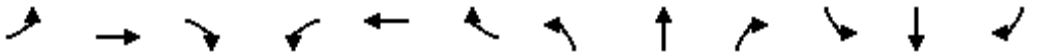
Appendix I:

Future HCM Worksheets with Improvements

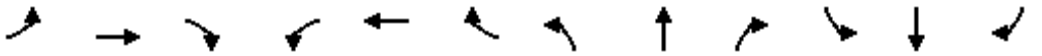
AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	125	25	840	200	135	50	2155	170	110	2510	10
Future Volume (vph)	75	125	25	840	200	135	50	2155	170	110	2510	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1800	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	5.0	5.0	5.0	3.0	4.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	1.00	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1801	1531	3113	1604	1531	1711	4657	1531	1711	4913	
Flt Permitted	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1711	1801	1531	3113	1604	1531	1711	4657	1531	1711	4913	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	77	129	26	866	206	139	52	2222	175	113	2588	10
RTOR Reduction (vph)	0	0	0	0	0	109	0	0	54	0	0	0
Lane Group Flow (vph)	77	129	26	710	362	30	52	2222	121	113	2598	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3		4	4		1	5		6	2	
Permitted Phases			3			4			5			
Actuated Green, G (s)	18.2	18.2	18.2	37.3	37.3	37.3	7.2	85.8	85.8	11.2	90.8	
Effective Green, g (s)	20.2	20.2	20.2	39.3	39.3	39.3	10.2	88.8	87.8	13.2	92.8	
Actuated g/C Ratio	0.11	0.11	0.11	0.22	0.22	0.22	0.06	0.49	0.49	0.07	0.52	
Clearance Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)	192	202	171	679	350	334	96	2297	746	125	2532	
v/s Ratio Prot	0.05	c0.07		c0.23	0.23		0.03	c0.48		0.07	c0.53	
v/s Ratio Perm			0.02			0.02			0.08			
v/c Ratio	0.40	0.64	0.15	1.05	1.03	0.09	0.54	0.97	0.16	0.90	1.03	
Uniform Delay, d1	74.3	76.4	72.2	70.3	70.3	56.1	82.6	44.2	25.6	82.8	43.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.03	0.89	1.34	0.94	0.88	
Incremental Delay, d2	1.4	6.5	0.4	47.1	57.2	0.1	5.2	11.1	0.4	43.3	22.7	
Delay (s)	75.7	82.9	72.6	117.4	127.6	56.2	90.0	50.4	34.7	121.3	61.2	
Level of Service	E	F	E	F	F	E	F	D	C	F	E	
Approach Delay (s)		79.3			113.4			50.1			63.7	
Approach LOS		E			F			D			E	

Intersection Summary			
HCM 2000 Control Delay	68.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

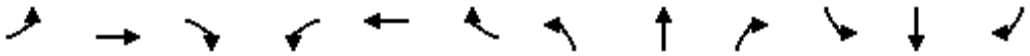
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	180	300	755	450	195	200	1130	225	35	2250	250
Future Volume (vph)	130	180	300	755	450	195	200	1130	225	35	2250	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5	5.5
Lane Util. Factor	0.91	0.91	1.00	0.86	0.86	1.00	0.97	0.86	1.00	1.00	0.91	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	0.99	1.00	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1557	3255	1531	2942	3056	1531	3319	6194	1531	1711	4916	1531
Flt Permitted	0.95	0.99	1.00	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1557	3255	1531	2942	3056	1531	3319	6194	1531	1711	4916	1531
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	135	188	312	786	469	203	208	1177	234	36	2344	260
RTOR Reduction (vph)	0	0	95	0	0	104	0	0	71	0	0	28
Lane Group Flow (vph)	105	218	218	613	642	99	208	1177	163	36	2344	232
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Actuated Green, G (s)	31.3	31.3	31.3	40.7	40.7	40.7	7.0	90.9	131.6	5.6	89.5	120.8
Effective Green, g (s)	35.3	35.3	35.3	44.7	44.7	44.7	10.0	94.9	139.6	8.6	93.5	124.8
Actuated g/C Ratio	0.18	0.18	0.18	0.22	0.22	0.22	0.05	0.47	0.70	0.04	0.47	0.62
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5	9.0	7.5	7.5	9.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	3.0	3.0	0.2	3.0
Lane Grp Cap (vph)	274	574	270	657	683	342	165	2939	1068	73	2298	997
v/s Ratio Prot	0.07	0.07		0.21	c0.21		c0.06	0.19	0.03	0.02	c0.48	0.04
v/s Ratio Perm			c0.14			0.06			0.07			0.11
v/c Ratio	0.38	0.38	0.81	0.93	0.94	0.29	1.26	0.40	0.15	0.49	1.02	0.23
Uniform Delay, d1	72.7	72.7	79.1	76.2	76.3	64.5	95.0	34.1	10.2	93.6	53.2	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.27	0.58	3.01	1.04	0.94	0.67
Incremental Delay, d2	0.9	0.4	16.1	20.3	20.7	0.5	154.4	0.4	0.1	4.5	22.7	0.1
Delay (s)	73.6	73.1	95.2	96.4	97.1	64.9	274.6	20.2	30.8	101.6	72.9	11.2
Level of Service	E	E	F	F	F	E	F	C	C	F	E	B
Approach Delay (s)		84.1			92.3			54.4			67.2	
Approach LOS		F			F			D			E	

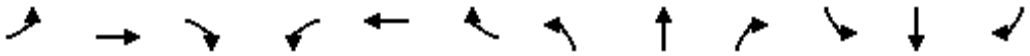
Intersection Summary			
HCM 2000 Control Delay	71.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	1370	225	0	0	0	0	3200	235	0	3815	0
Future Volume (vph)	290	1370	225	0	0	0	0	3200	235	0	3815	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0	5.0					6.0	6.0		6.0	
Lane Util. Factor	1.00	0.86	1.00					0.81	1.00		0.86	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1770	6408	1583					7544	1583		6408	
Flt Permitted	0.95	1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1770	6408	1583					7544	1583		6408	
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	1489	245	0	0	0	0	3478	255	0	4147	0
RTOR Reduction (vph)	0	0	41	0	0	0	0	0	42	0	0	0
Lane Group Flow (vph)	315	1489	204	0	0	0	0	3478	213	0	4147	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						5			2	
Permitted Phases	4		4						5			
Actuated Green, G (s)	45.0	45.0	45.0					111.0	111.0		122.0	
Effective Green, g (s)	47.0	47.0	47.0					111.0	111.0		122.0	
Actuated g/C Ratio	0.26	0.26	0.26					0.62	0.62		0.68	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0	5.0					0.2	0.2		0.2	
Lane Grp Cap (vph)	462	1673	413					4652	976		4343	
v/s Ratio Prot		c0.23						0.46			c0.65	
v/s Ratio Perm	0.18		0.13						0.13			
v/c Ratio	0.68	0.89	0.49					0.75	0.22		0.95	
Uniform Delay, d1	59.8	64.0	56.4					24.5	15.3		26.5	
Progression Factor	1.06	1.05	1.08					1.00	1.00		0.20	
Incremental Delay, d2	5.1	6.6	1.9					1.1	0.5		2.7	
Delay (s)	68.3	73.9	62.8					25.7	15.8		8.0	
Level of Service	E	E	E					C	B		A	
Approach Delay (s)		71.8			0.0			25.0			8.0	
Approach LOS		E			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



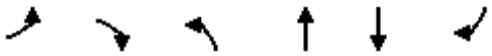
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	310	1525	85	0	3490	0	0	3505	160
Future Volume (vph)	0	0	0	310	1525	85	0	3490	0	0	3505	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				5.0	5.0	5.0		6.0			6.0	
Lane Util. Factor				1.00	0.86	1.00		0.81			0.86	
Frt				1.00	1.00	0.85		1.00			0.99	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	6408	1583		7544			6366	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	6408	1583		7544			6366	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	337	1658	92	0	3793	0	0	3810	174
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	337	1658	53	0	3793	0	0	3981	0
Turn Type				Perm	NA	Perm		NA			NA	
Protected Phases					4			2			5	
Permitted Phases				4		4						
Actuated Green, G (s)				50.0	50.0	50.0		117.0			117.0	
Effective Green, g (s)				52.0	52.0	52.0		117.0			117.0	
Actuated g/C Ratio				0.29	0.29	0.29		0.65			0.65	
Clearance Time (s)				7.0	7.0	7.0		6.0			6.0	
Vehicle Extension (s)				6.0	6.0	6.0		0.2			0.2	
Lane Grp Cap (vph)				511	1851	457		4903			4137	
v/s Ratio Prot					c0.26			0.50			c0.63	
v/s Ratio Perm				0.19		0.03						
v/c Ratio				0.66	0.90	0.12		0.77			0.96	
Uniform Delay, d1				56.2	61.4	47.1		22.2			29.4	
Progression Factor				0.75	0.77	0.42		0.22			0.55	
Incremental Delay, d2				4.8	6.7	0.3		0.8			4.8	
Delay (s)				47.0	54.0	20.1		5.7			20.9	
Level of Service				D	D	C		A			C	
Approach Delay (s)		0.0			51.4			5.7			20.9	
Approach LOS		A			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

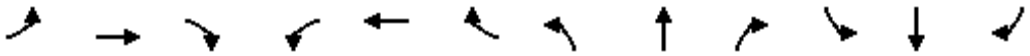
HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	185	65	20	3370	3740	65
Future Volume (vph)	185	65	20	3370	3740	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	5.5	5.5	5.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	6408	6391	
Flt Permitted	0.95	1.00	0.03	1.00	1.00	
Satd. Flow (perm)	1770	1583	55	6408	6391	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	71	22	3663	4065	71
RTOR Reduction (vph)	0	60	0	0	1	0
Lane Group Flow (vph)	201	11	22	3663	4135	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	6	2	
Permitted Phases		4	6			
Actuated Green, G (s)	26.4	26.4	140.6	140.6	128.7	
Effective Green, g (s)	27.4	27.4	142.6	142.6	130.7	
Actuated g/C Ratio	0.15	0.15	0.79	0.79	0.73	
Clearance Time (s)	6.5	6.5	7.5	6.5	6.5	
Vehicle Extension (s)	5.0	5.0	4.0	0.2	0.2	
Lane Grp Cap (vph)	269	240	104	5076	4640	
v/s Ratio Prot	c0.11		0.01	c0.57	c0.65	
v/s Ratio Perm		0.01	0.16			
v/c Ratio	0.75	0.05	0.21	0.72	0.89	
Uniform Delay, d1	73.0	65.1	35.1	9.1	19.1	
Progression Factor	1.00	1.00	2.89	1.97	0.75	
Incremental Delay, d2	12.8	0.2	1.0	0.7	1.8	
Delay (s)	85.8	65.3	102.4	18.5	16.2	
Level of Service	F	E	F	B	B	
Approach Delay (s)	80.4			19.0	16.2	
Approach LOS	F			B	B	

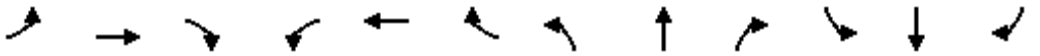
Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	50	0	20	15	3465	65	60	4100	0
Future Volume (vph)	0	0	0	50	0	20	15	3465	65	60	4100	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					7.5		7.5	7.0		7.5	7.0	
Lane Util. Factor					1.00		1.00	0.86		1.00	0.86	
Frt					0.96		1.00	1.00		1.00	1.00	
Flt Protected					0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)					1672		1711	6177		1711	6194	
Flt Permitted					0.79		0.03	1.00		0.03	1.00	
Satd. Flow (perm)					1364		51	6177		49	6194	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	50	0	20	15	3465	65	60	4100	0
RTOR Reduction (vph)	0	0	0	0	67	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	3	0	15	3529	0	60	4100	0
Turn Type				Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)					8.3		145.5	142.0		153.9	146.2	
Effective Green, g (s)					8.3		145.5	142.0		153.9	146.2	
Actuated g/C Ratio					0.05		0.81	0.79		0.86	0.81	
Clearance Time (s)					7.5		7.5	7.0		7.5	7.0	
Vehicle Extension (s)					4.0		3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)					62		73	4872		112	5030	
v/s Ratio Prot							0.00	0.57		c0.02	c0.66	
v/s Ratio Perm					c0.00		0.16			0.43		
v/c Ratio					0.05		0.21	0.72		0.54	0.82	
Uniform Delay, d1					82.1		13.6	9.4		32.5	9.4	
Progression Factor					1.00		1.67	0.68		1.26	1.04	
Incremental Delay, d2					0.5		1.0	0.7		2.6	0.8	
Delay (s)					82.6		23.6	7.0		43.5	10.5	
Level of Service					F		C	A		D	B	
Approach Delay (s)		0.0			82.6			7.1			11.0	
Approach LOS		A			F			A			B	

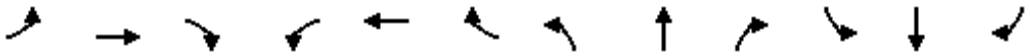
Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



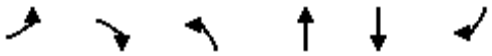
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	5	850	0	5	0	2910	5	10	3495	20
Future Volume (vph)	5	0	5	850	0	5	0	2910	5	10	3495	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.0		5.0	5.0	5.0			4.0		4.0	4.0	
Lane Util. Factor	1.00		1.00	0.91	0.91			0.86		1.00	0.86	
Frt	1.00		0.85	1.00	1.00			1.00		1.00	1.00	
Flt Protected	0.95		1.00	0.95	0.95			1.00		0.95	1.00	
Satd. Flow (prot)	1770		1583	3221	1611			6406		1770	6402	
Flt Permitted	0.13		1.00	0.95	0.95			1.00		0.03	1.00	
Satd. Flow (perm)	248		1583	3221	1611			6406		53	6402	
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)	5	0	5	924	0	5	0	3163	5	11	3799	22
RTOR Reduction (vph)	0	0	4	0	20	0	0	0	0	0	0	0
Lane Group Flow (vph)	5	0	1	647	262	0	0	3168	0	11	3821	0
Turn Type	Perm		Perm	Perm	NA			NA		Perm	NA	
Protected Phases					8			6			2	
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	28.0		28.0	28.0	28.0			138.0		138.0	138.0	
Effective Green, g (s)	30.0		30.0	30.0	30.0			141.0		141.0	141.0	
Actuated g/C Ratio	0.17		0.17	0.17	0.17			0.78		0.78	0.78	
Clearance Time (s)	7.0		7.0	7.0	7.0			7.0		7.0	7.0	
Vehicle Extension (s)	5.0		5.0	5.0	5.0			0.2		0.2	0.2	
Lane Grp Cap (vph)	41		263	536	268			5018		41	5014	
v/s Ratio Prot								0.49			c0.60	
v/s Ratio Perm	0.02		0.00	c0.20	0.16					0.21		
v/c Ratio	0.12		0.00	1.21	0.98			0.63		0.27	0.76	
Uniform Delay, d1	63.8		62.5	75.0	74.7			8.4		5.3	10.5	
Progression Factor	1.00		1.00	1.00	1.00			0.49		0.10	0.71	
Incremental Delay, d2	2.8		0.0	109.8	48.7			0.4		10.5	0.8	
Delay (s)	66.6		62.5	184.8	123.4			4.5		11.1	8.2	
Level of Service	E		E	F	F			A		B	A	
Approach Delay (s)		64.6			166.2			4.5			8.2	
Approach LOS		E			F			A			A	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	25	10	5	5	15	2900	5	0	3490	5
Future Volume (vph)	30	5	25	10	5	5	15	2900	5	0	3490	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		6.5			6.5		6.5	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	0.86			0.86	
Frt		0.94			0.97		1.00	1.00			1.00	
Flt Protected		0.98			0.97		0.95	1.00			1.00	
Satd. Flow (prot)		1715			1757		1770	6406			6407	
Flt Permitted		0.83			0.83		0.03	1.00			1.00	
Satd. Flow (perm)		1458			1496		50	6406			6407	
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)	33	5	27	11	5	5	16	3152	5	0	3793	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	65	0	0	21	0	16	3157	0	0	3798	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		14.2			14.2		151.3	151.3			140.2	
Effective Green, g (s)		15.2			15.2		152.3	154.3			143.2	
Actuated g/C Ratio		0.08			0.08		0.85	0.86			0.80	
Clearance Time (s)		7.5			7.5		7.5	7.0			7.0	
Vehicle Extension (s)		4.0			4.0		3.0	0.2			0.2	
Lane Grp Cap (vph)		123			126		86	5491			5097	
v/s Ratio Prot							0.00	c0.49			c0.59	
v/s Ratio Perm		c0.04			0.01		0.15					
v/c Ratio		0.53			0.17		0.19	0.57			0.75	
Uniform Delay, d1		79.0			76.5		14.8	3.6			9.2	
Progression Factor		1.00			1.00		1.96	1.90			0.23	
Incremental Delay, d2		5.2			0.9		0.8	0.3			0.8	
Delay (s)		84.2			77.4		29.9	7.2			2.9	
Level of Service		F			E		C	A			A	
Approach Delay (s)		84.2			77.4			7.3			2.9	
Approach LOS		F			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

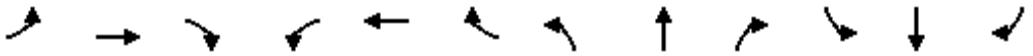


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	80	20	3225	3215	5
Future Volume (vph)	115	80	20	3225	3215	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	5.5	5.5	7.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	6408	6406	
Flt Permitted	0.95	1.00	0.03	1.00	1.00	
Satd. Flow (perm)	1770	1583	52	6408	6406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	87	22	3505	3495	5
RTOR Reduction (vph)	0	45	0	0	0	0
Lane Group Flow (vph)	125	42	22	3505	3500	0
Turn Type	Prot	Prot	pm+pt	NA	NA	
Protected Phases	4	4	1	6	2	
Permitted Phases			6			
Actuated Green, G (s)	18.9	18.9	147.6	147.6	136.9	
Effective Green, g (s)	19.9	19.9	147.6	150.6	139.9	
Actuated g/C Ratio	0.11	0.11	0.82	0.84	0.78	
Clearance Time (s)	6.5	6.5	7.0	7.0	7.0	
Vehicle Extension (s)	4.0	4.0	3.0	0.2	0.2	
Lane Grp Cap (vph)	195	175	77	5361	4978	
v/s Ratio Prot	c0.07	0.03	0.01	c0.55	c0.55	
v/s Ratio Perm			0.23			
v/c Ratio	0.64	0.24	0.29	0.65	0.70	
Uniform Delay, d1	76.6	73.1	14.4	5.3	9.8	
Progression Factor	1.00	1.00	2.65	0.44	1.00	
Incremental Delay, d2	7.8	1.0	1.8	0.5	0.9	
Delay (s)	84.4	74.1	39.9	2.9	10.7	
Level of Service	F	E	D	A	B	
Approach Delay (s)	80.2			3.1	10.7	
Approach LOS	F			A	B	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	755	65	2230	0	685	3075
Future Volume (vph)	755	65	2230	0	685	3075
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	6.0	5.0	4.0		6.0	4.0
Lane Util. Factor	0.97	1.00	0.91		0.97	0.91
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	1583	5085		3433	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	1583	5085		3433	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	821	71	2424	0	745	3342
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	821	70	2424	0	745	3342
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4				
Actuated Green, G (s)	42.0	76.0	84.0		34.0	124.0
Effective Green, g (s)	43.0	78.0	87.0		34.0	127.0
Actuated g/C Ratio	0.24	0.43	0.48		0.19	0.71
Clearance Time (s)	7.0	6.0	7.0		6.0	7.0
Vehicle Extension (s)	4.0	5.0	3.0		5.0	3.0
Lane Grp Cap (vph)	820	685	2457		648	3587
v/s Ratio Prot	c0.24	0.02	c0.48		c0.22	c0.66
v/s Ratio Perm		0.02				
v/c Ratio	1.00	0.10	0.99		1.15	0.93
Uniform Delay, d1	68.5	30.2	45.9		73.0	22.8
Progression Factor	0.20	0.18	1.00		1.00	1.00
Incremental Delay, d2	28.3	0.1	15.3		84.4	5.8
Delay (s)	41.9	5.4	61.2		157.4	28.5
Level of Service	D	A	E		F	C
Approach Delay (s)	39.0		61.2			52.0
Approach LOS	D		E			D

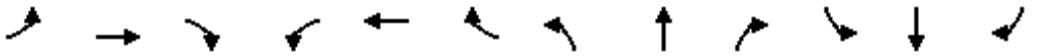
Intersection Summary			
HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	1315	20	250	1140	415	20	0	110	1175	0	80
Future Volume (vph)	110	1315	20	250	1140	415	20	0	110	1175	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	9.0		7.0	9.0	9.0	8.5		8.5	8.0	8.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	1.00		0.88	0.91	0.91	
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95	0.96	
Satd. Flow (prot)	3319	4905		3319	3421	1531	1711		2694	3113	1529	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95	0.96	
Satd. Flow (perm)	3319	4905		3319	3421	1531	1711		2694	3113	1529	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	1315	20	250	1140	415	20	0	110	1175	0	80
RTOR Reduction (vph)	0	1	0	0	0	160	0	0	85	0	109	0
Lane Group Flow (vph)	110	1334	0	250	1140	255	20	0	25	846	300	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot		pt+ov	Split	NA	
Protected Phases	1	6		5	2		3		3 5	4	4	
Permitted Phases						2						
Actuated Green, G (s)	10.3	47.8		16.6	54.1	54.1	7.8		24.4	45.3	45.3	
Effective Green, g (s)	10.3	47.8		16.6	54.1	54.1	7.8		24.4	45.3	45.3	
Actuated g/C Ratio	0.07	0.32		0.11	0.36	0.36	0.05		0.16	0.30	0.30	
Clearance Time (s)	7.0	9.0		7.0	9.0	9.0	8.5			8.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	227	1563		367	1233	552	88		438	940	461	
v/s Ratio Prot	0.03	0.27		c0.08	c0.33		c0.01		0.01	c0.27	0.20	
v/s Ratio Perm						0.17						
v/c Ratio	0.48	0.85		0.68	0.92	0.46	0.23		0.06	0.90	0.65	
Uniform Delay, d1	67.3	47.8		64.2	46.0	36.8	68.2		53.1	50.2	45.5	
Progression Factor	1.00	1.21		0.83	1.26	1.58	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.9	3.6		4.2	11.0	2.2	1.3		0.1	11.5	3.3	
Delay (s)	68.0	61.7		57.3	68.8	60.5	69.5		53.1	61.7	48.8	
Level of Service	E	E		E	E	E	E		D	E	D	
Approach Delay (s)		62.2			65.3			55.6			57.5	
Approach LOS		E			E			E			E	

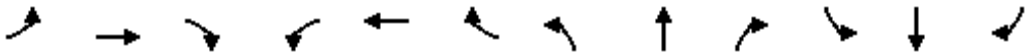
Intersection Summary			
HCM 2000 Control Delay	62.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	32.5
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	575	65	55	965	105	30	150	50	185	850	380
Future Volume (vph)	145	575	65	55	965	105	30	150	50	185	850	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.5	6.5		6.5	6.5		6.5	6.5		7.0	6.5	6.5
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3485		1770	3487		1770	1793		1770	3539	1583
Flt Permitted	0.08	1.00		0.39	1.00		0.27	1.00		0.42	1.00	1.00
Satd. Flow (perm)	296	3485		721	3487		498	1793		778	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)	158	625	71	60	1049	114	33	163	54	201	924	413
RTOR Reduction (vph)	0	8	0	0	7	0	0	10	0	0	0	85
Lane Group Flow (vph)	158	688	0	60	1156	0	33	207	0	201	924	328
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	3	8			4			2		1	6	
Permitted Phases	8			4			2			6		6
Actuated Green, G (s)	59.5	59.5		48.5	48.5		31.4	31.4		47.5	47.5	47.5
Effective Green, g (s)	59.5	59.5		48.5	48.5		31.4	31.4		47.5	47.5	47.5
Actuated g/C Ratio	0.50	0.50		0.40	0.40		0.26	0.26		0.40	0.40	0.40
Clearance Time (s)	5.5	6.5		6.5	6.5		6.5	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	5.0		5.0	5.0		0.2	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	290	1727		291	1409		130	469		383	1400	626
v/s Ratio Prot	0.02	c0.20			c0.33			0.12		0.04	c0.26	
v/s Ratio Perm	0.24			0.08			0.07			0.17		0.21
v/c Ratio	0.54	0.40		0.21	0.82		0.25	0.44		0.52	0.66	0.52
Uniform Delay, d1	22.5	19.0		23.2	31.9		35.0	37.0		25.7	29.6	27.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	0.3		0.7	4.4		4.6	3.0		1.3	2.5	3.1
Delay (s)	24.6	19.3		24.0	36.3		39.7	40.0		27.0	32.1	30.7
Level of Service	C	B		C	D		D	D		C	C	C
Approach Delay (s)		20.3			35.7			40.0			31.1	
Approach LOS		C			D			D			C	

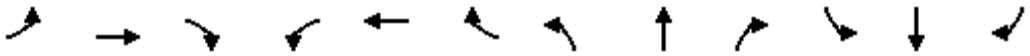
Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	35	15	235	20	415	0	110	55	730	455	5
Future Volume (vph)	40	35	15	235	20	415	0	110	55	730	455	5
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	4.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		0.98			1.00	0.85		0.95		1.00	1.00	
Flt Protected		0.98			0.96	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1722			1721	1531		1720		1711	1798	
Flt Permitted		0.98			0.96	1.00		1.00		0.40	1.00	
Satd. Flow (perm)		1722			1721	1531		1720		712	1798	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	35	15	235	20	415	0	110	55	730	455	5
RTOR Reduction (vph)	0	8	0	0	0	181	0	18	0	0	0	0
Lane Group Flow (vph)	0	82	0	0	255	234	0	147	0	730	460	0
Turn Type	Split	NA		Split	NA	pm+ov		NA		pm+pt	NA	
Protected Phases	4	4		8	8	1		2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)		8.9			19.4	56.3		16.8		58.2	58.2	
Effective Green, g (s)		8.9			19.4	56.3		16.8		58.2	58.2	
Actuated g/C Ratio		0.09			0.19	0.56		0.17		0.58	0.58	
Clearance Time (s)		4.5			4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		153			333	930		288		783	1046	
v/s Ratio Prot		c0.05			c0.15	0.09		0.09		c0.34	0.26	
v/s Ratio Perm						0.06				c0.20		
v/c Ratio		0.53			0.77	0.25		0.51		0.93	0.44	
Uniform Delay, d1		43.6			38.1	11.1		37.9		16.6	11.7	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		3.6			10.1	0.1		6.3		17.8	1.3	
Delay (s)		47.1			48.2	11.3		44.2		34.3	13.1	
Level of Service		D			D	B		D		C	B	
Approach Delay (s)		47.1			25.3			44.2			26.1	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

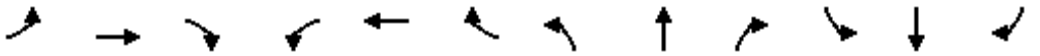
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	585	100	30	775	235	0	0	1990	100	425	45
Future Volume (vph)	0	585	100	30	775	235	0	0	1990	100	425	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		7.0	7.0	7.0			7.0		7.0	
Lane Util. Factor		0.95		1.00	0.91	1.00			0.88		0.95	
Frt		0.98		1.00	1.00	0.85			0.85		0.99	
Flt Protected		1.00		0.95	1.00	1.00			1.00		0.99	
Satd. Flow (prot)		3346		1711	4916	1531			2694		3351	
Flt Permitted		1.00		0.39	1.00	1.00			1.00		0.99	
Satd. Flow (perm)		3346		704	4916	1531			2694		3351	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	585	100	30	775	235	0	0	1990	100	425	45
RTOR Reduction (vph)	0	8	0	0	0	74	0	0	14	0	3	0
Lane Group Flow (vph)	0	677	0	30	775	161	0	0	1976	0	567	0
Turn Type		NA		Perm	NA	Perm			Perm	Perm	NA	
Protected Phases		13			16						14	
Permitted Phases				16		16			14 16	14		
Actuated Green, G (s)		39.0		42.0	42.0	42.0			128.0		79.0	
Effective Green, g (s)		39.0		42.0	42.0	42.0			128.0		79.0	
Actuated g/C Ratio		0.22		0.23	0.23	0.23			0.71		0.44	
Clearance Time (s)		6.0		7.0	7.0	7.0					7.0	
Vehicle Extension (s)		5.0		4.0	4.0	4.0					4.0	
Lane Grp Cap (vph)		724		164	1147	357			1915		1470	
v/s Ratio Prot		c0.20			0.16							
v/s Ratio Perm				0.04		0.10			c0.73		0.17	
v/c Ratio		0.94		0.18	0.68	0.45			1.03		0.39	
Uniform Delay, d1		69.3		55.3	62.8	59.1			26.0		34.1	
Progression Factor		0.14		1.00	1.00	1.00			1.34		1.00	
Incremental Delay, d2		2.9		0.7	1.7	1.2			26.7		0.2	
Delay (s)		12.6		56.0	64.5	60.3			61.6		34.2	
Level of Service		B		E	E	E			E		C	
Approach Delay (s)		12.6			63.3			61.6			34.2	
Approach LOS		B			E			E			C	

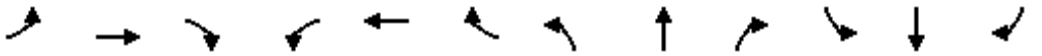
Intersection Summary			
HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



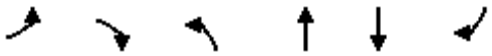
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1205	555	60	1005	175	315	220	30	210	575	95
Future Volume (vph)	80	1205	555	60	1005	175	315	220	30	210	575	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	3433	1829		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.47	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	3433	1829		868	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)	87	1310	603	65	1092	190	342	239	33	228	625	103
RTOR Reduction (vph)	0	0	209	0	0	113	0	4	0	0	0	73
Lane Group Flow (vph)	87	1310	394	65	1092	77	342	268	0	228	625	30
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2				4		4
Actuated Green, G (s)	12.6	65.7	65.7	7.8	60.9	60.9	19.3	38.0		43.7	31.2	43.8
Effective Green, g (s)	12.6	65.7	65.7	7.8	60.9	60.9	19.3	38.0		43.7	31.2	43.8
Actuated g/C Ratio	0.08	0.44	0.44	0.05	0.41	0.41	0.13	0.25		0.29	0.21	0.29
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	4.0	0.2	0.2	4.0	0.2	0.2	4.0	4.0		4.0	4.0	4.0
Lane Grp Cap (vph)	148	1550	693	178	1436	642	441	463		328	736	530
v/s Ratio Prot	c0.05	c0.37		0.02	0.31		c0.10	c0.15		0.06	c0.18	0.00
v/s Ratio Perm			0.25			0.05				0.14		0.01
v/c Ratio	0.59	0.85	0.57	0.37	0.76	0.12	0.78	0.58		0.70	0.85	0.06
Uniform Delay, d1	66.2	37.6	31.6	68.7	38.3	27.8	63.3	49.0		44.8	57.1	38.2
Progression Factor	1.00	1.00	1.00	1.46	0.18	0.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.9	5.8	3.4	0.9	2.1	0.2	8.8	2.1		6.7	9.4	0.1
Delay (s)	73.1	43.5	34.9	101.6	8.9	0.2	72.0	51.1		51.6	66.5	38.3
Level of Service	E	D	C	F	A	A	E	D		D	E	D
Approach Delay (s)		42.2			12.2			62.8			59.9	
Approach LOS		D			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	240	150	300	600	700	200	840	25	75	1690	500
Future Volume (vph)	250	240	150	300	600	700	200	840	25	75	1690	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.5	6.0	4.0	4.0	6.0	4.0	4.0	6.5		6.0	6.5	6.5
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3524		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.40	1.00	1.00	0.95	1.00		0.24	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	746	3539	1583	3433	3524		443	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)	272	261	163	326	652	761	217	913	27	82	1837	543
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	0	38
Lane Group Flow (vph)	272	261	163	326	652	761	217	939	0	82	1837	505
Turn Type	Prot	NA	Free	pm+pt	NA	Free	Prot	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			Free	8		Free				6		6
Actuated Green, G (s)	12.0	22.5	150.0	46.0	27.5	150.0	10.0	80.5		82.5	77.5	89.5
Effective Green, g (s)	12.0	22.5	150.0	46.0	27.5	150.0	10.0	80.5		82.5	77.5	89.5
Actuated g/C Ratio	0.08	0.15	1.00	0.31	0.18	1.00	0.07	0.54		0.55	0.52	0.60
Clearance Time (s)	6.5	6.0		4.0	6.0		4.0	6.5		6.0	6.5	6.5
Vehicle Extension (s)	5.0	4.0		3.0	4.0		3.0	0.2		4.0	0.2	5.0
Lane Grp Cap (vph)	274	530	1583	361	648	1583	228	1891		287	1828	1013
v/s Ratio Prot	0.08	0.07		c0.12	c0.18		c0.06	0.27		0.01	c0.52	0.04
v/s Ratio Perm			0.10	0.16		c0.48				0.15		0.28
v/c Ratio	0.99	0.49	0.10	0.90	1.01	0.48	0.95	0.50		0.29	1.00	0.50
Uniform Delay, d1	69.0	58.5	0.0	46.2	61.2	0.0	69.8	21.9		17.0	36.2	17.4
Progression Factor	1.00	1.00	1.00	1.07	1.04	1.00	1.23	0.64		1.68	1.23	1.52
Incremental Delay, d2	52.3	1.0	0.1	19.2	31.3	0.7	45.0	0.9		0.4	15.8	0.4
Delay (s)	121.2	59.5	0.1	68.7	95.1	0.7	130.5	15.1		29.0	60.3	26.8
Level of Service	F	E	A	E	F	A	F	B		C	E	C
Approach Delay (s)		69.7			48.9			36.7			51.8	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	245	150	615	1020	1260	1020
Future Volume (vph)	245	150	615	1020	1260	1020
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3319	1531	1711	3421	3421	1531
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	3319	1531	127	3421	3421	1531
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	245	150	615	1020	1260	1020
RTOR Reduction (vph)	0	134	0	0	0	375
Lane Group Flow (vph)	245	17	615	1020	1260	645
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4	6			2
Actuated Green, G (s)	16.5	16.5	121.5	121.5	66.0	66.0
Effective Green, g (s)	16.5	16.5	121.5	121.5	66.0	66.0
Actuated g/C Ratio	0.11	0.11	0.81	0.81	0.44	0.44
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	365	168	625	2771	1505	673
v/s Ratio Prot	c0.07		c0.32	0.30	0.37	
v/s Ratio Perm		0.01	c0.47			0.42
v/c Ratio	0.67	0.10	0.98	0.37	0.84	0.96
Uniform Delay, d1	64.1	60.1	43.4	3.9	37.2	40.7
Progression Factor	1.26	4.09	0.59	0.54	0.70	0.95
Incremental Delay, d2	4.4	0.2	27.3	0.3	2.0	12.3
Delay (s)	85.0	246.0	53.0	2.4	27.9	50.8
Level of Service	F	F	D	A	C	D
Approach Delay (s)	146.2			21.4	38.2	
Approach LOS	F			C	D	

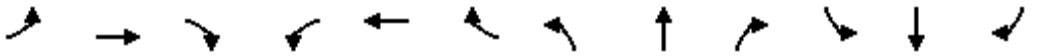
Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	107.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	215	710	390	405	355	1215
Future Volume (vph)	215	710	390	405	355	1215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.88	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.99
Satd. Flow (prot)	1711	2694	3421	1531		3383
Flt Permitted	0.95	1.00	1.00	1.00		0.71
Satd. Flow (perm)	1711	2694	3421	1531		2437
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	215	710	390	405	355	1215
RTOR Reduction (vph)	0	473	0	123	0	0
Lane Group Flow (vph)	215	237	390	282	0	1570
Turn Type	Prot	pm+ov	NA	pm+ov	pm+pt	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	14.6	30.0	48.0	62.6		67.4
Effective Green, g (s)	14.6	30.0	48.0	62.6		67.4
Actuated g/C Ratio	0.16	0.33	0.53	0.70		0.75
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	277	1017	1824	1132		1986
v/s Ratio Prot	c0.13	0.04	0.11	0.04		c0.14
v/s Ratio Perm		0.05		0.14		c0.46
v/c Ratio	0.78	0.23	0.21	0.25		0.79
Uniform Delay, d1	36.1	21.7	11.1	5.0		7.0
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	12.8	0.1	0.3	0.1		2.2
Delay (s)	48.9	21.8	11.3	5.2		9.2
Level of Service	D	C	B	A		A
Approach Delay (s)	28.1		8.2			9.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

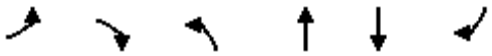
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	580	1785	65	0	600	220	50	45	5	940	190	300
Future Volume (vph)	580	1785	65	0	600	220	50	45	5	940	190	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95			0.95	1.00		0.95		0.91	0.91	
Frt	1.00	0.99			1.00	0.85		0.99		1.00	0.95	
Flt Protected	0.95	1.00			1.00	1.00		0.98		0.95	0.98	
Satd. Flow (prot)	3319	3403			3421	1531		3313		1557	3047	
Flt Permitted	0.26	1.00			1.00	1.00		0.98		0.95	0.98	
Satd. Flow (perm)	920	3403			3421	1531		3313		1557	3047	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	580	1785	65	0	600	220	50	45	5	940	190	300
RTOR Reduction (vph)	0	1	0	0	0	0	0	3	0	0	33	0
Lane Group Flow (vph)	580	1849	0	0	600	220	0	97	0	489	908	0
Turn Type	pm+pt	NA			NA	Free	Split	NA		Split	NA	
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases	6			2		Free						
Actuated Green, G (s)	76.0	76.0			51.2	150.0		16.0		46.0	46.0	
Effective Green, g (s)	76.0	76.0			51.2	150.0		16.0		46.0	46.0	
Actuated g/C Ratio	0.51	0.51			0.34	1.00		0.11		0.31	0.31	
Clearance Time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	798	1724			1167	1531		353		477	934	
v/s Ratio Prot	0.10	c0.54			0.18			c0.03		c0.31	0.30	
v/s Ratio Perm	0.27					0.14						
v/c Ratio	0.73	1.07			0.51	0.14		0.28		1.03	0.97	
Uniform Delay, d1	24.5	37.0			39.5	0.0		61.7		52.0	51.4	
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	3.3	44.0			1.6	0.2		1.9		47.8	22.7	
Delay (s)	27.9	81.0			41.1	0.2		63.6		99.8	74.1	
Level of Service	C	F			D	A		E		F	E	
Approach Delay (s)		68.3			30.1			63.6			82.8	
Approach LOS		E			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	66.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1275	0	0	715	555	0
Future Volume (vph)	1275	0	0	715	555	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0			6.0	6.0	
Lane Util. Factor	0.97			0.95	0.95	
Frt	1.00			1.00	1.00	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	3319			3421	3421	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	3319			3421	3421	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1275	0	0	715	555	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1275	0	0	715	555	0
Turn Type	Prot			NA	NA	
Protected Phases	10 11			9	9	
Permitted Phases						
Actuated Green, G (s)	118.5			50.0	50.0	
Effective Green, g (s)	118.5			50.0	50.0	
Actuated g/C Ratio	0.66			0.28	0.28	
Clearance Time (s)				6.0	6.0	
Vehicle Extension (s)				5.0	5.0	
Lane Grp Cap (vph)	2185			950	950	
v/s Ratio Prot	c0.38			c0.21	0.16	
v/s Ratio Perm						
v/c Ratio	0.58			0.75	0.58	
Uniform Delay, d1	17.1			59.4	56.0	
Progression Factor	1.00			1.00	1.63	
Incremental Delay, d2	0.4			5.5	2.4	
Delay (s)	17.5			64.8	93.4	
Level of Service	B			E	F	
Approach Delay (s)	17.5			64.8	93.4	
Approach LOS	B			E	F	

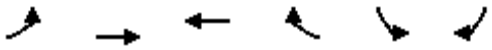
Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	225	175	275	340	75	70
Future Volume (Veh/h)	225	175	275	340	75	70
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	225	175	275	340	75	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				986		
pX, platoon unblocked						
vC, conflicting volume			400		1032	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			400		1032	200
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			76		57	91
cM capacity (veh/h)			1155		174	808

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	150	250	388	227	75	70
Volume Left	0	0	275	0	75	0
Volume Right	0	175	0	0	0	70
cSH	1700	1700	1155	1700	174	808
Volume to Capacity	0.09	0.15	0.24	0.13	0.43	0.09
Queue Length 95th (ft)	0	0	23	0	49	7
Control Delay (s)	0.0	0.0	7.1	0.0	40.5	9.9
Lane LOS			A		E	A
Approach Delay (s)	0.0		4.5		25.7	
Approach LOS					D	

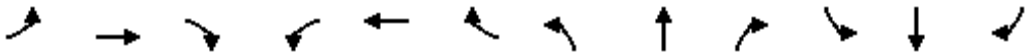
Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	140	150	1480	155	245	945
Future Volume (vph)	140	150	1480	155	245	945
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	3421	3373		1711	1531
Flt Permitted	0.06	1.00	1.00		0.95	1.00
Satd. Flow (perm)	114	3421	3373		1711	1531
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	150	1480	155	245	945
RTOR Reduction (vph)	0	0	5	0	0	0
Lane Group Flow (vph)	140	150	1630	0	245	945
Turn Type	pm+pt	NA	NA		Prot	Free
Protected Phases	7	4	8		6	
Permitted Phases	4					Free
Actuated Green, G (s)	107.0	107.0	89.8		33.0	150.0
Effective Green, g (s)	107.0	107.0	89.8		33.0	150.0
Actuated g/C Ratio	0.71	0.71	0.60		0.22	1.00
Clearance Time (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	211	2440	2019		376	1531
v/s Ratio Prot	0.05	0.04	c0.48		0.14	
v/s Ratio Perm	0.42					c0.62
v/c Ratio	0.66	0.06	0.81		0.65	0.62
Uniform Delay, d1	32.1	6.4	23.4		53.3	0.0
Progression Factor	1.00	1.00	0.83		0.99	1.00
Incremental Delay, d2	7.6	0.0	1.0		8.2	1.8
Delay (s)	39.7	6.5	20.5		60.9	1.8
Level of Service	D	A	C		E	A
Approach Delay (s)		22.5	20.5		14.0	
Approach LOS		C	C		B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

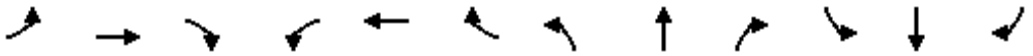


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	485	225	375	800	125	25	25	35	120	285	100
Future Volume (vph)	50	485	225	375	800	125	25	25	35	120	285	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.96			0.99			0.94			0.97	
Flt Protected		1.00			0.99			0.99			0.99	
Satd. Flow (prot)		3259			3324			3163			3281	
Flt Permitted		0.78			0.60			0.75			0.85	
Satd. Flow (perm)		2563			2022			2413			2824	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	485	225	375	800	125	25	25	35	120	285	100
RTOR Reduction (vph)	0	46	0	0	8	0	0	28	0	0	21	0
Lane Group Flow (vph)	0	714	0	0	1292	0	0	57	0	0	484	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		71.0			71.0			21.0			21.0	
Effective Green, g (s)		71.0			71.0			21.0			21.0	
Actuated g/C Ratio		0.71			0.71			0.21			0.21	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1819			1435			506			593	
v/s Ratio Prot												
v/s Ratio Perm		0.28			c0.64			0.02			c0.17	
v/c Ratio		0.39			0.90			0.11			0.82	
Uniform Delay, d1		5.8			11.7			32.0			37.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			8.1			0.5			11.8	
Delay (s)		6.0			19.7			32.4			49.4	
Level of Service		A			B			C			D	
Approach Delay (s)		6.0			19.7			32.4			49.4	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

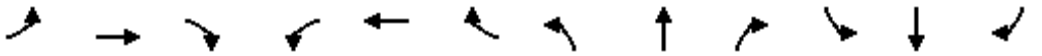
PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	75	75	485	50	300	50	2160	250	245	2440	10
Future Volume (vph)	125	75	75	485	50	300	50	2160	250	245	2440	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1800	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	5.0	5.0	5.0	3.0	4.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	1.00	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1801	1531	3113	1582	1531	1711	4657	1531	1711	4913	
Flt Permitted	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1711	1801	1531	3113	1582	1531	1711	4657	1531	1711	4913	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	129	77	77	500	52	309	52	2227	258	253	2515	10
RTOR Reduction (vph)	0	0	0	0	0	243	0	0	55	0	0	0
Lane Group Flow (vph)	129	77	77	365	187	66	52	2227	203	253	2525	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	3		4	4		1	5		6	2	
Permitted Phases			3			4			5			
Actuated Green, G (s)	18.9	18.9	18.9	26.8	26.8	26.8	8.0	84.5	84.5	22.3	99.8	
Effective Green, g (s)	20.9	20.9	20.9	28.8	28.8	28.8	11.0	87.5	86.5	24.3	101.8	
Actuated g/C Ratio	0.12	0.12	0.12	0.16	0.16	0.16	0.06	0.49	0.48	0.14	0.57	
Clearance Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)	198	209	177	498	253	244	104	2263	735	230	2778	
v/s Ratio Prot	c0.08	0.04		0.12	c0.12		0.03	c0.48		c0.15	0.51	
v/s Ratio Perm			0.05			0.04			0.13			
v/c Ratio	0.65	0.37	0.44	0.73	0.74	0.27	0.50	0.98	0.28	1.10	0.91	
Uniform Delay, d1	76.1	73.5	74.1	71.9	72.0	66.4	81.8	45.6	28.0	77.8	35.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.15	0.66	0.49	1.33	1.71	
Incremental Delay, d2	7.5	1.1	1.7	5.5	10.7	0.6	3.1	13.8	0.8	81.2	4.4	
Delay (s)	83.5	74.6	75.8	77.5	82.8	67.0	97.1	43.9	14.5	184.3	64.1	
Level of Service	F	E	E	E	F	E	F	D	B	F	E	
Approach Delay (s)		79.0			74.9			42.0			75.0	
Approach LOS		E			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	62.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

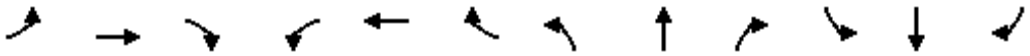
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	430	210	725	275	150	305	2570	505	135	1360	190
Future Volume (vph)	245	430	210	725	275	150	305	2570	505	135	1360	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5	5.5
Lane Util. Factor	0.91	0.91	1.00	0.86	0.86	1.00	0.97	0.86	1.00	1.00	0.91	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	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1557	3268	1531	2942	3028	1531	3319	6194	1531	1711	4916	1531
Flt Permitted	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1557	3268	1531	2942	3028	1531	3319	6194	1531	1711	4916	1531
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	255	448	219	755	286	156	318	2677	526	141	1417	198
RTOR Reduction (vph)	0	0	145	0	0	122	0	0	31	0	0	73
Lane Group Flow (vph)	227	476	74	513	528	34	318	2677	495	141	1417	125
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Actuated Green, G (s)	32.6	32.6	32.6	35.5	35.5	35.5	17.9	69.5	105.0	10.9	62.5	95.1
Effective Green, g (s)	36.6	36.6	36.6	39.5	39.5	39.5	20.9	73.5	113.0	13.9	66.5	99.1
Actuated g/C Ratio	0.20	0.20	0.20	0.22	0.22	0.22	0.12	0.41	0.63	0.08	0.37	0.55
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5	9.0	7.5	7.5	9.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2	3.0	3.0	0.2	3.0
Lane Grp Cap (vph)	316	664	311	645	664	335	385	2529	961	132	1816	889
v/s Ratio Prot	c0.15	0.15		0.17	c0.17		0.10	c0.43	0.11	c0.08	0.29	0.03
v/s Ratio Perm			0.05			0.02			0.21			0.05
v/c Ratio	0.72	0.72	0.24	0.80	0.80	0.10	0.83	1.06	0.52	1.07	0.78	0.14
Uniform Delay, d1	66.9	66.9	60.0	66.4	66.4	56.1	77.8	53.2	18.4	83.0	50.3	19.7
Progression Factor	1.00	1.00	1.00	1.06	1.06	1.82	1.23	0.98	1.34	1.11	0.97	0.74
Incremental Delay, d2	7.6	3.7	0.4	5.3	5.2	0.1	9.6	33.3	0.3	97.0	3.3	0.1
Delay (s)	74.5	70.6	60.4	75.5	75.3	102.4	104.8	85.2	25.0	189.3	52.2	14.7
Level of Service	E	E	E	E	E	F	F	F	C	F	D	B
Approach Delay (s)		69.1			78.9			78.0			59.0	
Approach LOS		E			E			E			E	

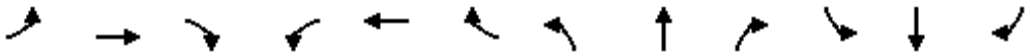
Intersection Summary			
HCM 2000 Control Delay	72.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	440	1690	220	0	0	0	0	4060	250	0	2935	0
Future Volume (vph)	440	1690	220	0	0	0	0	4060	250	0	2935	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0	5.0					6.0	6.0		6.0	
Lane Util. Factor	1.00	0.86	1.00					0.81	1.00		0.86	
Frt	1.00	1.00	0.85					1.00	0.85		1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)	1770	6408	1583					7544	1583		6408	
Flt Permitted	0.95	1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)	1770	6408	1583					7544	1583		6408	
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)	478	1837	239	0	0	0	0	4413	272	0	3190	0
RTOR Reduction (vph)	0	0	39	0	0	0	0	0	41	0	0	0
Lane Group Flow (vph)	478	1837	201	0	0	0	0	4413	231	0	3190	0
Turn Type	Perm	NA	Perm					NA	Perm		NA	
Protected Phases		4						5			2	
Permitted Phases	4		4						5			
Actuated Green, G (s)	52.0	52.0	52.0					104.0	104.0		115.0	
Effective Green, g (s)	54.0	54.0	54.0					104.0	104.0		115.0	
Actuated g/C Ratio	0.30	0.30	0.30					0.58	0.58		0.64	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0	5.0					0.2	0.2		0.2	
Lane Grp Cap (vph)	531	1922	474					4358	914		4094	
v/s Ratio Prot		c0.29						c0.58			c0.50	
v/s Ratio Perm	0.27		0.13						0.15			
v/c Ratio	0.90	0.96	0.42					1.01	0.25		0.78	
Uniform Delay, d1	60.4	61.8	50.5					38.0	18.8		23.4	
Progression Factor	1.05	1.05	1.07					1.00	1.00		0.46	
Incremental Delay, d2	18.2	11.4	1.2					16.8	0.7		1.0	
Delay (s)	81.8	76.3	55.2					54.8	19.5		11.8	
Level of Service	F	E	E					D	B		B	
Approach Delay (s)		75.3			0.0			52.8			11.8	
Approach LOS		E			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



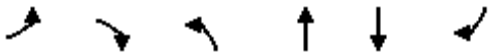
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	200	1605	190	0	4500	0	0	2735	290
Future Volume (vph)	0	0	0	200	1605	190	0	4500	0	0	2735	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				5.0	5.0	5.0		6.0			6.0	
Lane Util. Factor				1.00	0.86	1.00		0.81			0.86	
Frt				1.00	1.00	0.85		1.00			0.99	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	6408	1583		7544			6316	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	6408	1583		7544			6316	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	217	1745	207	0	4891	0	0	2973	315
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	217	1745	167	0	4891	0	0	3280	0
Turn Type				Perm	NA	Perm		NA			NA	
Protected Phases					4			2			5	
Permitted Phases				4		4						
Actuated Green, G (s)				47.0	47.0	47.0		120.0			120.0	
Effective Green, g (s)				49.0	49.0	49.0		120.0			120.0	
Actuated g/C Ratio				0.27	0.27	0.27		0.67			0.67	
Clearance Time (s)				7.0	7.0	7.0		6.0			6.0	
Vehicle Extension (s)				6.0	6.0	6.0		0.2			0.2	
Lane Grp Cap (vph)				481	1744	430		5029			4210	
v/s Ratio Prot					c0.27			c0.65			0.52	
v/s Ratio Perm				0.12		0.11						
v/c Ratio				0.45	1.00	0.39		0.97			0.78	
Uniform Delay, d1				54.3	65.5	53.3		28.4			20.8	
Progression Factor				0.72	0.76	0.62		0.38			1.09	
Incremental Delay, d2				1.9	21.5	1.6		1.1			0.9	
Delay (s)				40.8	71.1	34.6		11.8			23.5	
Level of Service				D	E	C		B			C	
Approach Delay (s)		0.0			64.6			11.8			23.5	
Approach LOS		A			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

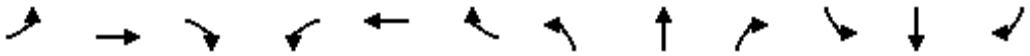
HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	25	70	4480	3270	140
Future Volume (vph)	170	25	70	4480	3270	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	5.5	5.5	5.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	6408	6368	
Flt Permitted	0.95	1.00	0.03	1.00	1.00	
Satd. Flow (perm)	1770	1583	56	6408	6368	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	27	76	4870	3554	152
RTOR Reduction (vph)	0	23	0	0	3	0
Lane Group Flow (vph)	185	4	76	4870	3703	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	6	2	
Permitted Phases		4	6			
Actuated Green, G (s)	25.2	25.2	141.8	141.8	124.4	
Effective Green, g (s)	26.2	26.2	143.8	143.8	126.4	
Actuated g/C Ratio	0.15	0.15	0.80	0.80	0.70	
Clearance Time (s)	6.5	6.5	7.5	6.5	6.5	
Vehicle Extension (s)	5.0	5.0	4.0	0.2	0.2	
Lane Grp Cap (vph)	257	230	158	5119	4471	
v/s Ratio Prot	c0.10		0.03	c0.76	0.58	
v/s Ratio Perm		0.00	0.35			
v/c Ratio	0.72	0.02	0.48	0.95	0.83	
Uniform Delay, d1	73.4	65.9	45.5	15.2	19.1	
Progression Factor	1.00	1.00	1.72	0.57	1.28	
Incremental Delay, d2	11.4	0.1	1.5	2.9	1.5	
Delay (s)	84.8	65.9	79.7	11.5	25.9	
Level of Service	F	E	E	B	C	
Approach Delay (s)	82.4			12.5	25.9	
Approach LOS	F			B	C	

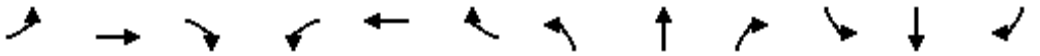
Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	5	110	0	45	0	4400	150	105	3290	0
Future Volume (vph)	5	0	5	110	0	45	0	4400	150	105	3290	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5			7.0		7.5	7.0	
Lane Util. Factor		1.00			1.00			0.86		1.00	0.86	
Frt		0.93			0.96			1.00		1.00	1.00	
Flt Protected		0.98			0.97			1.00		0.95	1.00	
Satd. Flow (prot)		1638			1671			6164		1711	6194	
Flt Permitted		0.86			0.78			1.00		0.03	1.00	
Satd. Flow (perm)		1447			1355			6164		52	6194	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	0	5	110	0	45	0	4400	150	105	3290	0
RTOR Reduction (vph)	0	9	0	0	63	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	92	0	0	4548	0	105	3290	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		17.1			17.1			130.1		148.4	148.4	
Effective Green, g (s)		17.1			17.1			130.1		148.4	148.4	
Actuated g/C Ratio		0.10			0.10			0.72		0.82	0.82	
Clearance Time (s)		7.5			7.5			7.0		7.5	7.0	
Vehicle Extension (s)		3.0			3.0			0.2		3.0	0.2	
Lane Grp Cap (vph)		137			128			4455		142	5106	
v/s Ratio Prot								c0.74		0.04	c0.53	
v/s Ratio Perm		0.00			c0.07					0.56		
v/c Ratio		0.01			0.72			1.02		0.74	0.64	
Uniform Delay, d1		73.8			79.1			25.0		68.6	5.9	
Progression Factor		1.00			1.00			0.35		0.99	0.71	
Incremental Delay, d2		0.0			17.3			14.0		13.4	0.5	
Delay (s)		73.8			96.4			22.6		81.5	4.6	
Level of Service		E			F			C		F	A	
Approach Delay (s)		73.8			96.4			22.6			7.0	
Approach LOS		E			F			C			A	

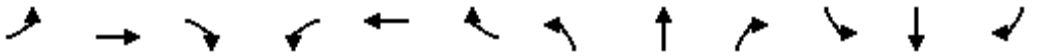
Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



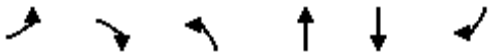
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	0	10	620	5	10	0	4600	5	5	3035	5
Future Volume (vph)	30	0	10	620	5	10	0	4600	5	5	3035	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.0		5.0	5.0	5.0			4.0		4.0	4.0	
Lane Util. Factor	1.00		1.00	0.91	0.91			0.86		1.00	0.86	
Frt	1.00		0.85	1.00	0.99			1.00		1.00	1.00	
Flt Protected	0.95		1.00	0.95	0.96			1.00		0.95	1.00	
Satd. Flow (prot)	1770		1583	3221	1608			6407		1770	6406	
Flt Permitted	0.24		1.00	0.95	0.96			1.00		0.03	1.00	
Satd. Flow (perm)	453		1583	3221	1608			6407		53	6406	
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)	33	0	11	674	5	11	0	5000	5	5	3299	5
RTOR Reduction (vph)	0	0	9	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	33	0	2	472	218	0	0	5005	0	5	3304	0
Turn Type	Perm		Perm	Perm	NA			NA		Perm	NA	
Protected Phases					8			6			2	
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	28.0		28.0	28.0	28.0			138.0		138.0	138.0	
Effective Green, g (s)	30.0		30.0	30.0	30.0			141.0		141.0	141.0	
Actuated g/C Ratio	0.17		0.17	0.17	0.17			0.78		0.78	0.78	
Clearance Time (s)	7.0		7.0	7.0	7.0			7.0		7.0	7.0	
Vehicle Extension (s)	5.0		5.0	5.0	5.0			0.2		0.2	0.2	
Lane Grp Cap (vph)	75		263	536	268			5018		41	5018	
v/s Ratio Prot								c0.78			0.52	
v/s Ratio Perm	0.07		0.00	c0.15	0.14					0.09		
v/c Ratio	0.44		0.01	0.88	0.81			1.00		0.12	0.66	
Uniform Delay, d1	67.4		62.6	73.3	72.3			19.3		4.7	8.7	
Progression Factor	1.00		1.00	1.00	1.00			0.91		0.22	0.22	
Incremental Delay, d2	8.4		0.0	16.6	18.9			7.7		4.5	0.5	
Delay (s)	75.8		62.6	89.8	91.2			25.2		5.5	2.4	
Level of Service	E		E	F	F			C		A	A	
Approach Delay (s)		72.5			90.3			25.2			2.4	
Approach LOS		E			F			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



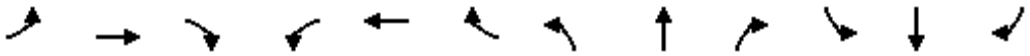
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	20	30	5	5	5	45	4590	5	10	3010	30
Future Volume (vph)	35	20	30	5	5	5	45	4590	5	10	3010	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		6.5			6.5		6.5	4.0		6.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.86		1.00	0.86	
Frt		0.95			0.95		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1738			1750		1770	6407		1770	6398	
Flt Permitted		0.86			0.91		0.03	1.00		0.03	1.00	
Satd. Flow (perm)		1526			1621		53	6407		55	6398	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	22	33	5	5	5	49	4989	5	11	3272	33
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	93	0	0	15	0	49	4994	0	11	3305	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		17.1			17.1		144.6	138.5		137.2	134.8	
Effective Green, g (s)		18.1			18.1		146.6	141.5		139.2	137.8	
Actuated g/C Ratio		0.10			0.10		0.81	0.79		0.77	0.77	
Clearance Time (s)		7.5			7.5		7.5	7.0		7.5	7.0	
Vehicle Extension (s)		4.0			4.0		3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)		153			163		110	5036		74	4898	
v/s Ratio Prot							c0.02	c0.78		0.00	0.52	
v/s Ratio Perm		c0.06			0.01		0.34			0.11		
v/c Ratio		0.61			0.09		0.45	0.99		0.15	0.67	
Uniform Delay, d1		77.6			73.5		19.3	18.7		53.2	10.2	
Progression Factor		1.00			1.00		1.47	0.45		0.52	0.21	
Incremental Delay, d2		7.7			0.3		0.7	4.7		0.7	0.6	
Delay (s)		85.2			73.8		28.9	13.2		28.5	2.7	
Level of Service		F			E		C	B		C	A	
Approach Delay (s)		85.2			73.8			13.3			2.8	
Approach LOS		F			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	85	45	45	4560	3060	20
Future Volume (vph)	85	45	45	4560	3060	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	5.5	5.5	7.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	6408	6402	
Flt Permitted	0.95	1.00	0.03	1.00	1.00	
Satd. Flow (perm)	1770	1583	51	6408	6402	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	49	49	4957	3326	22
RTOR Reduction (vph)	0	44	0	0	0	0
Lane Group Flow (vph)	92	5	49	4957	3348	0
Turn Type	Perm	Perm	pm+pt	NA	NA	
Protected Phases			1	6	2	
Permitted Phases	4	4	6			
Actuated Green, G (s)	15.6	15.6	150.9	150.9	138.1	
Effective Green, g (s)	16.6	16.6	150.9	153.9	141.1	
Actuated g/C Ratio	0.09	0.09	0.84	0.86	0.78	
Clearance Time (s)	6.5	6.5	7.0	7.0	7.0	
Vehicle Extension (s)	4.0	4.0	3.0	0.2	0.2	
Lane Grp Cap (vph)	163	145	98	5478	5018	
v/s Ratio Prot			0.02	c0.77	0.52	
v/s Ratio Perm	c0.05	0.00	0.40			
v/c Ratio	0.56	0.03	0.50	0.90	0.67	
Uniform Delay, d1	78.2	74.4	20.5	8.4	8.8	
Progression Factor	1.00	1.00	1.44	0.92	1.17	
Incremental Delay, d2	5.3	0.1	1.3	1.0	0.7	
Delay (s)	83.6	74.5	30.6	8.6	11.0	
Level of Service	F	E	C	A	B	
Approach Delay (s)	80.4			8.9	11.0	
Approach LOS	F			A	B	

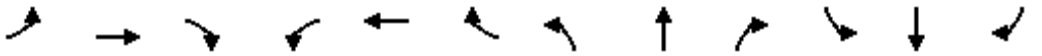
Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	1060	30	185	1140	845	25	0	100	650	0	70
Future Volume (vph)	185	1060	30	185	1140	845	25	0	100	650	0	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	9.0		7.0	9.0	9.0	8.5		8.5	8.0	8.0	
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	1.00		0.88	0.91	0.91	
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95	0.97	
Satd. Flow (prot)	3319	4895		3319	3421	1531	1711		2694	3113	1512	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95	0.97	
Satd. Flow (perm)	3319	4895		3319	3421	1531	1711		2694	3113	1512	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	185	1060	30	185	1140	845	25	0	100	650	0	70
RTOR Reduction (vph)	0	2	0	0	0	369	0	0	84	0	128	0
Lane Group Flow (vph)	185	1088	0	185	1140	476	25	0	16	487	105	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot		pt+ov	Split	NA	
Protected Phases	1	6		5	2		3		3 5	4	4	
Permitted Phases						2						
Actuated Green, G (s)	14.6	65.6		14.6	65.6	65.6	9.9		24.5	27.4	27.4	
Effective Green, g (s)	14.6	65.6		14.6	65.6	65.6	9.9		24.5	27.4	27.4	
Actuated g/C Ratio	0.10	0.44		0.10	0.44	0.44	0.07		0.16	0.18	0.18	
Clearance Time (s)	7.0	9.0		7.0	9.0	9.0	8.5			8.0	8.0	
Vehicle Extension (s)	6.0	0.2		6.0	0.2	0.2	6.0			6.0	6.0	
Lane Grp Cap (vph)	323	2140		323	1496	669	112		440	568	276	
v/s Ratio Prot	c0.06	0.22		0.06	c0.33		c0.01		0.01	c0.16	0.07	
v/s Ratio Perm						0.31						
v/c Ratio	0.57	0.51		0.57	0.76	0.71	0.22		0.04	0.86	0.38	
Uniform Delay, d1	64.7	30.5		64.7	35.6	34.5	66.4		52.8	59.4	53.9	
Progression Factor	0.95	1.39		1.09	0.84	0.73	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.5	0.5		2.8	2.1	3.6	2.8		0.1	13.8	2.5	
Delay (s)	63.9	42.8		73.5	32.1	28.8	69.2		52.9	73.2	56.3	
Level of Service	E	D		E	C	C	E		D	E	E	
Approach Delay (s)		45.8			34.3			56.2			67.7	
Approach LOS		D			C			E			E	

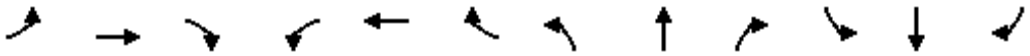
Intersection Summary			
HCM 2000 Control Delay	44.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	32.5
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	735	30	45	645	170	85	545	140	140	405	190
Future Volume (vph)	275	735	30	45	645	170	85	545	140	140	405	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.5	6.5		6.5	6.5		6.5	6.5		4.0	6.5	6.5
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3518		1770	3428		1770	1806		1770	3539	1583
Flt Permitted	0.12	1.00		0.25	1.00		0.50	1.00		0.13	1.00	1.00
Satd. Flow (perm)	438	3518		467	3428		925	1806		244	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)	299	799	33	49	701	185	92	592	152	152	440	207
RTOR Reduction (vph)	0	3	0	0	20	0	0	8	0	0	0	91
Lane Group Flow (vph)	299	829	0	49	866	0	92	736	0	152	440	116
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	3	8			4			2		1	6	
Permitted Phases	8			4			2			6		6
Actuated Green, G (s)	39.7	39.7		27.5	27.5		58.3	58.3		67.3	67.3	67.3
Effective Green, g (s)	39.7	39.7		27.5	27.5		58.3	58.3		67.3	67.3	67.3
Actuated g/C Ratio	0.33	0.33		0.23	0.23		0.49	0.49		0.56	0.56	0.56
Clearance Time (s)	5.5	6.5		6.5	6.5		6.5	6.5		4.0	6.5	6.5
Vehicle Extension (s)	3.0	5.0		5.0	5.0		0.2	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	312	1163		107	785		449	877		200	1984	887
v/s Ratio Prot	0.05	c0.24			c0.25			c0.41		c0.03	0.12	
v/s Ratio Perm	0.26			0.10			0.10			0.39		0.07
v/c Ratio	0.96	0.71		0.46	1.10		0.20	0.84		0.76	0.22	0.13
Uniform Delay, d1	35.9	35.2		39.8	46.2		17.6	26.8		21.5	13.2	12.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	39.4	2.6		6.4	64.2		1.0	9.5		15.5	0.3	0.3
Delay (s)	75.3	37.8		46.2	110.4		18.6	36.3		37.1	13.5	12.8
Level of Service	E	D		D	F		B	D		D	B	B
Approach Delay (s)		47.7			107.0			34.3			17.8	
Approach LOS		D			F			C			B	

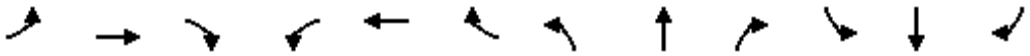
Intersection Summary			
HCM 2000 Control Delay	53.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	45	10	150	85	1000	0	100	60	665	210	35
Future Volume (vph)	40	45	10	150	85	1000	0	100	60	665	210	35
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	4.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.95		1.00	0.98	
Flt Protected		0.98			0.97	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1738			1745	1531		1709		1711	1762	
Flt Permitted		0.98			0.97	1.00		1.00		0.48	1.00	
Satd. Flow (perm)		1738			1745	1531		1709		872	1762	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	45	10	150	85	1000	0	100	60	665	210	35
RTOR Reduction (vph)	0	5	0	0	0	334	0	20	0	0	5	0
Lane Group Flow (vph)	0	90	0	0	235	666	0	140	0	665	240	0
Turn Type	Split	NA		Split	NA	pm+ov		NA		pm+pt	NA	
Protected Phases	4	4		8	8	1		2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)		9.3			17.5	48.8		23.9		59.7	59.7	
Effective Green, g (s)		9.3			17.5	48.8		23.9		59.7	59.7	
Actuated g/C Ratio		0.09			0.18	0.49		0.24		0.60	0.60	
Clearance Time (s)		4.5			4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		161			305	816		408		783	1051	
v/s Ratio Prot		c0.05			0.13	c0.26		0.08		0.27	0.14	
v/s Ratio Perm						0.18				c0.24		
v/c Ratio		0.56			0.77	0.82		0.34		0.85	0.23	
Uniform Delay, d1		43.4			39.3	21.8		31.5		13.9	9.4	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		4.4			11.4	6.3		2.3		8.6	0.5	
Delay (s)		47.8			50.7	28.1		33.8		22.5	9.9	
Level of Service		D			D	C		C		C	A	
Approach Delay (s)		47.8			32.4			33.8			19.1	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

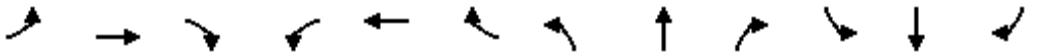
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	155	130	25	1330	390	0	0	2065	15	505	120
Future Volume (vph)	0	155	130	25	1330	390	0	0	2065	15	505	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		7.0	7.0	7.0			7.0		7.0	
Lane Util. Factor		0.95		1.00	0.91	1.00			0.88		0.95	
Frt		0.93		1.00	1.00	0.85			0.85		0.97	
Flt Protected		1.00		0.95	1.00	1.00			1.00		1.00	
Satd. Flow (prot)		3187		1711	4916	1531			2694		3321	
Flt Permitted		1.00		0.58	1.00	1.00			1.00		1.00	
Satd. Flow (perm)		3187		1039	4916	1531			2694		3321	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	155	130	25	1330	390	0	0	2065	15	505	120
RTOR Reduction (vph)	0	84	0	0	0	102	0	0	49	0	11	0
Lane Group Flow (vph)	0	201	0	25	1330	288	0	0	2016	0	629	0
Turn Type		NA		Perm	NA	Perm			Perm	Perm	NA	
Protected Phases		13			16						14	
Permitted Phases				16		16			14 16	14		
Actuated Green, G (s)		19.0		42.0	42.0	42.0			148.0		99.0	
Effective Green, g (s)		19.0		42.0	42.0	42.0			148.0		99.0	
Actuated g/C Ratio		0.11		0.23	0.23	0.23			0.82		0.55	
Clearance Time (s)		6.0		7.0	7.0	7.0					7.0	
Vehicle Extension (s)		5.0		4.0	4.0	4.0					4.0	
Lane Grp Cap (vph)		336		242	1147	357			2215		1826	
v/s Ratio Prot		c0.06			c0.27							
v/s Ratio Perm				0.02		0.19			c0.75		0.19	
v/c Ratio		0.60		0.10	1.16	0.81			0.91		0.34	
Uniform Delay, d1		76.9		54.2	69.0	65.2			11.3		22.5	
Progression Factor		0.27		1.00	1.00	1.00			1.78		1.00	
Incremental Delay, d2		0.7		0.3	81.8	13.2			4.6		0.2	
Delay (s)		21.4		54.5	150.8	78.3			24.7		22.6	
Level of Service		C		D	F	E			C		C	
Approach Delay (s)		21.4			133.2			24.7			22.6	
Approach LOS		C			F			C			C	

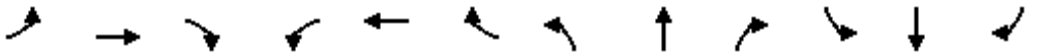
Intersection Summary			
HCM 2000 Control Delay	64.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	115.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



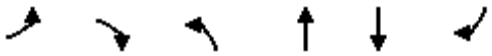
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1050	460	50	1035	150	640	450	50	175	400	85
Future Volume (vph)	80	1050	460	50	1035	150	640	450	50	175	400	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	1.00		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	3433	1835		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.21	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	3433	1835		382	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)	87	1141	500	54	1125	163	696	489	54	190	435	92
RTOR Reduction (vph)	0	0	257	0	0	107	0	3	0	0	0	67
Lane Group Flow (vph)	87	1141	243	54	1125	56	696	540	0	190	435	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		3	8		7	4	1
Permitted Phases			6			2				4		4
Actuated Green, G (s)	8.5	56.0	56.0	4.0	51.5	51.5	31.5	50.8		45.7	32.5	41.0
Effective Green, g (s)	8.5	56.0	56.0	4.0	51.5	51.5	31.5	50.8		45.7	32.5	41.0
Actuated g/C Ratio	0.06	0.37	0.37	0.03	0.34	0.34	0.21	0.34		0.30	0.22	0.27
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	4.0	0.2	0.2	4.0	0.2	0.2	4.0	4.0		4.0	4.0	4.0
Lane Grp Cap (vph)	100	1321	590	91	1215	543	720	621		238	766	501
v/s Ratio Prot	c0.05	c0.32		0.02	c0.32		c0.20	c0.29		0.07	0.12	0.00
v/s Ratio Perm			0.15			0.04				0.17		0.01
v/c Ratio	0.87	0.86	0.41	0.59	0.93	0.10	0.97	0.87		0.80	0.57	0.05
Uniform Delay, d1	70.2	43.5	34.8	72.2	47.4	33.5	58.7	46.5		42.0	52.5	40.2
Progression Factor	1.00	1.00	1.00	1.56	0.40	0.15	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	51.5	7.7	2.1	8.5	10.2	0.3	25.4	13.0		17.7	3.0	0.1
Delay (s)	121.7	51.1	36.9	120.9	29.1	5.4	84.1	59.5		59.7	55.5	40.2
Level of Service	F	D	D	F	C	A	F	E		E	E	D
Approach Delay (s)		50.6			29.9			73.3			54.7	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	51.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	900	230	100	380	310	100	1255	60	205	1220	450
Future Volume (vph)	295	900	230	100	380	310	100	1255	60	205	1220	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.5	6.0	4.0	4.0	6.0	4.0	4.0	6.5		6.0	6.0	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3515		1770	5085	1583
Flt Permitted	0.20	1.00	1.00	0.20	1.00	1.00	0.16	1.00		0.06	1.00	1.00
Satd. Flow (perm)	369	3539	1583	367	3539	1583	299	3515		103	5085	1583
Peak-hour factor, PHF	1.00	1.00	1.00	0.92	1.00	0.92	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	295	900	230	109	380	337	100	1364	65	223	1326	450
RTOR Reduction (vph)	0	0	67	0	0	0	0	2	0	0	0	61
Lane Group Flow (vph)	295	900	163	109	380	337	100	1427	0	223	1326	389
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2		1	6	7
Permitted Phases	4		4	8		Free	2			6		6
Actuated Green, G (s)	49.0	39.0	47.9	26.3	20.3	150.0	74.8	65.9		89.0	76.1	98.3
Effective Green, g (s)	49.0	39.0	47.9	26.3	20.3	150.0	74.8	65.9		89.0	76.1	98.3
Actuated g/C Ratio	0.33	0.26	0.32	0.18	0.14	1.00	0.50	0.44		0.59	0.51	0.66
Clearance Time (s)	6.5	6.0	4.0	4.0	6.0		4.0	6.5		6.0	6.0	6.5
Vehicle Extension (s)	4.0	4.0	3.0	3.0	4.0		3.0	0.2		4.0	0.2	4.0
Lane Grp Cap (vph)	327	920	505	120	478	1583	236	1544		245	2579	1037
v/s Ratio Prot	c0.13	c0.25	0.02	0.04	0.11		0.03	0.41		c0.10	0.26	0.06
v/s Ratio Perm	0.16		0.08	0.12		0.21	0.19			c0.44		0.19
v/c Ratio	0.90	0.98	0.32	0.91	0.79	0.21	0.42	0.92		0.91	0.51	0.37
Uniform Delay, d1	42.1	55.1	38.7	58.7	62.8	0.0	20.6	39.7		49.1	24.6	11.8
Progression Factor	1.00	1.00	1.00	1.01	1.00	1.00	1.21	1.03		1.61	0.48	0.16
Incremental Delay, d2	27.0	24.2	0.4	49.8	8.3	0.3	1.1	9.7		27.3	0.5	0.2
Delay (s)	69.2	79.3	39.1	109.4	71.4	0.3	26.1	50.6		106.3	12.4	2.1
Level of Service	E	E	D	F	E	A	C	D		F	B	A
Approach Delay (s)		70.7			47.4			49.0			20.5	
Approach LOS		E			D			D			C	

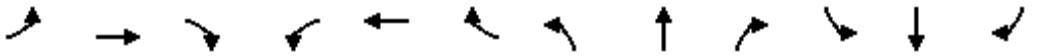
Intersection Summary			
HCM 2000 Control Delay	44.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	675	400	350	1030	1520	455
Future Volume (vph)	675	400	350	1030	1520	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3319	1531	1711	3421	3421	1531
Flt Permitted	0.95	1.00	0.05	1.00	1.00	1.00
Satd. Flow (perm)	3319	1531	97	3421	3421	1531
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	675	400	350	1030	1520	455
RTOR Reduction (vph)	0	222	0	0	0	226
Lane Group Flow (vph)	675	178	350	1030	1520	229
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	6	2	
Permitted Phases		4	6			2
Actuated Green, G (s)	36.1	36.1	101.9	101.9	68.0	68.0
Effective Green, g (s)	36.1	36.1	101.9	101.9	68.0	68.0
Actuated g/C Ratio	0.24	0.24	0.68	0.68	0.45	0.45
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	798	368	366	2323	1550	694
v/s Ratio Prot	c0.20		c0.18	0.30	0.44	
v/s Ratio Perm		0.12	c0.47			0.15
v/c Ratio	0.85	0.48	0.96	0.44	0.98	0.33
Uniform Delay, d1	54.3	48.9	51.4	11.0	40.4	26.3
Progression Factor	0.83	0.47	0.74	0.78	1.46	5.36
Incremental Delay, d2	7.8	0.9	30.4	0.5	10.2	0.5
Delay (s)	52.9	24.1	68.2	9.1	69.1	141.8
Level of Service	D	C	E	A	E	F
Approach Delay (s)	42.1			24.1	85.8	
Approach LOS	D			C	F	

Intersection Summary			
HCM 2000 Control Delay	56.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	995	120	340	1960	90	0	0	145	0	0	120
Future Volume (Veh/h)	295	995	120	340	1960	90	0	0	145	0	0	120
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	295	995	120	340	1960	90	0	0	145	0	0	120
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		177			749							
pX, platoon unblocked	0.82						0.82	0.82		0.82	0.82	0.82
vC, conflicting volume	2050			1115			3098	4375	558	3918	4390	698
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1499			1115			2783	4347	558	3787	4365	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	18			45			100	100	69	100	100	86
cM capacity (veh/h)	362			622			1	0	473	0	0	885

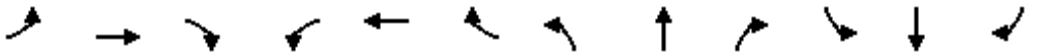
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	792	618	830	980	580	72	72	60	60
Volume Left	295	0	340	0	0	0	0	0	0
Volume Right	0	120	0	0	90	72	72	60	60
cSH	362	1700	622	1700	1700	473	473	885	885
Volume to Capacity	0.82	0.36	0.55	0.58	0.34	0.15	0.15	0.07	0.07
Queue Length 95th (ft)	179	0	83	0	0	13	13	5	5
Control Delay (s)	46.7	0.0	15.1	0.0	0.0	14.0	14.0	9.4	9.4
Lane LOS	E		C			B	B	A	A
Approach Delay (s)	26.3		5.3			14.0		9.4	
Approach LOS						B		A	

Intersection Summary				
Average Delay	13.0			
Intersection Capacity Utilization	93.3%	ICU Level of Service	F	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	170	1120	1170	550	675	525
Future Volume (vph)	170	1120	1170	550	675	525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.88	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.97
Satd. Flow (prot)	1711	2694	3421	1531		3328
Flt Permitted	0.95	1.00	1.00	1.00		0.56
Satd. Flow (perm)	1711	2694	3421	1531		1919
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	1120	1170	550	675	525
RTOR Reduction (vph)	0	14	0	118	0	0
Lane Group Flow (vph)	170	1106	1170	432	0	1200
Turn Type	Prot	pm+ov	NA	pm+ov	pm+pt	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	14.5	52.8	45.2	59.7		87.5
Effective Green, g (s)	14.5	52.8	45.2	59.7		87.5
Actuated g/C Ratio	0.13	0.48	0.41	0.54		0.80
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	225	1391	1405	886		2017
v/s Ratio Prot	0.10	c0.28	c0.34	0.06		0.21
v/s Ratio Perm		0.13		0.22		0.27
v/c Ratio	0.76	0.80	0.83	0.49		1.02dl
Uniform Delay, d1	46.0	24.1	29.0	15.6		4.4
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	13.4	3.2	5.9	0.4		0.5
Delay (s)	59.5	27.3	34.9	16.1		4.8
Level of Service	E	C	C	B		A
Approach Delay (s)	31.5		28.9			4.8
Approach LOS	C		C			A

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	675	1290	25	5	1140	900	150	210	15	345	50	300
Future Volume (vph)	675	1290	25	5	1140	900	150	210	15	345	50	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95			0.95	1.00		0.95		0.91	0.91	
Frt	1.00	1.00			1.00	0.85		0.99		1.00	0.90	
Flt Protected	0.95	1.00			1.00	1.00		0.98		0.95	0.99	
Satd. Flow (prot)	3319	3411			3420	1531		3334		1557	2919	
Flt Permitted	0.07	1.00			0.95	1.00		0.98		0.95	0.99	
Satd. Flow (perm)	247	3411			3245	1531		3334		1557	2919	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	675	1290	25	5	1140	900	150	210	15	345	50	300
RTOR Reduction (vph)	0	1	0	0	0	0	0	2	0	0	243	0
Lane Group Flow (vph)	675	1314	0	0	1145	900	0	373	0	241	211	0
Turn Type	pm+pt	NA		Perm	NA	Free	Split	NA		Split	NA	
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases	6			2		Free						
Actuated Green, G (s)	90.8	90.8			59.6	150.0		21.0		26.2	26.2	
Effective Green, g (s)	90.8	90.8			59.6	150.0		21.0		26.2	26.2	
Actuated g/C Ratio	0.61	0.61			0.40	1.00		0.14		0.17	0.17	
Clearance Time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	706	2064			1289	1531		466		271	509	
v/s Ratio Prot	c0.17	0.39						c0.11		c0.15	0.07	
v/s Ratio Perm	c0.41				0.35	0.59						
v/c Ratio	0.96	0.64			0.89	0.59		0.80		0.89	0.41	
Uniform Delay, d1	48.1	19.0			42.1	0.0		62.5		60.5	55.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	23.4	1.5			9.4	1.7		13.5		27.7	0.5	
Delay (s)	71.5	20.5			51.5	1.7		76.0		88.2	55.6	
Level of Service	E	C			D	A		E		F	E	
Approach Delay (s)		37.8			29.5			76.0			66.9	
Approach LOS		D			C			E			E	

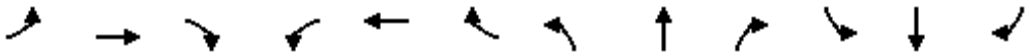
Intersection Summary			
HCM 2000 Control Delay	41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	106.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	515	100	65	200	160	125
Future Volume (Veh/h)	515	100	65	200	160	125
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	515	100	65	200	160	125
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				979		
pX, platoon unblocked						
vC, conflicting volume			615		795	308
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			615		795	308
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		47	82
cM capacity (veh/h)			961		303	688

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	343	272	132	133	160	125
Volume Left	0	0	65	0	160	0
Volume Right	0	100	0	0	0	125
cSH	1700	1700	961	1700	303	688
Volume to Capacity	0.20	0.16	0.07	0.08	0.53	0.18
Queue Length 95th (ft)	0	0	5	0	72	16
Control Delay (s)	0.0	0.0	4.8	0.0	29.5	11.4
Lane LOS			A		D	B
Approach Delay (s)	0.0		2.4		21.5	
Approach LOS					C	

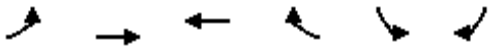
Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	925	175	45	840	45	375	175	375	125	25	75
Future Volume (vph)	125	925	175	45	840	45	375	175	375	125	25	75
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	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.98			0.99			0.94			0.95	
Flt Protected		0.99			1.00			0.98			0.97	
Satd. Flow (prot)		3331			3388			3149			3162	
Flt Permitted		0.66			0.80			0.73			0.56	
Satd. Flow (perm)		2221			2707			2358			1821	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	125	925	175	45	840	45	375	175	375	125	25	75
RTOR Reduction (vph)	0	13	0	0	4	0	0	79	0	0	48	0
Lane Group Flow (vph)	0	1212	0	0	926	0	0	846	0	0	177	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		55.9			55.9			36.1			36.1	
Effective Green, g (s)		55.9			55.9			36.1			36.1	
Actuated g/C Ratio		0.56			0.56			0.36			0.36	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1241			1513			851			657	
v/s Ratio Prot												
v/s Ratio Perm		c0.55			0.34			c0.36			0.10	
v/c Ratio		0.98			0.61			0.99			0.91dl	
Uniform Delay, d1		21.4			14.8			31.9			22.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		19.9			0.7			29.6			1.0	
Delay (s)		41.3			15.5			61.4			23.6	
Level of Service		D			B			E			C	
Approach Delay (s)		41.3			15.5			61.4			23.6	
Approach LOS		D			B			E			C	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	675	900	305	500	175	90
Future Volume (vph)	675	900	305	500	175	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.91		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	3421	3102		1711	1531
Flt Permitted	0.17	1.00	1.00		0.95	1.00
Satd. Flow (perm)	309	3421	3102		1711	1531
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	675	900	305	500	175	90
RTOR Reduction (vph)	0	0	177	0	0	0
Lane Group Flow (vph)	675	900	628	0	175	90
Turn Type	pm+pt	NA	NA		Prot	Free
Protected Phases	7	4	8		6	
Permitted Phases	4					Free
Actuated Green, G (s)	116.0	116.0	53.6		24.0	150.0
Effective Green, g (s)	116.0	116.0	53.6		24.0	150.0
Actuated g/C Ratio	0.77	0.77	0.36		0.16	1.00
Clearance Time (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	775	2645	1108		273	1531
v/s Ratio Prot	c0.33	0.26	0.20		c0.10	
v/s Ratio Perm	c0.34					0.06
v/c Ratio	0.87	0.34	0.57		0.64	0.06
Uniform Delay, d1	29.3	5.2	38.8		59.0	0.0
Progression Factor	1.00	1.00	0.60		1.27	1.00
Incremental Delay, d2	10.5	0.4	1.5		9.7	0.1
Delay (s)	39.8	5.6	25.0		84.7	0.1
Level of Service	D	A	C		F	A
Approach Delay (s)		20.3	25.0		56.0	
Approach LOS		C	C		E	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group