APPENDIX P

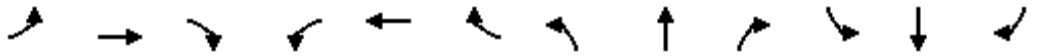
2020 & 2040 Build 2A Synchro Intersection Analysis

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	277	2092	321	1413	473	98	147	196	22	22	22
v/c Ratio	0.88	0.67	0.96	0.52	0.43	0.27	0.74	0.38	0.28	0.28	0.06
Control Delay	92.0	22.1	103.4	19.7	5.7	66.2	90.7	7.8	81.9	81.4	0.3
Queue Delay	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.0	22.1	103.4	19.8	5.8	66.2	90.7	7.8	81.9	81.4	0.3
Queue Length 50th (ft)	282	491	172	238	72	49	152	0	24	24	0
Queue Length 95th (ft)	#430	639	#278	272	83	77	224	64	57	57	0
Internal Link Dist (ft)		580		548			436			396	
Turn Bay Length (ft)	450		375		350	225		250	200		
Base Capacity (vph)	335	3103	336	2737	1263	686	372	514	283	291	399
Starvation Cap Reductn	0	0	0	422	145	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.67	0.96	0.61	0.42	0.14	0.40	0.38	0.08	0.08	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1760	165	295	1300	435	90	135	180	30	10	20
Future Volume (vph)	255	1760	165	295	1300	435	90	135	180	30	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.0	6.0	6.0	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1770	5020		3433	5085	1583	3433	1863	1583	1681	1726	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	1770	5020		3433	5085	1583	3433	1863	1583	1681	1726	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	1913	179	321	1413	473	98	147	196	33	11	22
RTOR Reduction (vph)	0	4	0	0	0	127	0	0	158	0	0	17
Lane Group Flow (vph)	277	2088	0	321	1413	346	98	147	38	22	22	5
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2	3	4	4	5	3	3	1
Permitted Phases						2			4			3
Actuated Green, G (s)	26.4	96.8		13.7	84.1	91.6	17.0	17.0	30.7	7.5	7.5	33.9
Effective Green, g (s)	28.4	98.8		15.7	86.1	95.6	17.0	17.0	30.7	7.5	7.5	33.9
Actuated g/C Ratio	0.18	0.62		0.10	0.54	0.60	0.11	0.11	0.19	0.05	0.05	0.21
Clearance Time (s)	6.5	6.5		6.5	6.5	6.0	6.0	6.0	6.5	6.0	6.0	6.5
Vehicle Extension (s)	1.5	3.0		2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5
Lane Grp Cap (vph)	314	3099		336	2736	945	364	197	303	78	80	335
v/s Ratio Prot	c0.16	c0.42		0.09	0.28	c0.02	0.03	c0.08	0.01	0.01	0.01	0.00
v/s Ratio Perm						0.20			0.01			0.00
v/c Ratio	0.88	0.67		0.96	0.52	0.37	0.27	0.75	0.12	0.28	0.28	0.01
Uniform Delay, d1	64.2	20.0		71.8	23.6	16.6	65.8	69.4	53.5	73.6	73.6	49.8
Progression Factor	1.00	1.00		0.95	0.77	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	23.4	1.2		34.0	0.6	0.1	0.1	12.6	0.1	0.7	0.7	0.0
Delay (s)	87.5	21.2		102.4	18.8	15.0	65.9	82.0	53.6	74.4	74.3	49.8
Level of Service	F	C		F	B	B	E	F	D	E	E	D
Approach Delay (s)		29.0			30.1			65.8			66.2	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1380	737	1462	542	721
v/c Ratio	0.27	0.47	0.50	0.82	0.69
Control Delay	0.1	2.0	16.5	55.4	45.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	2.0	16.5	55.4	45.4
Queue Length 50th (ft)	0	3	252	509	360
Queue Length 95th (ft)	0	0	300	583	384
Internal Link Dist (ft)	548		319		
Turn Bay Length (ft)		150			
Base Capacity (vph)	5085	1583	2900	890	1402
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.47	0.50	0.61	0.51

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑↑	↱		↑↑↑		↰		↱↱		
Traffic Volume (vph)	0	1270	700	0	1345	0	515	0	685	0	0
Future Volume (vph)	0	1270	700	0	1345	0	515	0	685	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		4.5		4.5		4.5		
Lane Util. Factor		0.91	1.00		0.91		1.00		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		5085	1583		5085		1770		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		5085	1583		5085		1770		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1380	737	0	1462	0	542	0	721	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1380	737	0	1462	0	542	0	721	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm		NA		Prot		Prot		
Protected Phases		Free!			2		8!		3		
Permitted Phases			Free								
Actuated Green, G (s)		160.0	160.0		89.3		57.7		57.7		
Effective Green, g (s)		160.0	160.0		91.3		59.7		59.7		
Actuated g/C Ratio		1.00	1.00		0.57		0.37		0.37		
Clearance Time (s)					6.5		6.5		6.5		
Vehicle Extension (s)					3.0		2.5		2.5		
Lane Grp Cap (vph)		5085	1583		2901		660		1039		
v/s Ratio Prot		0.27			c0.29		c0.31		0.26		
v/s Ratio Perm			0.47								
v/c Ratio		0.27	0.47		0.50		0.82		0.69		
Uniform Delay, d1		0.0	0.0		20.7		45.3		42.4		
Progression Factor		1.00	1.00		0.72		1.00		1.00		
Incremental Delay, d2		0.1	0.8		0.6		7.9		1.9		
Delay (s)		0.1	0.8		15.5		53.3		44.3		
Level of Service		A	A		B		D		D		
Approach Delay (s)		0.3			15.5			48.1		0.0	
Approach LOS		A			B			D		A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1353	1571	772	554	779
v/c Ratio	0.49	0.56	0.49	0.30	0.73
Control Delay	11.2	6.8	1.2	17.7	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	6.8	1.2	17.7	24.4
Queue Length 50th (ft)	125	126	12	66	172
Queue Length 95th (ft)	211	m153	m0	84	224
Internal Link Dist (ft)	286	371			
Turn Bay Length (ft)			250	350	350
Base Capacity (vph)	2785	2785	1568	2120	1212
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.56	0.49	0.26	0.64

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1245	0	0	1445	710	510	0	740	0	0	0
Future Volume (vph)	0	1245	0	0	1445	710	510	0	740	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	2.0	2.0		2.0			
Lane Util. Factor		0.91			0.91	1.00	0.94		0.88			
Frt		1.00			1.00	0.85	1.00		0.85			
Flt Protected		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085			5085	1568	4990		2787			
Flt Permitted		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085			5085	1568	4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	1353	0	0	1571	772	554	0	779	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	30	0	0	0
Lane Group Flow (vph)	0	1353	0	0	1571	772	554	0	749	0	0	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	3%	2%	3%	2%	3%	3%	3%
Turn Type		NA			NA	Free	Prot		Prot			
Protected Phases		6			2		4		4			
Permitted Phases						Free						
Actuated Green, G (s)		41.8			41.8	80.0	27.7		27.7			
Effective Green, g (s)		43.8			43.8	80.0	29.7		29.7			
Actuated g/C Ratio		0.55			0.55	1.00	0.37		0.37			
Clearance Time (s)		6.5			6.5		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		2784			2784	1568	1852		1034			
v/s Ratio Prot		0.27			c0.31		0.11		c0.27			
v/s Ratio Perm						0.49						
v/c Ratio		0.49			0.56	0.49	0.30		0.72			
Uniform Delay, d1		11.2			11.9	0.0	17.8		21.6			
Progression Factor		0.90			0.51	1.00	1.00		1.00			
Incremental Delay, d2		0.6			0.4	0.5	0.1		2.5			
Delay (s)		10.7			6.5	0.5	17.9		24.2			
Level of Service		B			A	A	B		C			
Approach Delay (s)		10.7			4.5			21.6			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	315	1728	114	76	1924	435	87	147	37	5	71
v/c Ratio	1.01	0.51	0.10	0.59	0.68	1.95	0.39	0.46	0.40	0.07	0.29
Control Delay	111.4	13.1	0.9	90.2	26.4	475.6	72.3	12.9	72.0	76.6	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.4	13.1	0.9	90.2	26.4	475.6	72.3	12.9	72.0	76.6	2.9
Queue Length 50th (ft)	~346	273	3	78	507	~637	87	0	33	5	0
Queue Length 95th (ft)	#552	364	11	137	558	#859	148	65	70	21	0
Internal Link Dist (ft)		660			631		513			403	
Turn Bay Length (ft)	300		150	100		125					340
Base Capacity (vph)	313	3379	1101	147	2832	223	570	590	93	442	523
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.51	0.10	0.52	0.68	1.95	0.15	0.25	0.40	0.01	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	1590	105	70	1690	80	400	80	135	34	5	65
Future Volume (vph)	290	1590	105	70	1690	80	400	80	135	34	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5051		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.41	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5051		767	1863	1583	1305	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	1728	114	76	1837	87	435	87	147	37	5	71
RTOR Reduction (vph)	0	0	39	0	2	0	0	0	130	0	0	68
Lane Group Flow (vph)	315	1728	75	76	1922	0	435	87	17	37	5	3
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6				4		4	8		8
Actuated Green, G (s)	26.3	103.2	103.2	9.6	86.5		28.2	19.0	19.0	10.4	7.2	7.2
Effective Green, g (s)	28.3	105.2	105.2	11.6	88.5		28.2	19.0	19.0	10.4	7.2	7.2
Actuated g/C Ratio	0.18	0.66	0.66	0.07	0.55		0.18	0.12	0.12	0.07	0.05	0.05
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	1.5	3.0		1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	313	3343	1040	128	2793		229	221	187	94	83	71
v/s Ratio Prot	c0.18	0.34		0.04	c0.38		c0.18	0.05		0.01	0.00	
v/s Ratio Perm			0.05				c0.16		0.01	0.02		0.00
v/c Ratio	1.01	0.52	0.07	0.59	0.69		1.90	0.39	0.09	0.39	0.06	0.04
Uniform Delay, d1	65.8	14.2	9.9	71.9	25.8		64.0	65.2	62.8	71.4	73.2	73.1
Progression Factor	0.98	0.91	1.38	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	48.6	0.5	0.1	4.8	1.4		420.8	0.4	0.1	1.0	0.1	0.1
Delay (s)	113.2	13.4	13.7	76.8	27.2		484.8	65.6	62.9	72.4	73.3	73.2
Level of Service	F	B	B	E	C		F	E	E	E	E	E
Approach Delay (s)		28.0			29.1			337.6			73.0	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	71.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	304	918	130	342	685	467	168	652	576	484	489	342
v/c Ratio	0.68	0.82	0.18	0.68	0.58	0.53	0.56	0.92	0.81	0.89	0.51	0.26
Control Delay	57.5	45.5	1.0	49.6	31.1	12.9	60.0	66.2	21.8	68.8	39.2	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	45.5	1.0	49.6	31.1	12.9	60.0	66.2	21.8	68.8	39.2	2.4
Queue Length 50th (ft)	115	348	0	137	221	108	65	262	133	191	169	34
Queue Length 95th (ft)	163	432	7	188	297	309	102	#372	225	#282	223	55
Internal Link Dist (ft)		620			1001			752			457	
Turn Bay Length (ft)	280		500	550		600	350			300		200
Base Capacity (vph)	486	1117	730	529	1173	883	311	710	720	546	961	1305
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.82	0.18	0.65	0.58	0.53	0.54	0.92	0.80	0.89	0.51	0.26

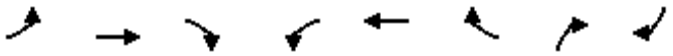
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	845	120	315	630	430	155	600	530	445	450	315
Future Volume (vph)	280	845	120	315	630	430	155	600	530	445	450	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	5.9	5.5	4.0	5.9	5.9	5.9	5.5	5.9	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	918	130	342	685	467	168	652	576	484	489	342
RTOR Reduction (vph)	0	0	78	0	0	58	0	0	156	0	0	25
Lane Group Flow (vph)	304	918	52	342	685	409	168	652	420	484	489	317
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	8
Permitted Phases			6			2			4			1 2
Actuated Green, G (s)	13.8	35.8	44.3	15.7	37.7	54.8	8.5	22.1	37.8	17.1	30.7	89.7
Effective Green, g (s)	15.8	37.8	48.3	17.7	39.7	58.8	10.5	24.1	41.8	19.1	32.7	88.2
Actuated g/C Ratio	0.13	0.31	0.40	0.15	0.33	0.49	0.09	0.20	0.35	0.16	0.27	0.74
Clearance Time (s)	7.5	6.0	7.9	7.5	6.0	7.9	7.9	7.9	7.5	7.9	7.9	7.9
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	452	1114	637	506	1170	775	300	710	551	546	964	1241
v/s Ratio Prot	0.09	c0.26	0.01	0.10	0.19	0.08	0.05	c0.18	c0.11	c0.14	0.14	0.07
v/s Ratio Perm			0.03			0.17			0.15			0.13
v/c Ratio	0.67	0.82	0.08	0.68	0.59	0.53	0.56	0.92	0.76	0.89	0.51	0.26
Uniform Delay, d1	49.6	38.0	22.2	48.4	33.3	21.1	52.5	47.0	34.7	49.4	36.8	5.2
Progression Factor	1.00	1.00	1.00	0.88	0.86	0.75	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	7.0	0.0	2.7	2.1	0.3	1.4	16.8	5.6	15.5	0.4	0.1
Delay (s)	52.7	45.0	22.2	45.4	30.7	16.0	54.0	63.7	40.3	64.9	37.3	5.3
Level of Service	D	D	C	D	C	B	D	E	D	E	D	A
Approach Delay (s)		44.5			29.5			52.9			39.1	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.3
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

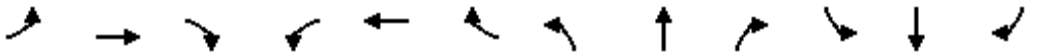
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBR	SBR
Lane Group Flow (vph)	321	1533	538	424	1538	402	152	152
v/c Ratio	0.53	0.46	0.51	0.57	0.35	0.37	0.19	0.29
Control Delay	28.2	4.6	4.7	21.6	3.1	2.7	4.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	4.6	4.7	21.6	3.1	2.7	4.4	5.6
Queue Length 50th (ft)	71	76	57	92	57	28	0	0
Queue Length 95th (ft)	m86	113	m107	m121	63	m48	14	16
Internal Link Dist (ft)		900			925			
Turn Bay Length (ft)	460		400	750		500	120	
Base Capacity (vph)	673	3298	1061	801	4396	1086	853	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.46	0.51	0.53	0.35	0.37	0.18	0.26

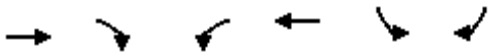
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



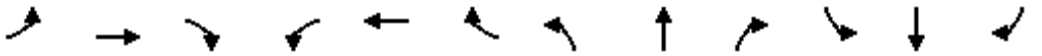
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	1410	495	390	1415	370	0	0	140	0	0	140
Future Volume (vph)	295	1410	495	390	1415	370	0	0	140	0	0	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0			6.0			6.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00			0.76			0.76
Frt	1.00	1.00	0.85	1.00	1.00	0.85			0.85			0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00			1.00			1.00
Satd. Flow (prot)	3367	5085	1583	3433	6408	1524			3610			2630
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00			1.00			1.00
Satd. Flow (perm)	3367	5085	1583	3433	6408	1524			3610			2630
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	321	1533	538	424	1538	402	0	0	152	0	0	152
RTOR Reduction (vph)	0	0	34	0	0	41	0	0	124	0	0	130
Lane Group Flow (vph)	321	1533	504	424	1538	361	0	0	28	0	0	22
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%	2%	2%	2%	18%	2%	40%
Turn Type	Prot	NA	Perm	Prot	NA	Perm			Over			Over
Protected Phases	1	6		5	2				5			1
Permitted Phases			6			2						
Actuated Green, G (s)	8.8	36.9	36.9	11.1	39.2	39.2			11.1			8.8
Effective Green, g (s)	10.8	38.9	38.9	13.1	41.2	41.2			11.1			8.8
Actuated g/C Ratio	0.18	0.65	0.65	0.22	0.69	0.69			0.18			0.15
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0			6.0			6.0
Vehicle Extension (s)	1.5	3.0	3.0	2.5	3.0	3.0			2.5			1.5
Lane Grp Cap (vph)	606	3296	1026	749	4400	1046			667			385
v/s Ratio Prot	0.10	0.30		c0.12	0.24				0.01			0.01
v/s Ratio Perm			c0.32			0.24						
v/c Ratio	0.53	0.47	0.49	0.57	0.35	0.35			0.04			0.06
Uniform Delay, d1	22.3	5.3	5.4	20.9	3.9	3.9			20.1			22.0
Progression Factor	1.17	0.79	0.75	0.92	0.74	0.71			1.00			1.00
Incremental Delay, d2	0.3	0.1	0.3	0.6	0.2	0.7			0.0			0.0
Delay (s)	26.3	4.2	4.4	19.8	3.0	3.5			20.1			22.1
Level of Service	C	A	A	B	A	A			C			C
Approach Delay (s)		7.2			6.1			20.1			22.1	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1288	384	626	1647	316	695
v/c Ratio	0.83	0.24	0.52	0.52	0.30	0.82
Control Delay	48.1	0.3	11.5	6.3	32.9	47.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	0.3	11.5	6.3	32.9	47.7
Queue Length 50th (ft)	248	0	102	177	96	282
Queue Length 95th (ft)	283	0	128	186	135	367
Internal Link Dist (ft)	925			635		
Turn Bay Length (ft)		500	305		500	500
Base Capacity (vph)	1546	1583	1212	3156	1047	850
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.24	0.52	0.52	0.30	0.82

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1185	365	595	1515	0	0	0	0	300	0	660
Future Volume (vph)	0	1185	365	595	1515	0	0	0	0	300	0	660
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	2.0	4.0	4.5					4.4		4.4
Lane Util. Factor		0.81	1.00	0.97	0.91					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		7544	1583	3433	5085					3433		2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		7544	1583	3433	5085					3433		2787
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	1288	384	626	1647	0	0	0	0	316	0	695
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1288	384	626	1647	0	0	0	0	316	0	695
Turn Type		NA	Free	Prot	NA					Prot		Perm
Protected Phases		6		5 4	2 4					3		
Permitted Phases			Free									3
Actuated Green, G (s)		22.6	120.0	38.0	72.5					34.6		34.6
Effective Green, g (s)		24.6	120.0	42.0	70.1					36.6		36.6
Actuated g/C Ratio		0.21	1.00	0.35	0.58					0.31		0.31
Clearance Time (s)		6.0								6.4		6.4
Vehicle Extension (s)		3.0								2.0		2.0
Lane Grp Cap (vph)		1546	1583	1201	2970					1047		850
v/s Ratio Prot		c0.17		0.18	c0.32					0.09		
v/s Ratio Perm			0.24									c0.25
v/c Ratio		0.83	0.24	0.52	0.55					0.30		0.82
Uniform Delay, d1		45.7	0.0	31.0	15.3					31.9		38.6
Progression Factor		0.94	1.00	0.63	0.44					1.00		1.00
Incremental Delay, d2		5.0	0.3	0.4	0.2					0.1		5.8
Delay (s)		47.9	0.3	19.9	7.0					32.0		44.4
Level of Service		D	A	B	A					C		D
Approach Delay (s)		37.0			10.6			0.0			40.5	
Approach LOS		D			B			A			D	

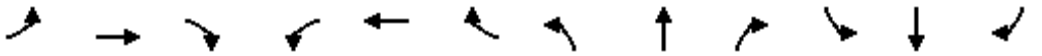
Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1168	432	1674	284	600	442
v/c Ratio	0.45	0.16	0.33	0.18	0.48	0.49
Control Delay	8.7	0.1	3.0	0.2	39.9	40.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	0.1	3.0	0.2	39.9	40.7
Queue Length 50th (ft)	126	0	42	0	141	128
Queue Length 95th (ft)	165	m0	58	m0	179	172
Internal Link Dist (ft)	635		630			
Turn Bay Length (ft)		700			410	430
Base Capacity (vph)	2610	2787	5098	1583	1247	902
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.16	0.33	0.18	0.48	0.49

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1075	410	0	1540	270	570	0	420	0	0	0
Future Volume (vph)	0	1075	410	0	1540	270	570	0	420	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	2.0		4.5	2.0	4.4		4.4			
Lane Util. Factor		0.91	0.88		0.81	1.00	0.94		0.76			
Frt		1.00	0.85		1.00	0.85	1.00		0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085	2787		7544	1583	4990		3610			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085	2787		7544	1583	4990		3610			
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	1168	432	0	1674	284	600	0	442	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1168	432	0	1674	284	600	0	442	0	0	0
Turn Type		NA	Free		NA	Free	Prot		Prot			
Protected Phases		6 3			2 3		4		4			
Permitted Phases			Free			Free						
Actuated Green, G (s)		57.2	120.0		79.2	120.0	28.0		28.0			
Effective Green, g (s)		61.2	120.0		81.2	120.0	30.0		30.0			
Actuated g/C Ratio		0.51	1.00		0.68	1.00	0.25		0.25			
Clearance Time (s)							6.4		6.4			
Vehicle Extension (s)							3.5		3.5			
Lane Grp Cap (vph)		2593	2787		5104	1583	1247		902			
v/s Ratio Prot		c0.23			c0.22		0.12		c0.12			
v/s Ratio Perm			0.16			0.18						
v/c Ratio		0.45	0.16		0.33	0.18	0.48		0.49			
Uniform Delay, d1		18.7	0.0		8.1	0.0	38.4		38.5			
Progression Factor		0.82	1.00		0.36	1.00	1.00		1.00			
Incremental Delay, d2		0.0	0.1		0.0	0.2	0.3		0.5			
Delay (s)		15.3	0.1		2.9	0.2	38.7		39.0			
Level of Service		B	A		A	A	D		D			
Approach Delay (s)		11.2			2.5			38.8			0.0	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

5: Research Park Boulevard/SW Natura Boulevard & SR 869/SW 10th Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	207	1174	245	114	1424	92	234	136	141	245	163	310
v/c Ratio	0.60	0.59	0.31	0.33	0.78	0.12	0.83	0.37	0.34	0.72	0.74	0.71
Control Delay	38.4	15.8	5.2	28.0	21.1	0.3	46.4	28.2	2.2	34.8	48.9	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	15.8	5.2	28.0	21.1	0.3	46.4	28.2	2.2	34.8	48.9	16.0
Queue Length 50th (ft)	57	123	33	20	164	0	67	24	0	71	58	9
Queue Length 95th (ft)	84	152	47	41	216	0	#156	48	0	#150	#140	#101
Internal Link Dist (ft)		630			1233			1112			1327	
Turn Bay Length (ft)	200		370	200		200	260		260	170		170
Base Capacity (vph)	343	1993	784	343	1816	738	281	371	418	338	226	440
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.59	0.31	0.33	0.78	0.12	0.83	0.37	0.34	0.72	0.72	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1080	225	105	1310	85	215	125	130	225	150	285
Future Volume (vph)	190	1080	225	105	1310	85	215	125	130	225	150	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	5.7	5.7	5.7	5.7	5.7	5.7
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.80	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1490	3539	1583	909	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	1174	245	114	1424	92	234	136	141	245	163	310
RTOR Reduction (vph)	0	0	159	0	0	63	0	0	129	0	0	243
Lane Group Flow (vph)	207	1174	86	114	1424	29	234	136	12	245	163	67
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Actuated Green, G (s)	5.3	19.1	19.1	3.2	17.0	17.0	10.3	5.0	5.0	16.7	8.2	8.2
Effective Green, g (s)	7.3	21.1	21.1	5.2	19.0	19.0	10.3	5.0	5.0	16.7	8.2	8.2
Actuated g/C Ratio	0.12	0.35	0.35	0.09	0.32	0.32	0.17	0.08	0.08	0.28	0.14	0.14
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	5.7	5.7	5.7	5.7	5.7	5.7
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	417	1788	556	297	1610	501	280	294	131	374	254	216
v/s Ratio Prot	c0.06	0.23		0.03	c0.28		0.07	0.04		c0.09	0.09	
v/s Ratio Perm			0.05			0.02	0.07		0.01	c0.09		0.04
v/c Ratio	0.50	0.66	0.15	0.38	0.88	0.06	0.84	0.46	0.09	0.66	0.64	0.31
Uniform Delay, d1	24.6	16.4	13.3	25.9	19.5	14.3	23.8	26.2	25.4	18.2	24.5	23.3
Progression Factor	1.21	0.96	3.70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.7	0.5	0.3	7.5	0.2	18.2	0.4	0.1	3.1	4.1	0.3
Delay (s)	30.1	17.5	49.8	26.2	26.9	14.5	42.0	26.6	25.5	21.4	28.6	23.6
Level of Service	C	B	D	C	C	B	D	C	C	C	C	C
Approach Delay (s)		24.0			26.2			33.4			24.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2288	152	1810	147	190
v/c Ratio	0.54	0.64	0.47	0.68	0.53
Control Delay	17.0	62.0	1.6	65.1	11.8
Queue Delay	0.0	1.6	0.1	0.0	0.0
Total Delay	17.0	63.6	1.7	65.1	11.8
Queue Length 50th (ft)	254	84	26	111	0
Queue Length 95th (ft)	323	#154	27	170	64
Internal Link Dist (ft)	575		175	531	
Turn Bay Length (ft)					
Base Capacity (vph)	4265	236	3824	545	619
Starvation Cap Reductn	0	19	458	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.70	0.54	0.27	0.31

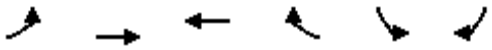
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2000	105	140	1665	135	175
Future Volume (vph)	2000	105	140	1665	135	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	9.0	9.0
Lane Util. Factor	0.81		1.00	0.91	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	7488		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	7488		1770	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2174	114	152	1810	147	190
RTOR Reduction (vph)	5	0	0	0	0	167
Lane Group Flow (vph)	2283	0	152	1810	147	23
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2 3		1	1 2 3	4	
Permitted Phases					4	4
Actuated Green, G (s)	66.2		14.0	88.2	14.8	14.8
Effective Green, g (s)	68.2		16.0	90.2	14.8	14.8
Actuated g/C Ratio	0.57		0.13	0.75	0.12	0.12
Clearance Time (s)			8.0		9.0	9.0
Vehicle Extension (s)			1.5		2.0	2.0
Lane Grp Cap (vph)	4255		236	3822	218	195
v/s Ratio Prot	c0.30		c0.09	0.36	c0.08	
v/s Ratio Perm						0.01
v/c Ratio	0.54		0.64	0.47	0.67	0.12
Uniform Delay, d1	16.1		49.3	5.7	50.3	46.8
Progression Factor	1.00		1.00	0.20	1.00	1.00
Incremental Delay, d2	0.1		4.1	0.0	6.3	0.1
Delay (s)	16.2		53.6	1.2	56.6	46.9
Level of Service	B		D	A	E	D
Approach Delay (s)	16.2			5.2	51.1	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

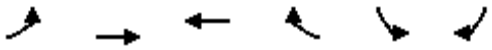


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	92	2272	1799	82	250	163
v/c Ratio	0.70	0.47	0.45	0.08	0.59	0.49
Control Delay	63.6	2.4	9.8	1.3	55.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	2.4	9.8	1.3	55.0	13.2
Queue Length 50th (ft)	70	26	179	3	95	5
Queue Length 95th (ft)	#152	43	242	m4	130	64
Internal Link Dist (ft)		175	1004		271	
Turn Bay Length (ft)				450		
Base Capacity (vph)	132	4818	4017	1023	1058	595
Starvation Cap Reductn	0	529	0	0	0	0
Spillback Cap Reductn	0	0	14	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.53	0.45	0.08	0.24	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	85	2090	1655	75	230	150
Future Volume (vph)	85	2090	1655	75	230	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	9.0	9.0
Lane Util. Factor	1.00	0.86	0.86	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	6408	6408	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	6408	6408	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	2272	1799	82	250	163
RTOR Reduction (vph)	0	0	0	31	0	137
Lane Group Flow (vph)	92	2272	1799	51	250	26
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	3	1 2 3	1 2		4	
Permitted Phases				1 2		4
Actuated Green, G (s)	7.0	88.2	73.2	73.2	14.8	14.8
Effective Green, g (s)	9.0	90.2	75.2	75.2	14.8	14.8
Actuated g/C Ratio	0.08	0.75	0.63	0.63	0.12	0.12
Clearance Time (s)	8.0				9.0	9.0
Vehicle Extension (s)	1.5				2.0	2.0
Lane Grp Cap (vph)	132	4816	4015	992	423	195
v/s Ratio Prot	c0.05	c0.35	0.28		c0.07	
v/s Ratio Perm				0.03		0.02
v/c Ratio	0.70	0.47	0.45	0.05	0.59	0.13
Uniform Delay, d1	54.2	5.7	11.6	8.6	49.7	46.9
Progression Factor	0.72	0.34	0.78	0.50	1.00	1.00
Incremental Delay, d2	10.6	0.0	0.0	0.0	1.5	0.1
Delay (s)	49.5	2.0	9.1	4.3	51.2	47.0
Level of Service	D	A	A	A	D	D
Approach Delay (s)		3.8	8.9		49.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1554	937	1391	442	474
v/c Ratio	0.42	0.59	0.48	0.52	0.69
Control Delay	5.4	7.6	6.9	21.9	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	7.6	6.9	21.9	26.4
Queue Length 50th (ft)	74	232	107	70	86
Queue Length 95th (ft)	131	356	146	108	135
Internal Link Dist (ft)	1004		259		
Turn Bay Length (ft)		250			
Base Capacity (vph)	3658	1583	2903	886	719
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.42	0.59	0.48	0.50	0.66

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	1430	890	0	1280	0	420	0	450	0	0
Future Volume (vph)	0	1430	890	0	1280	0	420	0	450	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	2.0		5.5		5.5		5.5		
Lane Util. Factor		0.86	1.00		0.91		0.97		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		6408	1583		5085		3433		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		6408	1583		5085		3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1554	937	0	1391	0	442	0	474	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1554	937	0	1391	0	442	0	474	0	0
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		6			2		3		3		
Permitted Phases			Free								
Actuated Green, G (s)		32.3	60.0		32.3		12.7		12.7		
Effective Green, g (s)		34.3	60.0		34.3		14.7		14.7		
Actuated g/C Ratio		0.57	1.00		0.57		0.24		0.24		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		3663	1583		2906		841		682		
v/s Ratio Prot		0.24			0.27		0.13		0.17		
v/s Ratio Perm			c0.59								
v/c Ratio		0.42	0.59		0.48		0.53		0.70		
Uniform Delay, d1		7.3	0.0		7.6		19.6		20.6		
Progression Factor		0.68	1.00		0.83		1.00		1.00		
Incremental Delay, d2		0.3	1.5		0.5		0.5		2.8		
Delay (s)		5.3	1.5		6.7		20.1		23.5		
Level of Service		A	A		A		C		C		
Approach Delay (s)		3.8			6.7			21.8		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL2	NBR
Lane Group Flow (vph)	1130	1848	453	484	347
v/c Ratio	0.38	0.62	0.29	0.62	0.55
Control Delay	5.1	4.6	0.2	24.5	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	4.6	0.2	24.5	23.8
Queue Length 50th (ft)	82	91	0	79	61
Queue Length 95th (ft)	56	m143	m0	121	101
Internal Link Dist (ft)	270	1155			
Turn Bay Length (ft)			250		
Base Capacity (vph)	2991	2991	1583	829	673
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.62	0.29	0.58	0.52

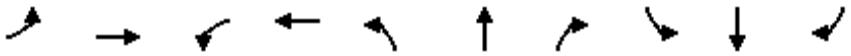
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations		↑↑↑			↑↑↑	↱	↰↰		↱↱		
Traffic Volume (vph)	0	1040	0	0	1700	430	460	0	330	0	0
Future Volume (vph)	0	1040	0	0	1700	430	460	0	330	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	2.0	5.5		5.5		
Lane Util. Factor		0.91			0.91	1.00	0.97		0.88		
Frt		1.00			1.00	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		5085			5085	1583	3433		2787		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		5085			5085	1583	3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1130	0	0	1848	453	484	0	347	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1130	0	0	1848	453	484	0	347	0	0
Turn Type		NA			NA	Free	Prot		Prot		
Protected Phases		6			2		4		4		
Permitted Phases						Free					
Actuated Green, G (s)		33.3			33.3	60.0	11.7		11.7		
Effective Green, g (s)		35.3			35.3	60.0	13.7		13.7		
Actuated g/C Ratio		0.59			0.59	1.00	0.23		0.23		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		2991			2991	1583	783		636		
v/s Ratio Prot		0.22			c0.36		c0.14		0.12		
v/s Ratio Perm						0.29					
v/c Ratio		0.38			0.62	0.29	0.62		0.55		
Uniform Delay, d1		6.5			8.0	0.0	20.8		20.4		
Progression Factor		0.71			0.51	1.00	1.00		1.00		
Incremental Delay, d2		0.3			0.4	0.2	1.2		0.8		
Delay (s)		5.0			4.5	0.2	22.0		21.2		
Level of Service		A			A	A	C		C		
Approach Delay (s)		5.0			3.7			21.7		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	386	1103	49	1658	212	217	65	92	212	516
v/c Ratio	0.91	0.48	0.43	0.87	0.63	0.43	0.12	0.28	0.44	0.98
Control Delay	71.5	18.4	66.2	40.8	40.4	39.2	0.5	29.1	40.1	66.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	18.4	66.2	40.8	40.4	39.2	0.5	29.1	40.1	66.1
Queue Length 50th (ft)	147	202	37	433	117	138	0	47	136	297
Queue Length 95th (ft)	#243	260	79	501	183	214	0	86	212	#526
Internal Link Dist (ft)		1155		834		912			742	
Turn Bay Length (ft)	550		490		250		225	200		
Base Capacity (vph)	425	2284	116	1899	335	507	543	327	492	531
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.48	0.42	0.87	0.63	0.43	0.12	0.28	0.43	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	900	115	45	1460	65	195	200	60	85	195	475
Future Volume (vph)	355	900	115	45	1460	65	195	200	60	85	195	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	4950		1752	5004		1752	1845	1568	1752	1845	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.49	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	3400	4950		1752	5004		913	1845	1568	967	1845	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	386	978	125	49	1587	71	212	217	65	92	212	516
RTOR Reduction (vph)	0	13	0	0	4	0	0	0	47	0	0	114
Lane Group Flow (vph)	386	1090	0	49	1654	0	212	217	18	92	212	402
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.0	51.6		4.8	43.4		38.6	32.6	32.6	36.6	31.6	31.6
Effective Green, g (s)	15.0	53.6		6.8	45.4		38.6	32.6	32.6	36.6	31.6	31.6
Actuated g/C Ratio	0.12	0.45		0.06	0.38		0.32	0.27	0.27	0.31	0.26	0.26
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	3.0		1.5	3.0		1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	425	2211		99	1893		335	501	425	327	485	412
v/s Ratio Prot	c0.11	0.22		0.03	c0.33		c0.03	0.12		0.01	0.11	
v/s Ratio Perm							0.17		0.01	0.07		c0.26
v/c Ratio	0.91	0.49		0.49	0.87		0.63	0.43	0.04	0.28	0.44	0.98
Uniform Delay, d1	51.8	23.6		54.9	34.6		34.8	36.1	32.2	30.7	36.8	43.8
Progression Factor	0.89	0.77		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.1	0.7		1.4	6.0		2.9	0.2	0.0	0.2	0.2	37.4
Delay (s)	67.5	18.9		56.4	40.6		37.6	36.3	32.2	30.9	37.0	81.2
Level of Service	E	B		E	D		D	D	C	C	D	F
Approach Delay (s)		31.5			41.1			36.3			64.1	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

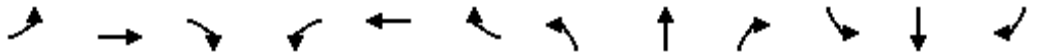
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	2016	250	2190	54	223	11	332	259	263	337
v/c Ratio	0.42	0.83	1.25	0.90	0.05	0.64	0.06	0.89	0.84	0.83	0.68
Control Delay	67.2	32.0	194.1	24.2	0.1	60.0	47.6	59.8	69.1	68.1	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.2	32.0	194.1	24.2	0.1	60.0	47.6	59.8	69.1	68.1	18.5
Queue Length 50th (ft)	33	484	~128	456	0	87	8	192	204	207	72
Queue Length 95th (ft)	72	#676	#214	#757	m0	124	26	#324	295	297	146
Internal Link Dist (ft)		580		548			436			396	
Turn Bay Length (ft)	450		375		350	225		250	200		
Base Capacity (vph)	103	2422	200	2441	1222	915	496	375	378	386	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.83	1.25	0.90	0.04	0.24	0.02	0.89	0.69	0.68	0.68

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1725	130	230	2015	50	205	10	305	390	90	310
Future Volume (vph)	40	1725	130	230	2015	50	205	10	305	390	90	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.0	6.0	6.0	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	5032		3433	5085	1583	3433	1863	1583	1681	1716	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	5032		3433	5085	1583	3433	1863	1583	1681	1716	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	1875	141	250	2190	54	223	11	332	424	98	337
RTOR Reduction (vph)	0	5	0	0	0	17	0	0	74	0	0	145
Lane Group Flow (vph)	43	2011	0	250	2190	37	223	11	258	259	263	192
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2	3	4	4	5	3	3	1
Permitted Phases						2			4			3
Actuated Green, G (s)	5.0	55.6		5.0	55.6	77.8	12.2	12.2	17.2	22.2	22.2	27.2
Effective Green, g (s)	7.0	57.6		7.0	57.6	81.8	12.2	12.2	17.2	22.2	22.2	27.2
Actuated g/C Ratio	0.06	0.48		0.06	0.48	0.68	0.10	0.10	0.14	0.18	0.18	0.23
Clearance Time (s)	6.5	6.5		6.5	6.5	6.0	6.0	6.0	6.5	6.0	6.0	6.5
Vehicle Extension (s)	1.5	3.0		2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5
Lane Grp Cap (vph)	103	2415		200	2440	1079	349	189	226	310	317	358
v/s Ratio Prot	0.02	0.40		c0.07	c0.43	0.01	0.06	0.01	c0.05	c0.15	0.15	0.02
v/s Ratio Perm						0.02			0.12			0.10
v/c Ratio	0.42	0.83		1.25	0.90	0.03	0.64	0.06	1.14	0.84	0.83	0.54
Uniform Delay, d1	54.5	27.0		56.5	28.5	6.2	51.8	48.7	51.4	47.1	47.1	40.8
Progression Factor	1.00	1.00		1.24	0.62	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	3.5		140.2	4.5	0.0	2.8	0.0	103.8	16.7	15.5	0.8
Delay (s)	55.5	30.6		210.2	22.2	0.0	54.6	48.8	155.2	63.8	62.6	41.6
Level of Service	E	C		F	C	A	D	D	F	E	E	D
Approach Delay (s)		31.1			40.5			113.5			54.7	
Approach LOS		C			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1848	758	1946	563	532
v/c Ratio	0.36	0.48	0.70	0.84	0.50
Control Delay	0.1	0.8	17.5	45.7	29.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	0.8	17.5	45.7	29.7
Queue Length 50th (ft)	0	0	246	388	175
Queue Length 95th (ft)	0	m0	507	486	209
Internal Link Dist (ft)	548		319		
Turn Bay Length (ft)		150			
Base Capacity (vph)	5085	1583	2780	789	1242
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.48	0.70	0.71	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑↑	↱		↑↑↑		↰		↱↱		
Traffic Volume (vph)	0	1700	720	0	1790	0	535	0	505	0	0
Future Volume (vph)	0	1700	720	0	1790	0	535	0	505	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		4.5		4.5		4.5		
Lane Util. Factor		0.91	1.00		0.91		1.00		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		5085	1583		5085		1770		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		5085	1583		5085		1770		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1848	758	0	1946	0	563	0	532	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1848	758	0	1946	0	563	0	532	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm		NA		Prot		Prot		
Protected Phases		Free!			2		8!		3		
Permitted Phases			Free								
Actuated Green, G (s)		120.0	120.0		63.6		43.4		43.4		
Effective Green, g (s)		120.0	120.0		65.6		45.4		45.4		
Actuated g/C Ratio		1.00	1.00		0.55		0.38		0.38		
Clearance Time (s)					6.5		6.5		6.5		
Vehicle Extension (s)					3.0		2.5		2.5		
Lane Grp Cap (vph)		5085	1583		2779		669		1054		
v/s Ratio Prot		0.36			c0.38		c0.32		0.19		
v/s Ratio Perm			0.48								
v/c Ratio		0.36	0.48		0.70		0.84		0.50		
Uniform Delay, d1		0.0	0.0		20.0		34.0		28.7		
Progression Factor		1.00	1.00		0.77		1.00		1.00		
Incremental Delay, d2		0.1	0.6		1.1		9.3		0.3		
Delay (s)		0.1	0.6		16.4		43.3		28.9		
Level of Service		A	A		B		D		C		
Approach Delay (s)		0.2			16.4			36.3		0.0	
Approach LOS		A			B			D		A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1766	2163	674	598	716
v/c Ratio	0.60	0.73	0.43	0.39	0.79
Control Delay	10.9	9.4	0.5	17.0	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	9.4	0.5	17.0	24.9
Queue Length 50th (ft)	182	158	0	58	119
Queue Length 95th (ft)	189	m262	m0	84	#193
Internal Link Dist (ft)	286	371			
Turn Bay Length (ft)			250	350	350
Base Capacity (vph)	2960	2960	1568	1580	926
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.73	0.43	0.38	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1625	0	0	1990	620	550	0	680	0	0	0
Future Volume (vph)	0	1625	0	0	1990	620	550	0	680	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	2.0	2.0		2.0			
Lane Util. Factor		0.91			0.91	1.00	0.94		0.88			
Frt		1.00			1.00	0.85	1.00		0.85			
Flt Protected		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085			5085	1568	4990		2787			
Flt Permitted		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085			5085	1568	4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	1766	0	0	2163	674	598	0	716	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	44	0	0	0
Lane Group Flow (vph)	0	1766	0	0	2163	674	598	0	672	0	0	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	3%	2%	3%	2%	3%	3%	3%
Turn Type		NA			NA	Free	Prot		Prot			
Protected Phases		6			2		4		4			
Permitted Phases						Free						
Actuated Green, G (s)		32.9			32.9	60.0	16.6		16.6			
Effective Green, g (s)		34.9			34.9	60.0	18.6		18.6			
Actuated g/C Ratio		0.58			0.58	1.00	0.31		0.31			
Clearance Time (s)		6.5			6.5		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		2957			2957	1568	1546		863			
v/s Ratio Prot		0.35			c0.43		0.12		c0.24			
v/s Ratio Perm						0.43						
v/c Ratio		0.60			0.73	0.43	0.39		0.78			
Uniform Delay, d1		8.0			9.1	0.0	16.2		18.8			
Progression Factor		1.24			0.91	1.00	1.00		1.00			
Incremental Delay, d2		0.8			1.0	0.5	0.2		4.5			
Delay (s)		10.8			9.3	0.5	16.4		23.3			
Level of Service		B			A	A	B		C			
Approach Delay (s)		10.8			7.2			20.2			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	87	2141	277	130	2272	288	11	125	37	54	310
v/c Ratio	0.81	0.75	0.29	0.99	0.77	1.05	0.03	0.30	0.14	0.19	0.85
Control Delay	97.7	15.9	4.7	132.5	23.0	112.4	38.3	6.1	33.5	42.4	46.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.7	15.9	4.7	132.5	23.0	112.4	38.3	6.1	33.5	42.4	46.3
Queue Length 50th (ft)	65	379	36	102	466	~241	7	0	23	37	129
Queue Length 95th (ft)	m#130	492	m101	#233	654	#306	22	36	46	68	215
Internal Link Dist (ft)		660			631		513			403	
Turn Bay Length (ft)	300		150	100		125					340
Base Capacity (vph)	107	2872	955	131	2934	274	589	600	272	589	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.75	0.29	0.99	0.77	1.05	0.02	0.21	0.14	0.09	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1970	255	120	2060	30	265	10	115	34	50	285
Future Volume (vph)	80	1970	255	120	2060	30	265	10	115	34	50	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5074		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.67	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5074		1248	1863	1583	1398	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	2141	277	130	2239	33	288	11	125	37	54	310
RTOR Reduction (vph)	0	0	64	0	1	0	0	0	102	0	0	120
Lane Group Flow (vph)	87	2141	213	130	2271	0	288	11	23	37	54	190
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6				4		4	8		8
Actuated Green, G (s)	5.3	63.4	63.4	6.9	65.0		26.3	22.3	22.3	23.1	20.7	20.7
Effective Green, g (s)	7.3	65.4	65.4	8.9	67.0		26.3	22.3	22.3	23.1	20.7	20.7
Actuated g/C Ratio	0.06	0.55	0.55	0.07	0.56		0.22	0.19	0.19	0.19	0.17	0.17
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	1.5	3.0		1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	107	2771	862	131	2832		290	346	294	276	321	273
v/s Ratio Prot	0.05	0.42		c0.07	c0.45		c0.03	0.01		0.00	0.03	
v/s Ratio Perm			0.13				c0.18		0.01	0.02		0.12
v/c Ratio	0.81	0.77	0.25	0.99	0.80		0.99	0.03	0.08	0.13	0.17	0.70
Uniform Delay, d1	55.7	21.5	14.4	55.5	21.2		46.7	40.0	40.4	40.0	42.3	46.7
Progression Factor	1.06	0.68	0.53	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.7	1.7	0.5	75.9	2.5		50.7	0.0	0.0	0.1	0.1	6.1
Delay (s)	86.8	16.3	8.2	131.4	23.7		97.4	40.0	40.4	40.0	42.4	52.8
Level of Service	F	B	A	F	C		F	D	D	D	D	D
Approach Delay (s)		17.8			29.5			79.1			50.2	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: S Military Trail & SR 869/SW 10th Street

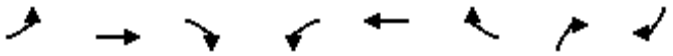
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	337	837	185	527	978	511	185	549	353	299	679	527
v/c Ratio	0.69	0.72	0.25	0.83	0.75	0.60	0.64	0.78	0.46	0.71	0.80	0.40
Control Delay	61.3	43.6	3.4	59.1	35.9	7.2	68.7	57.9	15.9	64.2	54.5	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	43.6	3.4	59.1	35.9	7.2	68.7	57.9	15.9	64.2	54.5	3.5
Queue Length 50th (ft)	140	336	4	205	357	90	78	232	110	125	282	79
Queue Length 95th (ft)	195	414	29	262	488	77	120	299	193	175	355	115
Internal Link Dist (ft)		620			1001			752			457	
Turn Bay Length (ft)	280		500	550		600	350			300		200
Base Capacity (vph)	489	1156	731	673	1327	858	293	717	784	451	873	1328
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.72	0.25	0.78	0.74	0.60	0.63	0.77	0.45	0.66	0.78	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	770	170	485	900	470	170	505	325	275	625	485
Future Volume (vph)	310	770	170	485	900	470	170	505	325	275	625	485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	5.9	5.5	4.0	5.9	5.9	5.9	5.5	5.9	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	337	837	185	527	978	511	185	549	353	299	679	527
RTOR Reduction (vph)	0	0	100	0	0	86	0	0	95	0	0	15
Lane Group Flow (vph)	337	837	85	527	978	425	185	549	258	299	679	512
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	8
Permitted Phases			6			2			4			1 2
Actuated Green, G (s)	16.6	40.4	49.3	22.2	46.0	60.1	8.9	24.0	46.2	14.1	29.2	97.8
Effective Green, g (s)	18.6	42.4	53.3	24.2	48.0	64.1	10.9	26.0	50.2	16.1	31.2	97.8
Actuated g/C Ratio	0.14	0.33	0.41	0.19	0.37	0.49	0.08	0.20	0.39	0.12	0.24	0.75
Clearance Time (s)	7.5	6.0	7.9	7.5	6.0	7.9	7.9	7.9	7.5	7.9	7.9	7.9
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	491	1154	649	639	1306	780	287	707	611	425	849	1190
v/s Ratio Prot	0.10	c0.24	0.01	0.15	c0.28	0.07	0.05	c0.16	0.08	0.09	c0.19	0.10
v/s Ratio Perm			0.04			0.20			0.08			0.22
v/c Ratio	0.69	0.73	0.13	0.82	0.75	0.54	0.64	0.78	0.42	0.70	0.80	0.43
Uniform Delay, d1	52.9	38.7	23.9	50.9	35.7	22.8	57.7	49.2	29.3	54.7	46.5	5.9
Progression Factor	1.00	1.00	1.00	0.96	0.90	0.54	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	4.0	0.0	7.1	3.5	0.4	3.7	5.4	0.2	4.3	5.3	0.3
Delay (s)	56.1	42.6	23.9	55.9	35.6	12.8	61.4	54.6	29.4	58.9	51.8	6.1
Level of Service	E	D	C	E	D	B	E	D	C	E	D	A
Approach Delay (s)		43.4			35.1			47.6			37.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.3
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

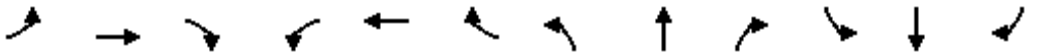
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBR	SBR
Lane Group Flow (vph)	71	1582	65	109	1712	87	549	728
v/c Ratio	0.06	0.56	0.07	0.10	0.49	0.10	0.48	0.81
Control Delay	12.0	8.2	1.3	10.5	5.4	1.3	16.0	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	8.2	1.3	10.5	5.4	1.3	16.0	23.7
Queue Length 50th (ft)	13	135	3	11	96	4	54	91
Queue Length 95th (ft)	m19	143	m7	m23	110	m11	98	120
Internal Link Dist (ft)		900			925			
Turn Bay Length (ft)	460		400	750		500	120	
Base Capacity (vph)	1605	3129	999	1096	3493	870	1149	1257
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.51	0.07	0.10	0.49	0.10	0.48	0.58

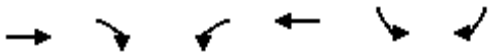
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	1455	60	100	1575	80	0	0	505	0	0	670
Future Volume (vph)	65	1455	60	100	1575	80	0	0	505	0	0	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0			6.0			6.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00			0.76			0.76
Frt	1.00	1.00	0.85	1.00	1.00	0.85			0.85			0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00			1.00			1.00
Satd. Flow (prot)	3367	5085	1583	3433	6408	1524			3610			2630
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00			1.00			1.00
Satd. Flow (perm)	3367	5085	1583	3433	6408	1524			3610			2630
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	1582	65	109	1712	87	0	0	549	0	0	728
RTOR Reduction (vph)	0	0	29	0	0	40	0	0	107	0	0	105
Lane Group Flow (vph)	71	1582	36	109	1712	47	0	0	442	0	0	623
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%	2%	2%	2%	18%	2%	40%
Turn Type	Prot	NA	Perm	Prot	NA	Perm			Over			Over
Protected Phases	1	6		5	2				5			1
Permitted Phases			6			2						
Actuated Green, G (s)	19.6	34.2	34.2	18.8	33.4	33.4			18.8			19.6
Effective Green, g (s)	21.6	36.2	36.2	20.8	35.4	35.4			18.8			19.6
Actuated g/C Ratio	0.33	0.56	0.56	0.32	0.54	0.54			0.29			0.30
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0			6.0			6.0
Vehicle Extension (s)	1.5	3.0	3.0	2.5	3.0	3.0			2.5			1.5
Lane Grp Cap (vph)	1118	2831	881	1098	3489	829			1044			793
v/s Ratio Prot	0.02	c0.31		0.03	c0.27				0.12			c0.24
v/s Ratio Perm			0.02			0.03						
v/c Ratio	0.06	0.56	0.04	0.10	0.49	0.06			0.42			0.79
Uniform Delay, d1	14.8	9.3	6.5	15.5	9.2	7.0			18.7			20.8
Progression Factor	0.89	0.82	1.03	0.62	0.50	0.53			1.00			1.00
Incremental Delay, d2	0.0	0.2	0.0	0.0	0.4	0.1			0.2			4.7
Delay (s)	13.2	7.8	6.7	9.7	5.0	3.8			18.9			25.5
Level of Service	B	A	A	A	A	A			B			C
Approach Delay (s)		8.0			5.2			18.9			25.5	
Approach LOS		A			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1473	637	605	1473	232	421
v/c Ratio	0.67	0.40	0.50	0.41	0.30	0.66
Control Delay	33.2	0.7	18.3	5.4	42.8	51.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	0.7	18.3	5.4	42.8	51.5
Queue Length 50th (ft)	243	0	134	159	84	184
Queue Length 95th (ft)	288	0	160	186	122	248
Internal Link Dist (ft)	925			635		
Turn Bay Length (ft)		500	305		500	500
Base Capacity (vph)	2205	1583	1214	3579	781	634
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.40	0.50	0.41	0.30	0.66

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1355	605	575	1355	0	0	0	0	220	0	400
Future Volume (vph)	0	1355	605	575	1355	0	0	0	0	220	0	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	2.0	4.0	4.5					4.4		4.4
Lane Util. Factor		0.81	1.00	0.97	0.91					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		7544	1583	3433	5085					3433		2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		7544	1583	3433	5085					3433		2787
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	1473	637	605	1473	0	0	0	0	232	0	421
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1473	637	605	1473	0	0	0	0	232	0	421
Turn Type		NA	Free	Prot	NA					Prot		Perm
Protected Phases		6		5 4	2 4					3		
Permitted Phases			Free									3
Actuated Green, G (s)		36.0	130.0	41.6	89.5					27.6		27.6
Effective Green, g (s)		38.0	130.0	45.6	87.1					29.6		29.6
Actuated g/C Ratio		0.29	1.00	0.35	0.67					0.23		0.23
Clearance Time (s)		6.0								6.4		6.4
Vehicle Extension (s)		3.0								2.0		2.0
Lane Grp Cap (vph)		2205	1583	1204	3406					781		634
v/s Ratio Prot		c0.20		c0.18	0.29					0.07		
v/s Ratio Perm			c0.40									c0.15
v/c Ratio		0.67	0.40	0.50	0.43					0.30		0.66
Uniform Delay, d1		40.5	0.0	33.3	10.0					41.6		45.7
Progression Factor		0.78	1.00	0.98	0.62					1.00		1.00
Incremental Delay, d2		1.4	0.7	0.3	0.1					0.1		2.0
Delay (s)		33.1	0.7	32.9	6.3					41.7		47.7
Level of Service		C	A	C	A					D		D
Approach Delay (s)		23.3			14.0			0.0			45.6	
Approach LOS		C			B			A			D	

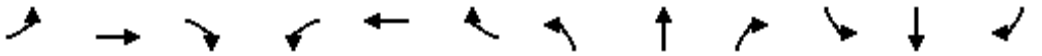
Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	886	800	1674	316	411	653
v/c Ratio	0.33	0.29	0.33	0.20	0.32	0.70
Control Delay	3.6	2.3	4.5	0.2	39.8	48.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	2.3	4.5	0.2	39.8	48.4
Queue Length 50th (ft)	58	53	54	0	99	219
Queue Length 95th (ft)	54	72	63	m0	131	277
Internal Link Dist (ft)	635		630			
Turn Bay Length (ft)		700			410	430
Base Capacity (vph)	2659	2787	5077	1583	1289	933
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.29	0.33	0.20	0.32	0.70

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	815	760	0	1540	300	390	0	620	0	0	0
Future Volume (vph)	0	815	760	0	1540	300	390	0	620	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	2.0		4.5	2.0	4.4		4.4			
Lane Util. Factor		0.91	0.88		0.81	1.00	0.94		0.76			
Frt		1.00	0.85		1.00	0.85	1.00		0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085	2787		7544	1583	4990		3610			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085	2787		7544	1583	4990		3610			
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	886	800	0	1674	316	411	0	653	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	886	800	0	1674	316	411	0	653	0	0	0
Turn Type		NA	Free		NA	Free	Prot		Prot			
Protected Phases		6 3			2 3		4		4			
Permitted Phases			Free			Free						
Actuated Green, G (s)		63.6	130.0		85.6	130.0	31.6		31.6			
Effective Green, g (s)		67.6	130.0		87.6	130.0	33.6		33.6			
Actuated g/C Ratio		0.52	1.00		0.67	1.00	0.26		0.26			
Clearance Time (s)							6.4		6.4			
Vehicle Extension (s)							3.5		3.5			
Lane Grp Cap (vph)		2644	2787		5083	1583	1289		933			
v/s Ratio Prot		0.17			c0.22		0.08		c0.18			
v/s Ratio Perm			0.29			0.20						
v/c Ratio		0.34	0.29		0.33	0.20	0.32		0.70			
Uniform Delay, d1		18.1	0.0		8.9	0.0	39.0		43.6			
Progression Factor		0.33	1.00		0.49	1.00	1.00		1.00			
Incremental Delay, d2		0.0	0.2		0.0	0.2	0.2		2.4			
Delay (s)		5.9	0.2		4.3	0.2	39.1		46.0			
Level of Service		A	A		A	A	D		D			
Approach Delay (s)		3.2			3.7			43.4			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	277	1043	239	207	1277	120	310	98	120	239	245	413
v/c Ratio	0.80	0.67	0.36	0.59	0.82	0.18	0.89	0.22	0.23	0.54	0.85	0.74
Control Delay	43.4	17.6	5.1	36.2	26.7	0.6	48.0	26.5	1.0	20.4	55.7	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	17.6	5.1	36.2	26.7	0.6	48.0	26.5	1.0	20.4	55.7	14.7
Queue Length 50th (ft)	75	141	42	41	171	0	91	18	0	67	95	16
Queue Length 95th (ft)	#130	186	68	#79	#224	0	#176	38	0	119	#208	#129
Internal Link Dist (ft)		630			1233			1112			1327	
Turn Bay Length (ft)	200		370	200		200	260		260	170		170
Base Capacity (vph)	348	1564	658	349	1553	655	349	479	532	448	295	560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.67	0.36	0.59	0.82	0.18	0.89	0.20	0.23	0.53	0.83	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	960	220	190	1175	110	285	90	110	220	225	380
Future Volume (vph)	255	960	220	190	1175	110	285	90	110	220	225	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	5.7	5.7	5.7	5.7	5.7	5.7
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1130	3539	1583	815	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	1043	239	207	1277	120	310	98	120	239	245	413
RTOR Reduction (vph)	0	0	171	0	0	85	0	0	107	0	0	305
Lane Group Flow (vph)	277	1043	68	207	1277	35	310	98	13	239	245	108
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Actuated Green, G (s)	4.6	16.6	16.6	4.7	16.7	16.7	15.4	7.1	7.1	23.6	11.2	11.2
Effective Green, g (s)	6.6	18.6	18.6	6.7	18.7	18.7	15.4	7.1	7.1	23.6	11.2	11.2
Actuated g/C Ratio	0.10	0.29	0.29	0.10	0.29	0.29	0.24	0.11	0.11	0.36	0.17	0.17
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	5.7	5.7	5.7	5.7	5.7	5.7
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	348	1455	452	353	1462	455	349	386	172	478	321	272
v/s Ratio Prot	0.08	c0.21		0.06	c0.25		c0.11	0.03		0.10	c0.13	
v/s Ratio Perm			0.04			0.02	0.10		0.01	0.09		0.07
v/c Ratio	0.80	0.72	0.15	0.59	0.87	0.08	0.89	0.25	0.08	0.50	0.76	0.40
Uniform Delay, d1	28.5	20.8	17.3	27.8	22.0	16.9	23.1	26.5	26.0	15.4	25.6	23.9
Progression Factor	0.95	0.78	2.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.0	2.7	0.6	1.6	7.5	0.3	22.3	0.1	0.1	0.3	9.3	0.4
Delay (s)	37.1	19.1	36.7	29.4	29.5	17.2	45.4	26.7	26.1	15.7	34.9	24.3
Level of Service	D	B	D	C	C	B	D	C	C	B	C	C
Approach Delay (s)		25.0			28.6			37.5			24.9	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2522	261	2255	114	120
v/c Ratio	0.59	0.87	0.56	0.65	0.45
Control Delay	19.1	77.5	2.0	72.8	14.3
Queue Delay	0.0	52.4	0.2	0.0	0.0
Total Delay	19.2	130.0	2.2	72.8	14.3
Queue Length 50th (ft)	323	167	49	94	0
Queue Length 95th (ft)	389	#359	31	152	57
Internal Link Dist (ft)	575		175	531	
Turn Bay Length (ft)					
Base Capacity (vph)	4280	299	3992	503	536
Starvation Cap Reductn	0	62	690	0	0
Spillback Cap Reductn	112	0	0	0	1
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	1.10	0.68	0.23	0.22

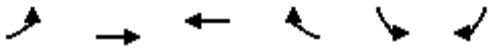
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2240	80	240	2075	105	110
Future Volume (vph)	2240	80	240	2075	105	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	9.0	9.0
Lane Util. Factor	0.81		1.00	0.91	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	7505		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	7505		1770	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2435	87	261	2255	114	120
RTOR Reduction (vph)	3	0	0	0	0	108
Lane Group Flow (vph)	2519	0	261	2255	114	12
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2 3		1	1 2 3	4	
Permitted Phases					4	4
Actuated Green, G (s)	72.1		20.0	100.1	12.9	12.9
Effective Green, g (s)	74.1		22.0	102.1	12.9	12.9
Actuated g/C Ratio	0.57		0.17	0.79	0.10	0.10
Clearance Time (s)			8.0		9.0	9.0
Vehicle Extension (s)			1.5		2.0	2.0
Lane Grp Cap (vph)	4277		299	3993	175	157
v/s Ratio Prot	c0.34		c0.15	c0.44	c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.59		0.87	0.56	0.65	0.08
Uniform Delay, d1	18.1		52.6	5.4	56.4	53.1
Progression Factor	1.00		1.01	0.27	1.00	1.00
Incremental Delay, d2	0.1		19.4	0.1	6.5	0.1
Delay (s)	18.2		72.7	1.5	62.8	53.2
Level of Service	B		E	A	E	D
Approach Delay (s)	18.2			8.9	57.9	
Approach LOS	B			A	E	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

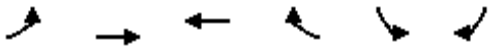


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	179	2375	2359	272	185	158
v/c Ratio	0.82	0.47	0.60	0.25	0.54	0.53
Control Delay	63.9	2.0	12.8	0.9	61.0	14.3
Queue Delay	6.0	0.1	0.0	0.0	0.0	0.1
Total Delay	69.9	2.0	12.9	0.9	61.0	14.4
Queue Length 50th (ft)	149	23	301	1	77	0
Queue Length 95th (ft)	#277	35	406	m15	112	64
Internal Link Dist (ft)		175	1004		271	
Turn Bay Length (ft)				450		
Base Capacity (vph)	217	5031	3947	1079	977	563
Starvation Cap Reductn	16	786	0	0	0	0
Spillback Cap Reductn	0	0	124	0	0	51
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.56	0.62	0.25	0.19	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	165	2185	2170	250	170	145
Future Volume (vph)	165	2185	2170	250	170	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	9.0	9.0
Lane Util. Factor	1.00	0.86	0.86	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	6408	6408	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	6408	6408	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	2375	2359	272	185	158
RTOR Reduction (vph)	0	0	0	104	0	142
Lane Group Flow (vph)	179	2375	2359	168	185	16
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	3	1 2 3	1 2		4	
Permitted Phases				1 2		4
Actuated Green, G (s)	14.0	100.1	78.1	78.1	12.9	12.9
Effective Green, g (s)	16.0	102.1	80.1	80.1	12.9	12.9
Actuated g/C Ratio	0.12	0.79	0.62	0.62	0.10	0.10
Clearance Time (s)	8.0				9.0	9.0
Vehicle Extension (s)	1.5				2.0	2.0
Lane Grp Cap (vph)	217	5032	3948	975	340	157
v/s Ratio Prot	c0.10	0.37	c0.37		c0.05	
v/s Ratio Perm				0.11		0.01
v/c Ratio	0.82	0.47	0.60	0.17	0.54	0.10
Uniform Delay, d1	55.6	4.8	15.2	10.7	55.8	53.3
Progression Factor	0.68	0.34	0.79	0.38	1.00	1.00
Incremental Delay, d2	17.8	0.0	0.1	0.0	1.0	0.1
Delay (s)	55.7	1.6	12.1	4.1	56.7	53.4
Level of Service	E	A	B	A	E	D
Approach Delay (s)		5.4	11.2		55.2	
Approach LOS		A	B		E	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1897	642	1946	474	663
v/c Ratio	0.56	0.41	0.73	0.46	0.78
Control Delay	9.4	1.4	13.9	19.7	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	1.4	13.9	19.7	28.4
Queue Length 50th (ft)	152	4	243	75	131
Queue Length 95th (ft)	263	29	m238	114	#196
Internal Link Dist (ft)	1004		259		
Turn Bay Length (ft)		250			
Base Capacity (vph)	3379	1583	2681	1082	878
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.41	0.73	0.44	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	1745	610	0	1790	0	450	0	630	0	0
Future Volume (vph)	0	1745	610	0	1790	0	450	0	630	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	2.0		5.5		5.5		5.5		
Lane Util. Factor		0.86	1.00		0.91		0.97		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		6408	1583		5085		3433		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		6408	1583		5085		3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1897	642	0	1946	0	474	0	663	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1897	642	0	1946	0	474	0	663	0	0
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		6			2		3		3		
Permitted Phases			Free								
Actuated Green, G (s)		32.3	65.0		32.3		17.7		17.7		
Effective Green, g (s)		34.3	65.0		34.3		19.7		19.7		
Actuated g/C Ratio		0.53	1.00		0.53		0.30		0.30		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		3381	1583		2683		1040		844		
v/s Ratio Prot		0.30			c0.38		0.14		c0.24		
v/s Ratio Perm			0.41								
v/c Ratio		0.56	0.41		0.73		0.46		0.79		
Uniform Delay, d1		10.3	0.0		11.7		18.3		20.7		
Progression Factor		0.84	1.00		1.06		1.00		1.00		
Incremental Delay, d2		0.6	0.7		1.1		0.2		4.7		
Delay (s)		9.2	0.7		13.6		18.5		25.4		
Level of Service		A	A		B		B		C		
Approach Delay (s)		7.1			13.6			22.5		0.0	
Approach LOS		A			B			C		A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL2	NBR
Lane Group Flow (vph)	1712	1685	358	1063	579
v/c Ratio	0.65	0.64	0.23	0.98	0.66
Control Delay	7.4	9.5	0.2	47.9	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	9.5	0.2	47.9	23.6
Queue Length 50th (ft)	57	126	0	212	110
Queue Length 95th (ft)	62	m283	m0	#338	167
Internal Link Dist (ft)	270	1155			
Turn Bay Length (ft)			250		
Base Capacity (vph)	2620	2620	1583	1082	878
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.64	0.23	0.98	0.66

Intersection Summary

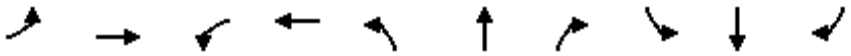
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations		↑↑↑			↑↑↑	↱	↰↰		↱↱		
Traffic Volume (vph)	0	1575	0	0	1550	340	1010	0	550	0	0
Future Volume (vph)	0	1575	0	0	1550	340	1010	0	550	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	2.0	5.5		5.5		
Lane Util. Factor		0.91			0.91	1.00	0.97		0.88		
Frt		1.00			1.00	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		5085			5085	1583	3433		2787		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		5085			5085	1583	3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1712	0	0	1685	358	1063	0	579	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1712	0	0	1685	358	1063	0	579	0	0
Turn Type		NA			NA	Free	Prot		Prot		
Protected Phases		6			2		4		4		
Permitted Phases						Free					
Actuated Green, G (s)		31.5			31.5	65.0	18.5		18.5		
Effective Green, g (s)		33.5			33.5	65.0	20.5		20.5		
Actuated g/C Ratio		0.52			0.52	1.00	0.32		0.32		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		2620			2620	1583	1082		878		
v/s Ratio Prot		c0.34			0.33		c0.31		0.21		
v/s Ratio Perm						0.23					
v/c Ratio		0.65			0.64	0.23	0.98		0.66		
Uniform Delay, d1		11.5			11.4	0.0	22.1		19.2		
Progression Factor		0.55			0.76	1.00	1.00		1.00		
Incremental Delay, d2		0.5			0.8	0.2	23.0		1.6		
Delay (s)		6.8			9.4	0.2	45.1		20.8		
Level of Service		A			A	A	D		C		
Approach Delay (s)		6.8			7.8			36.5		0.0	
Approach LOS		A			A			D		A	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	467	1843	98	1571	228	326	98	71	255	375
v/c Ratio	0.86	0.73	0.74	0.74	0.96	0.76	0.19	0.41	0.78	0.80
Control Delay	63.9	21.1	89.8	35.2	89.0	58.5	0.8	39.8	66.9	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.9	21.1	89.8	35.2	89.0	58.5	0.8	39.8	66.9	31.5
Queue Length 50th (ft)	188	351	82	399	156	266	0	44	209	119
Queue Length 95th (ft)	#284	483	#171	523	#210	342	0	74	279	223
Internal Link Dist (ft)		1155		834		912			742	
Turn Bay Length (ft)	550		490		250		225	200		
Base Capacity (vph)	554	2528	136	2120	237	530	594	174	458	565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.73	0.72	0.74	0.96	0.62	0.16	0.41	0.56	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	430	1515	180	90	1335	110	210	300	90	65	235	345
Future Volume (vph)	430	1515	180	90	1335	110	210	300	90	65	235	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5004		1770	5027		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.25	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	3433	5004		1770	5027		467	1863	1583	607	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	467	1647	196	98	1451	120	228	326	98	71	255	375
RTOR Reduction (vph)	0	10	0	0	6	0	0	0	75	0	0	190
Lane Group Flow (vph)	467	1833	0	98	1565	0	228	326	23	71	255	185
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	18.5	62.3		7.7	51.5		40.0	30.0	30.0	28.0	24.0	24.0
Effective Green, g (s)	20.5	64.3		9.7	53.5		40.0	30.0	30.0	28.0	24.0	24.0
Actuated g/C Ratio	0.16	0.49		0.07	0.41		0.31	0.23	0.23	0.22	0.18	0.18
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	3.0		1.5	3.0		1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	541	2475		132	2068		243	429	365	166	343	292
v/s Ratio Prot	c0.14	c0.37		0.06	0.31		c0.07	0.18		0.01	0.14	
v/s Ratio Perm							c0.22		0.01	0.08		0.12
v/c Ratio	0.86	0.74		0.74	0.76		0.94	0.76	0.06	0.43	0.74	0.63
Uniform Delay, d1	53.4	26.2		58.9	32.7		41.2	46.6	39.0	42.6	50.1	48.9
Progression Factor	0.95	0.75		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.2	1.5		17.7	2.6		40.2	6.7	0.0	0.6	7.4	3.3
Delay (s)	60.9	21.1		76.7	35.3		81.4	53.4	39.0	43.3	57.5	52.2
Level of Service	E	C		E	D		F	D	D	D	E	D
Approach Delay (s)		29.2			37.8			61.0			53.2	
Approach LOS		C			D			E			D	

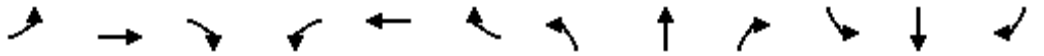
Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	315	2310	370	1554	505	109	152	261	27	27	27
v/c Ratio	0.91	0.74	0.98	0.57	0.47	0.30	0.77	0.49	0.36	0.35	0.07
Control Delay	99.3	26.5	124.4	29.0	6.3	75.1	102.4	15.6	95.6	95.0	0.3
Queue Delay	0.0	0.0	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.3	26.5	124.4	29.4	6.6	75.1	102.4	15.6	95.6	95.0	0.3
Queue Length 50th (ft)	362	663	235	552	71	62	178	50	33	33	0
Queue Length 95th (ft)	#526	839	#347	532	57	93	255	136	72	72	1
Internal Link Dist (ft)		580		548			436			396	
Turn Bay Length (ft)	450		375		350	225		250	200		
Base Capacity (vph)	371	3125	379	2724	1215	610	331	536	252	257	425
Starvation Cap Reductn	0	0	0	590	248	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.74	0.98	0.73	0.52	0.18	0.46	0.49	0.11	0.11	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	1935	190	340	1430	465	100	140	240	40	10	25
Future Volume (vph)	290	1935	190	340	1430	465	100	140	240	40	10	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.0	6.0	6.0	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	5017		3433	5085	1583	3433	1863	1583	1681	1719	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	5017		3433	5085	1583	3433	1863	1583	1681	1719	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	2103	207	370	1554	505	109	152	261	43	11	27
RTOR Reduction (vph)	0	5	0	0	0	106	0	0	165	0	0	21
Lane Group Flow (vph)	315	2305	0	370	1554	399	109	152	96	27	27	6
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2	3	4	4	5	3	3	1
Permitted Phases						2			4			3
Actuated Green, G (s)	33.4	109.9		17.9	94.4	102.5	19.1	19.1	37.0	8.1	8.1	41.5
Effective Green, g (s)	35.4	111.9		19.9	96.4	106.5	19.1	19.1	37.0	8.1	8.1	41.5
Actuated g/C Ratio	0.20	0.62		0.11	0.54	0.59	0.11	0.11	0.21	0.04	0.04	0.23
Clearance Time (s)	6.5	6.5		6.5	6.5	6.0	6.0	6.0	6.5	6.0	6.0	6.5
Vehicle Extension (s)	1.5	3.0		2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5
Lane Grp Cap (vph)	348	3118		379	2723	936	364	197	325	75	77	364
v/s Ratio Prot	c0.18	c0.46		0.11	0.31	c0.02	0.03	c0.08	0.03	0.02	0.02	0.00
v/s Ratio Perm						0.23			0.03			0.00
v/c Ratio	0.91	0.74		0.98	0.57	0.43	0.30	0.77	0.29	0.36	0.35	0.02
Uniform Delay, d1	70.7	23.8		79.8	28.0	20.1	74.3	78.3	60.5	83.4	83.4	53.5
Progression Factor	1.00	1.00		1.14	0.96	0.57	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.4	1.6		35.2	0.7	0.1	0.2	15.5	0.2	1.1	1.0	0.0
Delay (s)	96.0	25.5		126.1	27.6	11.5	74.4	93.9	60.6	84.5	84.4	53.5
Level of Service	F	C		F	C	B	E	F	E	F	F	D
Approach Delay (s)		33.9			39.3			73.2			74.1	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1440	937	1549	642	853
v/c Ratio	0.28	0.59	0.60	0.83	0.70
Control Delay	0.1	6.2	24.6	53.4	43.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	6.2	24.6	53.4	43.3
Queue Length 50th (ft)	0	203	488	663	459
Queue Length 95th (ft)	0	715	540	702	454
Internal Link Dist (ft)	548		319		
Turn Bay Length (ft)		150			
Base Capacity (vph)	5085	1583	2597	939	1478
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	82	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.59	0.62	0.68	0.58

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑↑	↱		↑↑↑		↰		↱↱		
Traffic Volume (vph)	0	1325	890	0	1425	0	610	0	810	0	0
Future Volume (vph)	0	1325	890	0	1425	0	610	0	810	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		4.5		4.5		4.5		
Lane Util. Factor		0.91	1.00		0.91		1.00		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		5085	1583		5085		1770		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		5085	1583		5085		1770		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1440	937	0	1549	0	642	0	853	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1440	937	0	1549	0	642	0	853	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm		NA		Prot		Prot		
Protected Phases		Free!			2		8!		3		
Permitted Phases			Free								
Actuated Green, G (s)		180.0	180.0		90.0		77.0		77.0		
Effective Green, g (s)		180.0	180.0		92.0		79.0		79.0		
Actuated g/C Ratio		1.00	1.00		0.51		0.44		0.44		
Clearance Time (s)					6.5		6.5		6.5		
Vehicle Extension (s)					3.0		2.5		2.5		
Lane Grp Cap (vph)		5085	1583		2599		776		1223		
v/s Ratio Prot		0.28			0.30		c0.36		0.31		
v/s Ratio Perm			c0.59								
v/c Ratio		0.28	0.59		0.60		0.83		0.70		
Uniform Delay, d1		0.0	0.0		30.9		44.5		40.8		
Progression Factor		1.00	1.00		0.72		1.00		1.00		
Incremental Delay, d2		0.1	1.2		0.8		7.1		1.6		
Delay (s)		0.1	1.2		23.2		51.6		42.5		
Level of Service		A	A		C		D		D		
Approach Delay (s)		0.5			23.2			46.4		0.0	
Approach LOS		A			C			D		A	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

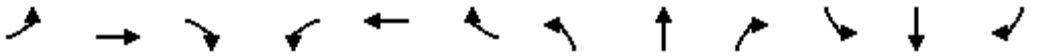
! Phase conflict between lane groups.

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1495	1799	848	587	874
v/c Ratio	0.55	0.66	0.54	0.30	0.78
Control Delay	11.5	11.1	1.0	18.7	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	11.1	1.0	18.7	27.7
Queue Length 50th (ft)	219	266	1	76	223
Queue Length 95th (ft)	345	m295	m0	98	292
Internal Link Dist (ft)	286	371			
Turn Bay Length (ft)			250	350	350
Base Capacity (vph)	2713	2713	1568	2162	1231
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.55	0.66	0.54	0.27	0.71

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1375	0	0	1655	780	540	0	830	0	0	0
Future Volume (vph)	0	1375	0	0	1655	780	540	0	830	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	2.0	2.0		2.0			
Lane Util. Factor		0.91			0.91	1.00	0.94		0.88			
Frt		1.00			1.00	0.85	1.00		0.85			
Flt Protected		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085			5085	1568	4990		2787			
Flt Permitted		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085			5085	1568	4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	1495	0	0	1799	848	587	0	874	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	25	0	0	0
Lane Group Flow (vph)	0	1495	0	0	1799	848	587	0	849	0	0	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	3%	2%	3%	2%	3%	3%	3%
Turn Type		NA			NA	Free	Prot		Prot			
Protected Phases		6			2		4		4			
Permitted Phases						Free						
Actuated Green, G (s)		46.0			46.0	90.0	33.5		33.5			
Effective Green, g (s)		48.0			48.0	90.0	35.5		35.5			
Actuated g/C Ratio		0.53			0.53	1.00	0.39		0.39			
Clearance Time (s)		6.5			6.5		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		2712			2712	1568	1968		1099			
v/s Ratio Prot		0.29			c0.35		0.12		c0.30			
v/s Ratio Perm						0.54						
v/c Ratio		0.55			0.66	0.54	0.30		0.77			
Uniform Delay, d1		13.9			15.2	0.0	18.7		23.7			
Progression Factor		0.74			0.68	1.00	1.00		1.00			
Incremental Delay, d2		0.8			0.4	0.4	0.1		3.4			
Delay (s)		11.1			10.7	0.4	18.8		27.2			
Level of Service		B			B	A	B		C			
Approach Delay (s)		11.1			7.4			23.8			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	342	1924	130	87	2174	484	92	174	37	5	92
v/c Ratio	1.07	0.57	0.12	0.64	0.76	2.04	0.39	0.49	0.45	0.08	0.42
Control Delay	129.4	14.9	1.6	101.4	32.4	514.9	78.5	13.8	84.6	87.0	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	129.4	14.9	1.6	101.4	32.4	514.9	78.5	13.8	84.6	87.0	5.7
Queue Length 50th (ft)	~446	406	6	101	703	~829	103	0	38	6	0
Queue Length 95th (ft)	#666	400	m21	167	759	#1063	169	79	77	22	0
Internal Link Dist (ft)		660			631		513			403	
Turn Bay Length (ft)	300		150	100		125					340
Base Capacity (vph)	320	3393	1099	160	2846	237	548	588	82	393	470
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.57	0.12	0.54	0.76	2.04	0.17	0.30	0.45	0.01	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	1770	120	80	1905	95	445	85	160	34	5	85
Future Volume (vph)	315	1770	120	80	1905	95	445	85	160	34	5	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5049		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.41	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5049		767	1863	1583	1299	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	1924	130	87	2071	103	484	92	174	37	5	92
RTOR Reduction (vph)	0	0	44	0	2	0	0	0	152	0	0	88
Lane Group Flow (vph)	342	1924	86	87	2172	0	484	92	22	37	5	4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6				4		4	8		8
Actuated Green, G (s)	30.6	117.0	117.0	11.8	98.2		32.2	23.0	23.0	10.4	7.2	7.2
Effective Green, g (s)	32.6	119.0	119.0	13.8	100.2		32.2	23.0	23.0	10.4	7.2	7.2
Actuated g/C Ratio	0.18	0.66	0.66	0.08	0.56		0.18	0.13	0.13	0.06	0.04	0.04
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	1.5	3.0		1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	320	3361	1046	135	2810		243	238	202	83	74	63
v/s Ratio Prot	c0.19	0.38		0.05	c0.43		c0.21	0.05		0.01	0.00	
v/s Ratio Perm			0.05				c0.15		0.01	0.02		0.00
v/c Ratio	1.07	0.57	0.08	0.64	0.77		1.99	0.39	0.11	0.45	0.07	0.06
Uniform Delay, d1	73.7	16.6	10.9	80.7	31.0		71.7	72.0	69.4	81.6	83.2	83.1
Progression Factor	0.97	0.88	0.87	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	64.5	0.6	0.1	7.7	2.1		460.7	0.4	0.1	1.4	0.1	0.1
Delay (s)	136.1	15.2	9.6	88.4	33.2		532.4	72.4	69.5	83.0	83.3	83.3
Level of Service	F	B	A	F	C		F	E	E	F	F	F
Approach Delay (s)		32.1			35.3			368.6			83.2	
Approach LOS		C			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	80.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: S Military Trail & SR 869/SW 10th Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	326	1125	158	370	1016	543	185	728	739	533	576	337
v/c Ratio	0.55	0.97	0.21	0.55	0.82	0.67	0.64	1.06	0.95	1.03	0.63	0.25
Control Delay	66.0	73.6	6.3	51.8	40.8	10.9	81.1	111.1	55.5	112.4	56.0	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	73.6	6.3	51.8	40.8	10.9	81.1	111.1	55.5	112.4	56.0	2.5
Queue Length 50th (ft)	163	621	12	146	470	61	97	~437	602	~306	284	45
Queue Length 95th (ft)	228	#781	57	178	565	89	141	#571	#889	#428	353	66
Internal Link Dist (ft)		620			1001			752			457	
Turn Bay Length (ft)	280		500	550		600	350			300		200
Base Capacity (vph)	591	1156	776	699	1393	816	308	687	789	517	921	1343
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.97	0.20	0.53	0.73	0.67	0.60	1.06	0.94	1.03	0.63	0.25

Intersection Summary

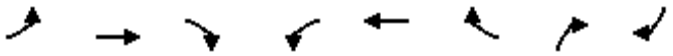
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	1035	145	340	935	500	170	670	680	490	530	310
Future Volume (vph)	300	1035	145	340	935	500	170	670	680	490	530	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	5.9	5.5	4.0	5.9	5.9	5.9	5.5	5.9	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	1125	158	370	1016	543	185	728	739	533	576	337
RTOR Reduction (vph)	0	0	81	0	0	43	0	0	109	0	0	15
Lane Group Flow (vph)	326	1125	77	370	1016	501	185	728	630	533	576	322
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	8
Permitted Phases			6			2			4			1 2
Actuated Green, G (s)	25.6	50.3	61.9	29.2	53.9	76.0	11.6	29.1	58.3	22.1	39.6	125.1
Effective Green, g (s)	27.6	52.3	65.9	31.2	55.9	80.0	13.6	31.1	62.3	24.1	41.6	125.1
Actuated g/C Ratio	0.17	0.33	0.41	0.19	0.35	0.50	0.08	0.19	0.39	0.15	0.26	0.78
Clearance Time (s)	7.5	6.0	7.9	7.5	6.0	7.9	7.9	7.9	7.5	7.9	7.9	7.9
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	592	1156	651	669	1236	791	291	687	616	517	920	1296
v/s Ratio Prot	0.09	c0.32	0.01	0.11	0.29	0.10	0.05	c0.21	c0.20	c0.16	0.16	0.06
v/s Ratio Perm			0.04			0.22			0.20			0.14
v/c Ratio	0.55	0.97	0.12	0.55	0.82	0.63	0.64	1.06	1.02	1.03	0.63	0.25
Uniform Delay, d1	60.5	53.2	29.1	58.1	47.5	29.3	70.8	64.5	48.9	68.0	52.3	4.7
Progression Factor	1.00	1.00	1.00	0.84	0.74	0.55	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	20.8	0.0	0.5	5.7	1.1	3.3	51.2	42.0	47.8	1.3	0.1
Delay (s)	61.2	73.9	29.1	49.4	41.1	17.1	74.1	115.7	90.9	115.7	53.7	4.8
Level of Service	E	E	C	D	D	B	E	F	F	F	D	A
Approach Delay (s)		66.9			36.0			99.9			65.1	
Approach LOS		E			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	65.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	21.3
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

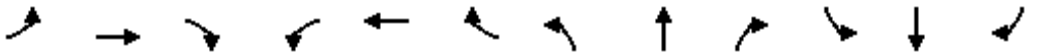
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBR	SBR
Lane Group Flow (vph)	397	1935	598	484	2049	473	201	196
v/c Ratio	0.63	0.56	0.55	0.62	0.45	0.42	0.24	0.37
Control Delay	31.0	8.8	8.4	27.8	3.9	3.4	11.6	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	8.8	8.4	27.8	3.9	3.4	11.6	13.8
Queue Length 50th (ft)	95	331	242	155	153	86	13	14
Queue Length 95th (ft)	m95	m351	m272	m196	186	m146	35	36
Internal Link Dist (ft)		900			925			
Turn Bay Length (ft)	460		400	750		500	120	
Base Capacity (vph)	757	3426	1093	858	4564	1115	907	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.56	0.55	0.56	0.45	0.42	0.22	0.31

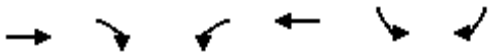
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



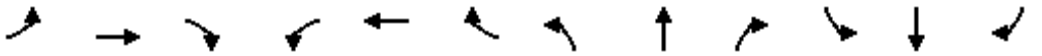
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	1780	550	445	1885	435	0	0	185	0	0	180
Future Volume (vph)	365	1780	550	445	1885	435	0	0	185	0	0	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0			6.0			6.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00			0.76			0.76
Frt	1.00	1.00	0.85	1.00	1.00	0.85			0.85			0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00			1.00			1.00
Satd. Flow (prot)	3367	5085	1583	3433	6408	1524			3610			2630
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00			1.00			1.00
Satd. Flow (perm)	3367	5085	1583	3433	6408	1524			3610			2630
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	1935	598	484	2049	473	0	0	201	0	0	196
RTOR Reduction (vph)	0	0	27	0	0	30	0	0	98	0	0	103
Lane Group Flow (vph)	397	1935	571	484	2049	443	0	0	103	0	0	93
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%	2%	2%	2%	18%	2%	40%
Turn Type	Prot	NA	Perm	Prot	NA	Perm			Over			Over
Protected Phases	1	6		5	2				5			1
Permitted Phases			6			2						
Actuated Green, G (s)	13.0	51.9	51.9	16.1	55.0	55.0			16.1			13.0
Effective Green, g (s)	15.0	53.9	53.9	18.1	57.0	57.0			16.1			13.0
Actuated g/C Ratio	0.19	0.67	0.67	0.23	0.71	0.71			0.20			0.16
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0			6.0			6.0
Vehicle Extension (s)	1.5	3.0	3.0	2.5	3.0	3.0			2.5			1.5
Lane Grp Cap (vph)	631	3426	1066	776	4565	1085			726			427
v/s Ratio Prot	c0.12	c0.38		c0.14	0.32				0.03			0.04
v/s Ratio Perm			0.36			0.29						
v/c Ratio	0.63	0.56	0.54	0.62	0.45	0.41			0.14			0.22
Uniform Delay, d1	29.9	6.9	6.7	27.9	4.9	4.7			26.3			29.1
Progression Factor	0.95	1.17	1.19	0.92	0.74	0.69			1.00			1.00
Incremental Delay, d2	0.8	0.1	0.3	0.9	0.2	0.7			0.1			0.1
Delay (s)	29.4	8.2	8.2	26.4	3.8	4.0			26.3			29.2
Level of Service	C	A	A	C	A	A			C			C
Approach Delay (s)		11.1			7.4			26.3			29.2	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1543	574	816	2082	432	895
v/c Ratio	0.81	0.36	0.78	0.71	0.34	0.88
Control Delay	47.2	0.6	57.9	14.9	37.7	58.3
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	47.2	0.6	57.9	15.2	37.7	58.3
Queue Length 50th (ft)	379	0	384	420	168	496
Queue Length 95th (ft)	427	0	457	427	216	601
Internal Link Dist (ft)	925			635		
Turn Bay Length (ft)		500	305		500	500
Base Capacity (vph)	1899	1583	1072	2939	1257	1020
Starvation Cap Reductn	0	0	0	272	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.36	0.76	0.78	0.34	0.88

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1420	545	775	1915	0	0	0	0	410	0	850
Future Volume (vph)	0	1420	545	775	1915	0	0	0	0	410	0	850
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	2.0	4.0	4.5					4.4		4.4
Lane Util. Factor		0.81	1.00	0.97	0.91					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		7544	1583	3433	5085					3433		2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		7544	1583	3433	5085					3433		2787
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	1543	574	816	2082	0	0	0	0	432	0	895
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1543	574	816	2082	0	0	0	0	432	0	895
Turn Type		NA	Free	Prot	NA					Prot		Perm
Protected Phases		6		5 4	2 4					3		
Permitted Phases			Free									3
Actuated Green, G (s)		38.3	160.0	46.7	90.5					56.6		56.6
Effective Green, g (s)		40.3	160.0	44.3	88.1					58.6		58.6
Actuated g/C Ratio		0.25	1.00	0.28	0.55					0.37		0.37
Clearance Time (s)		6.0								6.4		6.4
Vehicle Extension (s)		3.0								2.0		2.0
Lane Grp Cap (vph)		1900	1583	950	2799					1257		1020
v/s Ratio Prot		c0.20		c0.24	0.41					0.13		
v/s Ratio Perm			0.36									c0.32
v/c Ratio		0.81	0.36	0.86	0.74					0.34		0.88
Uniform Delay, d1		56.3	0.0	54.9	27.4					36.8		47.3
Progression Factor		0.77	1.00	1.04	0.56					1.00		1.00
Incremental Delay, d2		3.4	0.6	6.9	1.0					0.1		8.4
Delay (s)		46.9	0.6	63.7	16.3					36.8		55.7
Level of Service		D	A	E	B					D		E
Approach Delay (s)		34.4			29.7			0.0			49.6	
Approach LOS		C			C			A			D	

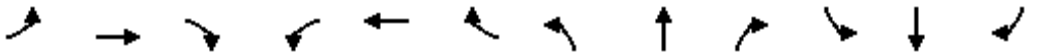
Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1413	558	2087	305	811	495
v/c Ratio	0.43	0.20	0.37	0.19	0.85	0.72
Control Delay	1.9	0.1	3.0	0.1	72.0	67.3
Queue Delay	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	0.1	3.0	0.1	72.0	67.3
Queue Length 50th (ft)	22	0	57	0	294	215
Queue Length 95th (ft)	10	0	m62	m0	347	271
Internal Link Dist (ft)	635		630			
Turn Bay Length (ft)		700			410	430
Base Capacity (vph)	3282	2787	5681	1583	954	690
Starvation Cap Reductn	1085	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.20	0.37	0.19	0.85	0.72

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1300	530	0	1920	290	770	0	470	0	0	0
Future Volume (vph)	0	1300	530	0	1920	290	770	0	470	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	2.0		4.5	2.0	4.4		4.4			
Lane Util. Factor		0.91	0.88		0.81	1.00	0.94		0.76			
Frt		1.00	0.85		1.00	0.85	1.00		0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085	2787		7544	1583	4990		3610			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085	2787		7544	1583	4990		3610			
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	1413	558	0	2087	305	811	0	495	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1413	558	0	2087	305	811	0	495	0	0	0
Turn Type		NA	Free		NA	Free	Prot		Prot			
Protected Phases		6 3			2 3		4		4			
Permitted Phases			Free			Free						
Actuated Green, G (s)		100.9	160.0		118.6	160.0	28.6		28.6			
Effective Green, g (s)		102.9	160.0		120.6	160.0	30.6		30.6			
Actuated g/C Ratio		0.64	1.00		0.75	1.00	0.19		0.19			
Clearance Time (s)							6.4		6.4			
Vehicle Extension (s)							3.5		3.5			
Lane Grp Cap (vph)		3270	2787		5686	1583	954		690			
v/s Ratio Prot		c0.28			c0.28		c0.16		0.14			
v/s Ratio Perm			0.20			0.19						
v/c Ratio		0.43	0.20		0.37	0.19	0.85		0.72			
Uniform Delay, d1		14.1	0.0		6.7	0.0	62.5		60.6			
Progression Factor		0.11	1.00		0.43	1.00	1.00		1.00			
Incremental Delay, d2		0.0	0.1		0.0	0.1	7.5		3.7			
Delay (s)		1.6	0.1		2.9	0.1	70.0		64.3			
Level of Service		A	A		A	A	E		E			
Approach Delay (s)		1.2			2.6			67.9			0.0	
Approach LOS		A			A			E			A	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

5: Research Park Boulevard/SW Natura Boulevard & SR 869/SW 10th Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	277	1304	342	228	1598	103	380	212	196	266	217	424
v/c Ratio	0.85	0.73	0.44	0.66	0.88	0.15	0.99	0.34	0.38	0.72	0.85	0.89
Control Delay	58.2	14.8	3.7	45.2	31.4	0.5	68.6	30.9	2.5	32.3	64.3	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.2	14.8	3.7	45.2	31.4	0.5	68.6	30.9	2.5	32.3	64.3	34.4
Queue Length 50th (ft)	63	239	46	58	271	0	149	49	0	96	107	59
Queue Length 95th (ft)	#127	195	56	#104	#347	0	#304	81	7	#169	#222	#226
Internal Link Dist (ft)		630			1233			1112			1327	
Turn Bay Length (ft)	200		370	200		200	260		260	170		170
Base Capacity (vph)	326	1786	777	346	1815	694	384	615	522	381	263	480
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.73	0.44	0.66	0.88	0.15	0.99	0.34	0.38	0.70	0.83	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1200	315	210	1470	95	350	195	180	245	200	390
Future Volume (vph)	255	1200	315	210	1470	95	350	195	180	245	200	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	5.7	5.7	5.7	5.7	5.7	5.7
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.32	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	595	3539	1583	1153	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	1304	342	228	1598	103	380	212	196	266	217	424
RTOR Reduction (vph)	0	0	222	0	0	66	0	0	162	0	0	258
Lane Group Flow (vph)	277	1304	120	228	1598	37	380	212	34	266	217	166
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Actuated Green, G (s)	5.6	26.1	26.1	6.1	26.6	26.6	26.6	13.9	13.9	20.6	10.9	10.9
Effective Green, g (s)	7.6	28.1	28.1	8.1	28.6	28.6	26.6	13.9	13.9	20.6	10.9	10.9
Actuated g/C Ratio	0.09	0.35	0.35	0.10	0.36	0.36	0.33	0.17	0.17	0.26	0.14	0.14
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	5.7	5.7	5.7	5.7	5.7	5.7
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	326	1786	556	347	1817	565	384	614	275	371	253	215
v/s Ratio Prot	0.08	c0.26		0.07	c0.31		c0.16	0.06		0.09	0.12	
v/s Ratio Perm			0.08			0.02	c0.17		0.02	0.10		0.10
v/c Ratio	0.85	0.73	0.22	0.66	0.88	0.07	0.99	0.35	0.12	0.72	0.86	0.77
Uniform Delay, d1	35.6	22.6	18.2	34.6	24.1	16.9	24.1	29.1	27.9	26.0	33.8	33.3
Progression Factor	1.02	0.55	1.28	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.8	2.3	0.8	3.4	6.5	0.2	42.6	0.1	0.1	5.4	23.0	14.3
Delay (s)	52.2	14.7	24.1	38.0	30.5	17.1	66.6	29.2	28.0	31.4	56.8	47.7
Level of Service	D	B	C	D	C	B	E	C	C	C	E	D
Approach Delay (s)		21.8			30.7			46.9			45.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2538	174	1973	158	207
v/c Ratio	0.59	0.79	0.52	0.69	0.54
Control Delay	17.8	78.2	2.0	64.9	11.3
Queue Delay	0.0	1.5	0.1	0.0	0.0
Total Delay	17.8	79.7	2.0	64.9	11.3
Queue Length 50th (ft)	296	104	35	119	0
Queue Length 95th (ft)	374	#237	32	181	65
Internal Link Dist (ft)	575		175	531	
Turn Bay Length (ft)					
Base Capacity (vph)	4279	221	3791	545	631
Starvation Cap Reductn	0	7	458	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.81	0.59	0.29	0.33

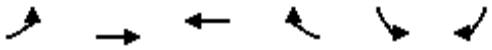
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2220	115	160	1815	145	190
Future Volume (vph)	2220	115	160	1815	145	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	9.0	9.0
Lane Util. Factor	0.81		1.00	0.91	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	7488		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	7488		1770	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2413	125	174	1973	158	207
RTOR Reduction (vph)	5	0	0	0	0	180
Lane Group Flow (vph)	2533	0	174	1973	158	27
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2 3		1	1 2 3	4	
Permitted Phases					4	4
Actuated Green, G (s)	66.5		13.0	87.5	15.5	15.5
Effective Green, g (s)	68.5		15.0	89.5	15.5	15.5
Actuated g/C Ratio	0.57		0.12	0.75	0.13	0.13
Clearance Time (s)			8.0		9.0	9.0
Vehicle Extension (s)			1.5		2.0	2.0
Lane Grp Cap (vph)	4274		221	3792	228	204
v/s Ratio Prot	c0.34		c0.10	0.39	c0.09	
v/s Ratio Perm						0.02
v/c Ratio	0.59		0.79	0.52	0.69	0.13
Uniform Delay, d1	16.7		51.0	6.3	50.0	46.3
Progression Factor	1.00		1.10	0.22	1.00	1.00
Incremental Delay, d2	0.1		14.1	0.1	7.1	0.1
Delay (s)	16.8		69.9	1.4	57.1	46.4
Level of Service	B		E	A	E	D
Approach Delay (s)	16.8			7.0	51.0	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

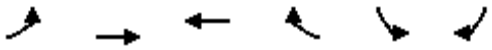


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	103	2516	1967	92	272	179
v/c Ratio	0.78	0.53	0.49	0.09	0.61	0.53
Control Delay	70.9	2.7	10.7	1.2	54.8	15.9
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	70.9	2.7	10.7	1.2	54.8	15.9
Queue Length 50th (ft)	79	29	227	1	104	17
Queue Length 95th (ft)	m#175	46	278	m5	140	81
Internal Link Dist (ft)		175	1004		271	
Turn Bay Length (ft)				450		
Base Capacity (vph)	132	4778	3977	1017	1058	595
Starvation Cap Reductn	0	476	0	0	0	0
Spillback Cap Reductn	0	0	40	0	0	5
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.58	0.50	0.09	0.26	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	95	2315	1810	85	250	165
Future Volume (vph)	95	2315	1810	85	250	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	9.0	9.0
Lane Util. Factor	1.00	0.86	0.86	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	6408	6408	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	6408	6408	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	2516	1967	92	272	179
RTOR Reduction (vph)	0	0	0	35	0	135
Lane Group Flow (vph)	103	2516	1967	57	272	44
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	3	1 2 3	1 2		4	
Permitted Phases				1 2		4
Actuated Green, G (s)	7.0	87.5	72.5	72.5	15.5	15.5
Effective Green, g (s)	9.0	89.5	74.5	74.5	15.5	15.5
Actuated g/C Ratio	0.08	0.75	0.62	0.62	0.13	0.13
Clearance Time (s)	8.0				9.0	9.0
Vehicle Extension (s)	1.5				2.0	2.0
Lane Grp Cap (vph)	132	4779	3978	982	443	204
v/s Ratio Prot	c0.06	c0.39	0.31		c0.08	
v/s Ratio Perm				0.04		0.03
v/c Ratio	0.78	0.53	0.49	0.06	0.61	0.22
Uniform Delay, d1	54.5	6.4	12.4	8.9	49.4	46.8
Progression Factor	0.71	0.34	0.80	0.44	1.00	1.00
Incremental Delay, d2	20.0	0.0	0.0	0.0	1.8	0.2
Delay (s)	58.5	2.2	9.9	3.9	51.2	47.0
Level of Service	E	A	A	A	D	D
Approach Delay (s)		4.4	9.7		49.5	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1712	1042	1478	521	563
v/c Ratio	0.47	0.66	0.52	0.60	0.80
Control Delay	6.1	9.8	7.6	22.9	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	9.8	7.6	22.9	31.2
Queue Length 50th (ft)	84	329	139	84	107
Queue Length 95th (ft)	164	453	164	128	#185
Internal Link Dist (ft)	1004		259		
Turn Bay Length (ft)		250			
Base Capacity (vph)	3605	1583	2861	886	719
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.66	0.52	0.59	0.78

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	1575	990	0	1360	0	495	0	535	0	0
Future Volume (vph)	0	1575	990	0	1360	0	495	0	535	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	2.0		5.5		5.5		5.5		
Lane Util. Factor		0.86	1.00		0.91		0.97		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		6408	1583		5085		3433		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		6408	1583		5085		3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1712	1042	0	1478	0	521	0	563	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1712	1042	0	1478	0	521	0	563	0	0
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		6			2		3		3		
Permitted Phases			Free								
Actuated Green, G (s)		31.8	60.0		31.8		13.2		13.2		
Effective Green, g (s)		33.8	60.0		33.8		15.2		15.2		
Actuated g/C Ratio		0.56	1.00		0.56		0.25		0.25		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		3609	1583		2864		869		706		
v/s Ratio Prot		0.27			0.29		0.15		0.20		
v/s Ratio Perm			c0.66								
v/c Ratio		0.47	0.66		0.52		0.60		0.80		
Uniform Delay, d1		7.8	0.0		8.1		19.7		21.0		
Progression Factor		0.72	1.00		0.87		1.00		1.00		
Incremental Delay, d2		0.4	1.9		0.5		0.9		6.1		
Delay (s)		6.0	1.9		7.5		20.7		27.0		
Level of Service		A	A		A		C		C		
Approach Delay (s)		4.5			7.5			24.0		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL2	NBR
Lane Group Flow (vph)	1272	1929	600	584	447
v/c Ratio	0.44	0.67	0.38	0.69	0.65
Control Delay	6.7	7.2	0.2	25.1	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	7.2	0.2	25.1	25.1
Queue Length 50th (ft)	109	165	0	96	81
Queue Length 95th (ft)	102	m158	m0	144	127
Internal Link Dist (ft)	270	1155			
Turn Bay Length (ft)			250		
Base Capacity (vph)	2891	2891	1583	886	719
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.67	0.38	0.66	0.62

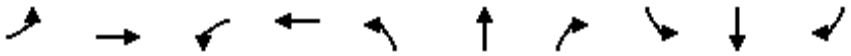
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations		↑↑↑			↑↑↑	↱	↰↰		↱↱		
Traffic Volume (vph)	0	1170	0	0	1775	570	555	0	425	0	0
Future Volume (vph)	0	1170	0	0	1775	570	555	0	425	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	2.0	5.5		5.5		
Lane Util. Factor		0.91			0.91	1.00	0.97		0.88		
Frt		1.00			1.00	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		5085			5085	1583	3433		2787		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		5085			5085	1583	3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1272	0	0	1929	600	584	0	447	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1272	0	0	1929	600	584	0	447	0	0
Turn Type		NA			NA	Free	Prot		Prot		
Protected Phases		6			2		4		4		
Permitted Phases						Free					
Actuated Green, G (s)		32.1			32.1	60.0	12.9		12.9		
Effective Green, g (s)		34.1			34.1	60.0	14.9		14.9		
Actuated g/C Ratio		0.57			0.57	1.00	0.25		0.25		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		2889			2889	1583	852		692		
v/s Ratio Prot		0.25			c0.38		c0.17		0.16		
v/s Ratio Perm						0.38					
v/c Ratio		0.44			0.67	0.38	0.69		0.65		
Uniform Delay, d1		7.5			9.0	0.0	20.4		20.2		
Progression Factor		0.83			0.75	1.00	1.00		1.00		
Incremental Delay, d2		0.4			0.3	0.2	2.1		1.8		
Delay (s)		6.6			7.1	0.2	22.5		22.0		
Level of Service		A			A	A	C		C		
Approach Delay (s)		6.6			5.4			22.3		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	424	1310	60	1820	250	228	82	109	223	571
v/c Ratio	1.00	0.60	0.48	0.99	0.72	0.45	0.15	0.32	0.45	1.07
Control Delay	87.9	20.8	66.9	56.9	44.6	39.3	0.6	28.9	40.3	88.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	20.8	66.9	56.9	44.6	39.3	0.6	28.9	40.3	88.2
Queue Length 50th (ft)	168	250	45	507	140	146	0	56	144	~390
Queue Length 95th (ft)	#281	301	91	#628	#220	225	0	98	222	#613
Internal Link Dist (ft)		1155		834		912			742	
Turn Bay Length (ft)	550		490		250		225	200		
Base Capacity (vph)	425	2194	131	1836	345	509	544	338	492	536
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.60	0.46	0.99	0.72	0.45	0.15	0.32	0.45	1.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	1060	145	55	1590	85	230	210	75	100	205	525
Future Volume (vph)	390	1060	145	55	1590	85	230	210	75	100	205	525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	4945		1752	4998		1752	1845	1568	1752	1845	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.48	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	3400	4945		1752	4998		882	1845	1568	941	1845	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	424	1152	158	60	1728	92	250	228	82	109	223	571
RTOR Reduction (vph)	0	14	0	0	5	0	0	0	59	0	0	119
Lane Group Flow (vph)	424	1296	0	60	1815	0	250	228	23	109	223	452
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.0	49.5		5.5	42.0		40.1	33.1	33.1	37.9	32.0	32.0
Effective Green, g (s)	15.0	51.5		7.5	44.0		40.1	33.1	33.1	37.9	32.0	32.0
Actuated g/C Ratio	0.12	0.43		0.06	0.37		0.33	0.28	0.28	0.32	0.27	0.27
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	3.0		1.5	3.0		1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	425	2122		109	1832		345	508	432	337	492	418
v/s Ratio Prot	c0.12	0.26		0.03	c0.36		c0.04	0.12		0.02	0.12	
v/s Ratio Perm							0.20		0.01	0.09		c0.29
v/c Ratio	1.00	0.61		0.55	0.99		0.72	0.45	0.05	0.32	0.45	1.08
Uniform Delay, d1	52.5	26.5		54.6	37.8		35.1	35.9	31.9	30.1	36.7	44.0
Progression Factor	0.89	0.77		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.2	1.2		3.4	18.9		6.3	0.2	0.0	0.2	0.2	67.8
Delay (s)	86.7	21.5		58.0	56.7		41.3	36.1	31.9	30.3	36.9	111.8
Level of Service	F	C		E	E		D	D	C	C	D	F
Approach Delay (s)		37.4			56.8			37.8			83.4	
Approach LOS		D			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	52.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

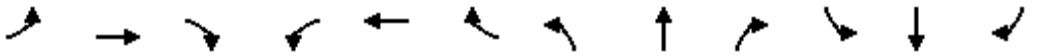
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	2294	299	2277	65	250	11	402	274	281	359
v/c Ratio	0.52	0.95	1.33	0.91	0.06	0.68	0.06	1.04	0.87	0.88	0.79
Control Delay	79.2	43.0	220.2	24.8	0.1	65.3	50.8	98.0	77.5	78.2	34.2
Queue Delay	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.2	43.0	220.2	26.0	0.1	65.3	50.8	98.0	77.5	78.2	34.2
Queue Length 50th (ft)	41	687	~172	232	0	106	8	~310	231	238	129
Queue Length 95th (ft)	#90	#873	m#248	#823	m0	146	27	#475	#369	#377	249
Internal Link Dist (ft)		580		548			436			396	
Turn Bay Length (ft)	450		375		350	225		250	200		
Base Capacity (vph)	95	2414	224	2493	1204	845	458	385	349	355	452
Starvation Cap Reductn	0	0	0	81	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.95	1.33	0.94	0.05	0.30	0.02	1.04	0.79	0.79	0.79

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	1965	145	275	2095	60	230	10	370	420	90	330
Future Volume (vph)	45	1965	145	275	2095	60	230	10	370	420	90	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.0	6.0	6.0	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	5033		3433	5085	1583	3433	1863	1583	1681	1714	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	5033		3433	5085	1583	3433	1863	1583	1681	1714	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	2136	158	299	2277	65	250	11	402	457	98	359
RTOR Reduction (vph)	0	5	0	0	0	20	0	0	67	0	0	101
Lane Group Flow (vph)	49	2289	0	299	2277	45	250	11	335	274	281	258
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2	3	4	4	5	3	3	1
Permitted Phases						2			4			3
Actuated Green, G (s)	5.0	60.2		6.5	61.7	86.1	13.9	13.9	20.4	24.4	24.4	29.4
Effective Green, g (s)	7.0	62.2		8.5	63.7	90.1	13.9	13.9	20.4	24.4	24.4	29.4
Actuated g/C Ratio	0.05	0.48		0.07	0.49	0.69	0.11	0.11	0.16	0.19	0.19	0.23
Clearance Time (s)	6.5	6.5		6.5	6.5	6.0	6.0	6.0	6.5	6.0	6.0	6.5
Vehicle Extension (s)	1.5	3.0		2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5
Lane Grp Cap (vph)	95	2408		224	2491	1097	367	199	248	315	321	358
v/s Ratio Prot	0.03	c0.45		c0.09	0.45	0.01	0.07	0.01	c0.07	0.16	c0.16	0.03
v/s Ratio Perm						0.02			0.14			0.14
v/c Ratio	0.52	0.95		1.33	0.91	0.04	0.68	0.06	1.35	0.87	0.88	0.72
Uniform Delay, d1	59.9	32.4		60.8	30.6	6.3	55.9	52.2	54.8	51.3	51.3	46.5
Progression Factor	1.00	1.00		1.15	0.61	0.07	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	10.0		170.1	4.7	0.0	4.1	0.0	181.3	21.0	21.7	6.0
Delay (s)	61.8	42.4		239.8	23.2	0.4	60.0	52.2	236.1	72.3	73.1	52.5
Level of Service	E	D		F	C	A	E	D	F	E	E	D
Approach Delay (s)		42.8			47.2			166.7			64.7	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	2092	874	1989	695	632
v/c Ratio	0.41	0.55	0.80	0.89	0.51
Control Delay	0.1	1.2	25.7	47.4	27.2
Queue Delay	0.0	0.0	0.5	0.0	0.0
Total Delay	0.1	1.2	26.2	47.4	27.2
Queue Length 50th (ft)	0	0	450	512	207
Queue Length 95th (ft)	m0	m0	645	669	256
Internal Link Dist (ft)	548		319		
Turn Bay Length (ft)		150			
Base Capacity (vph)	5085	1583	2483	850	1339
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	169	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.55	0.86	0.82	0.47

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	1925	830	0	1830	0	660	0	600	0	0
Future Volume (vph)	0	1925	830	0	1830	0	660	0	600	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		4.5		4.5		4.5		
Lane Util. Factor		0.91	1.00		0.91		1.00		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		5085	1583		5085		1770		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		5085	1583		5085		1770		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	2092	874	0	1989	0	695	0	632	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2092	874	0	1989	0	695	0	632	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm		NA		Prot		Prot		
Protected Phases		Free!			2		8!		3		
Permitted Phases			Free								
Actuated Green, G (s)		130.0	130.0		61.5		55.5		55.5		
Effective Green, g (s)		130.0	130.0		63.5		57.5		57.5		
Actuated g/C Ratio		1.00	1.00		0.49		0.44		0.44		
Clearance Time (s)					6.5		6.5		6.5		
Vehicle Extension (s)					3.0		2.5		2.5		
Lane Grp Cap (vph)		5085	1583		2483		782		1232		
v/s Ratio Prot		0.41			c0.39		c0.39		0.23		
v/s Ratio Perm			0.55								
v/c Ratio		0.41	0.55		0.80		0.89		0.51		
Uniform Delay, d1		0.0	0.0		27.9		33.3		26.1		
Progression Factor		1.00	1.00		0.82		1.00		1.00		
Incremental Delay, d2		0.1	0.5		1.9		11.9		0.3		
Delay (s)		0.1	0.5		24.7		45.2		26.4		
Level of Service		A	A		C		D		C		
Approach Delay (s)		0.2			24.7			36.3		0.0	
Approach LOS		A			C			D		A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	2103	2348	804	630	821
v/c Ratio	0.73	0.81	0.51	0.38	0.85
Control Delay	13.4	12.1	0.9	17.3	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	12.1	0.9	17.3	29.0
Queue Length 50th (ft)	226	232	0	65	155
Queue Length 95th (ft)	236	m315	m0	92	#263
Internal Link Dist (ft)	286	371			
Turn Bay Length (ft)			250	350	350
Base Capacity (vph)	2883	2883	1568	1688	982
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.81	0.51	0.37	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1935	0	0	2160	740	580	0	780	0	0	0
Future Volume (vph)	0	1935	0	0	2160	740	580	0	780	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	2.0	2.0		2.0			
Lane Util. Factor		0.91			0.91	1.00	0.94		0.88			
Frt		1.00			1.00	0.85	1.00		0.85			
Flt Protected		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085			5085	1568	4990		2787			
Flt Permitted		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085			5085	1568	4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	2103	0	0	2348	804	630	0	821	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	39	0	0	0
Lane Group Flow (vph)	0	2103	0	0	2348	804	630	0	782	0	0	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	3%	2%	3%	2%	3%	3%	3%
Turn Type		NA			NA	Free	Prot		Prot			
Protected Phases		6			2		4		4			
Permitted Phases						Free						
Actuated Green, G (s)		34.9			34.9	65.0	19.6		19.6			
Effective Green, g (s)		36.9			36.9	65.0	21.6		21.6			
Actuated g/C Ratio		0.57			0.57	1.00	0.33		0.33			
Clearance Time (s)		6.5			6.5		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		2886			2886	1568	1658		926			
v/s Ratio Prot		0.41			c0.46		0.13		c0.28			
v/s Ratio Perm						0.51						
v/c Ratio		0.73			0.81	0.51	0.38		0.84			
Uniform Delay, d1		10.4			11.3	0.0	16.6		20.1			
Progression Factor		1.13			0.94	1.00	1.00		1.00			
Incremental Delay, d2		1.4			1.3	0.6	0.1		7.1			
Delay (s)		13.2			11.8	0.6	16.7		27.2			
Level of Service		B			B	A	B		C			
Approach Delay (s)		13.2			9.0			22.7			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	103	2511	337	152	2538	315	11	141	37	54	337
v/c Ratio	1.01	0.88	0.36	1.18	0.87	1.08	0.03	0.34	0.12	0.17	0.87
Control Delay	137.2	22.7	6.9	185.9	28.8	119.9	39.6	8.4	34.6	43.3	52.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.2	22.7	6.9	185.9	28.8	119.9	39.6	8.4	34.6	43.3	52.7
Queue Length 50th (ft)	~86	544	68	~153	636	~276	8	0	24	39	174
Queue Length 95th (ft)	m#150	#915	m175	#295	#919	#343	23	52	47	70	265
Internal Link Dist (ft)		660			631		513			402	
Turn Bay Length (ft)	300		150	100		125					340
Base Capacity (vph)	102	2846	943	129	2920	293	544	562	298	544	557
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.88	0.36	1.18	0.87	1.08	0.02	0.25	0.12	0.10	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

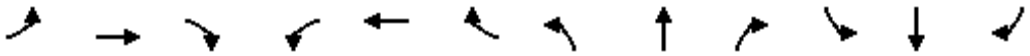
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	2310	310	140	2300	35	290	10	130	34	50	310
Future Volume (vph)	95	2310	310	140	2300	35	290	10	130	34	50	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5074		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.70	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5074		1301	1863	1583	1398	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	2511	337	152	2500	38	315	11	141	37	54	337
RTOR Reduction (vph)	0	0	58	0	1	0	0	0	114	0	0	109
Lane Group Flow (vph)	103	2511	279	152	2537	0	315	11	27	37	54	228
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6				4		4	8		8
Actuated Green, G (s)	5.5	69.6	69.6	7.5	71.6		28.7	24.7	24.7	27.1	23.9	23.9
Effective Green, g (s)	7.5	71.6	71.6	9.5	73.6		28.7	24.7	24.7	27.1	23.9	23.9
Actuated g/C Ratio	0.06	0.55	0.55	0.07	0.57		0.22	0.19	0.19	0.21	0.18	0.18
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	1.5	3.0		1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	102	2800	871	129	2872		301	353	300	300	342	291
v/s Ratio Prot	0.06	0.49		c0.09	c0.50		c0.03	0.01		0.00	0.03	
v/s Ratio Perm			0.18				c0.20		0.02	0.02		0.14
v/c Ratio	1.01	0.90	0.32	1.18	0.88		1.05	0.03	0.09	0.12	0.16	0.78
Uniform Delay, d1	61.2	25.9	15.9	60.2	24.5		50.4	42.9	43.4	41.6	44.6	50.6
Progression Factor	1.07	0.73	0.58	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	73.8	3.3	0.6	135.0	4.4		64.6	0.0	0.0	0.1	0.1	11.9
Delay (s)	139.2	22.2	9.9	195.3	28.9		114.9	42.9	43.4	41.7	44.7	62.5
Level of Service	F	C	A	F	C		F	D	D	D	D	E
Approach Delay (s)		24.9			38.3			91.6			58.4	
Approach LOS		C			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	359	978	201	538	1261	587	310	636	424	478	902	668
v/c Ratio	0.97	0.91	0.26	0.94	0.99	0.62	0.96	0.88	0.61	0.93	0.98	0.52
Control Delay	94.1	54.0	4.7	57.8	45.6	11.9	95.2	61.7	13.5	76.3	70.5	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.1	54.0	4.7	57.8	45.6	11.9	95.2	61.7	13.5	76.3	70.5	5.1
Queue Length 50th (ft)	145	382	7	188	328	143	125	254	88	190	366	125
Queue Length 95th (ft)	#242	#505	52	m#300	#661	m205	#216	#353	152	#291	#506	183
Internal Link Dist (ft)		620			1001			752			457	
Turn Bay Length (ft)	280		500	550		600	350			300		200
Base Capacity (vph)	369	1076	786	572	1279	946	323	719	695	514	917	1286
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.91	0.26	0.94	0.99	0.62	0.96	0.88	0.61	0.93	0.98	0.52

Intersection Summary

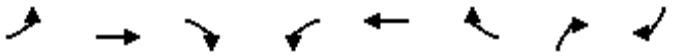
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	900	185	495	1160	540	285	585	390	440	830	615
Future Volume (vph)	330	900	185	495	1160	540	285	585	390	440	830	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	5.9	5.5	4.0	5.9	5.9	5.9	5.5	5.9	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	978	201	538	1261	587	310	636	424	478	902	668
RTOR Reduction (vph)	0	0	112	0	0	90	0	0	105	0	0	12
Lane Group Flow (vph)	359	978	89	538	1261	497	310	636	319	478	902	656
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	custom
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	8
Permitted Phases			6			2			4			1 2
Actuated Green, G (s)	10.9	34.3	43.6	18.0	41.4	57.4	9.3	22.4	40.4	16.0	29.1	88.9
Effective Green, g (s)	12.9	36.3	47.6	20.0	43.4	61.4	11.3	24.4	44.4	18.0	31.1	87.4
Actuated g/C Ratio	0.11	0.30	0.40	0.17	0.36	0.51	0.09	0.20	0.37	0.15	0.26	0.73
Clearance Time (s)	7.5	6.0	7.9	7.5	6.0	7.9	7.9	7.9	7.5	7.9	7.9	7.9
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	369	1070	705	572	1279	809	323	719	585	514	917	1152
v/s Ratio Prot	0.10	c0.28	0.01	0.16	c0.36	0.09	0.09	c0.18	0.09	0.14	c0.25	0.15
v/s Ratio Perm			0.04			0.22			0.11			0.27
v/c Ratio	0.97	0.91	0.13	0.94	0.99	0.61	0.96	0.88	0.54	0.93	0.98	0.57
Uniform Delay, d1	53.4	40.3	23.0	49.4	38.0	20.9	54.1	46.4	29.8	50.4	44.2	7.6
Progression Factor	1.00	1.00	1.00	0.80	0.75	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	39.3	13.3	0.0	15.9	16.0	0.6	38.6	12.5	0.6	23.0	25.6	0.7
Delay (s)	92.6	53.7	23.0	55.3	44.6	17.5	92.7	58.9	30.4	73.4	69.8	8.2
Level of Service	F	D	C	E	D	B	F	E	C	E	E	A
Approach Delay (s)		58.7			40.4			57.7			50.5	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.3
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

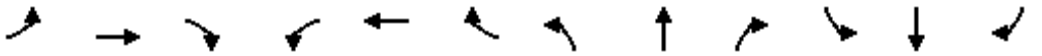


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBR	SBR
Lane Group Flow (vph)	103	2033	92	136	1973	130	674	1065
v/c Ratio	0.07	0.64	0.09	0.16	0.76	0.18	0.77	0.92
Control Delay	9.9	6.2	0.5	16.4	15.3	1.6	23.0	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	6.2	0.5	16.4	15.3	1.6	23.0	29.9
Queue Length 50th (ft)	11	176	1	30	156	1	73	138
Queue Length 95th (ft)	m15	m186	m2	m42	m193	m10	116	#243
Internal Link Dist (ft)		900			925			
Turn Bay Length (ft)	460		400	750		500	120	
Base Capacity (vph)	1627	3179	1024	915	2601	716	968	1213
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.64	0.09	0.15	0.76	0.18	0.70	0.88

Intersection Summary

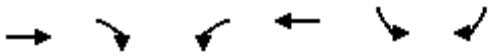
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	1870	85	125	1815	120	0	0	620	0	0	980
Future Volume (vph)	95	1870	85	125	1815	120	0	0	620	0	0	980
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0			6.0			6.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00			0.76			0.76
Frt	1.00	1.00	0.85	1.00	1.00	0.85			0.85			0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00			1.00			1.00
Satd. Flow (prot)	3367	5085	1583	3433	6408	1524			3610			2630
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00			1.00			1.00
Satd. Flow (perm)	3367	5085	1583	3433	6408	1524			3610			2630
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	2033	92	136	1973	130	0	0	674	0	0	1065
RTOR Reduction (vph)	0	0	35	0	0	77	0	0	130	0	0	32
Lane Group Flow (vph)	103	2033	58	136	1973	53	0	0	544	0	0	1033
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%	2%	2%	2%	18%	2%	40%
Turn Type	Prot	NA	Perm	Prot	NA	Perm			Over			Over
Protected Phases	1	6		5	2				5			1
Permitted Phases			6			2						
Actuated Green, G (s)	25.6	35.5	35.5	12.5	22.4	22.4			12.5			25.6
Effective Green, g (s)	27.6	37.5	37.5	14.5	24.4	24.4			12.5			25.6
Actuated g/C Ratio	0.46	0.62	0.62	0.24	0.41	0.41			0.21			0.43
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0			6.0			6.0
Vehicle Extension (s)	1.5	3.0	3.0	2.5	3.0	3.0			2.5			1.5
Lane Grp Cap (vph)	1548	3178	989	829	2605	619			752			1122
v/s Ratio Prot	0.03	0.40		0.04	c0.31				0.15			c0.39
v/s Ratio Perm			0.04			0.03						
v/c Ratio	0.07	0.64	0.06	0.16	0.76	0.09			0.72			0.92
Uniform Delay, d1	9.0	7.0	4.4	18.0	15.3	10.9			22.1			16.2
Progression Factor	1.14	0.76	0.36	0.91	0.86	1.31			1.00			1.00
Incremental Delay, d2	0.0	0.3	0.0	0.1	1.7	0.2			3.2			12.0
Delay (s)	10.3	5.6	1.6	16.5	14.9	14.5			25.4			28.2
Level of Service	B	A	A	B	B	B			C			C
Approach Delay (s)		5.7			15.0			25.4			28.2	
Approach LOS		A			B			C			C	

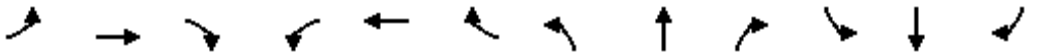
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1935	747	811	1620	316	600
v/c Ratio	0.92	0.47	0.67	0.46	0.40	0.94
Control Delay	45.6	0.8	18.9	5.8	41.0	68.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.6	0.8	18.9	5.8	41.0	68.6
Queue Length 50th (ft)	380	0	143	118	107	260
Queue Length 95th (ft)	411	0	184	143	151	#383
Internal Link Dist (ft)	925			635		
Turn Bay Length (ft)		500	305		500	500
Base Capacity (vph)	2112	1583	1212	3538	789	641
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.47	0.67	0.46	0.40	0.94

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1780	710	770	1490	0	0	0	0	300	0	570
Future Volume (vph)	0	1780	710	770	1490	0	0	0	0	300	0	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	2.0	4.0	4.5					4.4		4.4
Lane Util. Factor		0.81	1.00	0.97	0.91					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		7544	1583	3433	5085					3433		2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		7544	1583	3433	5085					3433		2787
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	1935	747	811	1620	0	0	0	0	316	0	600
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1935	747	811	1620	0	0	0	0	316	0	600
Turn Type		NA	Free	Prot	NA					Prot		Perm
Protected Phases		6		5 4	2 4					3		
Permitted Phases			Free									3
Actuated Green, G (s)		31.6	120.0	38.0	81.6					25.6		25.6
Effective Green, g (s)		33.6	120.0	42.0	83.6					27.6		27.6
Actuated g/C Ratio		0.28	1.00	0.35	0.70					0.23		0.23
Clearance Time (s)		6.0								6.4		6.4
Vehicle Extension (s)		3.0								2.0		2.0
Lane Grp Cap (vph)		2112	1583	1201	3542					789		641
v/s Ratio Prot		c0.26		c0.24	0.32					0.09		
v/s Ratio Perm			0.47									c0.22
v/c Ratio		0.92	0.47	0.68	0.46					0.40		0.94
Uniform Delay, d1		41.8	0.0	33.2	8.1					39.2		45.3
Progression Factor		0.94	1.00	0.91	0.66					1.00		1.00
Incremental Delay, d2		6.0	0.8	1.4	0.1					0.1		20.8
Delay (s)		45.4	0.8	31.6	5.4					39.3		66.2
Level of Service		D	A	C	A					D		E
Approach Delay (s)		32.9			14.2			0.0			56.9	
Approach LOS		C			B			A			E	

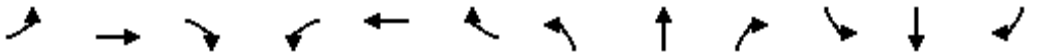
Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1326	905	1891	337	547	716
v/c Ratio	0.51	0.32	0.37	0.21	0.44	0.79
Control Delay	10.2	1.7	3.9	0.2	39.2	49.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	1.7	3.9	0.2	39.2	49.6
Queue Length 50th (ft)	105	26	60	0	126	228
Queue Length 95th (ft)	m138	m33	m73	m0	163	289
Internal Link Dist (ft)	635		630			
Turn Bay Length (ft)		700			410	430
Base Capacity (vph)	2610	2787	5098	1583	1247	902
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.32	0.37	0.21	0.44	0.79

Intersection Summary

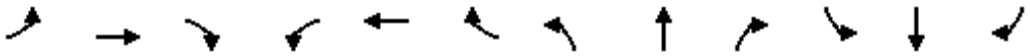
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1220	860	0	1740	320	520	0	680	0	0	0
Future Volume (vph)	0	1220	860	0	1740	320	520	0	680	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	2.0		4.5	2.0	4.4		4.4			
Lane Util. Factor		0.91	0.88		0.81	1.00	0.94		0.76			
Frt		1.00	0.85		1.00	0.85	1.00		0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085	2787		7544	1583	4990		3610			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085	2787		7544	1583	4990		3610			
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	1326	905	0	1891	337	547	0	716	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1326	905	0	1891	337	547	0	716	0	0	0
Turn Type		NA	Free		NA	Free	Prot		Prot			
Protected Phases		6 3			2 3		4		4			
Permitted Phases			Free			Free						
Actuated Green, G (s)		57.2	120.0		79.1	120.0	28.0		28.0			
Effective Green, g (s)		61.2	120.0		76.7	120.0	30.0		30.0			
Actuated g/C Ratio		0.51	1.00		0.64	1.00	0.25		0.25			
Clearance Time (s)							6.4		6.4			
Vehicle Extension (s)							3.5		3.5			
Lane Grp Cap (vph)		2593	2787		4821	1583	1247		902			
v/s Ratio Prot		c0.26			c0.25		0.11		c0.20			
v/s Ratio Perm			0.32			0.21						
v/c Ratio		0.51	0.32		0.39	0.21	0.44		0.79			
Uniform Delay, d1		19.5	0.0		10.4	0.0	37.9		42.1			
Progression Factor		0.92	1.00		0.45	1.00	1.00		1.00			
Incremental Delay, d2		0.0	0.2		0.0	0.2	0.3		5.0			
Delay (s)		18.0	0.2		4.7	0.2	38.2		47.1			
Level of Service		B	A		A	A	D		D			
Approach Delay (s)		10.8			4.0			43.2			0.0	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	321	1435	310	375	1467	147	332	201	245	299	337	440
v/c Ratio	0.83	0.82	0.42	0.85	0.81	0.23	0.95	0.26	0.45	0.62	0.91	0.87
Control Delay	56.9	28.3	7.3	69.6	39.3	6.5	70.2	39.9	7.8	31.8	75.1	40.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	28.3	7.3	69.6	39.3	6.5	70.2	39.9	7.8	31.8	75.1	40.1
Queue Length 50th (ft)	120	354	56	148	379	6	201	68	0	159	254	161
Queue Length 95th (ft)	m#188	382	m96	#225	442	51	#388	104	67	236	#412	#341
Internal Link Dist (ft)		630			1233			1112			1327	
Turn Bay Length (ft)	200		370	200		200	260		260	170		170
Base Capacity (vph)	389	1740	745	446	1821	653	349	780	540	513	392	519
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.82	0.42	0.84	0.81	0.23	0.95	0.26	0.45	0.58	0.86	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	1320	285	345	1350	135	305	185	225	275	310	405
Future Volume (vph)	295	1320	285	345	1350	135	305	185	225	275	310	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	5.7	5.7	5.7	5.7	5.7	5.7
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.16	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	297	3539	1583	1165	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	321	1435	310	375	1467	147	332	201	245	299	337	440
RTOR Reduction (vph)	0	0	204	0	0	87	0	0	191	0	0	188
Lane Group Flow (vph)	321	1435	106	375	1467	60	332	201	54	299	337	252
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Actuated Green, G (s)	11.5	39.1	39.1	13.4	41.0	41.0	45.8	26.5	26.5	40.8	24.0	24.0
Effective Green, g (s)	13.5	41.1	41.1	15.4	43.0	43.0	45.8	26.5	26.5	40.8	24.0	24.0
Actuated g/C Ratio	0.11	0.34	0.34	0.13	0.36	0.36	0.38	0.22	0.22	0.34	0.20	0.20
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	5.7	5.7	5.7	5.7	5.7	5.7
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	386	1741	542	440	1822	567	350	781	349	480	372	316
v/s Ratio Prot	0.09	c0.28		0.11	c0.29		c0.15	0.06		0.09	0.18	
v/s Ratio Perm			0.07			0.04	c0.21		0.03	0.12		0.16
v/c Ratio	0.83	0.82	0.20	0.85	0.81	0.11	0.95	0.26	0.16	0.62	0.91	0.80
Uniform Delay, d1	52.1	36.1	27.8	51.2	34.7	25.7	32.5	38.6	37.7	31.4	46.9	45.7
Progression Factor	0.79	0.66	1.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.2	3.7	0.6	14.2	3.9	0.4	34.2	0.1	0.1	1.8	24.3	12.3
Delay (s)	52.2	27.7	50.6	65.4	38.6	26.1	66.7	38.7	37.8	33.3	71.2	57.9
Level of Service	D	C	D	E	D	C	E	D	D	C	E	E
Approach Delay (s)		35.0			42.7			50.4			55.2	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2761	272	2538	125	130
v/c Ratio	0.64	0.95	0.64	0.67	0.46
Control Delay	20.1	95.0	2.3	72.8	13.6
Queue Delay	0.0	43.4	0.3	0.0	0.0
Total Delay	20.2	138.4	2.6	72.8	13.6
Queue Length 50th (ft)	370	197	54	103	0
Queue Length 95th (ft)	444	#394	41	164	58
Internal Link Dist (ft)	575		175	531	
Turn Bay Length (ft)					
Base Capacity (vph)	4288	285	3961	503	543
Starvation Cap Reductn	0	56	613	0	0
Spillback Cap Reductn	154	0	0	0	2
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	1.19	0.76	0.25	0.24

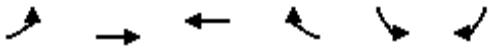
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2445	95	250	2335	115	120
Future Volume (vph)	2445	95	250	2335	115	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	9.0	9.0
Lane Util. Factor	0.81		1.00	0.91	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	7502		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	7502		1770	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2658	103	272	2538	125	130
RTOR Reduction (vph)	3	0	0	0	0	116
Lane Group Flow (vph)	2758	0	272	2538	125	14
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2 3		1	1 2 3	4	
Permitted Phases					4	4
Actuated Green, G (s)	72.3		19.0	99.3	13.7	13.7
Effective Green, g (s)	74.3		21.0	101.3	13.7	13.7
Actuated g/C Ratio	0.57		0.16	0.78	0.11	0.11
Clearance Time (s)			8.0		9.0	9.0
Vehicle Extension (s)			1.5		2.0	2.0
Lane Grp Cap (vph)	4287		285	3962	186	166
v/s Ratio Prot	c0.37		c0.15	c0.50	c0.07	
v/s Ratio Perm						0.01
v/c Ratio	0.64		0.95	0.64	0.67	0.08
Uniform Delay, d1	18.9		54.0	6.3	56.0	52.5
Progression Factor	1.00		1.09	0.25	1.00	1.00
Incremental Delay, d2	0.3		34.5	0.2	7.3	0.1
Delay (s)	19.1		93.5	1.8	63.3	52.6
Level of Service	B		F	A	E	D
Approach Delay (s)	19.1			10.7	57.8	
Approach LOS	B			B	E	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



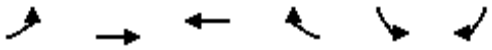
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	196	2592	2641	315	207	168
v/c Ratio	1.03	0.52	0.66	0.28	0.57	0.53
Control Delay	107.1	2.2	12.8	1.1	61.0	13.6
Queue Delay	0.0	0.1	0.1	0.0	0.0	0.1
Total Delay	107.1	2.2	12.9	1.1	61.0	13.8
Queue Length 50th (ft)	~177	25	333	11	87	0
Queue Length 95th (ft)	#335	38	429	m21	122	65
Internal Link Dist (ft)		175	1004		271	
Turn Bay Length (ft)				450		
Base Capacity (vph)	190	4992	4006	1107	977	570
Starvation Cap Reductn	0	737	0	0	0	0
Spillback Cap Reductn	0	0	188	0	0	60
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.61	0.69	0.28	0.21	0.33

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	180	2385	2430	290	190	155
Future Volume (vph)	180	2385	2430	290	190	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	9.0	9.0
Lane Util. Factor	1.00	0.86	0.86	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	6408	6408	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	6408	6408	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	2592	2641	315	207	168
RTOR Reduction (vph)	0	0	0	118	0	150
Lane Group Flow (vph)	196	2592	2641	197	207	18
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	3	1 2 3	1 2		4	
Permitted Phases				1 2		4
Actuated Green, G (s)	12.0	99.3	79.3	79.3	13.7	13.7
Effective Green, g (s)	14.0	101.3	81.3	81.3	13.7	13.7
Actuated g/C Ratio	0.11	0.78	0.63	0.63	0.11	0.11
Clearance Time (s)	8.0				9.0	9.0
Vehicle Extension (s)	1.5				2.0	2.0
Lane Grp Cap (vph)	190	4993	4007	989	361	166
v/s Ratio Prot	c0.11	0.40	c0.41		c0.06	
v/s Ratio Perm				0.12		0.01
v/c Ratio	1.03	0.52	0.66	0.20	0.57	0.11
Uniform Delay, d1	58.0	5.3	15.5	10.4	55.4	52.6
Progression Factor	0.68	0.33	0.77	0.58	1.00	1.00
Incremental Delay, d2	66.1	0.0	0.2	0.0	1.4	0.1
Delay (s)	105.6	1.8	12.0	6.1	56.7	52.7
Level of Service	F	A	B	A	E	D
Approach Delay (s)		9.1	11.4		54.9	
Approach LOS		A	B		D	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	2060	716	2130	568	800
v/c Ratio	0.62	0.45	0.81	0.52	0.91
Control Delay	12.4	2.0	15.5	20.4	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	2.0	15.5	20.4	38.6
Queue Length 50th (ft)	243	12	282	93	170
Queue Length 95th (ft)	346	47	294	137	#285
Internal Link Dist (ft)	1004		259		
Turn Bay Length (ft)		250			
Base Capacity (vph)	3302	1583	2620	1082	878
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.45	0.81	0.52	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	1895	680	0	1960	0	540	0	760	0	0
Future Volume (vph)	0	1895	680	0	1960	0	540	0	760	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	2.0		5.5		5.5		5.5		
Lane Util. Factor		0.86	1.00		0.91		0.97		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		6408	1583		5085		3433		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		6408	1583		5085		3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	2060	716	0	2130	0	568	0	800	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2060	716	0	2130	0	568	0	800	0	0
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		6			2		3		3		
Permitted Phases			Free								
Actuated Green, G (s)		31.5	65.0		31.5		18.5		18.5		
Effective Green, g (s)		33.5	65.0		33.5		20.5		20.5		
Actuated g/C Ratio		0.52	1.00		0.52		0.32		0.32		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		3302	1583		2620		1082		878		
v/s Ratio Prot		0.32			c0.42		0.17		c0.29		
v/s Ratio Perm			0.45								
v/c Ratio		0.62	0.45		0.81		0.52		0.91		
Uniform Delay, d1		11.2	0.0		13.1		18.3		21.4		
Progression Factor		1.03	1.00		1.02		1.00		1.00		
Incremental Delay, d2		0.8	0.8		1.9		0.4		13.5		
Delay (s)		12.4	0.8		15.4		18.6		34.8		
Level of Service		B	A		B		B		C		
Approach Delay (s)		9.4			15.4			28.1		0.0	
Approach LOS		A			B			C		A	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL2	NBR
Lane Group Flow (vph)	1853	1848	453	1200	716
v/c Ratio	0.73	0.73	0.29	0.84	0.62
Control Delay	17.1	18.4	0.2	40.0	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	18.4	0.2	40.0	32.0
Queue Length 50th (ft)	346	194	0	453	260
Queue Length 95th (ft)	315	m272	m0	522	318
Internal Link Dist (ft)	270	1155			
Turn Bay Length (ft)			250		
Base Capacity (vph)	2537	2537	1583	1544	1254
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.73	0.29	0.78	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations		↑↑↑			↑↑↑	↱	↰↰		↱↱		
Traffic Volume (vph)	0	1705	0	0	1700	430	1140	0	680	0	0
Future Volume (vph)	0	1705	0	0	1700	430	1140	0	680	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	2.0	5.5		5.5		
Lane Util. Factor		0.91			0.91	1.00	0.97		0.88		
Frt		1.00			1.00	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		5085			5085	1583	3433		2787		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		5085			5085	1583	3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1853	0	0	1848	453	1200	0	716	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1853	0	0	1848	453	1200	0	716	0	0
Turn Type		NA			NA	Free	Prot		Prot		
Protected Phases		6			2		4		4		
Permitted Phases						Free					
Actuated Green, G (s)		62.9			62.9	130.0	52.1		52.1		
Effective Green, g (s)		64.9			64.9	130.0	54.1		54.1		
Actuated g/C Ratio		0.50			0.50	1.00	0.42		0.42		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		2538			2538	1583	1428		1159		
v/s Ratio Prot		c0.36			0.36		c0.35		0.26		
v/s Ratio Perm						0.29					
v/c Ratio		0.73			0.73	0.29	0.84		0.62		
Uniform Delay, d1		25.6			25.6	0.0	34.1		29.8		
Progression Factor		0.58			0.66	1.00	1.00		1.00		
Incremental Delay, d2		0.9			0.9	0.2	4.6		0.8		
Delay (s)		15.9			17.8	0.2	38.6		30.7		
Level of Service		B			B	A	D		C		
Approach Delay (s)		15.9			14.3			35.7		0.0	
Approach LOS		B			B			D		A	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	511	2082	114	1777	261	337	120	87	266	418
v/c Ratio	0.97	0.84	0.93	0.86	1.09	0.82	0.24	0.51	0.76	0.89
Control Delay	87.9	28.6	125.3	40.4	120.8	64.3	1.1	42.8	63.2	47.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	28.6	125.3	40.4	120.8	64.3	1.1	42.8	63.2	47.0
Queue Length 50th (ft)	234	346	97	491	~197	272	0	53	214	184
Queue Length 95th (ft)	#343	#611	#217	#662	#280	358	0	87	291	303
Internal Link Dist (ft)		1155		834		912			742	
Turn Bay Length (ft)	550		490		250		225	200		
Base Capacity (vph)	528	2491	122	2074	240	515	583	171	458	547
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.84	0.93	0.86	1.09	0.65	0.21	0.51	0.58	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	1700	215	105	1505	130	240	310	110	80	245	385
Future Volume (vph)	470	1700	215	105	1505	130	240	310	110	80	245	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5000		1770	5025		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.25	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	3433	5000		1770	5025		473	1863	1583	477	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	511	1848	234	114	1636	141	261	337	120	87	266	418
RTOR Reduction (vph)	0	11	0	0	7	0	0	0	94	0	0	170
Lane Group Flow (vph)	511	2071	0	114	1770	0	261	337	26	87	266	248
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	18.0	62.5		7.0	51.5		38.6	28.6	28.6	30.4	24.5	24.5
Effective Green, g (s)	20.0	64.5		9.0	53.5		38.6	28.6	28.6	30.4	24.5	24.5
Actuated g/C Ratio	0.15	0.50		0.07	0.41		0.30	0.22	0.22	0.23	0.19	0.19
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	3.0		1.5	3.0		1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	528	2480		122	2067		240	409	348	170	351	298
v/s Ratio Prot	c0.15	c0.41		0.06	0.35		c0.08	c0.18		0.02	0.14	
v/s Ratio Perm							c0.24		0.02	0.10		0.16
v/c Ratio	0.97	0.84		0.93	0.86		1.09	0.82	0.08	0.51	0.76	0.83
Uniform Delay, d1	54.7	28.2		60.2	34.8		43.3	48.3	40.2	40.9	49.9	50.8
Progression Factor	1.14	0.89		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.2	2.6		60.3	4.8		83.4	12.1	0.0	1.1	8.1	17.1
Delay (s)	87.5	27.6		120.6	39.6		126.7	60.4	40.3	41.9	58.0	67.9
Level of Service	F	C		F	D		F	E	D	D	E	E
Approach Delay (s)		39.4			44.5			81.1			61.5	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group