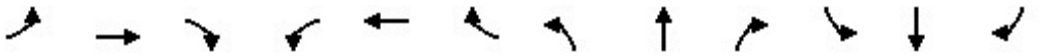
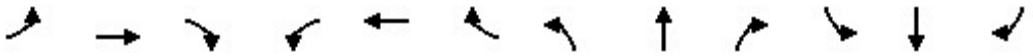


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	430	550	205	1095	0	0	0	0	145	5	335
Future Volume (vph)	0	430	550	205	1095	0	0	0	0	145	5	335
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		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	1415	1646	3292						1637	1458
Flt Permitted		1.00	1.00	0.43	1.00						0.95	1.00
Satd. Flow (perm)		3260	1415	750	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	430	550	205	1095	0	0	0	0	145	5	335
RTOR Reduction (vph)	0	0	299	0	0	0	0	0	0	0	0	96
Lane Group Flow (vph)	0	430	251	205	1095	0	0	0	0	0	150	239
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)		26.2	26.2	32.6	27.2						33.7	33.7
Effective Green, g (s)		26.2	26.2	32.6	27.2						33.7	33.7
Actuated g/C Ratio		0.33	0.33	0.41	0.34						0.42	0.42
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)		1068	463	366	1120						690	614
v/s Ratio Prot		0.13		c0.04	c0.33							
v/s Ratio Perm			0.18	0.19							0.09	c0.16
v/c Ratio		0.40	0.54	0.56	0.98						0.22	0.39
Uniform Delay, d1		20.8	21.9	16.8	26.0						14.7	16.0
Progression Factor		1.00	1.00	0.95	0.99						1.00	1.00
Incremental Delay, d2		0.2	1.3	1.5	18.6						0.2	0.4
Delay (s)		21.0	23.2	17.4	44.2						14.9	16.4
Level of Service		C	C	B	D						B	B
Approach Delay (s)		22.3			40.0			0.0			15.9	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	14.6
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

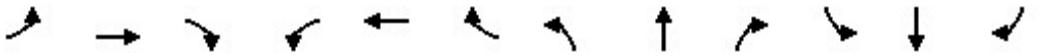
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	435	0	0	520	110	780	5	285	0	0	0
Future Volume (vph)	140	435	0	0	520	110	780	5	285	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	1435	1564	1466				
Flt Permitted	0.40	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (perm)	692	3292			3292	1435	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)	140	435	0	0	520	110	780	5	285	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	56	0	56	0	0	0	0
Lane Group Flow (vph)	140	435	0	0	520	54	554	460	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)	30.6	26.2			27.2	27.2	33.7	33.7				
Effective Green, g (s)	30.6	26.2			27.2	27.2	33.7	33.7				
Actuated g/C Ratio	0.38	0.33			0.34	0.34	0.42	0.42				
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)	317	1079			1120	488	659	618				
v/s Ratio Prot	c0.02	0.13			c0.16							
v/s Ratio Perm	0.14					0.04	c0.35	0.31				
v/c Ratio	0.44	0.40			0.46	0.11	0.84	0.74				
Uniform Delay, d1	16.8	20.8			20.6	18.1	20.7	19.5				
Progression Factor	0.62	0.56			1.00	1.00	1.00	1.00				
Incremental Delay, d2	0.9	0.2			0.3	0.1	9.5	4.8				
Delay (s)	11.4	11.8			20.9	18.2	30.2	24.3				
Level of Service	B	B			C	B	C	C				
Approach Delay (s)		11.7			20.5			27.3			0.0	
Approach LOS		B			C			C			A	

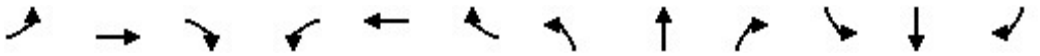
Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	14.6
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



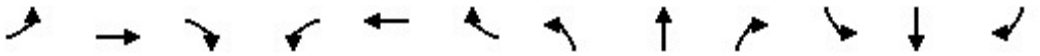
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	275	60	155	290	40	70	245	160	55	440	120
Future Volume (vph)	80	275	60	155	290	40	70	245	160	55	440	120
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total 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	3126		1630	3192		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	3126		1630	3192		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)	80	275	60	155	290	40	70	245	160	55	440	120
RTOR Reduction (vph)	0	25	0	0	15	0	0	0	106	0	0	81
Lane Group Flow (vph)	80	310	0	155	315	0	70	245	54	55	440	39
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)	5.3	13.7		6.3	14.7		3.8	22.0	22.0	3.2	21.4	21.4
Effective Green, g (s)	5.3	13.7		6.3	14.7		3.8	22.0	22.0	3.2	21.4	21.4
Actuated g/C Ratio	0.08	0.21		0.10	0.23		0.06	0.34	0.34	0.05	0.33	0.33
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)	131	656		157	719		94	573	480	80	563	470
v/s Ratio Prot	0.05	c0.10		c0.10	0.10		c0.04	0.14		0.03	c0.26	
v/s Ratio Perm									0.04			0.03
v/c Ratio	0.61	0.47		0.99	0.44		0.74	0.43	0.11	0.69	0.78	0.08
Uniform Delay, d1	29.0	22.6		29.4	21.7		30.2	16.7	14.9	30.5	19.8	15.1
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	5.8	0.2		67.3	0.2		24.0	0.2	0.0	17.8	6.4	0.0
Delay (s)	34.8	22.8		96.7	21.9		54.2	16.9	14.9	48.3	26.2	15.2
Level of Service	C	C		F	C		D	B	B	D	C	B
Approach Delay (s)		25.1			45.8			21.7			26.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.8%	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 (vph)	70	155	80	15	195	30	90	100	10	30	185	60
Future Volume (vph)	70	155	80	15	195	30	90	100	10	30	185	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	
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		0.96			0.98			0.99			0.97	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1610			1649			1698			1633	
Flt Permitted		0.86			0.97			0.78			0.94	
Satd. Flow (perm)		1407			1597			1362			1549	
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	155	80	15	195	30	90	100	10	30	185	60
RTOR Reduction (vph)	0	24	0	0	10	0	0	3	0	0	14	0
Lane Group Flow (vph)	0	281	0	0	230	0	0	197	0	0	261	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)		11.5			11.5			10.3			10.3	
Effective Green, g (s)		11.5			11.5			10.3			10.3	
Actuated g/C Ratio		0.36			0.36			0.32			0.32	
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)		508			577			441			501	
v/s Ratio Prot												
v/s Ratio Perm		c0.20			0.14			0.14			c0.17	
v/c Ratio		0.55			0.40			0.45			0.52	
Uniform Delay, d1		8.1			7.6			8.5			8.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			0.2			0.3			0.5	
Delay (s)		8.8			7.7			8.8			9.2	
Level of Service		A			A			A			A	
Approach Delay (s)		8.8			7.7			8.8			9.2	
Approach LOS		A			A			A			A	

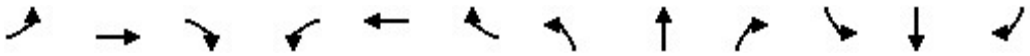
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	31.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	5	145	10	10	5	190	290	10	10	335	50
Future Volume (Veh/h)	45	5	145	10	10	5	190	290	10	10	335	50
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)	45	5	145	10	10	5	190	290	10	10	335	50
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	1069	1066	365	1206	1086	297	389			302		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1069	1066	365	1206	1086	297	389			302		
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 %	73	97	79	91	94	99	84			99		
cM capacity (veh/h)	164	183	677	108	180	746	1160			1251		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	195	25	490	395
Volume Left	45	10	190	10
Volume Right	145	5	10	50
cSH	378	161	1160	1251
Volume to Capacity	0.52	0.16	0.16	0.01
Queue Length 95th (ft)	71	13	15	1
Control Delay (s)	24.3	31.4	4.4	0.3
Lane LOS	C	D	A	A
Approach Delay (s)	24.3	31.4	4.4	0.3
Approach LOS	C	D		

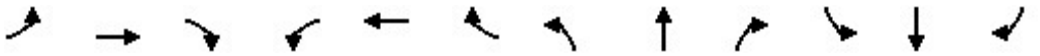
Intersection Summary				
Average Delay	7.1			
Intersection Capacity Utilization	76.0%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	305	60	40	305	30	40	85	40	55	220	80
Future Volume (vph)	45	305	60	40	305	30	40	85	40	55	220	80
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)		1683			1701			1672			1643	
Flt Permitted		0.93			0.93			0.86			0.93	
Satd. Flow (perm)		1567			1584			1463			1535	
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	60	40	305	30	40	85	40	55	220	80
RTOR Reduction (vph)	0	11	0	0	5	0	0	13	0	0	12	0
Lane Group Flow (vph)	0	399	0	0	370	0	0	152	0	0	343	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)		17.5			17.5			15.4			15.4	
Effective Green, g (s)		17.5			17.5			15.4			15.4	
Actuated g/C Ratio		0.41			0.41			0.36			0.36	
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)		639			646			525			551	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.23			0.10			c0.22	
v/c Ratio		0.62			0.57			0.29			0.62	
Uniform Delay, d1		10.1			9.8			9.8			11.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.9			1.2			0.3			2.2	
Delay (s)		12.0			11.0			10.1			13.5	
Level of Service		B			B			B			B	
Approach Delay (s)		12.0			11.0			10.1			13.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	165	65	80	140	40	115	430	145	50	500	85
Future Volume (vph)	55	165	65	80	140	40	115	430	145	50	500	85
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			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1873			1885		1630	1651		1614	1662	
Flt Permitted		0.88			0.80		0.33	1.00		0.33	1.00	
Satd. Flow (perm)		1665			1540		558	1651		568	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)	55	165	65	80	140	40	115	430	145	50	500	85
RTOR Reduction (vph)	0	13	0	0	8	0	0	17	0	0	9	0
Lane Group Flow (vph)	0	272	0	0	252	0	115	558	0	50	576	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)		15.7			15.7		27.7	27.7		27.7	27.7	
Effective Green, g (s)		15.7			15.7		27.7	27.7		27.7	27.7	
Actuated g/C Ratio		0.26			0.26		0.46	0.46		0.46	0.46	
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)		437			404		258	766		263	771	
v/s Ratio Prot								0.34			c0.35	
v/s Ratio Perm		0.16			c0.16		0.21			0.09		
v/c Ratio		0.62			0.62		0.45	0.73		0.19	0.75	
Uniform Delay, d1		19.4			19.4		10.8	13.0		9.4	13.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.7			3.0		0.4	3.0		0.1	3.5	
Delay (s)		22.1			22.4		11.3	15.9		9.5	16.6	
Level of Service		C			C		B	B		A	B	
Approach Delay (s)		22.1			22.4			15.1			16.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	16.3
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	340	20	10	250	10	15
Future Volume (Veh/h)	340	20	10	250	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)	340	20	10	250	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			368		628	358
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			368		628	358
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)			1194		443	686

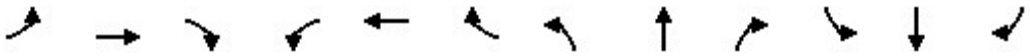
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	360	260	25
Volume Left	0	10	10
Volume Right	20	0	15
cSH	1700	1194	563
Volume to Capacity	0.21	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.4	11.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.7
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	65	170	120	230	315	85
Future Volume (vph)	65	170	120	230	315	85
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	65	170	120	230	315	85

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	235	350	400
Volume Left (vph)	65	120	0
Volume Right (vph)	170	0	85
Hadj (s)	-0.34	0.10	-0.08
Departure Headway (s)	5.4	5.2	5.0
Degree Utilization, x	0.35	0.51	0.56
Capacity (veh/h)	606	653	693
Control Delay (s)	11.3	13.5	14.1
Approach Delay (s)	11.3	13.5	14.1
Approach LOS	B	B	B

Intersection Summary			
Delay	13.2		
Level of Service	B		
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 (veh/h)	5	5	10	10	10	15	10	330	15	35	445	5
Future Volume (Veh/h)	5	5	10	10	10	15	10	330	15	35	445	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	330	15	35	445	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	902	884	450	888	880	342	452			345		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	902	884	450	888	880	342	452			345		
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	96	96	98	99			97		
cM capacity (veh/h)	239	275	613	251	277	702	1107			1208		

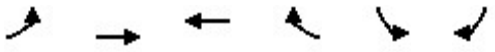
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	35	355	485
Volume Left	5	10	10	35
Volume Right	10	15	15	5
cSH	361	360	1107	1208
Volume to Capacity	0.06	0.10	0.01	0.03
Queue Length 95th (ft)	4	8	1	2
Control Delay (s)	15.6	16.1	0.3	0.9
Lane LOS	C	C	A	A
Approach Delay (s)	15.6	16.1	0.3	0.9
Approach LOS	C	C		

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	54.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	45	30	500	595	10
Future Volume (Veh/h)	10	45	30	500	595	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	45	30	500	595	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	1166	605	610			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1166	605	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 %	95	91	97			
cM capacity (veh/h)	209	499	965			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	55	530	605
Volume Left	10	30	0
Volume Right	45	0	10
cSH	398	965	1700
Volume to Capacity	0.14	0.03	0.36
Queue Length 95th (ft)	12	2	0
Control Delay (s)	15.5	0.9	0.0
Lane LOS	C	A	
Approach Delay (s)	15.5	0.9	0.0
Approach LOS	C		

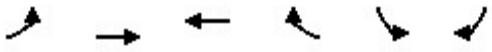
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (veh/h)	0	490	265	0	115	485
Future Volume (Veh/h)	0	490	265	0	115	485
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	490	265	0	115	485
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	266				756	266
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	266				756	266
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				69	37
cM capacity (veh/h)	1291				376	772

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	490	265	115	485
Volume Left	0	0	115	0
Volume Right	0	0	0	485
cSH	1700	1700	376	772
Volume to Capacity	0.29	0.16	0.31	0.63
Queue Length 95th (ft)	0	0	32	113
Control Delay (s)	0.0	0.0	18.8	17.2
Lane LOS			C	C
Approach Delay (s)	0.0	0.0	17.5	
Approach LOS			C	

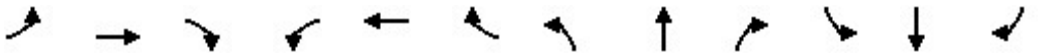
Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	265	340	265	70	0	0
Future Volume (Veh/h)	265	340	265	70	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)	265	340	265	70	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	265				1170	300
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265				1170	300
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				100	100
cM capacity (veh/h)	1293				171	744

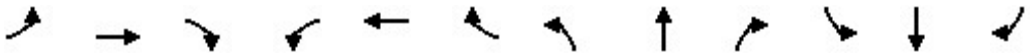
Direction, Lane #	EB 1	WB 1
Volume Total	605	335
Volume Left	265	0
Volume Right	0	70
cSH	1293	1700
Volume to Capacity	0.20	0.20
Queue Length 95th (ft)	19	0
Control Delay (s)	4.9	0.0
Lane LOS	A	
Approach Delay (s)	4.9	0.0
Approach LOS		

Intersection Summary				
Average Delay		3.2		
Intersection Capacity Utilization		61.8%	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)	50	175	70	290	240	55	45	490	420	55	445	70
Future Volume (vph)	50	175	70	290	240	55	45	490	420	55	445	70
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	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96			0.99		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1568	1570			1617		1614	1553		1599	1648	
Flt Permitted	0.50	1.00			0.72		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	820	1570			1196		1614	1553		1599	1648	
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	175	70	290	240	55	45	490	420	55	445	70
RTOR Reduction (vph)	0	10	0	0	2	0	0	20	0	0	4	0
Lane Group Flow (vph)	50	235	0	0	583	0	45	890	0	55	511	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)	19.0	19.0			33.0		6.6	54.1		6.9	54.4	
Effective Green, g (s)	19.0	19.0			33.0		6.6	54.1		6.9	54.4	
Actuated g/C Ratio	0.13	0.13			0.22		0.04	0.37		0.05	0.37	
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)	105	201			266		71	567		74	605	
v/s Ratio Prot		c0.15					0.03	c0.57		c0.03	0.31	
v/s Ratio Perm	0.06				c0.49							
v/c Ratio	0.48	1.17			2.19		0.63	1.57		0.74	0.84	
Uniform Delay, d1	59.9	64.5			57.5		69.5	47.0		69.7	42.9	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	117.3			547.9		12.8	264.6		29.2	10.1	
Delay (s)	61.1	181.8			605.4		82.3	311.5		98.9	53.0	
Level of Service	E	F			F		F	F		F	D	
Approach Delay (s)		161.3			605.4			300.7			57.4	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	300.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	148.0	Sum of lost time (s)	35.0
Intersection Capacity Utilization	130.5%	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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	50	70	35	15	35	95	280	50	65	345	55
Future Volume (vph)	40	50	70	35	15	35	95	280	50	65	345	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)	40	50	70	35	15	35	95	280	50	65	345	55

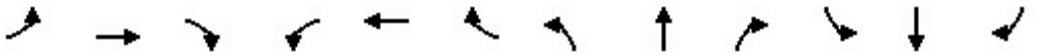
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	85	425	465
Volume Left (vph)	40	35	95	65
Volume Right (vph)	70	35	50	55
Hadj (s)	-0.06	-0.13	0.03	-0.01
Departure Headway (s)	6.4	6.6	5.5	5.4
Degree Utilization, x	0.28	0.16	0.65	0.70
Capacity (veh/h)	481	455	629	647
Control Delay (s)	11.9	10.8	17.9	19.7
Approach Delay (s)	11.9	10.8	17.9	19.7
Approach LOS	B	B	C	C

Intersection Summary				
Delay	17.3			
Level of Service	C			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	85	105	320	65	105	345
Future Volume (Veh/h)	85	105	320	65	105	345
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)	85	105	320	65	105	345
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	908	356			386	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	908	356			386	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	70	85			91	
cM capacity (veh/h)	279	689			1161	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	190	385	450
Volume Left	85	0	105
Volume Right	105	65	0
cSH	415	1700	1161
Volume to Capacity	0.46	0.23	0.09
Queue Length 95th (ft)	58	0	7
Control Delay (s)	20.8	0.0	2.7
Lane LOS	C		A
Approach Delay (s)	20.8	0.0	2.7
Approach LOS	C		

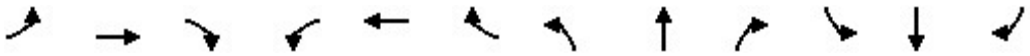
Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	20	365	10	15	15	200	345	25	35	350	45
Future Volume (Veh/h)	25	20	365	10	15	15	200	345	25	35	350	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)	25	20	365	10	15	15	200	345	25	35	350	45
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	1212	1216	376	1554	1226	358	397			371		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1212	1216	376	1554	1226	358	397			371		
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 %	79	86	45	68	89	98	83			97		
cM capacity (veh/h)	121	145	669	32	142	683	1154			1176		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	25	385	40	200	370	35	395
Volume Left	25	0	10	200	0	35	0
Volume Right	0	365	15	0	25	0	45
cSH	121	563	90	1154	1700	1176	1700
Volume to Capacity	0.21	0.68	0.44	0.17	0.22	0.03	0.23
Queue Length 95th (ft)	18	131	46	16	0	2	0
Control Delay (s)	42.3	24.1	73.7	8.8	0.0	8.2	0.0
Lane LOS	E	C	F	A		A	
Approach Delay (s)	25.2		73.7	3.1		0.7	
Approach LOS	D		F				

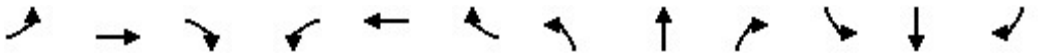
Intersection Summary				
Average Delay	10.6			
Intersection Capacity Utilization	70.8%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	200	45	80	300	100	65	185	60	200	365	15
Future Volume (vph)	5	200	45	80	300	100	65	185	60	200	365	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	200	45	80	300	100	65	185	60	200	365	15

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	250	480	65	245	200	380
Volume Left (vph)	5	80	65	0	200	0
Volume Right (vph)	45	100	0	60	0	15
Hadj (s)	-0.10	-0.07	0.52	-0.15	0.53	0.01
Departure Headway (s)	8.2	7.6	9.2	8.5	8.7	8.2
Degree Utilization, x	0.57	1.01	0.17	0.58	0.48	0.86
Capacity (veh/h)	417	468	380	406	408	436
Control Delay (s)	21.7	71.3	12.8	21.4	18.3	43.2
Approach Delay (s)	21.7	71.3	19.6		34.6	
Approach LOS	C	F	C		D	

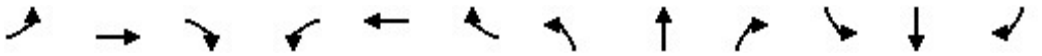
Intersection Summary				
Delay	40.6			
Level of Service	E			
Intersection Capacity Utilization	83.2%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	335	105	135	460	60	115	575	80	70	970	70
Future Volume (vph)	105	335	105	135	460	60	115	575	80	70	970	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		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	1638		1662	1711		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	1638		1662	1711		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)	105	335	105	135	460	60	115	575	80	70	970	70
RTOR Reduction (vph)	0	11	0	0	5	0	0	0	54	0	0	49
Lane Group Flow (vph)	105	429	0	135	515	0	115	575	26	70	970	21
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)	9.1	31.0		9.7	31.6		9.4	32.1	32.1	7.2	29.9	29.9
Effective Green, g (s)	9.1	31.0		9.7	31.6		9.4	32.1	32.1	7.2	29.9	29.9
Actuated g/C Ratio	0.09	0.31		0.10	0.32		0.09	0.32	0.32	0.07	0.30	0.30
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)	148	507		161	540		151	1036	436	117	974	406
v/s Ratio Prot	0.06	0.26		c0.08	c0.30		c0.07	0.18		0.04	c0.30	
v/s Ratio Perm									0.02			0.02
v/c Ratio	0.71	0.85		0.84	0.95		0.76	0.56	0.06	0.60	1.00	0.05
Uniform Delay, d1	44.2	32.3		44.4	33.5		44.2	28.0	23.5	45.0	35.0	25.0
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	12.0	15.9		28.8	28.9		18.2	2.1	0.3	5.4	27.9	0.2
Delay (s)	56.1	48.1		73.2	62.4		62.4	30.2	23.8	50.4	62.9	25.2
Level of Service	E	D		E	E		E	C	C	D	E	C
Approach Delay (s)		49.7			64.6			34.3			59.7	
Approach LOS		D			E			C			E	

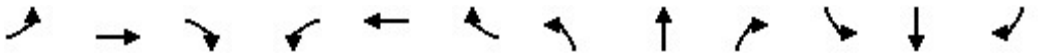
Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



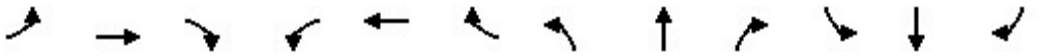
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	650	95	425	905	465	170	485	365	490	710	160
Future Volume (vph)	100	650	95	425	905	465	170	485	365	490	710	160
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	3061		3162	3151	1388	1646	3182	1407	3193	3182	1392
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	3061		3162	3151	1388	1646	3182	1407	3193	3182	1392
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	650	95	425	905	465	170	485	365	490	710	160
RTOR Reduction (vph)	0	8	0	0	0	59	0	0	54	0	0	56
Lane Group Flow (vph)	100	737	0	425	905	406	170	485	311	490	710	104
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)	13.4	36.6		21.6	44.8	69.1	19.0	37.5	59.1	24.3	42.8	56.2
Effective Green, g (s)	13.4	36.6		21.6	44.8	69.1	19.0	37.5	59.1	24.3	42.8	56.2
Actuated g/C Ratio	0.10	0.26		0.15	0.32	0.49	0.14	0.27	0.42	0.17	0.31	0.40
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)	154	800		487	1008	685	223	852	644	554	972	608
v/s Ratio Prot	0.06	c0.24		0.13	c0.29	0.10	c0.10	0.15	0.07	c0.15	c0.22	0.02
v/s Ratio Perm						0.19			0.15			0.06
v/c Ratio	0.65	0.92		0.87	0.90	0.59	0.76	0.57	0.48	0.88	0.73	0.17
Uniform Delay, d1	61.0	50.3		57.9	45.4	25.4	58.3	44.3	29.4	56.5	43.4	26.9
Progression Factor	1.00	1.00		1.28	0.94	0.55	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.9	15.6		7.1	4.7	0.4	12.9	2.8	0.2	15.1	4.8	0.0
Delay (s)	67.9	65.9		81.4	47.6	14.4	71.3	47.0	29.6	71.6	48.3	27.0
Level of Service	E	E		F	D	B	E	D	C	E	D	C
Approach Delay (s)		66.1			47.0			44.8			54.2	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1220	285	640	1630	0	0	0	0	1025	5	165
Future Volume (vph)	0	1220	285	640	1630	0	0	0	0	1025	5	165
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)		4551		3027	3121					1548	1483	1339
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4551		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	1220	285	640	1630	0	0	0	0	1025	5	165
RTOR Reduction (vph)	0	28	0	0	0	0	0	0	0	0	1	53
Lane Group Flow (vph)	0	1477	0	640	1630	0	0	0	0	523	523	95
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)		46.0		25.0	75.5					49.1	49.1	49.1
Effective Green, g (s)		46.0		25.0	75.5					49.1	49.1	49.1
Actuated g/C Ratio		0.33		0.18	0.54					0.35	0.35	0.35
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)		1495		540	1683					542	520	469
v/s Ratio Prot		0.32		c0.21	c0.52					0.34	c0.35	
v/s Ratio Perm												0.07
v/c Ratio		0.99		1.19	0.97					0.96	1.01	0.20
Uniform Delay, d1		46.7		57.5	31.1					44.6	45.5	31.8
Progression Factor		0.89		1.05	0.85					1.00	1.00	1.00
Incremental Delay, d2		15.4		94.0	10.6					29.8	41.1	0.3
Delay (s)		57.0		154.1	37.0					74.4	86.5	32.1
Level of Service		E		F	D					E	F	C
Approach Delay (s)		57.0			70.0			0.0			74.5	
Approach LOS		E			E			A			E	

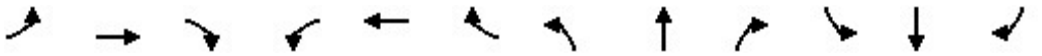
Intersection Summary			
HCM 2000 Control Delay	67.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.9
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱		↰	↱			
Traffic Volume (vph)	0	1955	290	0	2095	1245	175	0	840	0	0	0
Future Volume (vph)	0	1955	290	0	2095	1245	175	0	840	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	1955	290	0	2095	1245	175	0	840	0	0	0
RTOR Reduction (vph)	0	0	63	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1955	227	0	2095	1245	0	175	840	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)		109.6	109.6		109.6	140.0		18.6	140.0			
Effective Green, g (s)		109.6	109.6		109.6	140.0		18.6	140.0			
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)		2552	1141		2552	1458		235	1637			
v/s Ratio Prot		0.60			0.64			0.10				
v/s Ratio Perm			0.16			c0.85			0.51			
v/c Ratio		0.77	0.20		0.82	0.85		0.74	0.51			
Uniform Delay, d1		8.2	3.9		9.2	0.0		58.4	0.0			
Progression Factor		1.31	3.58		1.00	1.00		1.00	1.00			
Incremental Delay, d2		0.6	0.1		3.1	6.6		12.4	1.2			
Delay (s)		11.4	14.1		12.3	6.6		70.8	1.2			
Level of Service		B	B		B	A		E	A			
Approach Delay (s)		11.7			10.2			13.2			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	83.2%	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 (veh/h)	130	0	50	0	0	0	0	180	435	340	750	0
Future Volume (Veh/h)	130	0	50	0	0	0	0	180	435	340	750	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)	130	0	50	0	0	0	0	180	435	340	750	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	1832	1621	755	1836	1838	404	754			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1832	1621	755	1836	1838	404	754			187		
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 %	0	100	88	100	100	100	100			75		
cM capacity (veh/h)	47	77	405	42	57	651	853			1381		

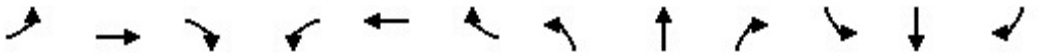
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	130	50	615	340	750
Volume Left	130	0	0	340	0
Volume Right	0	50	435	0	0
cSH	47	405	1700	1381	1700
Volume to Capacity	2.76	0.12	0.36	0.25	0.44
Queue Length 95th (ft)	347	10	0	24	0
Control Delay (s)	981.0	15.1	0.0	8.5	0.0
Lane LOS	F	C		A	
Approach Delay (s)	712.7		0.0	2.6	
Approach LOS	F				

Intersection Summary				
Average Delay	69.6			
Intersection Capacity Utilization	78.3%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	295	640	310	0	0	795
Future Volume (Veh/h)	295	640	310	0	0	795
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)	295	640	310	0	0	795
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	1112	320			317	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1112	320			317	
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	10			100	
cM capacity (veh/h)	228	712			1224	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	935	310	795
Volume Left	295	0	0
Volume Right	640	0	0
cSH	691	1700	1700
Volume to Capacity	1.35	0.18	0.47
Queue Length 95th (ft)	985	0	0
Control Delay (s)	186.9	0.0	0.0
Lane LOS	F		
Approach Delay (s)	186.9	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	85.7		
Intersection Capacity Utilization	78.3%	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)	0	0	15	20	0	45	20	540	30	95	615	0
Future Volume (Veh/h)	0	0	15	20	0	45	20	540	30	95	615	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	45	20	540	30	95	615	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	1432	1418	617	1416	1403	556	617			571		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1432	1418	617	1416	1403	556	617			571		
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	96	80	100	91	98			90		
cM capacity (veh/h)	57	76	349	99	123	528	947			991		

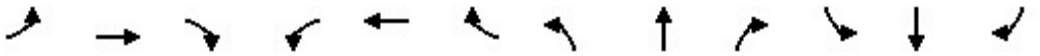
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	65	20	570	95	615
Volume Left	0	20	20	0	95	0
Volume Right	15	45	0	30	0	0
cSH	349	227	947	1700	991	1700
Volume to Capacity	0.04	0.29	0.02	0.34	0.10	0.36
Queue Length 95th (ft)	3	28	2	0	8	0
Control Delay (s)	15.8	27.1	8.9	0.0	9.0	0.0
Lane LOS	C	D	A		A	
Approach Delay (s)	15.8	27.1	0.3		1.2	
Approach LOS	C	D				

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	59.4%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	70	50	540	65	25	625
Future Volume (Veh/h)	70	50	540	65	25	625
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	50	540	65	25	625
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	0.89	0.89			0.89	
vC, conflicting volume	1248	574			605	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1218	464			499	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	60	91			97	
cM capacity (veh/h)	174	534			934	

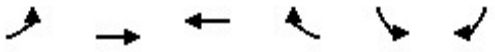
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	120	605	650
Volume Left	70	0	25
Volume Right	50	65	0
cSH	242	1700	934
Volume to Capacity	0.50	0.36	0.03
Queue Length 95th (ft)	63	0	2
Control Delay (s)	33.7	0.0	0.7
Lane LOS	D		A
Approach Delay (s)	33.7	0.0	0.7
Approach LOS	D		

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		72.1%	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)	110	430	125	100	360	220	155	275	20	120	395	180
Future Volume (vph)	110	430	125	100	360	220	155	275	20	120	395	180
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	0.94		1.00	1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1582	1610		1614	1587		1517	1606	1334		2960	
Flt Permitted	0.24	1.00		0.26	1.00		0.34	1.00	1.00		0.82	
Satd. Flow (perm)	397	1610		450	1587		544	1606	1334		2443	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	430	125	100	360	220	155	275	20	120	395	180
RTOR Reduction (vph)	0	10	0	0	20	0	0	0	12	0	28	0
Lane Group Flow (vph)	110	545	0	100	560	0	155	275	8	0	667	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)	40.5	40.5		40.5	40.5		40.8	40.8	40.8		40.8	
Effective Green, g (s)	40.5	40.5		40.5	40.5		40.8	40.8	40.8		40.8	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.39	0.39	0.39		0.39	
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)	155	631		176	622		214	634	526		964	
v/s Ratio Prot		0.34			c0.35			0.17				
v/s Ratio Perm	0.28			0.22			c0.29		0.01		0.27	
v/c Ratio	0.71	0.86		0.57	0.90		0.72	0.43	0.02		0.69	
Uniform Delay, d1	26.4	28.9		24.6	29.5		26.5	22.8	19.0		26.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	11.5	11.4		2.5	15.8		9.8	0.2	0.0		1.7	
Delay (s)	37.9	40.3		27.1	45.3		36.3	23.0	19.0		27.8	
Level of Service	D	D		C	D		D	C	B		C	
Approach Delay (s)		39.9			42.6			27.4			27.8	
Approach LOS		D			D			C			C	

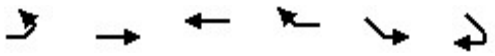
Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	22.0
Intersection Capacity Utilization	130.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	570	510	0	260	170
Future Volume (Veh/h)	0	570	510	0	260	170
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	570	510	0	260	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)		273				
pX, platoon unblocked					0.70	
vC, conflicting volume	510				1080	510
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	510				904	510
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				0	70
cM capacity (veh/h)	1050				217	563

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	570	510	260	170
Volume Left	0	0	260	0
Volume Right	0	0	0	170
cSH	1700	1700	217	563
Volume to Capacity	0.34	0.30	1.20	0.30
Queue Length 95th (ft)	0	0	324	32
Control Delay (s)	0.0	0.0	171.7	14.1
Lane LOS			F	B
Approach Delay (s)	0.0	0.0	109.4	
Approach LOS			F	

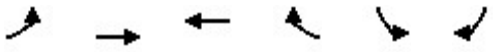
Intersection Summary			
Average Delay	31.2		
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	830	510	530	0	0
Future Volume (Veh/h)	0	830	510	530	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	830	510	530	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					0.77	
vC, conflicting volume	1040				1605	775
vC1, stage 1 conf vol					775	
vC2, stage 2 conf vol					830	
vCu, unblocked vol	1040				1637	775
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)	669				310	401

Direction, Lane #	EB 1	WB 1
Volume Total	830	1040
Volume Left	0	0
Volume Right	0	530
cSH	1700	1700
Volume to Capacity	0.49	0.61
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

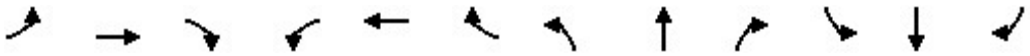
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	810	1035	5	5	5
Future Volume (Veh/h)	20	810	1035	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	810	1035	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	1040				1888	1038
vC1, stage 1 conf vol					1038	
vC2, stage 2 conf vol					850	
vCu, unblocked vol	1040				1888	1038
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	98
cM capacity (veh/h)	661				267	283

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	830	1040	10
Volume Left	20	0	5
Volume Right	0	5	5
cSH	661	1700	275
Volume to Capacity	0.03	0.61	0.04
Queue Length 95th (ft)	2	0	3
Control Delay (s)	0.9	0.0	18.6
Lane LOS	A		C
Approach Delay (s)	0.9	0.0	18.6
Approach LOS			C

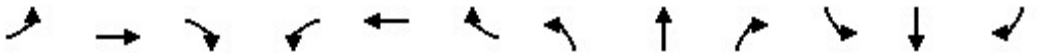
Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		73.7%	ICU Level of Service D
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	790	10	10	950	70	10	0	5	20	0	80
Future Volume (Veh/h)	15	790	10	10	950	70	10	0	5	20	0	80
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	790	10	10	950	70	10	0	5	20	0	80
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	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	1020			800			1875	1865	795	1830	1835	985
vC1, stage 1 conf vol							825	825		1005	1005	
vC2, stage 2 conf vol							1050	1040		825	830	
vCu, unblocked vol	923			800			1951	1939	795	1897	1903	880
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			93	100	99	91	100	72
cM capacity (veh/h)	612			819			141	205	369	211	229	290

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	15	800	10	1020	15	100
Volume Left	15	0	10	0	10	20
Volume Right	0	10	0	70	5	80
cSH	612	1700	819	1700	178	270
Volume to Capacity	0.02	0.47	0.01	0.60	0.08	0.37
Queue Length 95th (ft)	2	0	1	0	7	41
Control Delay (s)	11.0	0.0	9.5	0.0	27.1	26.0
Lane LOS	B		A		D	D
Approach Delay (s)	0.2		0.1		27.1	26.0
Approach LOS					D	D

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	72.0%	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)	30	775	10	10	950	105	15	10	30	85	5	65
Future Volume (Veh/h)	30	775	10	10	950	105	15	10	30	85	5	65
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	775	10	10	950	105	15	10	30	85	5	65
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	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	1058			788			1882	1921	786	1846	1821	955
vC1, stage 1 conf vol							843	843		973	973	
vC2, stage 2 conf vol							1040	1078		873	848	
vCu, unblocked vol	966			788			1962	2009	786	1918	1888	842
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 %	95			99			90	95	92	57	98	78
cM capacity (veh/h)	582			825			149	197	393	197	229	302

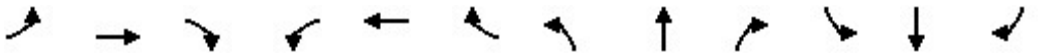
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	30	785	960	105	55	155
Volume Left	30	0	10	0	15	85
Volume Right	0	10	0	105	30	65
cSH	582	1700	825	1700	242	232
Volume to Capacity	0.05	0.46	0.01	0.06	0.23	0.67
Queue Length 95th (ft)	4	0	1	0	21	105
Control Delay (s)	11.5	0.0	0.4	0.0	24.2	47.1
Lane LOS	B		A		C	E
Approach Delay (s)	0.4		0.3		24.2	47.1
Approach LOS					C	E

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	86.1%	ICU Level of Service		E
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	890	0	0	840	225	220
Future Volume (Veh/h)	890	0	0	840	225	220
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)	890	0	0	840	225	220
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					0.89	
vC, conflicting volume			892		1312	893
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			892		1109	893
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		0	20
cM capacity (veh/h)			748		175	274

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	890	420	420	445
Volume Left	0	0	0	225
Volume Right	0	0	0	220
cSH	1700	1700	1700	222
Volume to Capacity	0.52	0.25	0.25	2.01
Queue Length 95th (ft)	0	0	0	824
Control Delay (s)	0.0	0.0	0.0	504.9
Lane LOS				F
Approach Delay (s)	0.0	0.0		504.9
Approach LOS				F

Intersection Summary			
Average Delay	103.3		
Intersection Capacity Utilization	72.4%	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)	65	130	10	65	100	185	0	0	0	505	50	45
Future Volume (vph)	65	130	10	65	100	185	0	0	0	505	50	45
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			1.00	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)		1688			1708	1476					1638	
Flt Permitted		0.85			0.78	1.00					0.96	
Satd. Flow (perm)		1455			1360	1476					1638	
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	130	10	65	100	185	0	0	0	505	50	45
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	0
Lane Group Flow (vph)	0	205	0	0	165	143	0	0	0	0	600	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)		14.1			14.1	51.4					37.3	
Effective Green, g (s)		14.1			14.1	51.4					37.3	
Actuated g/C Ratio		0.21			0.21	0.77					0.56	
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)		308			288	1231					920	
v/s Ratio Prot						0.07					c0.37	
v/s Ratio Perm		c0.14			0.12	0.03						
v/c Ratio		0.67			0.57	0.12					0.65	
Uniform Delay, d1		24.0			23.4	1.9					10.1	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		5.3			2.7	0.0					1.7	
Delay (s)		29.3			26.2	1.9					11.7	
Level of Service		C			C	A					B	
Approach Delay (s)		29.3			13.4			0.0			11.7	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

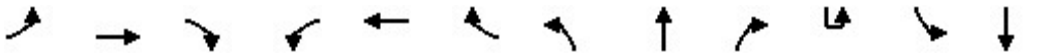
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	130	140	365	130	90	50	5	240	900	100	135	1130
Future Volume (vph)	130	140	365	130	90	50	5	240	900	100	135	1130
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total 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	0.81	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	1431		1700	1456		1630	3260	1184	1630	3250
Flt Permitted		0.98	1.00		0.97	1.00		0.07	1.00	1.00	0.23	1.00
Satd. Flow (perm)		1692	1431		1700	1456		120	3260	1184	395	3250
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)	130	140	365	130	90	50	5	240	900	100	135	1130
RTOR Reduction (vph)	0	0	266	0	0	42	0	0	0	59	0	1
Lane Group Flow (vph)	0	270	99	0	220	8	0	245	900	41	135	1149
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)		24.0	24.0		22.2	22.2		76.3	60.1	60.1	62.3	51.6
Effective Green, g (s)		24.0	24.0		22.2	22.2		76.3	60.1	60.1	62.3	51.6
Actuated g/C Ratio		0.16	0.16		0.15	0.15		0.52	0.41	0.41	0.42	0.35
Clearance Time (s)		8.0	8.0		8.0	8.0		5.5	8.5	8.5	5.5	8.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0		2.0	4.0	4.0	2.0	4.0
Lane Grp Cap (vph)		276	233		256	219		259	1332	484	257	1140
v/s Ratio Prot		c0.16			c0.13			c0.12	0.28		0.04	c0.35
v/s Ratio Perm			0.07			0.01		0.37		0.03	0.18	
v/c Ratio		0.98	0.42		0.86	0.03		0.95	0.68	0.08	0.53	1.01
Uniform Delay, d1		61.2	55.3		60.9	53.3		47.0	35.5	26.6	27.5	47.7
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		47.5	0.5		23.0	0.0		40.6	1.5	0.1	0.9	28.7
Delay (s)		108.7	55.7		83.9	53.3		87.6	37.0	26.7	28.4	76.4
Level of Service		F	E		F	D		F	D	C	C	E
Approach Delay (s)		78.3			78.2				46.1			71.3
Approach LOS		E			E				D			E

Intersection Summary			
HCM 2000 Control Delay	64.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	147.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	20
Future Volume (vph)	20
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)	20
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)	245	475	390	265	360	165	325	830	65	5	170	1300
Future Volume (vph)	245	475	390	265	360	165	325	830	65	5	170	1300
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	1428	2941	2969		1630	3260	1383		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	1428	2941	2969		1630	3260	1383		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)	245	475	390	265	360	165	325	830	65	5	170	1300
RTOR Reduction (vph)	0	0	42	0	31	0	0	0	34	0	0	0
Lane Group Flow (vph)	245	475	348	265	494	0	325	830	31	0	175	1300
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)	19.5	40.3	72.8	14.5	35.3		32.5	68.7	83.2		23.5	59.7
Effective Green, g (s)	19.5	40.3	72.8	14.5	35.3		32.5	68.7	83.2		23.5	59.7
Actuated g/C Ratio	0.11	0.23	0.41	0.08	0.20		0.18	0.39	0.47		0.13	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	3.0	2.5		2.5	3.0
Lane Grp Cap (vph)	334	375	590	242	594		300	1271	653		215	1093
v/s Ratio Prot	0.08	c0.29	0.11	c0.09	0.17		c0.20	0.25	0.00		0.11	c0.40
v/s Ratio Perm			0.13						0.02			
v/c Ratio	0.73	1.27	0.59	1.10	0.83		1.08	0.65	0.05		0.81	1.19
Uniform Delay, d1	75.8	67.9	40.1	80.8	67.6		71.8	44.0	25.1		74.2	58.2
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	7.6	139.6	1.3	85.6	9.6		76.0	1.2	0.0		20.0	94.5
Delay (s)	83.5	207.5	41.4	166.4	77.2		147.8	45.2	25.1		94.3	152.8
Level of Service	F	F	D	F	E		F	D	C		F	F
Approach Delay (s)		121.8			107.2			71.5				134.7
Approach LOS		F			F			E				F

Intersection Summary			
HCM 2000 Control Delay	110.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	176.2	Sum of lost time (s)	29.2
Intersection Capacity Utilization	119.1%	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)	155
Future Volume (vph)	155
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)	1382
Flt Permitted	1.00
Satd. Flow (perm)	1382
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	155
RTOR Reduction (vph)	57
Lane Group Flow (vph)	98
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	3%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	79.2
Effective Green, g (s)	79.2
Actuated g/C Ratio	0.45
Clearance Time (s)	5.5
Vehicle Extension (s)	2.5
Lane Grp Cap (vph)	621
v/s Ratio Prot	0.02
v/s Ratio Perm	0.05
v/c Ratio	0.16
Uniform Delay, d1	28.7
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	28.8
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

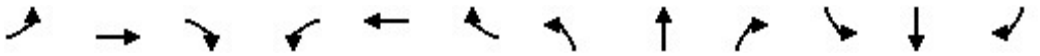
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	560	60	40	405	45	50
Future Volume (Veh/h)	560	60	40	405	45	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	560	60	40	405	45	50
Pedestrians				1	2	
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			622		874	313
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			622		874	313
tC, single (s)			4.4		7.3	7.4
tC, 2 stage (s)						
tF (s)			2.3		3.8	3.6
p0 queue free %			95		81	92
cM capacity (veh/h)			882		235	615

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	373	247	175	270	95
Volume Left	0	0	40	0	45
Volume Right	0	60	0	0	50
cSH	1700	1700	882	1700	348
Volume to Capacity	0.22	0.15	0.05	0.16	0.27
Queue Length 95th (ft)	0	0	4	0	27
Control Delay (s)	0.0	0.0	2.5	0.0	19.2
Lane LOS			A		C
Approach Delay (s)	0.0		1.0		19.2
Approach LOS					C

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	48.7%	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	35	1215	320	5	505	1945
Future Volume (vph)	0	0	35	1215	320	5	505	1945
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	1385		1576	4684
Flt Permitted			0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)			1614	3121	1385		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	35	1215	320	5	505	1945
RTOR Reduction (vph)	0	0	0	0	128	0	0	0
Lane Group Flow (vph)	0	0	35	1215	192	0	510	1945
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)			3.0	44.3	44.3		37.7	69.5
Effective Green, g (s)			3.0	44.3	44.3		32.7	69.5
Actuated g/C Ratio			0.03	0.47	0.47		0.35	0.74
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)			51	1473	654		549	3470
v/s Ratio Prot			0.02	c0.39			c0.32	0.42
v/s Ratio Perm					0.14			
v/c Ratio			0.69	0.82	0.29		0.93	0.56
Uniform Delay, d1			44.9	21.4	15.2		29.4	5.4
Progression Factor			1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2			29.6	4.1	0.3		22.1	0.3
Delay (s)			74.5	25.5	15.5		51.5	5.6
Level of Service			E	C	B		D	A
Approach Delay (s)	0.0			24.5				15.2
Approach LOS	A			C				B

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	16.8
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	415	80	240	560	220	55	150	155	160	255	70
Future Volume (vph)	45	415	80	240	560	220	55	150	155	160	255	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		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	0.92		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	1648		1643	1582		1646	1666	
Flt Permitted	0.13	1.00		0.23	1.00		0.40	1.00		0.21	1.00	
Satd. Flow (perm)	219	1635		400	1648		689	1582		371	1666	
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	415	80	240	560	220	55	150	155	160	255	70
RTOR Reduction (vph)	0	4	0	0	7	0	0	29	0	0	7	0
Lane Group Flow (vph)	45	491	0	240	773	0	55	276	0	160	318	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)	61.6	56.1		79.5	69.0		37.2	30.6		50.5	38.9	
Effective Green, g (s)	61.6	56.1		79.5	69.0		37.2	30.6		50.5	38.9	
Actuated g/C Ratio	0.44	0.40		0.57	0.49		0.27	0.22		0.36	0.28	
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)	150	655		390	812		228	345		269	462	
v/s Ratio Prot	0.01	0.30		c0.08	c0.47		0.01	c0.17		c0.06	c0.19	
v/s Ratio Perm	0.12			0.27			0.05			0.15		
v/c Ratio	0.30	0.75		0.62	0.95		0.24	0.80		0.59	0.69	
Uniform Delay, d1	27.7	35.9		20.4	33.9		39.4	51.8		33.8	45.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	7.7		2.0	21.8		0.2	12.5		2.3	3.4	
Delay (s)	28.1	43.6		22.4	55.7		39.6	64.3		36.2	48.5	
Level of Service	C	D		C	E		D	E		D	D	
Approach Delay (s)		42.3			47.9			60.5			44.4	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	710	335	245	90
Future Volume (Veh/h)	0	0	710	335	245	90
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	710	335	245	90
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	2045	290	335			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2045	290	335			
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	42			
cM capacity (veh/h)	26	754	1230			

Direction, Lane #	NB 1	SB 1
Volume Total	1045	335
Volume Left	710	0
Volume Right	0	90
cSH	1230	1700
Volume to Capacity	0.58	0.20
Queue Length 95th (ft)	97	0
Control Delay (s)	10.8	0.0
Lane LOS	B	
Approach Delay (s)	10.8	0.0
Approach LOS		

Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	755	0	980	245	0
Future Volume (Veh/h)	65	755	0	980	245	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)	65	755	0	980	245	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	1225	245	245			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1225	245	245			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	67	5	100			
cM capacity (veh/h)	198	796	1327			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	820	980	245
Volume Left	65	0	0
Volume Right	755	0	0
cSH	865	1700	1700
Volume to Capacity	0.95	0.58	0.14
Queue Length 95th (ft)	374	0	0
Control Delay (s)	42.4	0.0	0.0
Lane LOS	E		
Approach Delay (s)	42.4	0.0	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	17.0		
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	30	65	1820	795	945	275	170	30	20	0	0
Future Volume (vph)	30	65	1820	795	945	275	170	30	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	1595	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	1595	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)	30	65	1820	795	945	275	170	30	20	0	0
RTOR Reduction (vph)	0	0	0	0	0	35	0	43	0	0	0
Lane Group Flow (vph)	0	95	1820	927	813	240	170	7	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)		9.8	75.3	60.5	60.5	60.5	14.7	14.7			
Effective Green, g (s)		9.8	75.3	60.5	60.5	60.5	14.7	14.7			
Actuated g/C Ratio		0.10	0.75	0.60	0.60	0.60	0.15	0.15			
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)		159	3527	964	837	855	239	214			
v/s Ratio Prot		0.06	c0.39	0.58			c0.10				
v/s Ratio Perm					c0.59	0.17		0.01			
v/c Ratio		0.60	0.52	0.96	0.97	0.28	0.71	0.03			
Uniform Delay, d1		43.2	5.0	18.7	18.9	9.4	40.6	36.6			
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2		5.9	0.5	21.1	24.9	0.8	8.0	0.0			
Delay (s)		49.1	5.5	39.7	43.8	10.2	48.7	36.6			
Level of Service		D	A	D	D	B	D	D			
Approach Delay (s)			7.7	37.3			45.9			0.0	
Approach LOS			A	D			D			A	

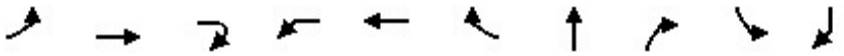
Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	970	840	40	855
Future Volume (Veh/h)	0	0	970	840	40	855
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	970	840	40	855
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	1905	970			970	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1905	970			970	
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			94	
cM capacity (veh/h)	72	310			715	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	970	840	40	855
Volume Left	0	0	40	0
Volume Right	0	840	0	0
cSH	1700	1700	715	1700
Volume to Capacity	0.57	0.49	0.06	0.50
Queue Length 95th (ft)	0	0	4	0
Control Delay (s)	0.0	0.0	10.3	0.0
Lane LOS			B	
Approach Delay (s)	0.0		0.5	
Approach LOS				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBT	NBR	SBL	SBR
Lane Configurations										
Traffic Volume (vph)	145	115	165	195	0	120	675	180	55	890
Future Volume (vph)	145	115	165	195	0	120	675	180	55	890
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	1449		4428		1591	3011
Flt Permitted		0.97	1.00	0.95	0.94		1.00		0.95	1.00
Satd. Flow (perm)		1686	1649	1527	1373		4428		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)	145	115	165	195	0	120	675	180	55	890
RTOR Reduction (vph)	0	0	0	0	75	0	40	0	0	0
Lane Group Flow (vph)	0	260	165	164	76	0	815	0	55	890
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)		20.6	100.0	16.8	42.4		34.9		7.7	47.6
Effective Green, g (s)		20.6	100.0	16.8	42.4		34.9		7.7	48.6
Actuated g/C Ratio		0.21	1.00	0.17	0.42		0.35		0.08	0.49
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)		347	1649	256	594		1545		122	1463
v/s Ratio Prot		c0.15		c0.11	0.02		0.18		0.03	
v/s Ratio Perm			0.10		0.03					c0.30
v/c Ratio		0.75	0.10	0.64	0.13		0.53		0.45	0.61
Uniform Delay, d1		37.3	0.0	38.8	17.5		26.0		44.1	18.8
Progression Factor		1.00	1.00	1.00	1.00		0.99		1.00	1.00
Incremental Delay, d2		8.6	0.1	5.4	0.1		0.9		2.6	1.9
Delay (s)		45.9	0.1	44.2	17.6		26.4		46.8	20.6
Level of Service		D	A	D	B		C		D	C
Approach Delay (s)		28.1			31.4		26.4			
Approach LOS		C			C		C			

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
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)	275	125	455	1345	580	0	0	0	0
Future Volume (vph)	275	125	455	1345	580	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)	1464		1385	1368	4208				
Flt Permitted	0.97		1.00	0.95	0.97				
Satd. Flow (perm)	1464		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)	275	125	455	1345	580	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	446	0	409	672	1253	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)	366		1196	771	2373				
v/s Ratio Prot	c0.30		0.30	c0.49	0.30				
v/s Ratio Perm									
v/c Ratio	1.22		0.34	0.87	0.53				
Uniform Delay, d1	37.5		1.3	18.7	13.5				
Progression Factor	1.00		1.00	1.00	1.00				
Incremental Delay, d2	120.7		0.2	12.9	0.8				
Delay (s)	158.2		1.5	31.6	14.4				
Level of Service	F		A	C	B				
Approach Delay (s)	83.2				20.4	0.0		0.0	
Approach LOS	F				C	A		A	

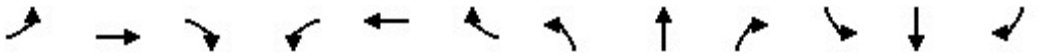
Intersection Summary			
HCM 2000 Control Delay	39.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	395	0	0	455	0
Future Volume (Veh/h)	0	395	0	0	455	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	395	0	0	455	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	455	455	455			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	455	455	455			
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	35	100			
cM capacity (veh/h)	563	605	1116			

Direction, Lane #	EB 1	SB 1
Volume Total	395	455
Volume Left	0	0
Volume Right	395	0
cSH	605	1700
Volume to Capacity	0.65	0.27
Queue Length 95th (ft)	119	0
Control Delay (s)	21.4	0.0
Lane LOS	C	
Approach Delay (s)	21.4	0.0
Approach LOS	C	

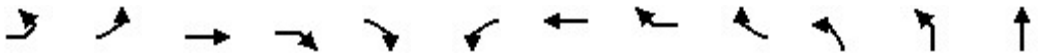
Intersection Summary			
Average Delay	10.0		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	200	70	190	320	50	80	385	170	40	680	260
Future Volume (vph)	190	200	70	190	320	50	80	385	170	40	680	260
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)	1583	1591		1566	1612			1628			1711	1419
Flt Permitted	0.25	1.00		0.45	1.00			0.36			0.94	1.00
Satd. Flow (perm)	416	1591		749	1612			584			1617	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)	190	200	70	190	320	50	80	385	170	40	680	260
RTOR Reduction (vph)	0	12	0	0	6	0	0	11	0	0	0	146
Lane Group Flow (vph)	190	258	0	190	364	0	0	624	0	0	720	114
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)	37.8	25.4		35.6	24.3			40.5			40.5	40.5
Effective Green, g (s)	37.8	25.4		35.6	24.3			40.5			40.5	40.5
Actuated g/C Ratio	0.41	0.28		0.39	0.26			0.44			0.44	0.44
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)	327	438		389	424			256			710	623
v/s Ratio Prot	c0.08	0.16		0.06	c0.23							
v/s Ratio Perm	0.16			0.13				c1.07			0.45	0.08
v/c Ratio	0.58	0.59		0.49	0.86			2.44			1.01	0.18
Uniform Delay, d1	19.5	28.9		20.0	32.3			25.9			25.9	15.8
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.7	1.3		0.4	15.2			659.2			37.3	0.1
Delay (s)	21.2	30.2		20.3	47.5			685.0			63.2	15.8
Level of Service	C	C		C	D			F			E	B
Approach Delay (s)		26.5			38.3			685.0			50.6	
Approach LOS		C			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	196.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.64		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	129.3%	ICU Level of Service	H
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	140	385	35	195	265	575	55	160	190	110	570
Future Volume (vph)	5	140	385	35	195	265	575	55	160	190	110	570
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	3081			1630	3057		1287	1498	1564	3125
Flt Permitted		0.95	1.00			0.95	1.00		1.00	0.95	0.95	1.00
Satd. Flow (perm)		1646	3081			1630	3057		1287	1498	1564	3125
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	140	385	35	195	265	575	55	160	190	110	570
RTOR Reduction (vph)	0	0	44	0	0	0	1	0	107	0	0	0
Lane Group Flow (vph)	0	145	571	0	0	265	645	0	37	150	150	785
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)		15.4	28.1			20.0	32.7		32.7	17.3	17.3	40.9
Effective Green, g (s)		15.4	28.1			20.0	32.7		32.7	17.3	17.3	40.9
Actuated g/C Ratio		0.12	0.22			0.15	0.25		0.25	0.13	0.13	0.31
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)		194	665			250	768		323	199	208	983
v/s Ratio Prot		0.09	0.19			c0.16	c0.21			0.10	0.10	c0.25
v/s Ratio Perm									0.03			
v/c Ratio		0.75	0.86			1.06	0.84		0.11	0.75	0.72	0.80
Uniform Delay, d1		55.4	49.0			55.0	46.2		37.5	54.3	54.0	40.8
Progression Factor		1.00	1.00			0.84	1.02		2.26	1.00	1.00	1.00
Incremental Delay, d2		14.5	10.3			70.2	6.8		0.1	13.3	10.0	6.8
Delay (s)		69.9	59.4			116.5	54.1		84.8	67.6	64.0	47.5
Level of Service		E	E			F	D		F	E	E	D
Approach Delay (s)			61.4				73.9					52.6
Approach LOS			E				E					D

Intersection Summary			
HCM 2000 Control Delay	62.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.6%	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)	205	10	405	65	775	90	10	0	0
Future Volume (vph)	205	10	405	65	775	90	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)	205	10	405	65	775	90	10	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	235	235	875	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)			21.0	21.0	44.6				
Effective Green, g (s)			21.0	21.0	44.6				
Actuated g/C Ratio			0.16	0.16	0.34				
Clearance Time (s)			5.0	5.0	5.0				
Vehicle Extension (s)			2.0	2.0	2.0				
Lane Grp Cap (vph)			241	252	1104				
v/s Ratio Prot			c0.16	0.15	0.27				
v/s Ratio Perm									
v/c Ratio			0.98	0.93	0.79				
Uniform Delay, d1			54.2	53.8	38.5				
Progression Factor			1.00	1.00	1.00				
Incremental Delay, d2			50.4	38.2	5.9				
Delay (s)			104.6	92.0	44.4				
Level of Service			F	F	D				
Approach Delay (s)					63.2				
Approach LOS					E				

Intersection Summary

LANE SUMMARY

Site: 50 [50-SW 160th St @ SR 509 SB Ramps (Site Folder: 2037 PA)]

SW 160th St @ SR 509 SB Ramps, 2037 Proposed Action
Site Category: 2037 Proposed 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]	695	1.0	1416	0.491	100	5.3	LOS A	0.0	0.0	Full	750	0.0	0.0
Approach	695	1.0		0.491		5.3	LOS A	0.0	0.0				
North: SR 509 SB Off Ramp													
Lane 1[d]	235	1.0	1111	0.211	100	12.7	LOS B	1.3	32.4	Full	1600	0.0	0.0
Lane 2	665	1.0	1658	0.401	100	3.9	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	900	1.0		0.401		6.2	LOS A	1.3	32.4				
West: SW 160th Street (EB)													
Lane 1[d]	730	1.0	1296	0.563	100	6.3	LOS A	4.8	120.0	Full	350	0.0	0.0
Lane 2	415	1.0	1658	0.250	100	3.8	LOS A	0.0	0.0	Full	350	0.0	0.0
Approach	1145	1.0		0.563		5.4	LOS A	4.8	120.0				
Intersection	2740	1.0		0.563		5.6	LOS A	4.8	120.0				

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)

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	140	555	695	1.0	1416	0.491	100	NA	NA
Approach	140	555	695	1.0		0.491			

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	235	-	235	1.0	1111	0.211	100	NA	NA
Lane 2	-	665	665	1.0	1658	0.401	100	NA	NA
Approach	235	665	900	1.0		0.401			

LANE SUMMARY

Site: 51 [51-S 160th Street @ 5th Pl S (Site Folder: 2037 PA)]

51-S 160th St @ 5th Pl S, 2037 Proposed Action
Site Category: 2037 Proposed 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]	425	1.0	1054	0.403	100	10.9	LOS B	2.5	63.0	Full	1600	0.0	0.0
Approach	425	1.0		0.403		10.9	LOS B	2.5	63.0				
East: SW 160th Street (WB)													
Lane 1[d]	375	1.0	1044	0.359	100	6.5	LOS A	2.3	57.6	Full	710	0.0	0.0
Approach	375	1.0		0.359		6.5	LOS A	2.3	57.6				
North: 5th Place S (SB)													
Lane 1[d]	21	0.0	855	0.025	100	8.5	LOS A	0.1	3.3	Full	1600	0.0	0.0
Approach	21	0.0		0.025		8.5	LOS A	0.1	3.3				
West: SW 160th Street (EB)													
Lane 1[d]	965	1.0	1384	0.697	100	4.5	LOS A	8.5	214.6	Full	750	0.0	0.0
Approach	965	1.0		0.697		4.5	LOS A	8.5	214.6				
Intersection	1786	1.0		0.697		6.5	LOS A	8.5	214.6				

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)

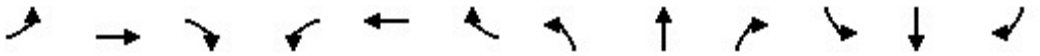
South: SR 509 NB Ramps

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	360	10	55	425	1.0	1054	0.403	100	NA	NA
Approach	360	10	55	425	1.0		0.403			

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	320	35	375	1.0	1044	0.359	100	NA	NA
Approach	20	320	35	375	1.0		0.359			

North: 5th Place S (SB)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	20	180	5	5	5	60	360	5	5	610	310
Future Volume (vph)	255	20	180	5	5	5	60	360	5	5	610	310
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	0.86		1.00	0.93		1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1599	1456		1330	1295		1614	1695		1602	1601	
Flt Permitted	0.75	1.00		0.59	1.00		0.13	1.00		0.51	1.00	
Satd. Flow (perm)	1264	1456		821	1295		219	1695		868	1601	
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)	255	20	180	5	5	5	60	360	5	5	610	310
RTOR Reduction (vph)	0	132	0	0	4	0	0	0	0	0	19	0
Lane Group Flow (vph)	255	68	0	5	6	0	60	365	0	5	901	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)	18.1	18.1		18.1	18.1		40.4	40.4		40.4	40.4	
Effective Green, g (s)	18.1	18.1		18.1	18.1		40.4	40.4		40.4	40.4	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.59	0.59		0.59	0.59	
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)	333	384		216	342		129	999		511	944	
v/s Ratio Prot		0.05			0.00			0.22			c0.56	
v/s Ratio Perm	c0.20			0.01			0.27			0.01		
v/c Ratio	0.77	0.18		0.02	0.02		0.47	0.36		0.01	0.95	
Uniform Delay, d1	23.2	19.4		18.7	18.6		7.9	7.3		5.8	13.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	0.1		0.0	0.0		1.0	0.1		0.0	18.9	
Delay (s)	32.4	19.5		18.7	18.6		8.9	7.4		5.8	32.1	
Level of Service	C	B		B	B		A	A		A	C	
Approach Delay (s)		26.7			18.7			7.6			32.0	
Approach LOS		C			B			A			C	

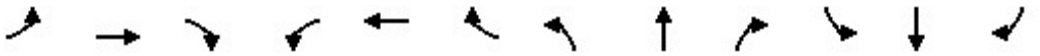
Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	68.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	75	500	215	140	365	185
Future Volume (vph)	75	500	215	140	365	185
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	75	500	215	140	365	185

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	75	500	355	365	185
Volume Left (vph)	75	0	0	365	0
Volume Right (vph)	0	500	140	0	0
Hadj (s)	0.46	-0.34	0.09	0.69	0.19
Departure Headway (s)	6.4	3.2	4.9	5.8	5.3
Degree Utilization, x	0.13	0.44	0.49	0.58	0.27
Capacity (veh/h)	511	1115	713	616	673
Control Delay (s)	10.3	8.7	12.5	15.3	9.0
Approach Delay (s)	8.9		12.5	13.2	
Approach LOS	A		B	B	

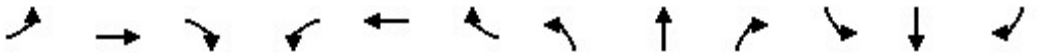
Intersection Summary			
Delay	11.4		
Level of Service	B		
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	395	15	40	450	255	125	40	45	0	0	0
Future Volume (Veh/h)	95	395	15	40	450	255	125	40	45	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)	95	395	15	40	450	255	125	40	45	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	0.86						0.86	0.86		0.86	0.86	0.86
vC, conflicting volume	450			412			1124	1124	207	982	1132	450
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274			412			1062	1062	207	896	1070	274
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 %	91			96			7	75	94	100	100	100
cM capacity (veh/h)	1053			1093			134	163	789	142	167	625

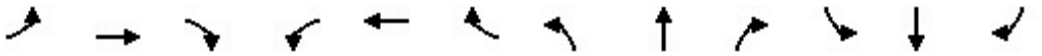
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	95	263	147	40	450	255	125	85
Volume Left	95	0	0	40	0	0	125	0
Volume Right	0	0	15	0	0	255	0	45
cSH	1053	1700	1700	1093	1700	1700	134	281
Volume to Capacity	0.09	0.15	0.09	0.04	0.26	0.15	0.93	0.30
Queue Length 95th (ft)	7	0	0	3	0	0	157	31
Control Delay (s)	8.8	0.0	0.0	8.4	0.0	0.0	122.9	23.3
Lane LOS	A			A			F	C
Approach Delay (s)	1.6			0.5			82.6	
Approach LOS							F	

Intersection Summary				
Average Delay	12.7			
Intersection Capacity Utilization	48.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	400	0	0	705	65	0	0	0	85	5	40
Future Volume (vph)	40	400	0	0	705	65	0	0	0	85	5	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	
Lane Util. Factor	1.00	0.95			0.95						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	1.00			0.99						0.96	
Flt Protected	0.95	1.00			1.00						0.97	
Satd. Flow (prot)	1539	3079			3120						1370	
Flt Permitted	0.28	1.00			1.00						0.95	
Satd. Flow (perm)	458	3079			3120						1344	
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	400	0	0	705	65	0	0	0	85	5	40
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	22	0
Lane Group Flow (vph)	40	400	0	0	765	0	0	0	0	0	108	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			Perm	NA	
Protected Phases	3	8		7	4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	46.8	46.8			38.5						13.7	
Effective Green, g (s)	46.8	46.8			38.5						13.7	
Actuated g/C Ratio	0.66	0.66			0.55						0.19	
Clearance Time (s)	5.0	5.0			5.0						5.0	
Vehicle Extension (s)	5.0	5.0			5.0						5.0	
Lane Grp Cap (vph)	354	2043			1703						261	
v/s Ratio Prot	0.01	c0.13			c0.25							
v/s Ratio Perm	0.07										c0.08	
v/c Ratio	0.11	0.20			0.45						0.41	
Uniform Delay, d1	4.7	4.6			9.6						24.9	
Progression Factor	1.00	1.00			1.00						1.00	
Incremental Delay, d2	0.3	0.2			0.9						2.2	
Delay (s)	5.0	4.8			10.5						27.1	
Level of Service	A	A			B						C	
Approach Delay (s)		4.8			10.5			0.0			27.1	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	70.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	405	15	30	545	100	20	0	15	130	0	205
Future Volume (Veh/h)	65	405	15	30	545	100	20	0	15	130	0	205
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)	65	405	15	30	545	100	20	0	15	130	0	205
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	0.85						0.85	0.85		0.85	0.85	0.85
vC, conflicting volume	551			420			1148	1154	212	960	1161	552
vC1, stage 1 conf vol							542	542		611	611	
vC2, stage 2 conf vol							606	611		350	550	
vCu, unblocked vol	388			420			1088	1094	212	868	1103	389
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 %	93			97			89	100	98	66	100	61
cM capacity (veh/h)	985			1101			188	321	765	388	355	522

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	65	270	150	30	545	100	35	130	205
Volume Left	65	0	0	30	0	0	20	130	0
Volume Right	0	0	15	0	0	100	15	0	205
cSH	985	1700	1700	1101	1700	1700	278	388	522
Volume to Capacity	0.07	0.16	0.09	0.03	0.32	0.06	0.13	0.34	0.39
Queue Length 95th (ft)	5	0	0	2	0	0	11	36	46
Control Delay (s)	8.9	0.0	0.0	8.4	0.0	0.0	19.8	18.9	16.3
Lane LOS	A			A			C	C	C
Approach Delay (s)	1.2			0.4			19.8	17.3	
Approach LOS							C	C	

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	58.4%	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)	85	330	135	110	300	310	30	170	1025	110	55	385
Future Volume (vph)	85	330	135	110	300	310	30	170	1025	110	55	385
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	4470			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	4470			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)	85	330	135	110	300	310	30	170	1025	110	55	385
RTOR Reduction (vph)	0	0	104	0	0	184	0	0	9	0	0	0
Lane Group Flow (vph)	85	330	31	110	300	126	0	200	1126	0	0	440
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)	11.8	32.1	32.1	10.7	31.0	31.0		13.9	41.1			22.1
Effective Green, g (s)	11.8	32.1	32.1	10.7	31.0	31.0		13.9	41.1			22.1
Actuated g/C Ratio	0.08	0.23	0.23	0.08	0.22	0.22		0.10	0.29			0.16
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)	136	389	324	122	372	312		305	1312			494
v/s Ratio Prot	0.05	c0.19		c0.07	0.18			0.07	c0.25			c0.14
v/s Ratio Perm			0.02			0.09						
v/c Ratio	0.62	0.85	0.10	0.90	0.81	0.40		0.66	0.86			0.89
Uniform Delay, d1	62.0	51.6	42.5	64.1	51.7	46.6		60.7	46.7			57.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	9.8	16.2	0.2	52.2	11.4	0.3		4.5	7.4			17.9
Delay (s)	71.7	67.8	42.7	116.3	63.1	46.9		65.2	54.1			75.7
Level of Service	E	E	D	F	E	D		E	D			E
Approach Delay (s)		62.3			64.2				55.8			
Approach LOS		E			E				E			

Intersection Summary			
HCM 2000 Control Delay	56.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	880	205
Future Volume (vph)	880	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)	4491	
Flt Permitted	1.00	
Satd. Flow (perm)	4491	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	880	205
RTOR Reduction (vph)	25	0
Lane Group Flow (vph)	1060	0
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	3%	3%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	49.3	
Effective Green, g (s)	49.3	
Actuated g/C Ratio	0.35	
Clearance Time (s)	10.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1581	
v/s Ratio Prot	0.24	
v/s Ratio Perm		
v/c Ratio	0.67	
Uniform Delay, d1	38.5	
Progression Factor	1.00	
Incremental Delay, d2	2.3	
Delay (s)	40.7	
Level of Service	D	
Approach Delay (s)	50.8	
Approach LOS	D	

Intersection Summary

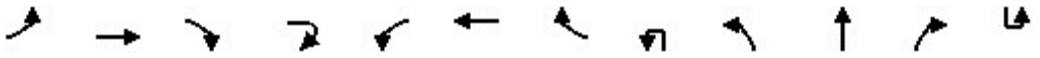
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	40	20	20	205	440	40
Future Volume (veh/h)	40	20	20	205	440	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	40	20	20	205	440	40
Approach Volume (veh/h)	60			225	480	
Crossing Volume (veh/h)	440			40	20	
High Capacity (veh/h)	979			1342	1363	
High v/c (veh/h)	0.06			0.17	0.35	
Low Capacity (veh/h)	795			1123	1142	
Low v/c (veh/h)	0.08			0.20	0.42	

Intersection Summary			
Maximum v/c High	0.35		
Maximum v/c Low	0.42		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	100	0	0	430	0	230
Future Volume (Veh/h)	100	0	0	430	0	230
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)	100	0	0	430	0	230
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)				424		
pX, platoon unblocked					0.96	
vC, conflicting volume			100		530	100
vC1, stage 1 conf vol					100	
vC2, stage 2 conf vol					430	
vCu, unblocked vol			100		493	100
tC, single (s)			4.3		6.6	6.4
tC, 2 stage (s)					5.6	
tF (s)			2.4		3.7	3.5
p0 queue free %			100		100	75
cM capacity (veh/h)			1371		603	916

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	100	430	230
Volume Left	0	0	0
Volume Right	0	0	230
cSH	1700	1700	916
Volume to Capacity	0.06	0.25	0.25
Queue Length 95th (ft)	0	0	25
Control Delay (s)	0.0	0.0	10.2
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.2
Approach LOS			B

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	165	125	0	40	15	85	300	15	260	665	30	30
Future Volume (vph)	165	125	0	40	15	85	300	15	260	665	30	30
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			0.99	1.00		0.95	1.00		
Satd. Flow (prot)	1502	1636	1268			1639	1381		1576	3020		
Flt Permitted	0.95	1.00	1.00			0.99	1.00		0.95	1.00		
Satd. Flow (perm)	1502	1636	1268			1639	1381		1576	3020		
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)	165	125	0	40	15	85	300	15	260	665	30	30
RTOR Reduction (vph)	0	0	34	0	0	0	267	0	0	2	0	0
Lane Group Flow (vph)	165	125	6	0	0	100	33	0	275	693	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)	21.4	21.4	21.4			16.5	16.5		35.0	46.9		
Effective Green, g (s)	21.4	21.4	21.4			16.5	16.5		35.0	46.9		
Actuated g/C Ratio	0.14	0.14	0.14			0.11	0.11		0.23	0.31		
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)	214	233	180			180	151		367	944		
v/s Ratio Prot	c0.11	0.08				c0.06			c0.17	0.23		
v/s Ratio Perm			0.00				0.02					
v/c Ratio	0.77	0.54	0.03			0.56	0.22		0.75	0.73		
Uniform Delay, d1	61.9	59.7	55.4			63.3	60.9		53.4	46.0		
Progression Factor	1.00	1.00	1.00			1.00	1.00		1.26	0.53		
Incremental Delay, d2	14.4	1.2	0.0			3.0	0.5		7.4	4.6		
Delay (s)	76.4	60.9	55.4			66.2	61.4		75.0	29.2		
Level of Service	E	E	E			E	E		E	C		
Approach Delay (s)		68.0				62.6				42.2		
Approach LOS		E				E				D		

Intersection Summary			
HCM 2000 Control Delay	57.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	38.5
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	200	705	120	85
Future Volume (vph)	200	705	120	85
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	1378	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	1545	3091	1378	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	705	120	85
RTOR Reduction (vph)	0	0	137	0
Lane Group Flow (vph)	230	705	68	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)	26.7	38.6	38.6	
Effective Green, g (s)	26.7	38.6	38.6	
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)	275	795	354	
v/s Ratio Prot	c0.15	c0.23		
v/s Ratio Perm			0.05	
v/c Ratio	0.84	0.89	0.19	
Uniform Delay, d1	59.5	53.6	43.5	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	18.5	13.9	1.2	
Delay (s)	78.1	67.5	44.7	
Level of Service	E	E	D	
Approach Delay (s)		65.6		
Approach LOS		E		

Intersection Summary

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	NEL	NER
Lane Configurations												
Traffic Volume (vph)	220	0	265	0	665	270	10	270	1065	190	0	0
Future Volume (vph)	220	0	265	0	665	270	10	270	1065	190	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		10.0	10.0		5.0	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	0.77		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		1155		2995	1035		1583	3228	1444		
Flt Permitted	0.95		1.00		1.00	1.00		0.34	1.00	1.00		
Satd. Flow (perm)	3072		1155		2995	1035		560	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)	220	0	265	0	665	270	10	270	1065	190	0	0
RTOR Reduction (vph)	0	0	252	0	0	113	0	0	0	64	0	0
Lane Group Flow (vph)	220	0	13	0	665	157	0	280	1065	126	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)	34.9		7.4		74.1	74.1		99.6	99.6	99.6		
Effective Green, g (s)	34.9		7.4		74.1	74.1		99.6	99.6	99.6		
Actuated g/C Ratio	0.23		0.05		0.49	0.49		0.66	0.66	0.66		
Clearance Time (s)	10.5		5.0		10.0	10.0		5.0	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)	714		56		1479	511		477	2143	958		
v/s Ratio Prot	c0.07				0.22			c0.06	0.33			
v/s Ratio Perm			c0.01			0.15		c0.33		0.09		
v/c Ratio	0.31		0.23		0.45	0.31		0.59	0.50	0.13		
Uniform Delay, d1	47.6		68.6		24.7	22.6		11.3	12.6	9.3		
Progression Factor	1.00		1.00		0.39	0.44		1.54	1.63	4.84		
Incremental Delay, d2	0.2		2.1		0.9	1.4		1.1	0.8	0.3		
Delay (s)	47.8		70.7		10.4	11.3		18.5	21.3	45.1		
Level of Service	D		E		B	B		B	C	D		
Approach Delay (s)		60.3			10.7				23.8		0.0	
Approach LOS		E			B				C		A	

Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

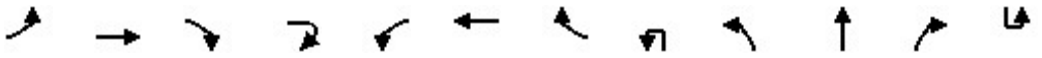
Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	210	5	0	710	30	0	15	20	270	745	15	5
Future Volume (vph)	210	5	0	710	30	0	15	20	270	745	15	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	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	0.97			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	0.85			1.00	1.00	0.85	
Flt Protected	0.95	0.95	1.00		0.95	1.00			0.95	1.00	1.00	
Satd. Flow (prot)	1316	1322	1147		1662	1444			2906	2995	1120	
Flt Permitted	0.95	0.95	1.00		0.95	1.00			0.95	1.00	1.00	
Satd. Flow (perm)	1316	1322	1147		1662	1444			2906	2995	1120	
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)	210	5	0	710	30	0	15	20	270	745	15	5
RTOR Reduction (vph)	0	0	463	0	0	15	0	0	0	0	9	0
Lane Group Flow (vph)	107	108	247	0	30	0	0	0	290	745	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		4.8	4.8			12.0	63.5	63.5	
Effective Green, g (s)	40.0	40.0	40.0		4.8	4.8			12.0	63.5	63.5	
Actuated g/C Ratio	0.27	0.27	0.27		0.03	0.03			0.08	0.42	0.42	
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)	350	352	305		53	46			232	1267	474	
v/s Ratio Prot	0.08	0.08			c0.02	0.00			c0.10	0.25		
v/s Ratio Perm			c0.21								0.01	
v/c Ratio	0.31	0.31	0.81		0.57	0.01			1.25	0.59	0.01	
Uniform Delay, d1	43.9	43.9	51.4		71.6	70.3			69.0	33.2	25.1	
Progression Factor	1.00	1.00	1.00		1.00	1.00			0.83	1.30	1.00	
Incremental Delay, d2	0.4	0.4	14.1		8.0	0.0			141.8	1.9	0.0	
Delay (s)	44.3	44.3	65.5		79.6	70.3			199.1	45.2	25.1	
Level of Service	D	D	E		E	E			F	D	C	
Approach Delay (s)		60.6				76.5				87.4		
Approach LOS		E				E				F		

Intersection Summary			
HCM 2000 Control Delay	68.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	39.0
Intersection Capacity Utilization	131.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	5	1105	195
Future Volume (vph)	5	1105	195
Ideal Flow (vphpl)	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	1.00
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	1430
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1599	3197	1430
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	5	1105	195
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	10	1105	195
Confl. Peds. (#/hr)	51		
Heavy Vehicles (%)	4%	4%	4%
Turn Type	Prot	NA	Perm
Protected Phases	1	6	
Permitted Phases			6
Actuated Green, G (s)	2.7	54.2	54.2
Effective Green, g (s)	2.7	54.2	54.2
Actuated g/C Ratio	0.02	0.36	0.36
Clearance Time (s)	5.0	10.0	10.0
Vehicle Extension (s)	2.0	3.0	3.0
Lane Grp Cap (vph)	28	1155	516
v/s Ratio Prot	0.01	c0.35	
v/s Ratio Perm			0.14
v/c Ratio	0.36	0.96	0.38
Uniform Delay, d1	72.8	46.8	35.4
Progression Factor	1.07	0.93	1.10
Incremental Delay, d2	2.6	16.8	1.9
Delay (s)	80.7	60.5	41.0
Level of Service	F	E	D
Approach Delay (s)		57.7	
Approach LOS		E	

Intersection Summary



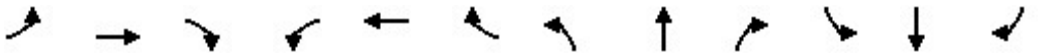
Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	150	735	0	350	240	870	245	15	180	290	165	20
Future Volume (vph)	150	735	0	350	240	870	245	15	180	290	165	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total 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	1335		1583	3167	1357		3072	3167	1319	
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	1335		1583	3167	1357		3072	3167	1319	
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)	150	735	0	350	240	870	245	15	180	290	165	20
RTOR Reduction (vph)	0	0	268	0	0	0	166	0	0	0	116	0
Lane Group Flow (vph)	150	735	82	0	240	870	79	0	195	290	50	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)	14.0	35.0	35.0		19.0	40.0	40.0		9.0	45.0	45.0	
Effective Green, g (s)	14.0	35.0	35.0		19.0	40.0	40.0		9.0	45.0	45.0	
Actuated g/C Ratio	0.09	0.23	0.23		0.13	0.27	0.27		0.06	0.30	0.30	
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)	146	731	311		200	844	361		184	950	395	
v/s Ratio Prot	c0.10	c0.23			0.15	c0.27			0.06	0.09		
v/s Ratio Perm			0.06				0.06				0.04	
v/c Ratio	1.03	1.01	0.26		1.20	1.03	0.22		1.06	0.31	0.13	
Uniform Delay, d1	68.0	57.5	47.0		65.5	55.0	42.8		70.5	40.5	38.2	
Progression Factor	0.62	0.47	1.00		1.00	1.00	1.00		0.83	1.17	1.00	
Incremental Delay, d2	56.8	23.5	0.2		128.0	39.1	0.3		82.3	0.8	0.6	
Delay (s)	98.7	50.6	47.2		193.5	94.1	43.1		141.1	48.1	38.8	
Level of Service	F	D	D		F	F	D		F	D	D	
Approach Delay (s)		55.5				102.5				73.6		
Approach LOS		E				F				E		

Intersection Summary			
HCM 2000 Control Delay	71.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	36.0
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	245	1105	200	240
Future Volume (vph)	245	1105	200	240
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	1310	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3014	3107	1310	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	245	1105	200	240
RTOR Reduction (vph)	0	0	163	0
Lane Group Flow (vph)	265	1105	277	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	51.0	51.0	
Effective Green, g (s)	15.0	51.0	51.0	
Actuated g/C Ratio	0.10	0.34	0.34	
Clearance Time (s)	6.0	11.0	11.0	
Vehicle Extension (s)	4.0	3.0	3.0	
Lane Grp Cap (vph)	301	1056	445	
v/s Ratio Prot	c0.09	c0.36		
v/s Ratio Perm			0.21	
v/c Ratio	0.88	1.05	0.62	
Uniform Delay, d1	66.6	49.5	41.4	
Progression Factor	1.38	0.50	0.07	
Incremental Delay, d2	21.5	38.1	5.3	
Delay (s)	113.3	62.8	8.4	
Level of Service	F	E	A	
Approach Delay (s)		57.0		
Approach LOS		E		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	985	410	315	945	55	110	15	145	60	60	15
Future Volume (vph)	20	985	410	315	945	55	110	15	145	60	60	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	4332		1554	3075		1498	1577	1299	1471	1491	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1583	4332		1554	3075		1498	1577	1299	1471	1491	
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	985	410	315	945	55	110	15	145	60	60	15
RTOR Reduction (vph)	0	50	0	0	3	0	0	0	121	0	6	0
Lane Group Flow (vph)	20	1345	0	315	997	0	110	15	24	60	69	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)	5.1	45.0		34.6	74.5		12.3	24.6	24.6	10.8	23.1	
Effective Green, g (s)	5.1	45.0		34.6	74.5		12.3	24.6	24.6	10.8	23.1	
Actuated g/C Ratio	0.03	0.30		0.23	0.50		0.08	0.16	0.16	0.07	0.15	
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)	53	1299		358	1527		122	258	213	105	229	
v/s Ratio Prot	0.01	c0.31		c0.20	0.32		c0.07	0.01		c0.04	c0.05	
v/s Ratio Perm									0.02			
v/c Ratio	0.38	1.04		0.88	0.65		0.90	0.06	0.11	0.57	0.30	
Uniform Delay, d1	70.9	52.5		55.7	28.1		68.3	52.9	53.4	67.4	56.3	
Progression Factor	1.00	1.00		0.84	0.45		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	34.7		7.8	0.2		51.3	0.4	1.1	7.3	3.4	
Delay (s)	72.5	87.2		54.7	12.8		119.6	53.4	54.5	74.7	59.7	
Level of Service	E	F		D	B		F	D	D	E	E	
Approach Delay (s)		87.0			22.9			80.9			66.3	
Approach LOS		F			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	58.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	35.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
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	130	15	15	10	5	145	115	5	70
Future Volume (vph)	5	15	5	130	15	15	10	5	145	115	5	70
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	0.95	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)	1356	1435		1582	1497			1583	2915			1616
Flt Permitted	0.74	1.00		0.74	1.00			0.28	1.00			0.59
Satd. Flow (perm)	1053	1435		1240	1497			473	2915			1006
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	130	15	15	10	5	145	115	5	70
RTOR Reduction (vph)	0	4	0	0	12	0	0	0	71	0	0	0
Lane Group Flow (vph)	5	16	0	130	18	0	0	15	189	0	0	75
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)	7.8	7.8		7.8	7.8			17.3	17.3			22.3
Effective Green, g (s)	7.8	7.8		7.8	7.8			17.3	17.3			22.3
Actuated g/C Ratio	0.17	0.17		0.17	0.17			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)	182	248		214	258			181	1118			497
v/s Ratio Prot		0.01			0.01				0.06			
v/s Ratio Perm	0.00			c0.10				0.03				0.07
v/c Ratio	0.03	0.06		0.61	0.07			0.08	0.17			0.15
Uniform Delay, d1	15.5	15.6		17.2	15.6			8.8	9.2			6.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	0.0	0.0		3.3	0.0			0.1	0.0			0.1
Delay (s)	15.5	15.6		20.6	15.6			8.9	9.2			6.3
Level of Service	B	B		C	B			A	A			A
Approach Delay (s)		15.6			19.6				9.2			
Approach LOS		B			B				A			

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	45.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	835	15
Future Volume (vph)	835	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)	3251	
Flt Permitted	1.00	
Satd. Flow (perm)	3251	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	835	15
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	848	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	2%
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	22.3	
Effective Green, g (s)	22.3	
Actuated g/C Ratio	0.49	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1607	
v/s Ratio Prot	c0.26	
v/s Ratio Perm		
v/c Ratio	0.53	
Uniform Delay, d1	7.8	
Progression Factor	1.00	
Incremental Delay, d2	0.1	
Delay (s)	7.9	
Level of Service	A	
Approach Delay (s)	7.8	
Approach LOS	A	

Intersection Summary

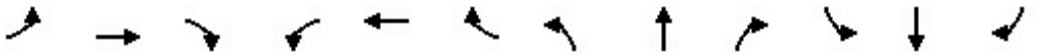
Movement	EBL	EBT	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	105	40	80	40	10	45	30	30	485	30	20	55
Future Volume (vph)	105	40	80	40	10	45	30	30	485	30	20	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (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			1591	1398		1610	3180			1589
Flt Permitted	0.72	1.00			0.69	1.00		0.19	1.00			0.43
Satd. Flow (perm)	1194	1486			1141	1398		322	3180			727
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	40	80	40	10	45	30	30	485	30	20	55
RTOR Reduction (vph)	0	101	0	0	0	38	0	0	2	0	0	0
Lane Group Flow (vph)	105	19	0	0	50	7	0	60	513	0	0	75
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)	23.5	23.5			23.5	23.5		97.6	92.6			94.9
Effective Green, g (s)	23.5	23.5			23.5	23.5		97.6	92.6			94.9
Actuated g/C Ratio	0.16	0.16			0.16	0.16		0.65	0.62			0.63
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)	187	232			178	219		257	1963			505
v/s Ratio Prot		0.01						c0.01	0.16			0.01
v/s Ratio Perm	c0.09				0.04	0.01		0.14				0.09
v/c Ratio	0.56	0.08			0.28	0.03		0.23	0.26			0.15
Uniform Delay, d1	58.5	54.0			55.8	53.6		15.8	13.1			10.7
Progression Factor	1.00	1.00			1.00	1.00		0.53	0.65			0.44
Incremental Delay, d2	4.6	0.2			1.2	0.1		0.1	0.2			0.0
Delay (s)	63.1	54.2			57.0	53.7		8.5	8.7			4.8
Level of Service	E	D			E	D		A	A			A
Approach Delay (s)		58.4			55.4				8.7			
Approach LOS		E			E				A			

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	1290	210	110
Future Volume (vph)	1290	210	110
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	1210	
Flt Permitted	1.00	1.00	
Satd. Flow (perm)	3228	1210	
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	1290	210	110
RTOR Reduction (vph)	0	48	0
Lane Group Flow (vph)	1290	272	0
Confl. Peds. (#/hr)			31
Heavy Vehicles (%)	3%	3%	3%
Turn Type	NA	Perm	
Protected Phases	2		
Permitted Phases		2	
Actuated Green, G (s)	94.9	94.9	
Effective Green, g (s)	94.9	94.9	
Actuated g/C Ratio	0.63	0.63	
Clearance Time (s)	10.0	10.0	
Vehicle Extension (s)	4.0	4.0	
Lane Grp Cap (vph)	2042	765	
v/s Ratio Prot	c0.40		
v/s Ratio Perm		0.22	
v/c Ratio	0.63	0.36	
Uniform Delay, d1	16.9	13.1	
Progression Factor	0.44	0.31	
Incremental Delay, d2	0.7	0.6	
Delay (s)	8.1	4.6	
Level of Service	A	A	
Approach Delay (s)	7.3		
Approach LOS	A		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	85	230	445	240	65	270	200	190	90	340	60
Future Volume (vph)	10	85	230	445	240	65	270	200	190	90	340	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	
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	0.98	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	0.85	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)		1707	1458	1519	1574	1409	1630	2990		1645	3218	
Flt Permitted		0.99	1.00	0.95	0.98	1.00	0.29	1.00		0.52	1.00	
Satd. Flow (perm)		1707	1458	1519	1574	1409	505	2990		903	3218	
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	85	230	445	240	65	270	200	190	90	340	60
RTOR Reduction (vph)	0	0	203	0	0	45	0	123	0	0	11	0
Lane Group Flow (vph)	0	95	27	338	347	20	270	267	0	90	389	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)		11.1	11.1	30.0	30.0	30.0	40.0	27.1		26.7	18.8	
Effective Green, g (s)		11.1	11.1	30.0	30.0	30.0	40.0	27.1		26.7	18.8	
Actuated g/C Ratio		0.12	0.12	0.31	0.31	0.31	0.42	0.28		0.28	0.20	
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)		197	168	474	491	439	399	843		311	629	
v/s Ratio Prot		c0.06		c0.22	0.22		c0.11	0.09		0.02	0.12	
v/s Ratio Perm			0.02			0.01	c0.17			0.06		
v/c Ratio		0.48	0.16	0.71	0.71	0.05	0.68	0.32		0.29	0.62	
Uniform Delay, d1		39.8	38.3	29.2	29.2	23.1	20.4	27.2		26.5	35.4	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.9	0.4	5.0	4.6	0.0	4.5	0.3		0.6	1.9	
Delay (s)		41.7	38.7	34.3	33.8	23.1	24.9	27.5		27.1	37.3	
Level of Service		D	D	C	C	C	C	C		C	D	
Approach Delay (s)		39.6			33.1			26.4			35.4	
Approach LOS		D			C			C			D	

Intersection Summary					
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.69				
Actuated Cycle Length (s)	96.1	Sum of lost time (s)		20.0	
Intersection Capacity Utilization	67.9%	ICU Level of Service		C	
Analysis Period (min)	15				

c Critical Lane Group

LANE SUMMARY

Site: 72 [72-Des Moines Memorial Dr @ SR 509 SB Ramps (Site Folder: 2037 PA)]

72-Des Moines Memorial Dr @ SR 509 SB Ramps, 2037 Proposed Action
Site Category: 2037 Proposed 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]	660	9.0	1237	0.534	100	4.7	LOS A	4.8	129.0	Full	1000	0.0	0.0
Approach	660	9.0		0.534		4.7	LOS A	4.8	129.0				
North: SR 509 Ramps													
Lane 1	487	3.0	918	0.530	100	13.9	LOS B	4.3	110.4	Full	1600	0.0	0.0
Lane 2[d]	603	3.0	1139	0.530	100	12.8	LOS B	4.5	114.1	Full	1600	0.0	0.0
Lane 3	865	3.0	1139	0.760	100	11.5	LOS B	10.8	276.0	Short	500	0.0	NA
Approach	1955	3.0		0.760		12.5	LOS B	10.8	276.0				
West: Des Moines Memorial Dr (EB)													
Lane 1	440	4.0	603	0.730	100	13.4	LOS B	5.4	138.7	Full	1600	0.0	0.0
Lane 2[d]	545	4.0	747	0.730	100	11.1	LOS B	5.9	151.0	Full	1600	0.0	0.0
Approach	985	4.0		0.730		12.1	LOS B	5.9	151.0				
Intersection	3600	4.4		0.760		11.0	LOS B	10.8	276.0				

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

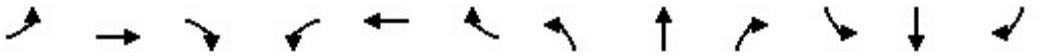
Approach Lane Flows (veh/h)

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	480	180	660	9.0	1237	0.534	100	NA	NA
Approach	480	180	660	9.0		0.534			

North: SR 509 Ramps

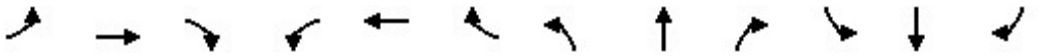
Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	487	-	487	3.0	918	0.530	100	NA	NA
Lane 2	603	-	603	3.0	1139	0.530	100	NA	NA
Lane 3	-	865	865	3.0	1139	0.760	100	0.0	2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1010	690	45	875	5	375	0	40	20	5	15
Future Volume (vph)	10	1010	690	45	875	5	375	0	40	20	5	15
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	1397	1599	3194		3072	1417			1621	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.21	
Satd. Flow (perm)	1599	3197	1397	1599	3194		3072	1417			341	
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	1010	690	45	875	5	375	0	40	20	5	15
RTOR Reduction (vph)	0	0	170	0	0	0	0	34	0	0	10	0
Lane Group Flow (vph)	10	1010	520	45	880	0	375	6	0	0	30	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)	1.4	68.2	68.2	7.0	73.8		20.1	20.1			14.6	
Effective Green, g (s)	1.4	68.2	68.2	7.0	73.8		20.1	20.1			14.6	
Actuated g/C Ratio	0.01	0.52	0.52	0.05	0.56		0.15	0.15			0.11	
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)	17	1658	724	85	1792		469	216			37	
v/s Ratio Prot	0.01	0.32		c0.03	c0.28		c0.12	0.00				
v/s Ratio Perm			c0.37								c0.09	
v/c Ratio	0.59	0.61	0.72	0.53	0.49		0.80	0.03			0.82	
Uniform Delay, d1	64.8	22.3	24.3	60.6	17.5		53.8	47.4			57.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	42.8	0.6	3.4	2.7	0.2		8.7	0.0			77.7	
Delay (s)	107.5	22.9	27.7	63.4	17.7		62.4	47.4			134.9	
Level of Service	F	C	C	E	B		E	D			F	
Approach Delay (s)		25.3			19.9			61.0			134.9	
Approach LOS		C			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	131.5	Sum of lost time (s)	21.6
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)	95	340	110	150	165	240	75	365	95	85	415	55
Future Volume (vph)	95	340	110	150	165	240	75	365	95	85	415	55
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	0.91		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)	1614	1628		1646	1558		1614	1699	1413	1629	1681	
Flt Permitted	0.32	1.00		0.17	1.00		0.22	1.00	1.00	0.35	1.00	
Satd. Flow (perm)	535	1628		303	1558		381	1699	1413	601	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)	95	340	110	150	165	240	75	365	95	85	415	55
RTOR Reduction (vph)	0	9	0	0	42	0	0	0	63	0	3	0
Lane Group Flow (vph)	95	441	0	150	363	0	75	365	32	85	467	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)	35.6	28.9		44.4	33.3		40.4	34.1	34.1	40.6	34.2	
Effective Green, g (s)	35.6	28.9		44.4	33.3		40.4	34.1	34.1	40.6	34.2	
Actuated g/C Ratio	0.35	0.28		0.44	0.33		0.40	0.33	0.33	0.40	0.34	
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)	257	461		278	509		227	568	472	304	564	
v/s Ratio Prot	0.02	c0.27		c0.06	c0.23		c0.02	0.21		0.02	c0.28	
v/s Ratio Perm	0.10			0.18			0.11		0.02	0.09		
v/c Ratio	0.37	0.96		0.54	0.71		0.33	0.64	0.07	0.28	0.83	
Uniform Delay, d1	23.6	35.9		20.6	30.1		21.3	28.7	23.1	20.2	31.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	30.7		1.0	3.9		0.3	1.9	0.0	0.2	9.2	
Delay (s)	24.0	66.6		21.7	34.0		21.6	30.6	23.1	20.4	40.4	
Level of Service	C	E		C	C		C	C	C	C	D	
Approach Delay (s)		59.2			30.7			28.0			37.3	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	101.9	Sum of lost time (s)	21.4
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

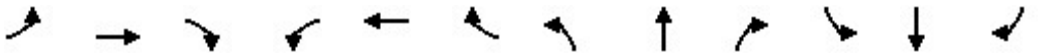
c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	65	950	50	15	165	1295	135	40	30	20	40	15
Future Volume (vph)	65	950	50	15	165	1295	135	40	30	20	40	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	3145			1620			1593
Flt Permitted	0.95	1.00			0.95	1.00			0.81			0.84
Satd. Flow (perm)	1599	3170			1599	3145			1337			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)	65	950	50	15	165	1295	135	40	30	20	40	15
RTOR Reduction (vph)	0	4	0	0	0	7	0	0	16	0	0	44
Lane Group Flow (vph)	65	996	0	0	180	1423	0	0	74	0	0	62
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)	6.7	34.7			10.0	38.6			10.4			10.4
Effective Green, g (s)	6.7	34.7			10.0	38.6			10.4			10.4
Actuated g/C Ratio	0.08	0.43			0.12	0.48			0.13			0.13
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)	133	1374			199	1517			173			176
v/s Ratio Prot	0.04	0.31			c0.11	c0.45						
v/s Ratio Perm									c0.06			0.05
v/c Ratio	0.49	0.72			0.90	0.94			0.43			0.35
Uniform Delay, d1	35.0	18.7			34.5	19.6			32.1			31.7
Progression Factor	1.00	1.00			1.00	1.00			1.00			1.00
Incremental Delay, d2	1.0	3.4			37.5	12.4			3.6			2.5
Delay (s)	36.0	22.1			72.0	32.0			35.6			34.2
Level of Service	D	C			E	C			D			C
Approach Delay (s)		22.9				36.5			35.6			34.2
Approach LOS		C				D			D			C

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.9
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

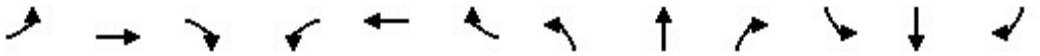
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	50
Future Volume (vph)	50
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	50
RTOR 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



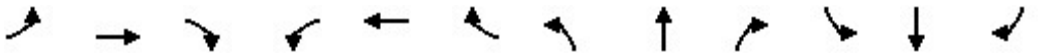
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	905	50	150	775	290	35	130	55	425	440	120
Future Volume (vph)	70	905	50	150	775	290	35	130	55	425	440	120
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total 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	0.96		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	1655		3162	1661	
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	1655		3162	1661	
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	905	50	150	775	290	35	130	55	425	440	120
RTOR Reduction (vph)	0	5	0	0	0	165	0	15	0	0	9	0
Lane Group Flow (vph)	70	950	0	150	775	125	35	170	0	425	551	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)	6.6	26.7		14.9	35.1	35.1	3.2	17.0		29.4	38.2	
Effective Green, g (s)	6.6	26.7		14.9	35.1	35.1	3.2	17.0		29.4	38.2	
Actuated g/C Ratio	0.06	0.23		0.13	0.31	0.31	0.03	0.15		0.26	0.33	
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)	91	1058		205	966	432	45	244		808	551	
v/s Ratio Prot	0.04	c0.21		c0.09	c0.24		0.02	c0.10		0.13	c0.33	
v/s Ratio Perm						0.09						
v/c Ratio	0.77	0.90		0.73	0.80	0.29	0.78	0.70		0.53	1.00	
Uniform Delay, d1	53.4	42.8		48.1	36.8	30.4	55.5	46.5		36.8	38.4	
Progression Factor	1.00	1.00		0.83	0.69	1.38	1.00	1.00		1.00	1.00	
Incremental Delay, d2	28.9	11.9		8.8	5.6	1.3	56.9	8.3		0.3	38.5	
Delay (s)	82.3	54.7		48.8	31.0	43.3	112.5	54.9		37.1	76.9	
Level of Service	F	D		D	C	D	F	D		D	E	
Approach Delay (s)		56.6			36.1			64.0			59.7	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	50.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	32.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



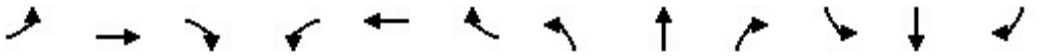
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	965	420	445	1130	0	0	0	0	600	10	85
Future Volume (vph)	0	965	420	445	1130	0	0	0	0	600	10	85
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		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	0.11	1.00					0.95	0.97	
Satd. Flow (perm)		3197	1430	184	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	965	420	445	1130	0	0	0	0	600	10	85
RTOR Reduction (vph)	0	0	260	0	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	965	160	445	1130	0	0	0	0	354	329	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)		31.1	31.1	66.8	66.8					35.7	35.7	
Effective Green, g (s)		31.1	31.1	66.8	66.8					35.7	35.7	
Actuated g/C Ratio		0.27	0.27	0.58	0.58					0.31	0.31	
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)		864	386	478	1857					433	424	
v/s Ratio Prot		c0.30		c0.24	0.35							
v/s Ratio Perm			0.11	0.30						c0.25	0.24	
v/c Ratio		1.12	0.41	0.93	0.61					0.82	0.78	
Uniform Delay, d1		42.0	34.5	32.8	15.6					36.6	36.0	
Progression Factor		0.52	1.30	1.18	1.62					1.00	1.00	
Incremental Delay, d2		63.9	2.2	16.4	0.8					11.7	8.9	
Delay (s)		85.5	47.0	55.2	26.2					48.3	44.9	
Level of Service		F	D	E	C					D	D	
Approach Delay (s)		73.8			34.4			0.0			46.7	
Approach LOS		E			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	51.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	136.6%	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)	445	1120	0	0	1060	1085	515	0	195	0	0	0
Future Volume (vph)	445	1120	0	0	1060	1085	515	0	195	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	0.91				
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (prot)	1554	3107			3197	1430	1449	1366				
Flt Permitted	0.14	1.00			1.00	1.00	0.95	0.98				
Satd. Flow (perm)	228	3107			3197	1430	1449	1366				
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)	445	1120	0	0	1060	1085	515	0	195	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	182	0	63	0	0	0	0
Lane Group Flow (vph)	445	1120	0	0	1060	903	366	281	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)	73.6	73.6			51.6	51.6	29.0	29.0				
Effective Green, g (s)	73.6	73.6			51.6	51.6	29.0	29.0				
Actuated g/C Ratio	0.64	0.64			0.45	0.45	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)	336	1988			1434	641	365	344				
v/s Ratio Prot	c0.19	0.36			0.33		c0.25	0.21				
v/s Ratio Perm	0.66					c0.63						
v/c Ratio	1.32	0.56			0.74	1.41	1.00	0.82				
Uniform Delay, d1	27.5	11.7			26.1	31.7	43.0	40.5				
Progression Factor	2.06	0.92			1.00	1.00	1.00	1.00				
Incremental Delay, d2	153.2	0.4			3.5	192.8	47.8	14.3				
Delay (s)	209.7	11.2			29.6	224.5	90.8	54.8				
Level of Service	F	B			C	F	F	D				
Approach Delay (s)		67.6			128.2			73.4			0.0	
Approach LOS		E			F			E			A	

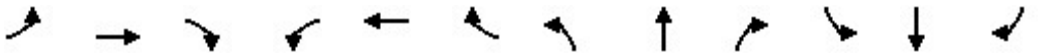
Intersection Summary			
HCM 2000 Control Delay	97.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	136.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	300	180	65	160	120	45	345	35	260	570	10
Future Volume (vph)	30	300	180	65	160	120	45	345	35	260	570	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	1602		1598	1683	1430	1614	1676		1630	1711	
Flt Permitted	0.62	1.00		0.19	1.00	1.00	0.15	1.00		0.32	1.00	
Satd. Flow (perm)	1070	1602		313	1683	1430	260	1676		552	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)	30	300	180	65	160	120	45	345	35	260	570	10
RTOR Reduction (vph)	0	18	0	0	0	67	0	3	0	0	1	0
Lane Group Flow (vph)	30	462	0	65	160	53	45	377	0	260	579	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)	40.4	34.1		40.4	36.4	47.0	45.6	35.0		45.6	40.1	
Effective Green, g (s)	40.4	34.1		40.4	36.4	47.0	45.6	35.0		45.6	40.1	
Actuated g/C Ratio	0.38	0.32		0.38	0.34	0.44	0.43	0.33		0.43	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)	428	515		195	577	701	182	553		345	647	
v/s Ratio Prot	0.00	c0.29		c0.02	0.10	0.01	0.01	0.22		c0.08	c0.34	
v/s Ratio Perm	0.02			0.11		0.03	0.09			0.25		
v/c Ratio	0.07	0.90		0.33	0.28	0.08	0.25	0.68		0.75	0.90	
Uniform Delay, d1	20.7	34.3		23.4	25.3	17.0	21.2	30.7		22.6	31.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	17.8		1.0	0.1	0.0	0.7	2.8		9.0	14.6	
Delay (s)	20.8	52.1		24.5	25.4	17.0	21.9	33.4		31.6	45.6	
Level of Service	C	D		C	C	B	C	C		C	D	
Approach Delay (s)		50.2			22.3			32.2			41.3	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

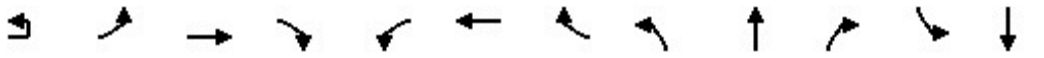
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	505	145	95	415	95	45	300	195	100	640	35
Future Volume (vph)	20	505	145	95	415	95	45	300	195	100	640	35
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	3171		1599	1683	1407	1646	3079		1568	3108	
Flt Permitted	0.44	1.00		0.26	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	767	3171		438	1683	1407	1646	3079		1568	3108	
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	505	145	95	415	95	45	300	195	100	640	35
RTOR Reduction (vph)	0	20	0	0	0	61	0	85	0	0	3	0
Lane Group Flow (vph)	20	630	0	95	415	34	45	410	0	100	672	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)	37.8	35.5		50.2	42.9	42.9	6.9	33.4		9.9	36.4	
Effective Green, g (s)	37.8	35.5		50.2	42.9	42.9	6.9	33.4		9.9	36.4	
Actuated g/C Ratio	0.32	0.30		0.42	0.36	0.36	0.06	0.28		0.08	0.31	
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)	261	949		280	609	509	95	867		130	954	
v/s Ratio Prot	0.00	0.20		c0.03	c0.25		0.03	0.13		c0.06	c0.22	
v/s Ratio Perm	0.02			0.12		0.02						
v/c Ratio	0.08	0.66		0.34	0.68	0.07	0.47	0.47		0.77	0.70	
Uniform Delay, d1	27.9	36.3		22.0	32.0	24.7	54.0	35.3		53.2	36.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.4		0.7	2.5	0.0	3.7	0.1		23.5	2.0	
Delay (s)	28.0	37.7		22.7	34.5	24.7	57.7	35.4		76.7	38.2	
Level of Service	C	D		C	C	C	E	D		E	D	
Approach Delay (s)		37.4			31.1			37.3			43.2	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	30.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



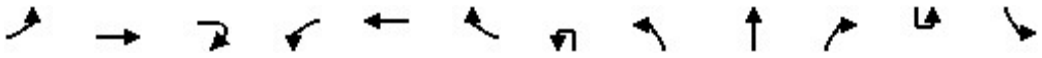
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	50	670	55	35	455	200	30	10	40	215	45
Future Volume (vph)	5	50	670	55	35	455	200	30	10	40	215	45
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (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	3141		1568	2812		1520	1447		1620	1521
Flt Permitted		0.37	1.00		0.34	1.00		0.65	1.00		0.72	1.00
Satd. Flow (perm)		631	3141		569	2812		1033	1447		1235	1521
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	50	670	55	35	455	200	30	10	40	215	45
RTOR Reduction (vph)	0	0	3	0	0	24	0	0	32	0	0	40
Lane Group Flow (vph)	0	55	722	0	35	631	0	30	18	0	215	65
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)		96.3	91.2		95.3	90.7		29.2	29.2		29.2	29.2
Effective Green, g (s)		96.3	91.2		95.3	90.7		29.2	29.2		29.2	29.2
Actuated g/C Ratio		0.69	0.65		0.68	0.65		0.21	0.21		0.21	0.21
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)		469	2046		420	1821		215	301		257	317
v/s Ratio Prot		c0.00	c0.23		0.00	0.22			0.01			0.04
v/s Ratio Perm		0.08			0.05			0.03			c0.17	
v/c Ratio		0.12	0.35		0.08	0.35		0.14	0.06		0.84	0.20
Uniform Delay, d1		7.3	11.0		7.5	11.2		45.2	44.4		53.1	45.8
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.5		0.0	0.5		0.1	0.0		19.6	0.1
Delay (s)		7.3	11.5		7.6	11.7		45.3	44.4		72.8	45.9
Level of Service		A	B		A	B		D	D		E	D
Approach Delay (s)			11.2			11.5			44.8			63.9
Approach LOS			B			B			D			E

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	60
Future Volume (vph)	60
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)	60
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



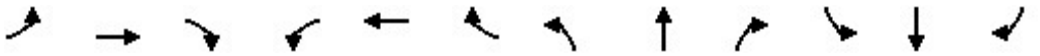
Movement	EBL	EBT	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	95	655	160	50	370	130	5	200	520	205	10	345
Future Volume (vph)	95	655	160	50	370	130	5	200	520	205	10	345
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total 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	3030			1614	3228	1374		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	3030			1614	3228	1374		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)	95	655	160	50	370	130	5	200	520	205	10	345
RTOR Reduction (vph)	0	153	0	0	24	0	0	0	0	104	0	0
Lane Group Flow (vph)	95	662	0	50	476	0	0	205	520	101	0	355
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)	9.0	37.6		7.7	35.3			21.0	36.5	36.5		37.2
Effective Green, g (s)	9.0	37.6		7.7	35.3			21.0	36.5	36.5		37.2
Actuated g/C Ratio	0.06	0.25		0.05	0.24			0.14	0.24	0.24		0.25
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)	98	800		82	713			225	785	334		400
v/s Ratio Prot	c0.06	c0.21		0.03	0.16			c0.13	0.16			0.22
v/s Ratio Perm										0.07		
v/c Ratio	0.97	0.83		0.61	0.67			0.91	0.66	0.30		0.89
Uniform Delay, d1	70.4	53.1		69.7	52.0			63.6	51.2	46.3		54.4
Progression Factor	1.00	1.00		1.00	1.00			0.90	0.90	1.14		0.81
Incremental Delay, d2	79.6	6.7		12.2	1.8			35.5	4.3	2.2		18.9
Delay (s)	150.0	59.9		81.9	53.9			92.7	50.4	55.1		63.2
Level of Service	F	E		F	D			F	D	E		E
Approach Delay (s)		69.3			56.4				60.7			
Approach LOS		E			E				E			

Intersection Summary			
HCM 2000 Control Delay	56.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	32.0
Intersection Capacity Utilization	106.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	1130	190	115
Future Volume (vph)	1130	190	115
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	1366	
Flt Permitted	1.00	1.00	
Satd. Flow (perm)	3228	1366	
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	1130	190	115
RTOR Reduction (vph)	0	114	0
Lane Group Flow (vph)	1130	191	0
Confl. Peds. (#/hr)			23
Heavy Vehicles (%)	3%	3%	3%
Turn Type	NA	Perm	
Protected Phases	6		
Permitted Phases		6	
Actuated Green, G (s)	52.7	52.7	
Effective Green, g (s)	52.7	52.7	
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)	1134	479	
v/s Ratio Prot	c0.35		
v/s Ratio Perm		0.14	
v/c Ratio	1.00	0.40	
Uniform Delay, d1	48.6	36.7	
Progression Factor	0.57	0.23	
Incremental Delay, d2	24.6	2.2	
Delay (s)	52.3	10.7	
Level of Service	D	B	
Approach Delay (s)	47.4		
Approach LOS	D		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	330	840	305	185	30	240	155	40	215	125	105
Future Volume (vph)	140	330	840	305	185	30	240	155	40	215	125	105
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	1642		1630	1716	1458	1646	1614	
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	1642		1630	1716	1458	1646	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)	140	330	840	305	185	30	240	155	40	215	125	105
RTOR Reduction (vph)	0	0	205	0	4	0	0	0	26	0	25	0
Lane Group Flow (vph)	140	330	635	305	211	0	240	155	14	215	205	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)	15.7	38.1	55.6	23.6	46.0		17.5	18.7	42.3	20.1	21.3	
Effective Green, g (s)	15.7	38.1	55.6	23.6	46.0		17.5	18.7	42.3	20.1	21.3	
Actuated g/C Ratio	0.13	0.31	0.45	0.19	0.37		0.14	0.15	0.34	0.16	0.17	
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)	207	530	657	306	612		231	260	500	268	278	
v/s Ratio Prot	0.09	0.19	c0.14	c0.19	0.13		c0.15	0.09	0.01	0.13	c0.13	
v/s Ratio Perm			0.30						0.00			
v/c Ratio	0.68	0.62	0.97	1.00	0.35		1.04	0.60	0.03	0.80	0.74	
Uniform Delay, d1	51.4	36.4	33.0	49.8	27.8		52.9	48.8	26.9	49.7	48.4	
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	8.8	2.4	26.9	50.3	0.4		69.8	3.9	0.0	16.1	10.1	
Delay (s)	60.1	38.8	59.9	100.1	28.2		122.7	52.6	26.9	65.8	58.5	
Level of Service	E	D	E	F	C		F	D	C	E	E	
Approach Delay (s)		54.6			70.4			88.9			62.0	
Approach LOS		D			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	64.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	123.3	Sum of lost time (s)	22.8
Intersection Capacity Utilization	103.0%	ICU Level of Service	G
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)	25	5	0	30	80	0	45	10	695	55	10	60
Future Volume (vph)	25	5	0	30	80	0	45	10	695	55	10	60
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)		1509	1321		1606	1416		1614	3182			1646
Flt Permitted		0.73	1.00		0.74	1.00		0.95	1.00			0.95
Satd. Flow (perm)		1148	1321		1247	1416		1614	3182			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)	25	5	0	30	80	0	45	10	695	55	10	60
RTOR Reduction (vph)	0	0	27	0	0	40	0	0	2	0	0	0
Lane Group Flow (vph)	0	30	3	0	80	5	0	10	748	0	0	70
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)		17.0	17.0		17.0	17.0		3.1	96.7			10.3
Effective Green, g (s)		17.0	17.0		17.0	17.0		3.1	96.7			10.3
Actuated g/C Ratio		0.11	0.11		0.11	0.11		0.02	0.64			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)		130	149		141	160		33	2051			113
v/s Ratio Prot						0.00		0.01	0.23			c0.04
v/s Ratio Perm		0.03	0.00		c0.06							
v/c Ratio		0.23	0.02		0.57	0.03		0.30	0.36			0.62
Uniform Delay, d1		60.5	59.1		63.0	59.2		72.4	12.4			67.9
Progression Factor		1.00	1.00		1.00	1.00		0.90	1.36			1.11
Incremental Delay, d2		1.2	0.1		5.2	0.1		5.0	0.5			6.4
Delay (s)		61.8	59.2		68.2	59.3		70.5	17.4			81.5
Level of Service		E	E		E	E		E	B			F
Approach Delay (s)		60.5				65.0			18.1			
Approach LOS		E				E			B			

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	1230	200	15
Future Volume (vph)	1230	200	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	1409	
Flt Permitted	1.00	1.00	
Satd. Flow (perm)	3292	1409	
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	1230	200	15
RTOR Reduction (vph)	0	29	0
Lane Group Flow (vph)	1230	186	0
Confl. Peds. (#/hr)			6
Heavy Vehicles (%)	1%	1%	1%
Turn Type	NA	Perm	
Protected Phases	6		
Permitted Phases		6	
Actuated Green, G (s)	103.9	103.9	
Effective Green, g (s)	103.9	103.9	
Actuated g/C Ratio	0.69	0.69	
Clearance Time (s)	10.0	10.0	
Vehicle Extension (s)	4.0	4.0	
Lane Grp Cap (vph)	2280	975	
v/s Ratio Prot	c0.37		
v/s Ratio Perm		0.13	
v/c Ratio	0.54	0.19	
Uniform Delay, d1	11.3	8.2	
Progression Factor	1.04	1.06	
Incremental Delay, d2	0.6	0.3	
Delay (s)	12.4	8.9	
Level of Service	B	A	
Approach Delay (s)	15.1		
Approach LOS	B		

Intersection Summary

Movement	EBL	EBT	EBR2	WBL2	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	5	35	10	10	40	35	10	575	5	70	20
Future Volume (vph)	85	5	35	10	10	40	35	10	575	5	70	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	1462		1585	1488			1599	3192			1630
Flt Permitted	0.72	1.00		0.73	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1212	1462		1220	1488			1599	3192			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)	85	5	35	10	10	40	35	10	575	5	70	20
RTOR Reduction (vph)	0	35	0	0	35	0	0	0	0	0	0	0
Lane Group Flow (vph)	85	5	0	10	15	0	0	45	580	0	0	90
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)	18.7	18.7		18.7	18.7			7.9	91.7			13.6
Effective Green, g (s)	18.7	18.7		18.7	18.7			7.9	91.7			13.6
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)	151	182		152	185			84	1951			147
v/s Ratio Prot		0.00			0.01			0.03	0.18			c0.06
v/s Ratio Perm	c0.07			0.01								
v/c Ratio	0.56	0.03		0.07	0.08			0.54	0.30			0.61
Uniform Delay, d1	61.8	57.7		57.9	58.1			69.3	13.8			65.7
Progression Factor	1.00	1.00		1.00	1.00			1.35	0.19			1.20
Incremental Delay, d2	4.7	0.1		0.2	0.2			5.7	0.3			7.7
Delay (s)	66.5	57.7		58.1	58.2			98.9	3.0			86.4
Level of Service	E	E		E	E			F	A			F
Approach Delay (s)		63.7			58.2				9.9			
Approach LOS		E			E				A			

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

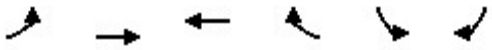
Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	1155	190	65
Future Volume (vph)	1155	190	65
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	10.0	10.0	
Lane Util. Factor	0.95	1.00	
Frpb, ped/bikes	1.00	0.95	
Flpb, ped/bikes	1.00	1.00	
Frt	1.00	0.85	
Flt Protected	1.00	1.00	
Satd. Flow (prot)	3260	1383	
Flt Permitted	1.00	1.00	
Satd. Flow (perm)	3260	1383	
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	1155	190	65
RTOR Reduction (vph)	0	33	0
Lane Group Flow (vph)	1155	222	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)	97.4	97.4	
Effective Green, g (s)	97.4	97.4	
Actuated g/C Ratio	0.65	0.65	
Clearance Time (s)	10.0	10.0	
Vehicle Extension (s)	4.0	4.0	
Lane Grp Cap (vph)	2116	898	
v/s Ratio Prot	c0.35		
v/s Ratio Perm		0.16	
v/c Ratio	0.55	0.25	
Uniform Delay, d1	14.3	11.0	
Progression Factor	0.84	0.58	
Incremental Delay, d2	0.9	0.6	
Delay (s)	13.0	7.0	
Level of Service	B	A	
Approach Delay (s)	16.4		
Approach LOS	B		

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	285	65	370	150	860	410
Future Volume (vph)	285	65	370	150	860	410
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	1.00		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)	1584		1630	1716	1733	1452
Flt Permitted	0.96		0.08	1.00	1.00	1.00
Satd. Flow (perm)	1584		129	1716	1733	1452
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	285	65	370	150	860	410
RTOR Reduction (vph)	7	0	0	0	0	50
Lane Group Flow (vph)	343	0	370	150	860	360
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)	29.1		78.1	78.1	48.1	77.2
Effective Green, g (s)	29.1		78.1	78.1	48.1	77.2
Actuated g/C Ratio	0.25		0.66	0.66	0.41	0.66
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)	391		404	1138	708	952
v/s Ratio Prot	c0.22		c0.19	0.09	c0.50	0.09
v/s Ratio Perm			0.41			0.15
v/c Ratio	0.88		0.92	0.13	1.21	0.38
Uniform Delay, d1	42.6		36.8	7.3	34.8	9.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	19.9		25.4	0.1	109.3	0.3
Delay (s)	62.5		62.2	7.4	144.1	9.6
Level of Service	E		E	A	F	A
Approach Delay (s)	62.5			46.4	100.7	
Approach LOS	E			D	F	

Intersection Summary			
HCM 2000 Control Delay	81.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	117.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

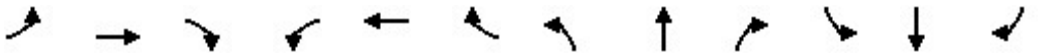
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	920	455	430	785	20
Future Volume (vph)	30	920	455	430	785	20
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	0.41	1.00	1.00	1.00	0.95	
Satd. Flow (perm)	713	3292	1699	1444	3142	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	920	455	430	785	20
RTOR Reduction (vph)	0	0	0	242	2	0
Lane Group Flow (vph)	30	920	455	188	803	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)	24.1	24.1	24.1	24.1	18.6	
Effective Green, g (s)	24.1	24.1	24.1	24.1	18.6	
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.34	
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)	311	1439	743	631	1060	
v/s Ratio Prot		c0.28	0.27			
v/s Ratio Perm	0.04			0.13	c0.26	
v/c Ratio	0.10	0.64	0.61	0.30	0.76	
Uniform Delay, d1	9.1	12.1	11.9	10.0	16.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.9	1.5	0.3	2.8	
Delay (s)	9.2	13.0	13.4	10.3	19.0	
Level of Service	A	B	B	B	B	
Approach Delay (s)		12.9	11.9		19.0	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	12.4
Intersection Capacity Utilization	62.9%	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	355	80	140	330	90	65	100	105	435	520	230
Future Volume (vph)	50	355	80	140	330	90	65	100	105	435	520	230
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	3149		1628	3140		1611	1551		1625	1716	1420
Flt Permitted	0.36	1.00		0.27	1.00		0.38	1.00		0.55	1.00	1.00
Satd. Flow (perm)	620	3149		463	3140		648	1551		949	1716	1420
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	355	80	140	330	90	65	100	105	435	520	230
RTOR Reduction (vph)	0	17	0	0	21	0	0	18	0	0	0	74
Lane Group Flow (vph)	50	418	0	140	399	0	65	187	0	435	520	156
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)	35.8	28.3		40.8	30.8		80.8	73.7		94.2	81.6	81.6
Effective Green, g (s)	35.8	28.3		40.8	30.8		80.8	73.7		94.2	81.6	81.6
Actuated g/C Ratio	0.24	0.19		0.27	0.21		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)	198	594		203	644		394	762		663	933	772
v/s Ratio Prot	0.01	0.13		c0.05	0.13		0.01	0.12		c0.07	0.30	
v/s Ratio Perm	0.05			c0.14			0.08			c0.35		0.11
v/c Ratio	0.25	0.70		0.69	0.62		0.16	0.25		0.66	0.56	0.20
Uniform Delay, d1	45.1	56.9		44.6	54.3		17.3	22.1		16.4	22.4	17.5
Progression Factor	1.00	1.00		0.82	0.77		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	4.0		5.8	1.2		0.2	0.8		2.4	2.4	0.6
Delay (s)	45.9	61.0		42.5	43.2		17.6	22.8		18.9	24.8	18.1
Level of Service	D	E		D	D		B	C		B	C	B
Approach Delay (s)		59.4			43.0			21.6			21.3	
Approach LOS		E			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.6	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)	23.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
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)	80	115	375	0	375	145	285	0	135	15	120	415
Future Volume (vph)	80	115	375	0	375	145	285	0	135	15	120	415
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	1507		1684	1658	1412			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	1507		1684	1658	1412			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)	80	115	375	0	375	145	285	0	135	15	120	415
RTOR Reduction (vph)	0	0	0	288	0	0	0	104	0	0	0	0
Lane Group Flow (vph)	0	195	375	88	0	145	285	32	0	0	135	415
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	35.0	35.0		16.0	35.0	35.0			12.0	28.0
Effective Green, g (s)		16.0	35.0	35.0		16.0	35.0	35.0			12.0	28.0
Actuated g/C Ratio		0.11	0.23	0.23		0.11	0.23	0.23			0.08	0.19
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)		175	390	351		179	386	329			133	582
v/s Ratio Prot		c0.12	c0.22			0.09	0.17				c0.08	0.13
v/s Ratio Perm				0.06				0.02				
v/c Ratio		1.11	0.96	0.25		0.81	0.74	0.10			1.02	0.71
Uniform Delay, d1		67.0	56.8	46.8		65.5	53.3	45.1			69.0	57.2
Progression Factor		0.92	1.39	1.00		1.00	1.00	1.00			0.80	0.85
Incremental Delay, d2		98.7	33.6	0.5		24.0	7.7	0.2			80.0	6.9
Delay (s)		160.7	112.3	47.3		89.5	60.9	45.3			135.0	55.4
Level of Service		F	F	D		F	E	D			F	E
Approach Delay (s)			96.5				64.5					106.0
Approach LOS			F				E					F

Intersection Summary			
HCM 2000 Control Delay	79.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	32.7
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR	NBR2	SBU	SBL	SBT	SBR	SBR2
Lane Configurations							
Traffic Volume (vph)	30	120	35	175	1105	185	60
Future Volume (vph)	30	120	35	175	1105	185	60
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)	1316			1646	3292	1394	
Flt Permitted	1.00			0.95	1.00	1.00	
Satd. Flow (perm)	1316			1646	3292	1394	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	120	35	175	1105	185	60
RTOR Reduction (vph)	122	0	0	0	0	88	0
Lane Group Flow (vph)	28	0	0	210	1105	157	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)	28.0			38.3	54.3	54.3	
Effective Green, g (s)	28.0			38.3	54.3	54.3	
Actuated g/C Ratio	0.19			0.26	0.36	0.36	
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)	245			420	1191	504	
v/s Ratio Prot				0.13	c0.34		
v/s Ratio Perm	0.02					0.11	
v/c Ratio	0.11			0.50	0.93	0.31	
Uniform Delay, d1	50.7			47.7	46.0	34.4	
Progression Factor	4.32			1.16	1.08	1.71	
Incremental Delay, d2	0.9			1.0	12.9	1.5	
Delay (s)	220.0			56.1	62.7	60.2	
Level of Service	F			E	E	E	
Approach Delay (s)					61.5		
Approach LOS					E		

Intersection Summary

Movement	EBL2	EBL	EBT	EBR2	WBL2	WBT	WBR2	NBU	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	30	5	35	40	90	10	55	15	15	635	45	50
Future Volume (vph)	30	5	35	40	90	10	55	15	15	635	45	50
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	12	12	14	12	12	14	12	12	13	11	12	14
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)			1728			1677			1652	3091	1341	
Flt Permitted			0.84			0.48			0.95	1.00	1.00	
Satd. Flow (perm)			1466			832			1652	3091	1341	
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	5	35	40	90	10	55	15	15	635	45	50
RTOR Reduction (vph)	0	0	98	0	0	142	0	0	0	0	40	0
Lane Group Flow (vph)	0	0	12	0	0	13	0	0	30	635	55	0
Confl. Peds. (#/hr)		2							4		11	
Heavy Vehicles (%)	1%	1%	1%	1%	3%	3%	3%	4%	4%	4%	4%	4%
Turn Type	Perm	Perm	NA		Perm	NA		Prot	Prot	NA	Perm	
Protected Phases			4			3		5	5	2		
Permitted Phases	4	4			3						2	
Actuated Green, G (s)			16.9			12.4			5.2	87.6	87.6	
Effective Green, g (s)			16.9			12.4			5.2	87.6	87.6	
Actuated g/C Ratio			0.11			0.08			0.03	0.58	0.58	
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)			165			68			57	1805	783	
v/s Ratio Prot									c0.02	0.21		
v/s Ratio Perm			c0.01			c0.02					0.04	
v/c Ratio			0.08			0.19			0.53	0.35	0.07	
Uniform Delay, d1			59.6			64.1			71.2	16.3	13.5	
Progression Factor			1.00			1.00			1.29	1.43	3.87	
Incremental Delay, d2			0.2			1.3			6.3	0.5	0.2	
Delay (s)			59.8			65.5			98.0	23.8	52.6	
Level of Service			E			E			F	C	D	
Approach Delay (s)			59.8			65.5				30.3		
Approach LOS			E			E				C		

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	35	40	1535	250	10
Future Volume (vph)	35	40	1535	250	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750
Lane Width	12	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	1.00
Adj. Flow (vph)	35	40	1535	250	10
RTOR Reduction (vph)	0	0	0	44	0
Lane Group Flow (vph)	0	75	1535	216	0
Confl. Peds. (#/hr)		11		4	
Heavy Vehicles (%)	2%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA	Perm	
Protected Phases	1	1	6		
Permitted Phases				6	
Actuated Green, G (s)		9.1	91.5	91.5	
Effective Green, g (s)		9.1	91.5	91.5	
Actuated g/C Ratio		0.06	0.61	0.61	
Clearance Time (s)		5.5	6.7	6.7	
Vehicle Extension (s)		2.5	4.0	4.0	
Lane Grp Cap (vph)		98	1922	859	
v/s Ratio Prot		0.05	c0.49		
v/s Ratio Perm				0.15	
v/c Ratio		0.77	0.80	0.25	
Uniform Delay, d1		69.4	22.2	13.5	
Progression Factor		0.97	1.14	1.15	
Incremental Delay, d2		23.2	2.9	0.6	
Delay (s)		90.7	28.3	16.1	
Level of Service		F	C	B	
Approach Delay (s)			29.1		
Approach LOS			C		

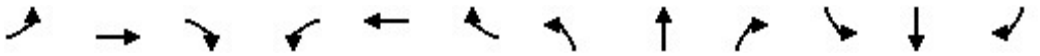
Intersection Summary

Movement	EBL2	EBT	EBR2	WBL2	WBT	WBR2	NBU	NBL	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	40	30	80	60	20	55	50	65	590	40	55	10
Future Volume (vph)	40	30	80	60	20	55	50	65	590	40	55	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	1478		1591	1491			1614	3121	1366		
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00		
Satd. Flow (perm)	1576	1478		1591	1491			1614	3121	1366		
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	30	80	60	20	55	50	65	590	40	55	10
RTOR Reduction (vph)	0	97	0	0	66	0	0	0	0	55	0	0
Lane Group Flow (vph)	40	13	0	60	9	0	0	115	590	40	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)	7.7	17.6		8.1	18.0			13.8	62.9	62.9		
Effective Green, g (s)	7.7	17.6		8.1	18.0			13.8	62.9	62.9		
Actuated g/C Ratio	0.05	0.12		0.05	0.12			0.09	0.42	0.42		
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	173		85	178			148	1308	572		
v/s Ratio Prot	0.03	c0.01		c0.04	0.01			c0.07	0.19			
v/s Ratio Perm										0.03		
v/c Ratio	0.50	0.07		0.71	0.05			0.78	0.45	0.07		
Uniform Delay, d1	69.3	58.9		69.8	58.4			66.6	31.2	26.0		
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00		
Incremental Delay, d2	5.7	0.2		24.1	0.1			22.7	1.1	0.2		
Delay (s)	75.0	59.2		93.9	58.6			89.3	32.3	26.3		
Level of Service	E	E		F	E			F	C	C		
Approach Delay (s)		63.4			74.3				39.8			
Approach LOS		E			E				D			

Intersection Summary			
HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.8
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	60	1630	265	55
Future Volume (vph)	60	1630	265	55
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)	60	1630	265	55
RTOR Reduction (vph)	0	0	51	0
Lane Group Flow (vph)	70	1630	269	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)	35.6	84.7	84.7	
Effective Green, g (s)	35.6	84.7	84.7	
Actuated g/C Ratio	0.24	0.56	0.56	
Clearance Time (s)	5.5	6.7	6.7	
Vehicle Extension (s)	3.5	4.0	4.0	
Lane Grp Cap (vph)	390	1796	808	
v/s Ratio Prot	0.04	c0.51		
v/s Ratio Perm			0.19	
v/c Ratio	0.18	0.91	0.33	
Uniform Delay, d1	45.6	29.2	17.5	
Progression Factor	1.31	1.16	1.80	
Incremental Delay, d2	0.2	6.7	0.9	
Delay (s)	60.1	40.4	32.5	
Level of Service	E	D	C	
Approach Delay (s)		39.8		
Approach LOS		D		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	420	5	60	470	100	20	20	40	255	85	290
Future Volume (vph)	50	420	5	60	470	100	20	20	40	255	85	290
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			0.93		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1643	1730		1630	1663			1579		1646	1499	
Flt Permitted	0.31	1.00		0.44	1.00			0.87		0.70	1.00	
Satd. Flow (perm)	540	1730		762	1663			1387		1222	1499	
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	420	5	60	470	100	20	20	40	255	85	290
RTOR Reduction (vph)	0	1	0	0	8	0	0	27	0	0	114	0
Lane Group Flow (vph)	50	424	0	60	562	0	0	53	0	255	261	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)	29.1	29.1		29.1	29.1			20.2		20.2	20.2	
Effective Green, g (s)	29.1	29.1		29.1	29.1			20.2		20.2	20.2	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			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)	257	823		362	792			458		404	495	
v/s Ratio Prot		0.25			c0.34						0.17	
v/s Ratio Perm	0.09			0.08				0.04		c0.21		
v/c Ratio	0.19	0.52		0.17	0.71			0.12		0.63	0.53	
Uniform Delay, d1	9.2	11.1		9.1	12.7			14.2		17.3	16.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.3	3.0			0.1		3.3	1.2	
Delay (s)	9.7	11.7		9.4	15.7			14.3		20.6	17.7	
Level of Service	A	B		A	B			B		C	B	
Approach Delay (s)		11.5			15.1			14.3			18.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	61.1	Sum of lost time (s)	11.8
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

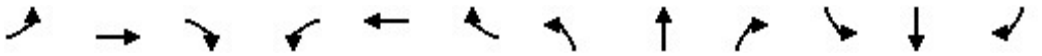
c Critical Lane Group

Movement	EBU	EBL2	EBT	EBR	EBR2	WBU	WBL2	WBT	WBR	WBR2	NBU	NBL
Lane Configurations												
Traffic Volume (vph)	5	45	615	0	170	5	885	515	0	150	60	110
Future Volume (vph)	5	45	615	0	170	5	885	515	0	150	60	110
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	0.97			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	1530			3162	3260	1469			3162
Flt Permitted		0.95	1.00	1.00			0.95	1.00	1.00			0.95
Satd. Flow (perm)		1646	3182	1530			3162	3260	1469			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	45	615	0	170	5	885	515	0	150	60	110
RTOR Reduction (vph)	0	0	0	130	0	0	0	0	85	0	0	0
Lane Group Flow (vph)	0	50	615	40	0	0	890	515	65	0	0	170
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)		9.5	44.8	44.8			46.9	82.2	82.2			12.8
Effective Green, g (s)		9.5	44.8	44.8			46.9	82.2	82.2			12.8
Actuated g/C Ratio		0.05	0.24	0.24			0.25	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)		82	749	360			779	1408	634			212
v/s Ratio Prot		0.03	c0.19				c0.28	0.16				c0.05
v/s Ratio Perm				0.03					0.04			
v/c Ratio		0.61	0.82	0.11			1.14	0.37	0.10			0.80
Uniform Delay, d1		88.5	68.9	57.1			71.6	36.4	32.1			87.4
Progression Factor		1.00	1.00	1.00			1.00	1.00	1.00			1.00
Incremental Delay, d2		12.2	7.4	0.2			79.1	0.2	0.1			19.2
Delay (s)		100.7	76.3	57.2			150.8	36.6	32.2			106.7
Level of Service		F	E	E			F	D	C			F
Approach Delay (s)			73.9					101.5				
Approach LOS			E					F				

Intersection Summary			
HCM 2000 Control Delay	111.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	190.2	Sum of lost time (s)	25.3
Intersection Capacity Utilization	137.6%	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)	345	20	900	20	605	1295	210	50
Future Volume (vph)	345	20	900	20	605	1295	210	50
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	1231	1316		3087	3182	1426	
Flt Permitted	1.00	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3151	1231	1316		3087	3182	1426	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	345	20	900	20	605	1295	210	50
RTOR Reduction (vph)	0	361	368	0	0	0	91	0
Lane Group Flow (vph)	345	100	91	0	625	1295	169	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)	34.7	34.7	34.7		38.5	60.4	60.4	
Effective Green, g (s)	34.7	34.7	34.7		38.5	60.4	60.4	
Actuated g/C Ratio	0.18	0.18	0.18		0.20	0.32	0.32	
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)	574	224	240		624	1010	452	
v/s Ratio Prot	0.11				0.20	c0.41		
v/s Ratio Perm		0.08	0.07				0.12	
v/c Ratio	0.60	0.45	0.38		1.00	1.28	0.37	
Uniform Delay, d1	71.4	69.2	68.3		75.8	64.9	50.2	
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.1	1.9	1.4		36.4	134.6	0.7	
Delay (s)	73.4	71.2	69.7		112.3	199.5	50.9	
Level of Service	E	E	E		F	F	D	
Approach Delay (s)	75.4					156.8		
Approach LOS	E					F		

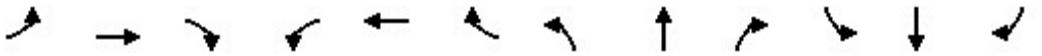
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1445	645	410	915	0	0	0	0	1210	305	655
Future Volume (vph)	0	1445	645	410	915	0	0	0	0	1210	305	655
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	2964	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	2964	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	1445	645	410	915	0	0	0	0	1210	305	655
RTOR Reduction (vph)	0	0	142	0	0	0	0	0	0	0	0	145
Lane Group Flow (vph)	0	1445	503	410	915	0	0	0	0	605	910	510
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	1029	837
v/s Ratio Prot		c0.44		c0.13	0.28					c0.42	0.31	
v/s Ratio Perm			0.35									0.21
v/c Ratio		1.07	0.85	1.05	0.49					1.20	1.15dl	0.61
Uniform Delay, d1		44.0	39.9	65.7	19.0					49.0	46.1	40.5
Progression Factor		1.00	1.00	1.01	0.84					0.72	0.71	0.60
Incremental Delay, d2		47.2	14.5	55.9	0.8					104.6	8.1	1.2
Delay (s)		91.2	54.5	122.4	16.8					139.7	40.9	25.4
Level of Service		F	D	F	B					F	D	C
Approach Delay (s)		79.9			49.5			0.0			63.8	
Approach LOS		E			D			A			E	

Intersection Summary			
HCM 2000 Control Delay	66.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.3
Intersection Capacity Utilization	107.2%	ICU Level of Service	G
Analysis Period (min)	15		

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	2155	490	0	1160	610	165	365	105	0	0	0
Future Volume (vph)	10	2155	490	0	1160	610	165	365	105	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)		4683	1415		3228	1426		3089	1403			
Flt Permitted		0.93	1.00		1.00	1.00		0.98	1.00			
Satd. Flow (perm)		4362	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)	10	2155	490	0	1160	610	165	365	105	0	0	0
RTOR Reduction (vph)	0	0	90	0	0	122	0	0	83	0	0	0
Lane Group Flow (vph)	0	2165	400	0	1160	488	0	530	22	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	Perm	NA	Perm		NA	Perm	Split	NA	custom			
Protected Phases		2			6		3	3	1			
Permitted Phases	2		2			6			3			
Actuated Green, G (s)		100.3	100.3		115.8	115.8		22.1	32.1			
Effective Green, g (s)		100.3	100.3		115.8	115.8		22.1	32.1			
Actuated g/C Ratio		0.67	0.67		0.77	0.77		0.15	0.21			
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)		2916	946		2492	1100		455	300			
v/s Ratio Prot					c0.36			c0.17	0.00			
v/s Ratio Perm		c0.50	0.28			0.34			0.01			
v/c Ratio		0.74	0.42		0.47	0.44		1.16	0.07			
Uniform Delay, d1		16.4	11.5		6.1	5.9		63.9	47.1			
Progression Factor		0.47	0.25		1.00	1.00		1.00	1.00			
Incremental Delay, d2		0.2	0.1		0.6	1.3		95.8	0.2			
Delay (s)		7.8	3.0		6.7	7.2		159.8	47.3			
Level of Service		A	A		A	A		F	D			
Approach Delay (s)		6.9			6.9			141.2			0.0	
Approach LOS		A			A			F			A	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.6
Intersection Capacity Utilization	118.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	220	460	5	205	345	5
Future Volume (Veh/h)	220	460	5	205	345	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)	220	460	5	205	345	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			0.91		0.91	0.91
vC, conflicting volume			681		668	451
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			596		581	342
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			99		18	99
cM capacity (veh/h)			874		421	626

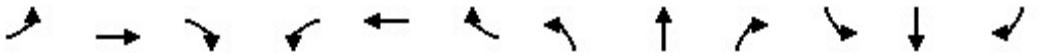
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	680	210	350
Volume Left	0	5	345
Volume Right	460	0	5
cSH	1700	874	423
Volume to Capacity	0.40	0.01	0.83
Queue Length 95th (ft)	0	0	194
Control Delay (s)	0.0	0.3	43.0
Lane LOS		A	E
Approach Delay (s)	0.0	0.3	43.0
Approach LOS			E

Intersection Summary			
Average Delay	12.2		
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	20	550	35	30	695
Future Volume (Veh/h)	15	20	550	35	30	695
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	550	35	30	695
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	1326	574			588	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1326	574			588	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	96			97	
cM capacity (veh/h)	167	520			980	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	35	585	30	695
Volume Left	15	0	30	0
Volume Right	20	35	0	0
cSH	273	1700	980	1700
Volume to Capacity	0.13	0.34	0.03	0.41
Queue Length 95th (ft)	11	0	2	0
Control Delay (s)	20.1	0.0	8.8	0.0
Lane LOS	C		A	
Approach Delay (s)	20.1	0.0	0.4	
Approach LOS	C			

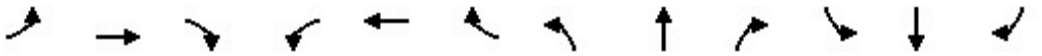
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	10	80	0	95	5	285	10	30	725	15
Future Volume (Veh/h)	30	0	10	80	0	95	5	285	10	30	725	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)	30	0	10	80	0	95	5	285	10	30	725	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	1188	1104	732	1110	1107	297	740			302		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1188	1104	732	1110	1107	297	740			302		
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 %	78	100	98	55	100	87	99			98		
cM capacity (veh/h)	139	202	418	178	204	743	867			1240		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	40	175	300	770
Volume Left	30	80	5	30
Volume Right	10	95	10	15
cSH	167	303	867	1240
Volume to Capacity	0.24	0.58	0.01	0.02
Queue Length 95th (ft)	22	85	0	2
Control Delay (s)	33.3	31.9	0.2	0.6
Lane LOS	D	D	A	A
Approach Delay (s)	33.3	31.9	0.2	0.6
Approach LOS	D	D		

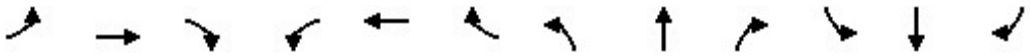
Intersection Summary				
Average Delay	5.8			
Intersection Capacity Utilization	78.2%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	90	5	90	155	145	0	625	85	180	825	700
Future Volume (vph)	115	90	5	90	155	145	0	625	85	180	825	700
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	1733		1630	1716	1458		1699	1444	1630	1716	1412
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1662	1733		1630	1716	1458		1699	1444	316	1716	1412
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	90	5	90	155	145	0	625	85	180	825	700
RTOR Reduction (vph)	0	1	0	0	0	124	0	0	45	0	0	160
Lane Group Flow (vph)	115	94	0	90	155	21	0	625	40	180	825	540
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)	17.1	22.6		15.1	20.6	20.6		64.8	64.8	84.9	84.9	84.9
Effective Green, g (s)	17.1	22.6		15.1	20.6	20.6		64.8	64.8	84.9	84.9	84.9
Actuated g/C Ratio	0.12	0.16		0.11	0.15	0.15		0.46	0.46	0.60	0.60	0.60
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)	202	278		175	251	213		783	665	322	1036	852
v/s Ratio Prot	c0.07	0.05		0.06	c0.09			0.37		0.06	c0.48	
v/s Ratio Perm						0.01			0.03	0.28		0.38
v/c Ratio	0.57	0.34		0.51	0.62	0.10		0.80	0.06	0.56	0.80	0.63
Uniform Delay, d1	58.3	52.4		59.3	56.3	52.0		32.3	21.0	20.1	21.3	17.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	1.0		3.4	5.1	0.3		6.5	0.1	2.3	5.0	2.1
Delay (s)	62.7	53.4		62.7	61.4	52.2		38.9	21.1	22.4	26.2	20.0
Level of Service	E	D		E	E	D		D	C	C	C	C
Approach Delay (s)		58.5			58.3			36.7			23.3	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.6	Sum of lost time (s)	24.0
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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	105	55	35	130	20	190	45	10	40	370	60
Future Volume (vph)	5	105	55	35	130	20	190	45	10	40	370	60
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	105	55	35	130	20	190	45	10	40	370	60

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	165	185	245	470
Volume Left (vph)	5	35	190	40
Volume Right (vph)	55	20	10	60
Hadj (s)	-0.14	0.01	0.18	-0.01
Departure Headway (s)	6.2	6.3	6.0	5.5
Degree Utilization, x	0.29	0.32	0.41	0.71
Capacity (veh/h)	495	488	544	633
Control Delay (s)	11.7	12.3	13.2	21.0
Approach Delay (s)	11.7	12.3	13.2	21.0
Approach LOS	B	B	B	C

Intersection Summary				
Delay		16.2		
Level of Service		C		
Intersection Capacity Utilization		77.3%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	615	10	235	465	0	460
Future Volume (Veh/h)	615	10	235	465	0	460
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)	615	10	235	465	0	460
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	0.96	0.96			0.96	
vC, conflicting volume	930	470			236	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	906	428			185	
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)	294	602			1335	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	625	700	460
Volume Left	615	0	0
Volume Right	10	465	0
cSH	296	1700	1700
Volume to Capacity	2.11	0.41	0.27
Queue Length 95th (ft)	1154	0	0
Control Delay (s)	538.2	0.0	0.0
Lane LOS	F		
Approach Delay (s)	538.2	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	188.5		
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	5	0	465	620	185
Future Volume (Veh/h)	150	5	0	465	620	185
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)	150	5	0	465	620	185
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	1178	712	805			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1178	712	805			
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	99	100			
cM capacity (veh/h)	210	430	824			

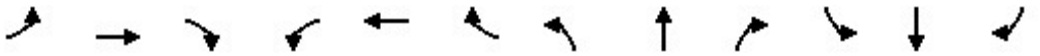
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	155	465	805
Volume Left	150	0	0
Volume Right	5	0	185
cSH	214	824	1700
Volume to Capacity	0.73	0.00	0.47
Queue Length 95th (ft)	120	0	0
Control Delay (s)	56.7	0.0	0.0
Lane LOS	F		
Approach Delay (s)	56.7	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	125	70	30	110	65	10
Future Volume (Veh/h)	125	70	30	110	65	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)	125	70	30	110	65	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			200		340	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			200		340	170
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		90	99
cM capacity (veh/h)			1337		632	861

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	195	140	75
Volume Left	0	30	65
Volume Right	70	0	10
cSH	1700	1337	655
Volume to Capacity	0.11	0.02	0.11
Queue Length 95th (ft)	0	2	10
Control Delay (s)	0.0	1.8	11.2
Lane LOS		A	B
Approach Delay (s)	0.0	1.8	11.2
Approach LOS			B

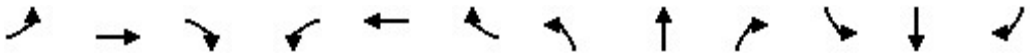
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	115	20	85	115	5	30	5	85	5	5	5
Future Volume (Veh/h)	5	115	20	85	115	5	30	5	85	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	115	20	85	115	5	30	5	85	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	124			138			435	432	133	519	440	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	124			138			435	432	133	519	440	124
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			94			94	99	91	99	99	99
cM capacity (veh/h)	1458			1442			492	479	905	398	480	928

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	140	205	120	15
Volume Left	5	85	30	5
Volume Right	20	5	85	5
cSH	1458	1442	726	529
Volume to Capacity	0.00	0.06	0.17	0.03
Queue Length 95th (ft)	0	5	15	2
Control Delay (s)	0.3	3.5	10.9	12.0
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	3.5	10.9	12.0
Approach LOS			B	B

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	41.2%	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)	30	490	220	60	375	5	220	55	90	10	10	10
Future Volume (Veh/h)	30	490	220	60	375	5	220	55	90	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)	30	490	220	60	375	5	220	55	90	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	385			716			988	1171	366	930	1278	195
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	385			716			988	1171	366	930	1278	195
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 %	97			93			0	68	86	93	93	99
cM capacity (veh/h)	1158			869			176	175	631	134	151	816

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	275	465	248	192	365	30
Volume Left	30	0	60	0	220	10
Volume Right	0	220	0	5	90	10
cSH	1158	1700	869	1700	214	196
Volume to Capacity	0.03	0.27	0.07	0.11	1.71	0.15
Queue Length 95th (ft)	2	0	6	0	613	13
Control Delay (s)	1.1	0.0	2.8	0.0	377.4	26.7
Lane LOS	A		A		F	D
Approach Delay (s)	0.4		1.6		377.4	26.7
Approach LOS					F	D

Intersection Summary				
Average Delay	88.6			
Intersection Capacity Utilization	75.9%	ICU Level of Service	D	
Analysis Period (min)	15			

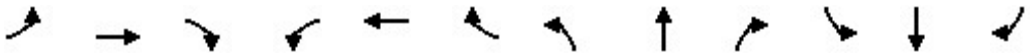
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	40	60	15	20	55	85	20	35	20	190	200	45
Future Volume (vph)	40	60	15	20	55	85	20	35	20	190	200	45
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (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			0.96			0.99			0.95	1.00	1.00	
Satd. Flow (prot)			1625			1601			1614	1699	1381	
Flt Permitted			0.51			0.88			0.21	1.00	1.00	
Satd. Flow (perm)			861			1432			355	1699	1381	
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	60	15	20	55	85	20	35	20	190	200	45
RTOR Reduction (vph)	0	0	4	0	0	6	0	0	0	0	66	0
Lane Group Flow (vph)	0	0	131	0	0	189	0	0	20	190	179	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)			23.6			23.6			36.2	32.3	32.3	
Effective Green, g (s)			23.6			23.6			36.2	32.3	32.3	
Actuated g/C Ratio			0.18			0.18			0.27	0.24	0.24	
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)			153			255			134	414	337	
v/s Ratio Prot									0.00	0.11		
v/s Ratio Perm			c0.15			0.13			0.04		0.13	
v/c Ratio			0.86			0.74			0.15	0.46	0.53	
Uniform Delay, d1			52.7			51.5			36.7	42.6	43.4	
Progression Factor			1.00			1.00			1.00	1.00	1.00	
Incremental Delay, d2			34.6			11.1			0.5	0.8	1.6	
Delay (s)			87.3			62.5			37.3	43.4	45.0	
Level of Service			F			E			D	D	D	
Approach Delay (s)			87.3			62.5				44.0		
Approach LOS			F			E				D		

Intersection Summary			
HCM 2000 Control Delay	101.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	132.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	80	80	375	65	130	615	30	20
Future Volume (vph)	80	80	375	65	130	615	30	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	0.98			1.00	0.85	
Flt Protected		0.95	1.00			0.95	1.00	
Satd. Flow (prot)		1606	1651			1646	1473	
Flt Permitted		0.44	1.00			0.95	1.00	
Satd. Flow (perm)		737	1651			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)	80	80	375	65	130	615	30	20
RTOR Reduction (vph)	0	0	4	0	0	0	33	0
Lane Group Flow (vph)	0	160	436	0	0	745	17	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)		47.5	38.6			46.2	46.2	
Effective Green, g (s)		47.5	38.6			46.2	46.2	
Actuated g/C Ratio		0.36	0.29			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)		331	481			574	514	
v/s Ratio Prot		c0.04	c0.26			c0.45		
v/s Ratio Perm		0.14					0.01	
v/c Ratio		0.48	0.91			1.30	0.03	
Uniform Delay, d1		30.8	45.1			43.1	28.4	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		1.1	20.4			146.6	0.0	
Delay (s)		31.9	65.5			189.6	28.4	
Level of Service		C	E			F	C	
Approach Delay (s)			56.6			179.5		
Approach LOS			E			F		

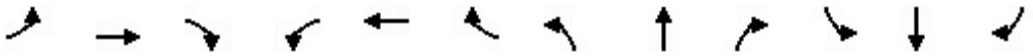
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	45	220	65	55	235	20	120	365	65	15	210	55
Future Volume (vph)	45	220	65	55	235	20	120	365	65	15	210	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)	45	220	65	55	235	20	120	365	65	15	210	55

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	330	310	550	280
Volume Left (vph)	45	55	120	15
Volume Right (vph)	65	20	65	55
Hadj (s)	-0.06	0.05	-0.01	-0.06
Departure Headway (s)	7.9	8.1	7.5	8.1
Degree Utilization, x	0.73	0.70	1.15	0.63
Capacity (veh/h)	432	423	481	420
Control Delay (s)	29.1	27.5	114.7	23.6
Approach Delay (s)	29.1	27.5	114.7	23.6
Approach LOS	D	D	F	C

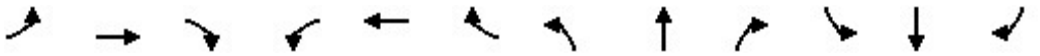
Intersection Summary				
Delay	59.8			
Level of Service	F			
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1145	45	70	350	15	5	20	95	15	15	10
Future Volume (vph)	30	1145	45	70	350	15	5	20	95	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			0.89			0.97	
Flt Protected		1.00			0.99			1.00			0.98	
Satd. Flow (prot)		3203			3122			1529			1590	
Flt Permitted		0.94			0.72			0.99			0.85	
Satd. Flow (perm)		3011			2267			1512			1371	
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	1145	45	70	350	15	5	20	95	15	15	10
RTOR Reduction (vph)	0	2	0	0	2	0	0	41	0	0	8	0
Lane Group Flow (vph)	0	1218	0	0	433	0	0	79	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)		30.9			30.9			8.2			8.2	
Effective Green, g (s)		30.9			30.9			8.2			8.2	
Actuated g/C Ratio		0.63			0.63			0.17			0.17	
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)		1894			1426			252			228	
v/s Ratio Prot												
v/s Ratio Perm		c0.40			0.19			c0.05			0.02	
v/c Ratio		0.64			0.30			0.31			0.14	
Uniform Delay, d1		5.7			4.2			18.0			17.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.0			0.3			0.1	
Delay (s)		6.2			4.2			18.2			17.5	
Level of Service		A			A			B			B	
Approach Delay (s)		6.2			4.2			18.2			17.5	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	49.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	305	330	80	255	30	105	220	35	30	665	155
Future Volume (vph)	220	305	330	80	255	30	105	220	35	30	665	155
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		1695		1614	1664		1630	1667	
Flt Permitted		0.98	1.00		0.99		0.07	1.00		0.51	1.00	
Satd. Flow (perm)		1680	1458		1695		114	1664		869	1667	
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)	220	305	330	80	255	30	105	220	35	30	665	155
RTOR Reduction (vph)	0	0	173	0	2	0	0	4	0	0	6	0
Lane Group Flow (vph)	0	525	157	0	363	0	105	251	0	30	814	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	710		404	677	
v/s Ratio Prot		c0.31	0.01		c0.21		c0.04	c0.15		0.00	c0.49	
v/s Ratio Perm			0.09				0.38			0.03		
v/c Ratio		1.18	0.35		1.21		0.94	0.35		0.07	1.20	
Uniform Delay, d1		53.8	39.5		60.3		35.2	28.3		23.1	43.5	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		100.9	1.0		120.8		66.6	0.6		0.2	104.8	
Delay (s)		154.7	40.5		181.1		101.8	29.0		23.3	148.3	
Level of Service		F	D		F		F	C		C	F	
Approach Delay (s)		110.6			181.1			50.2			143.9	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	123.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	146.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	119.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	135	635	140	0	1505
Future Volume (Veh/h)	0	135	635	140	0	1505
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	135	635	140	0	1505
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	0.85	0.92			0.92	
vC, conflicting volume	1458	388			775	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	785	167			588	
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	83			100	
cM capacity (veh/h)	282	782			907	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	135	423	352	752	752
Volume Left	0	0	0	0	0
Volume Right	135	0	140	0	0
cSH	782	1700	1700	1700	1700
Volume to Capacity	0.17	0.25	0.21	0.44	0.44
Queue Length 95th (ft)	16	0	0	0	0
Control Delay (s)	10.6	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.6	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

LANE SUMMARY

Site: 112 [112-S 170th St @ Terminal RAB (Site Folder: 2037 PA)]

New Site
Site Category: 2037 Proposed 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: S 170th St (WB)													
Lane 1[d]	409	3.0	1679	0.244	100	7.9	LOS A	1.6	41.0	Full	600	0.0	0.0
Lane 2	58	3.0	1193	0.049	20[6]	4.1	LOS A	0.3	6.5	Full	600	0.0	0.0
Approach	467	3.0		0.244		7.4	LOS A	1.6	41.0				
West: S 170th St (EB)													
Lane 1[d]	120	3.0	1157	0.103	100	5.4	LOS A	0.5	13.4	Full	1600	0.0	0.0
Approach	120	3.0		0.103		5.4	LOS A	0.5	13.4				
Intersection	587	3.0		0.244		7.0	LOS A	1.6	41.0				

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.

6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

East: S 170th St (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	272	16	121	409	3.0	1679	0.244	100	NA	NA
Lane 2	-	-	58	58	3.0	1193	0.049	20[6]	NA	NA
Approach	272	16	179	467	3.0		0.244			

West: S 170th St (EB)

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	109	5	120	3.0	1157	0.103	100	NA	NA
Approach	5	109	5	120	3.0		0.103			

	Total	%HV	Deg.Satn (v/c)
Intersection	587	3.0	0.244

LANE SUMMARY

Site: 113 [113-Des Moines Memorial Dr @ SR 509 NB Ramps (Site Folder: 2037 PA)]

113-Des Moines Memorial Dr @ SR 509 NB Ramps, 2037 Proposed Action
Site Category: 2037 Proposed 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]	291	4.0	570	0.510	100	17.0	LOS B	2.8	72.2	Full	1600	0.0	0.0
Approach	291	4.0		0.510		17.0	LOS B	2.8	72.2				
East: Des Moines Memorial Dr (WB)													
Lane 1[d]	555	5.0	1086	0.511	100	8.4	LOS A	4.1	107.9	Full	1600	0.0	0.0
Lane 2	710	5.0	1595	0.445	100	4.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1265	5.0		0.511		5.9	LOS A	4.1	107.9				
West: Des Moines Memorial Dr (EB)													
Lane 1	947	6.0	1413	0.671	100	7.0	LOS A	0.0	0.0	Full	1000	0.0	0.0
Lane 2[d]	1058	6.0	1577	0.671	100	4.5	LOS A	0.0	0.0	Full	1000	0.0	0.0
Approach	2005	6.0		0.671		5.7	LOS A	0.0	0.0				
Intersection	3561	5.5		0.671		6.7	LOS A	4.1	107.9				

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	105	1	185	291	4.0	570	0.510	100	NA	NA
Approach	105	1	185	291	4.0		0.510			

East: Des Moines Memorial Dr (WB)

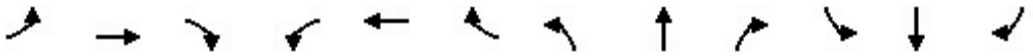
Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	555	-	555	5.0	1086	0.511	100	NA	NA
Lane 2	-	710	710	5.0	1595	0.445	100	NA	NA
Approach	555	710	1265	5.0		0.511			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	225	10	240	665
Future Volume (vph)	0	0	225	10	240	665
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)			3239		1630	3260
Flt Permitted			1.00		0.61	1.00
Satd. Flow (perm)			3239		1039	3260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	225	10	240	665
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	235	0	240	665
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)			3239		1039	3260
v/s Ratio Prot			0.07			0.20
v/s Ratio Perm					c0.23	
v/c Ratio			0.07		0.23	0.20
Uniform Delay, d1			0.0		0.0	0.0
Progression Factor			1.00		1.00	1.00
Incremental Delay, d2			0.0		0.4	0.1
Delay (s)			0.0		0.4	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	0.30		
Actuated Cycle Length (s)	21.0	Sum of lost time (s)	5.0
Intersection Capacity Utilization	38.4%	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	155	225	0	0	890
Future Volume (vph)	10	155	225	0	0	890
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	155	225	0	0	890
RTOR Reduction (vph)	0	96	0	0	0	0
Lane Group Flow (vph)	10	59	225	0	0	890
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		0.07			c0.27
v/s Ratio Perm		c0.04				
v/c Ratio	0.02	0.11	0.18			0.72
Uniform Delay, d1	8.1	8.4	8.6			11.1
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.0	0.4	0.3			3.6
Delay (s)	8.1	8.8	9.0			14.6
Level of Service	A	A	A			B
Approach Delay (s)	8.7		9.0			14.6
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	42.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	38.4%	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	765	0	0	545	545	0	620	365	0	0	0
Future Volume (vph)	0	765	0	0	545	545	0	620	365	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		3079				
Flt Permitted		1.00			1.00	1.00		1.00				
Satd. Flow (perm)		3260			3260	1458		3079				
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	765	0	0	545	545	0	620	365	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	70	0	57	0	0	0	0
Lane Group Flow (vph)	0	765	0	0	545	475	0	928	0	0	0	0
Turn Type		NA			NA	Perm		NA				
Protected Phases		4			8			2				
Permitted Phases						8						
Actuated Green, G (s)		79.0			79.0	79.0		61.0				
Effective Green, g (s)		79.0			79.0	79.0		61.0				
Actuated g/C Ratio		0.53			0.53	0.53		0.41				
Clearance Time (s)		5.0			5.0	5.0		5.0				
Lane Grp Cap (vph)		1716			1716	767		1252				
v/s Ratio Prot		0.23			0.17			c0.30				
v/s Ratio Perm						c0.33						
v/c Ratio		0.45			0.32	0.62		0.74				
Uniform Delay, d1		22.0			20.2	24.9		37.8				
Progression Factor		1.04			1.00	1.00		0.57				
Incremental Delay, d2		0.6			0.5	3.7		2.6				
Delay (s)		23.4			20.7	28.7		24.0				
Level of Service		C			C	C		C				
Approach Delay (s)		23.4			24.7			24.0			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	112.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	545	0	0	0	765	1625
Future Volume (vph)	545	0	0	0	765	1625
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)	545	0	0	0	765	1625
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	545	0	0	0	765	1625
Turn Type	Prot				Prot	NA
Protected Phases	3				1	6
Permitted Phases						
Actuated Green, G (s)	39.0				101.0	101.0
Effective Green, g (s)	39.0				101.0	101.0
Actuated g/C Ratio	0.26				0.67	0.67
Clearance Time (s)	5.0				5.0	5.0
Lane Grp Cap (vph)	822				1097	3153
v/s Ratio Prot	c0.17				c0.47	0.35
v/s Ratio Perm						
v/c Ratio	0.66				0.70	0.52
Uniform Delay, d1	49.6				15.1	12.3
Progression Factor	0.81				1.00	1.00
Incremental Delay, d2	4.0				3.7	0.6
Delay (s)	44.4				18.8	12.9
Level of Service	D				B	B
Approach Delay (s)	44.4		0.0			14.8
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	126.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			