UNIVERSITY OF FLORIDA CAMPUS MASTER PLAN, 2010-2020: YEAR 2020 ROADWAY SYSTEM NEEDS PLAN

Prepared for:

UNIVERSITY OF FLORIDA

Prepared by:

RENAISSANCE PLANNING GROUP

Revised July 2011

UF UNIVERSITY of FLORIDA
The Foundation for The Gator Nation

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

The Transportation Data and Analysis section of the University of Florida Campus Master Plan 2005-2010 identified 16 intersection and transportation system management priorities, as shown below in **Table 1**. This 2020 Roadway System Needs Plan contains updated Synchro analyses for several of the intersections with priority improvements to determine whether the previously identified improvements are still necessary from a vehicular capacity and traffic operations perspective. During the analysis, other modifications were identified that would improve the carrying capacity of the road network, but may not be feasible due to roadway and right-of-way constraints.

METHODOLOGY AND DATA COLLECTION

The priority improvements identified in the 2005 Campus Master Plan include projects to improve traffic operations and reduce congestion at problem intersections, and projects to increase pedestrian access and safety. The analysis for this 2020 Roadway System Needs Plan focused on identifying the intersection improvements that would be necessary to accommodate expected future traffic volumes. Four priority improvements for pedestrian access and safety (TS-4, TS-10, TS-11, and TS-13) are recommended regardless of future traffic volumes and were not evaluated in this analysis.

The remaining 11 planned improvements were evaluated using Synchro version 7. The City of Gainesville provided an up-to-date Synchro version 7 file for the University of Florida road network and surrounding roads in September 2010, including current intersection geometries and pre-timed traffic signal phasing and timing plans. While the City is updating its signal timing plans concurrently with this analysis effort, existing timing plans as of September 2010 were used for the Synchro analysis.

Intersection turning movement counts were conducted in 2009 as part of the data collection effort for the 2010-2020 Campus Master Plan Update. These turning movement counts were conducted between March 31 and April 2, 2009 and represent typical weekday peak hour volumes. Turning movement count data can be found in the University of Florida Campus Master Plan, 2010-2020: Transportation Data and Analysis Technical Report UF1: Data Development document.

Table 1: 2005 Intersection and Transportation System Management Priorities (from 2005 Campus Master Plan)

UNIVERSITY OF FLORIDA — TRANSPORTATION
CAMPUS MASTER PLAN, 2005-2010 — DATA & ANALYSIS

University of Florida Intersection and Transportation System Management Priorities, 2005

	Priority	Roadway	At	Description	Length (L.F.)	Cost
*	TS-1	Museum Rd.	Newell Dr.	Lengthen EBL lane by restriping center lane	100	$ 1,000
	TS-2	Center Dr.	Museum Rd.	Lengthen NBL lane by restriping	100	$ 1,000
	TS-3	Village Dr.	SW 2nd Ave.	Lengthen NBL lane by restriping	100	$1,000
	TS-4	Mowry Dr.	Gale Lemerand Dr.	Construct pedestrian refuge island in existing striped area for WB pedestrians	NA	$ 4,000
**	TS-5	Campuswide	Five signalized intersections	Traffic Signal Equipment Upgrade and Timing Study	NA	$ 270,000
	TS-6	Museum Rd.	Gale Lemerand Drive	Construct WBR lane	300	$ 40,000
	TS-7	Museum Rd.	Radio Rd.	Construct roundabout	NA	$ 450,000
***	TS-8	Museum Rd.	Gale Lemerand Drive	Restripe NBR lane and bicycle lane; and install NB right-turn arrow (assumes mast arm will bear weight of signal head)	500	$ 10,000
	TS-9	Museum Rd.	Village Drive	Construct roundabout	NA	$450,000
	TS-10	Gale Lemerand Dr.	O'Connell Center Parking Lot Entrance	Construct NBLlane, SBR lane, and reconstruct EBR lane with pedestrian refuge	200	$ 30,000
	TS-11	Newell Dr.	Brain Institute and ARB	Reconfigure two stop-controlled intersections into one 3-way stop (includes restriping and modifications to curb ramp locations)	NA	$ 20,000
*	TS-12	Union Rd. and Fletcher Dr.	Newell Hall to Dauer Hall	Construct pedestrian and service access improvements (includes removal of some on-street parking)	NA	$ 45,000
	TS-13	Fletcher Dr.	Ustler Hall to Yardley Courtyards	Construct pedestrian access improvements	NA	$ 45,000
	TS-14	Mowry Dr.	Gale Lemerand Dr.	Construct WBR lane and provide a dedicated SBL turn lane as feasible (can be accomplished in road reconstruction project)	300	$ 50,000
	TS-15	Museum Rd.	Hull Rd.	Construct roundabout	NA	$ 450,000
	TS-16	Hull Rd.	Mowry Rd.	Construct roundabout (or interim southbound right turn lane)	NA	$ 450,000
	TOTAL COST				NA	**$ 2,317,000**

PAGE 8-28
March 2006

*Project has been completed.

** Project is funded but has not been completed.

*** Project partially completed (restripe NBR lane and bicycle lane).

The following nine on-campus intersections were the focus of the analysis:

Five signalized intersections, as follows:

- Stadium Road at Gale Lemerand Drive
- Museum Road at Gale Lemerand Drive
- Museum Road at Center Drive
- Museum Road at Newell Drive
- Gale Lemerand Drive at Mowry Road

Four non-signalized intersections were also included in the analysis. They are:

- Museum Road at Village Drive (SW 25th Street)
- Radio Road at Museum Road
- Museum Road at Hull Road
- Mowry Road at SW 23rd Drive

In addition, 36 other intersections were included in the Synchro network to ensure the program accounted for effects from adjacent intersections. For purposes of this analysis, the discussion focuses on the on-campus intersections.

The 2005 Campus Master Plan Update analyzed AM peak hour operations for existing (2005) and future (2015) conditions using Synchro and Vissim. The updated Synchro analyses presented in this report include AM and PM peak hour analyses for existing (2009) and future (2020) conditions. Future conditions were evaluated in two scenarios: (1) without any network improvements from existing conditions and (2) with timing and physical roadway improvements.

Intersections and their priority improvements were evaluated based on the volume-to-capacity (V/C) ratio. A V/C ratio greater than 1.0 means the intersection is experiencing greater demand than it can process, resulting in frequent backups, high average delays, long queue lengths and overall poor operating conditions. At this condition, the intersection is operating over capacity. In general, priority improvements were considered unnecessary for any intersection operating with a future (V/C) ratio under 1.0. Priority improvements for any of the intersections operating with a V/C ratio over 1.0 are recommended if the Synchro analysis showed the improvements increased capacity. The following sections provide the results from the Synchro analyses and recommendations for roadway improvements.

EXISTING (2009) CONDITIONS ANALYSIS

The results of the existing conditions analysis are shown in **Table 2** below. Generally, the original nine intersections are operating at acceptable conditions in the AM peak hour. Two of the nine intersections have a V/C ratio greater than 1.0 in the PM peak hour: Museum Road at Gale Lemerand Drive and Museum Road at Radio Road. The traffic counts used for this analysis were taken in April 2009, prior to the opening of Garage 13 at the Mowry Road/Gale Lemerand Drive intersection. It is anticipated that more recent counts would indicate a higher level of congestion at these intersections.

Based on existing conditions, UF 2005 Priority Projects TS-5 (Traffic Signal Equipment Upgrade & Timing Study) and TS-7 (Construct Roundabout at Museum Road and Radio Road) are needed to address existing traffic congestion at the intersections of Museum Road at Gale Lemerand Drive and Radio Road. Using the pre-timed signal timings, the Synchro analysis showed the intersection of SW 34th Street at Archer Road operating with extremely high delays and long queues. We expect the City has already implemented actuated signal control at this location, and have adjusted the timings accordingly in Synchro. **Table 2** reflects the adjustments for actuated control at this intersection.

Table 2: Intersection Analysis, Existing (2009) Conditions for AM and PM Peak Hours

Existing Conditions	AM PEAK							PM PEAK						
Signalized	Intersection LOS	Intersection V/C Ratio	Intersection Delay	Peak Direction	Critical Movement	Critical V/C	Critical Delay	Intersection LOS	Intersection V/C Ratio	Intersection Delay	Peak Direction	Critical Movement	Critical V/C	Critical Delay
Stadium Rd & Gale Lemerand Drive	A	0.53	6.8	SB	-	-	-	A	0.66	8.7	NB	-	-	-
Museum Rd & Gale Lemerand Drive	C	0.69	26.9	EB	-	-	-	C	0.66	27.3	NB	-	-	-
Museum Rd & Center Drive	A	0.5	4.8	EB	-	-	-	B	0.65	15.4	EB	-	-	-
Museum Rd & Newell Drive	B	0.53	13.6	EB	-	-	-	C	0.72	20.3	EB	-	-	-
Gale Lemerand Drive & Mowry Drive	A	0.71	8.7	NB	-	-	-	A	0.76	9.7	SB	-	-	-
Unsignalized	Intersection LOS	Intersection V/C Ratio	Intersection Delay	Peak Direction	Critical Movement	Critical V/C	Critical Delay	Intersection LOS	Intersection V/C Ratio	Intersection Delay	Peak Direction	Critical Movement	Critical V/C	Critical Delay
Museum Rd & Village Drive	-	0.35	5.9	EB	-	-	-	-	0.54	4.6	WB	-	-	-
Radio Rd & Museum Rd	-	0.54	-	EB	-	-	-	-	0.78	-	SB	-	-	-
Museum Rd & Hull Rd	-	0.57	-	EB	-	-	-	-	0.88	-	WB	-	-	-
Hull Rd & Mowry/23rd Drive	-	0.44	12.9	EB	-	-	-	-	0.69	9.0	SB	-	-	-

FUTURE (2020) CONDITIONS ANALYSIS

The future traffic volumes were calculated by applying a growth rate to the existing traffic volumes. On-campus traffic volumes were estimated using the travel demand model for the Gainesville Urbanized Area 2035 Long Range Transportation Plan, which accounts for the University's future student enrollment and employment projections. The model provides traffic volume estimates for 2007 and 2035. A select zone analysis of the university traffic analysis zones provided traffic volumes for 2007 and 2035. Assuming a linear rate of growth, the projected increase in on-campus traffic between 2007 and 2020 is 5.4 percent, which was applied to the existing traffic volumes on-campus and roads leading into or out of campus to estimate the 2020 future on-campus traffic volumes.

The off-campus 2020 future traffic volumes were calculated using the Florida Department of Transportation's (FDOT's) standard growth rate of 2.0 percent per year, rather than the historic growth rate in this area, which is flat and would be too low to provide realistic results for the network. Between 2009 and 2020, FDOT's standard growth rate translates to a total 22 percent increase in off-campus traffic volumes, which was only applied to non-campus-related background traffic along these facilities.

The contrast in on-campus and off-campus growth rates reflects the difference in traffic growth projections and management strategies between the City of Gainesville and FDOT. The City of Gainesville and the University of Florida expect to accommodate future transportation demand by providing a robust transit system and increasing the non-motorized mode share. This strategy is not reflected in the FDOT standard growth rate. This difference suggests that the actual future volumes for turning movements into and out of campus at off-campus intersections may be lower than the projected volumes used in this analysis, as some of these trips may occur in other modes.

FUTURE CONDITIONS WITHOUT ROADWAY IMPROVEMENTS

The 2020 future traffic volumes were applied to the existing conditions road network in Synchro. **Table 3** shows the results of the Synchro analysis assuming no changes to the roadway network between 2009 and 2020.

Without any roadway improvements, the increase in traffic volumes slightly worsens overall operating conditions. The two intersections that were operating over capacity in the PM peak hour in existing conditions (Museum Road at Gale Lemerand Drive and Museum Road at Radio Road) are continuing to experience demand beyond available capacity in the PM peak hour. The intersection of Museum Road at Hull Road (unsignalized) is also projected to operate poorly, experiencing a failing level of service even though the V/C ratio is less than 1.0.

Additionally, the unsignalized intersection of Hull Road and Bledsoe Drive is operating above capacity in the PM peak hour.

Table 3: Intersection Analysis, 2020 Conditions Without Improvements for AM and PM Peak Hours

2020 Conditions with No Improvements	AM PEAK							PM PEAK						
Signalized	**Intersection LOS**	**Intersection V/C Ratio**	**Intersection Delay**	**Peak Direction**	**Critical Movement**	**Critical V/C**	**Critical Delay**	**Intersection LOS**	**Intersection V/C Ratio**	**Intersection Delay**	**Peak Direction**	**Critical Movement**	**Critical V/C**	**Critical Delay**
Stadium Rd & Gale Lemerand Drive	A	0.53	8.7	SB	-	-	-	B	0.67	17.5	NB	-	-	-
Museum Rd & Gale Lemerand Drive	D	0.69	38.1	EB	-	-	-	E	0.75	57.4	NB	WB Thru	1.2	140.4
Museum Rd & Center Drive	B	0.5	10.6	EB	-	-	-	B	0.65	18.6	EB	-	-	-
Museum Rd & Newell Drive	B	0.53	13.6	EB	-	-	-	C	0.72	20.3	EB	-	-	-
Gale Lemerand Drive & Mowry Drive	A	0.71	8.7	NB	-	-	-	A	0.76	9.1	SB	-	-	-
Unsignalized	**Intersection LOS**	**Intersection V/C Ratio**	**Intersection Delay**	**Peak Direction**	**Critical Movement**	**Critical V/C**	**Critical Delay**	**Intersection LOS**	**Intersection V/C Ratio**	**Intersection Delay**	**Peak Direction**	**Critical Movement**	**Critical V/C**	**Critical Delay**
Museum Rd & Village Drive	-	0.35	5.9	EB	-	-	-	-	0.54	4.2	WB	-	-	-
Radio Rd & Museum Rd	-	0.42	7.9	EB	-	-	-	-	0.61	35.1	SB	EBL/EBR	1.22	181.3
Museum Rd & Hull Rd	-	0.57	4.4	EB	-	-	-	-	0.88	15.6	WB	-	-	-
Hull Rd & Mowry/23rd Drive	-	0.44	12.9	EB	-	-	-	-	0.69	9.0	SB	-	-	-

RE-EVALUATION OF PRIORITY PROJECTS

The two intersections of Museum Road with Gale Lemerand Drive and Radio Road are already operating over capacity in the existing PM peak hour, with conditions expected to worsen in the future. As such, the following two priority projects at these intersections were tested in Synchro and improved operating conditions:

- TS-6: Construct westbound right turn lane along Museum Road at Gale Lemerand Drive
- TS-7: Construct roundabout at the intersection of Museum Road and Radio Road

Priority improvement TS-1 and a portion of TS-8 (restriping the NBR lane and bicycle lane) are completed at this time and were incorporated into the analysis as such. The on-campus signalized intersections for which priority improvements were recommended are expected to operate under capacity. Vehicles will experience average delays of 40 seconds or less, with the exception of Museum Road at Hull Road. Therefore, priority projects TS-2, TS-9, TS-14, and the remaining portion of TS-8 (NB right-turn arrow) are unnecessary to accommodate projected 2020 traffic volumes. In the PM peak hour, the intersection of Museum Road and Hull Road is expected to operate at level of service F with an average delay of 65 seconds and a V/C ratio of 0.9.

Signal cycle lengths and network offsets were optimized for the entire road network using the Synchro software, resulting in improved operating conditions at many on-campus and off-campus intersections, including the intersection of Museum Road and Hull Road, which is unsignalized. These results demonstrate the need for UF Priority Project TS-5 Traffic Signal Equipment Upgrade and Timing Study.

OTHER IMPROVEMENTS

The Synchro analysis shows optimizing the cycle lengths and changing the signal control type from pre-timed to actuated/coordinated will improve future traffic operations at 18 of the 26 off campus intersections, as detailed in the Recommendations section of this report. A network-wide traffic signal equipment and upgrade study will help to identify these and other potential benefits from signal retiming. The City of Gainesville is implementing a Citywide Traffic Management System that will address these signalization issues. The recommendations described above were modeled in the Synchro network, and the results of the analysis are displayed in **Table 4**.

Installing a dedicated right turn lane at the southbound approach of SW 13th Street at Museum Road and at the northbound approach of SW 34th Street at Hull Road would increase capacity. These two projects would marginally improve operations, but they would not reduce congestion enough to achieve a non-failing level of service at these high volume intersections. Because of adjacent property and right-of-way constraints, construction of these projects is unlikely, and these projects are not included in the final Synchro analysis summarized in **Table 4**. Alternate lower-cost solutions for these locations, such as variable message signs restricting turning movements during peak hours, should be considered.

Table 4: Intersection Analysis, 2020 Conditions With Improvements for AM and PM Peak Hours

Existing Conditions	AM PEAK							PM PEAK						
Signalized	**Intersection LOS**	**Intersection V/C Ratio**	**Intersection Delay**	**Peak Direction**	**Critical Movement**	**Critical V/C**	**Critical Delay**	**Intersection LOS**	**Intersection V/C Ratio**	**Intersection Delay**	**Peak Direction**	**Critical Movement**	**Critical V/C**	**Critical Delay**
Stadium Rd & Gale Lemerand Drive	A	0.53	6.8	SB	-	-	-	A	0.66	8.7	NB	-	-	-
Museum Rd & Gale Lemerand Drive	C	0.69	26.9	EB	-	-	-	C	0.66	27.3	NB	-	-	-
Museum Rd & Center Drive	A	0.5	4.8	EB	-	-	-	B	0.65	15.4	EB	-	-	-
Museum Rd & Newell Drive	B	0.53	13.6	EB	-	-	-	C	0.72	20.3	EB	-	-	-
Gale Lemerand Drive & Mowry Drive	A	0.71	8.7	NB	-	-	-	A	0.76	9.7	SB	-	-	-
Unsignalized	**Intersection LOS**	**Intersection V/C Ratio**	**Intersection Delay**	**Peak Direction**	**Critical Movement**	**Critical V/C**	**Critical Delay**	**Intersection LOS**	**Intersection V/C Ratio**	**Intersection Delay**	**Peak Direction**	**Critical Movement**	**Critical V/C**	**Critical Delay**
Museum Rd & Village Drive	-	0.35	5.9	EB	-	-	-	-	0.54	4.6	WB	-	-	-
Radio Rd & Museum Rd	-	0.54	-	EB	-	-	-	-	0.78	-	SB	-	-	-
Museum Rd & Hull Rd	-	0.57	-	EB	-	-	-	-	0.88	-	WB	-	-	-
Hull Rd & Mowry/23rd Drive	-	0.44	12.9	EB	-	-	-	-	0.69	9.0	SB	-	-	-

RECOMMENDATIONS

Six of the 16 previously identified Priority Projects should be high priorities since they are needed to meet current demand and continue to be needed for projected demand in 2020: TS-3, TS-5, TS-6, TS-7, TS-15, and TS-16. **Table 5** summarizes results of the re-evaluation of these Priority Projects.

Table 5: Re-evaluation of 2005 Intersection and Transportation System Management Priorities

UF Intersection and Transportation System Management Priorities, 2005						
Priority	**Roadway**	**At**	**Description**	**Length**	**Cost**	**Needed**
TS-1	Museum Rd	Newell Dr	Lengthen EBL lane by restriping center lane	100	$ 1,000	Completed
TS-2	Center Dr	Museum Rd	Lengthen NBL lane by restriping	100	$ 1,000	No
TS-3	Village Dr	SW 2nd Ave	Lengthen NBL lane by restriping	100	$ 1,000	Yes
TS-5	Campuswide	Five signalized intersections	Traffic Signal Equipment Upgrade and Timing Study	NA	$ 270,000	Yes
TS-6	Museum Rd	Gale Lemerand Dr	Construct WBR lane	300	$ 40,000	Yes
TS-7	Museum Rd	Radio Rd	Construct roundabout	NA	$ 450,000	Yes
TS-8	Museum Rd	Gale Lemerand Dr	Restripe NBR lane and bicycle lane; and install NB right-turn arrow (assumes mast arm will bear weight of signal head)	500	$ 10,000	Partially Completed; Remainder not needed
TS-9	Museum Rd	Village Dr	Construct roundabout	NA	$ 450,000	No
TS-14	Mowry Dr	Gale Lemerand Dr	Construct WBR lane and provide a dedicated SBL turn lane as feasible (can be accomplished in road reconstruction project)	300	$ 50,000	No
TS-15	Museum Rd	Hull Rd	Construct roundabout	NA	$ 450,000	Yes
TS-16	Hull Rd	Mowry Rd	Construct roundabout	NA	$ 450,000	Yes*
				Total Costs	**$1,211,000**	

* Traffic Analysis doesn't conclude that this project is needed but traffic data was collected before the new garage was built

The costs for the recommended improvements to the on-campus intersections are summarized in **Table 6**. To calculate costs for the recommended improvements, the 2005 cost estimates were reviewed and updated as appropriate, using the same methodology used for the Gainesville MTPO's Year 2035 LRTP. For the roundabouts, the 2005 construction cost estimate was consistent with actual construction cost for a recent project by the City of Gainesville, and the estimates were updated to include PD&E and right-of-way cost. The right turn lane cost was also updated to reflect current construction costs.

Table 6: Recommended Project Costs

On Campus Intersections in Study Area						
Projects Needed						
Signalized	**Project Description**	**Cost Per Mile**	**Length in Miles**	**Construction Cost**	**PD&E**	**Total Cost**
Museum Road & Gale Lemerand Drive	Construct WB Right Turn Lane (300')	$ 1,150,000	0.06	$ 69,000	$ 6,900	$ 75,900
Village Dr & SW 2nd Ave	Lengthen North Bound Left Turn Lane by Restriping (100')	-	-	-	-	$ 1,000
Campuswide	Traffic Signal Equipment Upgrade and Timing Study*	-	-	-	-	$ 270,000
Unsignalized	**Project Description**	**Cost Per Mile**	**Length in Miles**	**Construction Cost**	**PD&E**	**Total Cost**
Radio Road & Museum Road	Construct roundabout**	-	-	$ 450,000	$ 45,000	$ 495,000
Hull Road & Museum Road	Construct roundabout**	-	-	$ 450,000	$ 45,000	$ 495,000
Hull Road & Mowry Road***	Construct roundabout**	-	-	$ 450,000	$ 45,000	$ 495,000

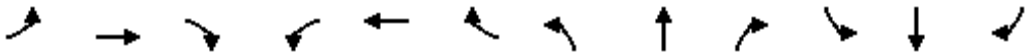
* Project is funded.
** Construction costs come from Table 8-3, Universtiy of Florida Intersection and Transportation System Management Priorities, 2005 in the University of Florida Campus Master Plan, 2005-2015 Transportation Element.
*** Traffic Analysis does not conclude that this project is needed, but traffic data were collected before the new garage was built.

The Synchro analysis indicates that operating conditions at the following on-campus intersections can be improved by upgrading traffic signals and optimizing signal cycle lengths (Priority TS-5):

- Newell Drive and Museum Road
- Center Road and Museum Road
- Gale Lemerand Drive and Museum Road
- Gale Lemerand Drive and Stadium Road

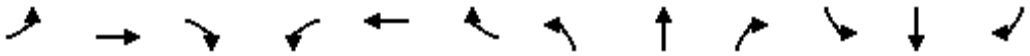
The recommendations shown in **Table 6,** including the adjustment of the traffic signals, will increase the carrying capacity of the on-campus roadway network and relieve existing and anticipated traffic congestion.

APPENDIX: SYNCHRO MODEL RESULTS



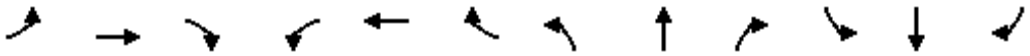
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	75	96	34	19	13	21	129	62	33	300	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.97		1.00	0.96		1.00	0.99	
Flpb, ped/bikes	0.95	1.00		0.96	1.00		0.94	1.00		0.92	1.00	
Frt	1.00	0.92		1.00	0.94		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1677	1636		1694	1699		1662	1700		1625	1803	
Flt Permitted	0.73	1.00		0.64	1.00		0.47	1.00		0.63	1.00	
Satd. Flow (perm)	1296	1636		1142	1699		818	1700		1075	1803	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	82	104	37	21	14	23	140	67	36	326	43
RTOR Reduction (vph)	0	62	0	0	8	0	0	40	0	0	12	0
Lane Group Flow (vph)	40	124	0	37	27	0	23	167	0	36	357	0
Confl. Peds. (#/hr)	44		44	44		44	87		87	87		87
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8	8		4			6			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	518	654		457	680		327	680		430	721	
v/s Ratio Prot		c0.08			0.02			0.10			c0.20	
v/s Ratio Perm	0.03			0.03			0.03			0.03		
v/c Ratio	0.08	0.19		0.08	0.04		0.07	0.25		0.08	0.50	
Uniform Delay, d1	7.4	7.8		7.4	7.3		7.4	8.0		7.4	9.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		0.3	0.1		0.4	0.9		0.4	2.4	
Delay (s)	7.7	8.4		7.8	7.4		7.8	8.8		7.8	11.4	
Level of Service	A	A		A	A		A	A		A	B	
Approach Delay (s)		8.3			7.6			8.7			11.1	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



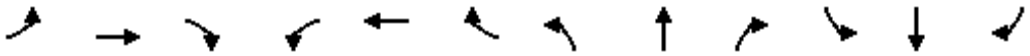
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	98	52	58	67	22	69	441	107	54	239	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.97		1.00	0.95		1.00	0.91	
Flpb, ped/bikes	0.90	1.00		0.91	1.00		0.89	1.00		0.93	1.00	
Frt	1.00	0.95		1.00	0.96		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1598	1686		1613	1736		1567	1724		1640	1611	
Flt Permitted	0.69	1.00		0.65	1.00		0.43	1.00		0.25	1.00	
Satd. Flow (perm)	1167	1686		1109	1736		702	1724		431	1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	107	57	63	73	24	75	479	116	59	260	146
RTOR Reduction (vph)	0	34	0	0	14	0	0	22	0	0	50	0
Lane Group Flow (vph)	75	130	0	63	83	0	75	573	0	59	356	0
Confl. Peds. (#/hr)	89		89	89		89	178		178	178		178
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8	8		4			6			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	467	674		444	694		281	690		172	644	
v/s Ratio Prot		c0.08			0.05			c0.33			0.22	
v/s Ratio Perm	0.06			0.06			0.11			0.14		
v/c Ratio	0.16	0.19		0.14	0.12		0.27	0.83		0.34	0.55	
Uniform Delay, d1	7.7	7.8		7.6	7.6		8.1	10.8		8.3	9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.6		0.7	0.4		2.3	11.2		5.4	3.4	
Delay (s)	8.4	8.4		8.3	7.9		10.4	22.0		13.7	12.6	
Level of Service	A	A		A	A		B	C		B	B	
Approach Delay (s)		8.4			8.1			20.7			12.8	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



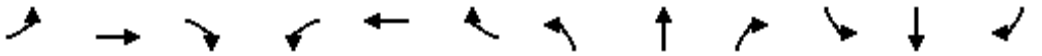
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	328	93	112	148	85	26	155	177	184	210	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.94		1.00	1.00	0.86	1.00	0.98	
Flpb, ped/bikes	0.97	1.00		1.00	1.00		0.97	1.00	1.00	0.95	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1720	1765		1770	1664		1724	1863	1358	1685	1804	
Flt Permitted	0.43	1.00		0.15	1.00		0.42	1.00	1.00	0.57	1.00	
Satd. Flow (perm)	770	1765		276	1664		763	1863	1358	1004	1804	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	357	101	122	161	92	28	168	192	200	228	28
RTOR Reduction (vph)	0	10	0	0	20	0	0	0	140	0	4	0
Lane Group Flow (vph)	38	448	0	122	233	0	28	168	52	200	252	0
Confl. Peds. (#/hr)	43		43	43		43	40		40	40		40
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	42.0	27.0		42.0	27.0		42.0	27.0	27.0	42.0	27.0	
Effective Green, g (s)	42.0	27.0		42.0	27.0		42.0	27.0	27.0	42.0	27.0	
Actuated g/C Ratio	0.42	0.27		0.42	0.27		0.42	0.27	0.27	0.42	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	466	477		340	449		465	503	367	524	487	
v/s Ratio Prot	0.01	c0.25		c0.05	0.14		0.01	0.09		c0.06	c0.14	
v/s Ratio Perm	0.02			0.10			0.02		0.04	0.10		
v/c Ratio	0.08	0.94		0.36	0.52		0.06	0.33	0.14	0.38	0.52	
Uniform Delay, d1	17.5	35.7		20.5	31.0		17.4	29.3	27.7	19.2	31.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	28.5		2.9	4.2		0.2	1.8	0.8	2.1	3.9	
Delay (s)	17.9	64.1		23.4	35.2		17.7	31.1	28.5	21.3	34.8	
Level of Service	B	E		C	D		B	C	C	C	C	
Approach Delay (s)		60.6			31.4			28.8			28.9	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



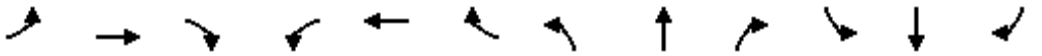
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	242	57	130	322	173	131	358	189	133	170	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.95		1.00	1.00	0.81	1.00	0.95	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.96	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1779		1755	1675		1707	1863	1280	1770	1687	
Flt Permitted	0.15	1.00		0.31	1.00		0.42	1.00	1.00	0.21	1.00	
Satd. Flow (perm)	276	1779		575	1675		750	1863	1280	399	1687	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	263	62	141	350	188	142	389	205	145	185	73
RTOR Reduction (vph)	0	9	0	0	19	0	0	0	150	0	14	0
Lane Group Flow (vph)	76	316	0	141	519	0	142	389	55	145	244	0
Confl. Peds. (#/hr)	41		41	41		41	56		56	56		56
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	42.0	27.0		42.0	27.0		42.0	27.0	27.0	42.0	27.0	
Effective Green, g (s)	42.0	27.0		42.0	27.0		42.0	27.0	27.0	42.0	27.0	
Actuated g/C Ratio	0.42	0.27		0.42	0.27		0.42	0.27	0.27	0.42	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	340	480		419	452		459	503	346	373	455	
v/s Ratio Prot	0.03	0.18		c0.05	c0.31		0.05	c0.21		c0.06	0.14	
v/s Ratio Perm	0.06			0.09			0.08		0.04	0.10		
v/c Ratio	0.22	0.66		0.34	1.15		0.31	0.77	0.16	0.39	0.54	
Uniform Delay, d1	20.3	32.4		19.1	36.5		18.7	33.7	27.8	19.8	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	6.9		2.2	89.7		1.7	11.0	1.0	3.0	4.5	
Delay (s)	21.8	39.3		21.3	126.2		20.5	44.7	28.8	22.9	35.6	
Level of Service	C	D		C	F		C	D	C	C	D	
Approach Delay (s)		36.0			104.4			35.6			31.1	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM Average Control Delay	55.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



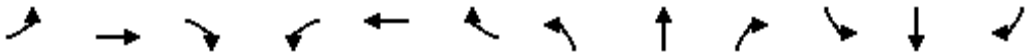
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	319	49	84	264	0	33	0	53	2	16	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.98		1.00	1.00		1.00		0.86	1.00	1.00	0.86
Flpb, ped/bikes		1.00		0.94	1.00		0.88		1.00	0.88	1.00	1.00
Frt		0.98		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		1795		1656	1863		1560		1364	1555	1863	1364
Flt Permitted		1.00		0.43	1.00		0.75		1.00	0.95	1.00	1.00
Satd. Flow (perm)		1795		754	1863		1226		1364	1555	1863	1364
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	347	53	91	287	0	36	0	58	2	17	53
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	35	0	0	32
Lane Group Flow (vph)	0	386	0	91	287	0	36	0	23	2	17	21
Confl. Peds. (#/hr)			98	98			97		97	97		97
Turn Type				Perm			custom		custom	Perm		Perm
Protected Phases		6			2						8	
Permitted Phases				2			4		4	8		8
Actuated Green, G (s)		16.0		16.0	16.0		16.0		16.0	16.0	16.0	16.0
Effective Green, g (s)		16.0		16.0	16.0		16.0		16.0	16.0	16.0	16.0
Actuated g/C Ratio		0.40		0.40	0.40		0.40		0.40	0.40	0.40	0.40
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)		718		302	745		490		546	622	745	546
v/s Ratio Prot		c0.22			0.15						0.01	
v/s Ratio Perm				0.12			c0.03		0.02	0.00		0.02
v/c Ratio		0.54		0.30	0.39		0.07		0.04	0.00	0.02	0.04
Uniform Delay, d1		9.2		8.2	8.5		7.4		7.3	7.2	7.3	7.3
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		2.9		2.5	1.5		0.3		0.1	0.0	0.1	0.1
Delay (s)		12.1		10.7	10.0		7.7		7.5	7.2	7.3	7.4
Level of Service		B		B	B		A		A	A	A	A
Approach Delay (s)		12.1			10.2			7.6			7.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	505	27	65	411	0	139	0	187	7	12	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.99		1.00	1.00		1.00		0.51	1.00	1.00	0.51
Flpb, ped/bikes		1.00		0.92	1.00		0.53		1.00	0.52	1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		1826		1619	1863		933		805	918	1863	805
Flt Permitted		1.00		0.25	1.00		0.75		1.00	0.95	1.00	1.00
Satd. Flow (perm)		1826		426	1863		736		805	918	1863	805
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	549	29	71	447	0	151	0	203	8	13	59
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	28	0	0	35
Lane Group Flow (vph)	0	573	0	71	447	0	151	0	175	8	13	24
Confl. Peds. (#/hr)			197	197			385		385	385		385
Turn Type				Perm			custom		custom	Perm		Perm
Protected Phases		6			2						8	
Permitted Phases				2			4		4	8		8
Actuated Green, G (s)		16.0		16.0	16.0		16.0		16.0	16.0	16.0	16.0
Effective Green, g (s)		16.0		16.0	16.0		16.0		16.0	16.0	16.0	16.0
Actuated g/C Ratio		0.40		0.40	0.40		0.40		0.40	0.40	0.40	0.40
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)		730		170	745		294		322	367	745	322
v/s Ratio Prot		c0.31			0.24						0.01	
v/s Ratio Perm				0.17			0.21		c0.22	0.01		0.03
v/c Ratio		0.79		0.42	0.60		0.51		0.54	0.02	0.02	0.07
Uniform Delay, d1		10.5		8.6	9.5		9.1		9.2	7.3	7.3	7.4
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		8.3		7.4	3.6		6.3		6.5	0.1	0.0	0.4
Delay (s)		18.8		16.0	13.0		15.3		15.7	7.4	7.3	7.9
Level of Service		B		B	B		B		B	A	A	A
Approach Delay (s)		18.8			13.4			15.5			7.7	
Approach LOS		B			B			B			A	

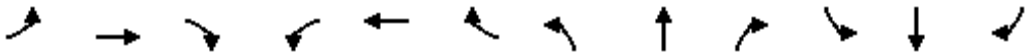
Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	182	135	47	47	242	69	58	73	42	11	22	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.96		1.00	0.91		1.00	0.83	
Flpb, ped/bikes	0.98	1.00		0.93	1.00		0.79	1.00		0.80	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.94		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1726	1717		1652	1737		1399	1600		1424	1394	
Flt Permitted	0.38	1.00		0.63	1.00		0.71	1.00		0.68	1.00	
Satd. Flow (perm)	699	1717		1101	1737		1044	1600		1015	1394	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	198	147	51	51	263	75	63	79	46	12	24	50
RTOR Reduction (vph)	0	10	0	0	10	0	0	25	0	0	41	0
Lane Group Flow (vph)	198	188	0	51	328	0	63	100	0	12	33	0
Confl. Peds. (#/hr)	97		97	97		97	158		158	158		158
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	30.6	23.1		21.3	17.8		8.4	8.4		8.4	8.4	
Effective Green, g (s)	30.6	23.1		21.3	17.8		8.4	8.4		8.4	8.4	
Actuated g/C Ratio	0.65	0.49		0.45	0.38		0.18	0.18		0.18	0.18	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	647	844		540	658		187	286		181	249	
v/s Ratio Prot	c0.06	0.11		0.01	c0.19			c0.06			0.02	
v/s Ratio Perm	0.14			0.04			0.06			0.01		
v/c Ratio	0.31	0.22		0.09	0.50		0.34	0.35		0.07	0.13	
Uniform Delay, d1	3.8	6.8		7.3	11.2		16.9	16.9		16.0	16.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.1		0.1	0.6		1.1	0.7		0.2	0.2	
Delay (s)	4.1	7.0		7.3	11.8		17.9	17.6		16.2	16.5	
Level of Service	A	A		A	B		B	B		B	B	
Approach Delay (s)		5.5			11.2			17.7			16.4	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

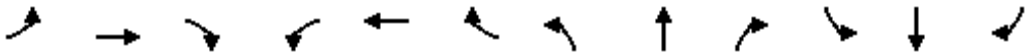
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	361	38	39	295	101	63	133	79	74	50	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.93		1.00	0.87		1.00	0.77	
Flpb, ped/bikes	0.98	1.00		0.93	1.00		0.72	1.00		0.77	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1730	1790		1651	1670		1266	1522		1362	1304	
Flt Permitted	0.30	1.00		0.51	1.00		0.66	1.00		0.50	1.00	
Satd. Flow (perm)	539	1790		888	1670		879	1522		714	1304	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	272	392	41	42	321	110	68	145	86	80	54	91
RTOR Reduction (vph)	0	3	0	0	12	0	0	23	0	0	67	0
Lane Group Flow (vph)	272	430	0	42	419	0	68	208	0	80	78	0
Confl. Peds. (#/hr)	129		129	129		129	179		179	179		179
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	39.0	31.5		27.9	24.4		15.4	15.4		15.4	15.4	
Effective Green, g (s)	39.0	31.5		27.9	24.4		15.4	15.4		15.4	15.4	
Actuated g/C Ratio	0.63	0.50		0.45	0.39		0.25	0.25		0.25	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	539	904		440	653		217	376		176	322	
v/s Ratio Prot	c0.09	0.24		0.01	c0.25			c0.14			0.06	
v/s Ratio Perm	0.23			0.04			0.08			0.11		
v/c Ratio	0.50	0.48		0.10	0.64		0.31	0.55		0.45	0.24	
Uniform Delay, d1	6.8	10.1		9.8	15.5		19.2	20.5		19.9	18.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.4		0.1	2.2		0.8	1.8		1.9	0.4	
Delay (s)	7.6	10.5		9.9	17.6		20.0	22.2		21.8	19.2	
Level of Service	A	B		A	B		C	C		C	B	
Approach Delay (s)		9.3			16.9			21.7			20.1	
Approach LOS		A			B			C			C	

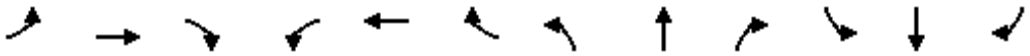
Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	62.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



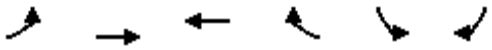
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	136	44	66	46	39	44	405	135	74	149	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.99			0.99			0.99	
Flpb, ped/bikes		0.99	1.00	0.99	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.93			0.97			0.98	
Flt Protected		0.98	1.00	0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1815	1539	1749	1713			3368			3377	
Flt Permitted		0.85	1.00	0.61	1.00			0.91			0.74	
Satd. Flow (perm)		1580	1539	1114	1713			3089			2546	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	148	48	72	50	42	48	440	147	80	162	46
RTOR Reduction (vph)	0	0	29	0	25	0	0	71	0	0	28	0
Lane Group Flow (vph)	0	248	19	72	67	0	0	564	0	0	260	0
Confl. Peds. (#/hr)	22		22	22		22	17		17	17		17
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Effective Green, g (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Actuated g/C Ratio		0.40	0.40	0.40	0.40			0.40			0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)		632	616	446	685			1236			1018	
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.16	0.01	0.06				c0.18			0.10	
v/c Ratio		0.39	0.03	0.16	0.10			0.46			0.26	
Uniform Delay, d1		8.5	7.3	7.7	7.5			8.8			8.0	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.8	0.1	0.8	0.3			1.2			0.6	
Delay (s)		10.4	7.4	8.5	7.8			10.0			8.6	
Level of Service		B	A	A	A			B			A	
Approach Delay (s)		9.9			8.1			10.0			8.6	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	77	47	139	218	99	39	359	28	24	358	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.95	
Frpb, ped/bikes		1.00	0.95	1.00	0.98			1.00			0.99	
Flpb, ped/bikes		0.99	1.00	0.97	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.95			0.99			0.96	
Flt Protected		0.97	1.00	0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1789	1503	1716	1747			3473			3333	
Flt Permitted		0.70	1.00	0.64	1.00			0.88			0.93	
Satd. Flow (perm)		1284	1503	1153	1747			3068			3093	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	84	51	151	237	108	42	390	30	26	389	161
RTOR Reduction (vph)	0	0	31	0	41	0	0	13	0	0	97	0
Lane Group Flow (vph)	0	189	20	151	304	0	0	449	0	0	479	0
Confl. Peds. (#/hr)	53		53	53		53	25		25	25		25
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Effective Green, g (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Actuated g/C Ratio		0.40	0.40	0.40	0.40			0.40			0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)		514	601	461	699			1227			1237	
v/s Ratio Prot					c0.17							
v/s Ratio Perm		0.15	0.01	0.13				0.15			c0.15	
v/c Ratio		0.37	0.03	0.33	0.44			0.37			0.39	
Uniform Delay, d1		8.4	7.3	8.3	8.7			8.4			8.5	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.0	0.1	1.9	2.0			0.8			0.9	
Delay (s)		10.5	7.4	10.2	10.7			9.3			9.4	
Level of Service		B	A	B	B			A			A	
Approach Delay (s)		9.8			10.5			9.3			9.4	
Approach LOS		A			B			A			A	

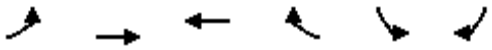
Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	96	320	158	30	133	76
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	104	348	172	33	145	83
Pedestrians		5	5		1	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	205				751	194
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	205				751	194
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				58	90
cM capacity (veh/h)	1365				348	843

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	104	348	204	145	83
Volume Left	104	0	0	145	0
Volume Right	0	0	33	0	83
cSH	1365	1700	1700	348	843
Volume to Capacity	0.08	0.20	0.12	0.42	0.10
Queue Length 95th (ft)	6	0	0	49	8
Control Delay (s)	7.9	0.0	0.0	22.5	9.7
Lane LOS	A			C	A
Approach Delay (s)	1.8		0.0	17.9	
Approach LOS				C	

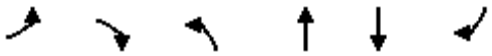
Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	131	297	320	171	60	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	142	323	348	186	65	109
Pedestrians		18	18		2	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	536				1068	461
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	536				1068	461
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				69	82
cM capacity (veh/h)	1031				208	591

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	142	323	534	65	109
Volume Left	142	0	0	65	0
Volume Right	0	0	186	0	109
cSH	1031	1700	1700	208	591
Volume to Capacity	0.14	0.19	0.31	0.31	0.18
Queue Length 95th (ft)	12	0	0	32	17
Control Delay (s)	9.1	0.0	0.0	30.0	12.5
Lane LOS	A			D	B
Approach Delay (s)	2.8		0.0	19.1	
Approach LOS				C	

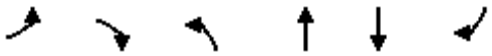
Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	256	63	33	164	104	119
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	278	68	36	178	113	129
Pedestrians	5			7	7	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)		4				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	440	190	247			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440	190	247			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	50	92	97			
cM capacity (veh/h)	553	844	1313			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	347	36	178	242
Volume Left	278	36	0	0
Volume Right	68	0	0	129
cSH	690	1313	1700	1700
Volume to Capacity	0.50	0.03	0.10	0.14
Queue Length 95th (ft)	71	2	0	0
Control Delay (s)	16.3	7.8	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	16.3	1.3		0.0
Approach LOS	C			

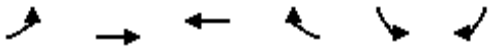
Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	189	31	156	285	251	242
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	205	34	170	310	273	263
Pedestrians	5			16	16	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)		4				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1074	425	541			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1074	425	541			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	95	83			
cM capacity (veh/h)	199	618	1023			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	239	170	310	536
Volume Left	205	170	0	0
Volume Right	34	0	0	263
cSH	226	1023	1700	1700
Volume to Capacity	1.06	0.17	0.18	0.32
Queue Length 95th (ft)	258	15	0	0
Control Delay (s)	121.5	9.2	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	121.5	3.3		0.0
Approach LOS	F			

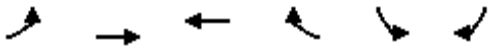
Intersection Summary			
Average Delay	24.4		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	157	321	96	47	30	84
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	171	349	104	51	33	91
Pedestrians		10	10		16	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171				846	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171				846	156
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				89	90
cM capacity (veh/h)	1387				285	871

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	520	155	124
Volume Left	171	0	33
Volume Right	0	51	91
cSH	1387	1700	565
Volume to Capacity	0.12	0.09	0.22
Queue Length 95th (ft)	10	0	21
Control Delay (s)	3.4	0.0	13.1
Lane LOS	A		B
Approach Delay (s)	3.4	0.0	13.1
Approach LOS			B

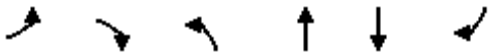
Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	233	193	433	170	27	231
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	253	210	471	185	29	251
Pedestrians		21	21		41	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	696				1341	625
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	696				1341	625
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				74	45
cM capacity (veh/h)	869				113	460

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	463	655	280
Volume Left	253	0	29
Volume Right	0	185	251
cSH	869	1700	348
Volume to Capacity	0.29	0.39	0.81
Queue Length 95th (ft)	30	0	172
Control Delay (s)	7.6	0.0	46.9
Lane LOS	A		E
Approach Delay (s)	7.6	0.0	46.9
Approach LOS			E

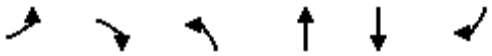
Intersection Summary			
Average Delay	11.9		
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	87	151	186	54	179	313
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	164	202	59	195	340
Pedestrians	2			1	1	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	831	368	537			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	831	368	537			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	65	76	80			
cM capacity (veh/h)	272	676	1030			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	259	261	535
Volume Left	95	202	0
Volume Right	164	0	340
cSH	438	1030	1700
Volume to Capacity	0.59	0.20	0.31
Queue Length 95th (ft)	93	18	0
Control Delay (s)	24.4	7.7	0.0
Lane LOS	C	A	
Approach Delay (s)	24.4	7.7	0.0
Approach LOS	C		

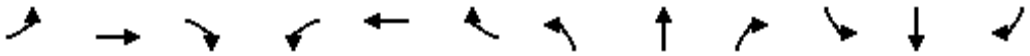
Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	224	101	113	75	28	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	243	110	123	82	30	59
Pedestrians	8			27	27	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			2	2	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	422	95	97			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	422	95	97			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	54	88	92			
cM capacity (veh/h)	524	934	1486			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	353	204	89
Volume Left	243	123	0
Volume Right	110	0	59
cSH	607	1486	1700
Volume to Capacity	0.58	0.08	0.05
Queue Length 95th (ft)	93	7	0
Control Delay (s)	18.9	4.9	0.0
Lane LOS	C	A	
Approach Delay (s)	18.9	4.9	0.0
Approach LOS	C		

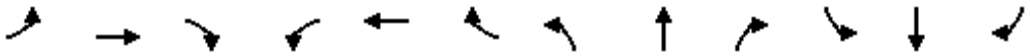
Intersection Summary			
Average Delay	11.8		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	75	96	34	19	13	21	129	62	33	300	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.97		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.95	1.00		0.96	1.00		0.94	1.00		0.92	1.00	
Frt	1.00	0.92		1.00	0.94		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1677	1635		1695	1697		1666	1699		1627	1802	
Flt Permitted	0.73	1.00		0.63	1.00		0.45	1.00		0.62	1.00	
Satd. Flow (perm)	1294	1635		1132	1697		782	1699		1065	1802	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	42	86	110	39	22	15	24	147	71	38	342	46
RTOR Reduction (vph)	0	66	0	0	9	0	0	43	0	0	12	0
Lane Group Flow (vph)	42	130	0	39	28	0	24	175	0	38	376	0
Confl. Peds. (#/hr)	44		44	44		44	87		87	87		87
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8	8		4			6			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	518	654		453	679		313	680		426	721	
v/s Ratio Prot		c0.08			0.02			0.10			c0.21	
v/s Ratio Perm	0.03			0.03			0.03			0.04		
v/c Ratio	0.08	0.20		0.09	0.04		0.08	0.26		0.09	0.52	
Uniform Delay, d1	7.4	7.8		7.5	7.3		7.4	8.0		7.5	9.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.7		0.4	0.1		0.5	0.9		0.4	2.7	
Delay (s)	7.7	8.5		7.8	7.4		7.9	8.9		7.9	11.8	
Level of Service	A	A		A	A		A	A		A	B	
Approach Delay (s)		8.4			7.6			8.8			11.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

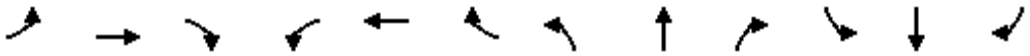
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	98	52	58	67	22	69	441	107	54	239	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.97		1.00	0.95		1.00	0.91	
Flpb, ped/bikes	0.90	1.00		0.91	1.00		0.89	1.00		0.93	1.00	
Frt	1.00	0.95		1.00	0.96		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1599	1688		1614	1736		1575	1724		1650	1612	
Flt Permitted	0.69	1.00		0.65	1.00		0.40	1.00		0.25	1.00	
Satd. Flow (perm)	1164	1688		1103	1736		669	1724		434	1612	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	79	112	59	66	76	25	79	503	122	62	273	153
RTOR Reduction (vph)	0	35	0	0	15	0	0	22	0	0	50	0
Lane Group Flow (vph)	79	136	0	66	86	0	79	603	0	62	376	0
Confl. Peds. (#/hr)	89		89	89		89	178		178	178		178
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8	8		4			6			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	466	675		441	694		268	690		174	645	
v/s Ratio Prot		c0.08			0.05			c0.35			0.23	
v/s Ratio Perm	0.07			0.06			0.12			0.14		
v/c Ratio	0.17	0.20		0.15	0.12		0.29	0.87		0.36	0.58	
Uniform Delay, d1	7.7	7.8		7.7	7.6		8.2	11.1		8.4	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.7		0.7	0.4		2.8	14.5		5.6	3.8	
Delay (s)	8.5	8.5		8.4	7.9		10.9	25.5		14.0	13.2	
Level of Service	A	A		A	A		B	C		B	B	
Approach Delay (s)		8.5			8.1			23.9			13.3	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

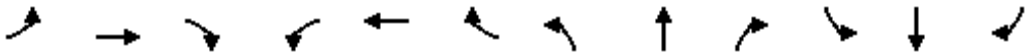
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	328	93	112	148	85	26	155	177	184	210	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.94		1.00	1.00	0.86	1.00	0.98	
Flpb, ped/bikes	0.97	1.00		1.00	1.00		0.98	1.00	1.00	0.95	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1725	1765		1770	1663		1729	1863	1358	1690	1803	
Flt Permitted	0.40	1.00		0.15	1.00		0.40	1.00	1.00	0.55	1.00	
Satd. Flow (perm)	734	1765		276	1663		724	1863	1358	980	1803	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	40	374	106	128	169	97	30	177	202	210	240	30
RTOR Reduction (vph)	0	10	0	0	20	0	0	0	147	0	4	0
Lane Group Flow (vph)	40	470	0	128	246	0	30	177	55	210	266	0
Confl. Peds. (#/hr)	43		43	43		43	40		40	40		40
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	42.0	27.0		42.0	27.0		42.0	27.0	27.0	42.0	27.0	
Effective Green, g (s)	42.0	27.0		42.0	27.0		42.0	27.0	27.0	42.0	27.0	
Actuated g/C Ratio	0.42	0.27		0.42	0.27		0.42	0.27	0.27	0.42	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	457	477		340	449		455	503	367	518	487	
v/s Ratio Prot	0.01	c0.27		c0.06	0.15		0.01	0.10		c0.06	c0.15	
v/s Ratio Perm	0.02			0.10			0.02		0.04	0.11		
v/c Ratio	0.09	0.98		0.38	0.55		0.07	0.35	0.15	0.41	0.55	
Uniform Delay, d1	17.6	36.3		20.9	31.3		17.5	29.4	27.8	19.3	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	37.6		3.2	4.7		0.3	1.9	0.9	2.3	4.3	
Delay (s)	18.0	73.9		24.0	36.0		17.8	31.4	28.6	21.7	35.6	
Level of Service	B	E		C	D		B	C	C	C	D	
Approach Delay (s)		69.6			32.1			29.0			29.5	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM Average Control Delay	41.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

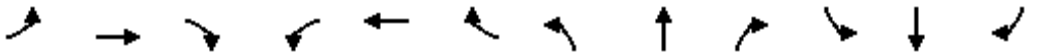
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	242	57	130	322	173	131	358	189	133	170	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.95		1.00	1.00	0.81	1.00	0.95	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1779		1757	1676		1713	1863	1280	1770	1688	
Flt Permitted	0.15	1.00		0.29	1.00		0.40	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	276	1779		531	1676		718	1863	1280	344	1688	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	80	276	65	148	368	197	150	409	216	152	194	76
RTOR Reduction (vph)	0	9	0	0	19	0	0	0	158	0	14	0
Lane Group Flow (vph)	80	332	0	148	546	0	150	409	58	152	256	0
Confl. Peds. (#/hr)	41		41	41		41	56		56	56		56
Turn Type	pm+pt			pm+pt			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	42.0	27.0		42.0	27.0		42.0	27.0	27.0	42.0	27.0	
Effective Green, g (s)	42.0	27.0		42.0	27.0		42.0	27.0	27.0	42.0	27.0	
Actuated g/C Ratio	0.42	0.27		0.42	0.27		0.42	0.27	0.27	0.42	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	340	480		407	453		451	503	346	358	456	
v/s Ratio Prot	0.04	0.19		c0.05	c0.33		0.05	c0.22		c0.06	0.15	
v/s Ratio Perm	0.06			0.10			0.09		0.05	0.11		
v/c Ratio	0.24	0.69		0.36	1.21		0.33	0.81	0.17	0.42	0.56	
Uniform Delay, d1	20.4	32.8		19.4	36.5		18.9	34.1	27.9	20.2	31.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	8.0		2.5	111.7		2.0	13.4	1.1	3.7	4.9	
Delay (s)	22.0	40.7		21.9	148.2		20.9	47.6	29.0	23.9	36.3	
Level of Service	C	D		C	F		C	D	C	C	D	
Approach Delay (s)		37.2			122.0			37.2			31.8	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM Average Control Delay	62.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

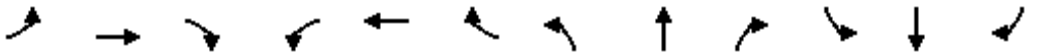
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	319	49	84	264	0	33	0	53	2	16	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.98		1.00	1.00		1.00		0.86	1.00	1.00	0.86
Flpb, ped/bikes		1.00		0.94	1.00		0.88		1.00	0.88	1.00	1.00
Frt		0.98		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		1795		1661	1863		1560		1364	1555	1863	1364
Flt Permitted		1.00		0.41	1.00		0.75		1.00	0.95	1.00	1.00
Satd. Flow (perm)		1795		717	1863		1225		1364	1555	1863	1364
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	0	364	56	96	301	0	38	0	60	2	18	56
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	36	0	0	34
Lane Group Flow (vph)	0	406	0	96	301	0	38	0	24	2	18	22
Confl. Peds. (#/hr)			98	98			97		97	97		97
Turn Type				Perm			custom		custom	Perm		Perm
Protected Phases		6			2						8	
Permitted Phases				2			4		4	8		8
Actuated Green, G (s)		16.0		16.0	16.0		16.0		16.0	16.0	16.0	16.0
Effective Green, g (s)		16.0		16.0	16.0		16.0		16.0	16.0	16.0	16.0
Actuated g/C Ratio		0.40		0.40	0.40		0.40		0.40	0.40	0.40	0.40
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)		718		287	745		490		546	622	745	546
v/s Ratio Prot		c0.23			0.16						0.01	
v/s Ratio Perm				0.13			c0.03		0.02	0.00		0.02
v/c Ratio		0.57		0.33	0.40		0.08		0.04	0.00	0.02	0.04
Uniform Delay, d1		9.3		8.3	8.6		7.4		7.3	7.2	7.3	7.3
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		3.2		3.1	1.6		0.3		0.2	0.0	0.1	0.1
Delay (s)		12.5		11.4	10.2		7.7		7.5	7.2	7.3	7.5
Level of Service		B		B	B		A		A	A	A	A
Approach Delay (s)		12.5			10.5			7.6			7.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

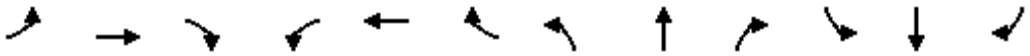
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	505	27	65	411	0	139	0	187	7	12	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.99		1.00	1.00		1.00		0.51	1.00	1.00	0.51
Flpb, ped/bikes		1.00		0.92	1.00		0.53		1.00	0.52	1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825		1630	1863		934		805	918	1863	805
Flt Permitted		1.00		0.25	1.00		0.75		1.00	0.95	1.00	1.00
Satd. Flow (perm)		1825		429	1863		736		805	918	1863	805
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	0	576	31	74	469	0	159	0	213	8	14	62
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	25	0	0	37
Lane Group Flow (vph)	0	602	0	74	469	0	159	0	188	8	14	25
Confl. Peds. (#/hr)			197	197			385		385	385		385
Turn Type				Perm			custom		custom	Perm		Perm
Protected Phases		6			2						8	
Permitted Phases				2			4		4	8		8
Actuated Green, G (s)		16.0		16.0	16.0		16.0		16.0	16.0	16.0	16.0
Effective Green, g (s)		16.0		16.0	16.0		16.0		16.0	16.0	16.0	16.0
Actuated g/C Ratio		0.40		0.40	0.40		0.40		0.40	0.40	0.40	0.40
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)		730		172	745		294		322	367	745	322
v/s Ratio Prot		c0.33			0.25						0.01	
v/s Ratio Perm				0.17			0.22		c0.23	0.01		0.03
v/c Ratio		0.82		0.43	0.63		0.54		0.58	0.02	0.02	0.08
Uniform Delay, d1		10.7		8.7	9.6		9.2		9.4	7.3	7.3	7.4
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		10.3		7.7	4.0		7.0		7.5	0.1	0.0	0.5
Delay (s)		21.0		16.4	13.6		16.2		16.9	7.4	7.3	7.9
Level of Service		C		B	B		B		B	A	A	A
Approach Delay (s)		21.0			14.0			16.6			7.7	
Approach LOS		C			B			B			A	

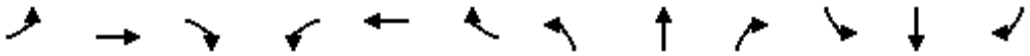
Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	182	135	47	47	242	69	58	73	42	11	22	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.96		1.00	0.91		1.00	0.83	
Flpb, ped/bikes	0.98	1.00		0.93	1.00		0.79	1.00		0.80	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.95		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1728	1714		1651	1735		1390	1596		1417	1387	
Flt Permitted	0.37	1.00		0.63	1.00		0.71	1.00		0.67	1.00	
Satd. Flow (perm)	677	1714		1091	1735		1034	1596		1004	1387	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	208	154	54	54	276	79	66	83	48	13	25	52
RTOR Reduction (vph)	0	10	0	0	10	0	0	25	0	0	43	0
Lane Group Flow (vph)	208	198	0	54	345	0	66	106	0	13	34	0
Confl. Peds. (#/hr)	97		97	97		97	158		158	158		158
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	31.7	24.1		22.3	18.7		8.7	8.7		8.7	8.7	
Effective Green, g (s)	31.7	24.1		22.3	18.7		8.7	8.7		8.7	8.7	
Actuated g/C Ratio	0.65	0.50		0.46	0.39		0.18	0.18		0.18	0.18	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	639	853		544	670		186	287		180	249	
v/s Ratio Prot	c0.06	0.12		0.01	c0.20			c0.07			0.02	
v/s Ratio Perm	0.15			0.04			0.06			0.01		
v/c Ratio	0.33	0.23		0.10	0.52		0.35	0.37		0.07	0.14	
Uniform Delay, d1	4.0	6.9		7.3	11.4		17.4	17.4		16.5	16.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.1		0.1	0.7		1.2	0.8		0.2	0.3	
Delay (s)	4.3	7.0		7.4	12.0		18.6	18.2		16.7	17.0	
Level of Service	A	A		A	B		B	B		B	B	
Approach Delay (s)		5.7			11.4			18.3			16.9	
Approach LOS		A			B			B			B	

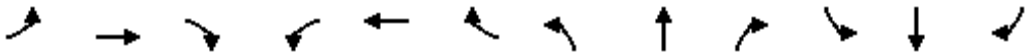
Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	361	38	39	295	101	63	133	79	74	50	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.93		1.00	0.86		1.00	0.76	
Flpb, ped/bikes	0.98	1.00		0.93	1.00		0.71	1.00		0.77	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1734	1788		1652	1665		1255	1511		1359	1287	
Flt Permitted	0.28	1.00		0.50	1.00		0.64	1.00		0.47	1.00	
Satd. Flow (perm)	513	1788		870	1665		842	1511		677	1287	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	285	412	43	45	337	115	72	152	90	84	57	96
RTOR Reduction (vph)	0	3	0	0	11	0	0	23	0	0	67	0
Lane Group Flow (vph)	285	452	0	45	441	0	72	219	0	84	86	0
Confl. Peds. (#/hr)	129		129	129		129	179		179	179		179
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	41.1	33.5		29.6	26.0		16.3	16.3		16.3	16.3	
Effective Green, g (s)	41.1	33.5		29.6	26.0		16.3	16.3		16.3	16.3	
Actuated g/C Ratio	0.63	0.51		0.45	0.40		0.25	0.25		0.25	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	530	916		437	662		210	377		169	321	
v/s Ratio Prot	c0.09	0.25		0.01	c0.26			c0.14			0.07	
v/s Ratio Perm	0.25			0.04			0.09			0.12		
v/c Ratio	0.54	0.49		0.10	0.67		0.34	0.58		0.50	0.27	
Uniform Delay, d1	7.3	10.4		10.1	16.1		20.2	21.5		21.0	19.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.4		0.1	2.5		1.0	2.3		2.3	0.5	
Delay (s)	8.4	10.8		10.2	18.7		21.1	23.8		23.3	20.2	
Level of Service	A	B		B	B		C	C		C	C	
Approach Delay (s)		9.9			17.9			23.2			21.3	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

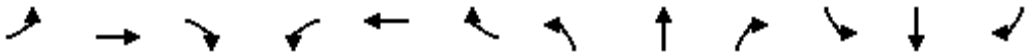
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	136	44	66	46	39	44	405	135	74	149	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.99			0.99			0.99	
Flpb, ped/bikes		0.99	1.00	0.99	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.93			0.97			0.98	
Flt Protected		0.98	1.00	0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1815	1539	1749	1710			3368			3378	
Flt Permitted		0.85	1.00	0.60	1.00			0.91			0.73	
Satd. Flow (perm)		1573	1539	1099	1710			3083			2513	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	105	155	50	75	52	45	50	462	154	84	170	48
RTOR Reduction (vph)	0	0	30	0	27	0	0	70	0	0	29	0
Lane Group Flow (vph)	0	260	20	75	70	0	0	596	0	0	273	0
Confl. Peds. (#/hr)	22		22	22		22	17		17	17		17
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Effective Green, g (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Actuated g/C Ratio		0.40	0.40	0.40	0.40			0.40			0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)		629	616	440	684			1233			1005	
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.17	0.01	0.07				c0.19			0.11	
v/c Ratio		0.41	0.03	0.17	0.10			0.48			0.27	
Uniform Delay, d1		8.6	7.3	7.7	7.5			8.9			8.1	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.0	0.1	0.8	0.3			1.4			0.7	
Delay (s)		10.6	7.4	8.6	7.8			10.3			8.7	
Level of Service		B	A	A	A			B			A	
Approach Delay (s)		10.1			8.1			10.3			8.7	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

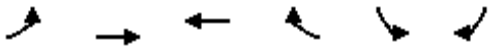
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	77	47	139	218	99	39	359	28	24	358	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.95	
Frpb, ped/bikes		1.00	0.95	1.00	0.98			1.00			0.99	
Flpb, ped/bikes		0.99	1.00	0.97	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.95			0.99			0.96	
Flt Protected		0.97	1.00	0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1789	1503	1716	1747			3472			3333	
Flt Permitted		0.68	1.00	0.63	1.00			0.87			0.92	
Satd. Flow (perm)		1258	1503	1143	1747			3045			3088	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	111	88	54	159	249	113	45	410	32	27	409	169
RTOR Reduction (vph)	0	0	32	0	41	0	0	13	0	0	101	0
Lane Group Flow (vph)	0	199	22	159	321	0	0	474	0	0	504	0
Confl. Peds. (#/hr)	53		53	53		53	25		25	25		25
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Effective Green, g (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Actuated g/C Ratio		0.40	0.40	0.40	0.40			0.40			0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)		503	601	457	699			1218			1235	
v/s Ratio Prot					c0.18							
v/s Ratio Perm		0.16	0.01	0.14				0.16			c0.16	
v/c Ratio		0.40	0.04	0.35	0.46			0.39			0.41	
Uniform Delay, d1		8.6	7.3	8.4	8.8			8.5			8.6	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.3	0.1	2.1	2.2			0.9			1.0	
Delay (s)		10.9	7.4	10.5	11.0			9.5			9.6	
Level of Service		B	A	B	B			A			A	
Approach Delay (s)		10.1			10.8			9.5			9.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

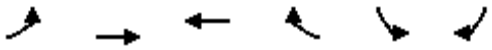
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	96	320	158	30	133	76
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	110	365	180	34	152	87
Pedestrians		5	5		1	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	216				788	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	216				788	203
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				54	90
cM capacity (veh/h)	1353				329	833

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	110	365	215	152	87
Volume Left	110	0	0	152	0
Volume Right	0	0	34	0	87
cSH	1353	1700	1700	329	833
Volume to Capacity	0.08	0.21	0.13	0.46	0.10
Queue Length 95th (ft)	7	0	0	58	9
Control Delay (s)	7.9	0.0	0.0	25.0	9.8
Lane LOS	A			C	A
Approach Delay (s)	1.8		0.0	19.5	
Approach LOS				C	

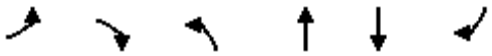
Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	131	297	320	171	60	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	150	339	365	195	68	114
Pedestrians		18	18		2	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	562				1121	483
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	562				1121	483
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				64	80
cM capacity (veh/h)	1007				191	574

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	150	339	560	68	114
Volume Left	150	0	0	68	0
Volume Right	0	0	195	0	114
cSH	1007	1700	1700	191	574
Volume to Capacity	0.15	0.20	0.33	0.36	0.20
Queue Length 95th (ft)	13	0	0	38	18
Control Delay (s)	9.2	0.0	0.0	34.0	12.8
Lane LOS	A			D	B
Approach Delay (s)	2.8		0.0	20.8	
Approach LOS				C	

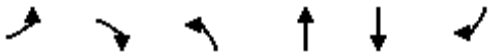
Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	256	63	33	164	104	119
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	292	72	38	187	119	136
Pedestrians	5			7	7	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)		4				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	461	199	260			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	461	199	260			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	46	91	97			
cM capacity (veh/h)	537	834	1300			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	364	38	187	255
Volume Left	292	38	0	0
Volume Right	72	0	0	136
cSH	669	1300	1700	1700
Volume to Capacity	0.54	0.03	0.11	0.15
Queue Length 95th (ft)	82	2	0	0
Control Delay (s)	17.5	7.9	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	17.5	1.3		0.0
Approach LOS	C			

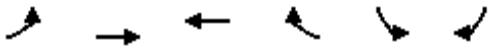
Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	189	31	156	285	251	242
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	216	35	178	325	286	276
Pedestrians	5			16	16	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)		4				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1127	446	568			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1127	446	568			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	94	82			
cM capacity (veh/h)	183	602	1000			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	251	178	325	563
Volume Left	216	178	0	0
Volume Right	35	0	0	276
cSH	206	1000	1700	1700
Volume to Capacity	1.22	0.18	0.19	0.33
Queue Length 95th (ft)	323	16	0	0
Control Delay (s)	181.3	9.4	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	181.3	3.3		0.0
Approach LOS	F			

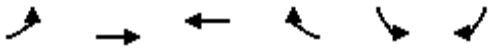
Intersection Summary			
Average Delay	35.8		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	157	321	96	47	30	84
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	179	366	110	54	34	96
Pedestrians		10	10		16	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	179				887	162
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	179				887	162
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	87				87	89
cM capacity (veh/h)	1378				268	863

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	546	163	130
Volume Left	179	0	34
Volume Right	0	54	96
cSH	1378	1700	545
Volume to Capacity	0.13	0.10	0.24
Queue Length 95th (ft)	11	0	23
Control Delay (s)	3.5	0.0	13.7
Lane LOS	A		B
Approach Delay (s)	3.5	0.0	13.7
Approach LOS			B

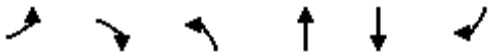
Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	233	193	433	170	27	231
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	266	220	494	194	31	264
Pedestrians		21	21		41	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	729				1405	653
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	729				1405	653
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	69				69	41
cM capacity (veh/h)	845				100	443

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	486	688	294
Volume Left	266	0	31
Volume Right	0	194	264
cSH	845	1700	326
Volume to Capacity	0.31	0.40	0.90
Queue Length 95th (ft)	34	0	218
Control Delay (s)	8.0	0.0	64.8
Lane LOS	A		F
Approach Delay (s)	8.0	0.0	64.8
Approach LOS			F

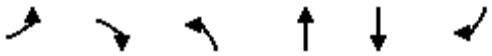
Intersection Summary			
Average Delay	15.6		
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	224	101	113	75	28	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	256	115	129	86	32	62
Pedestrians	8			27	27	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			2	2	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	441	98	102			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	98	102			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	50	88	91			
cM capacity (veh/h)	508	930	1481			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	371	215	94
Volume Left	256	129	0
Volume Right	115	0	62
cSH	592	1481	1700
Volume to Capacity	0.63	0.09	0.06
Queue Length 95th (ft)	109	7	0
Control Delay (s)	20.7	4.9	0.0
Lane LOS	C	A	
Approach Delay (s)	20.7	4.9	0.0
Approach LOS	C		

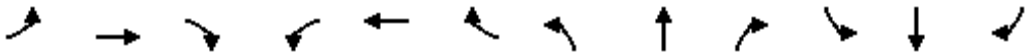
Intersection Summary			
Average Delay	12.9		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	87	151	186	54	179	313
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	99	172	212	62	204	357
Pedestrians	2			1	1	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	872	386	564			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	872	386	564			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	61	74	79			
cM capacity (veh/h)	253	660	1006			

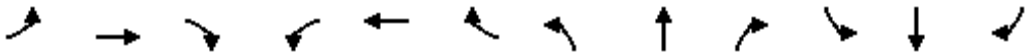
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	272	274	562
Volume Left	99	212	0
Volume Right	172	0	357
cSH	415	1006	1700
Volume to Capacity	0.65	0.21	0.33
Queue Length 95th (ft)	113	20	0
Control Delay (s)	28.6	7.9	0.0
Lane LOS	D	A	
Approach Delay (s)	28.6	7.9	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	9.0		
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		



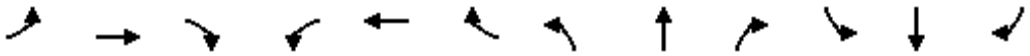
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	75	96	34	19	13	21	129	62	33	300	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.97		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.95	1.00		0.96	1.00		0.94	1.00		0.92	1.00	
Frt	1.00	0.92		1.00	0.94		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1677	1635		1696	1697		1658	1699		1627	1802	
Flt Permitted	0.73	1.00		0.63	1.00		0.53	1.00		0.62	1.00	
Satd. Flow (perm)	1294	1635		1125	1697		925	1699		1065	1802	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	42	86	110	39	22	15	24	147	71	38	342	46
RTOR Reduction (vph)	0	91	0	0	12	0	0	26	0	0	7	0
Lane Group Flow (vph)	42	105	0	39	25	0	24	192	0	38	381	0
Confl. Peds. (#/hr)	44		44	44		44	87		87	87		87
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8	8		4			6			2		
Actuated Green, G (s)	6.9	6.9		6.9	6.9		25.1	25.1		25.1	25.1	
Effective Green, g (s)	6.9	6.9		6.9	6.9		25.1	25.1		25.1	25.1	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.63	0.63		0.63	0.63	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	223	282		194	293		580	1066		668	1131	
v/s Ratio Prot		c0.06			0.01			0.11			c0.21	
v/s Ratio Perm	0.03			0.03			0.03			0.04		
v/c Ratio	0.19	0.37		0.20	0.08		0.04	0.18		0.06	0.34	
Uniform Delay, d1	14.2	14.6		14.2	13.9		2.8	3.1		2.9	3.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.8		0.5	0.1		0.0	0.1		0.2	0.8	
Delay (s)	14.6	15.5		14.7	14.0		2.9	3.2		3.0	4.3	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		15.3			14.4			3.2			4.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



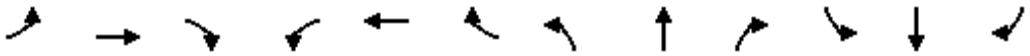
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	98	52	58	67	22	69	441	107	54	239	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.97		1.00	0.95		1.00	0.91	
Flpb, ped/bikes	0.90	1.00		0.91	1.00		0.88	1.00		0.92	1.00	
Frt	1.00	0.95		1.00	0.96		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1599	1688		1614	1736		1557	1724		1625	1612	
Flt Permitted	0.69	1.00		0.65	1.00		0.50	1.00		0.36	1.00	
Satd. Flow (perm)	1164	1688		1103	1736		818	1724		611	1612	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	79	112	59	66	76	25	79	503	122	62	273	153
RTOR Reduction (vph)	0	48	0	0	21	0	0	14	0	0	32	0
Lane Group Flow (vph)	79	123	0	66	81	0	79	611	0	62	394	0
Confl. Peds. (#/hr)	89		89	89		89	178		178	178		178
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8	8		4			6			2		
Actuated Green, G (s)	7.2	7.2		7.2	7.2		24.8	24.8		24.8	24.8	
Effective Green, g (s)	7.2	7.2		7.2	7.2		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.62	0.62		0.62	0.62	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	210	304		199	312		507	1069		379	999	
v/s Ratio Prot		c0.07			0.05			c0.35			0.24	
v/s Ratio Perm	0.07			0.06			0.10			0.10		
v/c Ratio	0.38	0.40		0.33	0.26		0.16	0.57		0.16	0.39	
Uniform Delay, d1	14.4	14.5		14.3	14.1		3.2	4.5		3.2	3.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.9		1.0	0.4		0.1	0.7		0.9	1.2	
Delay (s)	15.6	15.4		15.3	14.5		3.3	5.2		4.1	5.0	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		15.4			14.8			5.0			4.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



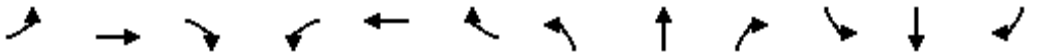
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	328	93	112	148	85	26	155	177	184	210	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.86	1.00	0.98	
Flpb, ped/bikes	0.93	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.97	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1651	1765		1770	1863	1343	1683	1863	1358	1708	1803	
Flt Permitted	0.65	1.00		0.16	1.00	1.00	0.59	1.00	1.00	0.49	1.00	
Satd. Flow (perm)	1130	1765		306	1863	1343	1051	1863	1358	890	1803	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	40	374	106	128	169	97	30	177	202	210	240	30
RTOR Reduction (vph)	0	9	0	0	0	60	0	0	143	0	4	0
Lane Group Flow (vph)	40	471	0	128	169	37	30	177	59	210	266	0
Confl. Peds. (#/hr)	43		43	43		43	40		40	40		40
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	37.3	32.8		46.6	38.1	38.1	33.3	29.1	29.1	45.4	37.2	
Effective Green, g (s)	37.3	32.8		46.6	38.1	38.1	33.3	29.1	29.1	45.4	37.2	
Actuated g/C Ratio	0.37	0.33		0.47	0.38	0.38	0.33	0.29	0.29	0.45	0.37	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	445	579		286	710	512	377	542	395	505	671	
v/s Ratio Prot	0.00	c0.27		c0.04	0.09		0.00	0.10		c0.05	0.15	
v/s Ratio Perm	0.03			0.16		0.03	0.02		0.04	c0.14		
v/c Ratio	0.09	0.81		0.45	0.24	0.07	0.08	0.33	0.15	0.42	0.40	
Uniform Delay, d1	20.1	30.8		18.8	21.1	19.7	22.6	27.8	26.3	17.4	23.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	8.5		1.1	0.2	0.1	0.1	1.6	0.8	0.6	0.4	
Delay (s)	20.2	39.3		20.0	21.2	19.8	22.7	29.4	27.1	17.9	23.5	
Level of Service	C	D		B	C	B	C	C	C	B	C	
Approach Delay (s)		37.8			20.5			27.7			21.1	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



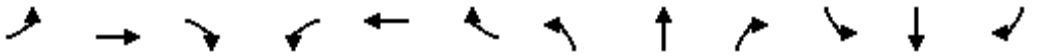
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	242	57	130	322	173	131	358	189	133	170	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.81	1.00	0.95	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	0.96	1.00	1.00	0.98	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1746	1779		1770	1863	1353	1692	1863	1280	1740	1688	
Flt Permitted	0.30	1.00		0.20	1.00	1.00	0.49	1.00	1.00	0.34	1.00	
Satd. Flow (perm)	549	1779		373	1863	1353	874	1863	1280	616	1688	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	80	276	65	148	368	197	150	409	216	152	194	76
RTOR Reduction (vph)	0	9	0	0	0	142	0	0	132	0	12	0
Lane Group Flow (vph)	80	332	0	148	368	55	150	409	84	152	258	0
Confl. Peds. (#/hr)	41		41	41		41	56		56	56		56
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	30.9	23.8		38.7	27.7	27.7	49.2	39.1	39.1	49.2	39.1	
Effective Green, g (s)	30.9	23.8		38.7	27.7	27.7	49.2	39.1	39.1	49.2	39.1	
Actuated g/C Ratio	0.31	0.24		0.39	0.28	0.28	0.49	0.39	0.39	0.49	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	255	423		298	516	375	513	728	500	417	660	
v/s Ratio Prot	0.02	0.19		c0.05	c0.20		0.03	c0.22		c0.04	0.15	
v/s Ratio Perm	0.07			0.14		0.04	0.11		0.07	0.14		
v/c Ratio	0.31	0.78		0.50	0.71	0.15	0.29	0.56	0.17	0.36	0.39	
Uniform Delay, d1	25.6	35.7		22.3	32.6	27.2	14.4	23.8	19.9	15.3	21.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	9.2		1.3	4.6	0.2	0.3	3.1	0.7	0.5	0.4	
Delay (s)	26.3	44.9		23.6	37.2	27.4	14.7	26.9	20.6	15.8	22.3	
Level of Service	C	D		C	D	C	B	C	C	B	C	
Approach Delay (s)		41.4			31.7			22.8			20.0	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM Average Control Delay	28.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



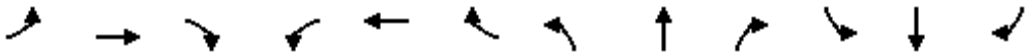
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	319	49	84	264	0	33	0	53	2	16	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.98		1.00	1.00		1.00		0.86	1.00	1.00	0.86
Flpb, ped/bikes		1.00		0.93	1.00		0.88		1.00	0.88	1.00	1.00
Frt		0.98		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		1795		1649	1863		1560		1364	1555	1863	1364
Flt Permitted		1.00		0.52	1.00		0.87		1.00	0.95	1.00	1.00
Satd. Flow (perm)		1795		897	1863		1428		1364	1555	1863	1364
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	0	364	56	96	301	0	38	0	60	2	18	56
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	53	0	0	50
Lane Group Flow (vph)	0	413	0	96	301	0	38	0	7	2	18	6
Confl. Peds. (#/hr)			98	98			97		97	97		97
Turn Type				Perm			custom		custom	Perm		Perm
Protected Phases		6			2						8	
Permitted Phases				2			4		4	8		8
Actuated Green, G (s)		27.4		27.4	27.4		4.6		4.6	4.6	4.6	4.6
Effective Green, g (s)		27.4		27.4	27.4		4.6		4.6	4.6	4.6	4.6
Actuated g/C Ratio		0.68		0.68	0.68		0.11		0.11	0.11	0.11	0.11
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1230		614	1276		164		157	179	214	157
v/s Ratio Prot		c0.23			0.16						0.01	
v/s Ratio Perm				0.11			c0.03		0.01	0.00		0.00
v/c Ratio		0.34		0.16	0.24		0.23		0.04	0.01	0.08	0.04
Uniform Delay, d1		2.6		2.2	2.4		16.1		15.7	15.7	15.8	15.7
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2		0.5	0.4		0.7		0.1	0.0	0.2	0.1
Delay (s)		2.7		2.8	2.8		16.8		15.9	15.7	16.0	15.8
Level of Service		A		A	A		B		B	B	B	B
Approach Delay (s)		2.7			2.8			16.2			15.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	5.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



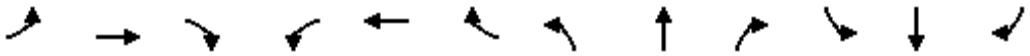
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	505	27	65	411	0	139	0	187	7	12	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.99		1.00	1.00		1.00		0.53	1.00	1.00	0.53
Flpb, ped/bikes		1.00		0.92	1.00		0.55		1.00	0.54	1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		1826		1622	1863		972		839	956	1863	839
Flt Permitted		1.00		0.31	1.00		0.75		1.00	0.95	1.00	1.00
Satd. Flow (perm)		1826		526	1863		766		839	956	1863	839
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	0	576	31	74	469	0	159	0	213	8	14	62
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	30	0	0	44
Lane Group Flow (vph)	0	603	0	74	469	0	159	0	183	8	14	18
Confl. Peds. (#/hr)			197	197			385		385	385		385
Turn Type				Perm			custom		custom	Perm		Perm
Protected Phases		6			2						8	
Permitted Phases				2			4		4	8		8
Actuated Green, G (s)		19.3		19.3	19.3		10.9		10.9	10.9	10.9	10.9
Effective Green, g (s)		19.3		19.3	19.3		10.9		10.9	10.9	10.9	10.9
Actuated g/C Ratio		0.51		0.51	0.51		0.29		0.29	0.29	0.29	0.29
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		923		266	941		219		239	273	532	239
v/s Ratio Prot		c0.33			0.25						0.01	
v/s Ratio Perm				0.14			0.21		c0.22	0.01		0.02
v/c Ratio		0.65		0.28	0.50		0.73		0.77	0.03	0.03	0.07
Uniform Delay, d1		7.0		5.4	6.2		12.3		12.5	9.8	9.8	10.0
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		1.7		2.6	1.9		11.3		13.6	0.0	0.0	0.1
Delay (s)		8.7		8.0	8.1		23.6		26.1	9.9	9.8	10.1
Level of Service		A		A	A		C		C	A	A	B
Approach Delay (s)		8.7			8.1			25.0			10.0	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	38.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	182	135	47	47	242	69	58	73	42	11	22	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.96		1.00	0.91		1.00	0.83	
Flpb, ped/bikes	0.98	1.00		0.93	1.00		0.79	1.00		0.80	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.95		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1728	1714		1651	1735		1390	1596		1417	1387	
Flt Permitted	0.37	1.00		0.63	1.00		0.71	1.00		0.67	1.00	
Satd. Flow (perm)	677	1714		1091	1735		1034	1596		1004	1387	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	208	154	54	54	276	79	66	83	48	13	25	52
RTOR Reduction (vph)	0	10	0	0	10	0	0	25	0	0	43	0
Lane Group Flow (vph)	208	198	0	54	345	0	66	106	0	13	34	0
Confl. Peds. (#/hr)	97		97	97		97	158		158	158		158
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	31.7	24.1		22.3	18.7		8.7	8.7		8.7	8.7	
Effective Green, g (s)	31.7	24.1		22.3	18.7		8.7	8.7		8.7	8.7	
Actuated g/C Ratio	0.65	0.50		0.46	0.39		0.18	0.18		0.18	0.18	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	639	853		544	670		186	287		180	249	
v/s Ratio Prot	c0.06	0.12		0.01	c0.20			c0.07			0.02	
v/s Ratio Perm	0.15			0.04			0.06			0.01		
v/c Ratio	0.33	0.23		0.10	0.52		0.35	0.37		0.07	0.14	
Uniform Delay, d1	4.0	6.9		7.3	11.4		17.4	17.4		16.5	16.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.1		0.1	0.7		1.2	0.8		0.2	0.3	
Delay (s)	4.3	7.0		7.4	12.0		18.6	18.2		16.7	17.0	
Level of Service	A	A		A	B		B	B		B	B	
Approach Delay (s)		5.7			11.4			18.3			16.9	
Approach LOS		A			B			B			B	

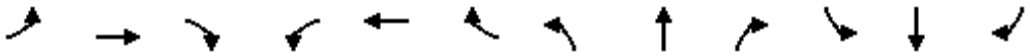
Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	361	38	39	295	101	63	133	79	74	50	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.93		1.00	0.86		1.00	0.76	
Flpb, ped/bikes	0.98	1.00		0.93	1.00		0.71	1.00		0.77	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1734	1788		1652	1665		1255	1511		1359	1287	
Flt Permitted	0.28	1.00		0.50	1.00		0.64	1.00		0.47	1.00	
Satd. Flow (perm)	513	1788		870	1665		842	1511		677	1287	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	285	412	43	45	337	115	72	152	90	84	57	96
RTOR Reduction (vph)	0	3	0	0	11	0	0	23	0	0	67	0
Lane Group Flow (vph)	285	452	0	45	441	0	72	219	0	84	86	0
Confl. Peds. (#/hr)	129		129	129		129	179		179	179		179
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	41.1	33.5		29.6	26.0		16.3	16.3		16.3	16.3	
Effective Green, g (s)	41.1	33.5		29.6	26.0		16.3	16.3		16.3	16.3	
Actuated g/C Ratio	0.63	0.51		0.45	0.40		0.25	0.25		0.25	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	530	916		437	662		210	377		169	321	
v/s Ratio Prot	c0.09	0.25		0.01	c0.26			c0.14			0.07	
v/s Ratio Perm	0.25			0.04			0.09			0.12		
v/c Ratio	0.54	0.49		0.10	0.67		0.34	0.58		0.50	0.27	
Uniform Delay, d1	7.3	10.4		10.1	16.1		20.2	21.5		21.0	19.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.4		0.1	2.5		1.0	2.3		2.3	0.5	
Delay (s)	8.4	10.8		10.2	18.7		21.1	23.8		23.3	20.2	
Level of Service	A	B		B	B		C	C		C	C	
Approach Delay (s)		9.9			17.9			23.2			21.3	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

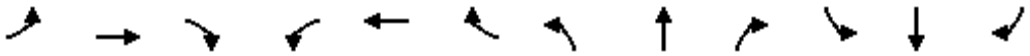
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	136	44	66	46	39	44	405	135	74	149	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.99			0.99			0.99	
Flpb, ped/bikes		0.99	1.00	0.99	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.93			0.97			0.98	
Flt Protected		0.98	1.00	0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1815	1539	1749	1710			3368			3378	
Flt Permitted		0.85	1.00	0.60	1.00			0.91			0.73	
Satd. Flow (perm)		1573	1539	1099	1710			3083			2513	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	105	155	50	75	52	45	50	462	154	84	170	48
RTOR Reduction (vph)	0	0	30	0	27	0	0	70	0	0	29	0
Lane Group Flow (vph)	0	260	20	75	70	0	0	596	0	0	273	0
Confl. Peds. (#/hr)	22		22	22		22	17		17	17		17
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Effective Green, g (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Actuated g/C Ratio		0.40	0.40	0.40	0.40			0.40			0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)		629	616	440	684			1233			1005	
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.17	0.01	0.07				c0.19			0.11	
v/c Ratio		0.41	0.03	0.17	0.10			0.48			0.27	
Uniform Delay, d1		8.6	7.3	7.7	7.5			8.9			8.1	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.0	0.1	0.8	0.3			1.4			0.7	
Delay (s)		10.6	7.4	8.6	7.8			10.3			8.7	
Level of Service		B	A	A	A			B			A	
Approach Delay (s)		10.1			8.1			10.3			8.7	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

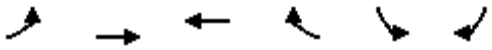
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	77	47	139	218	99	39	359	28	24	358	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.95	
Frpb, ped/bikes		1.00	0.95	1.00	0.98			1.00			0.99	
Flpb, ped/bikes		0.99	1.00	0.97	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.95			0.99			0.96	
Flt Protected		0.97	1.00	0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1789	1503	1716	1747			3472			3333	
Flt Permitted		0.68	1.00	0.63	1.00			0.87			0.92	
Satd. Flow (perm)		1258	1503	1143	1747			3045			3088	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	111	88	54	159	249	113	45	410	32	27	409	169
RTOR Reduction (vph)	0	0	32	0	41	0	0	13	0	0	101	0
Lane Group Flow (vph)	0	199	22	159	321	0	0	474	0	0	504	0
Confl. Peds. (#/hr)	53		53	53		53	25		25	25		25
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Effective Green, g (s)		16.0	16.0	16.0	16.0			16.0			16.0	
Actuated g/C Ratio		0.40	0.40	0.40	0.40			0.40			0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)		503	601	457	699			1218			1235	
v/s Ratio Prot					c0.18							
v/s Ratio Perm		0.16	0.01	0.14				0.16			c0.16	
v/c Ratio		0.40	0.04	0.35	0.46			0.39			0.41	
Uniform Delay, d1		8.6	7.3	8.4	8.8			8.5			8.6	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.3	0.1	2.1	2.2			0.9			1.0	
Delay (s)		10.9	7.4	10.5	11.0			9.5			9.6	
Level of Service		B	A	B	B			A			A	
Approach Delay (s)		10.1			10.8			9.5			9.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

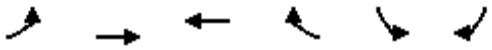
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	96	320	158	30	133	76
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	110	365	180	34	152	87
Pedestrians		5	5		1	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	216				788	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	216				788	203
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				54	90
cM capacity (veh/h)	1353				329	833

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	110	365	215	152	87
Volume Left	110	0	0	152	0
Volume Right	0	0	34	0	87
cSH	1353	1700	1700	329	833
Volume to Capacity	0.08	0.21	0.13	0.46	0.10
Queue Length 95th (ft)	7	0	0	58	9
Control Delay (s)	7.9	0.0	0.0	25.0	9.8
Lane LOS	A			C	A
Approach Delay (s)	1.8		0.0	19.5	
Approach LOS				C	

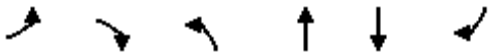
Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	131	297	320	171	60	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	150	339	365	195	68	114
Pedestrians		18	18		2	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	562				1121	483
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	562				1121	483
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				64	80
cM capacity (veh/h)	1007				191	574

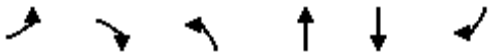
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	150	339	560	68	114
Volume Left	150	0	0	68	0
Volume Right	0	0	195	0	114
cSH	1007	1700	1700	191	574
Volume to Capacity	0.15	0.20	0.33	0.36	0.20
Queue Length 95th (ft)	13	0	0	38	18
Control Delay (s)	9.2	0.0	0.0	34.0	12.8
Lane LOS	A			D	B
Approach Delay (s)	2.8		0.0	20.8	
Approach LOS				C	

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		



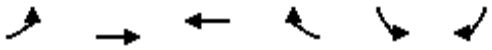
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Volume (veh/h)	256	63	33	164	104	119
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	292	72	38	187	119	136
Approach Volume (veh/h)	364			225	255	
Crossing Volume (veh/h)	119			292	38	
High Capacity (veh/h)	1262			1101	1345	
High v/c (veh/h)	0.29			0.20	0.19	
Low Capacity (veh/h)	1050			904	1125	
Low v/c (veh/h)	0.35			0.25	0.23	

Intersection Summary			
Maximum v/c High	0.29		
Maximum v/c Low	0.35		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A



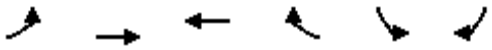
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Volume (veh/h)	189	31	156	285	251	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	216	35	178	325	286	276
Approach Volume (veh/h)	251			503	563	
Crossing Volume (veh/h)	286			216	178	
High Capacity (veh/h)	1106			1170	1205	
High v/c (veh/h)	0.23			0.43	0.47	
Low Capacity (veh/h)	909			966	998	
Low v/c (veh/h)	0.28			0.52	0.56	

Intersection Summary			
Maximum v/c High	0.47		
Maximum v/c Low	0.56		
Intersection Capacity Utilization	77.7%	ICU Level of Service	D



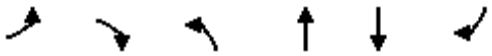
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Right Turn Channelized						
Volume (veh/h)	157	321	96	47	30	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	179	366	110	54	34	96
Approach Volume (veh/h)		546	163		130	
Crossing Volume (veh/h)		34	179		110	
High Capacity (veh/h)		1348	1204		1271	
High v/c (veh/h)		0.40	0.14		0.10	
Low Capacity (veh/h)		1128	997		1058	
Low v/c (veh/h)		0.48	0.16		0.12	

Intersection Summary			
Maximum v/c High	0.40		
Maximum v/c Low	0.48		
Intersection Capacity Utilization	57.0%	ICU Level of Service	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Right Turn Channelized						
Volume (veh/h)	233	193	433	170	27	231
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	266	220	494	194	31	264
Approach Volume (veh/h)		486	688		294	
Crossing Volume (veh/h)		31	266		494	
High Capacity (veh/h)		1352	1124		938	
High v/c (veh/h)		0.36	0.61		0.31	
Low Capacity (veh/h)		1131	925		758	
Low v/c (veh/h)		0.43	0.74		0.39	

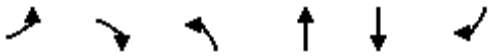
Intersection Summary			
Maximum v/c High	0.61		
Maximum v/c Low	0.74		
Intersection Capacity Utilization	88.3%	ICU Level of Service	E



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	224	101	113	75	28	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	256	115	129	86	32	62
Pedestrians	8			27	27	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			2	2	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	441	98	102			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	98	102			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	50	88	91			
cM capacity (veh/h)	508	930	1481			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	371	215	94
Volume Left	256	129	0
Volume Right	115	0	62
cSH	592	1481	1700
Volume to Capacity	0.63	0.09	0.06
Queue Length 95th (ft)	109	7	0
Control Delay (s)	20.7	4.9	0.0
Lane LOS	C	A	
Approach Delay (s)	20.7	4.9	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	12.9		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	87	151	186	54	179	313
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	99	172	212	62	204	357
Pedestrians	2			1	1	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	872	386	564			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	872	386	564			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	61	74	79			
cM capacity (veh/h)	253	660	1006			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	272	274	562
Volume Left	99	212	0
Volume Right	172	0	357
cSH	415	1006	1700
Volume to Capacity	0.65	0.21	0.33
Queue Length 95th (ft)	113	20	0
Control Delay (s)	28.6	7.9	0.0
Lane LOS	D	A	
Approach Delay (s)	28.6	7.9	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	9.0		
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		