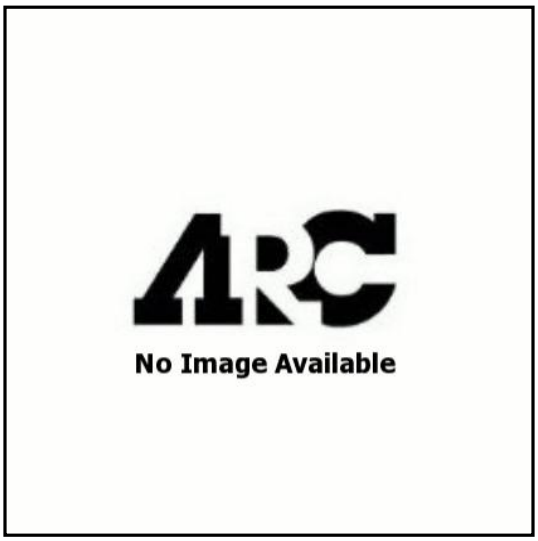
SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquistion
UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases

? For additional information about this project, please call (404) 463-3100 or email transportation@atlantaregional.com.

Report Generated: 12/20/2012

ASP-FS-202 Aspirations Plan PROJECT FACT SHEET

Short Title	OAKLEY INDUSTRIAL BOULEVARD WIDENING AND EXTENSION FROM GULLATT ROAD TO FLAT SHOALS ROAD
GDOT Project No.	N/A
Federal ID No.	N/A
Status	Aspirations
Service Type	Roadway / General Purpose Capacity
Sponsor	TBD
Jurisdiction	Fulton County (South)
Analysis Level	Not modeled
Existing Thru Lane	0/2
Planned Thru Lane	4



Network Year TBD

Corridor Length 7.5 miles

Detailed Description and Justification

Phase Status & Funding Information	Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
				FEDERAL	STATE	BONDS	LOCAL/PRIVATE
ALL TBD		TBD	**$55,000,000**	$0,000	$0,000	$0,000	$55,000,000
			$55,000,000	**$0,000**	**$0,000**	**$0,000**	**$55,000,000**

SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquistion
UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases

FS-142

PLAN 2040 PROJECT FACT SHEET

Short Title	BUFFINGTON ROAD AT MORNING CREEK
GDOT Project No.	742976-
Federal ID No.	BRSLB-9075(7)
Status	Programmed
Service Type	Roadway / Bridge Upgrade
Sponsor	GDOT
Jurisdiction	Fulton County (South)
Analysis Level	Exempt from Air Quality Analysis (40 CFR 93)
Existing Thru Lane	2
Planned Thru Lane	2

Network Year	2015
Corridor Length	0.2 miles

Detailed Description and Justification

FS 142 includes the replacement of an existing bridge on Buffington Road over Morning Creek. This project is a safety improvement, and will not add capacity.

Phase Status & Funding Information		Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
					FEDERAL	STATE	BONDS	LOCAL/PRIVATE
PE	Bridge (Off-System)	AUTH	2012	**$150,000**	~~$120,000~~	~~$30,000~~	~~$0,000~~	~~$0,000~~
PE	Bridge (On-System)	AUTH	AUTH	**$0,000**	~~$0,000~~	~~$0,000~~	~~$0,000~~	~~$0,000~~
ROW	Bridge (Off-System)	AUTH	2011	**$630,000**	~~$504,000~~	~~$126,000~~	~~$0,000~~	~~$0,000~~
ROW	Bridge (On-System)	AUTH	AUTH	**$0,000**	~~$0,000~~	~~$0,000~~	~~$0,000~~	~~$0,000~~
UTL	Local Jurisdiction/Municipality Funds		2013	**$242,760**	$0,000	$0,000	$0,000	$242,760
CST	STP - Urban (>200K) (ARC)		2013	**$1,236,391**	$989,113	$247,278	$0,000	$0,000
				$2,259,151	**$1,613,113**	**$403,278**	**$0,000**	**$242,760**

SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquistion
UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases

? For additional information about this project, please call (404) 463-3100 or email transportation@atlantaregional.com.

Report Generated: 3/15/2013

FS-AR-183

PLAN 2040 PROJECT FACT SHEET

Short Title	I-85 SOUTH AT SR 138 (JONESBORO ROAD)
GDOT Project No.	0007842
Federal ID No.	CSNHS-0007-00(842)
Status	Programmed
Service Type	Roadway / Interchange Upgrade
Sponsor	GDOT
Jurisdiction	Regional - Southwest
Analysis Level	Exempt from Air Quality Analysis (40 CFR 93)
Existing Thru Lane	N/A
Planned Thru Lane	N/A

Network Year	2030
Corridor Length	N/A miles

Detailed Description and Justification

This project involves adding turn lanes at the ends of the exit ramps and widening the SR 138 bridge to include turn lanes.

Phase Status & Funding Information		Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
					FEDERAL	STATE	BONDS	LOCAL/PRIVATE
PE	National Highway Performance Program (NHPP)		2014	**$1,061,993**	$849,594	$212,399	$0,000	$0,000
ROW	General Federal Aid - 2018-2040		LR 2018-2030	**$14,500,000**	$11,600,000	$2,900,000	$0,000	$0,000
CST	General Federal Aid - 2018-2040		LR 2018-2030	**$12,500,000**	$10,000,000	$2,500,000	$0,000	$0,000
				$28,061,993	**$22,449,594**	**$5,612,399**	**$0,000**	**$0,000**

SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquistion
UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases

? For additional information about this project, please call (404) 463-3100 or email transportation@atlantaregional.com.

Report Generated: 3/15/2013

Appendix D
Raw Traffic Counts

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_9091_001 **Day:** TUESDAY

City: City of Union City **Date:** 6/18/2013

AM

NS/EW Streets:	Buffington Rd			Buffington Rd			Flat Shoals Rd			Flat Shoals Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	49	27	3	1	9	13	15	30	18	3	101	6	275
7:15 AM	62	27	6	2	7	12	20	35	20	7	104	2	304
7:30 AM	83	27	3	2	10	22	21	56	13	3	104	3	347
7:45 AM	60	31	6	3	14	14	34	51	31	6	102	7	359
8:00 AM	49	38	4	6	12	24	22	50	25	9	104	3	346
8:15 AM	51	35	4	3	12	15	22	47	17	3	93	5	307
8:30 AM	51	42	3	4	11	26	30	61	23	3	100	5	359
8:45 AM	27	19	6	2	9	15	20	41	28	6	76	4	253
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	432	246	35	23	84	141	184	371	175	40	784	35	2550
APPROACH %'s :	60.59%	34.50%	4.91%	9.27%	33.87%	56.85%	25.21%	50.82%	23.97%	4.66%	91.27%	4.07%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	211	146	17	16	49	79	108	209	96	21	399	20	1371
PEAK HR FACTOR :		0.964			0.857			0.890			0.948		0.955

CONTROL :

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_9091_001 **Day:** TUESDAY

City: City of Union City **Date:** 6/18/2013

PM

NS/EW Streets:	Buffington Rd			Buffington Rd			Flat Shoals Rd			Flat Shoals Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	30	11	9	12	31	18	19	99	56	8	82	7	382
4:15 PM	25	21	8	8	43	17	14	147	63	5	98	5	454
4:30 PM	39	18	12	5	30	27	24	123	67	10	104	4	463
4:45 PM	26	22	9	10	35	28	28	133	68	11	116	2	488
5:00 PM	22	24	13	3	39	27	31	145	88	11	94	5	502
5:15 PM	36	18	10	13	48	29	16	146	99	11	83	3	512
5:30 PM	40	15	9	10	38	26	23	131	101	13	101	6	513
5:45 PM	34	19	11	13	42	25	26	148	69	12	85	8	492
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	252	148	81	74	306	197	181	1072	611	81	763	40	3806
APPROACH %'s :	52.39%	30.77%	16.84%	12.82%	53.03%	34.14%	9.71%	57.51%	32.78%	9.16%	86.31%	4.52%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	132	76	43	39	167	107	96	570	357	47	363	22	2019
PEAK HR FACTOR :		0.980			0.869			0.969			0.900		0.984

CONTROL :

ITM Peak Hour Summary

Prepared by:

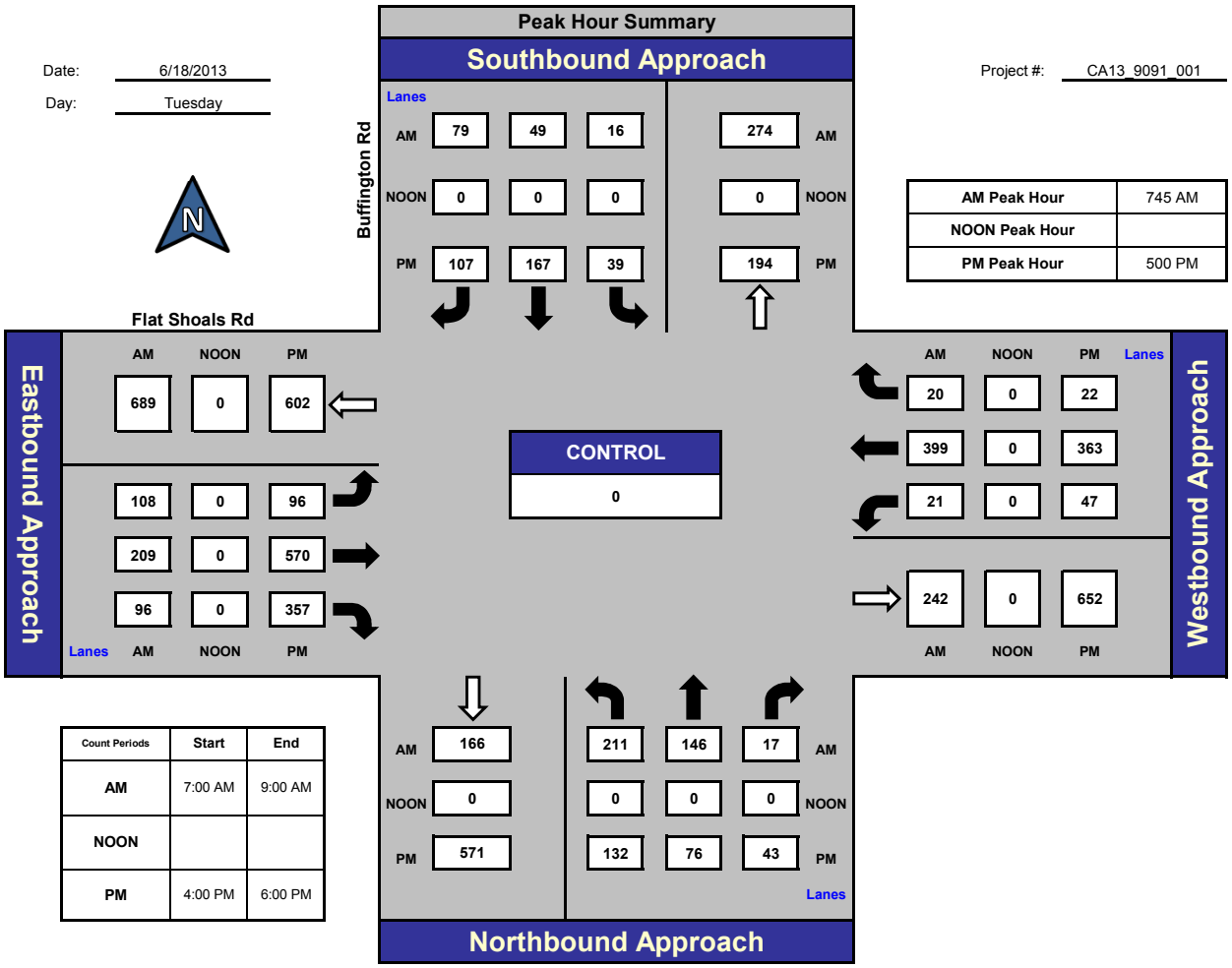
National Data & Surveying Services

Buffington Rd and Flat Shoals Rd , City of Union City

Date: 6/18/2013

Day: Tuesday

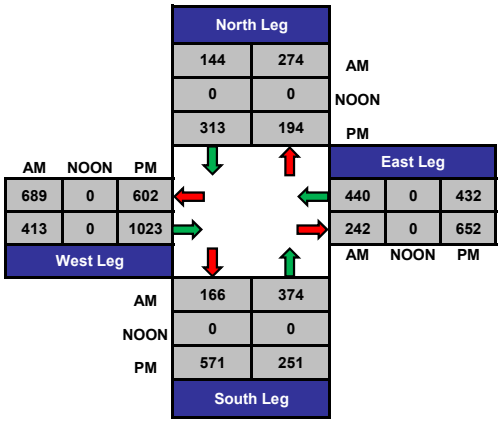
Project #: CA13_9091_001



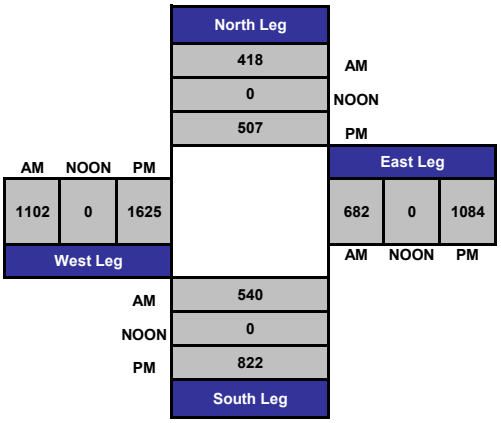
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_9092_002 **Day:** TUESDAY

City: City of Atlanta **Date:** 6/25/2013

AM

NS/EW Streets:	I-85 NB Ramps			I-85 NB Ramps			Flat Shoals Rd			Flat Shoals Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	22		21				92	54			60	94	343
7:15 AM	26		14				103	49			79	131	402
7:30 AM	21		29				95	68			85	143	441
7:45 AM	26		30				78	91			79	94	398
8:00 AM	20		28				86	81			65	93	373
8:15 AM	17		21				68	69			69	87	331
8:30 AM	15		33				75	74			84	90	371
8:45 AM	13		31				66	77			72	74	333

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	160	0	207	0	0	0	663	563	0	0	593	806	2992
APPROACH %'s :	43.60%	0.00%	56.40%	#DIV/0!	#DIV/0!	#DIV/0!	54.08%	45.92%	0.00%	0.00%	42.39%	57.61%	

PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	93	0	101	0	0	0	362	289	0	0	308	461	1614
PEAK HR FACTOR :		0.866			0.000			0.963			0.843		0.915

CONTROL :

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_9092_002 **Day:** TUESDAY

City: City of Atlanta **Date:** 6/25/2013

PM

NS/EW Streets:	I-85 NB Ramps			I-85 NB Ramps			Flat Shoals Rd			Flat Shoals Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	23	0	28				79	191			99	30	450
4:15 PM	17	1	33				62	141			89	49	392
4:30 PM	20	0	21				85	197			81	39	443
4:45 PM	22	2	37				79	181			87	48	456
5:00 PM	16	1	38				67	228			117	44	511
5:15 PM	24	0	22				72	232			94	54	498
5:30 PM	18	0	39				71	220			117	53	518
5:45 PM	22	0	43				58	219			102	47	491
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	162	4	261	0	0	0	573	1609	0	0	786	364	3759
APPROACH %'s :	37.94%	0.94%	61.12%	#DIV/0!	#DIV/0!	#DIV/0!	26.26%	73.74%	0.00%	0.00%	68.35%	31.65%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	80	1	142	0	0	0	268	899	0	0	430	198	2018
PEAK HR FACTOR :		0.858			0.000			0.960			0.924		0.974

CONTROL :

ITM Peak Hour Summary

Prepared by:

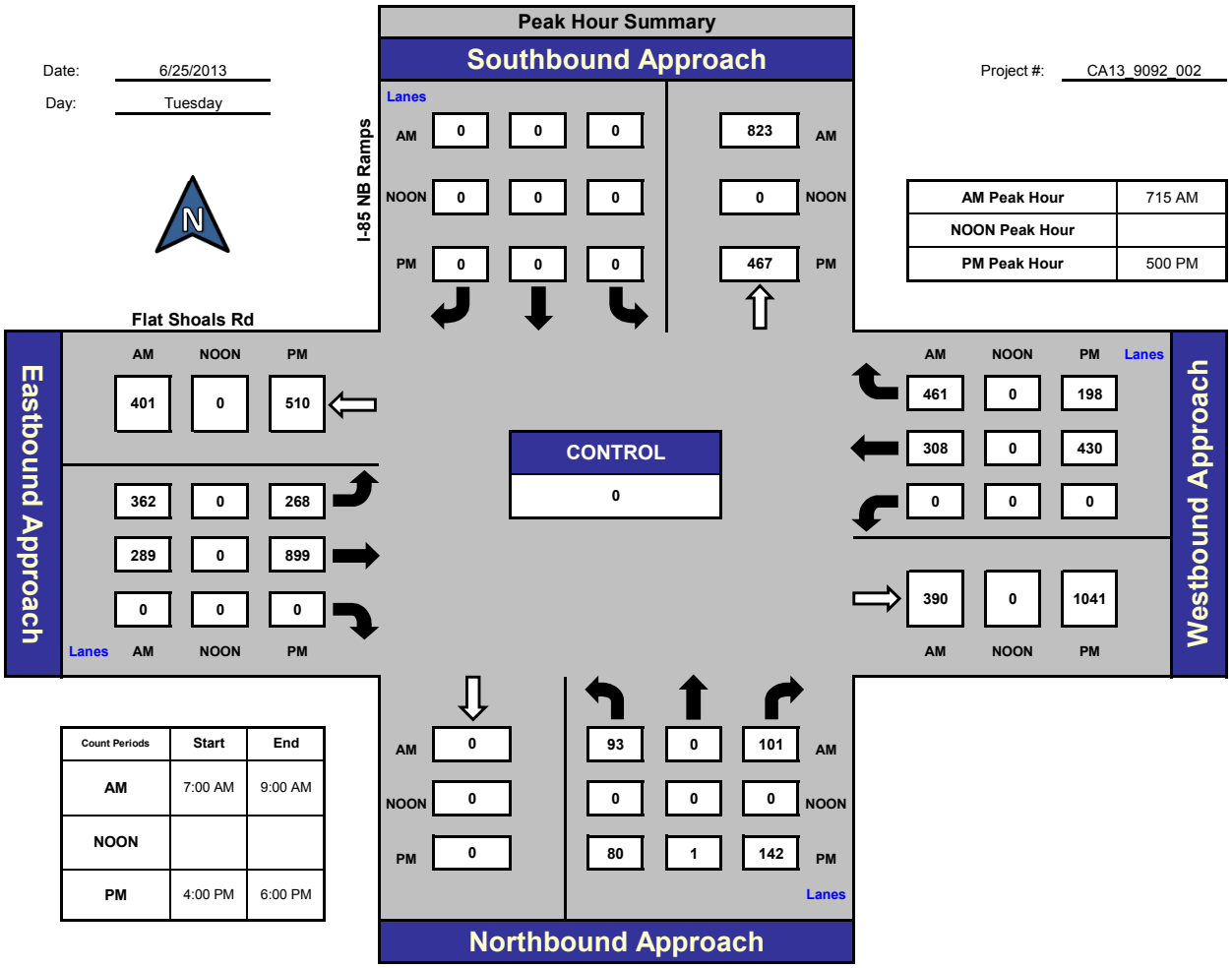
National Data & Surveying Services

I-85 NB Ramps and Flat Shoals Rd , City of Atlanta

Date: 6/25/2013

Day: Tuesday

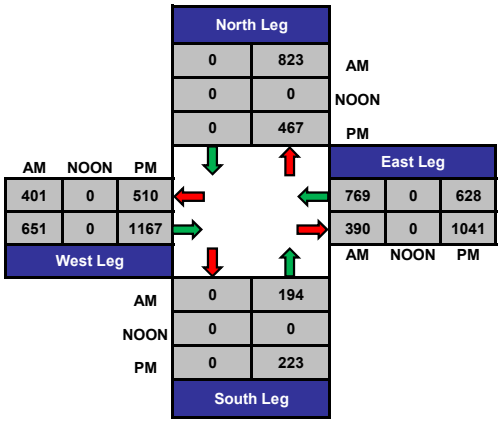
Project #: CA13_9092_002



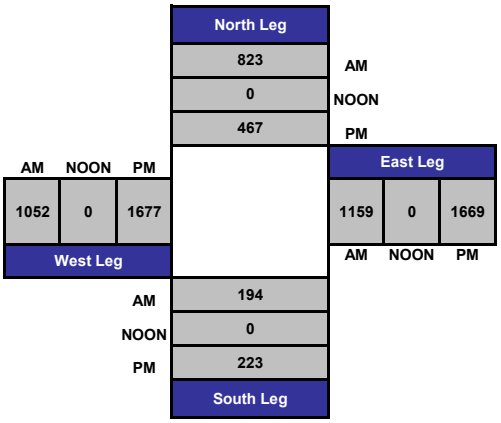
AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_9092_001 **Day:** TUESDAY

City: City of Atlanta **Date:** 6/25/2013

AM

NS/EW Streets:	I-85 SB Ramps			I-85 SB Ramps			Flat Shoals Rd			Flat Shoals Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM				20	0	36		126	17	13	70		282
7:15 AM				23	2	44		130	14	24	84		321
7:30 AM				20	1	43		142	19	26	77		328
7:45 AM				48	0	56		122	19	20	90		355
8:00 AM				34	1	38		127	19	16	64		299
8:15 AM				31	0	46		112	10	22	69		290
8:30 AM				30	0	51		118	10	24	70		303
8:45 AM				31	0	47		112	19	25	60		294
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	237	4	361	0	989	127	170	584	0	2472
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	39.37%	0.66%	59.97%	0.00%	88.62%	11.38%	22.55%	77.45%	0.00%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	0	0	125	4	181	0	521	71	86	315	0	1303
PEAK HR FACTOR :		0.000			0.745			0.919			0.911		0.918

CONTROL :

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_9092_001 **Day:** TUESDAY

City: City of Atlanta **Date:** 6/25/2013

PM

NS/EW Streets:	I-85 SB Ramps			I-85 SB Ramps			Flat Shoals Rd			Flat Shoals Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM				104	2	97		165	41	24	99		532
4:15 PM				80	0	73		124	29	21	84		411
4:30 PM				111	1	86		173	37	19	83		510
4:45 PM				110	0	94		148	24	25	85		486
5:00 PM				122	0	81		175	31	22	104		535
5:15 PM				130	1	101		172	36	28	110		578
5:30 PM				131	2	96		156	37	27	94		543
5:45 PM				135	0	101		147	30	33	92		538
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	923	6	729	0	1260	265	199	751	0	4133
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	55.67%	0.36%	43.97%	0.00%	82.62%	17.38%	20.95%	79.05%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	0	518	3	379	0	650	134	110	400	0	2194
PEAK HR FACTOR :		0.000			0.953			0.942			0.924		0.949

CONTROL :

ITM Peak Hour Summary

Prepared by:

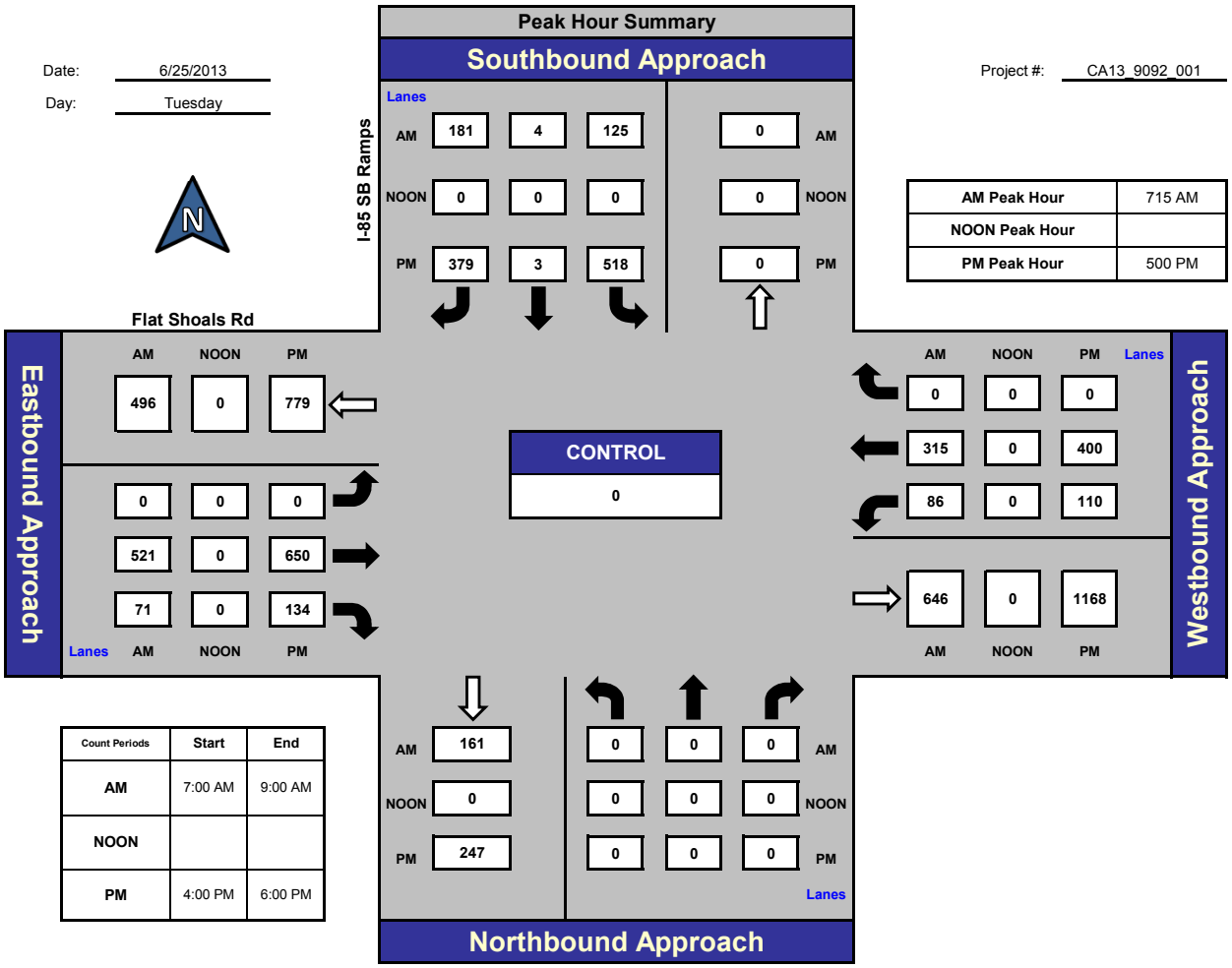
National Data & Surveying Services

I-85 SB Ramps and Flat Shoals Rd , City of Atlanta

Date: 6/25/2013

Day: Tuesday

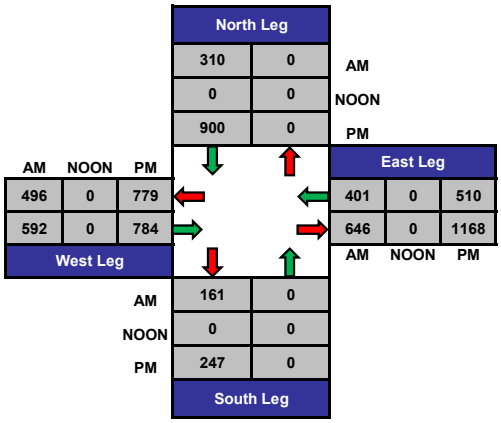
Project #: CA13_9092_001



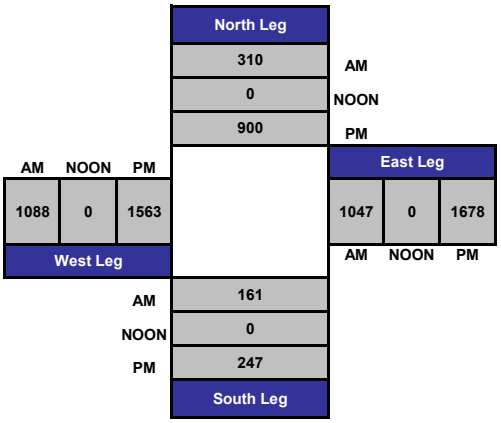
AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Appendix E
Trip Generation

Trip Generation Analysis
Flat Shoals DRI
City of Union City, Georgia

Table 1: Total Proposed Site Traffic

Land Use	Intensity	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Proposed Site Traffic								
152 High-Cube Warehouse	1,600,000 gross s.f.	2,688	198	137	61	204	63	141

Table 2: Net New External Traffic

	Daily Trips	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
Proposed Site Traffic Driveway Volumes (Car)	1,664	150	104	46	140	43	97
Proposed Site Traffic Driveway Volumes (Truck)	1,024	48	33	15	64	20	44
Total Proposed Site Traffic Driveway Volumes	**2,688**	**198**	**137**	**61**	**204**	**63**	**141**

k:\amt_tpto\019679001- flat shoals dri\[flatshoalsdrianalysis.xls]trip generation (2)

Appendix F
Intersection Volume Worksheets

INTERSECTION VOLUME DEVELOPMENT

Flat Shoals Rd at Buffington Rd
AM PEAK HOUR

Description	Buffington Rd Northbound			Buffington Rd Southbound			Flat Shoals Rd Eastbound			Flat Shoals Rd Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes	211	146	17	16	49	79	108	209	96	21	399	20
Summer Adjusted AM Volumes												
Pedestrians		0			2			2			0	
Conflicting Pedestrians	2		0	0		2	2		0	0		2
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	1%	0%	0%	5%	0%	0%
Peak Hour Factor		0.96			0.86			0.89			0.95	
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Adjusted 2013 Volumes	243	168	20	18	56	91	124	240	110	24	459	23
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
New Road Adjustment	30	10										
Other Proposed Developments												
2015 Background Traffic	278	181	20	18	57	93	126	245	112	24	468	23
Project Trips												
Trip Distribution IN									70%	5%		
Trip Distribution OUT	70%		5%									
Other Non-Residential Trips	43	0	3	0	0	0	0	0	96	7	0	0
Total Project Trips	43	0	3	0	0	0	0	0	96	7	0	0
Buildout Heavy Vehicle	4.063%	0.000%	3.600%	0.000%	0.000%	0.000%	1.000%	0.200%	12.000%	9.750%	0.000%	0.000%
2015 Buildout Total	321	181	23	18	57	93	126	245	208	31	468	23

PM PEAK HOUR

Description	Buffington Rd Northbound			Buffington Rd Southbound			Flat Shoals Rd Eastbound			Flat Shoals Rd Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes	132	76	43	39	167	107	96	570	357	47	363	22
Pedestrians		2			1			0			2	
Conflicting Pedestrians	0		2	2		0	1		2	2		1
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%
Peak Hour Factor		0.98			0.87			0.97			0.90	
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Adjusted 2013 Volumes	152	87	49	45	192	123	110	656	411	54	417	25
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
New Road Adjustment					10				30			
Other Proposed Developments												
2015 Background Traffic	155	89	50	46	206	125	112	669	449	55	425	26
Project Trips												
Trip Distribution IN									70%	5%		
Trip Distribution OUT	70%		5%									
Non-Residential Trips	99	0	7	0	0	0	0	0	44	3	0	0
Total Project Trips	99	0	7	0	0	0	0	0	44	3	0	0
Buildout Heavy Vehicle	13.286%	0.000%	4.340%	0.000%	0.000%	0.000%	1.000%	1.000%	3.401%	1.860%	0.000%	0.000%
2015 Buildout Total	254	89	57	46	206	125	112	669	493	58	425	26

INTERSECTION VOLUME DEVELOPMENT

I-85 NB Ramps at Flat Shoals Rd
AM PEAK HOUR

Description	I-85 NB Ramp Northbound			I-85 NB Ramp Southbound			Flat Shoals Rd Eastbound			Flat Shoals Rd Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes	93	0	101	0	0	0	362	289	0	0	308	461
Pedestrians		1			1			0			0	
Conflicting Pedestrians	0		0	0		0	1		1	1		1
Heavy Vehicles												
Heavy Vehicle %	2%	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Peak Hour Factor		0.87			0.00			0.96			0.84	
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Adjusted 2013 Volumes	107	0	116	0	0	0	416	332	0	0	354	530
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
New Road Adjustment											15	15
Other Proposed Developments												
2015 Background Traffic	109	0	118	0	0	0	424	339	0	0	376	556
Project Trips												
Trip Distribution IN								70%				
Trip Distribution OUT											5%	65%
Other Non-Residential Trips	0	0	0	0	0	0	0	96	0	0	3	40
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	0	0	0	0	0	96	0	0	3	40
Buildout Heavy Vehicle	2.200%	0.000%	2.000%	0.000%	0.000%	0.000%	0.800%	6.210%	0.000%	0.000%	0.529%	1.916%
2015 Buildout Total	109	0	118	0	0	0	424	435	0	0	379	596

PM PEAK HOUR

Description	I-85 NB Ramp Northbound			I-85 NB Ramp Southbound			Flat Shoals Rd Eastbound			Flat Shoals Rd Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes	80	1	142	0	0	0	262	897	0	0	430	198
Pedestrians		1			2			1			0	
Conflicting Pedestrians	1		0	0		1	2		1	1		2
Heavy Vehicles												
Heavy Vehicle %	1%	0%	1%	0%	0%	0%	2%	0%	0%	0%	0%	0%
Peak Hour Factor		0.86			0.00			0.96			0.92	
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Adjusted 2013 Volumes	92	1	163	0	0	0	301	1032	0	0	495	228
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
New Road Adjustment			15					15				
Other Proposed Developments												
2015 Background Traffic	94	1	181	0	0	0	307	1,068	0	0	505	233
Project Trips												
Trip Distribution IN								70%				
Trip Distribution OUT											5%	65%
Non-Residential Trips	0	0	0	0	0	0	0	44	0	0	7	92
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	0	0	0	0	0	44	0	0	7	92
	0.013	0	0.014	0	0	0	0.022	0.0164	0	0	0.005	0.0983
2015 Buildout Total	94	1	181	0	0	0	307	1,112	0	0	512	325

INTERSECTION VOLUME DEVELOPMENT

I-85 SB Ramps at Flat Shoals Rd
AM PEAK HOUR

Description	I-85 SB Ramp Northbound			I-85 SB Ramp Southbound			Flat Shoals Rd Eastbound			Flat Shoals Rd Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes	0	0	0	125	4	181	0	521	71	86	315	0
Pedestrians		0			0			0			0	
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	2%	0%	1%	0%	0%	0%	1%	1%	0%
Peak Hour Factor		0.00			0.75			0.92			0.91	
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Adjusted 2013 Volumes	0	0	0	144	5	208	0	599	82	99	362	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
New Road Adjustment										15		
Other Proposed Developments												
2015 Background Traffic	0	0	0	147	5	212	0	611	84	116	369	0
Project Trips												
Trip Distribution IN				65%				5%				
Trip Distribution OUT												
Other Non-Residential Trips	0	0	0	89	0	0	0	7	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	0	89	0	0	0	7	0	0	0	0
Buildout Heavy Vehicle	0.000%	0.000%	0.000%	11.383%	0.000%	1.100%	0.000%	0.318%	0.000%	1.200%	0.600%	0.000%
2015 Buildout Total	0	0	0	236	5	212	0	618	84	116	369	0

PM PEAK HOUR

Description	I-85 SB Ramp Northbound			I-85 SB Ramp Southbound			Flat Shoals Rd Eastbound			Flat Shoals Rd Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes	0	0	0	518	3	379	0	650	134	110	400	0
Pedestrians		1			0			0			0	
Conflicting Pedestrians	0		0	0		0	0		1	1		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	67%	1%	0%	1%	1%	0%	0%	0%
Peak Hour Factor		0.00			0.95			0.94			0.92	
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Adjusted 2013 Volumes	0	0	0	596	3	436	0	748	154	127	460	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
New Road Adjustment				15								
Other Proposed Developments												
2015 Background Traffic	0	0	0	623	3	445	0	763	157	130	469	0
Project Trips												
Trip Distribution IN				65%				5%				
Trip Distribution OUT												
Non-Residential Trips	0	0	0	41	0	0	0	3	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	0	41	0	0	0	3	0	0	0	0
Buildout Heavy Vehicle	0.000%	0.000%	0.000%	2.644%	66.700%	0.500%	0.000%	1.038%	0.700%	0.000%	0.300%	0.000%
2015 Buildout Total	0	0	0	664	3	445	0	766	157	130	469	0

INTERSECTION VOLUME DEVELOPMENT

Proposed Driveway #1 @ Buffington Rd (across from Church entrance)

AM PEAK HOUR

Description	Buffington Rd Northbound			Buffington Rd Southbound			Site Driveway Eastbound					
	Left	Through	Right	Left	Through	Right	Left	Through	Right			
Observed 2013 AM Volumes	0	374	0	0	166	0	0	0	0			
Pedestrians												
Conflicting Pedestrians												
Heavy Vehicles												
Heavy Vehicle %	38%	0%	0%	1%	1%	38%	38%	0%	38%			
Peak Hour Factor		0.87			0.75			0.90				
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15			
Adjusted 2013 Volumes	0	430	0	0	191	0	0	0	0			
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%			
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020			
2015 Background Traffic	0	439	0	0	195	0	0	0	0			
Project Trips												
Car Trip Distribution IN												
Car Trip Distribution OUT												
Truck Trip Distribution IN	18%					53%						
Truck Trip Distribution OUT							53%		18%			
Other Non-Residential Trips (car)	0	0	0	0	0	0	0	0	0			
Other Non-Residential Trips (truck)	6	0	0	0	0	17	8	0	3			
Total Project Trips	6	0	0	0	0	17	8	0	3			
Other Driveway Trips		38										
2015 Buildout Total	6	477	0	0	195	17	8	0	3			

PM PEAK HOUR

Description	Buffington Rd Northbound			Buffington Rd Southbound			Site Driveway Eastbound					
	Left	Through	Right	Left	Through	Right	Left	Through	Right			
Observed 2013 PM Volumes	0	251	0	0	571	0	0	0	0			
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0			
Heavy Vehicles												
Heavy Vehicle %	38%	0%	0%	0%	0%	38%	38%	0%	38%			
Peak Hour Factor		0.98			0.94			0.90				
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15			
Adjusted 2013 Volumes	0	289	0	0	657	0	0	0	0			
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%			
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020			
2015 Background Traffic	0	295	0	0	670	0	0	0	0			
Project Trips												
Car Trip Distribution IN												
Car Trip Distribution OUT												
Truck Trip Distribution IN	18%					53%						
Truck Trip Distribution OUT							53%		18%			
Other Non-Residential Trips (car)	0	0	0	0	0	0	0	0	0			
Other Non-Residential Trips (truck)	3	0	0	0	0	10	23	0	8			
Pass-By Trips	0	0	0	0	0	0	0	0	0			
Total Project Trips	3	0	0	0	0	10	23	0	8			
Other Driveway Trips		83										
2015 Buildout Total	3	378	0	0	670	10	23	0	8			

INTERSECTION VOLUME DEVELOPMENT

Proposed Driveway #2 @ Buffington Rd (across from Church entrance)
AM PEAK HOUR

Description	Buffington Rd Northbound Left	Through	Right	Buffington Rd Southbound Left	Through	Right	Site Driveway Eastbound Left	Through	Right
Observed 2013 AM Volumes	0	374	0	0	166	0	0	0	0
Pedestrians									
Conflicting Pedestrians									
Heavy Vehicles									
Heavy Vehicle %	38%	0%	0%	1%	1%	38%	38%	0%	38%
Peak Hour Factor		0.87			0.75			0.90	
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Adjusted 2013 Volumes	0	430	0	0	191	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
New Road Adjustment						40	40		
2015 Background Traffic	0	439	0	0	195	40	40	0	0
Project Trips									
Car Trip Distribution IN						75%			
Car Trip Distribution OUT							75%		
Truck Trip Distribution IN						23%			
Truck Trip Distribution OUT							23%		
Other Non-Residential Trips (car)	0	0	0	0	0	78	35	0	0
Other Non-Residential Trips (truck)	0	0	0	0	0	7	3	0	0
Total Project Trips	0	0	0	0	0	85	38	0	0
Other Driveway Trips									
2015 Buildout Total	0	439	0	0	195	125	78	0	0

PM PEAK HOUR

Description	Buffington Rd Northbound Left	Through	Right	Buffington Rd Southbound Left	Through	Right	Site Driveway Eastbound Left	Through	Right
Observed 2013 PM Volumes	0	251	0	0	571	0	0	0	0
Pedestrians									
Conflicting Pedestrians	0		0	0		0	0		0
Heavy Vehicles									
Heavy Vehicle %	38%	0%	0%	0%	0%	38%	38%	0%	38%
Peak Hour Factor		0.98			0.94			0.90	
Adjustment	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Adjusted 2013 Volumes	0	289	0	0	657	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
New Road Adjustment						40	40		
Other Proposed Developments									
2015 Background Traffic	0	295	0	0	670	40	40	0	0
Project Trips									
Car Trip Distribution IN						75%			
Car Trip Distribution OUT							75%		
Truck Trip Distribution IN						23%			
Truck Trip Distribution OUT							23%		
Other Non-Residential Trips (car)	0	0	0	0	0	32	73	0	0
Other Non-Residential Trips (truck)	0	0	0	0	0	4	10	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	0	0	0	37	83	0	0
Other Driveway Trips						8			
2015 Buildout Total	0	295	0	0	670	85	123	0	0

Appendix G
Study Network (7% Rule)

MAC III Expansion DRI - Study Segments																		
Roadway Segment			No. of Lanes	Signal	Median	Left Turn Lanes	Speed Limit	Service Volume Analysis Type	LOS	Facility Service Volume @ Standard (vpd)	Adjusted Facility Service Volume @ Standard (vpd)	Distribution Res	Dist. Non-Res	Res. Trips	Non-Res Trips	Total Daily Project Trips	% Service Volume Consumed	Project Trips ≥ 7%
Roadway	From	To																
Flat Shoals Road	Buffington Road	Connell Road	4	Yes	No	Yes		Non-State Roadway	D	31,700	30,115		5%	0	134	134	0.4%	No
Flat Shoals Road	Buffington Road	I-85 NB Ramps	4	Yes	No	Yes		Non-State Roadway	D	31,700	30,115		70%	0	1882	1882	6.2%	No
Flat Shoals Road	I-85 NB Ramps	I-85 SB Ramps	4	Yes	No	Yes		Non-State Roadway	D	31,700	30,115		38%	0	1008	1008	3.3%	No
Flat Shoals Road	I-85 SB Ramps	Feldwood Road	4	Yes	No	Yes		Non-State Roadway	D	31,700	30,115		5%	0	134	134	0.4%	No
Buffington Road	Oakley Industial Blvd (extension)	Flat Shoals Road	2	Yes	No	Yes		Non-State Roadway	D	14,600	14,600		75%	0	2016	2016	13.8%	Yes
Buffington Road	Flat Shoals Road	Birdseye Trail	2	Yes	No	Yes		Non-State Roadway	D	14,600	14,600		0%	0	0	0	0.0%	No
Buffington Road	Oakley Industial Blvd (extension)	Jonesboro Road	2	Yes	No	Yes		Non-State Roadway	D	14,600	14,600		0%	0	0	0	0.0%	No
I-85	Flat Shoals Road	I-285	10	Yes	No	Yes		Freeway	D	173,200	164,540		65%	0	1747	1747	1.1%	No

Appendix H
Synchro Analyses

2013 Existing Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	124	240	110	24	459	23	243	168	20	18	56	91
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	181.0	186.3	190.0	186.3	186.3	190.0	190.0	186.3	186.3
Lanes	1	2	1	1	2	0	1	1	0	0	1	1
Cap, veh/h	389	1692	719	376	1022	51	443	559	67	88	154	167
Arrive On Green	0.15	0.91	0.91	0.29	0.29	0.29	0.15	0.34	0.34	0.11	0.11	0.11
Sat Flow, veh/h	1774	3725	1583	958	3520	175	1774	1632	196	255	1461	1583
Grp Volume(v), veh/h	139	270	124	25	255	252	253	0	196	86	0	106
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	958	1863	1832	1774	0	1828	1716	0	1583
Q Serve(g_s), s	3.8	0.6	0.6	1.4	8.3	8.3	8.8	0.0	5.8	0.4	0.0	4.7
Cycle Q Clear(g_c), s	3.8	0.6	0.6	1.4	8.3	8.3	8.8	0.0	5.8	3.2	0.0	4.7
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.11	0.24		1.00
Lane Grp Cap(c), veh/h	389	1692	719	376	541	532	443	0	626	242	0	167
V/C Ratio(X)	0.36	0.16	0.17	0.07	0.47	0.47	0.57	0.00	0.31	0.36	0.00	0.63
Avail Cap(c_a), veh/h	460	2907	1235	650	1074	1057	625	0	930	347	0	269
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.3	1.9	1.9	19.1	21.5	21.5	22.2	0.0	17.8	30.9	0.0	31.6
Incr Delay (d2), s/veh	0.7	0.2	0.5	0.3	2.9	3.0	1.4	0.0	0.3	1.1	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.4	0.2	0.3	0.3	4.0	4.0	3.8	0.0	2.5	1.5	0.0	2.0
Lane Grp Delay (d), s/veh	15.0	2.1	2.4	19.4	24.4	24.5	23.6	0.0	18.2	32.0	0.0	36.3
Lane Grp LOS	B	A	A	B	C	C	C		B	C		D
Approach Vol, veh/h		533			532			449			192	
Approach Delay, s/veh		5.5			24.2			21.2			34.4	
Approach LOS		A			C			C			C	

Timer												
Assigned Phs	1	6			2		3	8			4	
Phs Duration (G+Y+Rc), s	12.1	41.0			28.9		17.5	32.7			15.3	
Change Period (Y+Rc), s	6.5	7.5			7.5		6.2	7.5			7.5	
Max Green Setting (Gmax), s	8.5	57.5			42.5		18.8	37.5			12.5	
Max Q Clear Time (g_c+I1), s	5.8	2.6			10.3		10.8	7.8			6.7	
Green Ext Time (p_c), s	0.1	12.7			11.1		0.6	2.3			1.1	

Intersection Summary												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	416	332	0	0	354	530	107	0	116	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	186.3	186.3	0.0	0.0	186.3	169.6	190.0	186.3	186.3			
Lanes	1	2	0	0	2	1	0	1	1			
Cap, veh/h	709	2480	0	0	1248	483	177	0	158			
Arrive On Green	0.19	0.67	0.00	0.00	0.11	0.00	0.10	0.00	0.00			
Sat Flow, veh/h	1774	3725	0	0	3725	1442	1774	0	1583			
Grp Volume(v), veh/h	433	346	0	0	421	0	123	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1442	1774	0	1583			
Q Serve(g_s), s	6.8	1.7	0.0	0.0	5.1	0.0	3.3	0.0	0.0			
Cycle Q Clear(g_c), s	6.8	1.7	0.0	0.0	5.1	0.0	3.3	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	709	2480	0	0	1248	483	177	0	158			
V/C Ratio(X)	0.61	0.14	0.00	0.00	0.34	0.00	0.70	0.00	0.00			
Avail Cap(c_a), veh/h	1571	5651	0	0	2609	1010	876	0	782			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.96	0.96	0.00	0.00	0.91	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	7.0	3.0	0.0	0.0	16.8	0.0	21.3	0.0	0.0			
Incr Delay (d2), s/veh	0.3	0.1	0.0	0.0	0.7	0.0	1.9	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (50%), veh/ln	1.9	0.4	0.0	0.0	2.3	0.0	1.5	0.0	0.0			
Lane Grp Delay (d), s/veh	7.3	3.1	0.0	0.0	17.4	0.0	23.2	0.0	0.0			
Lane Grp LOS	A	A			B		C					
Approach Vol, veh/h		779			421			123				
Approach Delay, s/veh		5.4			17.4			23.2				
Approach LOS		A			B			C				
Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	16.2	38.3			22.1			10.7				
Change Period (Y+Rc), s	6.8	5.7			5.7			5.8				
Max Green Setting (Gmax), s	33.2	74.3			34.3			24.2				
Max Q Clear Time (g_c+I1), s	8.8	3.7			7.1			5.3				
Green Ext Time (p_c), s	0.6	11.6			9.3			0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			10.9									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	599	82	99	362	0	0	0	0	144	5	208
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	186.3	186.3	186.3	186.3	0.0				190.0	186.3	186.3
Lanes	0	2	1	1	2	0				0	1	1
Cap, veh/h	0	1692	719	520	2385	0				261	10	241
Arrive On Green	0.00	0.45	0.00	0.05	0.43	0.00				0.15	0.15	0.00
Sat Flow, veh/h	0	3725	1583	1774	3725	0				1715	63	1583
Grp Volume(v), veh/h	0	651	0	109	398	0				199	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1774	1863	0				1777	0	1583
Q Serve(g_s), s	0.0	6.5	0.0	1.6	3.7	0.0				6.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.5	0.0	1.6	3.7	0.0				6.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	1692	719	520	2385	0				270	0	241
V/C Ratio(X)	0.00	0.38	0.00	0.21	0.17	0.00				0.74	0.00	0.00
Avail Cap(c_a), veh/h	0	3927	1669	819	5249	0				596	0	531
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.99	0.99	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.2	0.0	6.7	6.8	0.0				22.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.1	0.1	0.0				4.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	2.5	0.0	0.5	1.3	0.0				2.9	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	10.8	0.0	6.8	7.0	0.0				27.5	0.0	0.0
Lane Grp LOS		B		A	A					C		
Approach Vol, veh/h		651			507						199	
Approach Delay, s/veh		10.8			7.0						27.5	
Approach LOS		B			A						C	

Timer												
Assigned Phs		2		1	6						4	
Phs Duration (G+Y+Rc), s		31.2		10.5	41.7						14.7	
Change Period (Y+Rc), s		5.6		6.4	5.6						6.1	
Max Green Setting (Gmax), s		59.4		13.6	79.4						18.9	
Max Q Clear Time (g_c+I1), s		8.5		3.6	5.7						8.0	
Green Ext Time (p_c), s		17.1		0.1	18.5						0.9	

Intersection Summary		
HCM 2010 Ctrl Delay	11.8	
HCM 2010 LOS	B	

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	656	411	54	417	25	152	87	49	45	192	123
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	190.0	186.3	186.3
Lanes	1	2	1	1	2	0	1	1	0	0	1	1
Cap, veh/h	414	1809	769	261	1236	75	281	392	220	95	285	303
Arrive On Green	0.08	0.65	0.65	0.36	0.36	0.36	0.09	0.35	0.35	0.19	0.19	0.19
Sat Flow, veh/h	1774	3725	1583	510	3479	210	1774	1122	630	250	1488	1583
Grp Volume(v), veh/h	113	676	424	60	247	244	155	0	139	273	0	141
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	510	1863	1826	1774	0	1752	1738	0	1583
Q Serve(g_s), s	3.5	7.7	13.4	7.8	9.0	9.0	6.1	0.0	5.1	9.6	0.0	7.2
Cycle Q Clear(g_c), s	3.5	7.7	13.4	7.8	9.0	9.0	6.1	0.0	5.1	13.6	0.0	7.2
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.36	0.19		1.00
Lane Grp Cap(c), veh/h	414	1809	769	261	662	649	281	0	612	380	0	303
V/C Ratio(X)	0.27	0.37	0.55	0.23	0.37	0.38	0.55	0.00	0.23	0.72	0.00	0.46
Avail Cap(c_a), veh/h	535	2565	1090	330	913	895	392	0	820	476	0	392
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.9	9.6	10.6	21.4	21.7	21.8	25.7	0.0	20.9	35.0	0.0	32.6
Incr Delay (d2), s/veh	0.4	0.5	2.3	2.1	1.6	1.7	2.0	0.0	0.2	4.3	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.4	2.9	4.2	1.1	4.2	4.2	2.7	0.0	2.2	6.2	0.0	2.9
Lane Grp Delay (d), s/veh	16.2	10.1	13.0	23.4	23.4	23.4	27.8	0.0	21.1	39.3	0.0	33.9
Lane Grp LOS	B	B	B	C	C	C	C		C	D		C
Approach Vol, veh/h		1213			551			294			414	
Approach Delay, s/veh		11.7			23.4			24.6			37.5	
Approach LOS		B			C			C			D	
Timer												
Assigned Phs	1	6			2		3	8			4	
Phs Duration (G+Y+Rc), s	11.8	51.6			39.8		14.3	39.2			24.9	
Change Period (Y+Rc), s	6.5	7.5			7.5		6.2	7.5			7.5	
Max Green Setting (Gmax), s	11.5	62.5			44.5		13.8	42.5			22.5	
Max Q Clear Time (g_c+I1), s	5.5	15.4			11.0		8.1	7.1			15.6	
Green Ext Time (p_c), s	0.1	26.0			21.2		0.2	3.5			1.8	
Intersection Summary												
HCM 2010 Ctrl Delay			20.2									
HCM 2010 LOS			C									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	301	1032	0	0	495	228	92	1	163	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	186.3	186.3	0.0	0.0	186.3	186.3	190.0	186.3	186.3			
Lanes	1	2	0	0	2	1	0	1	1			
Cap, veh/h	539	2277	0	0	1552	659	463	4	417			
Arrive On Green	0.12	0.61	0.00	0.00	0.14	0.00	0.26	0.26	0.00			
Sat Flow, veh/h	1774	3725	0	0	3725	1583	1758	16	1583			
Grp Volume(v), veh/h	314	1075	0	0	538	0	108	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1583	1775	0	1583			
Q Serve(g_s), s	8.7	14.5	0.0	0.0	12.0	0.0	4.4	0.0	0.0			
Cycle Q Clear(g_c), s	8.7	14.5	0.0	0.0	12.0	0.0	4.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.99		1.00			
Lane Grp Cap(c), veh/h	539	2277	0	0	1552	659	468	0	417			
V/C Ratio(X)	0.58	0.47	0.00	0.00	0.35	0.00	0.23	0.00	0.00			
Avail Cap(c_a), veh/h	870	3420	0	0	2000	850	468	0	417			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.67	0.67	0.00	0.00	0.93	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	12.5	9.8	0.0	0.0	28.3	0.0	26.5	0.0	0.0			
Incr Delay (d2), s/veh	0.3	0.5	0.0	0.0	0.6	0.0	1.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (50%), veh/ln	3.3	5.7	0.0	0.0	6.1	0.0	2.1	0.0	0.0			
Lane Grp Delay (d), s/veh	12.8	10.2	0.0	0.0	28.9	0.0	27.7	0.0	0.0			
Lane Grp LOS	B	B			C		C					
Approach Vol, veh/h		1389			538			108				
Approach Delay, s/veh		10.8			28.9			27.7				
Approach LOS		B			C			C				

Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	17.9	61.8			43.9			30.0				
Change Period (Y+Rc), s	6.8	5.7			5.7			5.8				
Max Green Setting (Gmax), s	28.2	84.3			49.3			24.2				
Max Q Clear Time (g_c+I1), s	10.7	16.5			14.0			6.4				
Green Ext Time (p_c), s	0.4	36.0			24.2			0.3				

Intersection Summary												
HCM 2010 Ctrl Delay			16.5									
HCM 2010 LOS			B									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	748	154	127	460	0	0	0	0	596	3	436
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	186.3	186.3	186.3	186.3	0.0				190.0	186.3	186.3
Lanes	0	2	1	1	2	0				0	1	1
Cap, veh/h	0	1363	579	319	1844	0				686	3	615
Arrive On Green	0.00	0.37	0.00	0.07	0.49	0.00				0.39	0.39	0.00
Sat Flow, veh/h	0	3725	1583	1774	3725	0				1766	8	1583
Grp Volume(v), veh/h	0	796	0	138	500	0				630	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1774	1863	0				1774	0	1583
Q Serve(g_s), s	0.0	17.3	0.0	4.6	7.9	0.0				33.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	17.3	0.0	4.6	7.9	0.0				33.8	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1363	579	319	1844	0				689	0	615
V/C Ratio(X)	0.00	0.58	0.00	0.43	0.27	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	1834	779	355	2391	0				776	0	693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.87	0.87	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.7	0.0	18.7	14.8	0.0				29.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.6	0.3	0.0				14.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	7.8	0.0	1.9	3.4	0.0				17.7	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	26.5	0.0	19.3	15.1	0.0				43.6	0.0	0.0
Lane Grp LOS		C		B	B					D		
Approach Vol, veh/h		796			638						630	
Approach Delay, s/veh		26.5			16.0						43.6	
Approach LOS		C			B						D	

Timer												
Assigned Phs		2		1	6						4	
Phs Duration (G+Y+Rc), s		42.3		12.9	55.3						45.1	
Change Period (Y+Rc), s		5.6		6.4	5.6						6.1	
Max Green Setting (Gmax), s		49.4		8.6	64.4						43.9	
Max Q Clear Time (g_c+I1), s		19.3		6.6	9.9						35.8	
Green Ext Time (p_c), s		17.4		0.0	23.6						3.2	

Intersection Summary		
HCM 2010 Ctrl Delay	28.5	
HCM 2010 LOS	C	

Notes

2015 No-Build Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	126	245	112	24	468	23	278	181	20	18	57	93
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	190.0	186.3	186.3
Lanes	1	2	1	1	2	0	1	1	0	0	1	1
Cap, veh/h	381	1674	711	376	1015	49	468	586	65	85	154	167
Arrive On Green	0.15	0.90	0.90	0.29	0.29	0.29	0.17	0.36	0.36	0.11	0.11	0.11
Sat Flow, veh/h	1774	3725	1583	980	3524	171	1774	1647	183	251	1462	1583
Grp Volume(v), veh/h	142	275	126	25	260	257	290	0	210	87	0	108
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	980	1863	1833	1774	0	1830	1713	0	1583
Q Serve(g_s), s	4.1	0.7	0.7	1.4	8.9	8.9	10.5	0.0	6.4	0.5	0.0	5.0
Cycle Q Clear(g_c), s	4.1	0.7	0.7	1.4	8.9	8.9	10.5	0.0	6.4	3.4	0.0	5.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.10	0.24		1.00
Lane Grp Cap(c), veh/h	381	1674	711	376	537	528	468	0	651	239	0	167
V/C Ratio(X)	0.37	0.16	0.18	0.07	0.48	0.49	0.62	0.00	0.32	0.36	0.00	0.65
Avail Cap(c_a), veh/h	441	2787	1184	635	1030	1013	601	0	893	332	0	257
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.1	2.2	2.2	20.0	22.6	22.7	22.7	0.0	18.0	32.3	0.0	33.0
Incr Delay (d2), s/veh	0.7	0.2	0.5	0.3	3.1	3.2	1.6	0.0	0.3	1.1	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.5	0.3	0.3	0.4	4.3	4.2	4.4	0.0	2.7	1.6	0.0	2.2
Lane Grp Delay (d), s/veh	15.8	2.4	2.7	20.3	25.8	25.8	24.3	0.0	18.4	33.4	0.0	38.0
Lane Grp LOS	B	A	A	C	C	C	C		B	C		D
Approach Vol, veh/h		543			542			500			195	
Approach Delay, s/veh		6.0			25.5			21.8			36.0	
Approach LOS		A			C			C			D	
Timer												
Assigned Phs	1	6			2		3	8			4	
Phs Duration (G+Y+Rc), s	12.4	42.0			29.6		19.2	34.8			15.6	
Change Period (Y+Rc), s	6.5	7.5			7.5		6.2	7.5			7.5	
Max Green Setting (Gmax), s	8.5	57.5			42.5		18.8	37.5			12.5	
Max Q Clear Time (g_c+I1), s	6.1	2.7			10.9		12.5	8.4			7.0	
Green Ext Time (p_c), s	0.1	13.0			11.2		0.6	2.4			1.1	
Intersection Summary												
HCM 2010 Ctrl Delay			19.7									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	424	339	0	0	376	556	109	0	118	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	186.3	186.3	0.0	0.0	186.3	186.3	190.0	186.3	186.3			
Lanes	1	2	0	0	2	1	0	1	1			
Cap, veh/h	585	2034	0	0	952	405	546	0	487			
Arrive On Green	0.20	0.55	0.00	0.00	0.08	0.00	0.31	0.00	0.00			
Sat Flow, veh/h	1774	3725	0	0	3725	1583	1774	0	1583			
Grp Volume(v), veh/h	442	353	0	0	448	0	125	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1583	1774	0	1583			
Q Serve(g_s), s	13.4	3.7	0.0	0.0	9.0	0.0	4.1	0.0	0.0			
Cycle Q Clear(g_c), s	13.4	3.7	0.0	0.0	9.0	0.0	4.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	585	2034	0	0	952	405	546	0	487			
V/C Ratio(X)	0.76	0.17	0.00	0.00	0.47	0.00	0.23	0.00	0.00			
Avail Cap(c_a), veh/h	973	3521	0	0	1625	691	546	0	487			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.95	0.95	0.00	0.00	0.89	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	15.4	9.0	0.0	0.0	30.9	0.0	20.3	0.0	0.0			
Incr Delay (d2), s/veh	0.7	0.2	0.0	0.0	0.7	0.0	1.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (50%), veh/ln	5.2	1.5	0.0	0.0	4.5	0.0	1.9	0.0	0.0			
Lane Grp Delay (d), s/veh	16.1	9.1	0.0	0.0	31.6	0.0	21.2	0.0	0.0			
Lane Grp LOS	B	A			C		C					
Approach Vol, veh/h		795			448			125				
Approach Delay, s/veh		13.0			31.6			21.2				
Approach LOS		B			C			C				
Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	22.8	48.6			25.8			30.0				
Change Period (Y+Rc), s	6.8	5.7			5.7			5.8				
Max Green Setting (Gmax), s	33.2	74.3			34.3			24.2				
Max Q Clear Time (g_c+I1), s	15.4	5.7			11.0			6.1				
Green Ext Time (p_c), s	0.6	12.3			9.1			0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			19.8									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	611	84	116	369	0	0	0	0	147	5	212
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	186.3	186.3	186.3	186.3	0.0				190.0	186.3	186.3
Lanes	0	2	1	1	2	0				0	1	1
Cap, veh/h	0	2307	980	557	2689	0				295	11	272
Arrive On Green	0.00	0.62	0.00	0.04	0.72	0.00				0.17	0.17	0.00
Sat Flow, veh/h	0	3725	1583	1774	3725	0				1716	61	1583
Grp Volume(v), veh/h	0	664	0	127	405	0				203	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1774	1863	0				1777	0	1583
Q Serve(g_s), s	0.0	9.1	0.0	2.7	3.7	0.0				11.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.1	0.0	2.7	3.7	0.0				11.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	2307	980	557	2689	0				305	0	272
V/C Ratio(X)	0.00	0.29	0.00	0.23	0.15	0.00				0.66	0.00	0.00
Avail Cap(c_a), veh/h	0	2307	980	697	2689	0				305	0	272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.89	0.89	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.7	0.0	6.7	4.8	0.0				42.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.1	0.1	0.0				10.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	3.7	0.0	1.0	1.4	0.0				6.3	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	9.9	0.0	6.8	4.9	0.0				53.5	0.0	0.0
Lane Grp LOS		A		A	A					D		
Approach Vol, veh/h		664			532						203	
Approach Delay, s/veh		9.9			5.3						53.5	
Approach LOS		A			A						D	

Timer												
Assigned Phs		2		1	6						4	
Phs Duration (G+Y+Rc), s		73.7		11.3	85.0						25.0	
Change Period (Y+Rc), s		5.6		6.4	5.6						6.1	
Max Green Setting (Gmax), s		59.4		13.6	79.4						18.9	
Max Q Clear Time (g_c+I1), s		11.1		4.7	5.7						13.7	
Green Ext Time (p_c), s		17.2		0.1	19.1						0.6	

Intersection Summary		
HCM 2010 Ctrl Delay	14.5	
HCM 2010 LOS	B	

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	112	669	449	55	425	26	155	89	50	46	206	125
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	190.0	186.3	186.3
Lanes	1	2	1	1	2	0	1	1	0	0	1	1
Cap, veh/h	410	1807	768	250	1239	76	275	398	223	94	297	314
Arrive On Green	0.08	0.65	0.65	0.36	0.36	0.36	0.09	0.35	0.35	0.20	0.20	0.20
Sat Flow, veh/h	1774	3725	1583	485	3475	213	1774	1123	629	243	1499	1583
Grp Volume(v), veh/h	115	690	463	61	252	249	158	0	142	290	0	144
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	485	1863	1825	1774	0	1752	1741	0	1583
Q Serve(g_s), s	3.7	8.1	15.9	8.6	9.4	9.5	6.3	0.0	5.3	10.8	0.0	7.5
Cycle Q Clear(g_c), s	3.7	8.1	15.9	8.6	9.4	9.5	6.3	0.0	5.3	14.9	0.0	7.5
Prop In Lane	1.00		1.00	1.00		0.12	1.00		0.36	0.18		1.00
Lane Grp Cap(c), veh/h	410	1807	768	250	664	651	275	0	621	391	0	314
V/C Ratio(X)	0.28	0.38	0.60	0.24	0.38	0.38	0.57	0.00	0.23	0.74	0.00	0.46
Avail Cap(c_a), veh/h	523	2492	1059	308	887	869	378	0	797	463	0	381
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	10.0	11.4	22.1	22.4	22.4	26.3	0.0	21.2	35.9	0.0	33.0
Incr Delay (d2), s/veh	0.4	0.5	2.9	2.3	1.7	1.7	2.3	0.0	0.2	5.6	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.4	3.1	5.1	1.2	4.5	4.4	2.9	0.0	2.2	6.9	0.0	3.0
Lane Grp Delay (d), s/veh	16.7	10.5	14.2	24.4	24.0	24.1	28.5	0.0	21.4	41.5	0.0	34.3
Lane Grp LOS	B	B	B	C	C	C	C		C	D		C
Approach Vol, veh/h		1268			562			300			434	
Approach Delay, s/veh		12.4			24.1			25.2			39.1	
Approach LOS		B			C			C			D	
Timer												
Assigned Phs	1	6			2		3	8			4	
Phs Duration (G+Y+Rc), s	12.0	52.8			40.8		14.6	40.6			26.0	
Change Period (Y+Rc), s	6.5	7.5			7.5		6.2	7.5			7.5	
Max Green Setting (Gmax), s	11.5	62.5			44.5		13.8	42.5			22.5	
Max Q Clear Time (g_c+I1), s	5.7	17.9			11.5		8.3	7.3			16.9	
Green Ext Time (p_c), s	0.1	26.4			21.8		0.2	3.7			1.6	
Intersection Summary												
HCM 2010 Ctrl Delay			21.0									
HCM 2010 LOS			C									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	307	1068	0	0	505	233	94	1	181	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	186.3	186.3	0.0	0.0	186.3	186.3	190.0	186.3	186.3			
Lanes	1	2	0	0	2	1	0	1	1			
Cap, veh/h	539	2294	0	0	1569	667	458	4	412			
Arrive On Green	0.12	0.62	0.00	0.00	0.14	0.00	0.26	0.26	0.00			
Sat Flow, veh/h	1774	3725	0	0	3725	1583	1759	16	1583			
Grp Volume(v), veh/h	320	1112	0	0	549	0	110	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1583	1775	0	1583			
Q Serve(g_s), s	8.9	15.2	0.0	0.0	12.4	0.0	4.5	0.0	0.0			
Cycle Q Clear(g_c), s	8.9	15.2	0.0	0.0	12.4	0.0	4.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.99		1.00			
Lane Grp Cap(c), veh/h	539	2294	0	0	1569	667	462	0	412			
V/C Ratio(X)	0.59	0.48	0.00	0.00	0.35	0.00	0.24	0.00	0.00			
Avail Cap(c_a), veh/h	862	3380	0	0	1976	840	462	0	412			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	0.92	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	12.5	9.8	0.0	0.0	28.5	0.0	27.1	0.0	0.0			
Incr Delay (d2), s/veh	0.3	0.6	0.0	0.0	0.3	0.0	1.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (50%), veh/ln	3.3	6.1	0.0	0.0	6.2	0.0	2.2	0.0	0.0			
Lane Grp Delay (d), s/veh	12.9	10.4	0.0	0.0	28.8	0.0	28.3	0.0	0.0			
Lane Grp LOS	B	B			C		C					
Approach Vol, veh/h		1432			549			110				
Approach Delay, s/veh		10.9			28.8			28.3				
Approach LOS		B			C			C				
Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	18.1	62.9			44.8			30.0				
Change Period (Y+Rc), s	6.8	5.7			5.7			5.8				
Max Green Setting (Gmax), s	28.2	84.3			49.3			24.2				
Max Q Clear Time (g_c+I1), s	10.9	17.2			14.4			6.5				
Green Ext Time (p_c), s	0.4	37.4			24.7			0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			16.5									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	763	157	130	469	0	0	0	0	623	3	445
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	186.3	186.3	186.3	186.3	0.0				190.0	186.3	186.3
Lanes	0	2	1	1	2	0				0	1	1
Cap, veh/h	0	1579	671	342	1999	0				646	3	579
Arrive On Green	0.00	0.42	0.00	0.06	0.54	0.00				0.37	0.37	0.00
Sat Flow, veh/h	0	3725	1583	1774	3725	0				1766	8	1583
Grp Volume(v), veh/h	0	812	0	141	510	0				659	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1774	1863	0				1774	0	1583
Q Serve(g_s), s	0.0	19.3	0.0	5.2	8.8	0.0				43.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	19.3	0.0	5.2	8.8	0.0				43.9	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1579	671	342	1999	0				649	0	579
V/C Ratio(X)	0.00	0.51	0.00	0.41	0.26	0.00				1.02	0.00	0.00
Avail Cap(c_a), veh/h	0	1579	671	363	1999	0				649	0	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.74	0.74	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.5	0.0	18.7	14.9	0.0				38.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.4	0.2	0.0				39.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	8.9	0.0	2.2	3.9	0.0				26.9	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	26.1	0.0	19.1	15.2	0.0				77.2	0.0	0.0
Lane Grp LOS		C		B	B					F		
Approach Vol, veh/h		812			651						659	
Approach Delay, s/veh		26.1			16.0						77.2	
Approach LOS		C			B						E	

Timer												
Assigned Phs		2		1	6						4	
Phs Duration (G+Y+Rc), s		56.5		13.5	70.0						50.0	
Change Period (Y+Rc), s		5.6		6.4	5.6						6.1	
Max Green Setting (Gmax), s		49.4		8.6	64.4						43.9	
Max Q Clear Time (g_c+I1), s		21.3		7.2	10.8						45.9	
Green Ext Time (p_c), s		17.0		0.0	24.1						0.0	

Intersection Summary		
HCM 2010 Ctrl Delay		38.9
HCM 2010 LOS		D

Notes

2015 Build Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	126	245	208	31	468	23	321	181	23	18	57	93
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	169.6	174.3	186.3	190.0	182.7	185.9	190.0	190.0	186.3	186.3
Lanes	1	2	1	1	2	0	1	1	0	0	1	1
Cap, veh/h	377	1663	644	330	1028	50	490	599	76	81	150	163
Arrive On Green	0.02	0.15	0.15	0.29	0.29	0.29	0.19	0.37	0.37	0.10	0.10	0.10
Sat Flow, veh/h	1774	3725	1442	830	3524	171	1740	1617	205	252	1459	1583
Grp Volume(v), veh/h	142	275	234	33	260	257	334	0	213	87	0	108
Grp Sat Flow(s),veh/h/ln	1774	1863	1442	830	1863	1833	1740	0	1822	1711	0	1583
Q Serve(g_s), s	4.3	5.3	12.0	2.4	9.4	9.4	13.2	0.0	6.8	0.7	0.0	5.4
Cycle Q Clear(g_c), s	4.3	5.3	12.0	2.4	9.4	9.4	13.2	0.0	6.8	3.7	0.0	5.4
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.11	0.24		1.00
Lane Grp Cap(c), veh/h	377	1663	644	330	543	535	490	0	675	230	0	163
V/C Ratio(X)	0.38	0.17	0.36	0.10	0.48	0.48	0.68	0.00	0.32	0.38	0.00	0.66
Avail Cap(c_a), veh/h	428	2620	1014	520	968	953	556	0	836	312	0	242
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.4	21.5	24.4	21.4	23.8	23.9	23.8	0.0	18.4	34.5	0.0	35.3
Incr Delay (d2), s/veh	0.7	0.2	1.6	0.6	3.0	3.1	3.2	0.0	0.3	1.2	0.0	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.9	2.4	4.9	0.5	4.5	4.5	5.8	0.0	2.9	1.7	0.0	2.3
Lane Grp Delay (d), s/veh	19.1	21.8	26.0	22.0	26.8	26.9	26.9	0.0	18.7	35.8	0.0	40.8
Lane Grp LOS	B	C	C	C	C	C	C		B	D		D
Approach Vol, veh/h		651			550			547			195	
Approach Delay, s/veh		22.7			26.6			23.7			38.6	
Approach LOS		C			C			C			D	

Timer												
Assigned Phs	1	6			2		3	8			4	
Phs Duration (G+Y+Rc), s	12.6	44.0			31.3		21.9	37.8			15.9	
Change Period (Y+Rc), s	6.5	7.5			7.5		6.2	7.5			7.5	
Max Green Setting (Gmax), s	8.5	57.5			42.5		18.8	37.5			12.5	
Max Q Clear Time (g_c+I1), s	6.3	14.0			11.4		15.2	8.8			7.4	
Green Ext Time (p_c), s	0.1	14.0			12.4		0.4	2.4			1.0	

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	424	435	0	0	379	596	109	1	118	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	186.3	179.2	0.0	0.0	186.3	186.3	186.3	186.3	190.0			
Lanes	1	2	0	0	2	1	1	1	0			
Cap, veh/h	659	2226	0	0	1218	517	185	195	0			
Arrive On Green	0.17	0.62	0.00	0.00	0.55	0.00	0.10	0.10	0.00			
Sat Flow, veh/h	1774	3585	0	0	3725	1583	1774	1863	0			
Grp Volume(v), veh/h	442	453	0	0	451	0	125	1	0			
Grp Sat Flow(s),veh/h/ln	1774	1792	0	0	1863	1583	1774	1863	0			
Q Serve(g_s), s	0.3	2.5	0.0	0.0	3.2	0.0	3.1	0.0	0.0			
Cycle Q Clear(g_c), s	0.3	2.5	0.0	0.0	3.2	0.0	3.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h	659	2226	0	0	1218	517	185	195	0			
V/C Ratio(X)	0.67	0.20	0.00	0.00	0.37	0.00	0.67	0.01	0.00			
Avail Cap(c_a), veh/h	1641	5803	0	0	2784	1183	935	982	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(I)	0.92	0.92	0.00	0.00	0.86	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	13.6	3.8	0.0	0.0	7.7	0.0	19.8	18.4	0.0			
Incr Delay (d2), s/veh	0.4	0.2	0.0	0.0	0.7	0.0	1.6	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (50%), veh/ln	4.0	0.7	0.0	0.0	1.1	0.0	1.4	0.0	0.0			
Lane Grp Delay (d), s/veh	14.0	4.0	0.0	0.0	8.5	0.0	21.4	18.4	0.0			
Lane Grp LOS	B	A			A		C	B				
Approach Vol, veh/h		895			451			126				
Approach Delay, s/veh		8.9			8.5			21.4				
Approach LOS		A			A			C				
Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	14.6	35.3			20.7			10.6				
Change Period (Y+Rc), s	6.8	6.8			5.7			5.8				
Max Green Setting (Gmax), s	33.2	74.3			34.3			24.2				
Max Q Clear Time (g_c+I1), s	2.3	4.5			5.2			5.1				
Green Ext Time (p_c), s	5.5	5.8			5.4			0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			9.8									
HCM 2010 LOS			A									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	618	84	116	369	0	0	0	0	236	5	212
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	186.3	186.3	186.3	186.3	0.0				190.0	171.5	186.3
Lanes	0	2	1	1	2	0				0	1	1
Cap, veh/h	0	1321	562	407	1995	0				387	9	383
Arrive On Green	0.00	0.35	0.00	0.11	0.71	0.00				0.24	0.24	0.00
Sat Flow, veh/h	0	3725	1583	1774	3725	0				1599	36	1583
Grp Volume(v), veh/h	0	672	0	127	405	0				322	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1774	1863	0				1635	0	1583
Q Serve(g_s), s	0.0	8.0	0.0	0.0	2.1	0.0				10.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.0	0.0	0.0	2.1	0.0				10.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1321	562	407	1995	0				395	0	383
V/C Ratio(X)	0.00	0.51	0.00	0.31	0.20	0.00				0.81	0.00	0.00
Avail Cap(c_a), veh/h	0	3946	1677	694	5275	0				551	0	534
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.94	0.94	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	14.2	0.0	17.9	4.0	0.0				20.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.3	0.2	0.0				7.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	3.4	0.0	1.4	0.7	0.0				4.7	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	15.7	0.0	18.2	4.3	0.0				27.2	0.0	0.0
Lane Grp LOS		B		B	A					C		
Approach Vol, veh/h		672			532						322	
Approach Delay, s/veh		15.7			7.6						27.2	
Approach LOS		B			A						C	

Timer												
Assigned Phs		2		1	6						4	
Phs Duration (G+Y+Rc), s		25.5		10.9	36.4						19.7	
Change Period (Y+Rc), s		5.6		6.4	6.4						6.1	
Max Green Setting (Gmax), s		59.4		13.6	79.4						18.9	
Max Q Clear Time (g_c+I1), s		10.0		2.0	4.1						12.4	
Green Ext Time (p_c), s		9.9		3.3	5.4						1.2	

Intersection Summary		
HCM 2010 Ctrl Delay		15.3
HCM 2010 LOS		B

Notes

Intersection	
Intersection Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	0	3	0	0	0	6	477	0	0	195	17
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	-	-	-	-	-	-	-	-	200	250	-	-
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, %	100	2	100	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	3	0	0	0	7	518	0	0	212	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	753	753	221	755	762	518	230	0	0	518	0	0
Stage 1	221	221	-	532	532	-	-	-	-	-	-	-
Stage 2	532	532	-	223	230	-	-	-	-	-	-	-
Follow-up Headway	4.4	4.018	4.2	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	230	339	625	325	335	558	1338	-	-	1048	-	-
Stage 1	604	720	-	531	526	-	-	-	-	-	-	-
Stage 2	390	526	-	780	714	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	229	337	625	322	333	558	1338	-	-	1048	-	-
Mov Capacity-2 Maneuver	229	337	-	322	333	-	-	-	-	-	-	-
Stage 1	600	720	-	527	522	-	-	-	-	-	-	-
Stage 2	387	522	-	776	714	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.4	0	0.1	0
HCM LOS	C	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1338	-	-	229	625	0	1048	-	-
HCM Lane V/C Ratio	0.005	-	-	0.038	0.005	+	-	-	-
HCM Control Delay (s)	7.704	0	-	21.3	10.8	0	0	-	-
HCM Lane LOS	A	A		C	B	A	A		
HCM 95th %tile Q(veh)	0.015	-	-	0.118	0.016	+	0	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	78	0	0	439	195	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	7	2	2	2
Mvmt Flow	85	0	0	477	212	136

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	757	280	348	0	-	0
Stage 1	280	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Follow-up Headway	3.572	3.372	2.263	-	-	-
Pot Capacity-1 Maneuver	367	745	1184	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	612	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	367	745	1184	-	-	-
Mov Capacity-2 Maneuver	367	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	612	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.7	0	0
HCM LOS	C		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1184	-	367	0	-	-
HCM Lane V/C Ratio	-	-	0.231	+	-	-
HCM Control Delay (s)	0	-	17.7	0	-	-
HCM Lane LOS	A		C	A		
HCM 95th %tile Q(veh)	0	-	0.879	+	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	112	669	493	58	425	26	254	89	57	46	206	125
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	182.7	186.3	186.3	190.0	163.8	184.2	190.0	190.0	186.3	186.3
Lanes	1	2	1	1	2	0	1	1	0	0	1	1
Cap, veh/h	412	1826	761	228	1303	80	287	392	250	87	281	300
Arrive On Green	0.04	0.33	0.33	0.37	0.37	0.37	0.13	0.37	0.37	0.19	0.19	0.19
Sat Flow, veh/h	1774	3725	1553	465	3475	213	1560	1052	671	251	1483	1583
Grp Volume(v), veh/h	115	690	508	64	252	249	259	0	149	290	0	144
Grp Sat Flow(s),veh/h/ln	1774	1863	1553	465	1863	1825	1560	0	1723	1735	0	1583
Q Serve(g_s), s	4.2	15.5	30.7	11.4	10.7	10.8	13.8	0.0	6.5	13.7	0.0	8.9
Cycle Q Clear(g_c), s	4.2	15.5	30.7	14.3	10.7	10.8	13.8	0.0	6.5	17.7	0.0	8.9
Prop In Lane	1.00		1.00	1.00		0.12	1.00		0.39	0.18		1.00
Lane Grp Cap(c), veh/h	412	1826	761	228	698	684	287	0	642	367	0	300
V/C Ratio(X)	0.28	0.38	0.67	0.28	0.36	0.36	0.90	0.00	0.23	0.79	0.00	0.48
Avail Cap(c_a), veh/h	500	2133	889	243	759	744	287	0	671	396	0	326
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.9	23.9	29.0	26.9	24.7	24.7	32.0	0.0	23.5	42.9	0.0	39.5
Incr Delay (d2), s/veh	0.4	0.5	4.1	3.1	1.5	1.5	29.8	0.0	0.2	10.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.8	7.5	13.1	1.5	5.1	5.0	9.7	0.0	2.7	8.7	0.0	3.6
Lane Grp Delay (d), s/veh	19.3	24.4	33.1	29.9	26.1	26.2	61.8	0.0	23.8	53.0	0.0	40.9
Lane Grp LOS	B	C	C	C	C	C	E		C	D		D
Approach Vol, veh/h		1313			565			408			434	
Approach Delay, s/veh		27.3			26.6			47.9			49.0	
Approach LOS		C			C			D			D	
Timer												
Assigned Phs	1	6			2		3	8			4	
Phs Duration (G+Y+Rc), s	12.6	61.0			48.4		20.0	48.2			28.2	
Change Period (Y+Rc), s	6.5	7.5			7.5		6.2	7.5			7.5	
Max Green Setting (Gmax), s	11.5	62.5			44.5		13.8	42.5			22.5	
Max Q Clear Time (g_c+I1), s	6.2	32.7			16.3		15.8	8.5			19.7	
Green Ext Time (p_c), s	0.1	20.8			20.0		0.0	3.7			0.9	
Intersection Summary												
HCM 2010 Ctrl Delay			33.7									
HCM 2010 LOS			C									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	307	1112	0	0	512	325	94	1	181	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	186.3	186.3	0.0	0.0	186.3	169.6	190.0	186.3	186.3			
Lanes	1	2	0	0	2	1	0	1	1			
Cap, veh/h	667	3017	0	0	2494	965	140	1	126			
Arrive On Green	0.08	0.81	0.00	0.00	0.22	0.00	0.08	0.08	0.00			
Sat Flow, veh/h	1774	3725	0	0	3725	1442	1759	16	1583			
Grp Volume(v), veh/h	320	1158	0	0	557	0	110	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1442	1775	0	1583			
Q Serve(g_s), s	5.4	8.9	0.0	0.0	12.8	0.0	6.3	0.0	0.0			
Cycle Q Clear(g_c), s	5.4	8.9	0.0	0.0	12.8	0.0	6.3	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.99		1.00			
Lane Grp Cap(c), veh/h	667	3017	0	0	2494	965	141	0	126			
V/C Ratio(X)	0.48	0.38	0.00	0.00	0.22	0.00	0.78	0.00	0.00			
Avail Cap(c_a), veh/h	1014	3017	0	0	2494	965	413	0	368			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	0.85	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	5.2	2.7	0.0	0.0	18.4	0.0	47.0	0.0	0.0			
Incr Delay (d2), s/veh	0.2	0.3	0.0	0.0	0.1	0.0	3.5	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (50%), veh/ln	1.7	2.5	0.0	0.0	6.5	0.0	3.0	0.0	0.0			
Lane Grp Delay (d), s/veh	5.4	3.0	0.0	0.0	18.4	0.0	50.5	0.0	0.0			
Lane Grp LOS	A	A			B		D					
Approach Vol, veh/h		1478			557			110				
Approach Delay, s/veh		3.5			18.4			50.5				
Approach LOS		A			B			D				

Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	14.6	90.0			75.4			14.1				
Change Period (Y+Rc), s	6.8	5.7			5.7			5.8				
Max Green Setting (Gmax), s	28.2	84.3			49.3			24.2				
Max Q Clear Time (g_c+I1), s	7.4	10.9			14.8			8.3				
Green Ext Time (p_c), s	0.4	41.2			25.3			0.3				

Intersection Summary												
HCM 2010 Ctrl Delay			9.8									
HCM 2010 LOS			A									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	766	157	130	469	0	0	0	0	664	3	445
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	186.3	186.3	186.3	186.3	0.0				190.0	185.8	186.3
Lanes	0	2	1	1	2	0				0	1	1
Cap, veh/h	0	1579	671	341	1999	0				645	3	579
Arrive On Green	0.00	0.42	0.00	0.06	0.54	0.00				0.37	0.37	0.00
Sat Flow, veh/h	0	3725	1583	1774	3725	0				1762	8	1583
Grp Volume(v), veh/h	0	815	0	141	510	0				702	0	0
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1774	1863	0				1770	0	1583
Q Serve(g_s), s	0.0	19.4	0.0	5.2	8.8	0.0				43.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	19.4	0.0	5.2	8.8	0.0				43.9	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1579	671	341	1999	0				647	0	579
V/C Ratio(X)	0.00	0.52	0.00	0.41	0.26	0.00				1.08	0.00	0.00
Avail Cap(c_a), veh/h	0	1579	671	362	1999	0				647	0	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.93	0.93	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.5	0.0	18.7	14.9	0.0				38.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.0	0.6	0.3	0.0				60.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	9.1	0.0	2.2	3.9	0.0				30.6	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	26.7	0.0	19.3	15.2	0.0				98.5	0.0	0.0
Lane Grp LOS		C		B	B					F		
Approach Vol, veh/h		815			651						702	
Approach Delay, s/veh		26.7			16.1						98.5	
Approach LOS		C			B						F	

Timer												
Assigned Phs		2		1	6						4	
Phs Duration (G+Y+Rc), s		56.5		13.5	70.0						50.0	
Change Period (Y+Rc), s		5.6		6.4	5.6						6.1	
Max Green Setting (Gmax), s		49.4		8.6	64.4						43.9	
Max Q Clear Time (g_c+I1), s		21.4		7.2	10.8						45.9	
Green Ext Time (p_c), s		17.0		0.0	24.1						0.0	

Intersection Summary		
HCM 2010 Ctrl Delay	46.8	
HCM 2010 LOS	D	

Notes

Intersection	
Intersection Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	0	8	0	0	0	3	378	0	0	670	10
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	-	-	-	-	-	-	-	-	200	250	-	-
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, %	100	2	100	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	0	9	0	0	0	3	411	0	0	728	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1151	1151	734	1155	1156	411	739	0	0	411	0	0
Stage 1	734	734	-	417	417	-	-	-	-	-	-	-
Stage 2	417	417	-	738	739	-	-	-	-	-	-	-
Follow-up Headway	4.4	4.018	4.2	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	114	198	294	174	197	641	867	-	-	1148	-	-
Stage 1	291	426	-	613	591	-	-	-	-	-	-	-
Stage 2	459	591	-	410	424	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	114	197	294	168	196	641	867	-	-	1148	-	-
Mov Capacity-2 Maneuver	114	197	-	168	196	-	-	-	-	-	-	-
Stage 1	290	426	-	611	589	-	-	-	-	-	-	-
Stage 2	457	589	-	398	424	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	38.1	0	0.1	0
HCM LOS	E	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	867	-	-	114	294	0	1148	-	-
HCM Lane V/C Ratio	0.004	-	-	0.219	0.03	+	-	-	-
HCM Control Delay (s)	9.168	0	-	45.2	17.6	0	0	-	-
HCM Lane LOS	A	A		E	C	A	A		
HCM 95th %tile Q(veh)	0.011	-	-	0.787	0.091	+	0	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	123	0	0	295	670	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	500	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	8	2	2	11
Mvmt Flow	134	0	0	321	728	92

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1095	774	821	0	-	0
Stage 1	774	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Follow-up Headway	3.608	3.408	2.272	-	-	-
Pot Capacity-1 Maneuver	226	383	783	-	-	-
Stage 1	438	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	226	383	783	-	-	-
Mov Capacity-2 Maneuver	226	-	-	-	-	-
Stage 1	438	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	41.7	0	0
HCM LOS	E		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	783	-	226	0	-	-
HCM Lane V/C Ratio	-	-	0.592	+	-	-
HCM Control Delay (s)	0	-	41.7	0	-	-
HCM Lane LOS	A		E	A		
HCM 95th %tile Q(veh)	0	-	3.364	+	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined