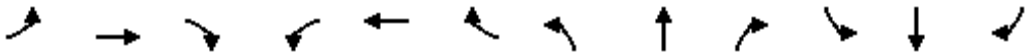


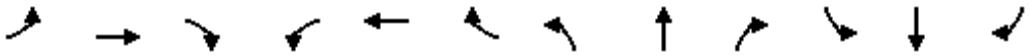
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	373	74	197	952	675	90	46	166	191	33	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.5	3.0		3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		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	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	0.97	
Satd. Flow (prot)	1752	3347		1752	3438	1532		1786	1530	1665	1645	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	0.97	
Satd. Flow (perm)	1752	3347		1752	3438	1532		1786	1530	1665	1645	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	14	410	81	216	1046	742	99	51	182	210	36	31
RTOR Reduction (vph)	0	10	0	0	0	172	0	0	160	0	10	0
Lane Group Flow (vph)	14	481	0	216	1046	570	0	150	22	139	128	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		pm+ov	Split		Perm	Split		
Protected Phases	1	6		5	2	7	8	8		7	7	
Permitted Phases						2			8			
Actuated Green, G (s)	2.5	54.5		18.6	70.6	86.6		13.4	13.4	16.0	16.0	
Effective Green, g (s)	3.5	55.5		19.6	71.6	88.6		14.4	14.4	17.0	17.0	
Actuated g/C Ratio	0.03	0.46		0.16	0.60	0.74		0.12	0.12	0.14	0.14	
Clearance Time (s)	4.0	5.5		4.0	5.5	4.0		4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.5		1.5	2.5	1.5		1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	51	1548		286	2051	1131		214	184	236	233	
v/s Ratio Prot	0.01	0.14		c0.12	c0.30	0.07		c0.08		c0.08	0.08	
v/s Ratio Perm						0.30			0.01			
v/c Ratio	0.27	0.31		0.76	0.51	0.50		0.70	0.12	0.59	0.55	
Uniform Delay, d1	57.0	20.2		47.9	14.0	6.5		50.7	47.1	48.2	47.9	
Progression Factor	1.00	1.00		0.96	0.91	1.42		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.1		7.2	0.7	0.1		8.2	0.1	2.4	1.4	
Delay (s)	58.1	20.3		53.4	13.4	9.4		58.9	47.2	50.6	49.3	
Level of Service	E	C		D	B	A		E	D	D	D	
Approach Delay (s)		21.4			16.2			52.5			50.0	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



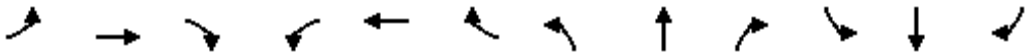
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	971	34	119	459	151	48	24	114	499	19	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.5	3.0		3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		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	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	0.96	
Satd. Flow (prot)	1752	3420		1752	3438	1540		1785	1521	1665	1655	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	0.96	
Satd. Flow (perm)	1752	3420		1752	3438	1540		1785	1521	1665	1655	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	26	1067	37	131	504	166	53	26	125	548	21	30
RTOR Reduction (vph)	0	2	0	0	0	44	0	0	115	0	5	0
Lane Group Flow (vph)	26	1102	0	131	504	122	0	79	10	301	293	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		pm+ov	Split		Perm	Split		
Protected Phases	1	6		5	2	7	8	8		7	7	
Permitted Phases						2			8			
Actuated Green, G (s)	1.6	37.2		9.1	44.7	64.4		6.5	6.5	19.7	19.7	
Effective Green, g (s)	2.6	38.2		10.1	45.7	66.4		7.5	7.5	20.7	20.7	
Actuated g/C Ratio	0.03	0.42		0.11	0.51	0.74		0.08	0.08	0.23	0.23	
Clearance Time (s)	4.0	5.5		4.0	5.5	4.0		4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.5		1.5	2.5	1.5		1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	51	1452		197	1746	1136		149	127	383	381	
v/s Ratio Prot	0.01	c0.32		c0.07	0.15	0.02		c0.04		c0.18	0.18	
v/s Ratio Perm						0.05			0.01			
v/c Ratio	0.51	0.76		0.66	0.29	0.11		0.53	0.08	0.79	0.77	
Uniform Delay, d1	43.1	22.0		38.3	12.8	3.4		39.6	38.1	32.6	32.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.9	2.2		6.4	0.4	0.0		1.8	0.1	9.4	8.5	
Delay (s)	46.0	24.2		44.7	13.2	3.4		41.4	38.2	42.0	40.9	
Level of Service	D	C		D	B	A		D	D	D	D	
Approach Delay (s)		24.7			16.3			39.4			41.5	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



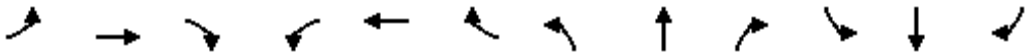
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	321	26	102	641	138	29	0	55	11	4	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5		3.5	4.5		3.5	3.5		3.5	3.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frpb, ped/bikes	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	
Frt	1.00	0.99		1.00	0.97		1.00	0.85		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3398		1752	3344		1752	1520		3400	1589	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3398		1752	3344		1752	1520		3400	1589	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	133	353	29	112	704	152	32	0	60	12	4	24
RTOR Reduction (vph)	0	10	0	0	34	0	0	55	0	0	22	0
Lane Group Flow (vph)	133	372	0	112	822	0	32	5	0	12	6	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	5.6	17.4		3.7	15.5		1.1	2.4		0.7	2.0	
Effective Green, g (s)	6.6	18.4		4.7	16.5		2.1	3.4		1.7	3.0	
Actuated g/C Ratio	0.15	0.43		0.11	0.38		0.05	0.08		0.04	0.07	
Clearance Time (s)	4.5	5.5		4.5	5.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	268	1447		191	1277		85	120		134	110	
v/s Ratio Prot	c0.08	0.11		0.06	c0.25		c0.02	0.00		0.00	c0.00	
v/s Ratio Perm												
v/c Ratio	0.50	0.26		0.59	0.64		0.38	0.04		0.09	0.05	
Uniform Delay, d1	16.8	8.0		18.3	10.9		19.9	18.4		20.0	18.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.0		2.9	0.8		1.0	0.0		0.1	0.1	
Delay (s)	17.3	8.0		21.3	11.8		20.9	18.4		20.1	18.8	
Level of Service	B	A		C	B		C	B		C	B	
Approach Delay (s)		10.4			12.9			19.3			19.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	43.2	Sum of lost time (s)	11.5
Intersection Capacity Utilization	49.1%	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												
Volume (vph)	18	670	32	32	435	19	61	3	88	133	6	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5		3.5	4.5		3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	0.95	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.97	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	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.86	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3414		1752	3416		1752	1461	1474	3400	1570	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3414		1752	3416		1752	1461	1474	3400	1570	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	20	736	35	35	478	21	67	3	97	146	7	82
RTOR Reduction (vph)	0	5	0	0	5	0	0	44	41	0	76	0
Lane Group Flow (vph)	20	766	0	35	494	0	67	7	8	146	13	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot		pm+ov	Prot		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	0.3	17.6		2.4	19.7		2.7	2.4	4.8	2.8	2.5	
Effective Green, g (s)	1.3	18.6		3.4	20.7		3.7	3.4	6.8	3.8	3.5	
Actuated g/C Ratio	0.03	0.42		0.08	0.47		0.08	0.08	0.15	0.09	0.08	
Clearance Time (s)	4.5	5.5		4.5	5.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		2.0	2.0	1.5	2.0	2.0	
Lane Grp Cap (vph)	52	1437		135	1600		147	112	227	292	124	
v/s Ratio Prot	0.01	c0.22		c0.02	0.14		c0.04	0.00	0.00	c0.04	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.38	0.53		0.26	0.31		0.46	0.06	0.03	0.50	0.11	
Uniform Delay, d1	21.1	9.6		19.2	7.3		19.3	18.9	15.9	19.3	18.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.2		0.4	0.0		0.8	0.1	0.0	0.5	0.1	
Delay (s)	22.8	9.7		19.6	7.3		20.1	19.0	15.9	19.8	19.0	
Level of Service	C	A		B	A		C	B	B	B	B	
Approach Delay (s)		10.1			8.1			18.5			19.5	
Approach LOS		B			A			B			B	

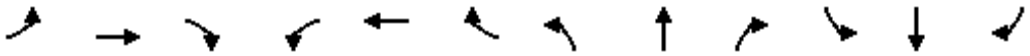
Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	103	215	0	0	659	230	880	0	34	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5			4.5	4.5	3.5	3.5	3.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1719	3438			3438	1538	1633	1633	1568			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1719	3438			3438	1538	1633	1633	1568			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	113	236	0	0	724	253	967	0	37	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	165	0	0	23	0	0	0
Lane Group Flow (vph)	113	236	0	0	724	88	483	484	14	0	0	0
Heavy Vehicles (%)	5%	5%	2%	2%	5%	5%	5%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	4.9	28.8			19.9	19.9	21.2	21.2	21.2			
Effective Green, g (s)	5.9	29.8			20.9	20.9	22.2	22.2	22.2			
Actuated g/C Ratio	0.10	0.50			0.35	0.35	0.37	0.37	0.37			
Clearance Time (s)	4.0	5.5			5.5	5.5	4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	169	1708			1198	536	604	604	580			
v/s Ratio Prot	c0.07	0.07			c0.21		0.30	c0.30				
v/s Ratio Perm						0.06			0.01			
v/c Ratio	0.67	0.14			0.60	0.16	0.80	0.80	0.02			
Uniform Delay, d1	26.1	8.2			16.1	13.5	16.9	16.9	12.0			
Progression Factor	1.01	0.50			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	9.6	0.2			2.3	0.7	7.3	7.5	0.0			
Delay (s)	35.9	4.3			18.4	14.2	24.2	24.5	12.0			
Level of Service	D	A			B	B	C	C	B			
Approach Delay (s)		14.5			17.3			23.9			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.7%	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												
Volume (vph)	205	508	0	0	236	362	311	0	66	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5			4.5	4.5	3.5	3.5	3.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1719	3438			3438	1538	1633	1633	1568			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1719	3438			3438	1538	1633	1633	1568			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	225	558	0	0	259	398	342	0	73	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	247	0	0	59	0	0	0
Lane Group Flow (vph)	225	558	0	0	259	151	171	171	14	0	0	0
Heavy Vehicles (%)	5%	5%	2%	2%	5%	5%	5%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	14.0	39.8			21.8	21.8	10.2	10.2	10.2			
Effective Green, g (s)	15.0	40.8			22.8	22.8	11.2	11.2	11.2			
Actuated g/C Ratio	0.25	0.68			0.38	0.38	0.19	0.19	0.19			
Clearance Time (s)	4.0	5.5			5.5	5.5	4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	430	2338			1306	584	305	305	293			
v/s Ratio Prot	c0.13	c0.16			0.08		c0.10	0.10				
v/s Ratio Perm						0.10			0.01			
v/c Ratio	0.52	0.24			0.20	0.26	0.56	0.56	0.05			
Uniform Delay, d1	19.4	3.7			12.5	12.8	22.2	22.2	20.0			
Progression Factor	0.86	0.73			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.1	0.2			0.3	1.1	2.4	2.4	0.1			
Delay (s)	17.9	2.9			12.8	13.9	24.5	24.5	20.1			
Level of Service	B	A			B	B	C	C	C			
Approach Delay (s)		7.2			13.4			23.7			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Volume (vph)	0	228	502	0	1443	96	90	0	381	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.0		3.5	3.5	3.5		3.5		
Lane Util. Factor		0.95	1.00		0.95	1.00	0.97		0.88		
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)		3438	1568		3438	1583	3400		2760		
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3438	1568		3438	1583	3400		2760		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	251	552	0	1586	105	99	0	419	0	0
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	54	0	0
Lane Group Flow (vph)	0	251	552	0	1586	70	99	0	365	0	0
Heavy Vehicles (%)	3%	5%	3%	2%	5%	2%	3%	2%	3%	2%	2%
Turn Type			Free			Perm	Prot		custom		
Protected Phases		2			6		4				
Permitted Phases			Free			6			4		
Actuated Green, G (s)		39.1	60.0		39.1	39.1	11.9		11.9		
Effective Green, g (s)		40.1	60.0		40.1	40.1	12.9		12.9		
Actuated g/C Ratio		0.67	1.00		0.67	0.67	0.22		0.22		
Clearance Time (s)		4.5			4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		2298	1568		2298	1058	731		593		
v/s Ratio Prot		0.07			c0.46		0.03				
v/s Ratio Perm			0.35			0.04			c0.13		
v/c Ratio		0.11	0.35		0.69	0.07	0.14		0.62		
Uniform Delay, d1		3.6	0.0		6.1	3.5	19.0		21.3		
Progression Factor		1.62	1.00		0.36	2.06	1.00		1.00		
Incremental Delay, d2		0.1	0.6		0.7	0.0	0.1		1.9		
Delay (s)		5.8	0.6		2.8	7.1	19.1		23.2		
Level of Service		A	A		A	A	B		C		
Approach Delay (s)		2.2			3.1			22.4		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

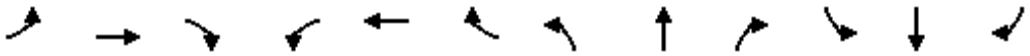
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Volume (vph)	0	593	991	0	498	60	120	0	231	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.0		3.5	3.5	3.5		3.5		
Lane Util. Factor		0.95	1.00		0.95	1.00	0.97		0.88		
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)		3438	1568		3438	1583	3400		2760		
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3438	1568		3438	1583	3400		2760		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	652	1089	0	547	66	132	0	254	0	0
RTOR Reduction (vph)	0	0	0	0	0	17	0	0	217	0	0
Lane Group Flow (vph)	0	652	1089	0	547	49	132	0	37	0	0
Heavy Vehicles (%)	3%	5%	3%	2%	5%	2%	3%	2%	3%	2%	2%
Turn Type			Free			Perm	Prot		custom		
Protected Phases		2			6		4				
Permitted Phases			Free			6			4		
Actuated Green, G (s)		43.3	60.0		43.3	43.3	7.7		7.7		
Effective Green, g (s)		44.3	60.0		44.3	44.3	8.7		8.7		
Actuated g/C Ratio		0.74	1.00		0.74	0.74	0.14		0.14		
Clearance Time (s)		4.5			4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		2538	1568		2538	1169	493		400		
v/s Ratio Prot		0.19			0.16		0.04				
v/s Ratio Perm			c0.69			0.03			0.01		
v/c Ratio		0.26	0.69		0.22	0.04	0.27		0.09		
Uniform Delay, d1		2.5	0.0		2.4	2.1	22.8		22.2		
Progression Factor		1.00	1.00		0.35	0.87	1.00		1.00		
Incremental Delay, d2		0.2	2.6		0.0	0.0	0.3		0.1		
Delay (s)		2.8	2.6		0.9	1.9	23.1		22.3		
Level of Service		A	A		A	A	C		C		
Approach Delay (s)		2.6			1.0			22.6		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM Average Control Delay	5.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		

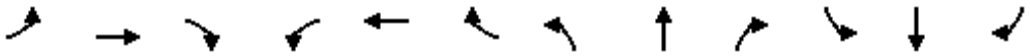
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	34	105	18	94	245	161	32	90	130	270	134	71
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	37	115	20	103	269	177	35	99	143	297	147	78
Pedestrians		5			5			5			5	
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)												
pX, platoon unblocked												
vC, conflicting volume	451			140			828	853	125	868	696	279
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	451			140			828	853	125	868	696	279
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 %	97			93			77	62	84	0	55	90
cM capacity (veh/h)	1099			1431			153	262	915	148	324	751

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	37	115	20	103	269	177	35	242	297	225
Volume Left	37	0	0	103	0	0	35	0	297	0
Volume Right	0	0	20	0	0	177	0	143	0	78
cSH	1099	1700	1700	1431	1700	1700	153	454	148	403
Volume to Capacity	0.03	0.07	0.01	0.07	0.16	0.10	0.23	0.53	2.01	0.56
Queue Length 95th (ft)	3	0	0	6	0	0	21	77	584	83
Control Delay (s)	8.4	0.0	0.0	7.7	0.0	0.0	35.5	21.6	526.6	24.7
Lane LOS	A			A			E	C	F	C
Approach Delay (s)	1.8			1.4			23.4		310.0	
Approach LOS							C		F	

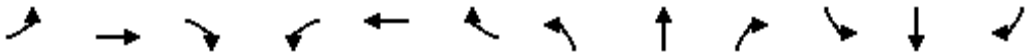
Intersection Summary				
Average Delay	111.4			
Intersection Capacity Utilization	57.7%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	308	49	115	200	235	18	94	78	115	200	235
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	78	338	54	126	220	258	20	103	86	126	220	258
Pedestrians		5			5			5			5	
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)												
pX, platoon unblocked												
vC, conflicting volume	483			397			1345	1235	348	1114	1031	230
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	483			397			1345	1235	348	1114	1031	230
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 %	93			89			0	28	88	0	0	68
cM capacity (veh/h)	1070			1151			0	144	687	59	190	800

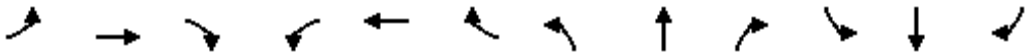
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	78	338	54	126	220	258	20	189	126	478
Volume Left	78	0	0	126	0	0	20	0	126	0
Volume Right	0	0	54	0	0	258	0	86	0	258
cSH	1070	1700	1700	1151	1700	1700	0	224	59	323
Volume to Capacity	0.07	0.20	0.03	0.11	0.13	0.15	Err	0.84	2.16	1.48
Queue Length 95th (ft)	6	0	0	9	0	0	Err	163	308	655
Control Delay (s)	8.6	0.0	0.0	8.5	0.0	0.0	Err	71.6	683.6	262.0
Lane LOS	A			A			F	F	F	F
Approach Delay (s)	1.4			1.8			Err		350.1	
Approach LOS							F		F	

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



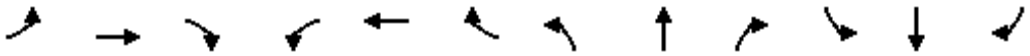
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	857	40	130	487	198	55	27	125	558	25	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	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	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3414		1752	3438	1525	1752	1845	1524	3400	1667	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3414		1752	3438	1525	1752	1845	1524	3400	1667	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	35	942	44	143	535	218	60	30	137	613	27	38
RTOR Reduction (vph)	0	4	0	0	0	110	0	0	125	0	34	0
Lane Group Flow (vph)	35	982	0	143	535	108	60	30	12	613	31	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	3.3	35.0		11.8	43.5	43.5	16.1	7.1	7.1	18.6	9.6	
Effective Green, g (s)	4.3	36.0		12.8	44.5	44.5	17.1	8.1	8.1	19.6	10.6	
Actuated g/C Ratio	0.05	0.40		0.14	0.49	0.49	0.19	0.09	0.09	0.22	0.12	
Clearance Time (s)	4.0	5.5		4.0	5.5	5.5	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.5		1.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	84	1366		249	1700	754	333	166	137	740	196	
v/s Ratio Prot	0.02	c0.29		c0.08	0.16		c0.03	0.02		c0.18	0.02	
v/s Ratio Perm						0.07			0.01			
v/c Ratio	0.42	0.72		0.57	0.31	0.14	0.18	0.18	0.09	0.83	0.16	
Uniform Delay, d1	41.6	22.7		36.1	13.6	12.4	30.6	37.9	37.6	33.6	35.7	
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	1.2	3.3		2.0	0.1	0.1	0.1	0.2	0.1	7.3	0.1	
Delay (s)	42.9	26.0		38.0	13.7	12.4	30.7	38.1	37.7	40.9	35.8	
Level of Service	D	C		D	B	B	C	D	D	D	D	
Approach Delay (s)		26.6			17.3			35.9			40.4	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



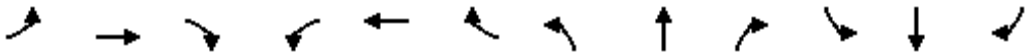
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	1055	40	130	600	195	55	27	125	555	25	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	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	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3418		1752	3438	1525	1752	1845	1523	3400	1667	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3418		1752	3438	1525	1752	1845	1523	3400	1667	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	35	1159	44	143	659	214	60	30	137	610	27	38
RTOR Reduction (vph)	0	3	0	0	0	104	0	0	125	0	34	0
Lane Group Flow (vph)	35	1200	0	143	659	110	60	30	12	610	31	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	3.1	37.4		10.8	45.1	45.1	14.7	6.8	6.8	17.5	9.6	
Effective Green, g (s)	4.1	38.4		11.8	46.1	46.1	15.7	7.8	7.8	18.5	10.6	
Actuated g/C Ratio	0.05	0.43		0.13	0.51	0.51	0.17	0.09	0.09	0.21	0.12	
Clearance Time (s)	4.0	5.5		4.0	5.5	5.5	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.5		1.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	80	1458		230	1761	781	306	160	132	699	196	
v/s Ratio Prot	0.02	c0.35		c0.08	0.19		c0.03	0.02		c0.18	0.02	
v/s Ratio Perm						0.07			0.01			
v/c Ratio	0.44	0.82		0.62	0.37	0.14	0.20	0.19	0.09	0.87	0.16	
Uniform Delay, d1	41.8	22.8		37.0	13.2	11.5	31.8	38.2	37.8	34.6	35.7	
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	1.4	5.4		3.7	0.1	0.1	0.1	0.2	0.1	11.3	0.1	
Delay (s)	43.2	28.2		40.7	13.3	11.6	31.9	38.4	37.9	45.9	35.8	
Level of Service	D	C		D	B	B	C	D	D	D	D	
Approach Delay (s)		28.6			16.8			36.4			44.9	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



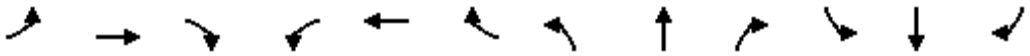
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	477	76	210	1125	730	95	50	170	210	35	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.5	4.5	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	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	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3363		1752	3438	1525	1752	1845	1526	3400	1704	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3363		1752	3438	1525	1752	1845	1526	3400	1704	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	524	84	231	1236	802	104	55	187	231	38	33
RTOR Reduction (vph)	0	12	0	0	0	310	0	0	169	0	31	0
Lane Group Flow (vph)	16	596	0	231	1236	492	104	55	18	231	40	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	1.3	40.4		15.1	54.2	54.2	11.5	7.9	7.9	9.1	5.5	
Effective Green, g (s)	2.3	41.4		16.1	55.2	55.2	12.5	8.9	8.9	10.1	6.5	
Actuated g/C Ratio	0.03	0.46		0.18	0.61	0.61	0.14	0.10	0.10	0.11	0.07	
Clearance Time (s)	4.0	5.5		4.0	5.5	5.5	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.5		1.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	45	1547		313	2109	935	243	182	151	382	123	
v/s Ratio Prot	0.01	0.18		c0.13	c0.36		c0.06	0.03		c0.07	0.02	
v/s Ratio Perm						0.32			0.01			
v/c Ratio	0.36	0.38		0.74	0.59	0.53	0.43	0.30	0.12	0.60	0.33	
Uniform Delay, d1	43.1	15.9		35.0	10.5	9.9	35.5	37.7	37.0	38.0	39.7	
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	1.8	0.7		7.6	0.3	0.4	0.4	0.3	0.1	1.9	0.6	
Delay (s)	44.9	16.7		42.6	10.9	10.3	35.9	38.0	37.1	39.9	40.2	
Level of Service	D	B		D	B	B	D	D	D	D	D	
Approach Delay (s)		17.4			13.9			36.9			40.0	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



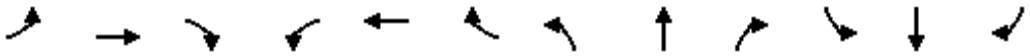
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	605	60	70	481	25	93	26	111	125	77	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5		3.5	4.5		3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3390		1752	3412		1752	1845	1554	3400	1752	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3390		1752	3412		1752	1845	1554	3400	1752	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	13	665	66	77	529	27	102	29	122	137	85	38
RTOR Reduction (vph)	0	13	0	0	6	0	0	0	93	0	27	0
Lane Group Flow (vph)	13	718	0	77	550	0	102	29	29	137	96	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot		pm+ov	Prot		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	0.2	17.8		3.6	21.2		4.8	2.0	5.6	8.6	5.8	
Effective Green, g (s)	1.2	18.8		4.6	22.2		5.8	3.0	7.6	9.6	6.8	
Actuated g/C Ratio	0.02	0.37		0.09	0.44		0.11	0.06	0.15	0.19	0.13	
Clearance Time (s)	4.5	5.5		4.5	5.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		2.0	2.0	1.5	2.0	2.0	
Lane Grp Cap (vph)	41	1250		158	1485		199	109	232	640	234	
v/s Ratio Prot	0.01	c0.21		c0.04	c0.16		c0.06	0.02	0.01	c0.04	c0.05	
v/s Ratio Perm									0.01			
v/c Ratio	0.32	0.57		0.49	0.37		0.51	0.27	0.13	0.21	0.41	
Uniform Delay, d1	24.5	12.9		22.1	9.7		21.3	22.9	18.8	17.5	20.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	0.4		0.9	0.1		0.9	0.5	0.1	0.1	0.4	
Delay (s)	26.1	13.3		22.9	9.8		22.2	23.4	18.9	17.6	20.7	
Level of Service	C	B		C	A		C	C	B	B	C	
Approach Delay (s)		13.5			11.4			20.8			19.0	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



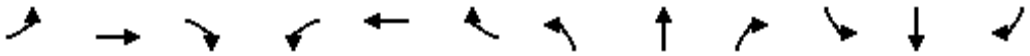
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	807	82	70	595	24	108	25	110	124	77	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5		3.5	4.5		3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3389		1752	3418		1752	1845	1550	3400	1743	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3389		1752	3418		1752	1845	1550	3400	1743	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	13	887	90	77	654	26	119	27	121	136	85	43
RTOR Reduction (vph)	0	13	0	0	5	0	0	0	69	0	30	0
Lane Group Flow (vph)	13	964	0	77	675	0	119	27	52	136	98	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot		pm+ov	Prot		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	0.2	21.2		2.4	23.4		4.4	2.0	4.4	8.2	5.8	
Effective Green, g (s)	1.2	22.2		3.4	24.4		5.4	3.0	6.4	9.2	6.8	
Actuated g/C Ratio	0.02	0.42		0.06	0.46		0.10	0.06	0.12	0.17	0.13	
Clearance Time (s)	4.5	5.5		4.5	5.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		2.0	2.0	1.5	2.0	2.0	
Lane Grp Cap (vph)	40	1425		113	1580		179	105	188	592	224	
v/s Ratio Prot	0.01	c0.28		c0.04	0.20		c0.07	0.01	0.02	0.04	c0.06	
v/s Ratio Perm									0.02			
v/c Ratio	0.33	0.68		0.68	0.43		0.66	0.26	0.27	0.23	0.44	
Uniform Delay, d1	25.4	12.4		24.2	9.5		22.8	23.8	21.1	18.8	21.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	1.0		12.6	0.1		7.0	0.5	0.3	0.1	0.5	
Delay (s)	27.1	13.4		36.8	9.6		29.8	24.3	21.4	18.8	21.7	
Level of Service	C	B		D	A		C	C	C	B	C	
Approach Delay (s)		13.6			12.4			25.4			20.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



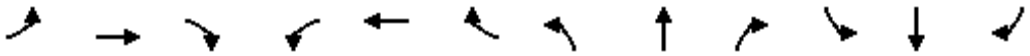
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	413	75	125	890	145	97	60	95	14	20	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5		3.5	4.5		3.5	3.5	3.5	3.5	3.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	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	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3357		1752	3364		1752	1845	1554	3400	1718	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3357		1752	3364		1752	1845	1554	3400	1718	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	88	454	82	137	978	159	107	66	104	15	22	16
RTOR Reduction (vph)	0	24	0	0	23	0	0	0	75	0	15	0
Lane Group Flow (vph)	88	512	0	137	1114	0	107	66	29	15	23	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot		pm+ov	Prot		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases									8			
Actuated Green, G (s)	2.5	16.5		5.2	19.2		4.0	5.9	11.1	0.3	2.2	
Effective Green, g (s)	3.5	17.5		6.2	20.2		5.0	6.9	13.1	1.3	3.2	
Actuated g/C Ratio	0.07	0.37		0.13	0.43		0.11	0.15	0.28	0.03	0.07	
Clearance Time (s)	4.5	5.5		4.5	5.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		2.0	2.0	1.5	2.0	2.0	
Lane Grp Cap (vph)	131	1253		232	1449		187	271	434	94	117	
v/s Ratio Prot	c0.05	0.15		0.08	c0.33		c0.06	0.04	0.01	0.00	c0.01	
v/s Ratio Perm									0.01			
v/c Ratio	0.67	0.41		0.59	0.77		0.57	0.24	0.07	0.16	0.20	
Uniform Delay, d1	21.1	10.9		19.2	11.4		19.9	17.7	12.4	22.3	20.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.2	0.1		2.7	2.3		2.6	0.2	0.0	0.3	0.3	
Delay (s)	31.3	11.0		21.8	13.6		22.5	17.9	12.4	22.6	20.9	
Level of Service	C	B		C	B		C	B	B	C	C	
Approach Delay (s)		13.8			14.5			17.6			21.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	46.9	Sum of lost time (s)	11.5
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



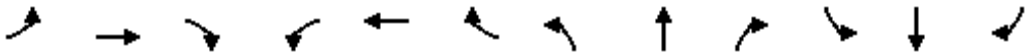
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	272	55	35	225	336	30	91	30	217	157	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		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	1.00	
Frt	1.00	0.97		1.00	0.91		1.00	0.96		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)	1752	3346		1752	3110		1752	1768		1752	1742	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3346		1752	3110		1752	1768		1752	1742	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	78	299	60	38	247	369	33	100	33	238	173	87
RTOR Reduction (vph)	0	27	0	0	299	0	0	19	0	0	27	0
Lane Group Flow (vph)	78	332	0	38	317	0	33	114	0	238	233	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.0	12.2		1.5	10.7		1.5	20.7		10.9	30.1	
Effective Green, g (s)	4.0	13.2		2.5	11.7		2.5	21.7		11.9	31.1	
Actuated g/C Ratio	0.07	0.22		0.04	0.19		0.04	0.35		0.19	0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	114	721		71	594		71	626		340	884	
v/s Ratio Prot	c0.04	0.10		0.02	c0.10		0.02	0.06		c0.14	c0.13	
v/s Ratio Perm												
v/c Ratio	0.68	0.46		0.54	0.53		0.46	0.18		0.70	0.26	
Uniform Delay, d1	28.0	21.0		28.8	22.3		28.7	13.7		23.0	8.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.7	0.5		7.6	0.9		4.7	0.6		6.2	0.7	
Delay (s)	43.7	21.4		36.4	23.3		33.5	14.3		29.2	9.3	
Level of Service	D	C		D	C		C	B		C	A	
Approach Delay (s)		25.4			24.0			18.1			18.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	61.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



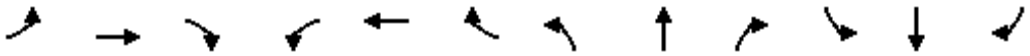
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	117	470	75	50	353	335	39	97	55	217	157	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	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	0.93		1.00	0.95		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3363		1752	3171		1752	1734		1752	1723	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3363		1752	3171		1752	1734		1752	1723	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	129	516	82	55	388	368	43	107	60	238	173	113
RTOR Reduction (vph)	0	21	0	0	283	0	0	32	0	0	35	0
Lane Group Flow (vph)	129	577	0	55	473	0	43	135	0	238	251	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.6	13.2		2.3	10.9		1.5	20.5		9.7	28.7	
Effective Green, g (s)	5.6	14.2		3.3	11.9		2.5	21.5		10.7	29.7	
Actuated g/C Ratio	0.09	0.23		0.05	0.19		0.04	0.35		0.17	0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	159	774		94	612		71	604		304	829	
v/s Ratio Prot	c0.07	c0.17		0.03	0.15		0.02	0.08		c0.14	c0.15	
v/s Ratio Perm												
v/c Ratio	0.81	0.75		0.59	0.77		0.61	0.22		0.78	0.30	
Uniform Delay, d1	27.5	22.1		28.5	23.6		29.1	14.2		24.4	9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.9	3.9		9.0	6.0		13.7	0.9		12.4	0.9	
Delay (s)	53.5	26.0		37.5	29.6		42.8	15.1		36.7	10.7	
Level of Service	D	C		D	C		D	B		D	B	
Approach Delay (s)		30.9			30.2			20.7			22.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	6.0
Intersection Capacity Utilization	65.9%	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												
Volume (vph)	85	212	37	62	355	385	53	90	70	324	109	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		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	0.92		1.00	0.93		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3356		1752	3153		1752	1710		1752	1685	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	3356		1752	3153		1752	1710		1752	1685	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	93	233	41	68	390	423	58	99	77	356	120	131
RTOR Reduction (vph)	0	23	0	0	322	0	0	45	0	0	60	0
Lane Group Flow (vph)	93	251	0	68	491	0	58	131	0	356	191	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.1	10.9		2.9	10.7		2.9	18.8		12.8	28.7	
Effective Green, g (s)	4.1	11.9		3.9	11.7		3.9	19.8		13.8	29.7	
Actuated g/C Ratio	0.07	0.19		0.06	0.19		0.06	0.32		0.22	0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	650		111	601		111	551		394	815	
v/s Ratio Prot	c0.05	0.07		0.04	c0.16		0.03	0.08		c0.20	c0.11	
v/s Ratio Perm												
v/c Ratio	0.79	0.39		0.61	0.82		0.52	0.24		0.90	0.23	
Uniform Delay, d1	28.2	21.6		28.0	23.8		27.8	15.3		23.2	9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.0	0.4		9.6	8.4		4.4	1.0		23.4	0.7	
Delay (s)	58.2	21.9		37.6	32.2		32.2	16.3		46.5	9.9	
Level of Service	E	C		D	C		C	B		D	A	
Approach Delay (s)		31.1			32.7			20.2			31.4	
Approach LOS		C			C			C			C	

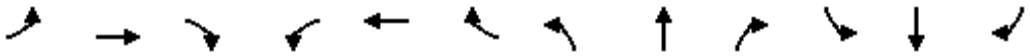
Intersection Summary			
HCM Average Control Delay	30.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	61.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	240	555	0	0	500	575	360	0	330	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5			4.5	4.5	3.5	3.5	3.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1719	3438			3438	1538	1633	1633	1568			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1719	3438			3438	1538	1633	1633	1568			
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	258	597	0	0	538	618	387	0	355	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	373	0	0	261	0	0	0
Lane Group Flow (vph)	258	597	0	0	538	245	193	194	94	0	0	0
Heavy Vehicles (%)	5%	5%	2%	2%	5%	5%	5%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	12.0	38.8			22.8	22.8	11.2	11.2	11.2			
Effective Green, g (s)	13.0	39.8			23.8	23.8	12.2	12.2	12.2			
Actuated g/C Ratio	0.22	0.66			0.40	0.40	0.20	0.20	0.20			
Clearance Time (s)	4.0	5.5			5.5	5.5	4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	372	2281			1364	610	332	332	319			
v/s Ratio Prot	c0.15	0.17			0.16		0.12	c0.12				
v/s Ratio Perm						c0.16			0.06			
v/c Ratio	0.69	0.26			0.39	0.40	0.58	0.58	0.30			
Uniform Delay, d1	21.7	4.1			12.9	13.0	21.6	21.6	20.3			
Progression Factor	1.09	0.69			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	5.4	0.3			0.9	2.0	2.6	2.6	0.5			
Delay (s)	29.1	3.1			13.8	15.0	24.2	24.2	20.8			
Level of Service	C	A			B	B	C	C	C			
Approach Delay (s)		10.9			14.4			22.6			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

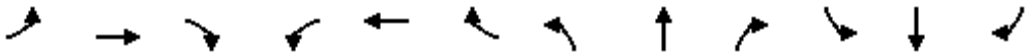
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	245	581	0	0	512	575	431	0	326	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5			4.5	4.5	3.5	3.5	3.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1719	3438			3438	1538	1633	1633	1568			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1719	3438			3438	1538	1633	1633	1568			
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	263	625	0	0	551	618	463	0	351	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	384	0	0	232	0	0	0
Lane Group Flow (vph)	263	625	0	0	551	234	231	232	119	0	0	0
Heavy Vehicles (%)	5%	5%	2%	2%	5%	5%	5%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	12.1	37.8			21.7	21.7	12.2	12.2	12.2			
Effective Green, g (s)	13.1	38.8			22.7	22.7	13.2	13.2	13.2			
Actuated g/C Ratio	0.22	0.65			0.38	0.38	0.22	0.22	0.22			
Clearance Time (s)	4.0	5.5			5.5	5.5	4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	375	2223			1301	582	359	359	345			
v/s Ratio Prot	c0.15	0.18			c0.16		0.14	c0.14				
v/s Ratio Perm						0.15			0.08			
v/c Ratio	0.70	0.28			0.42	0.40	0.64	0.65	0.34			
Uniform Delay, d1	21.6	4.6			13.8	13.7	21.3	21.3	19.7			
Progression Factor	1.09	0.70			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	5.7	0.3			1.0	2.1	3.9	4.0	0.6			
Delay (s)	29.3	3.5			14.8	15.7	25.2	25.2	20.3			
Level of Service	C	A			B	B	C	C	C			
Approach Delay (s)		11.2			15.3			23.1			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	71.5%	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												
Volume (vph)	125	315	0	0	962	420	1112	0	164	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5			4.5	4.5	3.5	3.5	3.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	1719	3438			3438	1538	1633	1633	1568			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	1719	3438			3438	1538	1633	1633	1568			
Peak-hour factor, PHF	0.93	0.93	0.91	0.91	0.93	0.93	0.93	0.91	0.93	0.91	0.91	0.91
Adj. Flow (vph)	134	339	0	0	1034	452	1196	0	176	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	298	0	0	107	0	0	0
Lane Group Flow (vph)	134	339	0	0	1034	154	598	598	69	0	0	0
Heavy Vehicles (%)	5%	5%	2%	2%	5%	5%	5%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	4.0	27.5			19.5	19.5	22.5	22.5	22.5			
Effective Green, g (s)	5.0	28.5			20.5	20.5	23.5	23.5	23.5			
Actuated g/C Ratio	0.08	0.48			0.34	0.34	0.39	0.39	0.39			
Clearance Time (s)	4.0	5.5			5.5	5.5	4.5	4.5	4.5			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	143	1633			1175	525	640	640	614			
v/s Ratio Prot	c0.08	0.10			c0.30		c0.37	0.37				
v/s Ratio Perm						0.10			0.04			
v/c Ratio	0.94	0.21			0.88	0.29	0.93	0.93	0.11			
Uniform Delay, d1	27.3	9.2			18.6	14.5	17.5	17.5	11.6			
Progression Factor	0.94	0.57			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	55.8	0.3			9.5	1.4	20.8	20.8	0.1			
Delay (s)	81.5	5.5			28.1	15.9	38.4	38.4	11.7			
Level of Service	F	A			C	B	D	D	B			
Approach Delay (s)		27.0			24.4			34.9			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM Average Control Delay	29.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Volume (vph)	0	640	900	0	580	280	155	0	235	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.0		3.5	3.5	3.5		3.5		
Lane Util. Factor		0.95	1.00		0.95	1.00	0.97		0.88		
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)		3438	1568		3438	1583	3400		2760		
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3438	1568		3438	1583	3400		2760		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91
Adj. Flow (vph)	0	696	978	0	630	304	168	0	255	0	0
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	215	0	0
Lane Group Flow (vph)	0	696	978	0	630	220	168	0	40	0	0
Heavy Vehicles (%)	3%	5%	3%	2%	5%	2%	3%	2%	3%	2%	2%
Turn Type			Free			Perm	Prot		custom		
Protected Phases		2			6		4				
Permitted Phases			Free			6			4		
Actuated Green, G (s)		42.5	60.0		42.5	42.5	8.5		8.5		
Effective Green, g (s)		43.5	60.0		43.5	43.5	9.5		9.5		
Actuated g/C Ratio		0.72	1.00		0.72	0.72	0.16		0.16		
Clearance Time (s)		4.5			4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		2493	1568		2493	1148	538		437		
v/s Ratio Prot		0.20			0.18		0.05				
v/s Ratio Perm			c0.62			0.14			0.01		
v/c Ratio		0.28	0.62		0.25	0.19	0.31		0.09		
Uniform Delay, d1		2.8	0.0		2.8	2.6	22.4		21.6		
Progression Factor		1.00	1.00		0.14	4.44	1.00		1.00		
Incremental Delay, d2		0.3	1.9		0.0	0.1	0.3		0.1		
Delay (s)		3.1	1.9		0.4	11.8	22.7		21.7		
Level of Service		A	A		A	B	C		C		
Approach Delay (s)		2.4			4.1			22.1		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Volume (vph)	0	671	1064	0	674	269	155	0	251	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.0		3.5	3.5	3.5		3.5		
Lane Util. Factor		0.95	1.00		0.95	1.00	0.97		0.88		
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)		3438	1568		3438	1583	3400		2760		
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3438	1568		3438	1583	3400		2760		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91
Adj. Flow (vph)	0	729	1157	0	733	292	168	0	273	0	0
RTOR Reduction (vph)	0	0	0	0	0	80	0	0	230	0	0
Lane Group Flow (vph)	0	729	1157	0	733	212	168	0	43	0	0
Heavy Vehicles (%)	3%	5%	3%	2%	5%	2%	3%	2%	3%	2%	2%
Turn Type			Free			Perm	Prot		custom		
Protected Phases		2			6		4				
Permitted Phases			Free			6			4		
Actuated Green, G (s)		42.5	60.0		42.5	42.5	8.5		8.5		
Effective Green, g (s)		43.5	60.0		43.5	43.5	9.5		9.5		
Actuated g/C Ratio		0.72	1.00		0.72	0.72	0.16		0.16		
Clearance Time (s)		4.5			4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		2493	1568		2493	1148	538		437		
v/s Ratio Prot		0.21			0.21		0.05				
v/s Ratio Perm			c0.74			0.13			0.02		
v/c Ratio		0.29	0.74		0.29	0.18	0.31		0.10		
Uniform Delay, d1		2.9	0.0		2.9	2.6	22.4		21.6		
Progression Factor		1.00	1.00		0.14	4.03	1.00		1.00		
Incremental Delay, d2		0.3	3.1		0.1	0.1	0.3		0.1		
Delay (s)		3.2	3.1		0.5	10.6	22.7		21.7		
Level of Service		A	A		A	B	C		C		
Approach Delay (s)		3.2			3.4			22.1		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

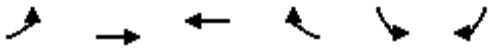
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Volume (vph)	0	310	547	0	1653	421	130	0	412	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.0		3.5	3.5	3.5		3.5		
Lane Util. Factor		0.95	1.00		0.95	1.00	0.97		0.88		
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)		3438	1568		3438	1583	3400		2760		
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3438	1568		3438	1583	3400		2760		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	341	601	0	1816	463	143	0	453	0	0
RTOR Reduction (vph)	0	0	0	0	0	154	0	0	36	0	0
Lane Group Flow (vph)	0	341	601	0	1816	309	143	0	417	0	0
Heavy Vehicles (%)	3%	5%	3%	2%	5%	2%	3%	2%	3%	2%	2%
Turn Type			Free			Perm	Prot		custom		
Protected Phases		2			6		4				
Permitted Phases			Free			6			4		
Actuated Green, G (s)		39.1	60.0		39.1	39.1	11.9		11.9		
Effective Green, g (s)		40.1	60.0		40.1	40.1	12.9		12.9		
Actuated g/C Ratio		0.67	1.00		0.67	0.67	0.22		0.22		
Clearance Time (s)		4.5			4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		2298	1568		2298	1058	731		593		
v/s Ratio Prot		0.10			c0.53		0.04				
v/s Ratio Perm			0.38			0.20			c0.15		
v/c Ratio		0.15	0.38		0.79	0.29	0.20		0.70		
Uniform Delay, d1		3.7	0.0		7.0	4.1	19.3		21.8		
Progression Factor		1.00	1.00		0.32	9.29	1.00		1.00		
Incremental Delay, d2		0.1	0.7		0.8	0.1	0.1		3.8		
Delay (s)		3.8	0.7		3.1	38.2	19.4		25.6		
Level of Service		A	A		A	D	B		C		
Approach Delay (s)		1.8			10.2			24.1		0.0	
Approach LOS		A			B			C		A	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

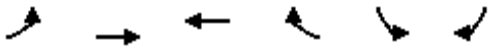
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	129	341	216	66	71	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	142	375	237	73	78	33
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	310				932	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	310				932	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				70	96
cM capacity (veh/h)	1234				259	758

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	142	375	310	111
Volume Left	142	0	0	78
Volume Right	0	0	73	33
cSH	1234	1700	1700	322
Volume to Capacity	0.11	0.22	0.18	0.35
Queue Length 95th (ft)	10	0	0	37
Control Delay (s)	8.3	0.0	0.0	22.0
Lane LOS	A			C
Approach Delay (s)	2.3		0.0	22.0
Approach LOS				C

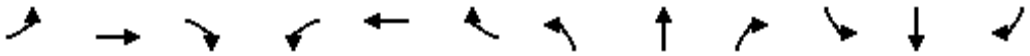
Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	46	330	348	58	143	113
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	51	363	382	64	157	124
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	446				878	414
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	446				878	414
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				48	80
cM capacity (veh/h)	1098				300	632

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	51	363	446	281
Volume Left	51	0	0	157
Volume Right	0	0	64	124
cSH	1098	1700	1700	391
Volume to Capacity	0.05	0.21	0.26	0.72
Queue Length 95th (ft)	4	0	0	138
Control Delay (s)	8.4	0.0	0.0	34.6
Lane LOS	A			D
Approach Delay (s)	1.0		0.0	34.6
Approach LOS				D

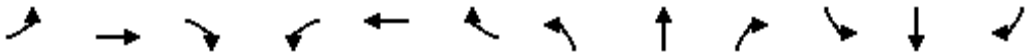
Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	135	335	1	18	275	225	1	10	35	47	5	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	148	368	1	20	302	247	1	11	38	52	5	27
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	549			369			1037	1254	369	1174	1131	426
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	549			369			1037	1254	369	1174	1131	426
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 %	85			98			99	92	94	60	97	96
cM capacity (veh/h)	1005			1173			169	142	670	129	168	622

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	148	369	20	549	51	85
Volume Left	148	0	20	0	1	52
Volume Right	0	1	0	247	38	27
cSH	1005	1700	1173	1700	358	178
Volume to Capacity	0.15	0.22	0.02	0.32	0.14	0.48
Queue Length 95th (ft)	13	0	1	0	12	57
Control Delay (s)	9.2	0.0	8.1	0.0	16.7	42.4
Lane LOS	A		A		C	E
Approach Delay (s)	2.6		0.3		16.7	42.4
Approach LOS					C	E

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	56.8%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	472	0	23	461	42	0	4	10	270	13	113
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	34	519	0	25	507	46	0	4	11	297	14	124
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	553			519			1275	1190	519	1180	1167	530
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	553			519			1275	1190	519	1180	1167	530
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 %	97			98			100	97	98	0	92	77
cM capacity (veh/h)	1002			1032			98	174	551	151	180	543

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	34	519	25	553	15	435
Volume Left	34	0	25	0	0	297
Volume Right	0	0	0	46	11	124
cSH	1002	1700	1032	1700	341	192
Volume to Capacity	0.03	0.31	0.02	0.33	0.05	2.27
Queue Length 95th (ft)	3	0	2	0	4	876
Control Delay (s)	8.7	0.0	8.6	0.0	16.1	625.8
Lane LOS	A		A		C	F
Approach Delay (s)	0.5		0.4		16.1	625.8
Approach LOS					C	F

Intersection Summary				
Average Delay	172.7			
Intersection Capacity Utilization	62.7%	ICU Level of Service	B	
Analysis Period (min)	15			

2030 Base Case CEQA

Level Of Service Computation Report
FHWA Roundabout Method (Base Volume Alternative)

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Intersection #1 River Rd/Brickway

****

Average Delay (sec/veh): 7.1 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Yield Sign			Yield Sign			Yield Sign			Yield Sign		
Lanes:	1			1			1			2		
Volume Module:												
Base Vol:	1	5	11	297	14	153	49	495	1	26	480	80
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	5	11	297	14	153	49	495	1	26	480	80
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	1	6	12	330	16	170	54	550	1	29	533	89
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	6	12	330	16	170	54	550	1	29	533	89
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	6	12	330	16	170	54	550	1	29	533	89
PCE Module:												
AutoPCE:	1	5	11	307	14	158	51	511	1	27	496	83
TruckPCE:	0	0	1	25	1	13	4	41	0	2	40	7
ComboPCE:	0	0	0	13	1	7	2	22	0	1	21	4
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	1	6	13	345	16	178	57	575	1	30	557	93

Delay Module: >> Time Period: 0.25 hours <<

CircVolume:	976	589	391	64
MaxVolume:	673	882	989	2378
PedVolume:	0	0	0	0
AdjMaxVol:	673	882	989	2378
ApproachVol:	20	539	633	680
ApproachV/C:	0.03	0.61	0.64	0.29
ApproachDel:	5.5	10.3	9.9	2.1
ApproachLOS:	A	B	A	A
Queue:	0.1	4.3	4.8	1.2

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2030 Base Case + Project CEQA

Level Of Service Computation Report
FHWA Roundabout Method (Base Volume Alternative)

****

Intersection #1 River Rd/Brickway

****

Average Delay (sec/veh): 7.8 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Yield Sign			Yield Sign			Yield Sign			Yield Sign		
Lanes:	1			1			1			2		
Volume Module:												
Base Vol:	1	5	11	320	14	177	57	490	1	26	473	96
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	5	11	320	14	177	57	490	1	26	473	96
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	1	6	12	356	16	197	63	544	1	29	526	107
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	6	12	356	16	197	63	544	1	29	526	107
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	6	12	356	16	197	63	544	1	29	526	107
PCE Module:												
AutoPCE:	1	5	11	331	14	183	59	506	1	27	489	99
TruckPCE:	0	0	1	27	1	15	5	41	0	2	39	8
ComboPCE:	0	0	0	14	1	8	3	22	0	1	21	4
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	1	6	13	372	16	206	66	569	1	30	549	111
Delay Module: >> Time Period: 0.25 hours <<												
CircVolume:	1007			581			418			73		
MaxVolume:	656			886			974			2371		
PedVolume:	0			0			0			0		
AdjMaxVol:	656			886			974			2371		
ApproachVol:	20			593			636			691		
ApproachV/C:	0.03			0.67			0.65			0.29		
ApproachDel:	5.7			11.9			10.4			2.1		
ApproachLOS:	A			B			B			A		
Queue:	0.1			5.3			5.0			1.2		

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2030 Base Case + Project CEQA

Level Of Service Computation Report
FHWA Roundabout Method (Base Volume Alternative)

****

Intersection #1 River Rd/Brickway

****

Average Delay (sec/veh): 4.3 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Yield Sign			Yield Sign			Yield Sign			Yield Sign		
Lanes:	1			1			1			2		
Volume Module:												
Base Vol:	1	11	38	66	6	50	176	346	1	23	285	313
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	11	38	66	6	50	176	346	1	23	285	313
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	1	12	42	73	7	56	196	384	1	26	317	348
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	12	42	73	7	56	196	384	1	26	317	348
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	12	42	73	7	56	196	384	1	26	317	348
PCE Module:												
AutoPCE:	1	11	39	68	6	52	182	358	1	24	295	323
TruckPCE:	0	1	3	5	1	4	15	29	0	2	24	26
ComboPCE:	0	0	2	3	0	2	8	15	0	1	13	14
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	1	13	44	77	7	58	204	402	1	27	331	363

Delay Module: >> Time Period: 0.25 hours <<

CircVolume:	683	359	110	218
MaxVolume:	831	1006	1140	2267
PedVolume:	0	0	0	0
AdjMaxVol:	831	1006	1140	2267
ApproachVol:	58	142	607	721
ApproachV/C:	0.07	0.14	0.53	0.32
ApproachDel:	4.7	4.2	6.7	2.3
ApproachLOS:	A	A	A	A
Queue:	0.2	0.5	3.3	1.4

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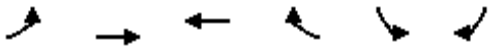
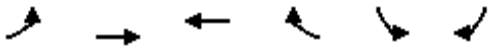


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	47	348	384	66	152	114
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	52	382	422	73	167	125
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	495				944	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	495				944	458
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				39	79
cM capacity (veh/h)	1054				273	596

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	52	382	495	292
Volume Left	52	0	0	167
Volume Right	0	0	73	125
cSH	1054	1700	1700	356
Volume to Capacity	0.05	0.22	0.29	0.82
Queue Length 95th (ft)	4	0	0	181
Control Delay (s)	8.6	0.0	0.0	48.1
Lane LOS	A			E
Approach Delay (s)	1.0		0.0	48.1
Approach LOS				E

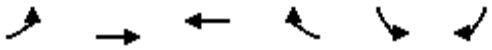
Intersection Summary			
Average Delay	11.9		
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	48	350	391	66	152	116
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	53	385	430	73	167	127
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	502				956	466
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	502				956	466
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				38	78
cM capacity (veh/h)	1047				268	591

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	53	385	502	295
Volume Left	53	0	0	167
Volume Right	0	0	73	127
cSH	1047	1700	1700	351
Volume to Capacity	0.05	0.23	0.30	0.84
Queue Length 95th (ft)	4	0	0	188
Control Delay (s)	8.6	0.0	0.0	50.9
Lane LOS	A			F
Approach Delay (s)	1.0		0.0	50.9
Approach LOS				F

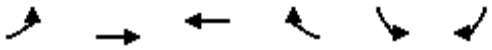
Intersection Summary			
Average Delay	12.5		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	131	387	230	72	88	35
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	144	425	253	79	97	38
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	332				1005	292
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	332				1005	292
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				58	95
cM capacity (veh/h)	1211				233	740

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	144	425	332	135
Volume Left	144	0	0	97
Volume Right	0	0	79	38
cSH	1211	1700	1700	289
Volume to Capacity	0.12	0.25	0.20	0.47
Queue Length 95th (ft)	10	0	0	59
Control Delay (s)	8.4	0.0	0.0	27.9
Lane LOS	A			D
Approach Delay (s)	2.1		0.0	27.9
Approach LOS				D

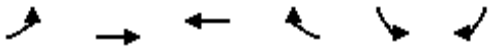
Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	33	632	711	162	96	37
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	37	702	790	180	107	41
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)		658				
pX, platoon unblocked					0.75	
vC, conflicting volume	970				1656	880
vC1, stage 1 conf vol					880	
vC2, stage 2 conf vol					776	
vCu, unblocked vol	970				1707	880
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 %	95				63	88
cM capacity (veh/h)	706				290	345

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	37	702	970	148
Volume Left	37	0	0	107
Volume Right	0	0	180	41
cSH	706	1700	1700	303
Volume to Capacity	0.05	0.41	0.57	0.49
Queue Length 95th (ft)	4	0	0	63
Control Delay (s)	10.4	0.0	0.0	27.6
Lane LOS	B			D
Approach Delay (s)	0.5		0.0	27.6
Approach LOS				D

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	21	770	606	159	47	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	856	673	177	52	27
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)		658				
pX, platoon unblocked					0.92	
vC, conflicting volume	850				1664	762
vC1, stage 1 conf vol					762	
vC2, stage 2 conf vol					902	
vCu, unblocked vol	850				1679	762
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				82	93
cM capacity (veh/h)	784				296	403

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	23	856	850	79
Volume Left	23	0	0	52
Volume Right	0	0	177	27
cSH	784	1700	1700	325
Volume to Capacity	0.03	0.50	0.50	0.24
Queue Length 95th (ft)	2	0	0	23
Control Delay (s)	9.7	0.0	0.0	19.6
Lane LOS	A			C
Approach Delay (s)	0.3		0.0	19.6
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	370	0	0	560	465	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0			3.0	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	0.88
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3438			1810	1752	2760
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3438			1810	1752	2760
Peak-hour factor, PHF	0.90	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	411	0	0	622	517	286
RTOR Reduction (vph)	0	0	0	0	0	151
Lane Group Flow (vph)	411	0	0	622	517	135
Heavy Vehicles (%)	5%	2%	2%	5%	3%	3%
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	24.6			24.6	27.4	27.4
Effective Green, g (s)	25.6			25.6	28.4	28.4
Actuated g/C Ratio	0.43			0.43	0.47	0.47
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)	1467			772	829	1306
v/s Ratio Prot	0.12			c0.34	c0.30	
v/s Ratio Perm						0.05
v/c Ratio	0.28			0.81	0.62	0.10
Uniform Delay, d1	11.2			15.0	11.8	8.8
Progression Factor	0.79			1.00	1.00	1.00
Incremental Delay, d2	0.1			6.1	3.5	0.2
Delay (s)	9.0			21.2	15.3	8.9
Level of Service	A			C	B	A
Approach Delay (s)	9.0			21.2	13.0	
Approach LOS	A			C	B	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

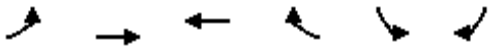
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	487	0	0	460	450	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0			3.0	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	0.88
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3438			1810	1752	2760
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3438			1810	1752	2760
Peak-hour factor, PHF	0.90	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	541	0	0	511	500	589
RTOR Reduction (vph)	0	0	0	0	0	257
Lane Group Flow (vph)	541	0	0	511	500	332
Heavy Vehicles (%)	5%	2%	2%	5%	3%	3%
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	23.0			23.0	29.0	29.0
Effective Green, g (s)	24.0			24.0	30.0	30.0
Actuated g/C Ratio	0.40			0.40	0.50	0.50
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)	1375			724	876	1380
v/s Ratio Prot	0.16			c0.28	c0.29	
v/s Ratio Perm						0.12
v/c Ratio	0.39			0.71	0.57	0.24
Uniform Delay, d1	12.8			15.0	10.5	8.5
Progression Factor	1.34			1.00	1.00	1.00
Incremental Delay, d2	0.2			3.1	2.7	0.4
Delay (s)	17.3			18.2	13.2	8.9
Level of Service	B			B	B	A
Approach Delay (s)	17.3			18.2	10.9	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

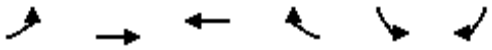
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Volume (vph)	0	342	710	0	110	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0		3.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1810	1810		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1810	1810		1752	1568
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.90	0.90
Adj. Flow (vph)	0	380	789	0	122	287
RTOR Reduction (vph)	0	0	0	0	0	142
Lane Group Flow (vph)	0	380	789	0	122	145
Heavy Vehicles (%)	2%	5%	5%	2%	3%	3%
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		32.7	32.7		19.3	19.3
Effective Green, g (s)		33.7	33.7		20.3	20.3
Actuated g/C Ratio		0.56	0.56		0.34	0.34
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)		1017	1017		593	531
v/s Ratio Prot		0.21	c0.44		0.07	
v/s Ratio Perm						c0.09
v/c Ratio		0.37	0.78		0.21	0.27
Uniform Delay, d1		7.3	10.2		14.1	14.5
Progression Factor		1.00	1.29		1.00	1.00
Incremental Delay, d2		0.2	2.9		0.8	1.3
Delay (s)		7.5	16.1		14.9	15.7
Level of Service		A	B		B	B
Approach Delay (s)		7.5	16.1		15.5	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

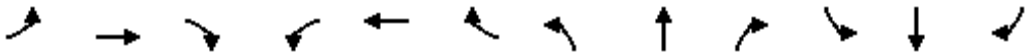
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Volume (vph)	0	586	732	0	166	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0		3.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1810	1810		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1810	1810		1752	1568
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.90	0.90
Adj. Flow (vph)	0	651	813	0	184	136
RTOR Reduction (vph)	0	0	0	0	0	94
Lane Group Flow (vph)	0	651	813	0	184	42
Heavy Vehicles (%)	2%	5%	5%	2%	3%	3%
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		34.5	34.5		17.5	17.5
Effective Green, g (s)		35.5	35.5		18.5	18.5
Actuated g/C Ratio		0.59	0.59		0.31	0.31
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)		1071	1071		540	483
v/s Ratio Prot		0.36	c0.45		c0.10	
v/s Ratio Perm						0.03
v/c Ratio		0.61	0.76		0.34	0.09
Uniform Delay, d1		7.8	9.1		16.0	14.7
Progression Factor		1.00	0.83		1.00	1.00
Incremental Delay, d2		1.0	2.9		1.7	0.4
Delay (s)		8.8	10.4		17.7	15.1
Level of Service		A	B		B	B
Approach Delay (s)		8.8	10.4		16.6	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	110.2%	ICU Level of Service	H
Analysis Period (min)	15		

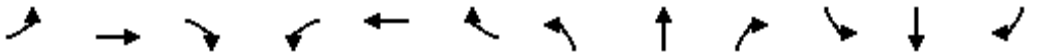
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	362	132	508	170	57	28	7	80	217	9	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	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	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	1746		1752	1810	1568	1752	1845	1568	1752	1781	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	1746		1752	1810	1568	1752	1845	1568	1752	1781	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	402	147	564	189	63	31	8	89	241	10	3
RTOR Reduction (vph)	0	11	0	0	0	21	0	0	56	0	2	0
Lane Group Flow (vph)	2	538	0	564	189	42	31	8	33	241	11	0
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		pt+ov	Prot		
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases						8						
Actuated Green, G (s)	1.2	41.6		36.2	76.6	76.6	4.9	6.0	42.2	17.8	18.9	
Effective Green, g (s)	2.2	42.6		37.2	77.6	77.6	5.9	7.0	44.2	18.8	19.9	
Actuated g/C Ratio	0.02	0.36		0.32	0.66	0.66	0.05	0.06	0.38	0.16	0.17	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	33	632		554	1194	1035	88	110	589	280	301	
v/s Ratio Prot	0.00	c0.31		c0.32	0.10		c0.02	0.00	0.02	c0.14	0.01	
v/s Ratio Perm						0.03						
v/c Ratio	0.06	0.85		1.02	0.16	0.04	0.35	0.07	0.06	0.86	0.03	
Uniform Delay, d1	56.7	34.6		40.2	7.6	7.0	54.0	52.2	23.4	48.1	40.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	10.6		42.9	0.1	0.0	2.4	1.3	0.0	22.6	0.2	
Delay (s)	57.5	45.2		83.1	7.7	7.0	56.4	53.5	23.4	70.8	41.0	
Level of Service	E	D		F	A	A	E	D	C	E	D	
Approach Delay (s)		45.2			59.7			33.3			69.2	
Approach LOS		D			E			C			E	

Intersection Summary			
HCM Average Control Delay	54.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

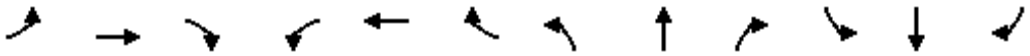
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	206	45	143	336	139	128	55	457	104	23	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	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	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	1767		1752	1810	1568	1752	1845	1568	1752	1793	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	1767		1752	1810	1568	1752	1845	1568	1752	1793	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	229	50	159	373	154	142	61	508	116	26	6
RTOR Reduction (vph)	0	13	0	0	0	94	0	0	155	0	4	0
Lane Group Flow (vph)	2	266	0	159	373	60	142	61	353	116	28	0
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		pt+ov	Prot		
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases						8						
Actuated Green, G (s)	1.1	14.4		9.0	22.3	22.3	4.5	16.3	25.3	4.5	16.3	
Effective Green, g (s)	2.1	15.4		10.0	23.3	23.3	5.5	17.3	27.3	5.5	17.3	
Actuated g/C Ratio	0.03	0.26		0.17	0.39	0.39	0.09	0.29	0.45	0.09	0.29	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	61	452		291	701	607	160	530	711	160	515	
v/s Ratio Prot	0.00	0.15		c0.09	c0.21		c0.08	0.03	c0.22	0.07	0.02	
v/s Ratio Perm						0.04						
v/c Ratio	0.03	0.59		0.55	0.53	0.10	0.89	0.12	0.50	0.72	0.05	
Uniform Delay, d1	28.1	19.6		23.0	14.2	11.8	27.0	15.8	11.6	26.6	15.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	2.0		2.1	0.8	0.1	40.0	0.4	0.5	15.0	0.2	
Delay (s)	28.3	21.6		25.1	15.0	11.8	67.1	16.2	12.1	41.6	15.7	
Level of Service	C	C		C	B	B	E	B	B	D	B	
Approach Delay (s)		21.6			16.6			23.5			36.0	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

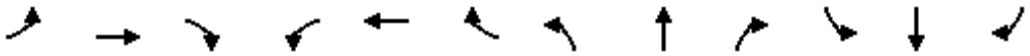
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	860	3	145	680	215	33	18	44	100	2	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.96		1.00	0.89		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1809		1719	1752		1719	1618		1752	1578	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1809		1719	1752		1719	1618		1752	1578	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	82	945	3	159	747	236	36	20	48	110	2	55
RTOR Reduction (vph)	0	0	0	0	19	0	0	43	0	0	48	0
Lane Group Flow (vph)	82	948	0	159	964	0	36	25	0	110	9	0
Heavy Vehicles (%)	3%	5%	5%	5%	5%	3%	5%	5%	5%	3%	2%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.0	30.2		5.3	32.5		1.5	5.6		3.0	7.1	
Effective Green, g (s)	4.0	31.2		6.3	33.5		2.5	6.6		4.0	8.1	
Actuated g/C Ratio	0.07	0.52		0.10	0.56		0.04	0.11		0.07	0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	939		180	977		72	178		117	213	
v/s Ratio Prot	0.05	0.52		c0.09	c0.55		c0.02	c0.02		c0.06	0.01	
v/s Ratio Perm												
v/c Ratio	0.70	1.01		0.88	0.99		0.50	0.14		0.94	0.04	
Uniform Delay, d1	27.5	14.5		26.5	13.1		28.2	24.2		27.9	22.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	17.3	31.7		36.2	25.4		5.4	0.4		64.4	0.1	
Delay (s)	44.7	46.2		62.7	38.5		33.6	24.6		92.3	22.7	
Level of Service	D	D		E	D		C	C		F	C	
Approach Delay (s)		46.1			41.9			27.7			68.6	
Approach LOS		D			D			C			E	

Intersection Summary			
HCM Average Control Delay	44.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	60.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

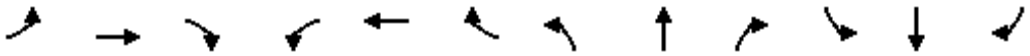
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	890	3	145	686	214	33	18	44	99	2	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.96		1.00	0.89		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1809		1719	1753		1719	1618		1752	1578	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1809		1719	1753		1719	1618		1752	1578	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	90	978	3	159	754	235	36	20	48	109	2	59
RTOR Reduction (vph)	0	0	0	0	19	0	0	43	0	0	51	0
Lane Group Flow (vph)	90	981	0	159	970	0	36	25	0	109	10	0
Heavy Vehicles (%)	3%	5%	5%	5%	5%	3%	5%	5%	5%	3%	2%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	3.0	30.2		5.3	32.5		1.5	5.6		3.0	7.1	
Effective Green, g (s)	4.0	31.2		6.3	33.5		2.5	6.6		4.0	8.1	
Actuated g/C Ratio	0.07	0.52		0.10	0.56		0.04	0.11		0.07	0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	939		180	977		72	178		117	213	
v/s Ratio Prot	0.05	0.54		c0.09	c0.55		c0.02	c0.02		c0.06	0.01	
v/s Ratio Perm												
v/c Ratio	0.77	1.04		0.88	0.99		0.50	0.14		0.93	0.05	
Uniform Delay, d1	27.6	14.5		26.5	13.2		28.2	24.2		27.9	22.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.7	41.7		36.2	27.0		5.4	0.4		61.8	0.1	
Delay (s)	53.3	56.2		62.7	40.2		33.6	24.6		89.8	22.7	
Level of Service	D	E		E	D		C	C		F	C	
Approach Delay (s)		55.9			43.3			27.7			65.7	
Approach LOS		E			D			C			E	

Intersection Summary			
HCM Average Control Delay	49.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	60.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.2%	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												
Volume (vph)	112	720	2	275	721	187	35	18	8	119	3	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.97		1.00	0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1809		1719	1761		1719	1725		1752	1577	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1809		1719	1761		1719	1725		1752	1577	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	123	791	2	302	792	205	38	20	9	131	3	90
RTOR Reduction (vph)	0	0	0	0	16	0	0	8	0	0	79	0
Lane Group Flow (vph)	123	793	0	302	981	0	38	21	0	131	14	0
Heavy Vehicles (%)	3%	5%	2%	5%	5%	3%	5%	5%	5%	3%	2%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.8	26.8		11.8	33.8		1.6	4.4		4.0	6.8	
Effective Green, g (s)	5.8	27.8		12.8	34.8		2.6	5.4		5.0	7.8	
Actuated g/C Ratio	0.09	0.44		0.20	0.55		0.04	0.09		0.08	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	161	798		349	973		71	148		139	195	
v/s Ratio Prot	0.07	0.44		c0.18	c0.56		0.02	c0.01		c0.07	0.01	
v/s Ratio Perm												
v/c Ratio	0.76	0.99		0.87	1.01		0.54	0.14		0.94	0.07	
Uniform Delay, d1	27.9	17.5		24.3	14.1		29.6	26.7		28.9	24.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.1	30.1		19.5	31.0		7.6	0.4		58.7	0.2	
Delay (s)	47.1	47.6		43.7	45.1		37.2	27.1		87.5	24.6	
Level of Service	D	D		D	D		D	C		F	C	
Approach Delay (s)		47.6			44.8			32.8			61.4	
Approach LOS		D			D			C			E	

Intersection Summary			
HCM Average Control Delay	46.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	63.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	590	0	0	550	540	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0			3.0	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	0.88
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3438			1810	1752	2760
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3438			1810	1752	2760
Peak-hour factor, PHF	0.91	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	648	0	0	604	593	659
RTOR Reduction (vph)	0	0	0	0	0	135
Lane Group Flow (vph)	648	0	0	604	593	525
Heavy Vehicles (%)	5%	2%	2%	5%	3%	3%
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	23.0			23.0	29.0	29.0
Effective Green, g (s)	24.0			24.0	30.0	30.0
Actuated g/C Ratio	0.40			0.40	0.50	0.50
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)	1375			724	876	1380
v/s Ratio Prot	0.19			c0.33	c0.34	
v/s Ratio Perm						0.19
v/c Ratio	0.47			0.83	0.68	0.38
Uniform Delay, d1	13.3			16.2	11.3	9.3
Progression Factor	0.90			1.00	1.00	1.00
Incremental Delay, d2	0.2			8.2	4.2	0.8
Delay (s)	12.2			24.4	15.5	10.1
Level of Service	B			C	B	B
Approach Delay (s)	12.2			24.4	12.6	
Approach LOS	B			C	B	

Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	593	0	0	551	540	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0			3.0	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	0.88
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3438			1810	1752	2760
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3438			1810	1752	2760
Peak-hour factor, PHF	0.91	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	652	0	0	605	593	659
RTOR Reduction (vph)	0	0	0	0	0	133
Lane Group Flow (vph)	652	0	0	605	593	527
Heavy Vehicles (%)	5%	2%	2%	5%	3%	3%
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	23.0			23.0	29.0	29.0
Effective Green, g (s)	24.0			24.0	30.0	30.0
Actuated g/C Ratio	0.40			0.40	0.50	0.50
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)	1375			724	876	1380
v/s Ratio Prot	0.19			c0.33	c0.34	
v/s Ratio Perm						0.19
v/c Ratio	0.47			0.84	0.68	0.38
Uniform Delay, d1	13.3			16.2	11.3	9.3
Progression Factor	0.89			1.00	1.00	1.00
Incremental Delay, d2	0.2			8.3	4.2	0.8
Delay (s)	12.0			24.5	15.5	10.1
Level of Service	B			C	B	B
Approach Delay (s)	12.0			24.5	12.7	
Approach LOS	B			C	B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

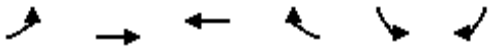
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	573	0	0	765	545	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0			3.0	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	0.88
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3438			1810	1752	2760
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3438			1810	1752	2760
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	630	0	0	841	599	291
RTOR Reduction (vph)	0	0	0	0	0	173
Lane Group Flow (vph)	630	0	0	841	599	118
Heavy Vehicles (%)	5%	2%	2%	5%	3%	3%
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	28.7			28.7	23.3	23.3
Effective Green, g (s)	29.7			29.7	24.3	24.3
Actuated g/C Ratio	0.49			0.49	0.41	0.41
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)	1702			896	710	1118
v/s Ratio Prot	0.18			c0.46	c0.34	
v/s Ratio Perm						0.04
v/c Ratio	0.37			0.94	0.84	0.11
Uniform Delay, d1	9.4			14.3	16.1	11.1
Progression Factor	0.77			1.00	1.00	1.00
Incremental Delay, d2	0.1			16.9	11.7	0.2
Delay (s)	7.3			31.2	27.9	11.3
Level of Service	A			C	C	B
Approach Delay (s)	7.3			31.2	22.4	
Approach LOS	A			C	C	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	108.0%	ICU Level of Service	G
Analysis Period (min)	15		

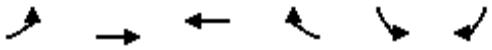
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	660	870	0	240	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0		3.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1810	1810		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1810	1810		1752	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.92	0.91	0.91
Adj. Flow (vph)	0	725	956	0	264	187
RTOR Reduction (vph)	0	0	0	0	0	122
Lane Group Flow (vph)	0	725	956	0	264	65
Heavy Vehicles (%)	2%	5%	5%	2%	3%	3%
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		37.0	37.0		15.0	15.0
Effective Green, g (s)		38.0	38.0		16.0	16.0
Actuated g/C Ratio		0.63	0.63		0.27	0.27
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)		1146	1146		467	418
v/s Ratio Prot		0.40	c0.53		c0.15	
v/s Ratio Perm						0.04
v/c Ratio		0.63	0.83		0.57	0.16
Uniform Delay, d1		6.7	8.6		19.0	16.8
Progression Factor		1.00	0.91		1.00	1.00
Incremental Delay, d2		1.1	4.4		4.9	0.8
Delay (s)		7.9	12.2		23.9	17.6
Level of Service		A	B		C	B
Approach Delay (s)		7.9	12.2		21.3	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	118.2%	ICU Level of Service	H
Analysis Period (min)	15		

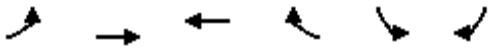
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	686	871	0	240	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0		3.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1810	1810		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1810	1810		1752	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.92	0.91	0.91
Adj. Flow (vph)	0	754	957	0	264	191
RTOR Reduction (vph)	0	0	0	0	0	122
Lane Group Flow (vph)	0	754	957	0	264	69
Heavy Vehicles (%)	2%	5%	5%	2%	3%	3%
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		37.0	37.0		15.0	15.0
Effective Green, g (s)		38.0	38.0		16.0	16.0
Actuated g/C Ratio		0.63	0.63		0.27	0.27
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)		1146	1146		467	418
v/s Ratio Prot		0.42	c0.53		c0.15	
v/s Ratio Perm						0.04
v/c Ratio		0.66	0.84		0.57	0.17
Uniform Delay, d1		6.9	8.6		19.0	16.9
Progression Factor		1.00	0.91		1.00	1.00
Incremental Delay, d2		1.4	4.4		4.9	0.9
Delay (s)		8.3	12.2		23.9	17.7
Level of Service		A	B		C	B
Approach Delay (s)		8.3	12.2		21.3	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	119.6%	ICU Level of Service	H
Analysis Period (min)	15		

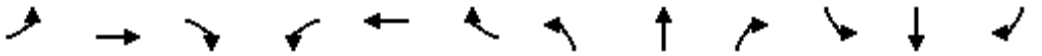
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Volume (vph)	0	425	840	0	275	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0		3.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1810	1810		1752	1568
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1810	1810		1752	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	467	923	0	302	377
RTOR Reduction (vph)	0	0	0	0	0	121
Lane Group Flow (vph)	0	467	923	0	302	256
Heavy Vehicles (%)	2%	5%	5%	2%	3%	3%
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		35.8	35.8		16.2	16.2
Effective Green, g (s)		36.8	36.8		17.2	17.2
Actuated g/C Ratio		0.61	0.61		0.29	0.29
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)		1110	1110		502	449
v/s Ratio Prot		0.26	c0.51		c0.17	
v/s Ratio Perm						0.16
v/c Ratio		0.42	0.83		0.60	0.57
Uniform Delay, d1		6.0	9.2		18.4	18.3
Progression Factor		1.00	0.96		1.00	1.00
Incremental Delay, d2		0.3	3.6		5.3	5.2
Delay (s)		6.3	12.3		23.7	23.5
Level of Service		A	B		C	C
Approach Delay (s)		6.3	12.3		23.6	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	113.8%	ICU Level of Service	H
Analysis Period (min)	15		

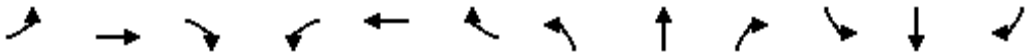
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	229	50	190	345	225	155	90	490	216	38	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	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	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	1767		1752	1810	1568	1752	1845	1568	1752	1768	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	1767		1752	1810	1568	1752	1845	1568	1752	1768	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	9	252	55	209	379	247	170	99	538	237	42	16
RTOR Reduction (vph)	0	12	0	0	0	156	0	0	125	0	12	0
Lane Group Flow (vph)	9	295	0	209	379	91	170	99	413	237	46	0
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		pt+ov	Prot		
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases						8						
Actuated Green, G (s)	0.4	14.1		8.8	22.5	22.5	8.7	14.0	22.8	10.6	15.9	
Effective Green, g (s)	1.4	15.1		9.8	23.5	23.5	9.7	15.0	24.8	11.6	16.9	
Actuated g/C Ratio	0.02	0.24		0.15	0.37	0.37	0.15	0.24	0.39	0.18	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	39	420		270	670	580	268	436	612	320	471	
v/s Ratio Prot	0.01	c0.17		c0.12	0.21		0.10	0.05	c0.26	c0.14	0.03	
v/s Ratio Perm						0.06						
v/c Ratio	0.23	0.70		0.77	0.57	0.16	0.63	0.23	0.67	0.74	0.10	
Uniform Delay, d1	30.5	22.1		25.8	15.9	13.4	25.2	19.6	16.0	24.5	17.6	
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	3.0	5.2		12.9	1.1	0.1	4.8	1.2	2.9	8.9	0.4	
Delay (s)	33.5	27.4		38.7	17.0	13.5	30.1	20.8	19.0	33.4	18.0	
Level of Service	C	C		D	B	B	C	C	B	C	B	
Approach Delay (s)		27.6			21.4			21.5			30.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	63.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

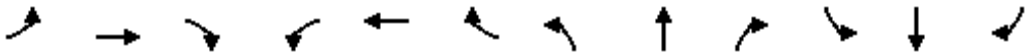
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	225	57	203	343	224	168	91	527	215	42	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	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	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	1761		1752	1810	1568	1752	1845	1568	1752	1773	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	1761		1752	1810	1568	1752	1845	1568	1752	1773	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	9	247	63	223	377	246	185	100	579	236	46	16
RTOR Reduction (vph)	0	14	0	0	0	153	0	0	127	0	12	0
Lane Group Flow (vph)	9	296	0	223	377	93	185	100	452	236	50	0
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		pt+ov	Prot		
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases						8						
Actuated Green, G (s)	0.4	14.1		8.9	22.6	22.6	10.7	14.0	22.9	9.7	13.0	
Effective Green, g (s)	1.4	15.1		9.9	23.6	23.6	11.7	15.0	24.9	10.7	14.0	
Actuated g/C Ratio	0.02	0.24		0.16	0.38	0.38	0.19	0.24	0.40	0.17	0.22	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	39	424		277	681	590	327	441	623	299	396	
v/s Ratio Prot	0.01	c0.17		c0.13	0.21		0.11	0.05	c0.29	c0.13	0.03	
v/s Ratio Perm						0.06						
v/c Ratio	0.23	0.70		0.81	0.55	0.16	0.57	0.23	0.73	0.79	0.13	
Uniform Delay, d1	30.1	21.7		25.5	15.4	13.0	23.2	19.2	16.0	24.9	19.5	
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	3.0	4.9		15.5	1.0	0.1	2.2	1.2	4.2	12.9	0.6	
Delay (s)	33.1	26.7		41.0	16.4	13.1	25.4	20.4	20.2	37.9	20.1	
Level of Service	C	C		D	B	B	C	C	C	D	C	
Approach Delay (s)		26.8			21.9			21.4			34.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	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												
Volume (vph)	9	374	151	558	180	100	126	75	190	270	23	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	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	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	1741		1752	1810	1568	1752	1845	1568	1752	1799	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	1741		1752	1810	1568	1752	1845	1568	1752	1799	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	10	411	166	613	198	110	138	82	209	297	25	5
RTOR Reduction (vph)	0	12	0	0	0	38	0	0	96	0	5	0
Lane Group Flow (vph)	10	565	0	613	198	72	138	82	113	297	25	0
Heavy Vehicles (%)	3%	5%	3%	3%	5%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		pt+ov	Prot		
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases						8						
Actuated Green, G (s)	0.4	39.2		41.0	79.8	79.8	16.0	8.0	49.0	19.0	11.0	
Effective Green, g (s)	1.4	40.2		42.0	80.8	80.8	17.0	9.0	51.0	20.0	12.0	
Actuated g/C Ratio	0.01	0.33		0.34	0.66	0.66	0.14	0.07	0.41	0.16	0.10	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	20	568		597	1187	1028	242	135	649	284	175	
v/s Ratio Prot	0.01	c0.32		c0.35	0.11		0.08	c0.04	0.07	c0.17	0.01	
v/s Ratio Perm						0.05						
v/c Ratio	0.50	0.99		1.03	0.17	0.07	0.57	0.61	0.17	1.05	0.15	
Uniform Delay, d1	60.6	41.4		40.6	8.2	7.6	49.7	55.4	22.8	51.6	50.9	
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	18.3	36.1		43.8	0.1	0.0	3.2	18.7	0.1	65.9	1.7	
Delay (s)	78.9	77.5		84.4	8.3	7.7	52.9	74.0	22.9	117.5	52.7	
Level of Service	E	E		F	A	A	D	E	C	F	D	
Approach Delay (s)		77.6			58.9			42.3			111.5	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	68.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	123.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group