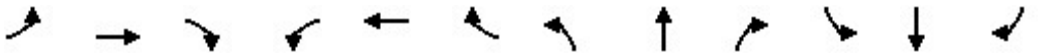
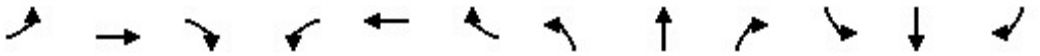


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	385	490	185	975	0	0	0	0	130	5	300
Future Volume (vph)	0	385	490	185	975	0	0	0	0	130	5	300
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0	5.0	4.6	5.0						5.0	5.0
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frpb, ped/bikes		1.00	0.97	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3260	1416	1646	3292						1637	1458
Flt Permitted		1.00	1.00	0.45	1.00						0.95	1.00
Satd. Flow (perm)		3260	1416	782	3292						1637	1458
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	385	490	185	975	0	0	0	0	130	5	300
RTOR Reduction (vph)	0	0	298	0	0	0	0	0	0	0	0	102
Lane Group Flow (vph)	0	385	192	185	975	0	0	0	0	0	135	198
Confl. Peds. (#/hr)			6									
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2	6						4		4
Actuated Green, G (s)		24.5	24.5	32.4	26.8						30.4	30.4
Effective Green, g (s)		24.5	24.5	32.4	26.8						30.4	30.4
Actuated g/C Ratio		0.33	0.33	0.43	0.36						0.40	0.40
Clearance Time (s)		5.0	5.0	4.6	5.0						5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1063	461	401	1174						662	590
v/s Ratio Prot		0.12		c0.03	c0.30							
v/s Ratio Perm			0.14	0.16							0.08	c0.14
v/c Ratio		0.36	0.42	0.46	0.83						0.20	0.33
Uniform Delay, d1		19.3	19.7	13.8	22.1						14.5	15.4
Progression Factor		1.00	1.00	0.97	0.99						1.00	1.00
Incremental Delay, d2		0.2	0.6	0.7	4.5						0.2	0.3
Delay (s)		19.5	20.3	14.1	26.4						14.7	15.7
Level of Service		B	C	B	C						B	B
Approach Delay (s)		20.0			24.5			0.0			15.4	
Approach LOS		B			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	14.6
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		

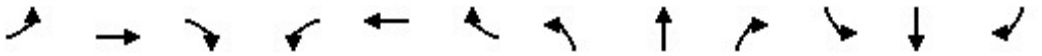
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	390	0	0	470	100	690	5	255	0	0	0
Future Volume (vph)	125	390	0	0	470	100	690	5	255	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.6	5.0			5.0	5.0	5.0	5.0				
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	0.99				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			1.00	0.85	1.00	0.92				
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (prot)	1646	3292			3292	1436	1564	1466				
Flt Permitted	0.47	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (perm)	823	3292			3292	1436	1564	1466				
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	390	0	0	470	100	690	5	255	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	55	0	58	0	0	0	0
Lane Group Flow (vph)	125	390	0	0	470	45	490	402	0	0	0	0
Confl. Peds. (#/hr)						3			3			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases	2					6	8					
Actuated Green, G (s)	27.8	24.5			26.8	26.8	30.4	30.4				
Effective Green, g (s)	27.8	24.5			26.8	26.8	30.4	30.4				
Actuated g/C Ratio	0.37	0.33			0.36	0.36	0.40	0.40				
Clearance Time (s)	4.6	5.0			5.0	5.0	5.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	340	1073			1174	512	633	593				
v/s Ratio Prot	c0.02	0.12			c0.14							
v/s Ratio Perm	0.12					0.03	c0.31	0.27				
v/c Ratio	0.37	0.36			0.40	0.09	0.77	0.68				
Uniform Delay, d1	16.2	19.3			18.1	16.0	19.4	18.3				
Progression Factor	0.61	0.57			1.00	1.00	1.00	1.00				
Incremental Delay, d2	0.7	0.2			0.2	0.1	5.9	3.1				
Delay (s)	10.5	11.2			18.3	16.1	25.3	21.4				
Level of Service	B	B			B	B	C	C				
Approach Delay (s)		11.0			18.0			23.4			0.0	
Approach LOS		B			B			C			A	

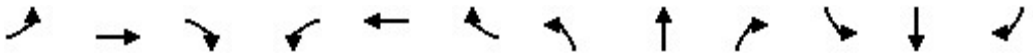
Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	14.6
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



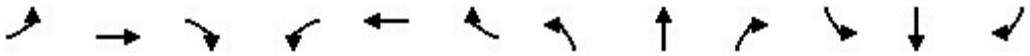
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	250	55	140	265	35	65	215	145	50	390	110
Future Volume (vph)	70	250	55	140	265	35	65	215	145	50	390	110
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1614	3125		1630	3194		1614	1699	1424	1630	1716	1435
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1614	3125		1630	3194		1614	1699	1424	1630	1716	1435
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)	70	250	55	140	265	35	65	215	145	50	390	110
RTOR Reduction (vph)	0	25	0	0	13	0	0	0	101	0	0	78
Lane Group Flow (vph)	70	280	0	140	287	0	65	215	44	50	390	32
Confl. Peds. (#/hr)	2		6	6		2	5		3	3		5
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	3.8	14.7		6.3	17.2		3.8	19.2	19.2	3.2	18.6	18.6
Effective Green, g (s)	3.8	14.7		6.3	17.2		3.8	19.2	19.2	3.2	18.6	18.6
Actuated g/C Ratio	0.06	0.23		0.10	0.27		0.06	0.30	0.30	0.05	0.29	0.29
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	96	724		161	866		96	514	431	82	503	420
v/s Ratio Prot	0.04	0.09		c0.09	c0.09		c0.04	0.13		0.03	c0.23	
v/s Ratio Perm									0.03			0.02
v/c Ratio	0.73	0.39		0.87	0.33		0.68	0.42	0.10	0.61	0.78	0.08
Uniform Delay, d1	29.3	20.5		28.1	18.5		29.2	17.6	15.9	29.5	20.5	16.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.7	0.1		34.9	0.1		13.9	0.2	0.0	8.5	6.7	0.0
Delay (s)	50.0	20.7		63.1	18.6		43.1	17.8	15.9	38.0	27.2	16.2
Level of Service	D	C		E	B		D	B	B	D	C	B
Approach Delay (s)		26.2			32.7			21.0			26.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	140	70	15	175	25	80	90	10	25	165	55
Future Volume (vph)	65	140	70	15	175	25	80	90	10	25	165	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.98			0.99			0.97	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1612			1650			1697			1632	
Flt Permitted		0.88			0.97			0.82			0.94	
Satd. Flow (perm)		1431			1601			1414			1544	
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)	65	140	70	15	175	25	80	90	10	25	165	55
RTOR Reduction (vph)	0	20	0	0	8	0	0	3	0	0	16	0
Lane Group Flow (vph)	0	255	0	0	207	0	0	177	0	0	229	0
Confl. Peds. (#/hr)			4	4			1					1
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		12.8			12.8			7.8			7.8	
Effective Green, g (s)		12.8			12.8			7.8			7.8	
Actuated g/C Ratio		0.42			0.42			0.25			0.25	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		598			669			360			393	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.13			0.13			c0.15	
v/c Ratio		0.43			0.31			0.49			0.58	
Uniform Delay, d1		6.3			5.9			9.7			10.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			0.1			0.4			1.4	
Delay (s)		6.5			6.0			10.1			11.4	
Level of Service		A			A			B			B	
Approach Delay (s)		6.5			6.0			10.1			11.4	
Approach LOS		A			A			B			B	

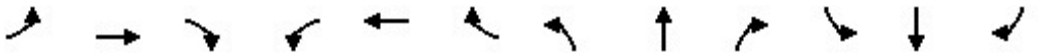
Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	30.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	130	10	10	5	170	260	10	10	300	45
Future Volume (Veh/h)	40	5	130	10	10	5	170	260	10	10	300	45
Sign Control		Stop			Stop			Free			Free	
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)	40	5	130	10	10	5	170	260	10	10	300	45
Pedestrians		4			2			1				
Lane Width (ft)		12.0			12.0			12.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	962	958	328	1083	976	267	349			272		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	962	958	328	1083	976	267	349			272		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	98	82	93	95	99	86			99		
cM capacity (veh/h)	199	218	711	139	215	775	1200			1283		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	175	25	440	355
Volume Left	40	10	170	10
Volume Right	130	5	10	45
cSH	430	200	1200	1283
Volume to Capacity	0.41	0.13	0.14	0.01
Queue Length 95th (ft)	49	11	12	1
Control Delay (s)	19.0	25.6	4.2	0.3
Lane LOS	C	D	A	A
Approach Delay (s)	19.0	25.6	4.2	0.3
Approach LOS	C	D		

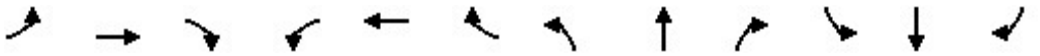
Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	69.3%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	275	55	35	270	25	35	75	35	50	200	70
Future Volume (vph)	40	275	55	35	270	25	35	75	35	50	200	70
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.99			0.97			0.97	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1682			1702			1673			1645	
Flt Permitted		0.93			0.93			0.86			0.93	
Satd. Flow (perm)		1579			1595			1462			1540	
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	275	55	35	270	25	35	75	35	50	200	70
RTOR Reduction (vph)	0	11	0	0	5	0	0	14	0	0	12	0
Lane Group Flow (vph)	0	359	0	0	325	0	0	131	0	0	308	0
Confl. Peds. (#/hr)	5		3	3		5	1					1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		15.4			15.4			13.2			13.2	
Effective Green, g (s)		15.4			15.4			13.2			13.2	
Actuated g/C Ratio		0.40			0.40			0.34			0.34	
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)		629			636			499			526	
v/s Ratio Prot												
v/s Ratio Perm		c0.23			0.20			0.09			c0.20	
v/c Ratio		0.57			0.51			0.26			0.59	
Uniform Delay, d1		9.0			8.8			9.2			10.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			0.7			0.3			1.7	
Delay (s)		10.3			9.5			9.5			12.1	
Level of Service		B			A			A			B	
Approach Delay (s)		10.3			9.5			9.5			12.1	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	38.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	150	60	70	125	35	100	385	130	45	445	75
Future Volume (vph)	50	150	60	70	125	35	100	385	130	45	445	75
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	16	16	16	16	16	16	12	12	12	12	12	12
Total Lost time (s)		8.3			8.3		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.96		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1873			1886		1630	1651		1614	1662	
Flt Permitted		0.89			0.83		0.39	1.00		0.39	1.00	
Satd. Flow (perm)		1682			1593		666	1651		668	1662	
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	150	60	70	125	35	100	385	130	45	445	75
RTOR Reduction (vph)	0	14	0	0	8	0	0	18	0	0	9	0
Lane Group Flow (vph)	0	246	0	0	222	0	100	497	0	45	511	0
Confl. Peds. (#/hr)	2		3	3		2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		13.8			13.8		23.9	23.9		23.9	23.9	
Effective Green, g (s)		13.8			13.8		23.9	23.9		23.9	23.9	
Actuated g/C Ratio		0.26			0.26		0.44	0.44		0.44	0.44	
Clearance Time (s)		8.3			8.3		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		429			407		294	730		295	735	
v/s Ratio Prot								0.30			c0.31	
v/s Ratio Perm		c0.15			0.14		0.15			0.07		
v/c Ratio		0.57			0.54		0.34	0.68		0.15	0.70	
Uniform Delay, d1		17.5			17.4		9.9	12.0		9.0	12.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.9			1.5		0.3	2.1		0.1	2.3	
Delay (s)		19.4			18.9		10.1	14.1		9.1	14.4	
Level of Service		B			B		B	B		A	B	
Approach Delay (s)		19.4			18.9			13.5			14.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	305	20	10	220	10	15
Future Volume (Veh/h)	305	20	10	220	10	15
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)	305	20	10	220	10	15
Pedestrians					8	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	956					
pX, platoon unblocked						
vC, conflicting volume			333		563	323
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			333		563	323
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	98
cM capacity (veh/h)			1229		484	718

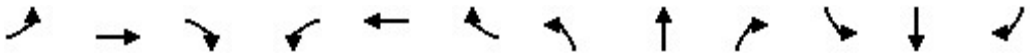
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	325	230	25
Volume Left	0	10	10
Volume Right	20	0	15
cSH	1700	1229	601
Volume to Capacity	0.19	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.4	11.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.2
Approach LOS			B

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		31.4%	ICU Level of Service
Analysis Period (min)		15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	60	155	110	205	280	75
Future Volume (vph)	60	155	110	205	280	75
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	60	155	110	205	280	75

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	215	315	355
Volume Left (vph)	60	110	0
Volume Right (vph)	155	0	75
Hadj (s)	-0.34	0.10	-0.08
Departure Headway (s)	5.2	5.1	4.8
Degree Utilization, x	0.31	0.44	0.48
Capacity (veh/h)	632	682	712
Control Delay (s)	10.4	12.0	12.2
Approach Delay (s)	10.4	12.0	12.2
Approach LOS	B	B	B

Intersection Summary			
Delay	11.7		
Level of Service	B		
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	10	10	10	15	10	295	15	30	400	5
Future Volume (Veh/h)	5	5	10	10	10	15	10	295	15	30	400	5
Sign Control		Stop			Stop			Free			Free	
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)	5	5	10	10	10	15	10	295	15	30	400	5
Pedestrians		2									5	
Lane Width (ft)		12.0									12.0	
Walking Speed (ft/s)		4.0									4.0	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	812	794	404	798	790	308	407			310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	812	794	404	798	790	308	407			310		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	98	97	97	98	99			98		
cM capacity (veh/h)	278	312	649	291	314	734	1150			1245		

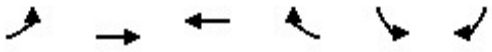
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	35	320	435
Volume Left	5	10	10	30
Volume Right	10	15	15	5
cSH	404	404	1150	1245
Volume to Capacity	0.05	0.09	0.01	0.02
Queue Length 95th (ft)	4	7	1	2
Control Delay (s)	14.4	14.8	0.3	0.8
Lane LOS	B	B	A	A
Approach Delay (s)	14.4	14.8	0.3	0.8
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	49.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	40	25	450	535	10
Future Volume (Veh/h)	10	40	25	450	535	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	40	25	450	535	10
Pedestrians	5				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1046	545	550			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	545	550			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	93	98			
cM capacity (veh/h)	248	540	1015			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	50	475	545
Volume Left	10	25	0
Volume Right	40	0	10
cSH	437	1015	1700
Volume to Capacity	0.11	0.02	0.32
Queue Length 95th (ft)	10	2	0
Control Delay (s)	14.3	0.7	0.0
Lane LOS	B	A	
Approach Delay (s)	14.3	0.7	0.0
Approach LOS	B		

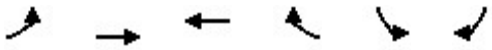
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	430	215	0	65	435
Future Volume (Veh/h)	0	430	215	0	65	435
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)	0	430	215	0	65	435
Pedestrians					1	
Lane Width (ft)					11.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	216				646	216
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	216				646	216
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				85	47
cM capacity (veh/h)	1347				436	823

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	430	215	65	435
Volume Left	0	0	65	0
Volume Right	0	0	0	435
cSH	1700	1700	436	823
Volume to Capacity	0.25	0.13	0.15	0.53
Queue Length 95th (ft)	0	0	13	79
Control Delay (s)	0.0	0.0	14.7	14.2
Lane LOS			B	B
Approach Delay (s)	0.0	0.0	14.2	
Approach LOS			B	

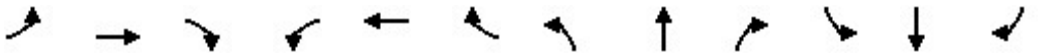
Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	240	255	215	25	0	0
Future Volume (Veh/h)	240	255	215	25	0	0
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)	240	255	215	25	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	215				962	228
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215				962	228
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				100	100
cM capacity (veh/h)	1349				235	817

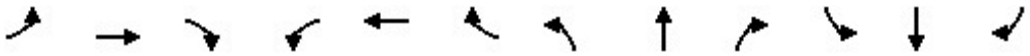
Direction, Lane #	EB 1	WB 1
Volume Total	495	240
Volume Left	240	0
Volume Right	0	25
cSH	1349	1700
Volume to Capacity	0.18	0.14
Queue Length 95th (ft)	16	0
Control Delay (s)	4.9	0.0
Lane LOS	A	
Approach Delay (s)	4.9	0.0
Approach LOS		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	49.6%	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)	45	110	65	70	160	40	40	440	90	45	400	65
Future Volume (vph)	45	110	65	70	160	40	40	440	90	45	400	65
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	10.0	10.0			10.0		5.0	10.0		5.0	10.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94			0.98		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1568	1546			1622		1614	1646		1599	1647	
Flt Permitted	0.29	1.00			0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	478	1546			1404		1614	1646		1599	1647	
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)	45	110	65	70	160	40	40	440	90	45	400	65
RTOR Reduction (vph)	0	17	0	0	5	0	0	6	0	0	5	0
Lane Group Flow (vph)	45	158	0	0	265	0	40	524	0	45	460	0
Confl. Peds. (#/hr)						1			4			
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)	15.1	15.1			24.1		6.3	40.0		6.5	40.2	
Effective Green, g (s)	15.1	15.1			24.1		6.3	40.0		6.5	40.2	
Actuated g/C Ratio	0.13	0.13			0.20		0.05	0.33		0.05	0.33	
Clearance Time (s)	10.0	10.0			10.0		5.0	10.0		5.0	10.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	59	193			280		84	545		86	548	
v/s Ratio Prot		c0.10					0.02	c0.32		c0.03	0.28	
v/s Ratio Perm	0.09				c0.19							
v/c Ratio	0.76	0.82			0.95		0.48	0.96		0.52	0.84	
Uniform Delay, d1	51.1	51.5			47.7		55.6	39.6		55.6	37.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	40.0	22.5			39.0		1.5	28.8		2.6	10.7	
Delay (s)	91.0	74.0			86.6		57.1	68.4		58.2	48.0	
Level of Service	F	E			F		E	E		E	D	
Approach Delay (s)		77.5			86.6			67.6			48.9	
Approach LOS		E			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	66.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.7	Sum of lost time (s)	35.0
Intersection Capacity Utilization	91.1%	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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	45	65	30	15	30	85	255	45	60	310	50
Future Volume (vph)	35	45	65	30	15	30	85	255	45	60	310	50
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)	35	45	65	30	15	30	85	255	45	60	310	50

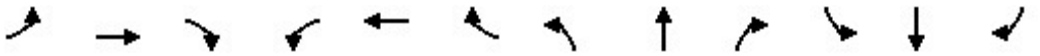
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	145	75	385	420
Volume Left (vph)	35	30	85	60
Volume Right (vph)	65	30	45	50
Hadj (s)	-0.07	-0.13	0.03	-0.01
Departure Headway (s)	6.1	6.2	5.2	5.2
Degree Utilization, x	0.24	0.13	0.56	0.60
Capacity (veh/h)	511	475	654	673
Control Delay (s)	11.0	10.1	14.7	15.6
Approach Delay (s)	11.0	10.1	14.7	15.6
Approach LOS	B	B	B	C

Intersection Summary				
Delay	14.2			
Level of Service	B			
Intersection Capacity Utilization	52.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	70	95	290	55	95	310
Future Volume (Veh/h)	70	95	290	55	95	310
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	70	95	290	55	95	310
Pedestrians	1					2
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	4.0					4.0
Percent Blockage	0					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	818	320			346	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	818	320			346	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	78	87			92	
cM capacity (veh/h)	319	721			1201	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	165	345	405
Volume Left	70	0	95
Volume Right	95	55	0
cSH	470	1700	1201
Volume to Capacity	0.35	0.20	0.08
Queue Length 95th (ft)	39	0	6
Control Delay (s)	16.8	0.0	2.5
Lane LOS	C		A
Approach Delay (s)	16.8	0.0	2.5
Approach LOS	C		

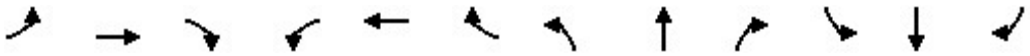
Intersection Summary			
Average Delay		4.1	
Intersection Capacity Utilization		64.5%	ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	20	95	10	15	15	85	310	25	30	315	35
Future Volume (Veh/h)	20	20	95	10	15	15	85	310	25	30	315	35
Sign Control		Stop			Stop			Free			Free	
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)	20	20	95	10	15	15	85	310	25	30	315	35
Pedestrians		2			1			1				
Lane Width (ft)		12.0			12.0			12.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	897	900	336	974	906	324	352			336		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	897	900	336	974	906	324	352			336		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	92	87	94	94	98	93			98		
cM capacity (veh/h)	225	251	705	173	249	715	1199			1211		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	115	40	85	335	30	350
Volume Left	20	0	10	85	0	30	0
Volume Right	0	95	15	0	25	0	35
cSH	225	536	288	1199	1700	1211	1700
Volume to Capacity	0.09	0.21	0.14	0.07	0.20	0.02	0.21
Queue Length 95th (ft)	7	20	12	6	0	2	0
Control Delay (s)	22.5	13.5	19.5	8.2	0.0	8.0	0.0
Lane LOS	C	B	C	A		A	
Approach Delay (s)	14.9		19.5	1.7		0.6	
Approach LOS	B		C				

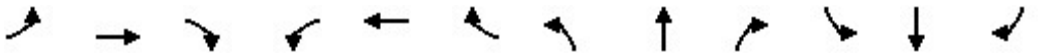
Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	44.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	175	40	70	265	90	60	165	55	180	330	15
Future Volume (vph)	5	175	40	70	265	90	60	165	55	180	330	15
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)	5	175	40	70	265	90	60	165	55	180	330	15

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	220	425	60	220	180	345
Volume Left (vph)	5	70	60	0	180	0
Volume Right (vph)	40	90	0	55	0	15
Hadj (s)	-0.10	-0.08	0.52	-0.16	0.53	0.00
Departure Headway (s)	7.6	7.0	8.7	8.0	8.2	7.7
Degree Utilization, x	0.47	0.82	0.14	0.49	0.41	0.73
Capacity (veh/h)	424	425	374	411	422	453
Control Delay (s)	17.1	34.7	11.9	17.1	15.6	27.8
Approach Delay (s)	17.1	34.7	16.0		23.6	
Approach LOS	C	D	C		C	

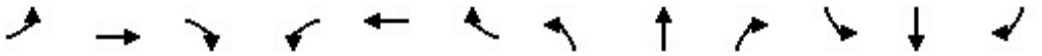
Intersection Summary				
Delay	24.4			
Level of Service	C			
Intersection Capacity Utilization	75.5%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	300	95	120	415	55	105	485	70	65	875	60
Future Volume (vph)	90	300	95	120	415	55	105	485	70	65	875	60
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.94	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	1637		1662	1710		1614	3228	1361	1630	3260	1358
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1630	1637		1662	1710		1614	3228	1361	1630	3260	1358
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)	90	300	95	120	415	55	105	485	70	65	875	60
RTOR Reduction (vph)	0	12	0	0	5	0	0	0	48	0	0	42
Lane Group Flow (vph)	90	383	0	120	465	0	105	485	22	65	875	18
Confl. Peds. (#/hr)	34		30	30		34	22		17	17		22
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	3%	3%	3%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.6	32.0		9.4	33.8		9.1	31.6	31.6	7.0	29.5	29.5
Effective Green, g (s)	7.6	32.0		9.4	33.8		9.1	31.6	31.6	7.0	29.5	29.5
Actuated g/C Ratio	0.08	0.32		0.09	0.34		0.09	0.32	0.32	0.07	0.29	0.29
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	123	523		156	577		146	1020	430	114	961	400
v/s Ratio Prot	0.06	0.23		c0.07	c0.27		c0.07	0.15		0.04	c0.27	
v/s Ratio Perm									0.02			0.01
v/c Ratio	0.73	0.73		0.77	0.81		0.72	0.48	0.05	0.57	0.91	0.04
Uniform Delay, d1	45.2	30.2		44.2	30.1		44.2	27.5	23.8	45.0	34.0	25.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.4	8.8		18.3	11.5		13.2	1.6	0.2	4.2	14.1	0.2
Delay (s)	62.6	39.0		62.6	41.6		57.4	29.1	24.0	49.3	48.1	25.4
Level of Service	E	D		E	D		E	C	C	D	D	C
Approach Delay (s)		43.4			45.9			33.1			46.8	
Approach LOS		D			D			C			D	

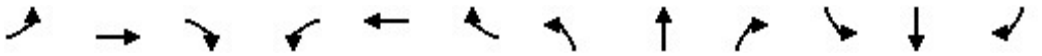
Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



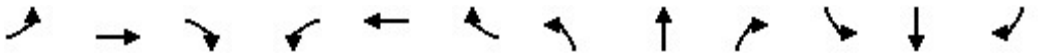
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	575	85	380	815	380	155	435	330	435	640	135
Future Volume (vph)	90	575	85	380	815	380	155	435	330	435	640	135
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	11	12	12	11	11	12	11	11	12	11	11
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1614	3060		3162	3151	1388	1646	3182	1407	3193	3182	1394
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1614	3060		3162	3151	1388	1646	3182	1407	3193	3182	1394
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)	90	575	85	380	815	380	155	435	330	435	640	135
RTOR Reduction (vph)	0	9	0	0	0	115	0	0	56	0	0	57
Lane Group Flow (vph)	90	651	0	380	815	265	155	435	274	435	640	78
Confl. Peds. (#/hr)						8			5			12
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8		7	4	5	1	6	7	5	2	3
Permitted Phases						4			6			2
Actuated Green, G (s)	13.5	31.6		20.0	38.1	58.9	15.9	37.6	57.6	20.8	42.5	56.0
Effective Green, g (s)	13.5	31.6		20.0	38.1	58.9	15.9	37.6	57.6	20.8	42.5	56.0
Actuated g/C Ratio	0.10	0.24		0.15	0.29	0.45	0.12	0.29	0.44	0.16	0.33	0.43
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	167	743		486	923	628	201	920	677	510	1040	654
v/s Ratio Prot	0.06	c0.21		0.12	c0.26	0.07	c0.09	0.14	0.06	c0.14	c0.20	0.01
v/s Ratio Perm						0.12			0.13			0.04
v/c Ratio	0.54	0.88		0.78	0.88	0.42	0.77	0.47	0.40	0.85	0.62	0.12
Uniform Delay, d1	55.3	47.3		52.9	43.8	24.0	55.3	38.0	24.6	53.1	36.9	22.2
Progression Factor	1.00	1.00		1.08	0.67	0.55	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	11.0		4.7	6.4	0.1	15.2	1.7	0.1	12.6	2.7	0.0
Delay (s)	57.0	58.3		61.8	36.0	13.2	70.5	39.8	24.7	65.7	39.6	22.2
Level of Service	E	E		E	D	B	E	D	C	E	D	C
Approach Delay (s)		58.1			36.7			39.6			47.0	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.9%	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	1085	255	480	1425	0	0	0	0	940	5	150
Future Volume (vph)	0	1085	255	480	1425	0	0	0	0	940	5	150
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	12	12	11	11	12	12	12	12	12	12	11
Total Lost time (s)		6.0		6.0	7.5					7.9	7.9	7.9
Lane Util. Factor		0.91		0.97	0.95					0.95	0.91	0.95
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4550		3027	3121					1548	1483	1339
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4550		3027	3121					1548	1483	1339
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	1085	255	480	1425	0	0	0	0	940	5	150
RTOR Reduction (vph)	0	29	0	0	0	0	0	0	0	0	1	60
Lane Group Flow (vph)	0	1311	0	480	1425	0	0	0	0	479	480	75
Confl. Peds. (#/hr)						4						
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Prot	NA					Split	NA	Perm
Protected Phases		2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)		45.0		23.0	72.5					42.1	42.1	42.1
Effective Green, g (s)		45.0		23.0	72.5					42.1	42.1	42.1
Actuated g/C Ratio		0.35		0.18	0.56					0.32	0.32	0.32
Clearance Time (s)		6.0		6.0	7.5					7.9	7.9	7.9
Vehicle Extension (s)		2.0		2.5	2.5					4.0	4.0	4.0
Lane Grp Cap (vph)		1575		535	1740					501	480	433
v/s Ratio Prot		0.29		0.16	c0.46					0.31	c0.32	
v/s Ratio Perm												0.06
v/c Ratio		0.83		0.90	0.82					0.96	1.00	0.17
Uniform Delay, d1		39.0		52.3	23.4					43.0	44.0	31.5
Progression Factor		1.01		1.01	0.85					1.00	1.00	1.00
Incremental Delay, d2		3.5		13.7	3.3					29.3	41.2	0.3
Delay (s)		43.1		66.3	23.1					72.3	85.2	31.8
Level of Service		D		E	C					E	F	C
Approach Delay (s)		43.1			34.0			0.0			73.0	
Approach LOS		D			C			A			E	

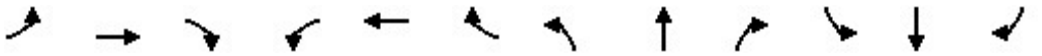
Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.9
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1765	260	0	1755	1130	150	0	750	0	0	0
Future Volume (vph)	0	1765	260	0	1755	1130	150	0	750	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	12	12	12	12	12	12	15	16	12	12	12
Total Lost time (s)		5.9	5.9		5.9	4.0		5.9	4.0			
Lane Util. Factor		0.95	1.00		0.95	1.00		1.00	1.00			
Frt		1.00	0.85		1.00	0.85		1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00		0.95	1.00			
Satd. Flow (prot)		3260	1458		3260	1458		1775	1637			
Flt Permitted		1.00	1.00		1.00	1.00		0.95	1.00			
Satd. Flow (perm)		3260	1458		3260	1458		1775	1637			
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	1765	260	0	1755	1130	150	0	750	0	0	0
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1765	203	0	1755	1130	0	150	750	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	0%	0%	0%
Turn Type		NA	Perm		NA	Free	Split	NA	Free			
Protected Phases		2			6		8	8				
Permitted Phases			2			Free			Free			
Actuated Green, G (s)		101.5	101.5		101.5	130.0		16.7	130.0			
Effective Green, g (s)		101.5	101.5		101.5	130.0		16.7	130.0			
Actuated g/C Ratio		0.78	0.78		0.78	1.00		0.13	1.00			
Clearance Time (s)		5.9	5.9		5.9			5.9				
Vehicle Extension (s)		4.0	4.0		4.0			3.5				
Lane Grp Cap (vph)		2545	1138		2545	1458		228	1637			
v/s Ratio Prot		0.54			0.54			0.08				
v/s Ratio Perm			0.14			c0.77			0.46			
v/c Ratio		0.69	0.18		0.69	0.78		0.66	0.46			
Uniform Delay, d1		6.8	3.6		6.8	0.0		53.9	0.0			
Progression Factor		1.27	3.68		1.00	1.00		1.00	1.00			
Incremental Delay, d2		0.7	0.1		1.6	4.1		7.0	0.9			
Delay (s)		9.3	13.5		8.3	4.1		60.9	0.9			
Level of Service		A	B		A	A		E	A			
Approach Delay (s)		9.8			6.7			10.9			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	0	45	0	0	0	0	155	350	220	560	0
Future Volume (Veh/h)	100	0	45	0	0	0	0	155	350	220	560	0
Sign Control		Stop			Stop			Free			Free	
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)	100	0	45	0	0	0	0	155	350	220	560	0
Pedestrians		4			7			1				
Lane Width (ft)		12.0			0.0			12.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1334	1166	565	1338	1341	337	564			162		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1334	1166	565	1338	1341	337	564			162		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	12	100	91	100	100	100	100			84		
cM capacity (veh/h)	114	162	520	105	129	710	1004			1411		

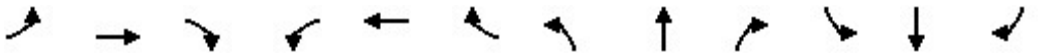
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	100	45	505	220	560
Volume Left	100	0	0	220	0
Volume Right	0	45	350	0	0
cSH	114	520	1700	1411	1700
Volume to Capacity	0.88	0.09	0.30	0.16	0.33
Queue Length 95th (ft)	133	7	0	14	0
Control Delay (s)	124.0	12.6	0.0	8.0	0.0
Lane LOS	F	B		A	
Approach Delay (s)	89.4		0.0	2.3	
Approach LOS	F				

Intersection Summary				
Average Delay	10.3			
Intersection Capacity Utilization	62.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	255	315	255	0	0	525
Future Volume (Veh/h)	255	315	255	0	0	525
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	255	315	255	0	0	525
Pedestrians	7					3
Lane Width (ft)	13.0					11.0
Walking Speed (ft/s)	4.0					4.0
Percent Blockage	1					0
Right turn flare (veh)		16				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	787	265			262	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	787	265			262	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	29	59			100	
cM capacity (veh/h)	357	765			1283	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	570	255	525
Volume Left	255	0	0
Volume Right	315	0	0
cSH	797	1700	1700
Volume to Capacity	0.71	0.15	0.31
Queue Length 95th (ft)	154	0	0
Control Delay (s)	23.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	23.6	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	10.0		
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	15	20	0	20	15	410	25	20	385	0
Future Volume (Veh/h)	0	0	15	20	0	20	15	410	25	20	385	0
Sign Control		Stop			Stop			Free			Free	
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)	0	0	15	20	0	20	15	410	25	20	385	0
Pedestrians		2			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	887	893	387	894	880	424	387			436		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	887	893	387	894	880	424	387			436		
tC, single (s)	8.1	7.5	7.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.9	4.2	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	92	100	97	99			98		
cM capacity (veh/h)	172	191	490	246	275	628	1153			1112		

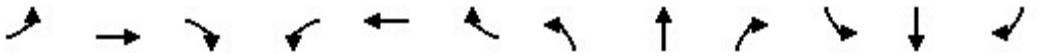
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	40	15	435	20	385
Volume Left	0	20	15	0	20	0
Volume Right	15	20	0	25	0	0
cSH	490	354	1153	1700	1112	1700
Volume to Capacity	0.03	0.11	0.01	0.26	0.02	0.23
Queue Length 95th (ft)	2	9	1	0	1	0
Control Delay (s)	12.6	16.5	8.2	0.0	8.3	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	12.6	16.5	0.3		0.4	
Approach LOS	B	C				

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	40.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	40	410	25	25	395
Future Volume (Veh/h)	20	40	410	25	25	395
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	20	40	410	25	25	395
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			751			
pX, platoon unblocked	0.98	0.98			0.98	
vC, conflicting volume	868	424			435	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	854	401			413	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	94	94			98	
cM capacity (veh/h)	315	635			1102	

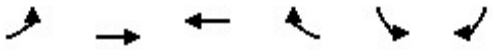
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	60	435	420
Volume Left	20	0	25
Volume Right	40	25	0
cSH	474	1700	1102
Volume to Capacity	0.13	0.26	0.02
Queue Length 95th (ft)	11	0	2
Control Delay (s)	13.7	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	13.7	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		55.7%	ICU Level of Service B
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	385	110	115	325	185	150	150	20	95	170	150
Future Volume (vph)	100	385	110	115	325	185	150	150	20	95	170	150
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0		11.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.98		0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00		1.00	
Frt	1.00	0.97		1.00	0.95		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1581	1611		1614	1592		1513	1606	1334		2895	
Flt Permitted	0.30	1.00		0.32	1.00		0.51	1.00	1.00		0.83	
Satd. Flow (perm)	506	1611		547	1592		810	1606	1334		2433	
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)	100	385	110	115	325	185	150	150	20	95	170	150
RTOR Reduction (vph)	0	10	0	0	20	0	0	0	12	0	62	0
Lane Group Flow (vph)	100	485	0	115	490	0	150	150	8	0	353	0
Confl. Peds. (#/hr)	2					2	8		2	2		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	9%	9%	9%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	33.4	33.4		33.4	33.4		36.3	36.3	36.3		36.3	
Effective Green, g (s)	33.4	33.4		33.4	33.4		36.3	36.3	36.3		36.3	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.40	0.40	0.40		0.40	
Clearance Time (s)	11.0	11.0		11.0	11.0		11.0	11.0	11.0		11.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	184	586		199	579		320	635	528		963	
v/s Ratio Prot		0.30			c0.31			0.09				
v/s Ratio Perm	0.20			0.21			c0.19		0.01		0.14	
v/c Ratio	0.54	0.83		0.58	0.85		0.47	0.24	0.01		0.37	
Uniform Delay, d1	23.1	26.5		23.5	26.8		20.5	18.5	16.8		19.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.8	8.9		2.5	10.5		0.4	0.1	0.0		0.1	
Delay (s)	24.9	35.5		26.0	37.3		20.9	18.5	16.8		19.7	
Level of Service	C	D		C	D		C	B	B		B	
Approach Delay (s)		33.7			35.2			19.6			19.7	
Approach LOS		C			D			B			B	

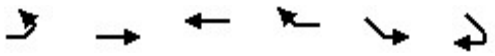
Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	91.7	Sum of lost time (s)	22.0
Intersection Capacity Utilization	124.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	500	470	0	225	155
Future Volume (Veh/h)	0	500	470	0	225	155
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)	0	500	470	0	225	155
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		273				
pX, platoon unblocked					0.75	
vC, conflicting volume	470				970	470
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	470				789	470
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				16	74
cM capacity (veh/h)	1086				268	594

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	500	470	225	155
Volume Left	0	0	225	0
Volume Right	0	0	0	155
cSH	1700	1700	268	594
Volume to Capacity	0.29	0.28	0.84	0.26
Queue Length 95th (ft)	0	0	172	26
Control Delay (s)	0.0	0.0	62.2	13.2
Lane LOS			F	B
Approach Delay (s)	0.0	0.0	42.2	
Approach LOS			E	

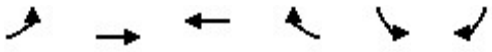
Intersection Summary			
Average Delay	11.9		
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	725	470	445	0	0
Future Volume (Veh/h)	0	725	470	445	0	0
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)	0	725	470	445	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)		1187				
pX, platoon unblocked					0.82	
vC, conflicting volume	915				1418	692
vC1, stage 1 conf vol					692	
vC2, stage 2 conf vol					725	
vCu, unblocked vol	915				1399	692
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	745				359	447

Direction, Lane #	EB 1	WB 1
Volume Total	725	915
Volume Left	0	0
Volume Right	0	445
cSH	1700	1700
Volume to Capacity	0.43	0.54
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

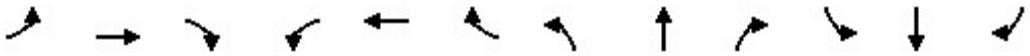
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	705	910	5	5	5
Future Volume (Veh/h)	20	705	910	5	5	5
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)	20	705	910	5	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	915				1658	912
vC1, stage 1 conf vol					912	
vC2, stage 2 conf vol					745	
vCu, unblocked vol	915				1658	912
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				98	99
cM capacity (veh/h)	737				310	334

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	725	915	10
Volume Left	20	0	5
Volume Right	0	5	5
cSH	737	1700	322
Volume to Capacity	0.03	0.54	0.03
Queue Length 95th (ft)	2	0	2
Control Delay (s)	0.7	0.0	16.6
Lane LOS	A		C
Approach Delay (s)	0.7	0.0	16.6
Approach LOS			C

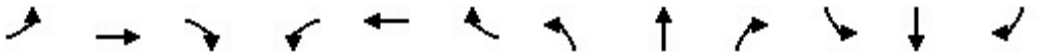
Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		67.8%	ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	690	5	10	870	25	10	0	5	20	0	35
Future Volume (Veh/h)	15	690	5	10	870	25	10	0	5	20	0	35
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)	15	690	5	10	870	25	10	0	5	20	0	35
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					1209							
pX, platoon unblocked	0.86						0.86	0.86		0.86	0.86	0.86
vC, conflicting volume	895			695			1648	1638	692	1628	1628	882
vC1, stage 1 conf vol							722	722		902	902	
vC2, stage 2 conf vol							925	915		725	725	
vCu, unblocked vol	793			695			1672	1661	692	1649	1649	779
tC, single (s)	4.1			4.1			7.2	6.6	6.3	7.1	6.5	6.2
tC, 2 stage (s)							6.2	5.6		6.1	5.5	
tF (s)	2.2			2.2			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	98			99			95	100	99	92	100	90
cM capacity (veh/h)	705			896			210	246	424	251	267	342

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	15	695	10	895	15	55
Volume Left	15	0	10	0	10	20
Volume Right	0	5	0	25	5	35
cSH	705	1700	896	1700	252	302
Volume to Capacity	0.02	0.41	0.01	0.53	0.06	0.18
Queue Length 95th (ft)	2	0	1	0	5	16
Control Delay (s)	10.2	0.0	9.1	0.0	20.2	19.6
Lane LOS	B		A		C	C
Approach Delay (s)	0.2		0.1		20.2	19.6
Approach LOS					C	C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	675	10	10	830	95	15	10	25	75	5	60
Future Volume (Veh/h)	30	675	10	10	830	95	15	10	25	75	5	60
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)	30	675	10	10	830	95	15	10	25	75	5	60
Pedestrians		2			3			3			3	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)					705							
pX, platoon unblocked	0.85						0.85	0.85		0.85	0.85	0.85
vC, conflicting volume	928			688			1658	1691	686	1621	1601	835
vC1, stage 1 conf vol							743	743		853	853	
vC2, stage 2 conf vol							914	948		768	748	
vCu, unblocked vol	828			688			1685	1724	686	1642	1619	719
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			92	96	94	69	98	84
cM capacity (veh/h)	675			899			198	238	449	241	270	365

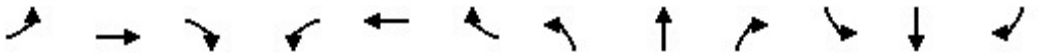
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	30	685	840	95	50	140
Volume Left	30	0	10	0	15	75
Volume Right	0	10	0	95	25	60
cSH	675	1700	899	1700	288	283
Volume to Capacity	0.04	0.40	0.01	0.06	0.17	0.49
Queue Length 95th (ft)	3	0	1	0	15	64
Control Delay (s)	10.6	0.0	0.3	0.0	20.1	29.5
Lane LOS	B		A		C	D
Approach Delay (s)	0.4		0.3		20.1	29.5
Approach LOS					C	D

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	78.2%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	775	0	0	760	175	200
Future Volume (Veh/h)	775	0	0	760	175	200
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)	775	0	0	760	175	200
Pedestrians				1	2	
Lane Width (ft)				11.0	13.5	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				0	0	
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				469		
pX, platoon unblocked					0.94	
vC, conflicting volume			777		1157	778
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			777		1041	778
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		14	39
cM capacity (veh/h)			827		204	328

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	775	380	380	375
Volume Left	0	0	0	175
Volume Right	0	0	0	200
cSH	1700	1700	1700	292
Volume to Capacity	0.46	0.22	0.22	1.28
Queue Length 95th (ft)	0	0	0	454
Control Delay (s)	0.0	0.0	0.0	187.5
Lane LOS				F
Approach Delay (s)	0.0	0.0		187.5
Approach LOS				F

Intersection Summary			
Average Delay	36.8		
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	75	10	60	85	160	0	0	0	455	45	40
Future Volume (vph)	60	75	10	60	85	160	0	0	0	455	45	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0	4.0					4.0	
Lane Util. Factor		1.00			1.00	1.00					1.00	
Frpb, ped/bikes		1.00			1.00	0.99					1.00	
Flpb, ped/bikes		1.00			0.99	1.00					1.00	
Frt		0.99			1.00	0.85					0.99	
Flt Protected		0.98			0.98	1.00					0.96	
Satd. Flow (prot)		1674			1706	1476					1639	
Flt Permitted		0.82			0.85	1.00					0.96	
Satd. Flow (perm)		1401			1482	1476					1639	
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)	60	75	10	60	85	160	0	0	0	455	45	40
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	0	0	0	0
Lane Group Flow (vph)	0	145	0	0	145	120	0	0	0	0	540	0
Confl. Peds. (#/hr)	5		9	9		5	22		7	7		22
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA	pm+ov				Split	NA	
Protected Phases		4			8	6				6	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)		12.2			12.2	43.7					31.5	
Effective Green, g (s)		12.2			12.2	43.7					31.5	
Actuated g/C Ratio		0.21			0.21	0.75					0.54	
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)		292			309	1205					884	
v/s Ratio Prot						0.05					c0.33	
v/s Ratio Perm		c0.10			0.10	0.03						
v/c Ratio		0.50			0.47	0.10					0.61	
Uniform Delay, d1		20.4			20.3	2.0					9.2	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		1.3			1.1	0.0					1.3	
Delay (s)		21.7			21.4	2.0					10.5	
Level of Service		C			C	A					B	
Approach Delay (s)		21.7			11.2			0.0			10.5	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

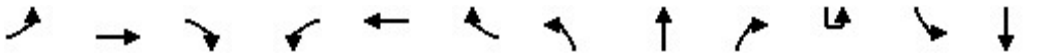
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	115	125	290	115	80	45	5	210	795	90	120	1020
Future Volume (vph)	115	125	290	115	80	45	5	210	795	90	120	1020
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		8.0	8.0		8.0	8.0		5.5	8.5	8.5	5.5	8.5
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes		1.00	0.97		1.00	0.98		1.00	1.00	0.82	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.98	1.00		0.97	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1692	1432		1700	1457		1630	3260	1195	1630	3252
Flt Permitted		0.98	1.00		0.97	1.00		0.09	1.00	1.00	0.28	1.00
Satd. Flow (perm)		1692	1432		1700	1457		149	3260	1195	475	3252
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)	115	125	290	115	80	45	5	210	795	90	120	1020
RTOR Reduction (vph)	0	0	243	0	0	38	0	0	0	55	0	1
Lane Group Flow (vph)	0	240	47	0	195	7	0	215	795	35	120	1034
Confl. Peds. (#/hr)			9			5				35		
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3	3		4	4		5	5	2		1	6
Permitted Phases			3			4	2	2		2	6	
Actuated Green, G (s)		22.6	22.6		21.5	21.5		71.7	55.3	55.3	59.2	48.3
Effective Green, g (s)		22.6	22.6		21.5	21.5		71.7	55.3	55.3	59.2	48.3
Actuated g/C Ratio		0.16	0.16		0.15	0.15		0.51	0.39	0.39	0.42	0.34
Clearance Time (s)		8.0	8.0		8.0	8.0		5.5	8.5	8.5	5.5	8.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		272	230		260	223		265	1284	471	290	1119
v/s Ratio Prot		c0.14			c0.11			c0.10	0.24		0.03	c0.32
v/s Ratio Perm			0.03			0.00		0.31		0.03	0.14	
v/c Ratio		0.88	0.20		0.75	0.03		0.81	0.62	0.08	0.41	0.92
Uniform Delay, d1		57.5	51.0		56.8	50.5		36.8	34.1	26.5	25.8	44.2
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		26.7	0.4		11.5	0.1		16.9	0.9	0.1	1.0	12.5
Delay (s)		84.2	51.5		68.3	50.6		53.8	35.0	26.6	26.7	56.8
Level of Service		F	D		E	D		D	C	C	C	E
Approach Delay (s)		66.3			65.0				38.0			53.6
Approach LOS		E			E				D			D

Intersection Summary			
HCM 2000 Control Delay	51.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.3	Sum of lost time (s)	30.0
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	15
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	215	415	345	240	315	150	305	730	60	5	155	1130
Future Volume (vph)	215	415	345	240	315	150	305	730	60	5	155	1130
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	11	11	12	11	12	12	12	12	12	12	12	12
Total Lost time (s)	5.5	8.9	5.5	5.5	8.9		5.5	9.3	5.5		5.5	9.3
Lane Util. Factor	0.97	1.00	1.00	0.97	0.95		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.95		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3027	1642	1427	2941	2964		1630	3260	1391		1614	3228
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3027	1642	1427	2941	2964		1630	3260	1391		1614	3228
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)	215	415	345	240	315	150	305	730	60	5	155	1130
RTOR Reduction (vph)	0	0	43	0	32	0	0	0	32	0	0	0
Lane Group Flow (vph)	215	415	302	240	433	0	305	730	28	0	160	1130
Confl. Peds. (#/hr)			6			6			33			
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	Prot	NA
Protected Phases	7	4	5!	3	8		5	2	3	1	1	6
Permitted Phases			4						2			
Actuated Green, G (s)	25.2	38.8	63.8	18.5	32.1		25.0	61.3	79.8		20.7	57.0
Effective Green, g (s)	25.2	38.8	63.8	18.5	32.1		25.0	61.3	79.8		20.7	57.0
Actuated g/C Ratio	0.15	0.23	0.38	0.11	0.19		0.15	0.36	0.47		0.12	0.34
Clearance Time (s)	5.5	8.9	5.5	5.5	8.9		5.5	9.3	5.5		5.5	9.3
Vehicle Extension (s)	2.5	3.0	2.5	2.5	3.0		2.5	4.0	2.5		2.5	4.0
Lane Grp Cap (vph)	452	378	540	322	564		241	1185	658		198	1091
v/s Ratio Prot	0.07	c0.25	0.08	0.08	c0.15		c0.19	c0.22	0.00		0.10	c0.35
v/s Ratio Perm			0.13						0.02			
v/c Ratio	0.48	1.10	0.56	0.75	0.77		1.27	0.62	0.04		0.81	1.04
Uniform Delay, d1	65.6	64.8	41.2	72.7	64.7		71.8	44.0	23.8		72.0	55.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.6	75.3	1.0	8.6	6.2		148.2	1.1	0.0		20.4	36.9
Delay (s)	66.2	140.1	42.3	81.3	70.8		220.0	45.0	23.9		92.4	92.7
Level of Service	E	F	D	F	E		F	D	C		F	F
Approach Delay (s)		89.2			74.4			92.6				85.9
Approach LOS		F			E			F				F

Intersection Summary			
HCM 2000 Control Delay	86.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	168.5	Sum of lost time (s)	29.2
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	140
Future Volume (vph)	140
Ideal Flow (vphpl)	1750
Lane Width	11
Total Lost time (s)	5.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.99
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1383
Flt Permitted	1.00
Satd. Flow (perm)	1383
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	140
RTOR Reduction (vph)	52
Lane Group Flow (vph)	88
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	3%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	82.2
Effective Green, g (s)	82.2
Actuated g/C Ratio	0.49
Clearance Time (s)	5.5
Vehicle Extension (s)	2.5
Lane Grp Cap (vph)	674
v/s Ratio Prot	0.02
v/s Ratio Perm	0.04
v/c Ratio	0.13
Uniform Delay, d1	23.6
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	23.7
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

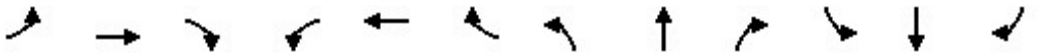
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	350	45	35	290	30	45
Future Volume (Veh/h)	350	45	35	290	30	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	350	45	35	290	30	45
Pedestrians				1	2	
Lane Width (ft)				12.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1052					
pX, platoon unblocked						
vC, conflicting volume			397		590	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			397		590	200
tC, single (s)			4.4		7.3	7.4
tC, 2 stage (s)						
tF (s)			2.3		3.8	3.6
p0 queue free %			97		92	94
cM capacity (veh/h)			1081		374	736

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	233	162	132	193	75
Volume Left	0	0	35	0	30
Volume Right	0	45	0	0	45
cSH	1700	1700	1081	1700	530
Volume to Capacity	0.14	0.10	0.03	0.11	0.14
Queue Length 95th (ft)	0	0	3	0	12
Control Delay (s)	0.0	0.0	2.5	0.0	12.9
Lane LOS			A		B
Approach Delay (s)	0.0		1.0		12.9
Approach LOS					B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	0	0	30	1090	355	5	405	1810
Future Volume (vph)	0	0	30	1090	355	5	405	1810
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	12	12	11	13	12	11	12
Total Lost time (s)			5.5	6.3	6.3		5.5	6.3
Lane Util. Factor			1.00	0.95	1.00		1.00	0.91
Frpb, ped/bikes			1.00	1.00	0.93		1.00	1.00
Flpb, ped/bikes			1.00	1.00	1.00		1.00	1.00
Frt			1.00	1.00	0.85		1.00	1.00
Flt Protected			0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)			1614	3121	1392		1576	4684
Flt Permitted			0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)			1614	3121	1392		1576	4684
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	30	1090	355	5	405	1810
RTOR Reduction (vph)	0	0	0	0	151	0	0	0
Lane Group Flow (vph)	0	0	30	1090	204	0	410	1810
Confl. Peds. (#/hr)					17			
Heavy Vehicles (%)	0%	0%	3%	3%	3%	2%	2%	2%
Turn Type			Prot	NA	Perm	Prot	Prot	NA
Protected Phases			5	2		1 8	1 8	6
Permitted Phases					2			
Actuated Green, G (s)			2.8	42.1	42.1		31.3	61.2
Effective Green, g (s)			2.8	42.1	42.1		26.3	61.2
Actuated g/C Ratio			0.03	0.49	0.49		0.31	0.72
Clearance Time (s)			5.5	6.3	6.3			6.3
Vehicle Extension (s)			2.5	4.0	4.0			4.0
Lane Grp Cap (vph)			53	1542	687		486	3364
v/s Ratio Prot			0.02	c0.35			c0.26	0.39
v/s Ratio Perm					0.15			
v/c Ratio			0.57	0.71	0.30		0.84	0.54
Uniform Delay, d1			40.6	16.8	12.8		27.5	5.5
Progression Factor			1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2			10.7	1.6	0.3		12.6	0.2
Delay (s)			51.4	18.4	13.1		40.1	5.7
Level of Service			D	B	B		D	A
Approach Delay (s)	0.0			17.8				12.1
Approach LOS	A			B				B

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	16.8
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	365	70	210	500	200	50	135	115	145	230	65
Future Volume (vph)	40	365	70	210	500	200	50	135	115	145	230	65
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1599	1635		1646	1647		1643	1596		1646	1664	
Flt Permitted	0.23	1.00		0.34	1.00		0.39	1.00		0.25	1.00	
Satd. Flow (perm)	395	1635		585	1647		679	1596		426	1664	
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	365	70	210	500	200	50	135	115	145	230	65
RTOR Reduction (vph)	0	4	0	0	7	0	0	25	0	0	8	0
Lane Group Flow (vph)	40	431	0	210	693	0	50	225	0	145	287	0
Confl. Peds. (#/hr)	1		2	2		1	3		1	1		3
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	70.5	65.4		85.0	74.9		32.5	26.0		45.0	33.5	
Effective Green, g (s)	70.5	65.4		85.0	74.9		32.5	26.0		45.0	33.5	
Actuated g/C Ratio	0.50	0.47		0.61	0.54		0.23	0.19		0.32	0.24	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	242	763		465	881		202	296		258	398	
v/s Ratio Prot	0.01	0.26		c0.05	c0.42		0.01	0.14		c0.06	c0.17	
v/s Ratio Perm	0.08			0.23			0.05			0.12		
v/c Ratio	0.17	0.57		0.45	0.79		0.25	0.76		0.56	0.72	
Uniform Delay, d1	20.4	27.0		15.0	26.1		42.8	54.0		36.7	49.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	3.0		0.3	7.0		0.2	10.7		1.7	5.4	
Delay (s)	20.6	30.0		15.3	33.2		43.1	64.7		38.4	54.4	
Level of Service	C	C		B	C		D	E		D	D	
Approach Delay (s)		29.2			29.1			61.1			49.1	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	630	305	220	80
Future Volume (Veh/h)	0	0	630	305	220	80
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	630	305	220	80
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1825	260	300			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1825	260	300			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	50			
cM capacity (veh/h)	43	784	1267			

Direction, Lane #	NB 1	SB 1
Volume Total	935	300
Volume Left	630	0
Volume Right	0	80
cSH	1267	1700
Volume to Capacity	0.50	0.18
Queue Length 95th (ft)	72	0
Control Delay (s)	9.3	0.0
Lane LOS	A	
Approach Delay (s)	9.3	0.0
Approach LOS		

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	660	0	875	220	0
Future Volume (Veh/h)	60	660	0	875	220	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	60	660	0	875	220	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		5				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1095	220	220			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1095	220	220			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	20	100			
cM capacity (veh/h)	238	822	1355			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	720	875	220
Volume Left	60	0	0
Volume Right	660	0	0
cSH	897	1700	1700
Volume to Capacity	0.80	0.51	0.13
Queue Length 95th (ft)	219	0	0
Control Delay (s)	24.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	24.6	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	9.8		
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	25	60	1610	710	850	250	155	25	20	0	0
Future Volume (vph)	25	60	1610	710	850	250	155	25	20	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Lane Util. Factor		1.00	0.91	0.95	0.95	1.00	1.00	1.00			
Frpb, ped/bikes		1.00	1.00	1.00	1.00	0.97	1.00	1.00			
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	1.00	0.98	0.85	0.85	1.00	0.85			
Flt Protected		0.95	1.00	1.00	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1630	4684	1593	1385	1414	1630	1458			
Flt Permitted		0.95	1.00	1.00	1.00	1.00	0.95	1.00			
Satd. Flow (perm)		1630	4684	1593	1385	1414	1630	1458			
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
Adj. Flow (vph)	25	60	1610	710	850	250	155	25	20	0	0
RTOR Reduction (vph)	0	0	0	0	0	35	0	39	0	0	0
Lane Group Flow (vph)	0	85	1610	838	722	215	155	6	0	0	0
Confl. Peds. (#/hr)		5				5					
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%
Turn Type	Prot	Prot	NA	NA	Perm	Perm	Prot	Perm			
Protected Phases	7	7	4	8			1				
Permitted Phases					8	8		1			
Actuated Green, G (s)		9.3	76.2	61.9	61.9	61.9	13.8	13.8			
Effective Green, g (s)		9.3	76.2	61.9	61.9	61.9	13.8	13.8			
Actuated g/C Ratio		0.09	0.76	0.62	0.62	0.62	0.14	0.14			
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Vehicle Extension (s)		3.0	4.0	4.0	4.0	4.0	2.0	2.0			
Lane Grp Cap (vph)		151	3569	986	857	875	224	201			
v/s Ratio Prot		0.05	c0.34	c0.53			c0.10				
v/s Ratio Perm					0.52	0.15		0.00			
v/c Ratio		0.56	0.45	0.85	0.84	0.25	0.69	0.03			
Uniform Delay, d1		43.4	4.3	15.3	15.2	8.6	41.1	37.3			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		4.7	0.4	9.1	9.9	0.7	7.2	0.0			
Delay (s)		48.1	4.7	24.4	25.0	9.2	48.3	37.3			
Level of Service		D	A	C	C	A	D	D			
Approach Delay (s)			6.9	22.6			45.8			0.0	
Approach LOS			A	C			D			A	

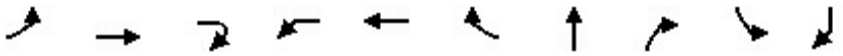
Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	875	755	40	725
Future Volume (Veh/h)	0	0	875	755	40	725
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	875	755	40	725
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1052			
pX, platoon unblocked						
vC, conflicting volume	1680	875			875	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1680	875			875	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			95	
cM capacity (veh/h)	100	351			776	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	875	755	40	725
Volume Left	0	0	40	0
Volume Right	0	755	0	0
cSH	1700	1700	776	1700
Volume to Capacity	0.51	0.44	0.05	0.43
Queue Length 95th (ft)	0	0	4	0
Control Delay (s)	0.0	0.0	9.9	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.5	
Approach LOS				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBT	NBR	SBL	SBR
Lane Configurations										
Traffic Volume (vph)	130	105	150	175	0	110	585	160	50	800
Future Volume (vph)	130	105	150	175	0	110	585	160	50	800
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	14	12	16	11	12	12	11	12	11	12
Total Lost time (s)		5.0	4.0	5.0	5.0		5.0		5.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95		0.91		1.00	0.88
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00		1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00		1.00	1.00
Frt		1.00	0.85	1.00	0.88		0.97		1.00	1.00
Flt Protected		0.97	1.00	0.95	0.99		1.00		0.95	1.00
Satd. Flow (prot)		1686	1649	1527	1447		4425		1591	3011
Flt Permitted		0.97	1.00	0.95	0.95		1.00		0.95	1.00
Satd. Flow (perm)		1686	1649	1527	1395		4425		1591	3011
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	130	105	150	175	0	110	585	160	50	800
RTOR Reduction (vph)	0	0	0	0	77	0	41	0	0	0
Lane Group Flow (vph)	0	235	150	149	59	0	704	0	50	800
Confl. Peds. (#/hr)			1							1
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%
Turn Type	Split	NA	Free	Prot	NA		NA		Prot	Perm
Protected Phases	4!	4		3	8!		2		1	
Permitted Phases			Free							6
Actuated Green, G (s)		19.2	100.0	17.3	41.5		36.0		7.5	48.5
Effective Green, g (s)		19.2	100.0	17.3	41.5		36.0		7.5	49.5
Actuated g/C Ratio		0.19	1.00	0.17	0.42		0.36		0.08	0.50
Clearance Time (s)		5.0		5.0	5.0		5.0		5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)		323	1649	264	587		1593		119	1490
v/s Ratio Prot		c0.14		c0.10	0.02		0.16		0.03	
v/s Ratio Perm			0.09		0.02					c0.27
v/c Ratio		0.73	0.09	0.56	0.10		0.44		0.42	0.54
Uniform Delay, d1		37.9	0.0	37.9	17.9		24.4		44.2	17.4
Progression Factor		1.00	1.00	1.00	1.00		0.95		1.00	1.00
Incremental Delay, d2		7.9	0.1	2.8	0.1		0.7		2.4	1.4
Delay (s)		45.9	0.1	40.6	17.9		23.7		46.6	18.8
Level of Service		D	A	D	B		C		D	B
Approach Delay (s)		28.0			29.8		23.7			
Approach LOS		C			C		C			

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBR	EBR2	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations									
Traffic Volume (vph)	230	90	405	1210	515	0	0	0	0
Future Volume (vph)	230	90	405	1210	515	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	10	12	12	11	11	12	12	12	12
Total Lost time (s)	5.0		5.0	5.0	5.0				
Lane Util. Factor	1.00		0.95	0.86	0.86				
Frt	0.94		0.85	1.00	1.00				
Flt Protected	0.97		1.00	0.95	0.97				
Satd. Flow (prot)	1463		1385	1368	4208				
Flt Permitted	0.97		1.00	0.95	0.97				
Satd. Flow (perm)	1463		1385	1368	4208				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	230	90	405	1210	515	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	377	0	348	605	1120	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	0%	0%	0%	0%
Turn Type	Prot		custom	Split	NA				
Protected Phases	4		2 4	2	2				
Permitted Phases									
Actuated Green, G (s)	25.0		86.4	56.4	56.4				
Effective Green, g (s)	25.0		86.4	56.4	56.4				
Actuated g/C Ratio	0.25		0.86	0.56	0.56				
Clearance Time (s)	5.0			5.0	5.0				
Vehicle Extension (s)	3.0			3.0	3.0				
Lane Grp Cap (vph)	365		1196	771	2373				
v/s Ratio Prot	c0.26		0.25	c0.44	0.27				
v/s Ratio Perm									
v/c Ratio	1.03		0.29	0.78	0.47				
Uniform Delay, d1	37.5		1.2	17.1	13.0				
Progression Factor	1.00		1.00	1.00	1.00				
Incremental Delay, d2	55.8		0.1	7.9	0.7				
Delay (s)	93.3		1.4	24.9	13.6				
Level of Service	F		A	C	B				
Approach Delay (s)	49.2				17.6	0.0		0.0	
Approach LOS	D				B	A		A	

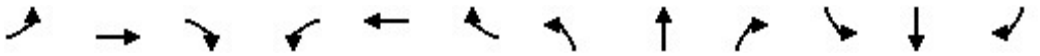
Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	355	0	0	405	0
Future Volume (Veh/h)	0	355	0	0	405	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	355	0	0	405	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				411	273	
pX, platoon unblocked						
vC, conflicting volume	405	405	405			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	405	405	405			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	45	100			
cM capacity (veh/h)	602	646	1165			

Direction, Lane #	EB 1	SB 1
Volume Total	355	405
Volume Left	0	0
Volume Right	355	0
cSH	646	1700
Volume to Capacity	0.55	0.24
Queue Length 95th (ft)	84	0
Control Delay (s)	17.2	0.0
Lane LOS	C	
Approach Delay (s)	17.2	0.0
Approach LOS	C	

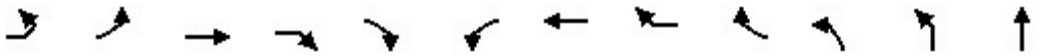
Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	180	65	165	290	45	70	295	150	35	495	235
Future Volume (vph)	170	180	65	165	290	45	70	295	150	35	495	235
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00			0.99			1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frt	1.00	0.96		1.00	0.98			0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1582	1590		1566	1612			1620			1709	1419
Flt Permitted	0.29	1.00		0.49	1.00			0.70			0.95	1.00
Satd. Flow (perm)	475	1590		808	1612			1139			1622	1419
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)	170	180	65	165	290	45	70	295	150	35	495	235
RTOR Reduction (vph)	0	13	0	0	5	0	0	11	0	0	0	128
Lane Group Flow (vph)	170	232	0	165	330	0	0	504	0	0	530	107
Confl. Peds. (#/hr)	3		3	3		3	4		8	8		4
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	34.7	23.3		32.5	22.2			40.5			40.5	40.5
Effective Green, g (s)	34.7	23.3		32.5	22.2			40.5			40.5	40.5
Actuated g/C Ratio	0.39	0.26		0.36	0.25			0.45			0.45	0.45
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	2.0
Lane Grp Cap (vph)	326	415		382	401			517			737	645
v/s Ratio Prot	c0.07	0.15		0.05	c0.20							
v/s Ratio Perm	0.14			0.11				c0.44			0.33	0.08
v/c Ratio	0.52	0.56		0.43	0.82			0.97			0.72	0.17
Uniform Delay, d1	19.5	28.5		20.2	31.6			23.8			19.7	14.3
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	0.7	1.0		0.3	12.2			32.6			2.8	0.0
Delay (s)	20.2	29.5		20.5	43.8			56.4			22.5	14.4
Level of Service	C	C		C	D			E			C	B
Approach Delay (s)		25.7			36.1			56.4			20.0	
Approach LOS		C			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	89.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL2	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations												
Traffic Volume (vph)	5	125	325	30	175	225	500	50	145	170	100	515
Future Volume (vph)	5	125	325	30	175	225	500	50	145	170	100	515
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0	5.0			5.0	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	0.95			1.00	0.91		0.91	0.91	0.95	0.95
Frpb, ped/bikes		1.00	0.99			1.00	1.00		0.97	1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	0.94			1.00	0.98		0.85	1.00	1.00	0.96
Flt Protected		0.95	1.00			0.95	1.00		1.00	0.95	0.95	1.00
Satd. Flow (prot)		1646	3074			1630	3054		1287	1498	1564	3127
Flt Permitted		0.95	1.00			0.95	1.00		1.00	0.95	0.95	1.00
Satd. Flow (perm)		1646	3074			1630	3054		1287	1498	1564	3127
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	125	325	30	175	225	500	50	145	170	100	515
RTOR Reduction (vph)	0	0	50	0	0	0	2	0	100	0	0	0
Lane Group Flow (vph)	0	130	480	0	0	225	563	0	30	134	136	705
Confl. Peds. (#/hr)				6	1			7	12			
Confl. Bikes (#/hr)				1	1							
Heavy Vehicles (%)	1%	1%	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	Prot	NA			Prot	NA		Perm	Prot	Prot	NA
Protected Phases	3	3	8			7	4			1	1	6
Permitted Phases									4			
Actuated Green, G (s)		14.8	25.4			19.4	30.0		30.0	17.6	17.6	45.1
Effective Green, g (s)		14.8	25.4			19.4	30.0		30.0	17.6	17.6	45.1
Actuated g/C Ratio		0.11	0.20			0.15	0.23		0.23	0.14	0.14	0.35
Clearance Time (s)		5.0	5.0			5.0	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	2.0			2.0	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		187	600			243	704		297	202	211	1084
v/s Ratio Prot		0.08	0.16			c0.14	c0.18			0.09	0.09	c0.23
v/s Ratio Perm									0.02			
v/c Ratio		0.70	0.80			0.93	0.80		0.10	0.66	0.64	0.65
Uniform Delay, d1		55.4	49.9			54.6	47.2		39.4	53.4	53.2	35.8
Progression Factor		1.00	1.00			0.85	0.99		3.02	1.00	1.00	1.00
Incremental Delay, d2		10.7	7.1			35.3	5.7		0.0	6.2	5.0	3.0
Delay (s)		66.1	57.0			81.8	52.2		118.8	59.6	58.2	38.8
Level of Service		E	E			F	D		F	E	E	D
Approach Delay (s)			58.8				68.9					44.4
Approach LOS			E				E					D

Intersection Summary			
HCM 2000 Control Delay	56.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	SER2	NWR2
Lane Configurations									
Traffic Volume (vph)	180	10	365	60	700	80	10	0	0
Future Volume (vph)	180	10	365	60	700	80	10	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)			5.0	5.0	5.0				
Lane Util. Factor			0.91	0.95	0.95				
Frpb, ped/bikes			1.00	1.00	0.99				
Flpb, ped/bikes			1.00	1.00	1.00				
Frt			1.00	1.00	0.98				
Flt Protected			0.95	0.95	1.00				
Satd. Flow (prot)			1498	1564	3218				
Flt Permitted			0.95	0.95	1.00				
Satd. Flow (perm)			1498	1564	3218				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	10	365	60	700	80	10	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	212	213	790	0	0	0	0
Confl. Peds. (#/hr)	4	6				7	7	7	6
Confl. Bikes (#/hr)									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	10%	0%
Turn Type			Prot	Prot	NA			Perm	Perm
Protected Phases			5	5	2				
Permitted Phases								4	8
Actuated Green, G (s)			20.1	20.1	47.6				
Effective Green, g (s)			20.1	20.1	47.6				
Actuated g/C Ratio			0.15	0.15	0.37				
Clearance Time (s)			5.0	5.0	5.0				
Vehicle Extension (s)			2.0	2.0	2.0				
Lane Grp Cap (vph)			231	241	1178				
v/s Ratio Prot			c0.14	0.14	c0.25				
v/s Ratio Perm									
v/c Ratio			0.92	0.88	0.67				
Uniform Delay, d1			54.1	53.8	34.6				
Progression Factor			1.00	1.00	1.00				
Incremental Delay, d2			36.6	28.7	3.0				
Delay (s)			90.8	82.5	37.7				
Level of Service			F	F	D				
Approach Delay (s)					54.8				
Approach LOS					D				

Intersection Summary

LANE SUMMARY

Site: 50 [50-SW 160th St @ SR 509 SB Ramps (Site Folder: 2032 NA)]

SW 160th St @ SR 509 SB Ramps 2032 No Action
Site Category: 2032 No Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: SW 160th Street (WB)													
Lane 1[d]	520	1.0	1416	0.367	100	4.6	LOS A	0.0	0.0	Full	750	0.0	0.0
Approach	520	1.0		0.367		4.6	LOS A	0.0	0.0				
North: SR 509 SB Off Ramp													
Lane 1[d]	205	1.0	1233	0.166	100	11.5	LOS B	0.9	23.1	Full	1600	0.0	0.0
Lane 2	600	1.0	1658	0.362	100	3.9	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	805	1.0		0.362		5.8	LOS A	0.9	23.1				
West: SW 160th Street (EB)													
Lane 1[d]	645	1.0	1405	0.459	100	5.3	LOS A	3.5	87.2	Full	350	0.0	0.0
Lane 2	375	1.0	1658	0.226	100	3.8	LOS A	0.0	0.0	Full	350	0.0	0.0
Approach	1020	1.0		0.459		4.7	LOS A	3.5	87.2				
Intersection	2345	1.0		0.459		5.1	LOS A	3.5	87.2				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

East: SW 160th Street (WB)

Mov. From E To Exit:	L2 S	T1 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	35	485	520	1.0	1416	0.367	100	NA	NA
Approach	35	485	520	1.0		0.367			

North: SR 509 SB Off Ramp

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	205	-	205	1.0	1233	0.166	100	NA	NA
Lane 2	-	600	600	1.0	1658	0.362	100	NA	NA
Approach	205	600	805	1.0		0.362			

LANE SUMMARY

Site: 51 [51-S 160th Street @ 5th Pl S (Site Folder: 2032 NA)]

51-S 160th St @ 5th Pl S, 2032 No Action
Site Category: 2032 No Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: SR 509 NB Ramps													
Lane 1[d]	385	1.0	1097	0.351	100	10.5	LOS B	2.0	51.6	Full	1600	0.0	0.0
Approach	385	1.0		0.351		10.5	LOS B	2.0	51.6				
East: SW 160th Street (WB)													
Lane 1[d]	215	1.0	1082	0.199	100	6.2	LOS A	1.1	27.7	Full	710	0.0	0.0
Approach	215	1.0		0.199		6.2	LOS A	1.1	27.7				
North: 5th Place S (SB)													
Lane 1[d]	21	0.0	982	0.021	100	7.4	LOS A	0.1	2.7	Full	1600	0.0	0.0
Approach	21	0.0		0.021		7.4	LOS A	0.1	2.7				
West: SW 160th Street (EB)													
Lane 1[d]	850	1.0	1385	0.614	100	4.5	LOS A	6.0	151.0	Full	750	0.0	0.0
Approach	850	1.0		0.614		4.5	LOS A	6.0	151.0				
Intersection	1471	1.0		0.614		6.3	LOS A	6.0	151.0				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

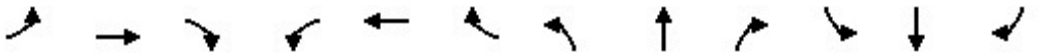
South: SR 509 NB Ramps

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	325	10	50	385	1.0	1097	0.351	100	NA	NA
Approach	325	10	50	385	1.0		0.351			

East: SW 160th Street (WB)

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	20	180	15	215	1.0	1082	0.199	100	NA	NA
Approach	20	180	15	215	1.0		0.199			

North: 5th Place S (SB)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	20	155	5	5	5	25	265	5	5	525	185
Future Volume (vph)	225	20	155	5	5	5	25	265	5	5	525	185
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.87		1.00	0.93		1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1599	1459		1330	1295		1613	1693		1602	1623	
Flt Permitted	0.75	1.00		0.65	1.00		0.23	1.00		0.59	1.00	
Satd. Flow (perm)	1264	1459		905	1295		397	1693		1000	1623	
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)	225	20	155	5	5	5	25	265	5	5	525	185
RTOR Reduction (vph)	0	111	0	0	4	0	0	1	0	0	15	0
Lane Group Flow (vph)	225	64	0	5	6	0	25	269	0	5	695	0
Confl. Peds. (#/hr)							2		7	7		2
Heavy Vehicles (%)	4%	4%	4%	25%	25%	25%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	15.4	15.4		15.4	15.4		28.3	28.3		28.3	28.3	
Effective Green, g (s)	15.4	15.4		15.4	15.4		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.53	0.53		0.53	0.53	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	362	418		259	371		209	892		527	855	
v/s Ratio Prot		0.04			0.00			0.16			c0.43	
v/s Ratio Perm	c0.18			0.01			0.06			0.00		
v/c Ratio	0.62	0.15		0.02	0.02		0.12	0.30		0.01	0.81	
Uniform Delay, d1	16.6	14.3		13.7	13.7		6.4	7.1		6.0	10.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.1		0.0	0.0		0.1	0.1		0.0	5.6	
Delay (s)	19.0	14.4		13.7	13.7		6.5	7.2		6.0	16.1	
Level of Service	B	B		B	B		A	A		A	B	
Approach Delay (s)		17.0			13.7			7.2			16.1	
Approach LOS		B			B			A			B	

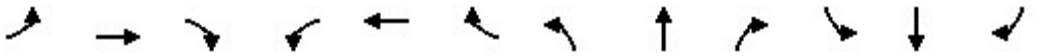
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	335	140	205	205	335	170
Future Volume (vph)	335	140	205	205	335	170
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	335	140	205	205	335	170

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	335	140	410	335	170
Volume Left (vph)	335	0	0	335	0
Volume Right (vph)	0	140	205	0	0
Hadj (s)	0.76	-0.44	0.02	0.69	0.19
Departure Headway (s)	8.0	6.8	6.9	7.7	7.2
Degree Utilization, x	0.74	0.26	0.78	0.72	0.34
Capacity (veh/h)	434	515	514	451	485
Control Delay (s)	29.7	11.0	30.1	27.0	12.7
Approach Delay (s)	24.1		30.1	22.2	
Approach LOS	C		D	C	

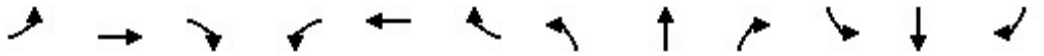
Intersection Summary			
Delay	25.2		
Level of Service	D		
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	405	15	35	460	230	15	20	40	0	0	0
Future Volume (Veh/h)	120	405	15	35	460	230	15	20	40	0	0	0
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)	120	405	15	35	460	230	15	20	40	0	0	0
Pedestrians								2				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					408							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	460			422			1184	1184	212	1022	1192	460
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	359			422			1154	1154	212	976	1162	359
tC, single (s)	4.3			4.3			7.6	6.6	7.0	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			97			88	87	95	100	100	100
cM capacity (veh/h)	1040			1084			120	149	783	144	153	586

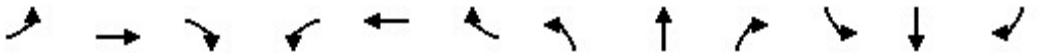
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	120	270	150	35	460	230	15	60
Volume Left	120	0	0	35	0	0	15	0
Volume Right	0	0	15	0	0	230	0	40
cSH	1040	1700	1700	1084	1700	1700	120	324
Volume to Capacity	0.12	0.16	0.09	0.03	0.27	0.14	0.12	0.19
Queue Length 95th (ft)	10	0	0	3	0	0	10	17
Control Delay (s)	8.9	0.0	0.0	8.4	0.0	0.0	39.2	18.6
Lane LOS	A			A			E	C
Approach Delay (s)	2.0			0.4			22.7	
Approach LOS							C	

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	47.3%	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)	40	295	110	210	455	60	205	15	50	70	5	65
Future Volume (vph)	40	295	110	210	455	60	205	15	50	70	5	65
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.88			0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1539	2923		1583	3102		1658	1548			1347	
Flt Permitted	0.46	1.00		0.44	1.00		0.67	1.00			0.82	
Satd. Flow (perm)	748	2923		732	3102		1167	1548			1136	
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	295	110	210	455	60	205	15	50	70	5	65
RTOR Reduction (vph)	0	35	0	0	8	0	0	37	0	0	39	0
Lane Group Flow (vph)	40	370	0	210	507	0	205	28	0	0	101	0
Confl. Peds. (#/hr)			7			2	3					3
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	0%	0%	0%	18%	18%	18%
Bus Blockages (#/hr)	0	0	44	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	3	8		7	4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	42.6	37.4		52.4	42.3		21.3	21.3			21.3	
Effective Green, g (s)	42.6	37.4		52.4	42.3		21.3	21.3			21.3	
Actuated g/C Ratio	0.51	0.45		0.63	0.50		0.25	0.25			0.25	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)	429	1304		560	1565		296	393			288	
v/s Ratio Prot	0.01	0.13		c0.05	0.16			0.02				
v/s Ratio Perm	0.04			c0.19			c0.18				0.09	
v/c Ratio	0.09	0.28		0.38	0.32		0.69	0.07			0.35	
Uniform Delay, d1	10.4	14.7		7.1	12.3		28.3	23.7			25.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.5		0.9	0.6		8.6	0.2			1.5	
Delay (s)	10.6	15.3		8.0	12.8		36.9	23.9			27.1	
Level of Service	B	B		A	B		D	C			C	
Approach Delay (s)		14.8			11.4			33.8			27.1	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	355	5	25	520	90	20	0	15	115	0	185
Future Volume (Veh/h)	55	355	5	25	520	90	20	0	15	115	0	185
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)	55	355	5	25	520	90	20	0	15	115	0	185
Pedestrians		1			2						6	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			0						1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		502			393							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	526			360			1038	1044	182	880	1046	527
vC1, stage 1 conf vol							468	468		576	576	
vC2, stage 2 conf vol							571	576		304	470	
vCu, unblocked vol	375			360			967	973	182	784	976	376
tC, single (s)	4.2			4.2			7.7	6.7	7.1	7.5	6.5	6.9
tC, 2 stage (s)							6.7	5.7		6.5	5.5	
tF (s)	2.2			2.3			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	95			98			91	100	98	73	100	66
cM capacity (veh/h)	1010			1160			233	355	801	420	391	540

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	55	237	123	25	520	90	35	115	185
Volume Left	55	0	0	25	0	0	20	115	0
Volume Right	0	0	5	0	0	90	15	0	185
cSH	1010	1700	1700	1160	1700	1700	334	420	540
Volume to Capacity	0.05	0.14	0.07	0.02	0.31	0.05	0.10	0.27	0.34
Queue Length 95th (ft)	4	0	0	2	0	0	9	27	38
Control Delay (s)	8.8	0.0	0.0	8.2	0.0	0.0	17.0	16.8	15.1
Lane LOS	A			A			C	C	C
Approach Delay (s)	1.2			0.3			17.0	15.7	
Approach LOS							C	C	

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	55.6%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	120	250	115	100	270	280	25	160	910	100	50	345
Future Volume (vph)	120	250	115	100	270	280	25	160	910	100	50	345
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	7.0	12.0	12.0	7.0	12.0	12.0		5.0	10.0			5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.97	0.91			0.97
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1614	1699	1414	1599	1683	1411		3072	4468			3131
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (perm)	1614	1699	1414	1599	1683	1411		3072	4468			3131
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)	120	250	115	100	270	280	25	160	910	100	50	345
RTOR Reduction (vph)	0	0	91	0	0	185	0	0	9	0	0	0
Lane Group Flow (vph)	120	250	24	100	270	95	0	185	1001	0	0	395
Confl. Peds. (#/hr)			8			1				11		
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	5%	5%	5%	5%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4			8						
Actuated Green, G (s)	13.2	28.7	28.7	10.9	26.4	26.4		13.3	45.2			21.2
Effective Green, g (s)	13.2	28.7	28.7	10.9	26.4	26.4		13.3	45.2			21.2
Actuated g/C Ratio	0.09	0.20	0.20	0.08	0.19	0.19		0.10	0.32			0.15
Clearance Time (s)	7.0	12.0	12.0	7.0	12.0	12.0		5.0	10.0			5.0
Vehicle Extension (s)	4.0	4.0	4.0	3.0	2.0	2.0		2.5	3.0			3.0
Lane Grp Cap (vph)	152	348	289	124	317	266		291	1442			474
v/s Ratio Prot	c0.07	0.15		0.06	c0.16			0.06	c0.22			c0.13
v/s Ratio Perm			0.02			0.07						
v/c Ratio	0.79	0.72	0.08	0.81	0.85	0.36		0.64	0.69			0.83
Uniform Delay, d1	62.0	51.9	45.0	63.5	54.9	49.4		61.0	41.4			57.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	24.4	7.4	0.2	30.5	18.6	0.3		3.9	2.8			11.9
Delay (s)	86.5	59.3	45.2	94.0	73.5	49.7		65.0	44.1			69.6
Level of Service	F	E	D	F	E	D		E	D			E
Approach Delay (s)		62.7			66.4				47.4			
Approach LOS		E			E				D			

Intersection Summary			
HCM 2000 Control Delay	51.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	850	205
Future Volume (vph)	850	205
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	10.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.97	
Flt Protected	1.00	
Satd. Flow (prot)	4487	
Flt Permitted	1.00	
Satd. Flow (perm)	4487	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	850	205
RTOR Reduction (vph)	26	0
Lane Group Flow (vph)	1029	0
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	3%	3%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	53.1	
Effective Green, g (s)	53.1	
Actuated g/C Ratio	0.38	
Clearance Time (s)	10.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1701	
v/s Ratio Prot	0.23	
v/s Ratio Perm		
v/c Ratio	0.60	
Uniform Delay, d1	35.0	
Progression Factor	1.00	
Incremental Delay, d2	1.6	
Delay (s)	36.6	
Level of Service	D	
Approach Delay (s)	45.6	
Approach LOS	D	

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	20	20	215	480	35
Future Volume (Veh/h)	35	20	20	215	480	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	35	20	20	215	480	35
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				842		
pX, platoon unblocked						
vC, conflicting volume	754	498	516			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	754	498	516			
tC, single (s)	6.7	6.5	4.3			
tC, 2 stage (s)						
tF (s)	3.8	3.6	2.4			
p0 queue free %	89	96	98			
cM capacity (veh/h)	332	519	968			

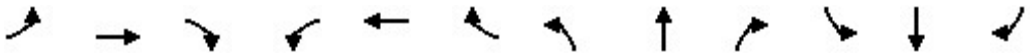
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	55	20	215	515
Volume Left	35	20	0	0
Volume Right	20	0	0	35
cSH	382	968	1700	1700
Volume to Capacity	0.14	0.02	0.13	0.30
Queue Length 95th (ft)	12	2	0	0
Control Delay (s)	16.0	8.8	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	16.0	0.7		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	280	615	290	210
Future Volume (vph)	0	0	280	615	290	210
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)			5.0	4.0	5.0	5.0
Lane Util. Factor			1.00	1.00	1.00	1.00
Frpb, ped/bikes			1.00	1.00	1.00	1.00
Flpb, ped/bikes			1.00	1.00	1.00	1.00
Frt			1.00	0.85	1.00	1.00
Flt Protected			1.00	1.00	0.95	1.00
Satd. Flow (prot)			1509	1282	1433	1509
Flt Permitted			1.00	1.00	0.53	1.00
Satd. Flow (perm)			1509	1282	794	1509
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	280	615	290	210
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	280	615	290	210
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	0%	0%	16%	16%	16%	16%
Turn Type			NA	Free	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases				Free	6	
Actuated Green, G (s)			42.8	69.0	64.0	69.0
Effective Green, g (s)			42.8	69.0	64.0	69.0
Actuated g/C Ratio			0.62	1.00	0.93	1.00
Clearance Time (s)			5.0		5.0	5.0
Vehicle Extension (s)			3.0		3.0	3.0
Lane Grp Cap (vph)			936	1282	886	1509
v/s Ratio Prot			0.19		0.08	0.14
v/s Ratio Perm				c0.48	0.23	
v/c Ratio			0.30	0.48	0.33	0.14
Uniform Delay, d1			6.1	0.0	0.5	0.0
Progression Factor			1.00	1.00	1.00	1.00
Incremental Delay, d2			0.2	1.3	0.2	0.2
Delay (s)			6.3	1.3	0.7	0.2
Level of Service			A	A	A	A
Approach Delay (s)	0.0		2.9			0.5
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

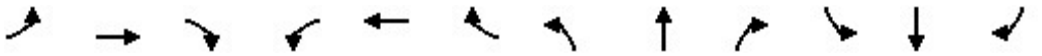
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	20	0	10	10	870	5	15	0	170	30	10
Future Volume (vph)	10	20	0	10	10	870	5	15	0	170	30	10
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)	10	20	0	10	10	870	5	15	0	170	30	10

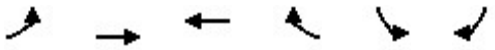
Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total (vph)	30	20	435	435	20	210
Volume Left (vph)	10	10	0	0	5	170
Volume Right (vph)	0	0	435	435	0	10
Hadj (s)	0.19	0.37	-0.33	-0.33	0.95	0.35
Departure Headway (s)	4.7	4.9	3.2	3.2	5.2	4.4
Degree Utilization, x	0.04	0.03	0.39	0.39	0.03	0.26
Capacity (veh/h)	723	694	1114	1114	672	806
Control Delay (s)	7.8	8.0	8.2	8.2	8.4	8.9
Approach Delay (s)	7.8	8.2			8.4	8.9
Approach LOS	A	A			A	A

Intersection Summary				
Delay	8.3			
Level of Service	A			
Intersection Capacity Utilization	50.0%	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)	0	180	10	110	580	0	250	0	10	310	0	60
Future Volume (vph)	0	180	10	110	580	0	250	0	10	310	0	60
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.5		5.5	5.5		5.0		5.0	5.5		5.5
Lane Util. Factor		1.00		1.00	0.95		1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00		1.00	1.00		1.00		1.00	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00	1.00		1.00
Frt		0.99		1.00	1.00		1.00		0.85	1.00		0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)		1578		1328	2660		1646		1473	1614		1444
Flt Permitted		1.00		0.61	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)		1578		852	2660		1646		1473	1614		1444
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	180	10	110	580	0	250	0	10	310	0	60
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	8	0	0	44
Lane Group Flow (vph)	0	188	0	110	580	0	250	0	2	310	0	16
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	10%	10%	10%	25%	25%	25%	1%	1%	1%	3%	3%	3%
Turn Type		NA		Perm	NA		Perm		Perm	Prot		Perm
Protected Phases		2			6					4		
Permitted Phases				6			8		8			4
Actuated Green, G (s)		24.2		24.2	24.2		19.1		19.1	20.7		20.7
Effective Green, g (s)		24.2		24.2	24.2		19.1		19.1	20.7		20.7
Actuated g/C Ratio		0.30		0.30	0.30		0.24		0.24	0.26		0.26
Clearance Time (s)		5.5		5.5	5.5		5.0		5.0	5.5		5.5
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		477		257	804		392		351	417		373
v/s Ratio Prot		0.12			c0.22					c0.19		
v/s Ratio Perm				0.13			c0.15		0.00			0.01
v/c Ratio		0.39		0.43	0.72		0.64		0.01	0.74		0.04
Uniform Delay, d1		22.1		22.4	24.9		27.3		23.2	27.2		22.2
Progression Factor		1.00		1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2		0.5		1.1	3.2		3.4		0.0	7.0		0.0
Delay (s)		22.6		23.5	28.1		30.7		23.2	34.2		22.3
Level of Service		C		C	C		C		C	C		C
Approach Delay (s)		22.6			27.4			30.4			32.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	485	670	25	10	20
Future Volume (Veh/h)	15	485	670	25	10	20
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)	15	485	670	25	10	20
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)		281	222			
pX, platoon unblocked						
vC, conflicting volume	696				956	348
vC1, stage 1 conf vol					684	
vC2, stage 2 conf vol					272	
vCu, unblocked vol	696				956	348
tC, single (s)	4.2				7.4	7.5
tC, 2 stage (s)					6.4	
tF (s)	2.2				3.8	3.6
p0 queue free %	98				97	97
cM capacity (veh/h)	882				365	573

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	15	242	242	447	248	10	20
Volume Left	15	0	0	0	0	10	0
Volume Right	0	0	0	0	25	0	20
cSH	882	1700	1700	1700	1700	365	573
Volume to Capacity	0.02	0.14	0.14	0.26	0.15	0.03	0.03
Queue Length 95th (ft)	1	0	0	0	0	2	3
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	15.1	11.5
Lane LOS	A					C	B
Approach Delay (s)	0.3			0.0		12.7	
Approach LOS						B	

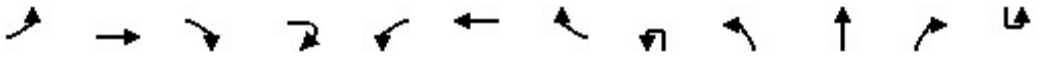
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	495	0	0	455	240	380
Future Volume (vph)	495	0	0	455	240	380
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.95			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3197			1423	1421	1271
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3197			1423	1421	1271
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	495	0	0	455	240	380
RTOR Reduction (vph)	0	0	0	0	0	197
Lane Group Flow (vph)	495	0	0	455	240	183
Heavy Vehicles (%)	4%	4%	23%	23%	17%	17%
Turn Type	NA			NA	Prot	Perm
Protected Phases	1			6!	2!	
Permitted Phases						2
Actuated Green, G (s)	11.7			33.2	11.5	11.5
Effective Green, g (s)	11.7			33.2	11.5	11.5
Actuated g/C Ratio	0.35			1.00	0.35	0.35
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)	1126			1423	492	440
v/s Ratio Prot	0.15			c0.32	c0.17	
v/s Ratio Perm						0.14
v/c Ratio	0.44			0.32	0.49	0.42
Uniform Delay, d1	8.2			0.0	8.5	8.3
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.3			0.1	0.8	0.6
Delay (s)	8.5			0.1	9.3	8.9
Level of Service	A			A	A	A
Approach Delay (s)	8.5			0.1	9.1	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	33.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	125	175	0	575	15	140	205	15	195	625	25	25
Future Volume (vph)	125	175	0	575	15	140	205	15	195	625	25	25
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	11	12	11	12	8	12	12	12	13	12	12	12
Total Lost time (s)	11.5	11.5	11.5			12.0	12.0		5.0	10.0		
Lane Util. Factor	1.00	1.00	1.00			1.00	1.00		1.00	0.95		
Frpb, ped/bikes	1.00	1.00	0.94			1.00	0.98		1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00		1.00	1.00		
Frt	1.00	1.00	0.85			1.00	0.85		1.00	0.99		
Flt Protected	0.95	1.00	1.00			1.00	1.00		0.95	1.00		
Satd. Flow (prot)	1502	1636	1269			1643	1381		1576	3023		
Flt Permitted	0.95	1.00	1.00			1.00	1.00		0.95	1.00		
Satd. Flow (perm)	1502	1636	1269			1643	1381		1576	3023		
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	175	0	575	15	140	205	15	195	625	25	25
RTOR Reduction (vph)	0	0	490	0	0	0	177	0	0	1	0	0
Lane Group Flow (vph)	125	175	85	0	0	155	28	0	210	649	0	0
Confl. Peds. (#/hr)			7	7			3				22	
Heavy Vehicles (%)	7%	7%	7%	7%	6%	6%	6%	9%	9%	9%	9%	4%
Turn Type	Split	NA	Perm		Split	NA	Perm	Prot	Prot	NA		Prot
Protected Phases	4	4			3	3		5	5	2		1
Permitted Phases			4				3					
Actuated Green, G (s)	21.5	21.5	21.5			19.8	19.8		27.8	39.0		
Effective Green, g (s)	21.5	21.5	21.5			19.8	19.8		27.8	39.0		
Actuated g/C Ratio	0.15	0.15	0.15			0.14	0.14		0.19	0.27		
Clearance Time (s)	11.5	11.5	11.5			12.0	12.0		5.0	10.0		
Vehicle Extension (s)	2.0	2.0	2.0			2.5	2.5		3.0	3.0		
Lane Grp Cap (vph)	222	242	188			224	188		302	813		
v/s Ratio Prot	0.08	c0.11				c0.09			c0.13	c0.21		
v/s Ratio Perm			0.07				0.02					
v/c Ratio	0.56	0.72	0.45			0.69	0.15		0.70	0.80		
Uniform Delay, d1	57.4	58.9	56.4			59.7	55.2		54.7	49.3		
Progression Factor	1.00	1.00	1.00			1.00	1.00		1.34	0.53		
Incremental Delay, d2	1.9	8.7	0.6			8.2	0.3		6.3	7.5		
Delay (s)	59.3	67.6	57.0			67.9	55.4		79.6	33.7		
Level of Service	E	E	E			E	E		E	C		
Approach Delay (s)		59.5				60.8				44.9		
Approach LOS		E				E				D		

Intersection Summary			
HCM 2000 Control Delay	54.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	38.5
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	175	640	110	120
Future Volume (vph)	175	640	110	120
Ideal Flow (vphpl)	1750	1750	1750	1750
Lane Width	11	11	12	14
Total Lost time (s)	5.0	10.0	10.0	
Lane Util. Factor	1.00	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	1545	3091	1379	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	1545	3091	1379	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	640	110	120
RTOR Reduction (vph)	0	0	142	0
Lane Group Flow (vph)	200	640	88	0
Confl. Peds. (#/hr)				5
Heavy Vehicles (%)	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	26.2	37.4	37.4	
Effective Green, g (s)	26.2	37.4	37.4	
Actuated g/C Ratio	0.18	0.26	0.26	
Clearance Time (s)	5.0	10.0	10.0	
Vehicle Extension (s)	2.0	3.0	3.0	
Lane Grp Cap (vph)	279	797	355	
v/s Ratio Prot	0.13	0.21		
v/s Ratio Perm			0.06	
v/c Ratio	0.72	0.80	0.25	
Uniform Delay, d1	55.9	50.4	42.6	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	7.1	8.4	1.7	
Delay (s)	63.0	58.8	44.3	
Level of Service	E	E	D	
Approach Delay (s)		56.4		
Approach LOS		E		

Intersection Summary

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NER
Lane Configurations												
Traffic Volume (vph)	200	0	225	0	600	170	10	230	1045	170	0	0
Future Volume (vph)	200	0	225	0	600	170	10	230	1045	170	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	10.5		5.0		5.0	5.0		10.0	5.0	5.0		
Lane Util. Factor	0.97		1.00		0.95	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00		0.82		1.00	0.78		1.00	1.00	1.00		
Flpb, ped/bikes	1.00		1.00		1.00	1.00		0.98	1.00	1.00		
Frt	1.00		0.85		1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95		1.00		1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	3072		1156		2995	1044		1590	3228	1444		
Flt Permitted	0.95		1.00		1.00	1.00		0.31	1.00	1.00		
Satd. Flow (perm)	3072		1156		2995	1044		526	3228	1444		
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)	200	0	225	0	600	170	10	230	1045	170	0	0
RTOR Reduction (vph)	0	0	214	0	0	87	0	0	0	59	0	0
Lane Group Flow (vph)	200	0	11	0	600	83	0	240	1045	111	0	0
Confl. Peds. (#/hr)			29			76		76				
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	3%	3%	3%	3%	0%	0%
Turn Type	Prot		Perm		NA	Perm	pm+pt	pm+pt	NA	Perm		
Protected Phases	8				2		1	1	6			
Permitted Phases			4			2	6	6		6		
Actuated Green, G (s)	34.7		7.2		70.3	70.3		94.8	94.8	94.8		
Effective Green, g (s)	34.7		7.2		70.3	70.3		94.8	94.8	94.8		
Actuated g/C Ratio	0.24		0.05		0.48	0.48		0.65	0.65	0.65		
Clearance Time (s)	10.5		5.0		5.0	5.0		10.0	5.0	5.0		
Vehicle Extension (s)	3.0		3.0		3.0	3.0		2.0	3.0	3.0		
Lane Grp Cap (vph)	735		57		1452	506		450	2110	944		
v/s Ratio Prot	c0.07				0.20			0.05	c0.32			
v/s Ratio Perm			c0.01			0.08		c0.30		0.08		
v/c Ratio	0.27		0.20		0.41	0.16		0.53	0.50	0.12		
Uniform Delay, d1	44.9		66.1		24.1	20.9		12.5	12.9	9.4		
Progression Factor	1.00		1.00		0.32	0.23		1.10	1.37	2.59		
Incremental Delay, d2	0.2		1.7		0.8	0.6		0.6	0.8	0.2		
Delay (s)	45.1		67.8		8.5	5.4		14.3	18.5	24.6		
Level of Service	D		E		A	A		B	B	C		
Approach Delay (s)		57.1			7.8				18.5		0.0	
Approach LOS		E			A				B		A	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

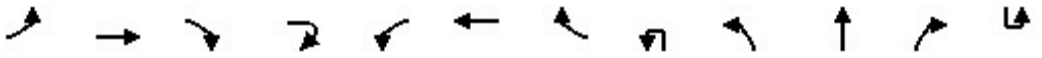
Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	120	15	0	665	25	10	15	20	200	655	15	5
Future Volume (vph)	120	15	0	665	25	10	15	20	200	655	15	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	12.0	12.0	12.0		12.0	12.0			5.0	10.0	10.0	
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00			0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.93		1.00	0.98			1.00	1.00	0.84	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Frt	1.00	1.00	0.85		1.00	0.91			1.00	1.00	0.85	
Flt Protected	0.95	0.96	1.00		0.95	1.00			0.95	1.00	1.00	
Satd. Flow (prot)	1316	1333	1149		1662	1565			2906	2995	1127	
Flt Permitted	0.95	0.96	1.00		0.95	1.00			0.95	1.00	1.00	
Satd. Flow (perm)	1316	1333	1149		1662	1565			2906	2995	1127	
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)	120	15	0	665	25	10	15	20	200	655	15	5
RTOR Reduction (vph)	0	0	471	0	0	15	0	0	0	0	9	0
Lane Group Flow (vph)	67	68	194	0	25	10	0	0	220	655	6	0
Confl. Peds. (#/hr)	17		57		57		17		21		51	
Heavy Vehicles (%)	20%	20%	20%	20%	0%	0%	0%	11%	11%	11%	11%	4%
Turn Type	Split	NA	Perm		Split	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	3	3			4	4		5	5	2		1
Permitted Phases			3								2	
Actuated Green, G (s)	40.0	40.0	40.0		4.7	4.7			12.0	58.7	58.7	
Effective Green, g (s)	40.0	40.0	40.0		4.7	4.7			12.0	58.7	58.7	
Actuated g/C Ratio	0.28	0.28	0.28		0.03	0.03			0.08	0.40	0.40	
Clearance Time (s)	12.0	12.0	12.0		12.0	12.0			5.0	10.0	10.0	
Vehicle Extension (s)	2.5	2.5	2.5		2.0	2.0			3.0	3.0	3.0	
Lane Grp Cap (vph)	363	367	316		53	50			240	1212	456	
v/s Ratio Prot	0.05	0.05			c0.02	0.01			c0.08	0.22		
v/s Ratio Perm			c0.17								0.01	
v/c Ratio	0.18	0.19	0.61		0.47	0.21			0.92	0.54	0.01	
Uniform Delay, d1	40.1	40.1	45.8		68.9	68.3			66.0	32.9	25.8	
Progression Factor	1.00	1.00	1.00		1.00	1.00			0.81	1.36	1.00	
Incremental Delay, d2	0.2	0.2	3.0		2.4	0.8			35.1	1.7	0.1	
Delay (s)	40.2	40.2	48.8		71.3	69.1			88.3	46.4	25.9	
Level of Service	D	D	D		E	E			F	D	C	
Approach Delay (s)		47.4				70.2				56.4		
Approach LOS		D				E				E		

Intersection Summary			
HCM 2000 Control Delay	58.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	39.0
Intersection Capacity Utilization	127.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	5	1080	175	70
Future Volume (vph)	5	1080	175	70
Ideal Flow (vphpl)	1750	1750	1750	1750
Total Lost time (s)	5.0	10.0	10.0	
Lane Util. Factor	1.00	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	1599	3197	1377	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	1599	3197	1377	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	1080	175	70
RTOR Reduction (vph)	0	0	129	0
Lane Group Flow (vph)	10	1080	116	0
Confl. Peds. (#/hr)	51			21
Heavy Vehicles (%)	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	2.6	49.3	49.3	
Effective Green, g (s)	2.6	49.3	49.3	
Actuated g/C Ratio	0.02	0.34	0.34	
Clearance Time (s)	5.0	10.0	10.0	
Vehicle Extension (s)	2.0	3.0	3.0	
Lane Grp Cap (vph)	28	1086	468	
v/s Ratio Prot	0.01	c0.34		
v/s Ratio Perm			0.08	
v/c Ratio	0.36	0.99	0.25	
Uniform Delay, d1	70.4	47.7	34.5	
Progression Factor	1.03	0.91	1.57	
Incremental Delay, d2	2.6	25.0	1.2	
Delay (s)	75.5	68.3	55.2	
Level of Service	E	E	E	
Approach Delay (s)		65.9		
Approach LOS		E		

Intersection Summary



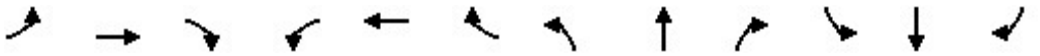
Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	135	650	0	310	215	785	175	15	160	280	150	20
Future Volume (vph)	135	650	0	310	215	785	175	15	160	280	150	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	7.0	12.0	12.0		7.0	12.0	12.0		6.0	11.0	11.0	
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.95		1.00	1.00	0.96		1.00	1.00	0.93	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1568	3137	1337		1583	3167	1359		3072	3167	1322	
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1568	3137	1337		1583	3167	1359		3072	3167	1322	
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)	135	650	0	310	215	785	175	15	160	280	150	20
RTOR Reduction (vph)	0	0	236	0	0	0	128	0	0	0	107	0
Lane Group Flow (vph)	135	650	74	0	215	785	47	0	175	280	43	0
Confl. Peds. (#/hr)	25		29		29		25		32		36	
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	5%	5%	5%	5%	7%
Turn Type	Prot	NA	Perm		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	7	4			3	8		5	5	2		1
Permitted Phases			4				8				2	
Actuated Green, G (s)	13.6	34.7	34.7		18.0	39.1	39.1		8.3	41.3	41.3	
Effective Green, g (s)	13.6	34.7	34.7		18.0	39.1	39.1		8.3	41.3	41.3	
Actuated g/C Ratio	0.09	0.24	0.24		0.12	0.27	0.27		0.06	0.28	0.28	
Clearance Time (s)	7.0	12.0	12.0		7.0	12.0	12.0		6.0	11.0	11.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0		4.0	3.0	3.0	
Lane Grp Cap (vph)	147	750	319		196	853	366		175	902	376	
v/s Ratio Prot	c0.09	c0.21			0.14	c0.25			0.06	0.09		
v/s Ratio Perm			0.06				0.03				0.03	
v/c Ratio	0.92	0.87	0.23		1.10	0.92	0.13		1.00	0.31	0.11	
Uniform Delay, d1	65.1	52.9	44.4		63.5	51.4	40.1		68.3	40.7	38.3	
Progression Factor	0.58	0.41	1.00		1.00	1.00	1.00		0.80	0.93	1.00	
Incremental Delay, d2	32.8	5.8	0.2		92.6	15.0	0.2		67.5	0.9	0.6	
Delay (s)	70.6	27.5	44.6		156.1	66.4	40.2		122.4	38.8	38.9	
Level of Service	E	C	D		F	E	D		F	D	D	
Approach Delay (s)		37.7				78.9				63.0		
Approach LOS		D				E				E		

Intersection Summary			
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	36.0
Intersection Capacity Utilization	106.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	235	1085	180	215
Future Volume (vph)	235	1085	180	215
Ideal Flow (vphpl)	1750	1750	1750	1750
Total Lost time (s)	6.0	11.0	11.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.94	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3014	3107	1312	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3014	3107	1312	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	235	1085	180	215
RTOR Reduction (vph)	0	0	171	0
Lane Group Flow (vph)	255	1085	224	0
Confl. Peds. (#/hr)	36			32
Heavy Vehicles (%)	7%	7%	7%	7%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	15.0	48.0	48.0	
Effective Green, g (s)	15.0	48.0	48.0	
Actuated g/C Ratio	0.10	0.33	0.33	
Clearance Time (s)	6.0	11.0	11.0	
Vehicle Extension (s)	4.0	3.0	3.0	
Lane Grp Cap (vph)	311	1028	434	
v/s Ratio Prot	c0.08	c0.35		
v/s Ratio Perm			0.17	
v/c Ratio	0.82	1.06	0.52	
Uniform Delay, d1	63.7	48.5	39.1	
Progression Factor	1.39	0.57	0.21	
Incremental Delay, d2	13.3	41.1	3.5	
Delay (s)	101.5	68.6	11.6	
Level of Service	F	E	B	
Approach Delay (s)		60.5		
Approach LOS		E		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	865	365	285	845	50	100	15	130	55	55	15
Future Volume (vph)	20	865	365	285	845	50	100	15	130	55	55	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.0	11.0		6.0	11.0		6.5	11.5	11.5	6.5	11.5	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	4330		1554	3075		1498	1577	1300	1471	1487	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1583	4330		1554	3075		1498	1577	1300	1471	1487	
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)	20	865	365	285	845	50	100	15	130	55	55	15
RTOR Reduction (vph)	0	52	0	0	3	0	0	0	105	0	7	0
Lane Group Flow (vph)	20	1178	0	285	892	0	100	15	25	55	63	0
Confl. Peds. (#/hr)	5		1	1		5	15		10	10		15
Heavy Vehicles (%)	5%	5%	5%	7%	7%	7%	11%	11%	11%	13%	13%	13%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases									4			
Actuated Green, G (s)	5.3	40.0		31.9	66.6		11.8	28.1	28.1	10.0	26.3	
Effective Green, g (s)	5.3	40.0		31.9	66.6		11.8	28.1	28.1	10.0	26.3	
Actuated g/C Ratio	0.04	0.28		0.22	0.46		0.08	0.19	0.19	0.07	0.18	
Clearance Time (s)	6.0	11.0		6.0	11.0		6.5	11.5	11.5	6.5	11.5	
Vehicle Extension (s)	2.0	2.0		3.0	2.0		2.0	2.0	2.0	3.0	2.0	
Lane Grp Cap (vph)	57	1194		341	1412		121	305	251	101	269	
v/s Ratio Prot	0.01	c0.27		c0.18	0.29		c0.07	0.01		c0.04	c0.04	
v/s Ratio Perm									0.02			
v/c Ratio	0.35	0.99		0.84	0.63		0.83	0.05	0.10	0.54	0.24	
Uniform Delay, d1	68.2	52.2		54.0	29.9		65.6	47.6	48.1	65.3	50.8	
Progression Factor	1.00	1.00		0.84	0.44		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	22.5		8.7	0.3		33.5	0.3	0.8	5.9	2.1	
Delay (s)	69.5	74.8		54.0	13.4		99.1	47.9	48.9	71.2	52.8	
Level of Service	E	E		D	B		F	D	D	E	D	
Approach Delay (s)		74.7			23.3			69.3			60.9	
Approach LOS		E			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	51.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	35.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

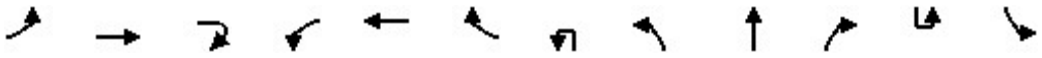
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	5	15	5	105	15	15	10	5	130	105	5	65
Future Volume (vph)	5	15	5	105	15	15	10	5	130	105	5	65
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	10.0	10.0		10.0	10.0			10.0	10.0			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.97			1.00	0.99			1.00
Flpb, ped/bikes	0.96	1.00		1.00	1.00			1.00	1.00			0.99
Frt	1.00	0.96		1.00	0.93			1.00	0.93			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1359	1435		1582	1498			1583	2913			1616
Flt Permitted	0.74	1.00		0.74	1.00			0.33	1.00			0.61
Satd. Flow (perm)	1055	1435		1240	1498			554	2913			1030
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	15	5	105	15	15	10	5	130	105	5	65
RTOR Reduction (vph)	0	4	0	0	13	0	0	0	66	0	0	0
Lane Group Flow (vph)	5	16	0	105	17	0	0	15	169	0	0	70
Confl. Peds. (#/hr)	77		1	1		77				9		9
Heavy Vehicles (%)	17%	17%	17%	5%	5%	5%	5%	5%	5%	5%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	Perm	NA		Perm	Perm
Protected Phases		8			4				6			
Permitted Phases	8			4			6	6			2	2
Actuated Green, G (s)	6.9	6.9		6.9	6.9			16.2	16.2			21.2
Effective Green, g (s)	6.9	6.9		6.9	6.9			16.2	16.2			21.2
Actuated g/C Ratio	0.16	0.16		0.16	0.16			0.38	0.38			0.49
Clearance Time (s)	10.0	10.0		10.0	10.0			10.0	10.0			5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	168	229		198	239			208	1094			506
v/s Ratio Prot		0.01			0.01				0.06			
v/s Ratio Perm	0.00			c0.08				0.03				0.07
v/c Ratio	0.03	0.07		0.53	0.07			0.07	0.15			0.14
Uniform Delay, d1	15.3	15.4		16.6	15.4			8.6	8.9			6.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	0.0	0.0		1.4	0.0			0.1	0.0			0.0
Delay (s)	15.3	15.4		18.0	15.4			8.7	8.9			6.0
Level of Service	B	B		B	B			A	A			A
Approach Delay (s)		15.4			17.4				8.9			
Approach LOS		B			B				A			

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	43.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	750	15
Future Volume (vph)	750	15
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	5.0	
Lane Util. Factor	0.95	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	3250	
Flt Permitted	1.00	
Satd. Flow (perm)	3250	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	750	15
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	763	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	2%
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	21.2	
Effective Green, g (s)	21.2	
Actuated g/C Ratio	0.49	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1598	
v/s Ratio Prot	c0.23	
v/s Ratio Perm		
v/c Ratio	0.48	
Uniform Delay, d1	7.3	
Progression Factor	1.00	
Incremental Delay, d2	0.1	
Delay (s)	7.4	
Level of Service	A	
Approach Delay (s)	7.2	
Approach LOS	A	

Intersection Summary



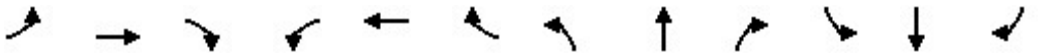
Movement	EBL	EBT	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	95	35	70	35	10	40	25	25	460	25	20	50
Future Volume (vph)	95	35	70	35	10	40	25	25	460	25	20	50
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	11.0	11.0			11.0	11.0		5.0	10.0			5.0
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00	0.95			1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.99		1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00			0.99	1.00		1.00	1.00			0.98
Frt	1.00	0.90			1.00	0.85		1.00	0.99			1.00
Flt Protected	0.95	1.00			0.96	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1566	1486			1594	1398		1608	3186			1588
Flt Permitted	0.73	1.00			0.71	1.00		0.22	1.00			0.45
Satd. Flow (perm)	1200	1486			1167	1398		377	3186			748
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)	95	35	70	35	10	40	25	25	460	25	20	50
RTOR Reduction (vph)	0	88	0	0	0	34	0	0	2	0	0	0
Lane Group Flow (vph)	95	17	0	0	45	6	0	50	483	0	0	70
Confl. Peds. (#/hr)	1			8		1		31		24		24
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases		8			4		1	1	6		5	5
Permitted Phases	8			4		4	6	6			2	2
Actuated Green, G (s)	22.9	22.9			22.9	22.9		95.5	90.5			90.5
Effective Green, g (s)	22.9	22.9			22.9	22.9		95.5	90.5			90.5
Actuated g/C Ratio	0.16	0.16			0.16	0.16		0.66	0.62			0.62
Clearance Time (s)	11.0	11.0			11.0	11.0		5.0	10.0			5.0
Vehicle Extension (s)	4.0	4.0			4.0	4.0		2.0	4.0			2.0
Lane Grp Cap (vph)	189	234			184	220		295	1988			499
v/s Ratio Prot		0.01						c0.01	0.15			0.01
v/s Ratio Perm	c0.08				0.04	0.00		0.10				0.08
v/c Ratio	0.50	0.07			0.24	0.03		0.17	0.24			0.14
Uniform Delay, d1	55.8	52.0			53.5	51.6		12.8	12.1			10.8
Progression Factor	1.00	1.00			1.00	1.00		0.55	0.54			0.28
Incremental Delay, d2	2.9	0.2			0.9	0.1		0.1	0.2			0.0
Delay (s)	58.7	52.2			54.4	51.7		7.0	6.7			3.0
Level of Service	E	D			D	D		A	A			A
Approach Delay (s)		55.3			53.1				6.8			
Approach LOS		E			D				A			

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	1165	190	90
Future Volume (vph)	1165	190	90
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	10.0	10.0	
Lane Util. Factor	0.95	1.00	
Frpb, ped/bikes	1.00	0.84	
Flpb, ped/bikes	1.00	1.00	
Frt	1.00	0.85	
Flt Protected	1.00	1.00	
Satd. Flow (prot)	3228	1216	
Flt Permitted	1.00	1.00	
Satd. Flow (perm)	3228	1216	
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	1165	190	90
RTOR Reduction (vph)	0	51	0
Lane Group Flow (vph)	1165	229	0
Confl. Peds. (#/hr)			31
Heavy Vehicles (%)	3%	3%	3%
Turn Type	NA	Perm	
Protected Phases	2		
Permitted Phases		2	
Actuated Green, G (s)	90.5	90.5	
Effective Green, g (s)	90.5	90.5	
Actuated g/C Ratio	0.62	0.62	
Clearance Time (s)	10.0	10.0	
Vehicle Extension (s)	4.0	4.0	
Lane Grp Cap (vph)	2014	758	
v/s Ratio Prot	c0.36		
v/s Ratio Perm		0.19	
v/c Ratio	0.58	0.30	
Uniform Delay, d1	16.0	12.6	
Progression Factor	0.44	0.18	
Incremental Delay, d2	0.5	0.4	
Delay (s)	7.5	2.7	
Level of Service	A	A	
Approach Delay (s)	6.4		
Approach LOS	A		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	75	205	400	215	50	245	180	170	15	300	50
Future Volume (vph)	10	75	205	400	215	50	245	180	170	15	300	50
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	0.99	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.98	
Flt Protected		0.99	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1706	1458	1519	1574	1409	1630	2991		1645	3222	
Flt Permitted		0.99	1.00	0.95	0.98	1.00	0.37	1.00		0.54	1.00	
Satd. Flow (perm)		1706	1458	1519	1574	1409	627	2991		939	3222	
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)	10	75	205	400	215	50	245	180	170	15	300	50
RTOR Reduction (vph)	0	0	181	0	0	36	0	107	0	0	10	0
Lane Group Flow (vph)	0	85	24	304	311	14	245	243	0	15	340	0
Confl. Peds. (#/hr)	3					3			1	1		
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3			4	6			2		
Actuated Green, G (s)		10.4	10.4	25.3	25.3	25.3	39.9	33.7		21.0	19.8	
Effective Green, g (s)		10.4	10.4	25.3	25.3	25.3	39.9	33.7		21.0	19.8	
Actuated g/C Ratio		0.11	0.11	0.28	0.28	0.28	0.44	0.37		0.23	0.22	
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.5		3.5	3.5	
Lane Grp Cap (vph)		195	167	424	439	393	443	1112		227	704	
v/s Ratio Prot		c0.05		c0.20	0.20		c0.09	0.08		0.00	0.11	
v/s Ratio Perm			0.02			0.01	c0.15			0.01		
v/c Ratio		0.44	0.14	0.72	0.71	0.04	0.55	0.22		0.07	0.48	
Uniform Delay, d1		37.4	36.1	29.4	29.3	23.8	17.2	19.5		27.0	30.9	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.4	5.7	5.2	0.0	1.5	0.1		0.1	0.6	
Delay (s)		38.9	36.5	35.1	34.5	23.8	18.7	19.6		27.1	31.5	
Level of Service		D	D	D	C	C	B	B		C	C	
Approach Delay (s)		37.2			34.0			19.2			31.4	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

LANE SUMMARY

Site: 72 [72-Des Moines Memorial Dr @ SR 509 SB Ramps (Site Folder: 2032 NA)]

72-Des Moines Memorial Dr @ SR 509 SB Ramps, 2032 No Action
Site Category: 2032 No Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: Des Moines Memorial Dr (WB)													
Lane 1[d]	585	9.0	1305	0.448	100	4.3	LOS A	3.7	98.1	Full	1000	0.0	0.0
Approach	585	9.0		0.448		4.3	LOS A	3.7	98.1				
North: SR 509 Ramps													
Lane 1	440	3.0	995	0.442	100	12.4	LOS B	2.9	73.8	Full	1600	0.0	0.0
Lane 2[d]	540	3.0	1220	0.442	100	11.8	LOS B	3.1	78.1	Full	1600	0.0	0.0
Lane 3	780	3.0	1220	0.639	100	8.4	LOS A	6.5	165.4	Short	500	0.0	NA
Approach	1760	3.0		0.639		10.5	LOS B	6.5	165.4				
West: Des Moines Memorial Dr (EB)													
Lane 1	372	4.0	681	0.547	100	9.8	LOS A	3.2	83.4	Full	1600	0.0	0.0
Lane 2[d]	453	4.0	828	0.547	100	8.6	LOS A	3.4	88.7	Full	1600	0.0	0.0
Approach	825	4.0		0.547		9.1	LOS A	3.4	88.7				
Intersection	3170	4.4		0.639		9.0	LOS A	6.5	165.4				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

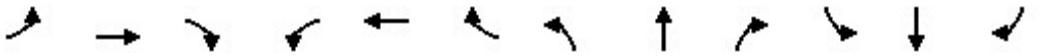
Approach Lane Flows (veh/h)

East: Des Moines Memorial Dr (WB)

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	425	160	585	9.0	1305	0.448	100	NA	NA
Approach	425	160	585	9.0		0.448			

North: SR 509 Ramps

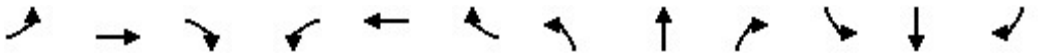
Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	440	-	440	3.0	995	0.442	100	NA	NA
Lane 2	540	-	540	3.0	1220	0.442	100	NA	NA
Lane 3	-	780	780	3.0	1220	0.639	100	0.0	2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	895	615	40	785	5	330	0	35	5	5	5
Future Volume (vph)	5	895	615	40	785	5	330	0	35	5	5	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.3	5.3	5.3	5.3	5.3		5.5	5.5			5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1599	3197	1398	1599	3194		3072	1417			1644	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.76	
Satd. Flow (perm)	1599	3197	1398	1599	3194		3072	1417			1273	
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	895	615	40	785	5	330	0	35	5	5	5
RTOR Reduction (vph)	0	0	180	0	0	0	0	29	0	0	5	0
Lane Group Flow (vph)	5	895	435	40	790	0	330	6	0	0	10	0
Confl. Peds. (#/hr)			1									
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Perm	NA	
Protected Phases	5	2		1	6		4	4			3	
Permitted Phases			2							3		
Actuated Green, G (s)	0.9	47.9	47.9	6.0	53.0		17.9	17.9			3.5	
Effective Green, g (s)	0.9	47.9	47.9	6.0	53.0		17.9	17.9			3.5	
Actuated g/C Ratio	0.01	0.49	0.49	0.06	0.55		0.18	0.18			0.04	
Clearance Time (s)	5.3	5.3	5.3	5.3	5.3		5.5	5.5			5.5	
Vehicle Extension (s)	3.0	3.0	3.0	2.0	3.0		2.0	2.0			3.0	
Lane Grp Cap (vph)	14	1580	691	99	1746		567	261			45	
v/s Ratio Prot	0.00	0.28		c0.03	c0.25		c0.11	0.00				
v/s Ratio Perm			c0.31								c0.01	
v/c Ratio	0.36	0.57	0.63	0.40	0.45		0.58	0.02			0.23	
Uniform Delay, d1	47.7	17.2	18.0	43.7	13.2		36.1	32.4			45.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	14.9	0.5	1.8	1.0	0.2		1.0	0.0			2.6	
Delay (s)	62.7	17.7	19.8	44.7	13.4		37.1	32.4			47.9	
Level of Service	E	B	B	D	B		D	C			D	
Approach Delay (s)		18.7			14.9			36.6			47.9	
Approach LOS		B			B			D			D	

Intersection Summary					
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.58				
Actuated Cycle Length (s)	96.9	Sum of lost time (s)	21.6		
Intersection Capacity Utilization	63.2%	ICU Level of Service	B		
Analysis Period (min)	15				

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	320	105	135	175	160	65	330	85	75	375	50
Future Volume (vph)	90	320	105	135	175	160	65	330	85	75	375	50
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.0	6.0		5.0	5.0		5.2	5.2	5.2	5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1613	1627		1646	1592		1614	1699	1413	1629	1681	
Flt Permitted	0.43	1.00		0.23	1.00		0.24	1.00	1.00	0.37	1.00	
Satd. Flow (perm)	738	1627		402	1592		412	1699	1413	642	1681	
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)	90	320	105	135	175	160	65	330	85	75	375	50
RTOR Reduction (vph)	0	8	0	0	26	0	0	0	59	0	3	0
Lane Group Flow (vph)	90	417	0	135	309	0	65	330	26	75	422	0
Confl. Peds. (#/hr)	1		1	1		1	2		1	1		2
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2		2	6		
Actuated Green, G (s)	33.8	27.5		41.8	31.5		34.0	28.2	28.2	34.0	28.2	
Effective Green, g (s)	33.8	27.5		41.8	31.5		34.0	28.2	28.2	34.0	28.2	
Actuated g/C Ratio	0.36	0.30		0.45	0.34		0.36	0.30	0.30	0.36	0.30	
Clearance Time (s)	6.0	6.0		5.0	5.0		5.2	5.2	5.2	5.2	5.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	326	480		317	538		225	514	427	295	508	
v/s Ratio Prot	0.02	c0.26		c0.05	c0.19		c0.02	0.19		0.02	c0.25	
v/s Ratio Perm	0.08			0.14			0.09		0.02	0.08		
v/c Ratio	0.28	0.87		0.43	0.57		0.29	0.64	0.06	0.25	0.83	
Uniform Delay, d1	20.3	31.1		17.3	25.3		20.9	28.1	23.1	20.2	30.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	14.8		0.3	0.9		0.3	2.1	0.0	0.2	10.3	
Delay (s)	20.4	45.9		17.7	26.3		21.1	30.2	23.1	20.4	40.6	
Level of Service	C	D		B	C		C	C	C	C	D	
Approach Delay (s)		41.4			23.8			27.7			37.5	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	21.4
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

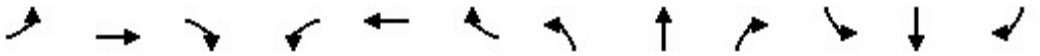
c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	60	865	45	15	150	1175	120	35	25	20	35	15
Future Volume (vph)	60	865	45	15	150	1175	120	35	25	20	35	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.6	9.9			5.0	9.7			10.0			10.0
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00			1.00			0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00			1.00			1.00
Frt	1.00	0.99			1.00	0.99			0.97			0.94
Flt Protected	0.95	1.00			0.95	1.00			0.98			0.98
Satd. Flow (prot)	1599	3170			1599	3146			1614			1595
Flt Permitted	0.95	1.00			0.95	1.00			0.81			0.85
Satd. Flow (perm)	1599	3170			1599	3146			1343			1372
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)	60	865	45	15	150	1175	120	35	25	20	35	15
RTOR Reduction (vph)	0	3	0	0	0	6	0	0	18	0	0	40
Lane Group Flow (vph)	60	907	0	0	165	1289	0	0	62	0	0	55
Confl. Peds. (#/hr)			1				1	3		4	4	
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	0%	0%
Bus Blockages (#/hr)	0	0	48	0	0	0	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	1	6		5	5	2			8			8
Permitted Phases								8			8	
Actuated Green, G (s)	5.3	35.7			9.7	40.7			9.7			9.7
Effective Green, g (s)	5.3	35.7			9.7	40.7			9.7			9.7
Actuated g/C Ratio	0.07	0.45			0.12	0.51			0.12			0.12
Clearance Time (s)	4.6	9.9			5.0	9.7			10.0			10.0
Vehicle Extension (s)	2.0	2.0			2.0	2.0			5.0			5.0
Lane Grp Cap (vph)	105	1414			193	1600			162			166
v/s Ratio Prot	0.04	0.29			c0.10	c0.41						
v/s Ratio Perm									c0.05			0.04
v/c Ratio	0.57	0.64			0.85	0.81			0.39			0.33
Uniform Delay, d1	36.2	17.2			34.5	16.4			32.4			32.2
Progression Factor	1.00	1.00			1.00	1.00			1.00			1.00
Incremental Delay, d2	4.6	2.2			28.1	4.4			3.2			2.5
Delay (s)	40.8	19.4			62.5	20.8			35.6			34.7
Level of Service	D	B			E	C			D			C
Approach Delay (s)		20.8				25.5			35.6			34.7
Approach LOS		C				C			D			C

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.9
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

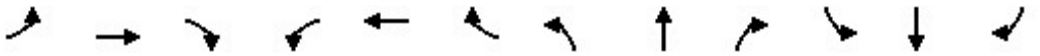
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	45
Future Volume (vph)	45
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	45
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	0%
Bus Blockages (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



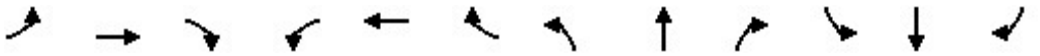
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	825	45	135	705	260	30	115	50	350	395	110
Future Volume (vph)	65	825	45	135	705	260	30	115	50	350	395	110
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.7	10.8		4.7	9.7	9.7	5.7	5.9		5.6	10.8	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1599	4558		1583	3167	1417	1646	1654		3162	1660	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1599	4558		1583	3167	1417	1646	1654		3162	1660	
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)	65	825	45	135	705	260	30	115	50	350	395	110
RTOR Reduction (vph)	0	5	0	0	0	161	0	16	0	0	9	0
Lane Group Flow (vph)	65	865	0	135	705	99	30	149	0	350	496	0
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2						
Actuated Green, G (s)	6.5	29.0		14.4	37.0	37.0	3.2	15.6		29.0	36.4	
Effective Green, g (s)	6.5	29.0		14.4	37.0	37.0	3.2	15.6		29.0	36.4	
Actuated g/C Ratio	0.06	0.25		0.13	0.32	0.32	0.03	0.14		0.25	0.32	
Clearance Time (s)	5.7	10.8		4.7	9.7	9.7	5.7	5.9		5.6	10.8	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	90	1149		198	1018	455	45	224		797	525	
v/s Ratio Prot	0.04	c0.19		c0.09	c0.22		0.02	c0.09		0.11	c0.30	
v/s Ratio Perm						0.07						
v/c Ratio	0.72	0.75		0.68	0.69	0.22	0.67	0.67		0.44	0.94	
Uniform Delay, d1	53.4	39.7		48.1	34.0	28.4	55.4	47.2		36.2	38.3	
Progression Factor	1.00	1.00		0.88	0.76	1.88	1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.3	4.6		6.4	3.3	0.9	31.5	7.3		0.1	25.7	
Delay (s)	74.7	44.3		49.0	29.3	54.3	86.8	54.5		36.3	64.1	
Level of Service	E	D		D	C	D	F	D		D	E	
Approach Delay (s)		46.4			37.6			59.5			52.7	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	32.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



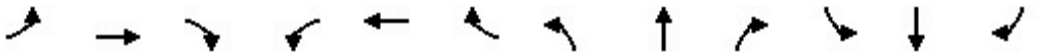
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	855	370	400	1025	0	0	0	0	530	10	75
Future Volume (vph)	0	855	370	400	1025	0	0	0	0	530	10	75
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		6.6	6.6	5.5	6.6					5.9	5.9	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.96	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (prot)		3197	1430	1599	3197					1398	1367	
Flt Permitted		1.00	1.00	0.14	1.00					0.95	0.97	
Satd. Flow (perm)		3197	1430	237	3197					1398	1367	
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	855	370	400	1025	0	0	0	0	530	10	75
RTOR Reduction (vph)	0	0	239	0	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	855	131	400	1025	0	0	0	0	313	290	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	0%	0%	0%	13%	13%	13%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		2		1	6						8	
Permitted Phases			2	6						8		
Actuated Green, G (s)		37.5	37.5	69.5	69.5					33.0	33.0	
Effective Green, g (s)		37.5	37.5	69.5	69.5					33.0	33.0	
Actuated g/C Ratio		0.33	0.33	0.60	0.60					0.29	0.29	
Clearance Time (s)		6.6	6.6	5.5	6.6					5.9	5.9	
Vehicle Extension (s)		4.0	4.0	3.0	5.0					3.5	3.5	
Lane Grp Cap (vph)		1042	466	457	1932					401	392	
v/s Ratio Prot		0.27		c0.20	0.32							
v/s Ratio Perm			0.09	c0.33						c0.22	0.21	
v/c Ratio		0.82	0.28	0.88	0.53					0.78	0.74	
Uniform Delay, d1		35.7	28.7	27.7	13.2					37.7	37.1	
Progression Factor		0.50	1.21	1.32	1.61					1.00	1.00	
Incremental Delay, d2		5.9	1.2	12.1	0.7					9.8	7.4	
Delay (s)		23.5	35.9	48.7	22.0					47.4	44.5	
Level of Service		C	D	D	C					D	D	
Approach Delay (s)		27.3			29.5			0.0			46.0	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	123.6%	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)	400	985	0	0	950	960	475	0	175	0	0	0
Future Volume (vph)	400	985	0	0	950	960	475	0	175	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.5	6.4			6.4	6.4	6.0	6.0				
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95				
Frt	1.00	1.00			1.00	0.85	1.00	0.92				
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (prot)	1554	3107			3197	1430	1449	1367				
Flt Permitted	0.18	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (perm)	297	3107			3197	1430	1449	1367				
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)	400	985	0	0	950	960	475	0	175	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	180	0	63	0	0	0	0
Lane Group Flow (vph)	400	985	0	0	950	780	337	250	0	0	0	0
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	9%	9%	9%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Split	NA				
Protected Phases	5	2			6		4	4				
Permitted Phases	2					6						
Actuated Green, G (s)	74.2	74.2			52.6	52.6	28.4	28.4				
Effective Green, g (s)	74.2	74.2			52.6	52.6	28.4	28.4				
Actuated g/C Ratio	0.65	0.65			0.46	0.46	0.25	0.25				
Clearance Time (s)	5.5	6.4			6.4	6.4	6.0	6.0				
Vehicle Extension (s)	3.0	4.0			5.0	5.0	3.5	3.5				
Lane Grp Cap (vph)	367	2004			1462	654	357	337				
v/s Ratio Prot	c0.15	0.32			0.30		c0.23	0.18				
v/s Ratio Perm	0.55					c0.55						
v/c Ratio	1.09	0.49			0.65	1.19	0.94	0.74				
Uniform Delay, d1	22.3	10.6			24.1	31.2	42.5	39.9				
Progression Factor	2.52	0.86			1.00	1.00	1.00	1.00				
Incremental Delay, d2	65.2	0.6			2.3	101.2	33.4	8.8				
Delay (s)	121.5	9.7			26.3	132.4	76.0	48.7				
Level of Service	F	A			C	F	E	D				
Approach Delay (s)		42.0			79.6			62.8			0.0	
Approach LOS		D			E			E			A	

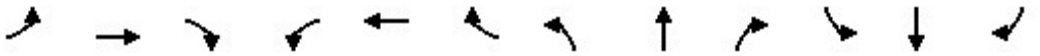
Intersection Summary			
HCM 2000 Control Delay	63.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	123.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	270	160	60	145	110	40	300	30	235	505	10
Future Volume (vph)	25	270	160	60	145	110	40	300	30	235	505	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1603		1598	1683	1430	1614	1676		1630	1711	
Flt Permitted	0.65	1.00		0.23	1.00	1.00	0.23	1.00		0.38	1.00	
Satd. Flow (perm)	1117	1603		394	1683	1430	397	1676		654	1711	
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)	25	270	160	60	145	110	40	300	30	235	505	10
RTOR Reduction (vph)	0	18	0	0	0	62	0	3	0	0	1	0
Lane Group Flow (vph)	25	412	0	60	145	48	40	327	0	235	514	0
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	D.P+P	NA		D.P+P	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	8			4		8	6			2		
Actuated Green, G (s)	35.4	29.4		35.4	31.8	42.2	40.8	30.4		40.8	37.0	
Effective Green, g (s)	35.4	29.4		35.4	31.8	42.2	40.8	30.4		40.8	37.0	
Actuated g/C Ratio	0.37	0.31		0.37	0.33	0.44	0.42	0.32		0.42	0.38	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	2.0		3.0	2.0	3.0	3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	430	489		220	556	701	216	529		382	658	
v/s Ratio Prot	0.00	c0.26		c0.02	0.09	0.01	0.01	0.19		c0.07	c0.30	
v/s Ratio Perm	0.02			0.08		0.03	0.07			0.19		
v/c Ratio	0.06	0.84		0.27	0.26	0.07	0.19	0.62		0.62	0.78	
Uniform Delay, d1	19.5	31.2		21.4	23.6	15.6	18.3	28.0		19.3	26.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	12.0		0.7	0.1	0.0	0.4	1.5		2.9	5.6	
Delay (s)	19.6	43.2		22.1	23.7	15.7	18.7	29.5		22.2	31.6	
Level of Service	B	D		C	C	B	B	C		C	C	
Approach Delay (s)		41.9			20.6			28.3			28.7	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	96.2	Sum of lost time (s)	20.0
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)	20	455	130	85	375	85	40	230	175	90	560	30
Future Volume (vph)	20	455	130	85	375	85	40	230	175	90	560	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0		5.0	10.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.94		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1646	3172		1599	1683	1408	1646	3058		1568	3109	
Flt Permitted	0.47	1.00		0.30	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	817	3172		512	1683	1408	1646	3058		1568	3109	
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)	20	455	130	85	375	85	40	230	175	90	560	30
RTOR Reduction (vph)	0	20	0	0	0	56	0	108	0	0	3	0
Lane Group Flow (vph)	20	565	0	85	375	29	40	297	0	90	587	0
Confl. Peds. (#/hr)			3			4	2		3	3		2
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	1%	1%	1%	6%	6%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)	36.5	34.2		46.9	39.6	39.6	5.2	32.8		9.6	37.2	
Effective Green, g (s)	36.5	34.2		46.9	39.6	39.6	5.2	32.8		9.6	37.2	
Actuated g/C Ratio	0.32	0.30		0.41	0.35	0.35	0.05	0.29		0.08	0.33	
Clearance Time (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0		5.0	10.0	
Vehicle Extension (s)	2.0	2.0		3.0	2.0	2.0	3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	277	949		283	583	487	74	877		131	1011	
v/s Ratio Prot	0.00	0.18		c0.02	c0.22		0.02	0.10		c0.06	c0.19	
v/s Ratio Perm	0.02			0.10		0.02						
v/c Ratio	0.07	0.60		0.30	0.64	0.06	0.54	0.34		0.69	0.58	
Uniform Delay, d1	26.9	34.2		21.6	31.4	24.9	53.4	32.2		50.9	32.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.7		0.6	1.8	0.0	7.8	0.1		13.9	0.6	
Delay (s)	26.9	34.8		22.2	33.2	25.0	61.2	32.3		64.8	32.6	
Level of Service	C	C		C	C	C	E	C		E	C	
Approach Delay (s)		34.6			30.2			34.9			36.9	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	114.3	Sum of lost time (s)	30.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

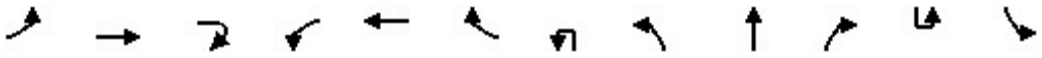
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	45	605	50	30	410	180	25	10	35	195	40
Future Volume (vph)	5	45	605	50	30	410	180	25	10	35	195	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.94		1.00	0.98		1.00	0.96
Flpb, ped/bikes		1.00	1.00		1.00	1.00		0.95	1.00		0.98	1.00
Frt		1.00	0.99		1.00	0.95		1.00	0.88		1.00	0.91
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1614	3139		1568	2806		1516	1452		1619	1516
Flt Permitted		0.40	1.00		0.38	1.00		0.66	1.00		0.73	1.00
Satd. Flow (perm)		683	3139		634	2806		1048	1452		1240	1516
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	45	605	50	30	410	180	25	10	35	195	40
RTOR Reduction (vph)	0	0	3	0	0	22	0	0	28	0	0	41
Lane Group Flow (vph)	0	50	652	0	30	568	0	25	17	0	195	54
Confl. Peds. (#/hr)				38			39	31		9	9	
Heavy Vehicles (%)	3%	3%	3%	3%	6%	6%	6%	4%	4%	4%	1%	1%
Turn Type	pm+pt	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA
Protected Phases	7	7	4		3	8			2			6
Permitted Phases	4	4			8			2			6	
Actuated Green, G (s)		103.8	98.9		101.0	97.5		27.6	27.6		27.6	27.6
Effective Green, g (s)		103.8	98.9		101.0	97.5		27.6	27.6		27.6	27.6
Actuated g/C Ratio		0.72	0.68		0.70	0.67		0.19	0.19		0.19	0.19
Clearance Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		520	2141		464	1886		199	276		236	288
v/s Ratio Prot		c0.00	c0.21		0.00	0.20			0.01			0.04
v/s Ratio Perm		0.07			0.04			0.02			c0.16	
v/c Ratio		0.10	0.30		0.06	0.30		0.13	0.06		0.83	0.19
Uniform Delay, d1		6.2	9.3		6.9	9.8		48.7	48.1		56.4	49.3
Progression Factor		1.00	1.00		0.40	0.36		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.4		0.0	0.3		0.1	0.0		19.6	0.1
Delay (s)		6.2	9.6		2.8	3.8		48.8	48.1		76.0	49.4
Level of Service		A	A		A	A		D	D		E	D
Approach Delay (s)			9.4			3.8			48.4			67.3
Approach LOS			A			A			D			E

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	55
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	31
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



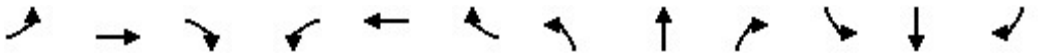
Movement	EBL	EBT	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	590	145	45	335	115	5	180	475	185	10	315
Future Volume (vph)	85	590	145	45	335	115	5	180	475	185	10	315
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.0	11.0		5.0	11.0			5.0	10.0	10.0		5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	0.95	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00	0.95		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		1.00
Frt	1.00	0.97		1.00	0.96			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1646	3195		1599	3034			1614	3228	1376		1614
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1646	3195		1599	3034			1614	3228	1376		1614
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)	85	590	145	45	335	115	5	180	475	185	10	315
RTOR Reduction (vph)	0	156	0	0	23	0	0	0	0	107	0	0
Lane Group Flow (vph)	85	579	0	45	427	0	0	185	475	78	0	325
Confl. Peds. (#/hr)						31				20		
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases										2		
Actuated Green, G (s)	8.8	37.5		7.4	35.1			18.3	36.8	36.8		32.3
Effective Green, g (s)	8.8	37.5		7.4	35.1			18.3	36.8	36.8		32.3
Actuated g/C Ratio	0.06	0.26		0.05	0.24			0.13	0.25	0.25		0.22
Clearance Time (s)	6.0	11.0		5.0	11.0			5.0	10.0	10.0		5.0
Vehicle Extension (s)	2.0	2.0		3.0	2.0			2.0	3.0	3.0		3.0
Lane Grp Cap (vph)	99	826		81	734			203	819	349		359
v/s Ratio Prot	c0.05	c0.18		0.03	0.14			c0.11	0.15			0.20
v/s Ratio Perm										0.06		
v/c Ratio	0.86	0.70		0.56	0.58			0.91	0.58	0.22		0.91
Uniform Delay, d1	67.5	48.7		67.2	48.5			62.5	47.3	42.8		54.9
Progression Factor	0.96	0.92		1.00	1.00			0.92	0.89	1.19		0.84
Incremental Delay, d2	45.2	2.1		8.0	0.8			38.4	2.9	1.4		23.9
Delay (s)	110.1	47.1		75.2	49.2			95.9	45.2	52.3		70.2
Level of Service	F	D		E	D			F	D	D		E
Approach Delay (s)		53.6			51.6				57.9			
Approach LOS		D			D				E			

Intersection Summary			
HCM 2000 Control Delay	48.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	32.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	1020	170	105
Future Volume (vph)	1020	170	105
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	10.0	10.0	
Lane Util. Factor	0.95	1.00	
Frpb, ped/bikes	1.00	0.95	
Flpb, ped/bikes	1.00	1.00	
Frt	1.00	0.85	
Flt Protected	1.00	1.00	
Satd. Flow (prot)	3228	1368	
Flt Permitted	1.00	1.00	
Satd. Flow (perm)	3228	1368	
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	1020	170	105
RTOR Reduction (vph)	0	118	0
Lane Group Flow (vph)	1020	157	0
Confl. Peds. (#/hr)			23
Heavy Vehicles (%)	3%	3%	3%
Turn Type	NA	Perm	
Protected Phases	6		
Permitted Phases		6	
Actuated Green, G (s)	50.8	50.8	
Effective Green, g (s)	50.8	50.8	
Actuated g/C Ratio	0.35	0.35	
Clearance Time (s)	10.0	10.0	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	1130	479	
v/s Ratio Prot	c0.32		
v/s Ratio Perm		0.12	
v/c Ratio	0.90	0.33	
Uniform Delay, d1	44.8	34.6	
Progression Factor	0.61	0.30	
Incremental Delay, d2	10.9	1.7	
Delay (s)	38.3	12.1	
Level of Service	D	B	
Approach Delay (s)	40.3		
Approach LOS	D		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	295	745	255	165	25	180	140	35	195	105	95
Future Volume (vph)	125	295	745	255	165	25	180	140	35	195	105	95
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.5	5.9	5.5	5.5	5.9		5.5	5.9	5.5	5.5	5.9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1599	1645		1630	1716	1458	1646	1609	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1599	1645		1630	1716	1458	1646	1609	
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	295	745	255	165	25	180	140	35	195	105	95
RTOR Reduction (vph)	0	0	233	0	4	0	0	0	22	0	27	0
Lane Group Flow (vph)	125	295	512	255	186	0	180	140	13	195	173	0
Confl. Peds. (#/hr)						1						
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	13.4	38.3	56.3	22.8	47.7		18.0	21.7	44.5	15.1	18.8	
Effective Green, g (s)	13.4	38.3	56.3	22.8	47.7		18.0	21.7	44.5	15.1	18.8	
Actuated g/C Ratio	0.11	0.32	0.47	0.19	0.40		0.15	0.18	0.37	0.13	0.16	
Clearance Time (s)	5.5	5.9	5.5	5.5	5.9		5.5	5.9	5.5	5.5	5.9	
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	180	544	680	302	650		243	308	537	205	250	
v/s Ratio Prot	0.08	0.17	c0.11	c0.16	0.11		0.11	c0.08	0.00	c0.12	c0.11	
v/s Ratio Perm			0.24						0.00			
v/c Ratio	0.69	0.54	0.75	0.84	0.29		0.74	0.45	0.02	0.95	0.69	
Uniform Delay, d1	51.7	34.0	26.5	47.2	24.9		49.1	44.2	24.3	52.4	48.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.4	1.2	4.9	19.4	0.3		11.8	1.3	0.0	49.2	8.3	
Delay (s)	63.1	35.2	31.3	66.6	25.2		61.0	45.5	24.3	101.6	56.5	
Level of Service	E	D	C	E	C		E	D	C	F	E	
Approach Delay (s)		35.7			48.9			51.2			78.8	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	47.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.7	Sum of lost time (s)	22.8
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

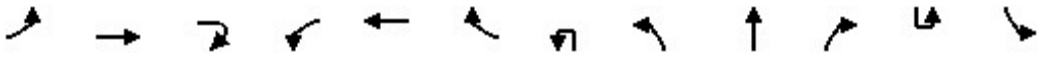
c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	20	5	0	25	70	0	40	10	615	50	10	55
Future Volume (vph)	20	5	0	25	70	0	40	10	615	50	10	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		3%				0%			0%			
Total Lost time (s)		11.0	11.0		11.0	11.0		5.0	10.0			5.0
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00	0.95			1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98		1.00	1.00			1.00
Flpb, ped/bikes		0.99	1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00	0.85		1.00	0.85		1.00	0.99			1.00
Flt Protected		0.96	1.00		0.95	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1512	1322		1607	1417		1614	3181			1646
Flt Permitted		0.74	1.00		0.74	1.00		0.95	1.00			0.95
Satd. Flow (perm)		1166	1322		1253	1417		1614	3181			1646
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)	20	5	0	25	70	0	40	10	615	50	10	55
RTOR Reduction (vph)	0	0	23	0	0	36	0	0	3	0	0	0
Lane Group Flow (vph)	0	25	2	0	70	4	0	10	662	0	0	65
Confl. Peds. (#/hr)	5		3		3		5	6		6		6
Heavy Vehicles (%)	9%	9%	9%	9%	3%	3%	3%	3%	3%	3%	1%	1%
Turn Type	Perm	NA	Perm		Perm	NA		Prot	NA		Prot	Prot
Protected Phases		4				8		5	2		1	1
Permitted Phases	4		4		8							
Actuated Green, G (s)		14.1	14.1		14.1	14.1		3.0	95.4			9.5
Effective Green, g (s)		14.1	14.1		14.1	14.1		3.0	95.4			9.5
Actuated g/C Ratio		0.10	0.10		0.10	0.10		0.02	0.66			0.07
Clearance Time (s)		11.0	11.0		11.0	11.0		5.0	10.0			5.0
Vehicle Extension (s)		4.0	4.0		3.0	3.0		3.0	4.0			3.0
Lane Grp Cap (vph)		113	128		121	137		33	2092			107
v/s Ratio Prot						0.00		0.01	0.21			c0.04
v/s Ratio Perm		0.02	0.00		c0.06							
v/c Ratio		0.22	0.02		0.58	0.03		0.30	0.32			0.61
Uniform Delay, d1		60.4	59.2		62.6	59.2		70.0	10.7			65.9
Progression Factor		1.00	1.00		1.00	1.00		0.81	1.70			1.15
Incremental Delay, d2		1.4	0.1		6.6	0.1		5.1	0.4			7.0
Delay (s)		61.7	59.3		69.2	59.3		61.6	18.6			83.0
Level of Service		E	E		E	E		E	B			F
Approach Delay (s)		60.5				65.6			19.2			
Approach LOS		E				E			B			

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	1110	180	15
Future Volume (vph)	1110	180	15
Ideal Flow (vphpl)	1750	1750	1750
Grade (%)	0%		
Total Lost time (s)	10.0	10.0	
Lane Util. Factor	0.95	1.00	
Frpb, ped/bikes	1.00	0.96	
Flpb, ped/bikes	1.00	1.00	
Frt	1.00	0.85	
Flt Protected	1.00	1.00	
Satd. Flow (prot)	3292	1410	
Flt Permitted	1.00	1.00	
Satd. Flow (perm)	3292	1410	
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	1110	180	15
RTOR Reduction (vph)	0	29	0
Lane Group Flow (vph)	1110	166	0
Confl. Peds. (#/hr)			6
Heavy Vehicles (%)	1%	1%	1%
Turn Type	NA	Perm	
Protected Phases	6		
Permitted Phases		6	
Actuated Green, G (s)	101.9	101.9	
Effective Green, g (s)	101.9	101.9	
Actuated g/C Ratio	0.70	0.70	
Clearance Time (s)	10.0	10.0	
Vehicle Extension (s)	4.0	4.0	
Lane Grp Cap (vph)	2313	990	
v/s Ratio Prot	c0.34		
v/s Ratio Perm		0.12	
v/c Ratio	0.48	0.17	
Uniform Delay, d1	9.7	7.3	
Progression Factor	0.81	0.70	
Incremental Delay, d2	0.5	0.3	
Delay (s)	8.4	5.4	
Level of Service	A	A	
Approach Delay (s)	11.5		
Approach LOS	B		

Intersection Summary



Movement	EBL	EBT	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	75	5	30	10	10	35	30	10	505	5	65	20
Future Volume (vph)	75	5	30	10	10	35	30	10	505	5	65	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	11.0	11.0		11.0	11.0			5.0	10.0			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00			1.00
Flpb, ped/bikes	0.99	1.00		0.97	1.00			1.00	1.00			1.00
Frt	1.00	0.87		1.00	0.88			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1589	1466		1586	1494			1599	3191			1630
Flt Permitted	0.73	1.00		0.73	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1217	1466		1226	1494			1599	3191			1630
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)	75	5	30	10	10	35	30	10	505	5	65	20
RTOR Reduction (vph)	0	31	0	0	31	0	0	0	0	0	0	0
Lane Group Flow (vph)	75	4	0	10	14	0	0	40	510	0	0	85
Confl. Peds. (#/hr)	4			18		4		8		4		4
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	4%	4%	4%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		Prot	Prot
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8								
Actuated Green, G (s)	17.9	17.9		17.9	17.9			7.9	87.9			13.2
Effective Green, g (s)	17.9	17.9		17.9	17.9			7.9	87.9			13.2
Actuated g/C Ratio	0.12	0.12		0.12	0.12			0.05	0.61			0.09
Clearance Time (s)	11.0	11.0		11.0	11.0			5.0	10.0			5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	4.0			4.0
Lane Grp Cap (vph)	150	180		151	184			87	1934			148
v/s Ratio Prot		0.00			0.01			0.03	0.16			c0.05
v/s Ratio Perm	c0.06			0.01								
v/c Ratio	0.50	0.02		0.07	0.08			0.46	0.26			0.57
Uniform Delay, d1	59.4	55.9		56.2	56.2			66.5	13.4			63.2
Progression Factor	1.00	1.00		1.00	1.00			1.36	0.29			1.15
Incremental Delay, d2	2.6	0.1		0.2	0.2			3.6	0.3			6.0
Delay (s)	62.0	55.9		56.3	56.4			94.2	4.1			78.9
Level of Service	E	E		E	E			F	A			E
Approach Delay (s)		60.1			56.4				10.7			
Approach LOS		E			E				B			

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

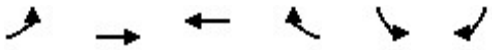
Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	1045	170	60
Future Volume (vph)	1045	170	60
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	10.0	10.0	
Lane Util. Factor	0.95	1.00	
Frpb, ped/bikes	1.00	0.95	
Flpb, ped/bikes	1.00	1.00	
Frt	1.00	0.85	
Flt Protected	1.00	1.00	
Satd. Flow (prot)	3260	1385	
Flt Permitted	1.00	1.00	
Satd. Flow (perm)	3260	1385	
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	1045	170	60
RTOR Reduction (vph)	0	35	0
Lane Group Flow (vph)	1045	195	0
Confl. Peds. (#/hr)			8
Confl. Bikes (#/hr)			1
Heavy Vehicles (%)	2%	2%	2%
Turn Type	NA	Perm	
Protected Phases	6		
Permitted Phases		6	
Actuated Green, G (s)	93.2	93.2	
Effective Green, g (s)	93.2	93.2	
Actuated g/C Ratio	0.64	0.64	
Clearance Time (s)	10.0	10.0	
Vehicle Extension (s)	4.0	4.0	
Lane Grp Cap (vph)	2095	890	
v/s Ratio Prot	c0.32		
v/s Ratio Perm		0.14	
v/c Ratio	0.50	0.22	
Uniform Delay, d1	13.6	10.8	
Progression Factor	0.93	0.77	
Incremental Delay, d2	0.8	0.5	
Delay (s)	13.5	8.8	
Level of Service	B	A	
Approach Delay (s)	16.8		
Approach LOS	B		

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	220	60	335	135	735	370
Future Volume (vph)	220	60	335	135	735	370
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.5		5.0	5.0	5.0	5.5
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1579		1630	1716	1733	1452
Flt Permitted	0.96		0.09	1.00	1.00	1.00
Satd. Flow (perm)	1579		151	1716	1733	1452
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	60	335	135	735	370
RTOR Reduction (vph)	9	0	0	0	0	67
Lane Group Flow (vph)	271	0	335	135	735	303
Confl. Peds. (#/hr)		2				1
Heavy Vehicles (%)	3%	3%	2%	2%	1%	1%
Turn Type	Prot		pm+pt	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases			2			6
Actuated Green, G (s)	24.3		68.9	68.9	40.4	64.7
Effective Green, g (s)	24.3		68.9	68.9	40.4	64.7
Actuated g/C Ratio	0.23		0.66	0.66	0.39	0.62
Clearance Time (s)	5.5		5.0	5.0	5.0	5.5
Vehicle Extension (s)	4.0		3.5	4.0	4.0	4.0
Lane Grp Cap (vph)	370		435	1140	675	905
v/s Ratio Prot	c0.17		c0.17	0.08	c0.42	0.08
v/s Ratio Perm			0.34			0.13
v/c Ratio	0.73		0.77	0.12	1.09	0.34
Uniform Delay, d1	36.7		28.2	6.3	31.7	9.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	7.8		8.4	0.1	61.3	0.3
Delay (s)	44.5		36.6	6.4	93.0	9.6
Level of Service	D		D	A	F	A
Approach Delay (s)	44.5			27.9	65.0	
Approach LOS	D			C	E	

Intersection Summary			
HCM 2000 Control Delay	52.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	103.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

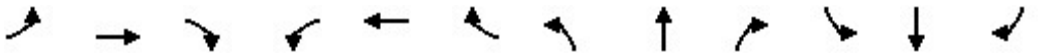
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	830	410	380	705	15
Future Volume (vph)	20	830	410	380	705	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.2	6.2	6.2	6.2	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	
Frt	1.00	1.00	1.00	0.85	1.00	
Flt Protected	0.95	1.00	1.00	1.00	0.95	
Satd. Flow (prot)	1646	3292	1699	1444	3142	
Flt Permitted	0.47	1.00	1.00	1.00	0.95	
Satd. Flow (perm)	817	3292	1699	1444	3142	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	830	410	380	705	15
RTOR Reduction (vph)	0	0	0	218	2	0
Lane Group Flow (vph)	20	830	410	162	718	0
Confl. Peds. (#/hr)					4	4
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Turn Type	Perm	NA	NA	Perm	Perm	
Protected Phases		6	2			
Permitted Phases	6			2	4	
Actuated Green, G (s)	20.6	20.6	20.6	20.6	15.3	
Effective Green, g (s)	20.6	20.6	20.6	20.6	15.3	
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.32	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	0.2	
Lane Grp Cap (vph)	348	1404	724	615	995	
v/s Ratio Prot		c0.25	0.24			
v/s Ratio Perm	0.02			0.11	c0.23	
v/c Ratio	0.06	0.59	0.57	0.26	0.72	
Uniform Delay, d1	8.1	10.6	10.5	8.9	14.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.7	1.0	0.2	2.2	
Delay (s)	8.2	11.3	11.5	9.2	16.8	
Level of Service	A	B	B	A	B	
Approach Delay (s)		11.2	10.4		16.8	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	12.4
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	305	70	125	295	80	60	90	95	390	455	205
Future Volume (vph)	45	305	70	125	295	80	60	90	95	390	455	205
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.5	6.1		5.5	6.1		5.5	5.9		5.5	5.9	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.97		1.00	0.92		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)	1627	3148		1627	3141		1610	1552		1625	1716	1421
Flt Permitted	0.41	1.00		0.31	1.00		0.45	1.00		0.57	1.00	1.00
Satd. Flow (perm)	707	3148		539	3141		755	1552		979	1716	1421
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)	45	305	70	125	295	80	60	90	95	390	455	205
RTOR Reduction (vph)	0	19	0	0	23	0	0	19	0	0	0	79
Lane Group Flow (vph)	45	356	0	125	352	0	60	166	0	390	455	126
Confl. Peds. (#/hr)	7		5	5		7	9		6	6		9
Confl. Bikes (#/hr)									1			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	31.3	24.0		36.5	26.6		74.9	68.1		88.6	76.3	76.3
Effective Green, g (s)	31.3	24.0		36.5	26.6		74.9	68.1		88.6	76.3	76.3
Actuated g/C Ratio	0.22	0.17		0.26	0.19		0.54	0.49		0.63	0.54	0.54
Clearance Time (s)	5.5	6.1		5.5	6.1		5.5	5.9		5.5	5.9	5.9
Vehicle Extension (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	4.0
Lane Grp Cap (vph)	206	539		217	596		445	754		688	935	774
v/s Ratio Prot	0.01	c0.11		c0.04	c0.11		0.01	0.11		c0.06	0.27	
v/s Ratio Perm	0.04			0.11			0.07			c0.30		0.09
v/c Ratio	0.22	0.66		0.58	0.59		0.13	0.22		0.57	0.49	0.16
Uniform Delay, d1	43.5	54.2		41.9	51.7		15.9	20.7		13.1	19.7	15.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	3.3		4.0	1.8		0.2	0.7		1.2	1.8	0.5
Delay (s)	44.1	57.5		45.9	53.5		16.1	21.3		14.3	21.5	16.4
Level of Service	D	E		D	D		B	C		B	C	B
Approach Delay (s)		56.1			51.6			20.1			17.8	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL2	EBT	EBR	EBR2	WBL2	WBT	WBR	WBR2	NBU	NBL	NBT
Lane Configurations												
Traffic Volume (vph)	70	95	340	0	340	130	255	0	110	15	110	345
Future Volume (vph)	70	95	340	0	340	130	255	0	110	15	110	345
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	12	11	14	12	13	11	14	12	12	13	11
Total Lost time (s)		6.0	10.0	10.0		6.0	10.0	10.0			6.0	10.7
Lane Util. Factor		1.00	1.00	1.00		1.00	1.00	1.00			1.00	0.95
Frpb, ped/bikes		1.00	1.00	0.96		1.00	1.00	0.91			1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85			1.00	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00			0.95	1.00
Satd. Flow (prot)		1646	1675	1508		1684	1658	1416			1668	3121
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00			0.95	1.00
Satd. Flow (perm)		1646	1675	1508		1684	1658	1416			1668	3121
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)	70	95	340	0	340	130	255	0	110	15	110	345
RTOR Reduction (vph)	0	0	0	254	0	0	0	83	0	0	0	0
Lane Group Flow (vph)	0	165	340	86	0	130	255	27	0	0	125	345
Confl. Peds. (#/hr)		33		23		23		33			28	
Confl. Bikes (#/hr)								1	1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot	Prot	NA	Perm		Prot	NA	Perm		Prot	Prot	NA
Protected Phases	7	7	4			3	8			5	5	2
Permitted Phases				4				8				
Actuated Green, G (s)		16.0	36.7	36.7		14.3	35.0	35.0			12.0	24.3
Effective Green, g (s)		16.0	36.7	36.7		14.3	35.0	35.0			12.0	24.3
Actuated g/C Ratio		0.11	0.25	0.25		0.10	0.24	0.24			0.08	0.17
Clearance Time (s)		6.0	10.0	10.0		6.0	10.0	10.0			6.0	10.7
Vehicle Extension (s)		3.5	4.0	4.0		3.5	4.0	4.0			3.5	4.0
Lane Grp Cap (vph)		181	423	381		166	400	341			138	523
v/s Ratio Prot		c0.10	c0.20			0.08	c0.15				c0.07	0.11
v/s Ratio Perm				0.06				0.02				
v/c Ratio		0.91	0.80	0.23		0.78	0.64	0.08			0.91	0.66
Uniform Delay, d1		63.8	50.8	42.9		63.8	49.3	42.5			65.9	56.5
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00			0.85	0.73
Incremental Delay, d2		43.0	11.1	0.4		21.6	3.7	0.1			48.7	6.2
Delay (s)		106.8	61.9	43.3		85.4	53.0	42.7			104.8	47.4
Level of Service		F	E	D		F	D	D			F	D
Approach Delay (s)			63.2				59.2					60.3
Approach LOS			E				E					E

Intersection Summary			
HCM 2000 Control Delay	66.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	32.7
Intersection Capacity Utilization	103.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR	NBR2	SBU	SBL	SBT	SBR	SBR2
Lane Configurations							
Traffic Volume (vph)	25	110	30	155	995	165	55
Future Volume (vph)	25	110	30	155	995	165	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	13	12	12	12	12	14
Total Lost time (s)	10.7			6.0	10.7	10.7	
Lane Util. Factor	1.00			1.00	0.95	1.00	
Frpb, ped/bikes	0.91			1.00	1.00	0.95	
Flpb, ped/bikes	1.00			1.00	1.00	1.00	
Frt	0.85			1.00	1.00	0.85	
Flt Protected	1.00			0.95	1.00	1.00	
Satd. Flow (prot)	1320			1646	3292	1397	
Flt Permitted	1.00			0.95	1.00	1.00	
Satd. Flow (perm)	1320			1646	3292	1397	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	110	30	155	995	165	55
RTOR Reduction (vph)	112	0	0	0	0	144	0
Lane Group Flow (vph)	23	0	0	185	995	76	0
Confl. Peds. (#/hr)		28		28			28
Confl. Bikes (#/hr)							
Heavy Vehicles (%)	3%	3%	1%	1%	1%	1%	1%
Turn Type	Perm		Prot	Prot	NA	Perm	
Protected Phases			1	1	6		
Permitted Phases	2					6	
Actuated Green, G (s)	24.3			37.0	49.3	49.3	
Effective Green, g (s)	24.3			37.0	49.3	49.3	
Actuated g/C Ratio	0.17			0.26	0.34	0.34	
Clearance Time (s)	10.7			6.0	10.7	10.7	
Vehicle Extension (s)	4.0			3.5	4.0	4.0	
Lane Grp Cap (vph)	221			420	1119	474	
v/s Ratio Prot				0.11	c0.30		
v/s Ratio Perm	0.02					0.05	
v/c Ratio	0.10			0.44	0.89	0.16	
Uniform Delay, d1	51.1			45.3	45.3	33.4	
Progression Factor	1.00			1.21	1.19	4.01	
Incremental Delay, d2	0.9			0.8	10.1	0.7	
Delay (s)	52.0			55.5	64.1	134.5	
Level of Service	D			E	E	F	
Approach Delay (s)					74.0		
Approach LOS					E		

Intersection Summary

Movement	EBL2	EBT	EBR2	WBL2	WBT	WBR2	NBU	NBL	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	30	30	35	80	10	50	15	15	540	40	45	30
Future Volume (vph)	30	30	35	80	10	50	15	15	540	40	45	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	14	12	12	14	12	12	13	11	12	14	12
Total Lost time (s)		5.9			5.9			5.5	6.7	6.7		
Lane Util. Factor		1.00			1.00			1.00	0.95	1.00		
Frpb, ped/bikes		1.00			1.00			1.00	1.00	0.94		
Flpb, ped/bikes		1.00			1.00			1.00	1.00	1.00		
Frt		0.95			0.95			1.00	1.00	0.85		
Flt Protected		0.98			0.97			0.95	1.00	1.00		
Satd. Flow (prot)		1729			1677			1652	3091	1343		
Flt Permitted		0.85			0.49			0.95	1.00	1.00		
Satd. Flow (perm)		1487			851			1652	3091	1343		
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)	30	30	35	80	10	50	15	15	540	40	45	30
RTOR Reduction (vph)	0	84	0	0	129	0	0	0	0	35	0	0
Lane Group Flow (vph)	0	11	0	0	11	0	0	30	540	50	0	0
Confl. Peds. (#/hr)								4		11		
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	4%	4%	2%
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Perm		Prot
Protected Phases		4			3		5	5	2			1
Permitted Phases	4			3						2		
Actuated Green, G (s)		16.9			11.3			5.1	85.3	85.3		
Effective Green, g (s)		16.9			11.3			5.1	85.3	85.3		
Actuated g/C Ratio		0.12			0.08			0.04	0.59	0.59		
Clearance Time (s)		5.9			5.9			5.5	6.7	6.7		
Vehicle Extension (s)		3.0			3.0			2.5	4.0	4.0		
Lane Grp Cap (vph)		173			66			58	1818	790		
v/s Ratio Prot								c0.02	0.17			
v/s Ratio Perm		c0.01			c0.01					0.04		
v/c Ratio		0.06			0.17			0.52	0.30	0.06		
Uniform Delay, d1		57.0			62.4			68.7	14.9	12.8		
Progression Factor		1.00			1.00			1.41	1.73	6.75		
Incremental Delay, d2		0.2			1.2			5.6	0.4	0.2		
Delay (s)		57.2			63.6			102.9	26.2	86.3		
Level of Service		E			E			F	C	F		
Approach Delay (s)		57.2			63.6				37.5			
Approach LOS		E			E				D			

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	35	1385	225	10
Future Volume (vph)	35	1385	225	10
Ideal Flow (vphpl)	1750	1750	1750	1750
Lane Width	12	11	12	14
Total Lost time (s)	5.5	6.7	6.7	
Lane Util. Factor	1.00	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	1630	3151	1409	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	1630	3151	1409	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	1385	225	10
RTOR Reduction (vph)	0	0	46	0
Lane Group Flow (vph)	65	1385	189	0
Confl. Peds. (#/hr)	11		4	
Heavy Vehicles (%)	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	7.5	87.7	87.7	
Effective Green, g (s)	7.5	87.7	87.7	
Actuated g/C Ratio	0.05	0.60	0.60	
Clearance Time (s)	5.5	6.7	6.7	
Vehicle Extension (s)	2.5	4.0	4.0	
Lane Grp Cap (vph)	84	1905	852	
v/s Ratio Prot	0.04	c0.44		
v/s Ratio Perm			0.13	
v/c Ratio	0.77	0.73	0.22	
Uniform Delay, d1	67.9	20.2	13.1	
Progression Factor	0.94	0.98	0.98	
Incremental Delay, d2	28.6	2.0	0.5	
Delay (s)	92.3	21.9	13.3	
Level of Service	F	C	B	
Approach Delay (s)		23.4		
Approach LOS		C		

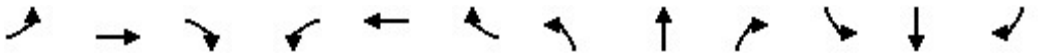
Intersection Summary

Movement	EBL2	EBT	EBR2	WBL2	WBT	WBR2	NBU	NBL	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	35	25	70	55	20	50	45	60	490	35	50	10
Future Volume (vph)	35	25	70	55	20	50	45	60	490	35	50	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	11	11	12	11	11	12	12	12	11	12	14	12
Total Lost time (s)	6.8	6.8		6.8	6.8			5.5	6.7	6.7		
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	0.95		
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00		
Frt	1.00	0.89		1.00	0.89			1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00		
Satd. Flow (prot)	1576	1475		1591	1495			1614	3121	1368		
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		
Satd. Flow (perm)	1576	1475		1591	1495			1614	3121	1368		
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)	35	25	70	55	20	50	45	60	490	35	50	10
RTOR Reduction (vph)	0	87	0	0	64	0	0	0	0	48	0	0
Lane Group Flow (vph)	35	8	0	55	6	0	0	105	490	37	0	0
Confl. Peds. (#/hr)								3		12		
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	3%	3%	3%	3%	3%	1%
Turn Type	Prot	NA		Prot	NA		Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases										2		
Actuated Green, G (s)	7.4	11.8		8.0	12.4			12.0	63.4	63.4		
Effective Green, g (s)	7.4	11.8		8.0	12.4			12.0	63.4	63.4		
Actuated g/C Ratio	0.05	0.08		0.06	0.09			0.08	0.44	0.44		
Clearance Time (s)	6.8	6.8		6.8	6.8			5.5	6.7	6.7		
Vehicle Extension (s)	3.5	3.5		3.5	3.5			3.5	4.0	4.0		
Lane Grp Cap (vph)	80	120		87	127			133	1364	598		
v/s Ratio Prot	0.02	c0.01		c0.03	0.00			c0.07	0.16			
v/s Ratio Perm										0.03		
v/c Ratio	0.44	0.06		0.63	0.05			0.79	0.36	0.06		
Uniform Delay, d1	66.8	61.5		67.1	60.9			65.3	27.2	23.6		
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00		
Incremental Delay, d2	4.5	0.3		14.6	0.2			26.6	0.7	0.2		
Delay (s)	71.3	61.8		81.7	61.1			91.9	28.0	23.8		
Level of Service	E	E		F	E			F	C	C		
Approach Delay (s)		64.3			70.1				37.3			
Approach LOS		E			E				D			

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	25.8
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	55	1445	240	50
Future Volume (vph)	55	1445	240	50
Ideal Flow (vphpl)	1750	1750	1750	1750
Lane Width	12	11	12	14
Total Lost time (s)	5.5	6.7	6.7	
Lane Util. Factor	1.00	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	1646	3182	1431	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	1646	3182	1431	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	1445	240	50
RTOR Reduction (vph)	0	0	48	0
Lane Group Flow (vph)	65	1445	242	0
Confl. Peds. (#/hr)	12		3	
Heavy Vehicles (%)	1%	1%	1%	1%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	36.0	87.4	87.4	
Effective Green, g (s)	36.0	87.4	87.4	
Actuated g/C Ratio	0.25	0.60	0.60	
Clearance Time (s)	5.5	6.7	6.7	
Vehicle Extension (s)	3.5	4.0	4.0	
Lane Grp Cap (vph)	408	1917	862	
v/s Ratio Prot	0.04	c0.45		
v/s Ratio Perm			0.17	
v/c Ratio	0.16	0.75	0.28	
Uniform Delay, d1	42.7	21.0	13.8	
Progression Factor	1.32	1.32	1.96	
Incremental Delay, d2	0.2	2.3	0.7	
Delay (s)	56.4	30.1	27.7	
Level of Service	E	C	C	
Approach Delay (s)		30.7		
Approach LOS		C		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	375	5	55	420	90	20	20	35	230	75	250
Future Volume (vph)	45	375	5	55	420	90	20	20	35	230	75	250
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.9	5.9		5.9	5.9			5.9		5.9	5.9	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.97			0.94		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1643	1729		1630	1663			1585		1646	1502	
Flt Permitted	0.36	1.00		0.49	1.00			0.87		0.71	1.00	
Satd. Flow (perm)	631	1729		846	1663			1393		1227	1502	
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)	45	375	5	55	420	90	20	20	35	230	75	250
RTOR Reduction (vph)	0	1	0	0	9	0	0	24	0	0	112	0
Lane Group Flow (vph)	45	379	0	55	501	0	0	51	0	230	213	0
Confl. Peds. (#/hr)	4					4	7					7
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	24.7	24.7		24.7	24.7			17.7		17.7	17.7	
Effective Green, g (s)	24.7	24.7		24.7	24.7			17.7		17.7	17.7	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.33		0.33	0.33	
Clearance Time (s)	5.9	5.9		5.9	5.9			5.9		5.9	5.9	
Vehicle Extension (s)	3.5	3.5		3.5	3.5			3.0		3.5	3.5	
Lane Grp Cap (vph)	287	787		385	757			454		400	490	
v/s Ratio Prot		0.22			c0.30						0.14	
v/s Ratio Perm	0.07			0.07				0.04		c0.19		
v/c Ratio	0.16	0.48		0.14	0.66			0.11		0.57	0.43	
Uniform Delay, d1	8.6	10.3		8.6	11.5			12.8		15.1	14.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		0.2	2.3			0.1		2.2	0.7	
Delay (s)	8.9	10.8		8.8	13.8			12.9		17.3	15.0	
Level of Service	A	B		A	B			B		B	B	
Approach Delay (s)		10.6			13.3			12.9			16.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	11.8
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

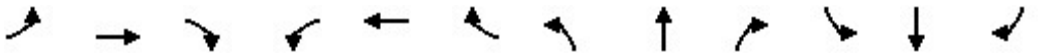
c Critical Lane Group

Movement	EBU	EBL2	EBT	EBR	EBR2	WBU	WBL2	WBT	WBR	WBR2	NBU	NBL
Lane Configurations												
Traffic Volume (vph)	5	40	545	0	155	5	775	440	0	135	55	100
Future Volume (vph)	5	40	545	0	155	5	775	440	0	135	55	100
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	12	11	14	12	12	12	12	13	12	12	12
Total Lost time (s)		6.0	6.0	6.0			6.0	6.0	6.0			6.5
Lane Util. Factor		1.00	0.95	1.00			0.97	0.95	1.00			0.97
Frpb, ped/bikes		1.00	1.00	0.97			1.00	1.00	0.98			1.00
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	1.00			1.00
Frt		1.00	1.00	0.85			1.00	1.00	0.85			1.00
Flt Protected		0.95	1.00	1.00			0.95	1.00	1.00			0.95
Satd. Flow (prot)		1646	3182	1531			3162	3260	1470			3162
Flt Permitted		0.95	1.00	1.00			0.95	1.00	1.00			0.95
Satd. Flow (perm)		1646	3182	1531			3162	3260	1470			3162
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	40	545	0	155	5	775	440	0	135	55	100
RTOR Reduction (vph)	0	0	0	118	0	0	0	0	77	0	0	0
Lane Group Flow (vph)	0	45	545	37	0	0	780	440	58	0	0	155
Confl. Peds. (#/hr)				13					10			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA	Perm		Prot	Prot	NA	Perm		Prot	Prot
Protected Phases	7	7	4			3	3	8			5	5
Permitted Phases				4					8			
Actuated Green, G (s)		9.0	44.3	44.3			44.2	79.5	79.5			12.4
Effective Green, g (s)		9.0	44.3	44.3			44.2	79.5	79.5			12.4
Actuated g/C Ratio		0.05	0.24	0.24			0.24	0.43	0.43			0.07
Clearance Time (s)		6.0	6.0	6.0			6.0	6.0	6.0			6.5
Vehicle Extension (s)		3.0	3.5	3.5			3.5	3.5	3.5			3.0
Lane Grp Cap (vph)		80	767	369			760	1410	636			213
v/s Ratio Prot		0.03	c0.17				c0.25	0.13				0.05
v/s Ratio Perm				0.02					0.04			
v/c Ratio		0.56	0.71	0.10			1.03	0.31	0.09			0.73
Uniform Delay, d1		85.4	63.8	54.2			69.8	34.2	30.8			84.0
Progression Factor		1.00	1.00	1.00			1.00	1.00	1.00			1.00
Incremental Delay, d2		8.8	3.2	0.1			39.5	0.2	0.1			11.7
Delay (s)		94.2	67.1	54.4			109.3	34.3	30.9			95.7
Level of Service		F	E	D			F	C	C			F
Approach Delay (s)			66.1					77.1				
Approach LOS			E					E				

Intersection Summary			
HCM 2000 Control Delay	94.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	183.7	Sum of lost time (s)	25.3
Intersection Capacity Utilization	125.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBT	NBR	NBR2	SBU	SBL	SBT	SBR	SBR2
Lane Configurations								
Traffic Volume (vph)	285	20	800	20	525	1170	190	45
Future Volume (vph)	285	20	800	20	525	1170	190	45
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	11	12	13	12	11	11	12	14
Total Lost time (s)	6.8	6.8	6.8		6.5	6.8	6.8	
Lane Util. Factor	0.95	0.88	0.91		0.97	0.95	1.00	
Frpb, ped/bikes	1.00	0.96	0.96		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.85	0.85		1.00	1.00	0.85	
Flt Protected	1.00	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3151	1232	1317		3087	3182	1427	
Flt Permitted	1.00	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3151	1232	1317		3087	3182	1427	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	285	20	800	20	525	1170	190	45
RTOR Reduction (vph)	0	307	320	0	0	0	92	0
Lane Group Flow (vph)	285	105	88	0	545	1170	143	0
Confl. Peds. (#/hr)			21					15
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%
Turn Type	NA	Perm	Perm	Prot	Prot	NA	Perm	
Protected Phases	2			1	1	6		
Permitted Phases		2	2				6	
Actuated Green, G (s)	39.7	39.7	39.7		30.2	57.5	57.5	
Effective Green, g (s)	39.7	39.7	39.7		30.2	57.5	57.5	
Actuated g/C Ratio	0.22	0.22	0.22		0.16	0.31	0.31	
Clearance Time (s)	6.8	6.8	6.8		6.5	6.8	6.8	
Vehicle Extension (s)	4.0	4.0	4.0		3.5	4.0	4.0	
Lane Grp Cap (vph)	680	266	284		507	995	446	
v/s Ratio Prot	0.09				c0.18	c0.37		
v/s Ratio Perm		0.08	0.07				0.10	
v/c Ratio	0.42	0.39	0.31		1.07	1.18	0.32	
Uniform Delay, d1	62.1	61.7	60.5		76.8	63.1	48.2	
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6	1.3	0.9		61.6	89.8	0.6	
Delay (s)	62.6	63.0	61.4		138.4	152.9	48.8	
Level of Service	E	E	E		F	F	D	
Approach Delay (s)	66.4					136.3		
Approach LOS	E					F		

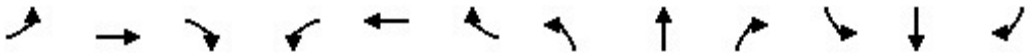
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1295	565	370	805	0	0	0	0	985	275	565
Future Volume (vph)	0	1295	565	370	805	0	0	0	0	985	275	565
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.9	5.9	5.5	5.9					5.9	5.9	5.9
Lane Util. Factor		0.95	1.00	0.97	0.95					0.91	0.91	0.88
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	0.96
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.97	1.00
Satd. Flow (prot)		3260	1432	3131	3228					1455	2967	2411
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.97	1.00
Satd. Flow (perm)		3260	1432	3131	3228					1455	2967	2411
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	1295	565	370	805	0	0	0	0	985	275	565
RTOR Reduction (vph)	0	0	160	0	0	0	0	0	0	0	0	189
Lane Group Flow (vph)	0	1295	405	370	805	0	0	0	0	492	768	376
Confl. Peds. (#/hr)	11		3			11	10					10
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	4%	4%	4%
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		2		1	6					4	4	
Permitted Phases			2									4
Actuated Green, G (s)		61.9	61.9	18.7	86.1					52.1	52.1	52.1
Effective Green, g (s)		61.9	61.9	18.7	86.1					52.1	52.1	52.1
Actuated g/C Ratio		0.41	0.41	0.12	0.57					0.35	0.35	0.35
Clearance Time (s)		5.9	5.9	5.5	5.9					5.9	5.9	5.9
Vehicle Extension (s)		4.0	4.0	3.5	4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1345	590	390	1852					505	1030	837
v/s Ratio Prot		c0.40		c0.12	0.25					c0.34	0.26	
v/s Ratio Perm			0.28									0.16
v/c Ratio		0.96	0.69	0.95	0.43					0.97	0.94dl	0.45
Uniform Delay, d1		42.9	36.1	65.2	18.1					48.3	43.1	37.9
Progression Factor		1.00	1.00	0.87	1.18					0.69	0.69	0.42
Incremental Delay, d2		17.1	6.4	29.2	0.6					31.3	2.9	0.5
Delay (s)		60.1	42.5	85.7	22.0					64.8	32.5	16.5
Level of Service		E	D	F	C					E	C	B
Approach Delay (s)		54.7			42.0			0.0			36.3	
Approach LOS		D			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	44.7	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)	17.3
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
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)	0	1840	440	0	1025	470	150	330	95	0	0	0
Future Volume (vph)	0	1840	440	0	1025	470	150	330	95	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		6.2	6.2		6.2	6.2		5.9	5.5			
Lane Util. Factor		0.91	1.00		0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00	0.97		1.00	0.99		1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00			
Frt		1.00	0.85		1.00	0.85		1.00	0.85			
Flt Protected		1.00	1.00		1.00	1.00		0.98	1.00			
Satd. Flow (prot)		4684	1415		3228	1426		3089	1403			
Flt Permitted		1.00	1.00		1.00	1.00		0.98	1.00			
Satd. Flow (perm)		4684	1415		3228	1426		3089	1403			
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	1840	440	0	1025	470	150	330	95	0	0	0
RTOR Reduction (vph)	0	0	132	0	0	166	0	0	74	0	0	0
Lane Group Flow (vph)	0	1840	308	0	1025	304	0	480	21	0	0	0
Confl. Peds. (#/hr)	1		3	3		1						7
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	6%	6%	6%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Split	NA	custom			
Protected Phases		2			6		3	3	1			
Permitted Phases			2			6			3			
Actuated Green, G (s)		80.3	80.3		95.8	95.8		23.1	33.1			
Effective Green, g (s)		80.3	80.3		95.8	95.8		23.1	33.1			
Actuated g/C Ratio		0.54	0.54		0.64	0.64		0.15	0.22			
Clearance Time (s)		6.2	6.2		6.2	6.2		5.9	5.5			
Vehicle Extension (s)		4.0	4.0		4.0	4.0		4.0	4.5			
Lane Grp Cap (vph)		2507	757		2061	910		475	309			
v/s Ratio Prot		c0.39			c0.32			c0.16	0.00			
v/s Ratio Perm			0.22			0.21			0.01			
v/c Ratio		0.73	0.41		0.50	0.33		1.01	0.07			
Uniform Delay, d1		26.7	20.7		14.4	12.4		63.5	46.2			
Progression Factor		0.61	0.60		1.00	1.00		1.00	1.00			
Incremental Delay, d2		0.8	0.6		0.9	1.0		43.9	0.2			
Delay (s)		17.0	13.1		15.2	13.4		107.4	46.4			
Level of Service		B	B		B	B		F	D			
Approach Delay (s)		16.3			14.7			97.3			0.0	
Approach LOS		B			B			F			A	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.6
Intersection Capacity Utilization	66.6%	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)	185	75	5	185	60	5
Future Volume (Veh/h)	185	75	5	185	60	5
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)	185	75	5	185	60	5
Pedestrians	2				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	790					
pX, platoon unblocked						
vC, conflicting volume			261		420	224
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			261		420	224
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		90	99
cM capacity (veh/h)			1285		578	805

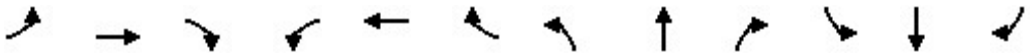
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	260	190	65
Volume Left	0	5	60
Volume Right	75	0	5
cSH	1700	1285	591
Volume to Capacity	0.15	0.00	0.11
Queue Length 95th (ft)	0	0	9
Control Delay (s)	0.0	0.2	11.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	11.8
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	20	400	30	25	390
Future Volume (Veh/h)	15	20	400	30	25	390
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	20	400	30	25	390
Pedestrians	3		1			3
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	859	421			433	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	859	421			433	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			98	
cM capacity (veh/h)	321	634			1118	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	35	430	25	390
Volume Left	15	0	25	0
Volume Right	20	30	0	0
cSH	447	1700	1118	1700
Volume to Capacity	0.08	0.25	0.02	0.23
Queue Length 95th (ft)	6	0	2	0
Control Delay (s)	13.7	0.0	8.3	0.0
Lane LOS	B		A	
Approach Delay (s)	13.7	0.0	0.5	
Approach LOS	B			

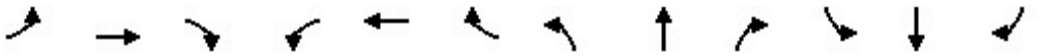
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	10	5	0	5	5	255	0	5	645	15
Future Volume (Veh/h)	25	0	10	5	0	5	5	255	0	5	645	15
Sign Control		Stop			Stop			Free			Free	
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)	25	0	10	5	0	5	5	255	0	5	645	15
Pedestrians					7							
Lane Width (ft)					12.0							
Walking Speed (ft/s)					4.0							
Percent Blockage					1							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	932	934	652	944	942	262	660			262		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	932	934	652	944	942	262	660			262		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	100	98	98	100	99	99			100		
cM capacity (veh/h)	240	260	464	235	261	777	928			1283		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	35	10	260	665
Volume Left	25	5	5	5
Volume Right	10	5	0	15
cSH	279	360	928	1283
Volume to Capacity	0.13	0.03	0.01	0.00
Queue Length 95th (ft)	11	2	0	0
Control Delay (s)	19.8	15.3	0.2	0.1
Lane LOS	C	C	A	A
Approach Delay (s)	19.8	15.3	0.2	0.1
Approach LOS	C	C		

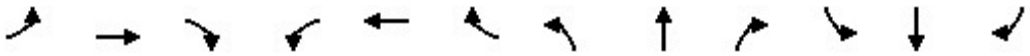
Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	50.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	80	5	80	140	130	0	555	75	160	745	630
Future Volume (vph)	105	80	5	80	140	130	0	555	75	160	745	630
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1662	1731		1630	1716	1458		1699	1444	1630	1716	1414
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1662	1731		1630	1716	1458		1699	1444	375	1716	1414
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)	105	80	5	80	140	130	0	555	75	160	745	630
RTOR Reduction (vph)	0	1	0	0	0	111	0	0	42	0	0	168
Lane Group Flow (vph)	105	84	0	80	140	19	0	555	33	160	745	462
Confl. Peds. (#/hr)			7									5
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm		NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases						8			2	6		6
Actuated Green, G (s)	15.6	20.3		13.7	18.4	18.4		54.4	54.4	73.0	73.0	73.0
Effective Green, g (s)	15.6	20.3		13.7	18.4	18.4		54.4	54.4	73.0	73.0	73.0
Actuated g/C Ratio	0.12	0.16		0.11	0.15	0.15		0.44	0.44	0.58	0.58	0.58
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0	3.5	5.0	5.0
Lane Grp Cap (vph)	207	281		178	252	214		739	628	345	1002	825
v/s Ratio Prot	c0.06	0.05		0.05	c0.08			0.33		0.05	c0.43	
v/s Ratio Perm						0.01			0.02	0.22		0.33
v/c Ratio	0.51	0.30		0.45	0.56	0.09		0.75	0.05	0.46	0.74	0.56
Uniform Delay, d1	51.1	46.1		52.1	49.5	46.1		29.6	20.4	17.0	19.1	16.1
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	0.8		2.5	3.3	0.2		5.1	0.1	1.2	3.6	1.4
Delay (s)	53.8	46.9		54.6	52.8	46.3		34.7	20.5	18.1	22.8	17.5
Level of Service	D	D		D	D	D		C	C	B	C	B
Approach Delay (s)		50.7			50.8			33.0			20.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

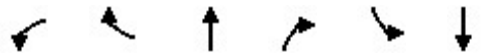
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	95	50	30	120	20	170	35	10	35	335	55
Future Volume (vph)	5	95	50	30	120	20	170	35	10	35	335	55
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)	5	95	50	30	120	20	170	35	10	35	335	55

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	150	170	215	425
Volume Left (vph)	5	30	170	35
Volume Right (vph)	50	20	10	55
Hadj (s)	-0.14	0.00	0.18	-0.01
Departure Headway (s)	5.9	6.0	5.7	5.2
Degree Utilization, x	0.24	0.28	0.34	0.62
Capacity (veh/h)	528	535	573	659
Control Delay (s)	10.8	11.3	11.7	16.3
Approach Delay (s)	10.8	11.3	11.7	16.3
Approach LOS	B	B	B	C

Intersection Summary				
Delay	13.5			
Level of Service	B			
Intersection Capacity Utilization	71.4%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	435	10	205	370	0	415
Future Volume (Veh/h)	435	10	205	370	0	415
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	435	10	205	370	0	415
Pedestrians	1		1			1
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			971			
pX, platoon unblocked	0.98	0.98			0.98	
vC, conflicting volume	807	392			206	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	793	369			179	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	98			100	
cM capacity (veh/h)	350	662			1367	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	445	575	415
Volume Left	435	0	0
Volume Right	10	370	0
cSH	354	1700	1700
Volume to Capacity	1.26	0.34	0.24
Queue Length 95th (ft)	496	0	0
Control Delay (s)	169.0	0.0	0.0
Lane LOS	F		
Approach Delay (s)	169.0	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	52.4		
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	135	5	0	370	440	170
Future Volume (Veh/h)	135	5	0	370	440	170
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	135	5	0	370	440	170
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	895	525	610			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	895	525	610			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	56	99	100			
cM capacity (veh/h)	310	551	974			

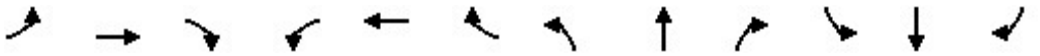
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	140	370	610
Volume Left	135	0	0
Volume Right	5	0	170
cSH	315	974	1700
Volume to Capacity	0.44	0.00	0.36
Queue Length 95th (ft)	55	0	0
Control Delay (s)	25.3	0.0	0.0
Lane LOS	D		
Approach Delay (s)	25.3	0.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	70	25	25	95	20	10
Future Volume (Veh/h)	70	25	25	95	20	10
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)	70	25	25	95	20	10
Pedestrians	5			5	5	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1236		
pX, platoon unblocked						
vC, conflicting volume			100		238	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			100		238	92
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			98		97	99
cM capacity (veh/h)			1456		727	951

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	95	120	30
Volume Left	0	25	20
Volume Right	25	0	10
cSH	1700	1456	789
Volume to Capacity	0.06	0.02	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	1.7	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	1.7	9.7
Approach LOS			A

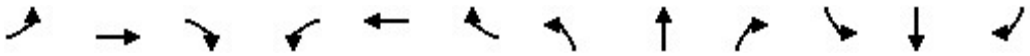
Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization		25.1%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	65	20	75	100	5	25	5	75	5	5	5
Future Volume (Veh/h)	5	65	20	75	100	5	25	5	75	5	5	5
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)	5	65	20	75	100	5	25	5	75	5	5	5
Pedestrians		2			5			3			4	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					726							
pX, platoon unblocked												
vC, conflicting volume	109			88			350	347	83	424	354	108
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	109			88			350	347	83	424	354	108
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	100			95			96	99	92	99	99	99
cM capacity (veh/h)	1476			1504			565	540	964	472	540	946

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	90	180	105	15
Volume Left	5	75	25	5
Volume Right	20	5	75	5
cSH	1476	1504	800	597
Volume to Capacity	0.00	0.05	0.13	0.03
Queue Length 95th (ft)	0	4	11	2
Control Delay (s)	0.4	3.4	10.2	11.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.4	3.4	10.2	11.2
Approach LOS			B	B

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	33.1%	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 (veh/h)	25	395	200	55	340	5	200	50	80	10	10	10
Future Volume (Veh/h)	25	395	200	55	340	5	200	50	80	10	10	10
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)	25	395	200	55	340	5	200	50	80	10	10	10
Pedestrians					5			6			5	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					0			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		703										
pX, platoon unblocked												
vC, conflicting volume	350			601			846	1011	308	815	1108	178
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	350			601			846	1011	308	815	1108	178
tC, single (s)	4.2			4.2			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 %	98			94			13	77	88	95	95	99
cM capacity (veh/h)	1193			961			229	221	687	185	193	838

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	222	398	225	175	330	30
Volume Left	25	0	55	0	200	10
Volume Right	0	200	0	5	80	10
cSH	1193	1700	961	1700	271	255
Volume to Capacity	0.02	0.23	0.06	0.10	1.22	0.12
Queue Length 95th (ft)	2	0	5	0	385	10
Control Delay (s)	1.1	0.0	2.6	0.0	165.6	21.0
Lane LOS	A		A		F	C
Approach Delay (s)	0.4		1.5		165.6	21.0
Approach LOS					F	C

Intersection Summary				
Average Delay	40.6			
Intersection Capacity Utilization	69.1%	ICU Level of Service	C	
Analysis Period (min)	15			

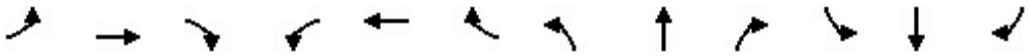
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	35	55	15	20	50	75	20	30	20	170	150	40
Future Volume (vph)	35	55	15	20	50	75	20	30	20	170	150	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)			5.0			5.0			5.0	5.0	5.0	
Lane Util. Factor			1.00			1.00			1.00	1.00	1.00	
Frpb, ped/bikes			1.00			0.99			1.00	1.00	0.96	
Flpb, ped/bikes			0.99			1.00			1.00	1.00	1.00	
Frt			0.98			0.96			1.00	1.00	0.85	
Flt Protected			0.97			0.99			0.95	1.00	1.00	
Satd. Flow (prot)			1624			1601			1610	1699	1383	
Flt Permitted			0.54			0.88			0.32	1.00	1.00	
Satd. Flow (perm)			910			1432			549	1699	1383	
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)	35	55	15	20	50	75	20	30	20	170	150	40
RTOR Reduction (vph)	0	0	5	0	0	5	0	0	0	0	68	0
Lane Group Flow (vph)	0	0	120	0	0	170	0	0	20	170	122	0
Confl. Peds. (#/hr)	7	5		5	5		7	5	6		5	2
Heavy Vehicles (%)	0%	0%	0%	0%	2%	2%	2%	2%	3%	3%	3%	3%
Turn Type	Perm	Perm	NA		Perm	NA			pm+pt	NA	Perm	
Protected Phases			4			4			1	6		
Permitted Phases	4	4			4				6		6	
Actuated Green, G (s)			20.4			20.4			28.8	26.2	26.2	
Effective Green, g (s)			20.4			20.4			28.8	26.2	26.2	
Actuated g/C Ratio			0.17			0.17			0.24	0.21	0.21	
Clearance Time (s)			5.0			5.0			5.0	5.0	5.0	
Vehicle Extension (s)			3.0			3.0			3.0	3.0	3.0	
Lane Grp Cap (vph)			151			238			151	363	296	
v/s Ratio Prot									0.00	0.10		
v/s Ratio Perm			c0.13			0.12			0.03		0.09	
v/c Ratio			0.79			0.71			0.13	0.47	0.41	
Uniform Delay, d1			48.9			48.2			36.7	42.0	41.4	
Progression Factor			1.00			1.00			1.00	1.00	1.00	
Incremental Delay, d2			24.3			9.7			0.4	1.0	0.9	
Delay (s)			73.3			57.9			37.1	42.9	42.3	
Level of Service			E			E			D	D	D	
Approach Delay (s)			73.3			57.9				42.3		
Approach LOS			E			E				D		

Intersection Summary			
HCM 2000 Control Delay	59.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	122.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	20	70	300	60	115	525	50	20
Future Volume (vph)	20	70	300	60	115	525	50	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0	5.0			5.0	5.0	
Lane Util. Factor		1.00	1.00			1.00	1.00	
Frpb, ped/bikes		1.00	0.99			1.00	1.00	
Flpb, ped/bikes		0.99	1.00			1.00	1.00	
Frt		1.00	0.97			1.00	0.85	
Flt Protected		0.95	1.00			0.95	1.00	
Satd. Flow (prot)		1605	1646			1646	1473	
Flt Permitted		0.44	1.00			0.95	1.00	
Satd. Flow (perm)		745	1646			1646	1473	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	70	300	60	115	525	50	20
RTOR Reduction (vph)	0	0	5	0	0	0	43	0
Lane Group Flow (vph)	0	90	355	0	0	640	27	0
Confl. Peds. (#/hr)	5	2		6				
Heavy Vehicles (%)	3%	3%	3%	3%	1%	1%	1%	1%
Turn Type	pm+pt	pm+pt	NA		Prot	Prot	Perm	
Protected Phases	5	5	2		8	8		
Permitted Phases	2	2					8	
Actuated Green, G (s)		40.5	32.9			46.4	46.4	
Effective Green, g (s)		40.5	32.9			46.4	46.4	
Actuated g/C Ratio		0.33	0.27			0.38	0.38	
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)		312	442			624	558	
v/s Ratio Prot		c0.02	c0.22			c0.39		
v/s Ratio Perm		0.07					0.02	
v/c Ratio		0.29	0.80			1.03	0.05	
Uniform Delay, d1		29.4	41.7			38.0	24.0	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		0.5	10.1			42.7	0.0	
Delay (s)		29.9	51.8			80.7	24.0	
Level of Service		C	D			F	C	
Approach Delay (s)			47.4			75.1		
Approach LOS			D			E		

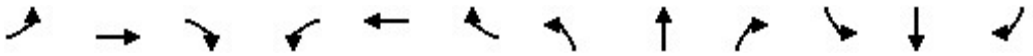
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	190	90	50	170	20	130	330	60	15	190	50
Future Volume (vph)	40	190	90	50	170	20	130	330	60	15	190	50
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)	40	190	90	50	170	20	130	330	60	15	190	50

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	320	240	520	255
Volume Left (vph)	40	50	130	15
Volume Right (vph)	90	20	60	50
Hadj (s)	-0.11	0.04	0.00	-0.05
Departure Headway (s)	7.4	7.8	6.8	7.5
Degree Utilization, x	0.66	0.52	0.98	0.53
Capacity (veh/h)	476	433	520	454
Control Delay (s)	23.4	19.0	61.3	18.7
Approach Delay (s)	23.4	19.0	61.3	18.7
Approach LOS	C	C	F	C

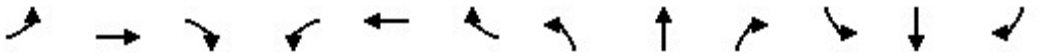
Intersection Summary				
Delay	36.5			
Level of Service	E			
Intersection Capacity Utilization	78.5%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1005	40	65	280	15	5	20	85	15	15	10
Future Volume (vph)	25	1005	40	65	280	15	5	20	85	15	15	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.90			0.97	
Flt Protected		1.00			0.99			1.00			0.98	
Satd. Flow (prot)		3203			3115			1533			1590	
Flt Permitted		0.94			0.74			0.98			0.84	
Satd. Flow (perm)		3023			2324			1512			1361	
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)	25	1005	40	65	280	15	5	20	85	15	15	10
RTOR Reduction (vph)	0	2	0	0	3	0	0	61	0	0	8	0
Lane Group Flow (vph)	0	1068	0	0	357	0	0	49	0	0	32	0
Confl. Peds. (#/hr)	6		4	4		6	5					5
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	2%	2%	2%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		27.2			27.2			7.3			7.3	
Effective Green, g (s)		27.2			27.2			7.3			7.3	
Actuated g/C Ratio		0.61			0.61			0.16			0.16	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		1847			1420			248			223	
v/s Ratio Prot												
v/s Ratio Perm		c0.35			0.15			c0.03			0.02	
v/c Ratio		0.58			0.25			0.20			0.14	
Uniform Delay, d1		5.2			4.0			16.1			15.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.0			0.1			0.1	
Delay (s)		5.5			4.0			16.2			16.0	
Level of Service		A			A			B			B	
Approach Delay (s)		5.5			4.0			16.2			16.0	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	44.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	270	295	70	230	25	95	200	30	25	560	140
Future Volume (vph)	200	270	295	70	230	25	95	200	30	25	560	140
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.99		1.00	0.98		1.00	0.97	
Flt Protected		0.98	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1680	1458		1696		1614	1666		1630	1664	
Flt Permitted		0.98	1.00		0.99		0.07	1.00		0.53	1.00	
Satd. Flow (perm)		1680	1458		1696		114	1666		915	1664	
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)	200	270	295	70	230	25	95	200	30	25	560	140
RTOR Reduction (vph)	0	0	173	0	2	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	470	122	0	323	0	95	227	0	25	694	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Turn Type	Split	NA	pm+ov	Split	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	8	8	1	4	4		1	6		5	2	
Permitted Phases			8				2			6		
Actuated Green, G (s)		39.0	45.0		26.0		65.6	62.6		65.6	59.6	
Effective Green, g (s)		39.0	45.0		26.0		65.6	62.6		65.6	59.6	
Actuated g/C Ratio		0.27	0.31		0.18		0.45	0.43		0.45	0.41	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		4.0	5.0		4.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		446	447		300		112	711		424	676	
v/s Ratio Prot		c0.28	0.01		c0.19		c0.03	c0.14		0.00	c0.42	
v/s Ratio Perm			0.07				0.34			0.03		
v/c Ratio		1.05	0.27		1.08		0.85	0.32		0.06	1.03	
Uniform Delay, d1		53.8	38.4		60.3		33.9	27.9		23.0	43.5	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		57.5	0.7		73.4		44.9	0.5		0.1	41.6	
Delay (s)		111.3	39.1		133.7		78.8	28.4		23.1	85.1	
Level of Service		F	D		F		E	C		C	F	
Approach Delay (s)		83.5			133.7			43.1			83.0	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	84.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	146.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	120	555	125	0	1360
Future Volume (Veh/h)	0	120	555	125	0	1360
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	120	555	125	0	1360
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			587			739
pX, platoon unblocked	0.88	0.93			0.93	
vC, conflicting volume	1298	340			680	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	741	155			518	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	85			100	
cM capacity (veh/h)	311	807			976	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	120	370	310	680	680
Volume Left	0	0	0	0	0
Volume Right	120	0	125	0	0
cSH	807	1700	1700	1700	1700
Volume to Capacity	0.15	0.22	0.18	0.40	0.40
Queue Length 95th (ft)	13	0	0	0	0
Control Delay (s)	10.2	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.2	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

LANE SUMMARY

Site: 113 [113-Des Moines Memorial Dr @ SR 509 NB Ramps (Site Folder: 2032 NA)]

113-Des Moines Memorial Dr @ SR 509 NB Ramps, 2032 No Action
Site Category: 2032 No Action
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: SR 509 NB Off Ramp													
Lane 1[d]	251	4.0	641	0.392	100	13.2	LOS B	1.8	46.2	Full	1600	0.0	0.0
Approach	251	4.0		0.392		13.2	LOS B	1.8	46.2				
East: Des Moines Memorial Dr (WB)													
Lane 1[d]	500	5.0	1141	0.438	100	7.1	LOS A	3.0	78.2	Full	1600	0.0	0.0
Lane 2	620	5.0	1595	0.389	100	3.9	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1120	5.0		0.438		5.4	LOS A	3.0	78.2				
West: Des Moines Memorial Dr (EB)													
Lane 1	844	6.0	1415	0.597	100	7.1	LOS A	0.0	0.0	Full	1000	0.0	0.0
Lane 2[d]	941	6.0	1577	0.597	100	4.5	LOS A	0.0	0.0	Full	1000	0.0	0.0
Approach	1785	6.0		0.597		5.7	LOS A	0.0	0.0				
Intersection	3156	5.5		0.597		6.2	LOS A	3.0	78.2				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: SR 509 NB Off Ramp

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	85	1	165	251	4.0	641	0.392	100	NA	NA
Approach	85	1	165	251	4.0		0.392			

East: Des Moines Memorial Dr (WB)

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	500	-	500	5.0	1141	0.438	100	NA	NA
Lane 2	-	620	620	5.0	1595	0.389	100	NA	NA
Approach	500	620	1120	5.0		0.438			

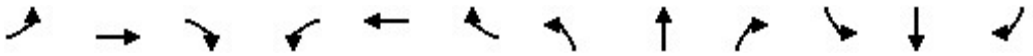
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	160	10	215	585
Future Volume (vph)	0	0	160	10	215	585
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)			5.0		5.0	5.0
Lane Util. Factor			0.95		1.00	0.95
Frt			0.99		1.00	1.00
Flt Protected			1.00		0.95	1.00
Satd. Flow (prot)			3231		1630	3260
Flt Permitted			1.00		0.64	1.00
Satd. Flow (perm)			3231		1106	3260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	160	10	215	585
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	170	0	215	585
Turn Type			NA		Perm	NA
Protected Phases			2			6
Permitted Phases					6	
Actuated Green, G (s)			21.0		21.0	21.0
Effective Green, g (s)			21.0		21.0	21.0
Actuated g/C Ratio			1.00		1.00	1.00
Clearance Time (s)			5.0		5.0	5.0
Lane Grp Cap (vph)			3231		1106	3260
v/s Ratio Prot			0.05			0.18
v/s Ratio Perm					c0.19	
v/c Ratio			0.05		0.19	0.18
Uniform Delay, d1			0.0		0.0	0.0
Progression Factor			1.00		1.00	1.00
Incremental Delay, d2			0.0		0.3	0.1
Delay (s)			0.0		0.3	0.1
Level of Service			A		A	A
Approach Delay (s)	0.0		0.0			0.2
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	0.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	21.0	Sum of lost time (s)	5.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	140	160	0	0	790
Future Volume (vph)	10	140	160	0	0	790
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1630	1458	3260			3260
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1630	1458	3260			3260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	140	160	0	0	790
RTOR Reduction (vph)	0	87	0	0	0	0
Lane Group Flow (vph)	10	53	160	0	0	790
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	16.0	16.0	16.0			16.0
Effective Green, g (s)	16.0	16.0	16.0			16.0
Actuated g/C Ratio	0.38	0.38	0.38			0.38
Clearance Time (s)	5.0	5.0	5.0			5.0
Lane Grp Cap (vph)	620	555	1241			1241
v/s Ratio Prot	0.01		0.05			c0.24
v/s Ratio Perm		c0.04				
v/c Ratio	0.02	0.10	0.13			0.64
Uniform Delay, d1	8.1	8.4	8.5			10.6
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.0	0.3	0.2			2.5
Delay (s)	8.1	8.7	8.7			13.1
Level of Service	A	A	A			B
Approach Delay (s)	8.7		8.7			13.1
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	42.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	690	0	0	490	450	0	470	330	0	0	0
Future Volume (vph)	0	690	0	0	490	450	0	470	330	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.0			5.0	5.0		5.0				
Lane Util. Factor		0.95			0.95	1.00		0.95				
Frt		1.00			1.00	0.85		0.94				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3260			3260	1458		3058				
Flt Permitted		1.00			1.00	1.00		1.00				
Satd. Flow (perm)		3260			3260	1458		3058				
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	690	0	0	490	450	0	470	330	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	124	0	84	0	0	0	0
Lane Group Flow (vph)	0	690	0	0	490	326	0	716	0	0	0	0
Turn Type		NA			NA	Perm		NA				
Protected Phases		4			8			2				
Permitted Phases						8						
Actuated Green, G (s)		77.0			77.0	77.0		63.0				
Effective Green, g (s)		77.0			77.0	77.0		63.0				
Actuated g/C Ratio		0.51			0.51	0.51		0.42				
Clearance Time (s)		5.0			5.0	5.0		5.0				
Lane Grp Cap (vph)		1673			1673	748		1284				
v/s Ratio Prot		0.21			0.15			c0.23				
v/s Ratio Perm						c0.22						
v/c Ratio		0.41			0.29	0.44		0.56				
Uniform Delay, d1		22.5			20.9	22.9		32.9				
Progression Factor		1.04			1.00	1.00		0.44				
Incremental Delay, d2		0.6			0.4	1.8		1.3				
Delay (s)		24.0			21.4	24.7		15.6				
Level of Service		C			C	C		B				
Approach Delay (s)		24.0			23.0			15.6			0.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	490	0	0	0	690	1335
Future Volume (vph)	490	0	0	0	690	1335
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0				5.0	5.0
Lane Util. Factor	0.97				1.00	0.91
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3162				1630	4684
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3162				1630	4684
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	490	0	0	0	690	1335
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	490	0	0	0	690	1335
Turn Type	Prot				Prot	NA
Protected Phases	3				1	6
Permitted Phases						
Actuated Green, G (s)	38.0				102.0	102.0
Effective Green, g (s)	38.0				102.0	102.0
Actuated g/C Ratio	0.25				0.68	0.68
Clearance Time (s)	5.0				5.0	5.0
Lane Grp Cap (vph)	801				1108	3185
v/s Ratio Prot	c0.15				c0.42	0.29
v/s Ratio Perm						
v/c Ratio	0.61				0.62	0.42
Uniform Delay, d1	49.5				13.3	10.7
Progression Factor	0.69				1.00	1.00
Incremental Delay, d2	3.4				2.6	0.4
Delay (s)	37.5				16.0	11.1
Level of Service	D				B	B
Approach Delay (s)	37.5		0.0			12.8
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	109.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			