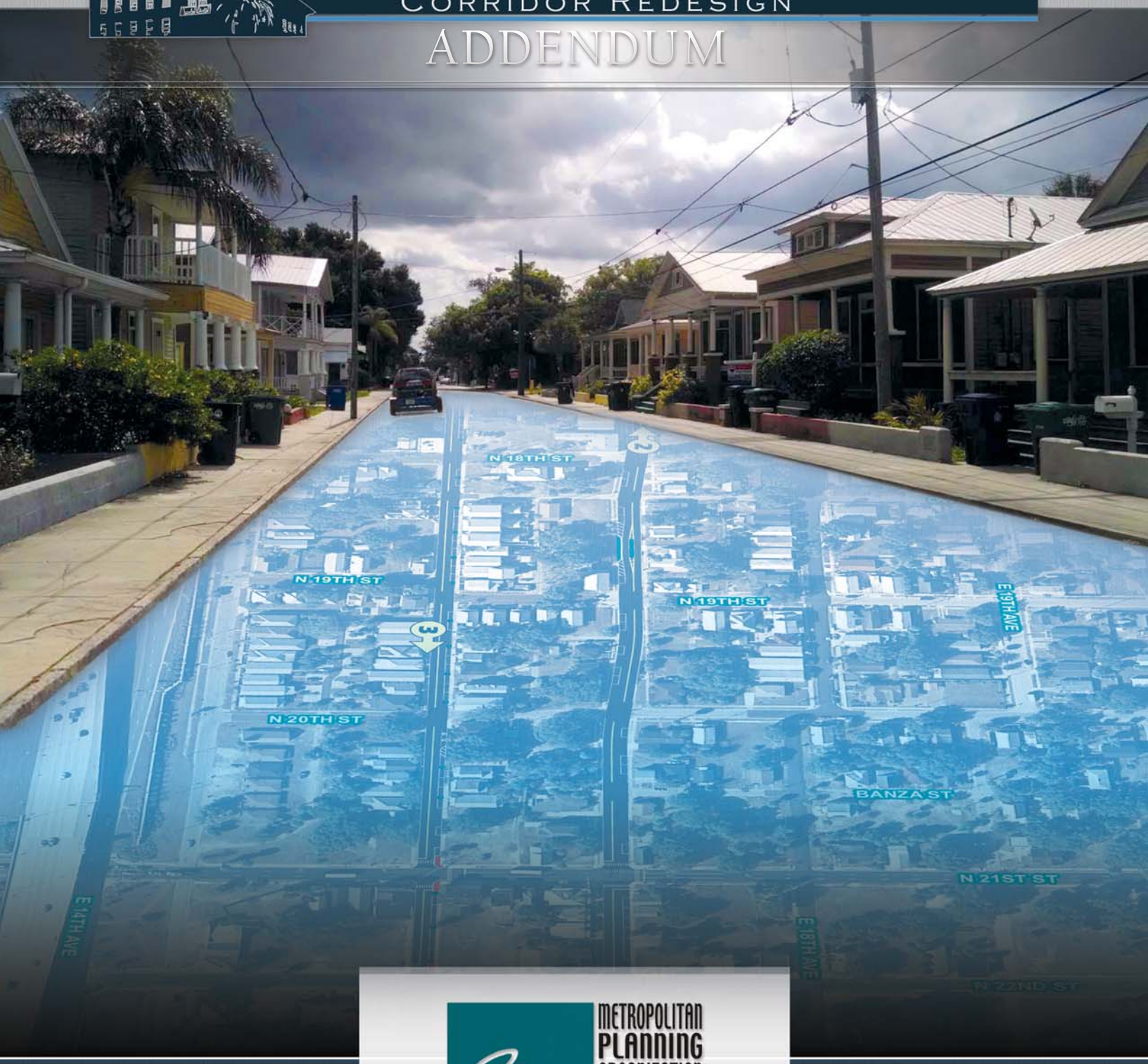
Columbus Drive

Corridor Redesign

ADDENDUM



METROPOLITAN PLANNING ORGANIZATION FOR TRANSPORTATION

November 2015

Introduction

This addendum is a follow up to the Columbus Drive Redesign Study that was completed in January 2015. The purpose of the Columbus Drive Redesign Study was to determine if converting the existing one way configuration of Columbus Drive and 17th/18th/19th Avenues to two way operations was feasible. The study analyzed existing traffic data and future 2040 projections from the Tampa Bay Regional Planning Model (TBRPM) to determine existing and future peak-hour level of service (LOS) and travel times. The study determined that conversion to two way operations would be feasible with Columbus Drive carrying approximately two-thirds of the traffic volume and 17th/18th/19th Avenues carrying approximately 1/3 of the traffic due to its more residential land uses along that corridor. The Columbus Drive Redesign Study assumed that all signalized intersections, with the exception of 17th Avenue at 15th Street, would remain signalized in the two-way conversion.

The Columbus Drive Redesign Study Addendum analyzed if any signals could be removed and replaced with stop signs and still operate at an acceptable LOS. The Addendum also calculated potential cost savings would be if any signalized intersections could be replaced with stop controls.

This addendum analyzed three scenarios for both one-way and two-way configurations during the 2040 PM peak:

- All signals remain (All Signals)
- Replacing the signals with stop signs at 15th Street, 21st Street, 22nd Street, and 34th Street (More Stops)
- Ideal mix (Ideal Mix)

Because of the traffic volumes on 40th Street and it being six lanes wide, the signals on Columbus Drive and 19th Avenue at 40th Street were left in all scenarios. The stop controlled intersections only places stop signs on Columbus Drive and 17th/18th/19th Avenues, while the cross streets of 15th Street, 21st Street, 22nd Street, and 34th Streets are free flowing movements.

One-Way Analysis

The One-Way Analysis for eastbound traffic on Columbus Drive suggested travel times decreased with more stop controlled intersections than with signals during the 2040 PM peak. The analysis also showed that travel times on westbound 17th/18th/19th Avenues increased with more stop signs. Travel time analysis was conducted using Synchro and the accompanying Sim Traffic simulation model. Table 1 describes the travel times and locations of signals and stop controlled intersections in each scenario.

Table 1: One-Way Configuration Travel Times

		14th St	15th St	21st St	22nd St	34th St	40th St	Hart Dr
all signals		← Travel Time		6:47				
	17/18/19 Ave	Signal	Signal	Signal	Signal	Signal	Signal	
	Columbus Dr	Signal	Signal	Signal	Signal	Signal	Signal	Signal
						16:08	Travel Time →	
more stops		← Travel Time		9:55				
	17/18/19 Ave	Signal	Stop	Stop	Stop	Stop	Signal	
	Columbus Dr	Signal	Stop	Stop	Stop	Stop	Signal	Signal
						7:10	Travel Time →	
ideal mix		← Travel Time		7:01				
	17/18/19 Ave	Signal	Signal	Signal	Signal	Stop	Signal	
	Columbus Dr	Signal	Signal	Signal	Signal	Stop	Signal	Signal
						14:27	Travel Time →	

The level of service (LOS) for intersections in the One-Way Analysis shows that in all three scenarios the overall intersection LOS is the similar throughout all three scenarios and indicates that the intersections operate at near acceptable LOS. However, it should be noted that delay for the stop controlled movements may exceed acceptable LOS and operate at LOS E or F. The stop controlled movements on Columbus Drive and 17th/18th/19th Avenues at 22nd Street and 34th Street are projected to operate at LOS F in 2040 in the *More Stops* scenario. Table 2 describes the overall intersection LOS for each study area intersection for all three scenarios in 2040. Appendix A contains the complete Synchro analyses for all intersections in the One-Way analysis.

Table 2: 2040 One-Way Scenario Intersection Level of Service Analysis

	Intersection Level of Service (LOS)				
Columbus Drive	15th Street	21st Street	22nd Street	34th Street	40th Street
All Signals	C	C	D	B	B
More Stops	F	* (D)	* (F)	* (F)	B
Ideal Mix	C	C	D	* (F)	B
17th/18th/19th Avenue	15th Street	21st Street	22nd Street	34th Street	40th Street
All Signals	C	C	C	A	B
More Stops	E	* (C)	* (F)	* (F)	B
Ideal Mix	C	C	C	* (F)	B

*HCM 2010 cannot provide overall intersection LOS for two-way stop controlled intersections. The (LOS) in these cells represents the stop controlled approach with the highest delay.

Two-Way Analysis

The Two-Way Analysis for traffic on Columbus Drive showed that travel times for eastbound traffic was eight to ten minutes in the *All Signals* and I*deal Mix* scenarios during the PM peak hour. The travel time for the *More Stops* scenario suggested a travel time of over 28 minutes for the eastbound traffic on Columbus Drive during the PM peak hour. For westbound traffic on Columbus Drive, the *All Signals* and *Ideal Mix* scenarios showed travel times of over eight minutes in the *All Signals* and *Ideal Mix* scenarios, and over five minutes in the *More Stops* scenario during the PM peak. The analysis also showed that travel times in both directions on 17th/18th/19th Avenues in all scenarios were between five and six minutes during the PM peak hour. Table 3 describes the travel times and locations of signals and stop controlled intersections in each scenario.

Table 3: Two-Way Configuration Travel Times

		14th St	15th St	21st St	22nd St	34th St	40th St	Hart Dr
all signals		← Travel Time		5:36				
	17/18/19 Ave		Stop	Signal	Signal	Signal	Signal	
						5:33	Travel Time →	
		← Travel Time		8:40				
	Columbus Dr	Signal	Signal	Signal	Signal	Signal	Signal	Signal
						9:41	Travel Time →	
more stops		← Travel Time		5:41				
	17/18/19 Ave		Stop	Stop	Stop	Stop	Signal	
						5:43	Travel Time →	
		← Travel Time		5:07				
	Columbus Dr	Signal	Signal	Stop	Stop	Stop	Signal	Signal
						28:57	Travel Time →	
ideal mix		← Travel Time		5:45				
	17/18/19 Ave		Stop	Stop	Stop	Stop	Signal	
						5:45	Travel Time →	
		← Travel Time		8:36				
	Columbus Dr	Signal	Signal	Signal	Signal	Signal	Signal	Signal
						8:15	Travel Time →	

The LOS for intersections in the Two-Way Analysis shows that all intersections will operate at an overall acceptable level of service in the *All Signals* and *Ideal Mix* scenarios.

In the *More Stops* scenario, most of the stop control intersections are anticipated to operate at an unacceptable LOS in 2040 except for the intersection of 17th18th Avenue at 21st Street, 22nd Street, and 34th Street. Table 4 describes the overall intersection LOS for each study area intersection for all three scenarios in 2040. Appendix B contains the complete Synchro analyses for all intersections in the Two-Way analysis.

Table 4: 2040 Two-Way Scenario Intersection Level of Service Analysis					
	Intersection Level of Service (LOS)				
Columbus Drive	15th Street	21st Street	22nd Street	34Th Street	40th Street
All Signals	E	B	D	B	C
More Stops	E	* (F)	* (F)	* (F)	C
Ideal Mix	E	B	D	B	C
17th/18th/19th Avenue	15th Street	21st Street	22nd Street	34th Street	40th Street
All Signals	* (C)	B	C	A	A
More Stops	* (C)	* (B)	* (C)	* (E)	A
Ideal Mix	* (C)	* (B)	* (C)	* (E)	A

*HCM 2010 cannot provide overall intersection LOS for two-way stop controlled intersections. The (LOS) in these cells represents the stop controlled approach with the highest delay.

Revised Cost Estimates

Cost estimates for the *Ideal Mix* scenario on the One-Way and Two-Way analysis were derived using the Florida Department of Transportation's (FDOT) Long Range Estimating System (LRE). The One-Way analysis of the *Ideal Mix* scenario included two new mast arms at each of the following intersections:

- 17th Avenue & 15th Street
- 17th Avenue & 21st Street
- 17th Avenue & 22nd Street
- Columbus Drive & 40th Street
- 19th Avenue & 40th Street

The estimated construction cost of implementing the *Ideal Mix* scenario for the One-Way operation is approximately $940,000 which includes all equipment, hardware, and signage. The complete LRE table for the *Ideal Mix* scenario in the One-Way operation can be found in Appendix C. The total cost for this option, including design, maintenance of traffic, mobilization, construction engineering inspection, and contingency is approximately $1.77 million.

The Two-Way operation *Ideal Mix* scenario includes two new mast arms at each of the following intersections:

- Columbus Drive & 34th Street
- Columbus Drive & 40th Street
- 19th Avenue & 40th Street

The approximate cost of implementing the *Ideal Mix* scenario for the Two-Way operation is $811,000 which includes all equipment, hardware, and signage. The total cost for this option, including design, maintenance of traffic, mobilization, construction engineering

inspection, and contingency is approximately $1.53 million. The complete LRE table for the Ideal Mix scenario in the Two-Way operation can be found in Appendix D.

The estimated costs for both one-way operation and two-way operation compare favorably with the signalization cost estimates in the original report. In that report, the construction cost for signalization was calculated to be approximately $2,198,600. The total cost, including design, maintenance of traffic, mobilization, construction engineering inspection, and contingency was estimated to be approximately $4.15 million.

Appendix A
Synchro Summary Reports for One-Way Scenario Options

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	136	544	0	0	0	0	0	785	173	0	0	0
Number	3	8	18				1	6	16			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	0				0	1863	1900			
Adj Flow Rate, veh/h	207	828	0				0	1195	263			
Adj No. of Lanes	0	2	0				0	2	0			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	331	1100	0				0	1288	281			
Arrive On Green	0.42	0.42	0.00				0.00	0.45	0.45			
Sat Flow, veh/h	626	2732	0				0	2984	630			
Grp Volume(v), veh/h	536	499	0				0	727	731			
Grp Sat Flow(s),veh/h/ln	1663	1610	0				0	1770	1751			
Q Serve(g_s), s	18.8	18.4	0.0				0.0	27.1	27.8			
Cycle Q Clear(g_c), s	19.4	18.4	0.0				0.0	27.1	27.8			
Prop In Lane	0.39		0.00				0.00		0.36			
Lane Grp Cap(c), veh/h	763	669	0				0	789	781			
V/C Ratio(X)	0.70	0.75	0.00				0.00	0.92	0.94			
Avail Cap(c_a), veh/h	763	669	0				0	789	781			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	17.6	17.3	0.0				0.0	18.3	18.5			
Incr Delay (d2), s/veh	0.5	0.7	0.0				0.0	17.9	19.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	8.9	8.2	0.0				0.0	17.1	17.5			
LnGrp Delay(d),s/veh	18.1	18.0	0.0				0.0	36.1	38.4			
LnGrp LOS	B	B						D	D			
Approach Vol, veh/h		1035						1458				
Approach Delay, s/veh		18.1						37.3				
Approach LOS		B						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						36.0		34.0
Change Period (Y+Rc), s						4.8		4.9
Max Green Setting (Gmax), s						31.2		29.1
Max Q Clear Time (g_c+I1), s						29.8		21.4
Green Ext Time (p_c), s						1.2		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	466	128	0	0	0	0	0	0	42	283	0
Number	3	8	18							5	2	12
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900							1900	1863	0
Adj Flow Rate, veh/h	0	709	195							64	431	0
Adj No. of Lanes	0	2	0							0	3	0
Peak Hour Factor	0.92	0.92	0.92							0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	1164	320							150	774	0
Arrive On Green	0.00	0.42	0.42							0.06	0.06	0.00
Sat Flow, veh/h	0	2838	755							457	4497	0
Grp Volume(v), veh/h	0	457	447							189	306	0
Grp Sat Flow(s),veh/h/ln	0	1770	1730							1717	1543	0
Q Serve(g_s), s	0.0	14.0	14.0							5.0	6.8	0.0
Cycle Q Clear(g_c), s	0.0	14.0	14.0							7.4	6.8	0.0
Prop In Lane	0.00		0.44							0.34		0.00
Lane Grp Cap(c), veh/h	0	751	734							375	550	0
V/C Ratio(X)	0.00	0.61	0.61							0.50	0.56	0.00
Avail Cap(c_a), veh/h	0	751	734							793	1318	0
HCM Platoon Ratio	1.00	1.00	1.00							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.65	0.65							0.99	0.99	0.00
Uniform Delay (d), s/veh	0.0	15.6	15.6							30.5	30.3	0.0
Incr Delay (d2), s/veh	0.0	2.4	2.4							1.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	7.2	7.1							3.7	3.0	0.0
LnGrp Delay(d),s/veh	0.0	18.0	18.1							31.5	31.1	0.0
LnGrp LOS		B	B							C	C	
Approach Vol, veh/h		904									495	
Approach Delay, s/veh		18.0									31.3	
Approach LOS		B									C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						8
Phs Duration (G+Y+Rc), s		17.6						35.0
Change Period (Y+Rc), s		* 5.1						5.3
Max Green Setting (Gmax), s		* 30						29.7
Max Q Clear Time (g_c+I1), s		9.4						16.0
Green Ext Time (p_c), s		3.0						5.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	484	0	0	0	0	0	969	110	0	0	0
Number	3	8	18				1	6	16			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	0				0	1863	1900			
Adj Flow Rate, veh/h	37	737	0				0	1475	167			
Adj No. of Lanes	0	2	0				0	2	0			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	94	1364	0				0	1467	165			
Arrive On Green	0.13	0.13	0.00				0.00	0.15	0.15			
Sat Flow, veh/h	93	3436	0				0	3302	360			
Grp Volume(v), veh/h	413	361	0				0	808	834			
Grp Sat Flow(s),veh/h/ln	1833	1610	0				0	1770	1799			
Q Serve(g_s), s	2.4	14.6	0.0				0.0	31.9	32.0			
Cycle Q Clear(g_c), s	14.6	14.6	0.0				0.0	31.9	32.0			
Prop In Lane	0.09		0.00				0.00		0.20			
Lane Grp Cap(c), veh/h	802	656	0				0	809	822			
V/C Ratio(X)	0.52	0.55	0.00				0.00	1.00	1.01			
Avail Cap(c_a), veh/h	802	656	0				0	809	822			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	0.33	0.33			
Upstream Filter(I)	0.93	0.93	0.00				0.00	0.36	0.36			
Uniform Delay (d), s/veh	24.2	24.3	0.0				0.0	29.7	29.7			
Incr Delay (d2), s/veh	2.2	3.1	0.0				0.0	18.7	22.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	8.0	7.1	0.0				0.0	19.8	21.1			
LnGrp Delay(d),s/veh	26.4	27.4	0.0				0.0	48.4	52.3			
LnGrp LOS	C	C						D	F			
Approach Vol, veh/h		774						1642				
Approach Delay, s/veh		26.9						50.4				
Approach LOS		C						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						36.8		33.2
Change Period (Y+Rc), s						4.8		4.7
Max Green Setting (Gmax), s						32.0		28.5
Max Q Clear Time (g_c+I1), s						34.0		16.6
Green Ext Time (p_c), s						0.0		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	72	398	105	0	0	0	0	312	9	22	248	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	110	606	0				0	475	14	33	377	0
Adj No. of Lanes	0	2	1				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	225	1305	672				0	1485	44	403	1497	0
Arrive On Green	0.42	0.42	0.00				0.00	0.42	0.42	0.85	0.85	0.00
Sat Flow, veh/h	529	3077	1583				0	3604	103	904	3632	0
Grp Volume(v), veh/h	382	334	0				0	239	250	33	377	0
Grp Sat Flow(s),veh/h/ln	1836	1770	1583				0	1770	1845	904	1770	0
Q Serve(g_s), s	10.6	9.4	0.0				0.0	6.3	6.3	0.9	1.5	0.0
Cycle Q Clear(g_c), s	10.6	9.4	0.0				0.0	6.3	6.3	7.3	1.5	0.0
Prop In Lane	0.29		1.00				0.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	779	751	672				0	748	780	403	1497	0
V/C Ratio(X)	0.49	0.45	0.00				0.00	0.32	0.32	0.08	0.25	0.00
Avail Cap(c_a), veh/h	779	751	672				0	748	780	403	1497	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.83	0.83	0.00				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	14.6	14.3	0.0				0.0	13.5	13.5	4.8	3.2	0.0
Incr Delay (d2), s/veh	1.8	1.6	0.0				0.0	1.1	1.1	0.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	5.7	4.9	0.0				0.0	3.3	3.4	0.3	0.7	0.0
LnGrp Delay(d),s/veh	16.5	15.9	0.0				0.0	14.6	14.6	5.2	3.6	0.0
LnGrp LOS	B	B						B	B	A	A	
Approach Vol, veh/h		716						489			410	
Approach Delay, s/veh		16.2						14.6			3.8	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		35.0				35.0		35.0
Change Period (Y+Rc), s		5.4				5.4		5.3
Max Green Setting (Gmax), s		29.6				29.6		29.7
Max Q Clear Time (g_c+I1), s		9.3				8.3		12.6
Green Ext Time (p_c), s		5.2				5.3		4.2

Intersection Summary		
HCM 2010 Ctrl Delay		12.6
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	148	226	55	0	0	0	0	598	78	128	519	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	225	344	84				0	910	119	195	790	0
Adj No. of Lanes	1	2	0				0	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	295	471	114				0	3299	430	423	3684	0
Arrive On Green	0.17	0.17	0.17				0.00	0.72	0.72	1.00	1.00	0.00
Sat Flow, veh/h	1774	2830	682				0	4722	593	546	5253	0
Grp Volume(v), veh/h	225	213	215				0	676	353	195	790	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1742				0	1695	1758	546	1695	0
Q Serve(g_s), s	13.3	12.6	12.9				0.0	7.6	7.6	7.4	0.0	0.0
Cycle Q Clear(g_c), s	13.3	12.6	12.9				0.0	7.6	7.6	15.0	0.0	0.0
Prop In Lane	1.00		0.39				0.00		0.34	1.00		0.00
Lane Grp Cap(c), veh/h	295	295	290				0	2456	1273	423	3684	0
V/C Ratio(X)	0.76	0.72	0.74				0.00	0.28	0.28	0.46	0.21	0.00
Avail Cap(c_a), veh/h	514	513	505				0	2456	1273	423	3684	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.88	0.88	0.88				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	43.8	43.4	43.6				0.0	5.2	5.2	0.7	0.0	0.0
Incr Delay (d2), s/veh	3.6	3.0	3.3				0.0	0.3	0.5	3.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.8	6.4	6.5				0.0	3.6	3.8	1.4	0.0	0.0
LnGrp Delay(d),s/veh	47.4	46.4	46.8				0.0	5.5	5.8	4.2	0.1	0.0
LnGrp LOS	D	D	D					A	A	A	A	
Approach Vol, veh/h		653						1029			985	
Approach Delay, s/veh		46.9						5.6			0.9	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		85.6				85.6		24.4
Change Period (Y+Rc), s		* 5.9				* 5.9		6.1
Max Green Setting (Gmax), s		* 66				* 66		31.9
Max Q Clear Time (g_c+I1), s		17.0				9.6		15.3
Green Ext Time (p_c), s		22.2				23.3		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↰	↑↑				
Volume (veh/h)	0	0	0	0	475	0	10	911	0	0	0	0
Number				7	4	14	1	6	16			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1863	0	1863	1863	0			
Adj Flow Rate, veh/h				0	723	0	15	1386	0			
Adj No. of Lanes				0	2	0	1	2	0			
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %				0	2	0	2	2	0			
Cap, veh/h				0	1284	0	899	1588	0			
Arrive On Green				0.00	0.36	0.00	0.15	0.15	0.00			
Sat Flow, veh/h				0	3725	0	1774	3632	0			
Grp Volume(v), veh/h				0	723	0	15	1386	0			
Grp Sat Flow(s),veh/h/ln				0	1770	0	1774	1770	0			
Q Serve(g_s), s				0.0	11.5	0.0	0.5	26.8	0.0			
Cycle Q Clear(g_c), s				0.0	11.5	0.0	0.5	26.8	0.0			
Prop In Lane				0.00		0.00	1.00		0.00			
Lane Grp Cap(c), veh/h				0	1284	0	899	1588	0			
V/C Ratio(X)				0.00	0.56	0.00	0.02	0.87	0.00			
Avail Cap(c_a), veh/h				0	1284	0	899	1588	0			
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00			
Upstream Filter(I)				0.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	17.9	0.0	16.7	27.9	0.0			
Incr Delay (d2), s/veh				0.0	1.8	0.0	0.0	6.9	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln				0.0	5.8	0.0	0.3	14.7	0.0			
LnGrp Delay(d),s/veh				0.0	19.6	0.0	16.7	34.8	0.0			
LnGrp LOS					B		B	C				
Approach Vol, veh/h					723			1401				
Approach Delay, s/veh					19.6			34.6				
Approach LOS					B			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				32.0		38.0		
Change Period (Y+Rc), s				* 6.6		6.6		
Max Green Setting (Gmax), s				* 25		31.4		
Max Q Clear Time (g_c+I1), s				13.5		28.8		
Green Ext Time (p_c), s				3.9		2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	60	585	0	0	0	0	0	265	40
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	0				0	1863	1900
Adj Flow Rate, veh/h				91	890	0				0	403	61
Adj No. of Lanes				0	2	0				0	3	0
Peak Hour Factor				0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				161	1271	0				0	2045	303
Arrive On Green				0.13	0.13	0.00				0.00	0.46	0.46
Sat Flow, veh/h				249	3229	0				0	4642	662
Grp Volume(v), veh/h				519	462	0				0	303	161
Grp Sat Flow(s),veh/h/ln				1783	1610	0				0	1695	1746
Q Serve(g_s), s				13.9	19.2	0.0				0.0	3.7	3.9
Cycle Q Clear(g_c), s				19.4	19.2	0.0				0.0	3.7	3.9
Prop In Lane				0.18		0.00				0.00		0.38
Lane Grp Cap(c), veh/h				781	651	0				0	1550	798
V/C Ratio(X)				0.66	0.71	0.00				0.00	0.20	0.20
Avail Cap(c_a), veh/h				781	651	0				0	1550	798
HCM Platoon Ratio				0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.83	0.83	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				26.4	26.4	0.0				0.0	11.3	11.4
Incr Delay (d2), s/veh				3.7	5.4	0.0				0.0	0.3	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				10.5	9.5	0.0				0.0	1.8	2.0
LnGrp Delay(d),s/veh				30.1	31.8	0.0				0.0	11.6	11.9
LnGrp LOS				C	C						B	B
Approach Vol, veh/h					981						464	
Approach Delay, s/veh					30.9						11.7	
Approach LOS					C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		36.9		33.1				
Change Period (Y+Rc), s		4.9		* 4.8				
Max Green Setting (Gmax), s		32.0		* 28				
Max Q Clear Time (g_c+I1), s		5.9		21.4				
Green Ext Time (p_c), s		3.1		3.4				

Intersection Summary		
HCM 2010 Ctrl Delay		24.7
HCM 2010 LOS		C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	464	35	181	812	0	0	0	0
Number				7	4	14	1	6	16			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1863	1900	1900	1863	0			
Adj Flow Rate, veh/h				0	706	53	275	1236	0			
Adj No. of Lanes				0	2	0	0	2	0			
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %				0	2	2	2	2	0			
Cap, veh/h				0	1359	102	336	1241	0			
Arrive On Green				0.00	0.41	0.41	0.15	0.15	0.00			
Sat Flow, veh/h				0	3431	250	581	2791	0			
Grp Volume(v), veh/h				0	374	385	794	717	0			
Grp Sat Flow(s),veh/h/ln				0	1770	1819	1677	1610	0			
Q Serve(g_s), s				0.0	11.1	11.1	32.1	31.0	0.0			
Cycle Q Clear(g_c), s				0.0	11.1	11.1	32.1	31.0	0.0			
Prop In Lane				0.00		0.14	0.35		0.00			
Lane Grp Cap(c), veh/h				0	720	740	838	738	0			
V/C Ratio(X)				0.00	0.52	0.52	0.95	0.97	0.00			
Avail Cap(c_a), veh/h				0	720	740	838	738	0			
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00			
Upstream Filter(I)				0.00	1.00	1.00	0.09	0.09	0.00			
Uniform Delay (d), s/veh				0.0	15.6	15.6	30.2	29.2	0.0			
Incr Delay (d2), s/veh				0.0	2.7	2.6	3.1	5.3	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln				0.0	5.9	6.1	16.1	14.9	0.0			
LnGrp Delay(d),s/veh				0.0	18.3	18.2	33.3	34.5	0.0			
LnGrp LOS					B	B	C	C				
Approach Vol, veh/h					759			1511				
Approach Delay, s/veh					18.2			33.9				
Approach LOS					B			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				33.2		36.8		
Change Period (Y+Rc), s				* 4.7		4.7		
Max Green Setting (Gmax), s				* 29		32.1		
Max Q Clear Time (g_c+I1), s				13.1		34.1		
Green Ext Time (p_c), s				4.3		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	42	240	24	68	316	0	0	228	33
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				64	365	37	103	481	0	0	347	50
Adj No. of Lanes				0	2	0	1	2	0	0	2	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				182	1089	115	494	1648	0	0	1448	207
Arrive On Green				0.38	0.38	0.38	0.93	0.93	0.00	0.00	0.47	0.47
Sat Flow, veh/h				480	2865	303	983	3632	0	0	3203	444
Grp Volume(v), veh/h				245	0	221	103	481	0	0	196	201
Grp Sat Flow(s),veh/h/ln				1839	0	1809	983	1770	0	0	1770	1784
Q Serve(g_s), s				6.7	0.0	6.0	1.9	0.9	0.0	0.0	4.7	4.7
Cycle Q Clear(g_c), s				6.7	0.0	6.0	6.6	0.9	0.0	0.0	4.7	4.7
Prop In Lane				0.26		0.17	1.00		0.00	0.00		0.25
Lane Grp Cap(c), veh/h				699	0	687	494	1648	0	0	824	831
V/C Ratio(X)				0.35	0.00	0.32	0.21	0.29	0.00	0.00	0.24	0.24
Avail Cap(c_a), veh/h				699	0	687	494	1648	0	0	824	831
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.5	0.0	15.3	2.1	1.3	0.0	0.0	11.2	11.3
Incr Delay (d2), s/veh				1.4	0.0	1.2	0.9	0.4	0.0	0.0	0.7	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				3.6	0.0	3.2	0.6	0.5	0.0	0.0	2.4	2.5
LnGrp Delay(d),s/veh				16.9	0.0	16.6	3.0	1.7	0.0	0.0	11.9	11.9
LnGrp LOS				B		B	A	A			B	B
Approach Vol, veh/h					466			584			397	
Approach Delay, s/veh					16.7			2.0			11.9	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		38.0		32.0		38.0		
Change Period (Y+Rc), s		5.4		5.4		5.4		
Max Green Setting (Gmax), s		32.6		26.6		32.6		
Max Q Clear Time (g_c+I1), s		6.7		8.7		8.6		
Green Ext Time (p_c), s		6.2		2.6		6.1		

Intersection Summary		
HCM 2010 Ctrl Delay		9.5
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	99	181	168	51	695	0	0	548	74
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1863
Adj Flow Rate, veh/h				151	275	0	78	1058	0	0	834	0
Adj No. of Lanes				1	2	0	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				214	428	0	542	3920	0	0	3920	1221
Arrive On Green				0.12	0.12	0.00	0.77	0.77	0.00	0.00	0.77	0.00
Sat Flow, veh/h				1774	3632	0	656	5253	0	0	5253	1583
Grp Volume(v), veh/h				151	275	0	78	1058	0	0	834	0
Grp Sat Flow(s),veh/h/ln				1774	1770	0	656	1695	0	0	1695	1583
Q Serve(g_s), s				9.0	8.1	0.0	4.1	6.6	0.0	0.0	4.9	0.0
Cycle Q Clear(g_c), s				9.0	8.1	0.0	9.0	6.6	0.0	0.0	4.9	0.0
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				214	428	0	542	3920	0	0	3920	1221
V/C Ratio(X)				0.70	0.64	0.00	0.14	0.27	0.00	0.00	0.21	0.00
Avail Cap(c_a), veh/h				676	1348	0	542	3920	0	0	3920	1221
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.94	0.94	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.5	46.1	0.0	4.7	3.6	0.0	0.0	3.5	0.0
Incr Delay (d2), s/veh				4.2	1.6	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				4.7	4.1	0.0	0.8	3.0	0.0	0.0	2.3	0.0
LnGrp Delay(d),s/veh				50.6	47.7	0.0	4.8	3.7	0.0	0.0	3.6	0.0
LnGrp LOS				D	D		A	A			A	
Approach Vol, veh/h					426			1136			834	
Approach Delay, s/veh					48.8			3.8			3.6	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		90.6		19.4		90.6		
Change Period (Y+Rc), s		* 5.8		* 6.1		5.8		
Max Green Setting (Gmax), s		* 57		* 42		56.2		
Max Q Clear Time (g_c+I1), s		6.9		11.0		11.0		
Green Ext Time (p_c), s		20.8		2.3		20.0		

Intersection Summary		
HCM 2010 Ctrl Delay		11.7
HCM 2010 LOS		B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Arterial Level of Service: EB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 14th St.	3	113.6	624.0	0.1	3
N 15th St.	6	13.9	28.9	0.1	9
N 21st St.	11	5.3	51.1	0.5	32
N 22nd St.	14	14.9	21.2	0.0	8
N 34th St.	10	8.3	89.5	0.8	30
N 40th St.	19	37.0	95.1	0.5	19
E 19th Ave.	25	3.7	31.6	0.2	26
HART DRIVE	49	3.0	11.2	0.1	27
	22	2.2	16.2	0.1	26
Total		202.0	968.8	2.4	18

Arterial Level of Service: WB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Columbus Dr.	22	5.0	18.8	0.1	21
HART DRIVE	49	2.6	24.5	0.1	17
E 19th Ave.	25	2.5	14.3	0.1	21
Total		10.1	57.5	0.3	20

Arterial Level of Service: WB E 19th Ave.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 40th St.	26	36.4	70.9	0.3	14
	35	3.4	42.6	0.3	27
	36	0.4	11.8	0.1	29
N 34th St.	24	15.1	25.2	0.1	13
	37	2.5	32.4	0.2	27
	38	0.5	14.6	0.1	29
N 22nd St.	40	21.5	60.7	0.4	24
N 21st St.	39	34.5	40.4	0.0	4
	43	2.6	11.8	0.1	24
	41	1.2	15.6	0.1	28
	44	5.6	31.0	0.2	25
N 15th St.	9	18.7	23.1	0.0	6
Avenida Republica De	3	16.4	27.0	0.1	12
Total		158.7	407.0	2.1	19

Intersection	
Intersection Delay, s/veh	66.5
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	136	544	0	0	0	0	0	0	0	785	173
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	207	828	0	0	0	0	0	0	0	1195	263
Number of Lanes	0	0	2	0	0	0	0	0	0	0	2	0

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	2
Conflicting Approach Right	NB	
Conflicting Lanes Right	2	0
HCM Control Delay	67	66.2
HCM LOS	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2
Vol Left, %	0%	0%	43%	0%
Vol Thru, %	100%	60%	57%	100%
Vol Right, %	0%	40%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	523	435	317	363
LT Vol	0	0	136	0
Through Vol	523	262	181	363
RT Vol	0	173	0	0
Lane Flow Rate	796	661	483	552
Geometry Grp	7	7	7	7
Degree of Util (X)	1	1	0.997	1
Departure Headway (Hd)	7.134	6.857	7.432	7.218
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	510	529	493	508
Service Time	4.902	4.625	5.132	4.918
HCM Lane V/C Ratio	1.561	1.25	0.98	1.087
HCM Control Delay	66.8	65.4	67.2	66.9
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	13.7	14	13.4	13.7

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	466	128	0	0	0	0	0	0	42	283	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	709	195	0	0	0	0	0	0	64	431	0

Major/Minor	Minor2					Major2		
Conflicting Flow All	558	558	214			0	0	0
Stage 1	558	558	-			-	-	-
Stage 2	0	0	-			-	-	-
Critical Hdwy	6.44	6.54	7.14			-	-	-
Critical Hdwy Stg 1	7.34	5.54	-			-	-	-
Critical Hdwy Stg 2	-	-	-			-	-	-
Follow-up Hdwy	3.82	4.02	3.92			-	-	-
Pot Cap-1 Maneuver	460	~ 437	673			-	-	-
Stage 1	400	~ 510	-			-	-	-
Stage 2	-	-	-			-	-	-
Platoon blocked, %							-	-
Mov Cap-1 Maneuver	460	0	673			-	-	-
Mov Cap-2 Maneuver	460	0	-			-	-	-
Stage 1	400	0	-			-	-	-
Stage 2	-	0	-			-	-	-

Approach	EB	SB
HCM Control Delay, s		
HCM LOS	-	

Minor Lane/Major Mvmt	EBLn1	EBLn2	SBL	SBT	SBR
Capacity (veh/h)	-	673	-	-	-
HCM Lane V/C Ratio	-	0.816	-	-	-
HCM Control Delay (s)	-	29.6	-	-	-
HCM Lane LOS	-	D	-	-	-
HCM 95th %tile Q(veh)	-	8.6	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	24	484	0	0	0	0	0	969	110	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1081	856	000 -
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	737	0	0	0	0	0	1475	167	0	0	0

Major/Minor	Minor2			Major1		
Conflicting Flow All	737	1642	0	0	0	0
Stage 1	0	0	-	-	-	-
Stage 2	737	1642	-	-	-	-
Critical Hdwy	7.54	6.54	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	-	-	-
Pot Cap-1 Maneuver	307	~ 99	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	376	~ 156	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	307	0	-	-	-	-
Mov Cap-2 Maneuver	307	0	-	-	-	-
Stage 1	-	0	-	-	-	-
Stage 2	376	0	-	-	-	-

Approach	EB	NB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2
Capacity (veh/h)	-	-	-	307	-
HCM Lane V/C Ratio	-	-	-	1.319	-
HCM Control Delay (s)	0	-	-	198.4	-
HCM Lane LOS	A	-	-	F	-
HCM 95th %tile Q(veh)	-	-	-	19.9	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	72	398	105	0	0	0	0	312	9	22	248	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	110	606	160	0	0	0	0	475	14	33	377	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	681	932	-	377	0	0	488	0	0
Stage 1	444	444	-	-	-	-	-	-	-
Stage 2	237	488	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	-	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	384	~ 265	0	1178	-	-	1071	-	-
Stage 1	614	~ 574	0	-	-	-	-	-	-
Stage 2	780	~ 548	0	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	372	0	-	1178	-	-	1071	-	-
Mov Cap-2 Maneuver	372	0	-	-	-	-	-	-	-
Stage 1	595	0	-	-	-	-	-	-	-
Stage 2	780	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s		0	0.7
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	SBL	SBT	SBR
Capacity (veh/h)	1178	-	-	372	-	-	1071	-	-
HCM Lane V/C Ratio	-	-	-	1.109	-	-	0.031	-	-
HCM Control Delay (s)	0	-	-	112.8	-	0	8.5	-	-
HCM Lane LOS	A	-	-	F	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	15.2	-	-	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	148	226	55	0	0	0	0	598	78	128	519	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	225	344	84				0	910	119	195	790	0
Adj No. of Lanes	1	2	0				0	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	295	471	114				0	3299	430	423	3684	0
Arrive On Green	0.17	0.17	0.17				0.00	0.72	0.72	1.00	1.00	0.00
Sat Flow, veh/h	1774	2830	682				0	4722	593	546	5253	0
Grp Volume(v), veh/h	225	213	215				0	676	353	195	790	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1742				0	1695	1758	546	1695	0
Q Serve(g_s), s	13.3	12.6	12.9				0.0	7.6	7.6	7.4	0.0	0.0
Cycle Q Clear(g_c), s	13.3	12.6	12.9				0.0	7.6	7.6	15.0	0.0	0.0
Prop In Lane	1.00		0.39				0.00		0.34	1.00		0.00
Lane Grp Cap(c), veh/h	295	295	290				0	2456	1273	423	3684	0
V/C Ratio(X)	0.76	0.72	0.74				0.00	0.28	0.28	0.46	0.21	0.00
Avail Cap(c_a), veh/h	514	513	505				0	2456	1273	423	3684	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	43.8	43.4	43.6				0.0	5.2	5.2	0.7	0.0	0.0
Incr Delay (d2), s/veh	4.1	3.4	3.7				0.0	0.3	0.5	3.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.8	6.4	6.5				0.0	3.6	3.8	1.4	0.0	0.0
LnGrp Delay(d),s/veh	47.8	46.8	47.3				0.0	5.5	5.8	4.2	0.1	0.0
LnGrp LOS	D	D	D					A	A	A	A	
Approach Vol, veh/h		653						1029			985	
Approach Delay, s/veh		47.3						5.6			0.9	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		85.6				85.6		24.4
Change Period (Y+Rc), s		* 5.9				* 5.9		6.1
Max Green Setting (Gmax), s		* 66				* 66		31.9
Max Q Clear Time (g_c+I1), s		17.0				9.6		15.3
Green Ext Time (p_c), s		22.2				23.3		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	40
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	0	0	0	475	0	0	10	911	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	723	0	0	15	1386	0	0	0	0	0
Number of Lanes	0	0	0	0	0	0	2	0	0	1	2	0	0	0	0	0

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	3	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	2
HCM Control Delay	20.3	50.1
HCM LOS	C	F

Lane	NBLn1	NBLn2	NBLn3	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	100%	100%
Vol Right, %	0%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	456	456	238	238
LT Vol	10	0	0	0	0
Through Vol	0	456	456	238	238
RT Vol	0	0	0	0	0
Lane Flow Rate	15	693	693	361	361
Geometry Grp	7	7	7	8	8
Degree of Util (X)	0.03	1	0.921	0.714	0.542
Departure Headway (Hd)	7.042	6.536	4.782	7.232	5.513
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	511	561	762	502	658
Service Time	4.742	4.236	2.482	4.932	3.213
HCM Lane V/C Ratio	0.029	1.235	0.909	0.719	0.549
HCM Control Delay	10	63.5	37.6	26	14.5
HCM Lane LOS	A	F	E	D	B
HCM 95th-tile Q	0.1	14.4	12.8	5.7	3.3

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	60	585	0	0	0	0	0	265	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	91	890	0	0	0	0	0	403	61

Major/Minor	Minor1			Major2		
Conflicting Flow All	161	464	0	0	0	0
Stage 1	0	0	-	-	-	-
Stage 2	161	464	-	-	-	-
Critical Hdwy	6.44	6.54	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	-	-	-
Follow-up Hdwy	3.82	4.02	-	-	-	-
Pot Cap-1 Maneuver	769	~ 494	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	758	~ 562	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	769	0	-	-	-	-
Mov Cap-2 Maneuver	769	0	-	-	-	-
Stage 1	-	0	-	-	-	-
Stage 2	758	0	-	-	-	-

Approach	WB	SB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	769	-	-	-	-
HCM Lane V/C Ratio	0.698	-	-	-	-
HCM Control Delay (s)	19.7	-	0	-	-
HCM Lane LOS	C	-	A	-	-
HCM 95th %tile Q(veh)	5.8	-	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	0	464	35	181	812	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1082654720		-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	706	53	275	1236	0	0	0	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	1787	1787	617	0	0	0
Stage 1	1787	1787	-	-	-	-
Stage 2	0	0	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	51	~ 80	433	-	-	-
Stage 1	84	~ 132	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	51	0	433	-	-	-
Mov Cap-2 Maneuver	51	0	-	-	-	-
Stage 1	84	0	-	-	-	-
Stage 2	-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS	-	

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2
Capacity (veh/h)	-	-	-	-	433
HCM Lane V/C Ratio	-	-	-	-	0.938
HCM Control Delay (s)	-	-	-	-	60.3
HCM Lane LOS	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	-	10.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	15.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	42	240	24	68	316	0	0	228	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	250	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	64	365	37	103	481	0	0	347	50

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	861	1085	240	397	0	0	481	0	0
Stage 1	688	688	-	-	-	-	-	-	-
Stage 2	173	397	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	295	~ 215	761	1158	-	-	1078	-	-
Stage 1	460	445	-	-	-	-	-	-	-
Stage 2	840	602	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	269	0	761	1158	-	-	1078	-	-
Mov Cap-2 Maneuver	269	0	-	-	-	-	-	-	-
Stage 1	419	0	-	-	-	-	-	-	-
Stage 2	840	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.8	1.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1158	-	-	269	761	1078	-	-
HCM Lane V/C Ratio	0.089	-	-	0.916	0.288	-	-	-
HCM Control Delay (s)	8.4	-	-	76.2	11.6	0	-	-
HCM Lane LOS	A	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	8.3	1.2	0	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	99	181	168	51	695	0	0	548	74
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1863
Adj Flow Rate, veh/h				151	275	0	78	1058	0	0	834	0
Adj No. of Lanes				1	2	0	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				214	428	0	542	3920	0	0	3920	1221
Arrive On Green				0.12	0.12	0.00	0.77	0.77	0.00	0.00	0.77	0.00
Sat Flow, veh/h				1774	3632	0	656	5253	0	0	5253	1583
Grp Volume(v), veh/h				151	275	0	78	1058	0	0	834	0
Grp Sat Flow(s),veh/h/ln				1774	1770	0	656	1695	0	0	1695	1583
Q Serve(g_s), s				9.0	8.1	0.0	4.1	6.6	0.0	0.0	4.9	0.0
Cycle Q Clear(g_c), s				9.0	8.1	0.0	9.0	6.6	0.0	0.0	4.9	0.0
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				214	428	0	542	3920	0	0	3920	1221
V/C Ratio(X)				0.70	0.64	0.00	0.14	0.27	0.00	0.00	0.21	0.00
Avail Cap(c_a), veh/h				676	1348	0	542	3920	0	0	3920	1221
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.94	0.94	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.5	46.1	0.0	4.7	3.6	0.0	0.0	3.5	0.0
Incr Delay (d2), s/veh				4.2	1.6	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				4.7	4.1	0.0	0.8	3.0	0.0	0.0	2.3	0.0
LnGrp Delay(d),s/veh				50.6	47.7	0.0	4.8	3.7	0.0	0.0	3.6	0.0
LnGrp LOS				D	D		A	A			A	
Approach Vol, veh/h					426			1136			834	
Approach Delay, s/veh					48.8			3.8			3.6	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		90.6		19.4		90.6		
Change Period (Y+Rc), s		* 5.8		* 6.1		5.8		
Max Green Setting (Gmax), s		* 57		* 42		56.2		
Max Q Clear Time (g_c+I1), s		6.9		11.0		11.0		
Green Ext Time (p_c), s		20.8		2.3		20.0		

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Arterial Level of Service: EB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 14th St.	3	54.9	98.8	0.1	6
N 15th St.	6	13.8	28.7	0.1	9
N 21st St.	11	72.2	118.1	0.5	14
N 22nd St.	14	80.7	87.9	0.0	2
N 34th St.	10	22.2	105.4	0.8	26
N 40th St.	19	38.3	96.0	0.5	19
E 19th Ave.	25	4.0	31.8	0.2	26
HART DRIVE	49	3.3	11.4	0.1	27
	22	2.4	16.4	0.1	26
Total		291.8	594.5	2.4	15

Arterial Level of Service: WB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Columbus Dr.	22	3.9	17.8	0.1	23
HART DRIVE	49	2.5	24.0	0.1	17
E 19th Ave.	25	2.4	14.1	0.1	22
Total		8.8	56.0	0.3	20

Arterial Level of Service: WB E 19th Ave.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 40th St.	26	39.2	73.7	0.3	13
	35	3.4	42.3	0.3	28
	36	0.4	11.8	0.1	29
N 34th St.	24	19.4	29.5	0.1	11
	37	2.9	32.3	0.2	27
	38	0.3	14.3	0.1	29
N 22nd St.	40	80.1	119.0	0.4	12
N 21st St.	39	12.5	18.4	0.0	9
	43	2.6	11.8	0.1	24
	41	0.3	14.7	0.1	30
	44	1.8	26.7	0.2	29
N 15th St.	9	10.0	14.7	0.0	10
Avenida Republica De	3	10.2	21.1	0.1	15
Total		183.1	430.4	2.1	18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	136	544	0	0	0	0	0	785	173	0	0	0
Number	3	8	18				1	6	16			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	0				0	1863	1900			
Adj Flow Rate, veh/h	207	828	0				0	1195	263			
Adj No. of Lanes	0	2	0				0	2	0			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	331	1100	0				0	1288	281			
Arrive On Green	0.42	0.42	0.00				0.00	0.45	0.45			
Sat Flow, veh/h	626	2732	0				0	2984	630			
Grp Volume(v), veh/h	536	499	0				0	727	731			
Grp Sat Flow(s),veh/h/ln	1663	1610	0				0	1770	1751			
Q Serve(g_s), s	18.8	18.4	0.0				0.0	27.1	27.8			
Cycle Q Clear(g_c), s	19.4	18.4	0.0				0.0	27.1	27.8			
Prop In Lane	0.39		0.00				0.00		0.36			
Lane Grp Cap(c), veh/h	763	669	0				0	789	781			
V/C Ratio(X)	0.70	0.75	0.00				0.00	0.92	0.94			
Avail Cap(c_a), veh/h	763	669	0				0	789	781			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	17.6	17.3	0.0				0.0	18.3	18.5			
Incr Delay (d2), s/veh	0.5	0.7	0.0				0.0	17.9	19.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	8.9	8.2	0.0				0.0	17.1	17.5			
LnGrp Delay(d),s/veh	18.1	18.0	0.0				0.0	36.1	38.4			
LnGrp LOS	B	B						D	D			
Approach Vol, veh/h		1035						1458				
Approach Delay, s/veh		18.1						37.3				
Approach LOS		B						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						36.0		34.0
Change Period (Y+Rc), s						4.8		4.9
Max Green Setting (Gmax), s						31.2		29.1
Max Q Clear Time (g_c+I1), s						29.8		21.4
Green Ext Time (p_c), s						1.2		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	466	128	0	0	0	0	0	0	42	283	0
Number	3	8	18							5	2	12
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900							1900	1863	0
Adj Flow Rate, veh/h	0	709	195							64	431	0
Adj No. of Lanes	0	2	0							0	3	0
Peak Hour Factor	0.92	0.92	0.92							0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	1164	320							150	774	0
Arrive On Green	0.00	0.42	0.42							0.06	0.06	0.00
Sat Flow, veh/h	0	2838	755							457	4497	0
Grp Volume(v), veh/h	0	457	447							189	306	0
Grp Sat Flow(s),veh/h/ln	0	1770	1730							1717	1543	0
Q Serve(g_s), s	0.0	14.0	14.0							5.0	6.8	0.0
Cycle Q Clear(g_c), s	0.0	14.0	14.0							7.4	6.8	0.0
Prop In Lane	0.00		0.44							0.34		0.00
Lane Grp Cap(c), veh/h	0	751	734							375	550	0
V/C Ratio(X)	0.00	0.61	0.61							0.50	0.56	0.00
Avail Cap(c_a), veh/h	0	751	734							793	1318	0
HCM Platoon Ratio	1.00	1.00	1.00							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.65	0.65							0.99	0.99	0.00
Uniform Delay (d), s/veh	0.0	15.6	15.6							30.5	30.3	0.0
Incr Delay (d2), s/veh	0.0	2.4	2.4							1.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	7.2	7.1							3.7	3.0	0.0
LnGrp Delay(d),s/veh	0.0	18.0	18.1							31.5	31.1	0.0
LnGrp LOS		B	B							C	C	
Approach Vol, veh/h		904									495	
Approach Delay, s/veh		18.0									31.3	
Approach LOS		B									C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						8
Phs Duration (G+Y+Rc), s		17.6						35.0
Change Period (Y+Rc), s		* 5.1						5.3
Max Green Setting (Gmax), s		* 30						29.7
Max Q Clear Time (g_c+I1), s		9.4						16.0
Green Ext Time (p_c), s		3.0						5.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	484	0	0	0	0	0	969	110	0	0	0
Number	3	8	18				1	6	16			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	0				0	1863	1900			
Adj Flow Rate, veh/h	37	737	0				0	1475	167			
Adj No. of Lanes	0	2	0				0	2	0			
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0				0	2	2			
Cap, veh/h	94	1364	0				0	1467	165			
Arrive On Green	0.13	0.13	0.00				0.00	0.15	0.15			
Sat Flow, veh/h	93	3436	0				0	3302	360			
Grp Volume(v), veh/h	413	361	0				0	808	834			
Grp Sat Flow(s),veh/h/ln	1833	1610	0				0	1770	1799			
Q Serve(g_s), s	2.4	14.6	0.0				0.0	31.9	32.0			
Cycle Q Clear(g_c), s	14.6	14.6	0.0				0.0	31.9	32.0			
Prop In Lane	0.09		0.00				0.00		0.20			
Lane Grp Cap(c), veh/h	802	656	0				0	809	822			
V/C Ratio(X)	0.52	0.55	0.00				0.00	1.00	1.01			
Avail Cap(c_a), veh/h	802	656	0				0	809	822			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	0.33	0.33			
Upstream Filter(I)	0.93	0.93	0.00				0.00	0.36	0.36			
Uniform Delay (d), s/veh	24.2	24.3	0.0				0.0	29.7	29.7			
Incr Delay (d2), s/veh	2.2	3.1	0.0				0.0	18.7	22.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	8.0	7.1	0.0				0.0	19.8	21.1			
LnGrp Delay(d),s/veh	26.4	27.4	0.0				0.0	48.4	52.3			
LnGrp LOS	C	C						D	F			
Approach Vol, veh/h		774						1642				
Approach Delay, s/veh		26.9						50.4				
Approach LOS		C						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						36.8		33.2
Change Period (Y+Rc), s						4.8		4.7
Max Green Setting (Gmax), s						32.0		28.5
Max Q Clear Time (g_c+I1), s						34.0		16.6
Green Ext Time (p_c), s						0.0		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	72	398	105	0	0	0	0	312	9	22	248	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	110	606	160	0	0	0	0	475	14	33	377	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	681	932	-	377	0	0	488	0	0
Stage 1	444	444	-	-	-	-	-	-	-
Stage 2	237	488	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	-	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	384	~ 265	0	1178	-	-	1071	-	-
Stage 1	614	~ 574	0	-	-	-	-	-	-
Stage 2	780	~ 548	0	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	372	0	-	1178	-	-	1071	-	-
Mov Cap-2 Maneuver	372	0	-	-	-	-	-	-	-
Stage 1	595	0	-	-	-	-	-	-	-
Stage 2	780	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s		0	0.7
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	SBL	SBT	SBR
Capacity (veh/h)	1178	-	-	372	-	-	1071	-	-
HCM Lane V/C Ratio	-	-	-	1.109	-	-	0.031	-	-
HCM Control Delay (s)	0	-	-	112.8	-	0	8.5	-	-
HCM Lane LOS	A	-	-	F	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	15.2	-	-	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	148	226	55	0	0	0	0	598	78	128	519	0
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	225	344	84				0	910	119	195	790	0
Adj No. of Lanes	1	2	0				0	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	295	471	114				0	3299	430	423	3684	0
Arrive On Green	0.17	0.17	0.17				0.00	0.72	0.72	1.00	1.00	0.00
Sat Flow, veh/h	1774	2830	682				0	4722	593	546	5253	0
Grp Volume(v), veh/h	225	213	215				0	676	353	195	790	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1742				0	1695	1758	546	1695	0
Q Serve(g_s), s	13.3	12.6	12.9				0.0	7.6	7.6	7.4	0.0	0.0
Cycle Q Clear(g_c), s	13.3	12.6	12.9				0.0	7.6	7.6	15.0	0.0	0.0
Prop In Lane	1.00		0.39				0.00		0.34	1.00		0.00
Lane Grp Cap(c), veh/h	295	295	290				0	2456	1273	423	3684	0
V/C Ratio(X)	0.76	0.72	0.74				0.00	0.28	0.28	0.46	0.21	0.00
Avail Cap(c_a), veh/h	514	513	505				0	2456	1273	423	3684	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	43.8	43.4	43.6				0.0	5.2	5.2	0.7	0.0	0.0
Incr Delay (d2), s/veh	4.1	3.4	3.7				0.0	0.3	0.5	3.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.8	6.4	6.5				0.0	3.6	3.8	1.4	0.0	0.0
LnGrp Delay(d),s/veh	47.8	46.8	47.3				0.0	5.5	5.8	4.2	0.1	0.0
LnGrp LOS	D	D	D					A	A	A	A	
Approach Vol, veh/h		653						1029			985	
Approach Delay, s/veh		47.3						5.6			0.9	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		85.6				85.6		24.4
Change Period (Y+Rc), s		* 5.9				* 5.9		6.1
Max Green Setting (Gmax), s		* 66				* 66		31.9
Max Q Clear Time (g_c+I1), s		17.0				9.6		15.3
Green Ext Time (p_c), s		22.2				23.3		3.0

Intersection Summary		
HCM 2010 Ctrl Delay		14.1
HCM 2010 LOS		B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↰	↑↑				
Volume (veh/h)	0	0	0	0	475	0	10	911	0	0	0	0
Number				7	4	14	1	6	16			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1863	0	1863	1863	0			
Adj Flow Rate, veh/h				0	723	0	15	1386	0			
Adj No. of Lanes				0	2	0	1	2	0			
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %				0	2	0	2	2	0			
Cap, veh/h				0	1284	0	899	1588	0			
Arrive On Green				0.00	0.36	0.00	0.15	0.15	0.00			
Sat Flow, veh/h				0	3725	0	1774	3632	0			
Grp Volume(v), veh/h				0	723	0	15	1386	0			
Grp Sat Flow(s),veh/h/ln				0	1770	0	1774	1770	0			
Q Serve(g_s), s				0.0	11.5	0.0	0.5	26.8	0.0			
Cycle Q Clear(g_c), s				0.0	11.5	0.0	0.5	26.8	0.0			
Prop In Lane				0.00		0.00	1.00		0.00			
Lane Grp Cap(c), veh/h				0	1284	0	899	1588	0			
V/C Ratio(X)				0.00	0.56	0.00	0.02	0.87	0.00			
Avail Cap(c_a), veh/h				0	1284	0	899	1588	0			
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00			
Upstream Filter(I)				0.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	17.9	0.0	16.7	27.9	0.0			
Incr Delay (d2), s/veh				0.0	1.8	0.0	0.0	6.9	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln				0.0	5.8	0.0	0.3	14.7	0.0			
LnGrp Delay(d),s/veh				0.0	19.6	0.0	16.7	34.8	0.0			
LnGrp LOS					B		B	C				
Approach Vol, veh/h					723			1401				
Approach Delay, s/veh					19.6			34.6				
Approach LOS					B			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				32.0		38.0		
Change Period (Y+Rc), s				* 6.6		6.6		
Max Green Setting (Gmax), s				* 25		31.4		
Max Q Clear Time (g_c+I1), s				13.5		28.8		
Green Ext Time (p_c), s				3.9		2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	60	585	0	0	0	0	0	265	40
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	0				0	1863	1900
Adj Flow Rate, veh/h				91	890	0				0	403	61
Adj No. of Lanes				0	2	0				0	3	0
Peak Hour Factor				0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				161	1271	0				0	2045	303
Arrive On Green				0.13	0.13	0.00				0.00	0.46	0.46
Sat Flow, veh/h				249	3229	0				0	4642	662
Grp Volume(v), veh/h				519	462	0				0	303	161
Grp Sat Flow(s),veh/h/ln				1783	1610	0				0	1695	1746
Q Serve(g_s), s				13.9	19.2	0.0				0.0	3.7	3.9
Cycle Q Clear(g_c), s				19.4	19.2	0.0				0.0	3.7	3.9
Prop In Lane				0.18		0.00				0.00		0.38
Lane Grp Cap(c), veh/h				781	651	0				0	1550	798
V/C Ratio(X)				0.66	0.71	0.00				0.00	0.20	0.20
Avail Cap(c_a), veh/h				781	651	0				0	1550	798
HCM Platoon Ratio				0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.83	0.83	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				26.4	26.4	0.0				0.0	11.3	11.4
Incr Delay (d2), s/veh				3.7	5.4	0.0				0.0	0.3	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				10.5	9.5	0.0				0.0	1.8	2.0
LnGrp Delay(d),s/veh				30.1	31.8	0.0				0.0	11.6	11.9
LnGrp LOS				C	C						B	B
Approach Vol, veh/h					981						464	
Approach Delay, s/veh					30.9						11.7	
Approach LOS					C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		36.9		33.1				
Change Period (Y+Rc), s		4.9		* 4.8				
Max Green Setting (Gmax), s		32.0		* 28				
Max Q Clear Time (g_c+I1), s		5.9		21.4				
Green Ext Time (p_c), s		3.1		3.4				

Intersection Summary		
HCM 2010 Ctrl Delay		24.7
HCM 2010 LOS		C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	464	35	181	812	0	0	0	0
Number				7	4	14	1	6	16			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1863	1900	1900	1863	0			
Adj Flow Rate, veh/h				0	706	53	275	1236	0			
Adj No. of Lanes				0	2	0	0	2	0			
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %				0	2	2	2	2	0			
Cap, veh/h				0	1359	102	336	1241	0			
Arrive On Green				0.00	0.41	0.41	0.15	0.15	0.00			
Sat Flow, veh/h				0	3431	250	581	2791	0			
Grp Volume(v), veh/h				0	374	385	794	717	0			
Grp Sat Flow(s),veh/h/ln				0	1770	1819	1677	1610	0			
Q Serve(g_s), s				0.0	11.1	11.1	32.1	31.0	0.0			
Cycle Q Clear(g_c), s				0.0	11.1	11.1	32.1	31.0	0.0			
Prop In Lane				0.00		0.14	0.35		0.00			
Lane Grp Cap(c), veh/h				0	720	740	838	738	0			
V/C Ratio(X)				0.00	0.52	0.52	0.95	0.97	0.00			
Avail Cap(c_a), veh/h				0	720	740	838	738	0			
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00			
Upstream Filter(I)				0.00	1.00	1.00	0.09	0.09	0.00			
Uniform Delay (d), s/veh				0.0	15.6	15.6	30.2	29.2	0.0			
Incr Delay (d2), s/veh				0.0	2.7	2.6	3.1	5.3	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln				0.0	5.9	6.1	16.1	14.9	0.0			
LnGrp Delay(d),s/veh				0.0	18.3	18.2	33.3	34.5	0.0			
LnGrp LOS					B	B	C	C				
Approach Vol, veh/h					759			1511				
Approach Delay, s/veh					18.2			33.9				
Approach LOS					B			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				33.2		36.8		
Change Period (Y+Rc), s				* 4.7		4.7		
Max Green Setting (Gmax), s				* 29		32.1		
Max Q Clear Time (g_c+I1), s				13.1		34.1		
Green Ext Time (p_c), s				4.3		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	15.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	42	240	24	68	316	0	0	228	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	250	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	64	365	37	103	481	0	0	347	50

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	861	1085	240	397	0	0	481	0	0
Stage 1	688	688	-	-	-	-	-	-	-
Stage 2	173	397	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	295	~ 215	761	1158	-	-	1078	-	-
Stage 1	460	445	-	-	-	-	-	-	-
Stage 2	840	602	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	269	0	761	1158	-	-	1078	-	-
Mov Cap-2 Maneuver	269	0	-	-	-	-	-	-	-
Stage 1	419	0	-	-	-	-	-	-	-
Stage 2	840	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.8	1.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1158	-	-	269	761	1078	-	-
HCM Lane V/C Ratio	0.089	-	-	0.916	0.288	-	-	-
HCM Control Delay (s)	8.4	-	-	76.2	11.6	0	-	-
HCM Lane LOS	A	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	8.3	1.2	0	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	99	181	168	51	695	0	0	548	74
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	1900	1863	1863	0	0	1863	1863
Adj Flow Rate, veh/h				151	275	0	78	1058	0	0	834	0
Adj No. of Lanes				1	2	0	1	3	0	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				214	428	0	542	3920	0	0	3920	1221
Arrive On Green				0.12	0.12	0.00	0.77	0.77	0.00	0.00	0.77	0.00
Sat Flow, veh/h				1774	3632	0	656	5253	0	0	5253	1583
Grp Volume(v), veh/h				151	275	0	78	1058	0	0	834	0
Grp Sat Flow(s),veh/h/ln				1774	1770	0	656	1695	0	0	1695	1583
Q Serve(g_s), s				9.0	8.1	0.0	4.1	6.6	0.0	0.0	4.9	0.0
Cycle Q Clear(g_c), s				9.0	8.1	0.0	9.0	6.6	0.0	0.0	4.9	0.0
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				214	428	0	542	3920	0	0	3920	1221
V/C Ratio(X)				0.70	0.64	0.00	0.14	0.27	0.00	0.00	0.21	0.00
Avail Cap(c_a), veh/h				676	1348	0	542	3920	0	0	3920	1221
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00	0.94	0.94	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				46.5	46.1	0.0	4.7	3.6	0.0	0.0	3.5	0.0
Incr Delay (d2), s/veh				4.2	1.6	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				4.7	4.1	0.0	0.8	3.0	0.0	0.0	2.3	0.0
LnGrp Delay(d),s/veh				50.6	47.7	0.0	4.8	3.7	0.0	0.0	3.6	0.0
LnGrp LOS				D	D		A	A			A	
Approach Vol, veh/h					426			1136			834	
Approach Delay, s/veh					48.8			3.8			3.6	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		90.6		19.4		90.6		
Change Period (Y+Rc), s		* 5.8		* 6.1		5.8		
Max Green Setting (Gmax), s		* 57		* 42		56.2		
Max Q Clear Time (g_c+I1), s		6.9		11.0		11.0		
Green Ext Time (p_c), s		20.8		2.3		20.0		

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Arterial Level of Service: EB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 14th St.	3	105.2	505.9	0.1	4
N 15th St.	6	14.9	29.9	0.1	9
N 21st St.	11	5.2	51.2	0.5	32
N 22nd St.	14	15.5	21.8	0.0	8
N 34th St.	10	23.6	104.6	0.8	26
N 40th St.	19	37.8	94.9	0.5	19
E 19th Ave.	25	3.6	31.1	0.2	26
HART DRIVE	49	2.8	11.0	0.1	28
	22	2.3	16.4	0.1	26
Total		210.8	866.7	2.4	18

Arterial Level of Service: WB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Columbus Dr.	22	4.2	18.1	0.1	22
HART DRIVE	49	2.8	25.0	0.1	17
E 19th Ave.	25	2.4	14.1	0.1	22
Total		9.4	57.3	0.3	20

Arterial Level of Service: WB E 19th Ave.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 40th St.	26	38.0	72.4	0.3	13
	35	3.4	42.2	0.3	28
	36	0.4	11.8	0.1	29
N 34th St.	24	19.7	29.9	0.1	11
	37	2.8	31.9	0.2	28
	38	0.3	14.2	0.1	29
N 22nd St.	40	17.7	57.4	0.4	25
N 21st St.	39	33.8	39.7	0.0	4
	43	2.8	12.0	0.1	24
	41	1.3	15.7	0.1	28
	44	16.7	42.0	0.2	19
N 15th St.	9	25.7	30.2	0.0	5
Avenida Republica De	3	11.7	22.5	0.1	14
Total		174.3	421.9	2.1	18

Appendix B
Synchro Summary Reports for Two-Way Scenario Options

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	166	514	0	0	475	60	10	845	133	0	0	0
Number	3	8	18	7	4	14	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1900			
Adj Flow Rate, veh/h	253	782	0	0	723	91	15	1286	202			
Adj No. of Lanes	1	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	194	933	0	0	636	80	14	1270	209			
Arrive On Green	0.15	1.00	0.00	0.00	0.39	0.39	0.41	0.41	0.41			
Sat Flow, veh/h	1774	1863	0	0	1622	204	35	3090	509			
Grp Volume(v), veh/h	253	782	0	0	0	814	800	0	703			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	0	1827	1861	0	1773			
Q Serve(g_s), s	8.0	0.0	0.0	0.0	0.0	43.1	45.2	0.0	42.6			
Cycle Q Clear(g_c), s	8.0	0.0	0.0	0.0	0.0	43.1	45.2	0.0	42.6			
Prop In Lane	1.00		0.00	0.00		0.11	0.02		0.29			
Lane Grp Cap(c), veh/h	194	933	0	0	0	716	765	0	728			
V/C Ratio(X)	1.30	0.84	0.00	0.00	0.00	1.14	1.05	0.00	0.97			
Avail Cap(c_a), veh/h	194	933	0	0	0	716	765	0	728			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.51	0.51	0.00	0.00	0.00	0.69	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	0.0	0.0	0.0	0.0	33.5	32.4	0.0	31.6			
Incr Delay (d2), s/veh	153.3	4.7	0.0	0.0	0.0	73.8	45.2	0.0	25.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	14.1	1.2	0.0	0.0	0.0	36.3	32.7	0.0	25.9			
LnGrp Delay(d),s/veh	179.8	4.7	0.0	0.0	0.0	107.2	77.6	0.0	57.5			
LnGrp LOS	F	A				F	F		E			
Approach Vol, veh/h		1035			814			1503				
Approach Delay, s/veh		47.5			107.2			68.2				
Approach LOS		D			F			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		50.0	12.0	48.0				60.0
Change Period (Y+Rc), s		* 4.8	4.0	4.9				4.9
Max Green Setting (Gmax), s		* 45	8.0	43.1				55.1
Max Q Clear Time (g_c+I1), s		47.2	10.0	45.1				2.0
Green Ext Time (p_c), s		0.0	0.0	0.0				19.1

Intersection Summary	
HCM 2010 Ctrl Delay	71.3
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	390	118	40	463	0	0	0	0	35	253	72
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1900	1863	0				1900	1863	1900
Adj Flow Rate, veh/h	0	593	180	61	705	0				53	385	110
Adj No. of Lanes	0	1	0	0	1	0				0	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				0	2	0
Cap, veh/h	0	914	277	109	1045	0				73	562	161
Arrive On Green	0.00	0.67	0.67	0.67	0.67	0.00				0.05	0.05	0.05
Sat Flow, veh/h	0	1373	417	81	1569	0				479	3676	1055
Grp Volume(v), veh/h	0	0	773	766	0	0				203	170	175
Grp Sat Flow(s),veh/h/ln	0	0	1789	1650	0	0				1839	1695	1677
Q Serve(g_s), s	0.0	0.0	17.8	2.2	0.0	0.0				7.6	6.9	7.2
Cycle Q Clear(g_c), s	0.0	0.0	17.8	20.0	0.0	0.0				7.6	6.9	7.2
Prop In Lane	0.00		0.23	0.08		0.00				0.26		0.63
Lane Grp Cap(c), veh/h	0	0	1191	1154	0	0				281	259	256
V/C Ratio(X)	0.00	0.00	0.65	0.66	0.00	0.00				0.72	0.66	0.68
Avail Cap(c_a), veh/h	0	0	1191	1154	0	0				341	315	311
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	0.00	0.43	0.50	0.00	0.00				0.97	0.97	0.97
Uniform Delay (d), s/veh	0.0	0.0	6.9	6.7	0.0	0.0				31.8	31.4	31.6
Incr Delay (d2), s/veh	0.0	0.0	1.2	1.5	0.0	0.0				5.7	3.5	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	0.0	9.0	9.4	0.0	0.0				4.4	3.5	3.7
LnGrp Delay(d),s/veh	0.0	0.0	8.1	8.3	0.0	0.0				37.5	34.9	36.0
LnGrp LOS			A	A						D	C	D
Approach Vol, veh/h		773			766						548	
Approach Delay, s/veh		8.1			8.3						36.2	
Approach LOS		A			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		15.8		51.9				51.9
Change Period (Y+Rc), s		* 5.1		* 5.3				* 5.3
Max Green Setting (Gmax), s		* 13		* 47				* 47
Max Q Clear Time (g_c+I1), s		9.6		22.0				19.8
Green Ext Time (p_c), s		1.1		13.5				14.1

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	409	0	0	382	23	121	884	74	0	0	0
Number	3	8	18	7	4	14	1	6	16			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900			
Adj Flow Rate, veh/h	24	622	0	0	581	35	184	1345	113			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	61	611	0	0	723	44	176	1347	118			
Arrive On Green	0.83	0.83	0.00	0.00	0.42	0.42	0.15	0.15	0.15			
Sat Flow, veh/h	19	1470	0	0	1739	105	393	3003	263			
Grp Volume(v), veh/h	646	0	0	0	0	616	863	0	779			
Grp Sat Flow(s),veh/h/ln	1490	0	0	0	0	1844	1843	0	1816			
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	20.5	31.4	0.0	29.8			
Cycle Q Clear(g_c), s	29.1	0.0	0.0	0.0	0.0	20.5	31.4	0.0	29.8			
Prop In Lane	0.04		0.00	0.00		0.06	0.21		0.15			
Lane Grp Cap(c), veh/h	673	0	0	0	0	767	827	0	815			
V/C Ratio(X)	0.96	0.00	0.00	0.00	0.00	0.80	1.04	0.00	0.96			
Avail Cap(c_a), veh/h	673	0	0	0	0	767	827	0	815			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.75	0.00	0.00	0.00	0.00	0.90	0.46	0.00	0.46			
Uniform Delay (d), s/veh	5.9	0.0	0.0	0.0	0.0	17.9	29.8	0.0	29.1			
Incr Delay (d2), s/veh	21.8	0.0	0.0	0.0	0.0	7.9	33.5	0.0	13.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	0.8	0.0	0.0	0.0	0.0	12.0	23.7	0.0	18.0			
LnGrp Delay(d),s/veh	27.7	0.0	0.0	0.0	0.0	25.9	63.4	0.0	42.3			
LnGrp LOS	C					C	F		D			
Approach Vol, veh/h		646			616			1642				
Approach Delay, s/veh		27.7			25.9			53.4				
Approach LOS		C			C			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				33.8		36.2		33.8
Change Period (Y+Rc), s				* 4.7		4.8		* 4.7
Max Green Setting (Gmax), s				* 29		31.4		* 29
Max Q Clear Time (g_c+I1), s				22.5		33.4		31.1
Green Ext Time (p_c), s				4.2		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.8
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	340	70	28	209	16	46	269	6	15	255	44
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	73	517	0	43	318	24	70	409	9	23	388	67
Adj No. of Lanes	0	1	1	1	1	0	0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	636	672	321	726	55	216	1176	26	414	1278	219
Arrive On Green	0.42	0.42	0.00	0.42	0.42	0.42	0.42	0.42	0.42	0.85	0.85	0.85
Sat Flow, veh/h	145	1499	1583	881	1711	129	353	2781	61	965	3023	518
Grp Volume(v), veh/h	590	0	0	43	0	342	240	0	248	23	226	229
Grp Sat Flow(s),veh/h/ln	1644	0	1583	881	0	1840	1511	0	1684	965	1770	1771
Q Serve(g_s), s	13.7	0.0	0.0	0.0	0.0	9.2	1.5	0.0	7.0	0.6	1.9	1.9
Cycle Q Clear(g_c), s	22.9	0.0	0.0	4.8	0.0	9.2	6.4	0.0	7.0	7.6	1.9	1.9
Prop In Lane	0.12		1.00	1.00		0.07	0.29		0.04	1.00		0.29
Lane Grp Cap(c), veh/h	755	0	672	321	0	781	705	0	712	414	748	749
V/C Ratio(X)	0.78	0.00	0.00	0.13	0.00	0.44	0.34	0.00	0.35	0.06	0.30	0.31
Avail Cap(c_a), veh/h	755	0	672	321	0	781	705	0	712	414	748	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.09	0.00	0.00	0.32	0.00	0.32	1.00	0.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	18.2	0.0	0.0	13.0	0.0	14.2	13.4	0.0	13.7	5.0	3.3	3.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.3	0.0	0.6	1.3	0.0	1.3	0.2	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	1.3	0.0	0.0	0.6	0.0	4.8	3.3	0.0	3.5	0.2	1.0	1.0
LnGrp Delay(d),s/veh	18.9	0.0	0.0	13.3	0.0	14.8	14.7	0.0	15.0	5.3	4.3	4.3
LnGrp LOS	B			B		B	B		B	A	A	A
Approach Vol, veh/h		590			385			488			478	
Approach Delay, s/veh		18.9			14.6			14.9			4.3	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		35.0		35.0		35.0		35.0
Change Period (Y+Rc), s		5.4		* 5.3		5.4		* 5.3
Max Green Setting (Gmax), s		29.6		* 30		29.6		* 30
Max Q Clear Time (g_c+I1), s		9.6		11.2		9.0		24.9
Green Ext Time (p_c), s		5.6		6.4		5.6		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	99	186	37	92	141	113	34	572	70	108	425	78
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	151	283	56	140	215	172	52	870	107	164	647	119
Adj No. of Lanes	1	1	0	0	1	1	0	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	564	112	196	248	456	113	1809	221	333	2341	425
Arrive On Green	0.11	0.75	0.75	0.29	0.29	0.29	0.45	0.45	0.45	0.06	0.54	0.54
Sat Flow, veh/h	1774	1511	299	558	860	1583	185	4030	491	1774	4329	786
Grp Volume(v), veh/h	151	0	339	355	0	172	344	335	350	164	505	261
Grp Sat Flow(s),veh/h/ln	1774	0	1810	1418	0	1583	1555	1543	1608	1774	1695	1724
Q Serve(g_s), s	8.0	0.0	10.6	33.2	0.0	12.2	8.4	21.4	21.5	6.8	11.2	11.5
Cycle Q Clear(g_c), s	8.0	0.0	10.6	33.3	0.0	12.2	19.5	21.4	21.5	6.8	11.2	11.5
Prop In Lane	1.00		0.17	0.39		1.00	0.15		0.31	1.00		0.46
Lane Grp Cap(c), veh/h	202	0	676	444	0	456	728	693	722	333	1833	932
V/C Ratio(X)	0.75	0.00	0.50	0.80	0.00	0.38	0.47	0.48	0.49	0.49	0.28	0.28
Avail Cap(c_a), veh/h	202	0	843	575	0	602	728	693	722	373	1833	932
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.51	0.00	0.51	1.00	0.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	36.3	0.0	12.4	47.4	0.0	39.8	26.3	27.1	27.2	20.0	17.3	17.4
Incr Delay (d2), s/veh	7.6	0.0	0.3	6.1	0.0	0.5	2.2	2.4	2.3	1.1	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.5	0.0	5.1	13.8	0.0	5.4	9.6	9.6	10.0	3.4	5.4	5.6
LnGrp Delay(d),s/veh	43.9	0.0	12.7	53.4	0.0	40.4	28.5	29.5	29.5	21.1	17.7	18.1
LnGrp LOS	D		B	D		D	C	C	C	C	B	B
Approach Vol, veh/h		490			527			1029			930	
Approach Delay, s/veh		22.3			49.2			29.2			18.4	
Approach LOS		C			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6		8
Phs Duration (G+Y+Rc), s		81.6	12.0	46.4	12.9	68.8		58.4
Change Period (Y+Rc), s		* 5.9	4.0	* 6.1	4.0	* 5.9		* 6.1
Max Green Setting (Gmax), s		* 63	8.0	* 53	12.0	* 47		* 65
Max Q Clear Time (g_c+I1), s		13.5	10.0	35.3	8.8	23.5		12.6
Green Ext Time (p_c), s		15.9	0.0	5.0	0.1	11.9		6.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	65	1001	70	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	1081	1098240
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	99	1523	107	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	1577	814	0	0
Stage 1	1577	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	7.54	6.94	-	-
Critical Hdwy Stg 1	6.54	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-
Pot Cap-1 Maneuver	74	321	-	-
Stage 1	114	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	74	321	-	-
Mov Cap-2 Maneuver	74	-	-	-
Stage 1	114	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	21.1	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	321
HCM Lane V/C Ratio	-	-	0.308
HCM Control Delay (s)	-	-	21.1
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	81	10	65	60	0	0	0	0	7	285	13
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1900	1863	0				1900	1863	1900
Adj Flow Rate, veh/h	0	123	15	99	91	0				11	434	20
Adj No. of Lanes	0	1	0	0	1	0				0	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				0	2	0
Cap, veh/h	0	842	103	447	388	0				41	1727	82
Arrive On Green	0.00	0.52	0.52	0.52	0.52	0.00				0.34	0.34	0.34
Sat Flow, veh/h	0	1629	199	713	750	0				120	5015	237
Grp Volume(v), veh/h	0	0	138	190	0	0				170	141	153
Grp Sat Flow(s),veh/h/ln	0	0	1828	1462	0	0				1857	1695	1821
Q Serve(g_s), s	0.0	0.0	2.8	2.7	0.0	0.0				4.6	4.2	4.2
Cycle Q Clear(g_c), s	0.0	0.0	2.8	5.5	0.0	0.0				4.6	4.2	4.2
Prop In Lane	0.00		0.11	0.52		0.00				0.06		0.13
Lane Grp Cap(c), veh/h	0	0	945	835	0	0				639	584	627
V/C Ratio(X)	0.00	0.00	0.15	0.23	0.00	0.00				0.27	0.24	0.24
Avail Cap(c_a), veh/h	0	0	945	835	0	0				639	584	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.96	0.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	8.8	9.4	0.0	0.0				16.6	16.4	16.4
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.6	0.0	0.0				1.0	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	0.0	1.5	2.2	0.0	0.0				2.5	2.1	2.3
LnGrp Delay(d),s/veh	0.0	0.0	9.2	10.0	0.0	0.0				17.6	17.4	17.4
LnGrp LOS			A	B						B	B	B
Approach Vol, veh/h		138			190						465	
Approach Delay, s/veh		9.2			10.0						17.5	
Approach LOS		A			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		29.0		41.0				41.0
Change Period (Y+Rc), s		4.9		* 4.8				* 4.8
Max Green Setting (Gmax), s		24.1		* 36				* 36
Max Q Clear Time (g_c+I1), s		6.6		7.5				4.8
Green Ext Time (p_c), s		2.5		2.1				2.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	80	0	0	85	12	60	827	36	0	0	0
Number	3	8	18	7	4	14	1	6	16			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900			
Adj Flow Rate, veh/h	12	122	0	0	129	18	91	1258	55			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	73	462	0	0	418	58	138	1999	92			
Arrive On Green	0.26	0.26	0.00	0.00	0.26	0.26	0.20	0.20	0.20			
Sat Flow, veh/h	64	1766	0	0	1600	223	228	3307	151			
Grp Volume(v), veh/h	134	0	0	0	0	147	737	0	667			
Grp Sat Flow(s),veh/h/ln	1830	0	0	0	0	1823	1851	0	1836			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	4.5	25.7	0.0	23.1			
Cycle Q Clear(g_c), s	4.0	0.0	0.0	0.0	0.0	4.5	25.7	0.0	23.1			
Prop In Lane	0.09		0.00	0.00		0.12	0.12		0.08			
Lane Grp Cap(c), veh/h	535	0	0	0	0	477	1119	0	1109			
V/C Ratio(X)	0.25	0.00	0.00	0.00	0.00	0.31	0.66	0.00	0.60			
Avail Cap(c_a), veh/h	535	0	0	0	0	477	1119	0	1109			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.99	0.00	0.00	0.00	0.00	1.00	0.09	0.00	0.09			
Uniform Delay (d), s/veh	20.6	0.0	0.0	0.0	0.0	20.8	21.4	0.0	20.3			
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	2.2	0.0	0.0	0.0	0.0	2.5	13.3	0.0	11.8			
LnGrp Delay(d),s/veh	21.7	0.0	0.0	0.0	0.0	22.4	21.7	0.0	20.6			
LnGrp LOS	C					C	C		C			
Approach Vol, veh/h		134			147			1404				
Approach Delay, s/veh		21.7			22.4			21.1				
Approach LOS		C			C			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				23.0		47.0		23.0
Change Period (Y+Rc), s				* 4.7		4.7		* 4.7
Max Green Setting (Gmax), s				* 18		42.3		* 18
Max Q Clear Time (g_c+I1), s				6.5		27.7		6.0
Green Ext Time (p_c), s				1.2		8.4		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	60	35	30	60	8	22	308	3	7	249	5
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	37	91	53	46	91	12	33	469	5	11	379	8
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	345	179	217	402	48	514	1722	18	70	1635	34
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.96	0.96	0.96	0.48	0.48	0.48
Sat Flow, veh/h	237	944	489	408	1100	132	992	3587	38	34	3406	71
Grp Volume(v), veh/h	181	0	0	149	0	0	33	231	243	208	0	190
Grp Sat Flow(s),veh/h/ln	1670	0	0	1641	0	0	992	1770	1856	1828	0	1683
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.5	0.0	0.0	4.6
Cycle Q Clear(g_c), s	5.1	0.0	0.0	3.9	0.0	0.0	5.1	0.5	0.5	4.6	0.0	4.6
Prop In Lane	0.20		0.29	0.31		0.08	1.00		0.02	0.05		0.04
Lane Grp Cap(c), veh/h	673	0	0	667	0	0	514	849	891	931	0	808
V/C Ratio(X)	0.27	0.00	0.00	0.22	0.00	0.00	0.06	0.27	0.27	0.22	0.00	0.24
Avail Cap(c_a), veh/h	673	0	0	667	0	0	514	849	891	931	0	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.92	0.92	0.92	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	0.0	15.3	0.0	0.0	1.3	0.7	0.7	10.7	0.0	10.7
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.8	0.0	0.0	0.2	0.7	0.7	0.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	2.6	0.0	0.0	2.1	0.0	0.0	0.1	0.4	0.4	2.5	0.0	2.3
LnGrp Delay(d),s/veh	16.7	0.0	0.0	16.1	0.0	0.0	1.5	1.5	1.4	11.2	0.0	11.4
LnGrp LOS	B			B			A	A	A	B		B
Approach Vol, veh/h		181			149			507			398	
Approach Delay, s/veh		16.7			16.1			1.5			11.3	
Approach LOS		B			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		39.0		31.0		39.0		31.0
Change Period (Y+Rc), s		5.4		5.4		5.4		5.4
Max Green Setting (Gmax), s		33.6		25.6		33.6		25.6
Max Q Clear Time (g_c+I1), s		6.6		5.9		7.1		7.1
Green Ext Time (p_c), s		5.4		1.9		5.4		1.8

Intersection Summary		
HCM 2010 Ctrl Delay		8.6
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	49	40	18	7	65	30	17	759	8	20	586	16
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	75	61	27	11	99	0	26	1155	12	30	892	0
Adj No. of Lanes	0	1	0	1	1	0	1	3	0	0	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	95	34	238	298	0	477	3742	39	114	3278	1142
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.00	0.72	0.72	0.72	0.72	0.72	0.00
Sat Flow, veh/h	490	596	216	1304	1863	0	621	5190	54	103	4546	1583
Grp Volume(v), veh/h	163	0	0	11	99	0	26	754	413	315	607	0
Grp Sat Flow(s),veh/h/ln	1301	0	0	1304	1863	0	621	1695	1853	1564	1543	1583
Q Serve(g_s), s	7.9	0.0	0.0	0.0	4.7	0.0	1.5	8.0	8.0	0.0	6.8	0.0
Cycle Q Clear(g_c), s	12.6	0.0	0.0	1.0	4.7	0.0	8.3	8.0	8.0	5.7	6.8	0.0
Prop In Lane	0.46		0.17	1.00		0.00	1.00		0.03	0.10		1.00
Lane Grp Cap(c), veh/h	261	0	0	238	298	0	477	2445	1336	1167	2225	1142
V/C Ratio(X)	0.63	0.00	0.00	0.05	0.33	0.00	0.05	0.31	0.31	0.27	0.27	0.00
Avail Cap(c_a), veh/h	487	0	0	434	577	0	477	2445	1336	1167	2225	1142
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00	0.82	0.82	0.82	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.1	0.0	0.0	35.7	37.3	0.0	6.3	5.0	5.0	4.7	4.8	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.1	0.6	0.0	0.0	0.1	0.1	0.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.5	0.0	0.0	0.3	2.5	0.0	0.3	3.7	4.1	3.1	3.0	0.0
LnGrp Delay(d),s/veh	43.6	0.0	0.0	35.8	37.9	0.0	6.3	5.1	5.1	5.3	5.1	0.0
LnGrp LOS	D			D	D		A	A	A	A	A	
Approach Vol, veh/h		163			110			1193			922	
Approach Delay, s/veh		43.6			37.7			5.1			5.2	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		77.9		22.1		77.9		22.1
Change Period (Y+Rc), s		* 5.8		* 6.1		5.8		* 6.1
Max Green Setting (Gmax), s		* 58		* 31		57.1		* 31
Max Q Clear Time (g_c+I1), s		8.8		14.6		10.3		6.7
Green Ext Time (p_c), s		21.6		1.4		21.2		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.3
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Arterial Level of Service: EB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 14th St.	3	63.3	151.5	0.1	6
N 15th St.	6	35.7	45.6	0.1	6
N 21st St.	11	45.3	89.7	0.5	18
N 22nd St.	14	31.8	38.0	0.0	4
N 34th St.	10	39.2	120.1	0.8	23
N 40th St.	19	25.8	78.6	0.5	23
E 19th Ave.	25	3.1	30.3	0.2	27
HART DRIVE	49	3.2	9.8	0.1	31
	22	2.4	16.8	0.1	25
Total		249.8	580.4	2.4	17

Arterial Level of Service: WB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Columbus Dr.	22	3.3	17.1	0.1	24
HART DRIVE	49	2.6	24.5	0.1	17
E 19th Ave.	25	1.9	9.6	0.1	32
N 40th St.	19	69.6	94.9	0.2	9
N 34th St.	10	18.3	74.7	0.5	24
N 22nd St.	14	30.8	102.9	0.8	26
N 21st St.	11	8.3	14.4	0.0	12
N 15th St.	6	108.8	157.6	0.5	10
Avenida Republica De	3	14.5	23.9	0.1	11
Total		258.2	519.7	2.4	16

Arterial Level of Service: EB E 19th Ave.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	41	0.3	33.2	0.3	28
	43	0.2	14.6	0.1	30
N 21st St.	39	8.9	17.0	0.1	17
N 22nd St.	40	11.9	18.1	0.0	9
	38	2.8	50.6	0.4	29
	37	0.5	14.5	0.1	29
N 34th St.	24	9.4	37.6	0.2	24
	36	1.4	12.5	0.1	25
	35	0.2	11.7	0.1	29
N 40th St.	26	37.0	69.0	0.3	17
E Columbus Dr.	25	19.4	54.4	0.3	19
Total		92.2	333.0	2.1	22

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	166	514	0	0	475	60	10	845	133	0	0	0
Number	3	8	18	7	4	14	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1900			
Adj Flow Rate, veh/h	253	782	0	0	723	91	15	1286	202			
Adj No. of Lanes	1	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	194	933	0	0	636	80	14	1270	209			
Arrive On Green	0.15	1.00	0.00	0.00	0.39	0.39	0.41	0.41	0.41			
Sat Flow, veh/h	1774	1863	0	0	1622	204	35	3090	509			
Grp Volume(v), veh/h	253	782	0	0	0	814	800	0	703			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	0	1827	1861	0	1773			
Q Serve(g_s), s	8.0	0.0	0.0	0.0	0.0	43.1	45.2	0.0	42.6			
Cycle Q Clear(g_c), s	8.0	0.0	0.0	0.0	0.0	43.1	45.2	0.0	42.6			
Prop In Lane	1.00		0.00	0.00		0.11	0.02		0.29			
Lane Grp Cap(c), veh/h	194	933	0	0	0	716	765	0	728			
V/C Ratio(X)	1.30	0.84	0.00	0.00	0.00	1.14	1.05	0.00	0.97			
Avail Cap(c_a), veh/h	194	933	0	0	0	716	765	0	728			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.51	0.51	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	0.0	0.0	0.0	0.0	33.5	32.4	0.0	31.6			
Incr Delay (d2), s/veh	153.3	4.7	0.0	0.0	0.0	78.2	45.2	0.0	25.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	14.1	1.2	0.0	0.0	0.0	37.2	32.7	0.0	25.9			
LnGrp Delay(d),s/veh	179.8	4.7	0.0	0.0	0.0	111.7	77.6	0.0	57.5			
LnGrp LOS	F	A				F	F		E			
Approach Vol, veh/h		1035			814			1503				
Approach Delay, s/veh		47.5			111.7			68.2				
Approach LOS		D			F			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		50.0	12.0	48.0				60.0
Change Period (Y+Rc), s		* 4.8	4.0	4.9				4.9
Max Green Setting (Gmax), s		* 45	8.0	43.1				55.1
Max Q Clear Time (g_c+I1), s		47.2	10.0	45.1				2.0
Green Ext Time (p_c), s		0.0	0.0	0.0				19.1

Intersection Summary	
HCM 2010 Ctrl Delay	72.4
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	47.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	390	118	40	463	0	0	0	0	35	253	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	593	180	61	705	0	0	0	0	53	385	110

Major/Minor	Minor2			Minor1						Major2		
Conflicting Flow All	898	546	246	557	601	0				0	0	0
Stage 1	546	546	-	0	0	-				-	-	-
Stage 2	352	0	-	557	601	-				-	-	-
Critical Hdwy	5.74	6.54	7.14	5.74	6.54	-				-	-	-
Critical Hdwy Stg 1	6.64	5.54	-	-	-	-				-	-	-
Critical Hdwy Stg 2	-	-	-	6.04	5.54	-				-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	-				-	-	-
Pot Cap-1 Maneuver	349	~ 444	643	514	~ 413	-				-	-	-
Stage 1	454	~ 516	-	-	-	-				-	-	-
Stage 2	-	-	-	490	~ 488	-				-	-	-
Platoon blocked, %											-	-
Mov Cap-1 Maneuver	349	0	643	514	0	-				-	-	-
Mov Cap-2 Maneuver	349	0	-	514	0	-				-	-	-
Stage 1	454	0	-	-	0	-				-	-	-
Stage 2	-	0	-	490	0	-				-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	127.5		
HCM LOS	F	-	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	643	-	-	-	-
HCM Lane V/C Ratio	1.202	-	-	-	-
HCM Control Delay (s)	127.5	-	-	-	-
HCM Lane LOS	F	-	-	-	-
HCM 95th %tile Q(veh)	27	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	73.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	409	0	0	382	23	121	884	74	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1081	856	000 -
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	622	0	0	581	35	184	1345	113	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	1332	1826	0	2081	1770	728	0	0	0
Stage 1	0	0	-	1770	1770	-	-	-	-
Stage 2	1332	1826	-	311	0	-	-	-	-
Critical Hdwy	6.84	6.54	-	6.84	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	5.84	5.54	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	3.52	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	146	~ 76	-	46	~ 82	366	-	-	-
Stage 1	-	-	-	122	~ 135	-	-	-	-
Stage 2	211	~ 126	-	-	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	146	0	-	46	0	366	-	-	-
Mov Cap-2 Maneuver	146	0	-	46	0	-	-	-	-
Stage 1	-	0	-	122	0	-	-	-	-
Stage 2	211	0	-	-	0	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		$ 345.2	
HCM LOS	-	F	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	-	366
HCM Lane V/C Ratio	-	-	-	-	1.684
HCM Control Delay (s)	-	-	-	-	$ 345.2
HCM Lane LOS	-	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	-	37.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.5

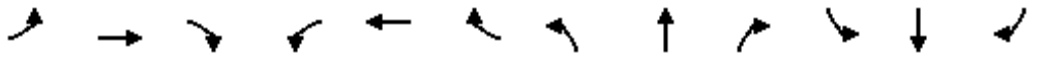
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	48	340	70	28	209	16	46	269	6	15	255	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	100	-	-	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	73	517	107	43	318	24	70	409	9	23	388	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	971	1025	-	1052	1055	209	455	0	0	418	0	0
Stage 1	467	467	-	554	554	-	-	-	-	-	-	-
Stage 2	504	558	-	498	501	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	-	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	207	~ 234	0	181	~ 224	797	1102	-	-	1138	-	-
Stage 1	545	560	0	484	512	-	-	-	-	-	-	-
Stage 2	518	~ 510	0	523	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 210	-	-	~ 201	797	1102	-	-	1138	-	-
Mov Cap-2 Maneuver	-	~ 210	-	-	~ 201	-	-	-	-	-	-	-
Stage 1	500	549	-	444	470	-	-	-	-	-	-	-
Stage 2	149	~ 468	-	~ 30	530	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			1.5	0.4
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1102	-	-	-	-	-	212	1138	-	-
HCM Lane V/C Ratio	0.064	-	-	-	-	-	1.615	0.02	-	-
HCM Control Delay (s)	8.5	0.3	-	-	0	-	$ 337.8	8.2	-	-
HCM Lane LOS	A	A	-	-	A	-	F	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-	-	-	22.1	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	99	186	37	92	141	113	34	572	70	108	425	78
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	151	283	56	140	215	172	52	870	107	164	647	119
Adj No. of Lanes	1	1	0	0	1	1	0	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	626	124	192	244	520	102	1634	199	308	2165	393
Arrive On Green	0.06	0.41	0.41	0.33	0.33	0.33	0.40	0.40	0.40	0.07	0.50	0.50
Sat Flow, veh/h	1774	1511	299	475	744	1583	180	4041	492	1774	4329	786
Grp Volume(v), veh/h	151	0	339	355	0	172	345	334	350	164	505	261
Grp Sat Flow(s),veh/h/ln	1774	0	1810	1219	0	1583	1563	1543	1608	1774	1695	1724
Q Serve(g_s), s	7.8	0.0	18.9	33.1	0.0	11.5	10.4	23.0	23.2	7.3	12.2	12.5
Cycle Q Clear(g_c), s	7.8	0.0	18.9	40.0	0.0	11.5	21.5	23.0	23.2	7.3	12.2	12.5
Prop In Lane	1.00		0.17	0.39		1.00	0.15		0.31	1.00		0.46
Lane Grp Cap(c), veh/h	195	0	750	436	0	520	661	624	650	308	1696	862
V/C Ratio(X)	0.77	0.00	0.45	0.81	0.00	0.33	0.52	0.54	0.54	0.53	0.30	0.30
Avail Cap(c_a), veh/h	195	0	843	509	0	602	661	624	650	340	1696	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	34.9	0.0	29.6	48.0	0.0	35.4	30.8	31.7	31.7	23.6	20.5	20.6
Incr Delay (d2), s/veh	17.4	0.0	0.4	8.6	0.0	0.4	2.9	3.3	3.2	1.4	0.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.7	0.0	9.5	14.2	0.0	5.1	10.5	10.4	10.9	3.7	5.9	6.2
LnGrp Delay(d),s/veh	52.3	0.0	30.0	56.6	0.0	35.8	33.7	35.0	34.9	24.9	21.0	21.5
LnGrp LOS	D		C	E		D	C	C	C	C	C	C
Approach Vol, veh/h		490			527			1029			930	
Approach Delay, s/veh		36.9			49.8			34.5			21.8	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6		8
Phs Duration (G+Y+Rc), s		75.9	12.0	52.1	13.4	62.5		64.1
Change Period (Y+Rc), s		* 5.9	4.0	* 6.1	4.0	* 5.9		* 6.1
Max Green Setting (Gmax), s		* 63	8.0	* 53	12.0	* 47		* 65
Max Q Clear Time (g_c+I1), s		14.5	9.8	42.0	9.3	25.2		20.9
Green Ext Time (p_c), s		15.8	0.0	4.0	0.1	11.5		6.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	65	1001	70	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	1081	1098240
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	99	1523	107	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	1577	814	0	0
Stage 1	1577	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	7.54	6.94	-	-
Critical Hdwy Stg 1	6.54	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-
Pot Cap-1 Maneuver	74	321	-	-
Stage 1	114	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	74	321	-	-
Mov Cap-2 Maneuver	74	-	-	-
Stage 1	114	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	21.1	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	321
HCM Lane V/C Ratio	-	-	0.308
HCM Control Delay (s)	-	-	21.1
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	1.3

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	81	10	65	60	0	0	0	0	7	285	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	123	15	99	91	0	0	0	0	11	434	20

Major/Minor	Minor2			Minor1						Major2		
Conflicting Flow All	511	465	226	256	475	0				0	0	0
Stage 1	465	465	-	0	0	-				-	-	-
Stage 2	46	0	-	256	475	-				-	-	-
Critical Hdwy	5.74	6.54	7.14	5.74	6.54	-				-	-	-
Critical Hdwy Stg 1	6.64	5.54	-	-	-	-				-	-	-
Critical Hdwy Stg 2	-	-	-	6.04	5.54	-				-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	-				-	-	-
Pot Cap-1 Maneuver	541	493	662	716	487	-				-	-	-
Stage 1	506	561	-	-	-	-				-	-	-
Stage 2	-	-	-	700	556	-				-	-	-
Platoon blocked, %											-	-
Mov Cap-1 Maneuver	541	0	662	716	0	-				-	-	-
Mov Cap-2 Maneuver	541	0	-	716	0	-				-	-	-
Stage 1	506	0	-	-	0	-				-	-	-
Stage 2	-	0	-	700	0	-				-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	11.9		
HCM LOS	B	-	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	662	-	-	-	-
HCM Lane V/C Ratio	0.209	-	-	-	-
HCM Control Delay (s)	11.9	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	80	0	0	85	12	60	827	36	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	122	0	0	129	18	91	1258	55	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	877	1496	0	1529	1468	656	0	0	0
Stage 1	0	0	-	1468	1468	-	-	-	-
Stage 2	877	1496	-	61	0	-	-	-	-
Critical Hdwy	6.84	6.54	-	6.84	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	5.84	5.54	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	3.52	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	288	122	-	108	~ 127	408	-	-	-
Stage 1	-	-	-	178	190	-	-	-	-
Stage 2	367	184	-	-	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	288	0	-	108	0	408	-	-	-
Mov Cap-2 Maneuver	288	0	-	108	0	-	-	-	-
Stage 1	-	0	-	178	0	-	-	-	-
Stage 2	367	0	-	-	0	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		18.7	
HCM LOS	-	C	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	-	408
HCM Lane V/C Ratio	-	-	-	-	0.362
HCM Control Delay (s)	-	-	-	-	18.7
HCM Lane LOS	-	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	-	1.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	10.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	24	60	35	30	60	8	22	308	3	7	249	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	250	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	91	53	46	91	12	33	469	5	11	379	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	751	944	193	794	946	237	387	0	0	473	0	0
Stage 1	404	404	-	538	538	-	-	-	-	-	-	-
Stage 2	347	540	-	256	408	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	299	261	816	279	260	764	1168	-	-	1085	-	-
Stage 1	594	598	-	495	521	-	-	-	-	-	-	-
Stage 2	642	519	-	726	595	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	204	250	816	181	249	764	1168	-	-	1085	-	-
Mov Cap-2 Maneuver	204	250	-	181	249	-	-	-	-	-	-	-
Stage 1	577	590	-	481	506	-	-	-	-	-	-	-
Stage 2	503	504	-	566	587	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.4	43.6	0.5	0.3
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1168	-	-	297	235	1085	-	-
HCM Lane V/C Ratio	0.029	-	-	0.61	0.635	0.01	-	-
HCM Control Delay (s)	8.2	-	-	34.4	43.6	8.4	0.1	-
HCM Lane LOS	A	-	-	D	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.7	3.8	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	49	40	18	7	65	30	17	759	8	20	586	16
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	75	61	27	11	99	0	26	1155	12	30	892	0
Adj No. of Lanes	0	1	0	1	1	0	1	3	0	0	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	95	34	238	298	0	477	3742	39	114	3278	1142
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.00	0.72	0.72	0.72	0.72	0.72	0.00
Sat Flow, veh/h	490	596	216	1304	1863	0	621	5190	54	103	4546	1583
Grp Volume(v), veh/h	163	0	0	11	99	0	26	754	413	315	607	0
Grp Sat Flow(s),veh/h/ln	1301	0	0	1304	1863	0	621	1695	1853	1564	1543	1583
Q Serve(g_s), s	7.9	0.0	0.0	0.0	4.7	0.0	1.5	8.0	8.0	0.0	6.8	0.0
Cycle Q Clear(g_c), s	12.6	0.0	0.0	1.0	4.7	0.0	8.3	8.0	8.0	5.7	6.8	0.0
Prop In Lane	0.46		0.17	1.00		0.00	1.00		0.03	0.10		1.00
Lane Grp Cap(c), veh/h	261	0	0	238	298	0	477	2445	1336	1167	2225	1142
V/C Ratio(X)	0.63	0.00	0.00	0.05	0.33	0.00	0.05	0.31	0.31	0.27	0.27	0.00
Avail Cap(c_a), veh/h	487	0	0	434	577	0	477	2445	1336	1167	2225	1142
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00	0.82	0.82	0.82	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.1	0.0	0.0	35.7	37.3	0.0	6.3	5.0	5.0	4.7	4.8	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.1	0.6	0.0	0.0	0.1	0.1	0.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.5	0.0	0.0	0.3	2.5	0.0	0.3	3.7	4.1	3.1	3.0	0.0
LnGrp Delay(d),s/veh	43.6	0.0	0.0	35.8	37.9	0.0	6.3	5.1	5.1	5.3	5.1	0.0
LnGrp LOS	D			D	D		A	A	A	A	A	
Approach Vol, veh/h		163			110			1193			922	
Approach Delay, s/veh		43.6			37.7			5.1			5.2	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		77.9		22.1		77.9		22.1
Change Period (Y+Rc), s		* 5.8		* 6.1		5.8		* 6.1
Max Green Setting (Gmax), s		* 58		* 31		57.1		* 31
Max Q Clear Time (g_c+I1), s		8.8		14.6		10.3		6.7
Green Ext Time (p_c), s		21.6		1.4		21.2		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.3
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Arterial Level of Service: EB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 14th St.	3	135.4	715.8	0.1	3
N 15th St.	6	107.6	122.1	0.1	2
N 21st St.	11	469.0	498.8	0.5	3
N 22nd St.	14	132.8	140.7	0.0	1
N 34th St.	10	45.1	124.7	0.8	22
N 40th St.	19	26.8	78.8	0.5	23
E 19th Ave.	25	3.3	30.0	0.2	27
HART DRIVE	49	3.4	9.7	0.1	32
	22	2.0	16.3	0.1	26
Total		925.4	1737.0	2.4	7

Arterial Level of Service: WB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Columbus Dr.	22	3.0	16.7	0.1	24
HART DRIVE	49	3.1	24.7	0.1	17
E 19th Ave.	25	2.0	9.7	0.1	32
N 40th St.	19	54.7	79.7	0.2	10
N 34th St.	10	100.8	155.0	0.5	12
N 22nd St.	14	492.9	631.2	0.8	5
N 21st St.	11	15.3	21.4	0.0	8
N 15th St.	6	22.9	73.9	0.5	22
Avenida Republica De	3	4.8	14.3	0.1	19
Total		699.3	1026.5	2.4	9

Arterial Level of Service: EB E 19th Ave.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	41	0.4	33.6	0.3	27
	43	0.3	14.5	0.1	30
N 21st St.	39	9.4	16.9	0.1	17
N 22nd St.	40	23.3	29.6	0.0	6
	38	2.8	49.0	0.4	30
	37	0.3	14.4	0.1	29
N 34th St.	24	13.9	42.1	0.2	21
	36	2.5	13.4	0.1	24
	35	0.1	11.4	0.1	30
N 40th St.	26	37.2	66.8	0.3	17
E Columbus Dr.	25	17.1	51.2	0.3	20
Total		107.3	342.9	2.1	22

Arterial Level of Service: WB E 19th Ave.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 40th St.	26	34.0	66.5	0.3	15
	35	3.6	42.5	0.3	27
	36	0.4	11.6	0.1	29
N 34th St.	24	16.9	27.1	0.1	12
	37	2.7	32.2	0.2	27
	38	0.1	13.9	0.1	30
N 22nd St.	40	22.8	67.5	0.4	22
N 21st St.	39	8.6	14.0	0.0	12
	43	2.4	11.6	0.1	25
	41	0.1	14.5	0.1	30
N 15th St.	42	7.4	39.7	0.3	23
Total		99.2	341.1	2.1	22

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	166	514	0	0	475	60	10	845	133	0	0	0
Number	3	8	18	7	4	14	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1900			
Adj Flow Rate, veh/h	253	782	0	0	723	91	15	1286	202			
Adj No. of Lanes	1	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	194	933	0	0	636	80	14	1270	209			
Arrive On Green	0.15	1.00	0.00	0.00	0.39	0.39	0.41	0.41	0.41			
Sat Flow, veh/h	1774	1863	0	0	1622	204	35	3090	509			
Grp Volume(v), veh/h	253	782	0	0	0	814	800	0	703			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	0	1827	1861	0	1773			
Q Serve(g_s), s	8.0	0.0	0.0	0.0	0.0	43.1	45.2	0.0	42.6			
Cycle Q Clear(g_c), s	8.0	0.0	0.0	0.0	0.0	43.1	45.2	0.0	42.6			
Prop In Lane	1.00		0.00	0.00		0.11	0.02		0.29			
Lane Grp Cap(c), veh/h	194	933	0	0	0	716	765	0	728			
V/C Ratio(X)	1.30	0.84	0.00	0.00	0.00	1.14	1.05	0.00	0.97			
Avail Cap(c_a), veh/h	194	933	0	0	0	716	765	0	728			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.51	0.51	0.00	0.00	0.00	0.69	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	0.0	0.0	0.0	0.0	33.5	32.4	0.0	31.6			
Incr Delay (d2), s/veh	153.3	4.7	0.0	0.0	0.0	73.8	45.2	0.0	25.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	14.1	1.2	0.0	0.0	0.0	36.3	32.7	0.0	25.9			
LnGrp Delay(d),s/veh	179.8	4.7	0.0	0.0	0.0	107.2	77.6	0.0	57.5			
LnGrp LOS	F	A				F	F		E			
Approach Vol, veh/h		1035			814			1503				
Approach Delay, s/veh		47.5			107.2			68.2				
Approach LOS		D			F			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		50.0	12.0	48.0				60.0
Change Period (Y+Rc), s		* 4.8	4.0	4.9				4.9
Max Green Setting (Gmax), s		* 45	8.0	43.1				55.1
Max Q Clear Time (g_c+I1), s		47.2	10.0	45.1				2.0
Green Ext Time (p_c), s		0.0	0.0	0.0				19.1

Intersection Summary	
HCM 2010 Ctrl Delay	71.3
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	390	118	40	463	0	0	0	0	35	253	72
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1900	1863	0				1900	1863	1900
Adj Flow Rate, veh/h	0	593	180	61	705	0				53	385	110
Adj No. of Lanes	0	1	0	0	1	0				0	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				0	2	0
Cap, veh/h	0	914	277	109	1045	0				72	553	159
Arrive On Green	0.00	0.67	0.67	0.67	0.67	0.00				0.15	0.15	0.15
Sat Flow, veh/h	0	1373	417	81	1569	0				479	3676	1055
Grp Volume(v), veh/h	0	0	773	766	0	0				203	170	175
Grp Sat Flow(s),veh/h/ln	0	0	1789	1650	0	0				1839	1695	1677
Q Serve(g_s), s	0.0	0.0	17.8	2.2	0.0	0.0				7.4	6.6	6.9
Cycle Q Clear(g_c), s	0.0	0.0	17.8	20.0	0.0	0.0				7.4	6.6	6.9
Prop In Lane	0.00		0.23	0.08		0.00				0.26		0.63
Lane Grp Cap(c), veh/h	0	0	1191	1154	0	0				276	255	252
V/C Ratio(X)	0.00	0.00	0.65	0.66	0.00	0.00				0.74	0.67	0.69
Avail Cap(c_a), veh/h	0	0	1191	1154	0	0				341	315	311
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.43	0.50	0.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	6.9	6.7	0.0	0.0				28.4	28.1	28.2
Incr Delay (d2), s/veh	0.0	0.0	1.2	1.5	0.0	0.0				6.3	3.8	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	0.0	9.0	9.4	0.0	0.0				4.2	3.4	3.5
LnGrp Delay(d),s/veh	0.0	0.0	8.1	8.3	0.0	0.0				34.7	31.9	33.1
LnGrp LOS			A	A						C	C	C
Approach Vol, veh/h		773			766						548	
Approach Delay, s/veh		8.1			8.3						33.3	
Approach LOS		A			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		15.6		51.9				51.9
Change Period (Y+Rc), s		* 5.1		* 5.3				* 5.3
Max Green Setting (Gmax), s		* 13		* 47				* 47
Max Q Clear Time (g_c+I1), s		9.4		22.0				19.8
Green Ext Time (p_c), s		1.1		13.5				14.1

Intersection Summary		
HCM 2010 Ctrl Delay		14.8
HCM 2010 LOS		B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	409	0	0	382	23	121	884	74	0	0	0
Number	3	8	18	7	4	14	1	6	16			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900			
Adj Flow Rate, veh/h	24	622	0	0	581	35	184	1345	113			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	61	611	0	0	723	44	176	1347	118			
Arrive On Green	0.83	0.83	0.00	0.00	0.42	0.42	0.15	0.15	0.15			
Sat Flow, veh/h	19	1470	0	0	1739	105	393	3003	263			
Grp Volume(v), veh/h	646	0	0	0	0	616	863	0	779			
Grp Sat Flow(s),veh/h/ln	1490	0	0	0	0	1844	1843	0	1816			
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	20.5	31.4	0.0	29.8			
Cycle Q Clear(g_c), s	29.1	0.0	0.0	0.0	0.0	20.5	31.4	0.0	29.8			
Prop In Lane	0.04		0.00	0.00		0.06	0.21		0.15			
Lane Grp Cap(c), veh/h	673	0	0	0	0	767	827	0	815			
V/C Ratio(X)	0.96	0.00	0.00	0.00	0.00	0.80	1.04	0.00	0.96			
Avail Cap(c_a), veh/h	673	0	0	0	0	767	827	0	815			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	0.75	0.00	0.00	0.00	0.00	0.90	0.46	0.00	0.46			
Uniform Delay (d), s/veh	5.9	0.0	0.0	0.0	0.0	17.9	29.8	0.0	29.1			
Incr Delay (d2), s/veh	21.8	0.0	0.0	0.0	0.0	7.9	33.5	0.0	13.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	0.8	0.0	0.0	0.0	0.0	12.0	23.7	0.0	18.0			
LnGrp Delay(d),s/veh	27.7	0.0	0.0	0.0	0.0	25.9	63.4	0.0	42.3			
LnGrp LOS	C					C	F		D			
Approach Vol, veh/h		646			616			1642				
Approach Delay, s/veh		27.7			25.9			53.4				
Approach LOS		C			C			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				33.8		36.2		33.8
Change Period (Y+Rc), s				* 4.7		4.8		* 4.7
Max Green Setting (Gmax), s				* 29		31.4		* 29
Max Q Clear Time (g_c+I1), s				22.5		33.4		31.1
Green Ext Time (p_c), s				4.2		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.8
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	340	70	28	209	16	46	269	6	15	255	44
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	73	517	0	43	318	24	70	409	9	23	388	67
Adj No. of Lanes	0	1	1	1	1	0	0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	636	672	321	726	55	209	1157	26	414	1278	219
Arrive On Green	0.42	0.42	0.00	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	145	1499	1583	881	1711	129	337	2736	61	965	3023	518
Grp Volume(v), veh/h	590	0	0	43	0	342	238	0	250	23	226	229
Grp Sat Flow(s),veh/h/ln	1644	0	1583	881	0	1840	1449	0	1684	965	1770	1771
Q Serve(g_s), s	13.7	0.0	0.0	0.0	0.0	9.2	1.8	0.0	7.0	1.2	5.9	6.0
Cycle Q Clear(g_c), s	22.9	0.0	0.0	4.8	0.0	9.2	7.8	0.0	7.0	8.2	5.9	6.0
Prop In Lane	0.12		1.00	1.00		0.07	0.29		0.04	1.00		0.29
Lane Grp Cap(c), veh/h	755	0	672	321	0	781	679	0	712	414	748	749
V/C Ratio(X)	0.78	0.00	0.00	0.13	0.00	0.44	0.35	0.00	0.35	0.06	0.30	0.31
Avail Cap(c_a), veh/h	755	0	672	321	0	781	679	0	712	414	748	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.00	0.00	0.32	0.00	0.32	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	0.0	13.0	0.0	14.2	13.6	0.0	13.7	16.5	13.4	13.4
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.3	0.0	0.6	1.4	0.0	1.4	0.3	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	1.3	0.0	0.0	0.6	0.0	4.8	3.4	0.0	3.5	0.3	3.1	3.1
LnGrp Delay(d),s/veh	18.9	0.0	0.0	13.3	0.0	14.8	15.0	0.0	15.0	16.7	14.4	14.4
LnGrp LOS	B			B		B	B		B	B	B	B
Approach Vol, veh/h		590			385			488			478	
Approach Delay, s/veh		18.9			14.6			15.0			14.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		35.0		35.0		35.0		35.0
Change Period (Y+Rc), s		5.4		* 5.3		5.4		* 5.3
Max Green Setting (Gmax), s		29.6		* 30		29.6		* 30
Max Q Clear Time (g_c+I1), s		10.2		11.2		9.8		24.9
Green Ext Time (p_c), s		5.5		6.4		5.6		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	16.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	99	186	37	92	141	113	34	572	70	108	425	78
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	151	283	56	140	215	172	52	870	107	164	647	119
Adj No. of Lanes	1	1	0	0	1	1	0	3	0	1	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	564	112	196	248	456	113	1809	221	333	2341	425
Arrive On Green	0.11	0.75	0.75	0.29	0.29	0.29	0.45	0.45	0.45	0.06	0.54	0.54
Sat Flow, veh/h	1774	1511	299	558	860	1583	185	4030	491	1774	4329	786
Grp Volume(v), veh/h	151	0	339	355	0	172	344	335	350	164	505	261
Grp Sat Flow(s),veh/h/ln	1774	0	1810	1418	0	1583	1555	1543	1608	1774	1695	1724
Q Serve(g_s), s	8.0	0.0	10.6	33.2	0.0	12.2	8.4	21.4	21.5	6.8	11.2	11.5
Cycle Q Clear(g_c), s	8.0	0.0	10.6	33.3	0.0	12.2	19.5	21.4	21.5	6.8	11.2	11.5
Prop In Lane	1.00		0.17	0.39		1.00	0.15		0.31	1.00		0.46
Lane Grp Cap(c), veh/h	202	0	676	444	0	456	728	693	722	333	1833	932
V/C Ratio(X)	0.75	0.00	0.50	0.80	0.00	0.38	0.47	0.48	0.49	0.49	0.28	0.28
Avail Cap(c_a), veh/h	202	0	843	575	0	602	728	693	722	373	1833	932
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.51	0.00	0.51	1.00	0.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	36.3	0.0	12.4	47.4	0.0	39.8	26.3	27.1	27.2	20.0	17.3	17.4
Incr Delay (d2), s/veh	7.6	0.0	0.3	6.1	0.0	0.5	2.2	2.4	2.3	1.1	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	2.3	0.0	5.1	13.8	0.0	5.4	9.6	9.6	10.0	3.4	5.4	5.6
LnGrp Delay(d),s/veh	43.9	0.0	12.7	53.4	0.0	40.4	28.5	29.5	29.5	21.1	17.7	18.1
LnGrp LOS	D		B	D		D	C	C	C	C	B	B
Approach Vol, veh/h		490			527			1029			930	
Approach Delay, s/veh		22.3			49.2			29.2			18.4	
Approach LOS		C			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6		8
Phs Duration (G+Y+Rc), s		81.6	12.0	46.4	12.9	68.8		58.4
Change Period (Y+Rc), s		* 5.9	4.0	* 6.1	4.0	* 5.9		* 6.1
Max Green Setting (Gmax), s		* 63	8.0	* 53	12.0	* 47		* 65
Max Q Clear Time (g_c+I1), s		13.5	10.0	35.3	8.8	23.5		12.6
Green Ext Time (p_c), s		15.9	0.0	5.0	0.1	11.9		6.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	65	1001	70	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	1081	1098240
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	99	1523	107	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	1577	814	0	0
Stage 1	1577	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	7.54	6.94	-	-
Critical Hdwy Stg 1	6.54	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-
Pot Cap-1 Maneuver	74	321	-	-
Stage 1	114	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	74	321	-	-
Mov Cap-2 Maneuver	74	-	-	-
Stage 1	114	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	21.1	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	321
HCM Lane V/C Ratio	-	-	0.308
HCM Control Delay (s)	-	-	21.1
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	1.3

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	81	10	65	60	0	0	0	0	7	285	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	123	15	99	91	0	0	0	0	11	434	20

Major/Minor	Minor2			Minor1						Major2		
Conflicting Flow All	511	465	226	256	475	0				0	0	0
Stage 1	465	465	-	0	0	-				-	-	-
Stage 2	46	0	-	256	475	-				-	-	-
Critical Hdwy	5.74	6.54	7.14	5.74	6.54	-				-	-	-
Critical Hdwy Stg 1	6.64	5.54	-	-	-	-				-	-	-
Critical Hdwy Stg 2	-	-	-	6.04	5.54	-				-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	-				-	-	-
Pot Cap-1 Maneuver	541	493	662	716	487	-				-	-	-
Stage 1	506	561	-	-	-	-				-	-	-
Stage 2	-	-	-	700	556	-				-	-	-
Platoon blocked, %											-	-
Mov Cap-1 Maneuver	541	0	662	716	0	-				-	-	-
Mov Cap-2 Maneuver	541	0	-	716	0	-				-	-	-
Stage 1	506	0	-	-	0	-				-	-	-
Stage 2	-	0	-	700	0	-				-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	11.9		
HCM LOS	B	-	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	662	-	-	-	-
HCM Lane V/C Ratio	0.209	-	-	-	-
HCM Control Delay (s)	11.9	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	80	0	0	85	12	60	827	36	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1080975360		-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	122	0	0	129	18	91	1258	55	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	877	1496	0	1529	1468	656	0	0	0
Stage 1	0	0	-	1468	1468	-	-	-	-
Stage 2	877	1496	-	61	0	-	-	-	-
Critical Hdwy	6.84	6.54	-	6.84	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	5.84	5.54	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	3.52	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	288	122	-	108	~ 127	408	-	-	-
Stage 1	-	-	-	178	190	-	-	-	-
Stage 2	367	184	-	-	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	288	0	-	108	0	408	-	-	-
Mov Cap-2 Maneuver	288	0	-	108	0	-	-	-	-
Stage 1	-	0	-	178	0	-	-	-	-
Stage 2	367	0	-	-	0	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		18.7	
HCM LOS	-	C	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	-	408
HCM Lane V/C Ratio	-	-	-	-	0.362
HCM Control Delay (s)	-	-	-	-	18.7
HCM Lane LOS	-	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	-	1.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	10.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	24	60	35	30	60	8	22	308	3	7	249	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	250	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	91	53	46	91	12	33	469	5	11	379	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	751	944	193	794	946	237	387	0	0	473	0	0
Stage 1	404	404	-	538	538	-	-	-	-	-	-	-
Stage 2	347	540	-	256	408	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	299	261	816	279	260	764	1168	-	-	1085	-	-
Stage 1	594	598	-	495	521	-	-	-	-	-	-	-
Stage 2	642	519	-	726	595	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	204	250	816	181	249	764	1168	-	-	1085	-	-
Mov Cap-2 Maneuver	204	250	-	181	249	-	-	-	-	-	-	-
Stage 1	577	590	-	481	506	-	-	-	-	-	-	-
Stage 2	503	504	-	566	587	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.4	43.6	0.5	0.3
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1168	-	-	297	235	1085	-	-
HCM Lane V/C Ratio	0.029	-	-	0.61	0.635	0.01	-	-
HCM Control Delay (s)	8.2	-	-	34.4	43.6	8.4	0.1	-
HCM Lane LOS	A	-	-	D	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.7	3.8	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	49	40	18	7	65	30	17	759	8	20	586	16
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	75	61	27	11	99	0	26	1155	12	30	892	0
Adj No. of Lanes	0	1	0	1	1	0	1	3	0	0	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	95	34	238	298	0	477	3742	39	114	3278	1142
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.00	0.72	0.72	0.72	0.72	0.72	0.00
Sat Flow, veh/h	490	596	216	1304	1863	0	621	5190	54	103	4546	1583
Grp Volume(v), veh/h	163	0	0	11	99	0	26	754	413	315	607	0
Grp Sat Flow(s),veh/h/ln	1301	0	0	1304	1863	0	621	1695	1853	1564	1543	1583
Q Serve(g_s), s	7.9	0.0	0.0	0.0	4.7	0.0	1.5	8.0	8.0	0.0	6.8	0.0
Cycle Q Clear(g_c), s	12.6	0.0	0.0	1.0	4.7	0.0	8.3	8.0	8.0	5.7	6.8	0.0
Prop In Lane	0.46		0.17	1.00		0.00	1.00		0.03	0.10		1.00
Lane Grp Cap(c), veh/h	261	0	0	238	298	0	477	2445	1336	1167	2225	1142
V/C Ratio(X)	0.63	0.00	0.00	0.05	0.33	0.00	0.05	0.31	0.31	0.27	0.27	0.00
Avail Cap(c_a), veh/h	487	0	0	434	577	0	477	2445	1336	1167	2225	1142
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00	0.82	0.82	0.82	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.1	0.0	0.0	35.7	37.3	0.0	6.3	5.0	5.0	4.7	4.8	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.1	0.6	0.0	0.0	0.1	0.1	0.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.5	0.0	0.0	0.3	2.5	0.0	0.3	3.7	4.1	3.1	3.0	0.0
LnGrp Delay(d),s/veh	43.6	0.0	0.0	35.8	37.9	0.0	6.3	5.1	5.1	5.3	5.1	0.0
LnGrp LOS	D			D	D		A	A	A	A	A	
Approach Vol, veh/h		163			110			1193			922	
Approach Delay, s/veh		43.6			37.7			5.1			5.2	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		77.9		22.1		77.9		22.1
Change Period (Y+Rc), s		* 5.8		* 6.1		5.8		* 6.1
Max Green Setting (Gmax), s		* 58		* 31		57.1		* 31
Max Q Clear Time (g_c+I1), s		8.8		14.6		10.3		6.7
Green Ext Time (p_c), s		21.6		1.4		21.2		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.3
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Arterial Level of Service: EB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 14th St.	3	41.7	92.6	0.1	8
N 15th St.	6	32.5	42.6	0.1	6
N 21st St.	11	28.0	73.5	0.5	22
N 22nd St.	14	26.1	32.4	0.0	5
N 34th St.	10	35.1	116.1	0.8	23
N 40th St.	19	27.5	81.7	0.5	22
E 19th Ave.	25	3.4	29.8	0.2	27
HART DRIVE	49	3.3	10.1	0.1	31
	22	2.3	16.7	0.1	25
Total		200.0	495.6	2.4	19

Arterial Level of Service: WB E Columbus Dr.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Columbus Dr.	22	3.2	16.8	0.1	24
HART DRIVE	49	2.7	24.1	0.1	17
E 19th Ave.	25	1.9	9.5	0.1	32
N 40th St.	19	65.7	91.4	0.2	9
N 34th St.	10	18.1	75.1	0.5	24
N 22nd St.	14	32.8	104.2	0.8	26
N 21st St.	11	8.9	14.9	0.0	11
N 15th St.	6	108.8	158.3	0.5	10
Avenida Republica De	3	12.3	21.8	0.1	12
Total		254.4	516.1	2.4	17

Arterial Level of Service: EB E 19th Ave.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	41	0.4	33.8	0.3	27
	43	0.2	14.7	0.1	29
N 21st St.	39	9.5	17.4	0.1	16
N 22nd St.	40	17.8	24.1	0.0	7
	38	3.1	50.8	0.4	29
	37	0.4	14.5	0.1	29
N 34th St.	24	16.3	43.6	0.2	20
	36	2.5	13.4	0.1	24
	35	0.1	11.5	0.1	29
N 40th St.	26	37.1	67.8	0.3	17
E Columbus Dr.	25	17.5	53.2	0.3	19
Total		104.8	345.1	2.1	21

Arterial Level of Service: WB E 19th Ave.

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
N 40th St.	26	32.1	64.4	0.3	16
	35	3.6	42.4	0.3	27
	36	0.5	11.9	0.1	28
N 34th St.	24	18.3	28.4	0.1	11
	37	2.7	32.5	0.2	27
	38	0.2	14.3	0.1	29
N 22nd St.	40	21.0	65.9	0.4	22
N 21st St.	39	10.2	15.7	0.0	10
	43	2.3	11.6	0.1	24
	41	0.1	14.6	0.1	30
N 15th St.	42	10.1	42.8	0.3	22
Total		101.1	344.5	2.1	21

Appendix C
Signalization Cost Estimates for One-Way Scenario Options

Date: 11/3/2015 4:10:05 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: COLUMB-U-S.-DR **Letting Date:** 01/2099

Description: Alternative Intersection Control Analysis Cost Savings

District: 07 **County:** 10 HILLSBOROUGH **Market Area:** 08 **Units:** English
Contract Class: **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.050 MI

Project Manager:

Version 1-P Project Grand Total **$939,647.27**

Description: Alternative Intersection Control Analysis Cost Savings

Sequence: 1 MIS - Miscellaneous Construction **Net Length:** 0.050 MI
264 LF

Description: One Way Scenario - New Mast Arm Assemblies: 17th Ave & 15th St, 17th Ave & 21st St, 17th Ave & 22nd St, Columbus Dr & 40th St, 19th Ave & 40th St

---

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	17th Ave & 15th St

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	400.00	LF	$8.26	$3,304.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	100.00	LF	$22.32	$2,232.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,984.62	$4,984.62
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$560.23	$3,361.38
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$1,290.06	$1,290.06
639-2-1	ELECTRICAL SERVICE WIRE	30.00	LF	$1.98	$59.40
649-31-111	M/ARM,F&I, WS-150,DBL ARM,W/0 LU 36-46	2.00	EA	$33,988.33	$67,976.66
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	4.00	AS	$878.90	$3,515.60
653-191	PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1	4.00	AS	$536.02	$2,144.08
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	4.00	EA	$167.43	$669.72
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	4.00	AS	$826.30	$3,305.20
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	4.00	EA	$236.20	$944.80
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$26,117.06	$26,117.06
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	2.00	EA	$191.47	$382.94

Signalization 2

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	17th Ave & 21st St

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	400.00	LF	$8.26	$3,304.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	100.00	LF	$22.32	$2,232.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,984.62	$4,984.62
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$560.23	$3,361.38
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$1,290.06	$1,290.06
639-2-1	ELECTRICAL SERVICE WIRE	30.00	LF	$1.98	$59.40
649-31-111	M/ARM,F&I, WS-150,DBL ARM,W/0 LU 36-46	2.00	EA	$33,988.33	$67,976.66
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	4.00	AS	$878.90	$3,515.60
653-191	PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1	4.00	AS	$536.02	$2,144.08
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	4.00	EA	$167.43	$669.72
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	4.00	AS	$826.30	$3,305.20
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	4.00	EA	$236.20	$944.80
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$26,117.06	$26,117.06
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	2.00	EA	$191.47	$382.94

Signalization 3

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	17th Ave & 22nd St

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	200.00	LF	$8.26	$1,652.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	50.00	LF	$22.32	$1,116.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,984.62	$4,984.62
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00	EA	$560.23	$1,680.69
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$1,290.06	$1,290.06
639-2-1	ELECTRICAL SERVICE WIRE	15.00	LF	$1.98	$29.70
649-31-111	M/ARM,F&I, WS-150,DBL ARM,W/0 LU 36-46	1.00	EA	$33,988.33	$33,988.33
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	2.00	AS	$878.90	$1,757.80
653-191	PEDESTRIAN SIGNAL, F&I, LED-	2.00	AS	$536.02	$1,072.04

	COUNT DWN, 1			
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	2.00 EA	$167.43	$334.86
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	2.00 AS	$826.30	$1,652.60
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	2.00 EA	$236.20	$472.40
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$26,117.06	$26,117.06
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	1.00 EA	$191.47	$191.47

Signalization 4

Description	Value
Type	2 Lane Mast Arm
Multiplier	2
Description	Columbus Dr & 40th St, 19th Ave & 40th St

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,600.00	LF	$8.26	$13,216.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	400.00	LF	$22.32	$8,928.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	$4,984.62	$9,969.24
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	24.00	EA	$560.23	$13,445.52
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	2.00	AS	$1,290.06	$2,580.12
639-2-1	ELECTRICAL SERVICE WIRE	120.00	LF	$1.98	$237.60
649-31-111	M/ARM,F&I, WS-150,DBL ARM,W/0 LU 36-46	8.00	EA	$33,988.33	$271,906.64
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	16.00	AS	$878.90	$14,062.40
653-191	PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1	16.00	AS	$536.02	$8,576.32
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	16.00	EA	$167.43	$2,678.88
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	16.00	AS	$826.30	$13,220.80
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	16.00	EA	$236.20	$3,779.20
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	2.00	AS	$26,117.06	$52,234.12
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$191.47	$1,531.76
	Signalizations Component Total				$733,281.27

Sequence 1 Total $733,281.27

Sequence: 2 MIS - Miscellaneous Construction **Net Length:** 0.050 MI
264 LF

Description: One Way Scenario - Remove Signals and replace with stop signs at the intersections of 18th Ave. and 34th St. and Columbus Dr. and 34th St.

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	6.00	AS	$300.71	$1,804.26
	Signing Component Total				$1,804.26

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	Miscellaneous
Multiplier	1
Description	

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
634-4-600	SPAN WIRE ASSEMBLY, REMOVE-POLES REMAIN	1.00	PI	$593.04	$593.04
649-36-100	M/ARM, REMOVE POLE	3.00	EA	$1,303.33	$3,909.99
	Signalizations Component Total				$4,503.03

Sequence 2 Total $6,307.29

Date: 11/3/2015 4:10:06 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: COLUMB-U-S.-DR **Letting Date:** 01/2099

Description: Alternative Intersection Control Analysis Cost Savings

District: 07 **County:** 10 HILLSBOROUGH **Market Area:** 08 **Units:** English
Contract Class: **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.050 MI

Project Manager:

Version 1-P Project Grand Total **$939,647.27**

Description: Alternative Intersection Control Analysis Cost Savings

---

Project Sequences Subtotal			**$739,588.56**
102-1	Maintenance of Traffic	10.00 %	$73,958.86
101-1	Mobilization	10.00 %	$81,354.74
Project Sequences Total			**$894,902.16**
Project Unknowns		0.00 %	$0.00
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$44,745.11	$44,745.11
Project Non-Bid Subtotal					**$44,745.11**
Version 1-P Project Grand Total					**$939,647.27**

Appendix D
Signalization Cost Estimates for Two-Way Scenario Options

Date: 11/3/2015 4:10:42 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: COLUMB-U-S.-DR **Letting Date:** 01/2099

Description: Alternative Intersection Control Analysis Cost Savings

District: 07 **County:** 10 HILLSBOROUGH **Market Area:** 08 **Units:** English
Contract Class: **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.050 MI

Project Manager:

Version 2 Project Grand Total **$810,558.21**

Description: Alternative Intersection Control Analysis Cost Savings

Sequence: 1 MIS - Miscellaneous Construction **Net Length:** 0.050 MI
264 LF

Description: Two Way Scenario - New Mast Arm Assemblies: Columbus Dr & 34th St, Columbus Dr & 40th St, 19th Ave & 40th St

---

SIGNALIZATIONS COMPONENT

Signalization 4

Description	Value
Type	2 Lane Mast Arm
Multiplier	3
Description	Columbus Dr & 34th St, Columbus Dr & 40th St, 19th Ave & 40th St

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,400.00	LF	$8.26	$19,824.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	600.00	LF	$22.32	$13,392.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	3.00	PI	$4,984.62	$14,953.86
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	36.00	EA	$560.23	$20,168.28
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	3.00	AS	$1,290.06	$3,870.18
639-2-1	ELECTRICAL SERVICE WIRE	180.00	LF	$1.98	$356.40
649-31-111	M/ARM,F&I, WS-150,DBL ARM,W/0 LU 36-46	12.00	EA	$33,988.33	$407,859.96
650-1-311	TRAFFIC SIGNAL,F&I,3 SECT,1 WAY,ALUMINUM	24.00	AS	$878.90	$21,093.60
653-191	PEDESTRIAN SIGNAL, F&I, LED-COUNT DWN, 1	24.00	AS	$536.02	$12,864.48
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	24.00	EA	$167.43	$4,018.32
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	24.00	AS	$826.30	$19,831.20
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	24.00	EA	$236.20	$5,668.80
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	3.00	AS	$26,117.06	$78,351.18
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	12.00	EA	$191.47	$2,297.64

Signalizations Component Total	$624,549.90
Sequence 1 Total	$624,549.90

Sequence: 2 MIS - Miscellaneous Construction **Net Length:** 0.050 MI
264 LF

Description: Two Way Scenario - Remove Signals and replace with stop signs at the intersections of 18th Ave. and 34th St., 17th Ave. and 22nd St., 17th Ave. and 21st St., and 17th Ave. and 15th St.

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	10.00	AS	$300.71	$3,007.10
	Signing Component Total				$3,007.10

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	Miscellaneous
Multiplier	1
Description	

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-36-100	M/ARM, REMOVE POLE	8.00	EA	$1,303.33	$10,426.64
	Signalizations Component Total				$10,426.64

Sequence 2 Total $13,433.74

Date: 11/3/2015 4:10:42 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: COLUMB-U-S.-DR **Letting Date:** 01/2099

Description: Alternative Intersection Control Analysis Cost Savings

District: 07 **County:** 10 HILLSBOROUGH **Market Area:** 08 **Units:** English
Contract Class: **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.050 MI

Project Manager:

Version 2 Project Grand Total **$810,558.21**

Description: Alternative Intersection Control Analysis Cost Savings

Project Sequences Subtotal			**$637,983.64**
102-1	Maintenance of Traffic	10.00 %	$63,798.36
101-1	Mobilization	10.00 %	$70,178.20
Project Sequences Total			**$771,960.20**
Project Unknowns		0.00 %	$0.00
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$38,598.01	$38,598.01
Project Non-Bid Subtotal					**$38,598.01**
Version 2 Project Grand Total					**$810,558.21**