Appendix F
Future plus Project Synchro Output

FRESNO FUTURE PLUS PROJECT CONDITIONS

FRESNO OVERPASS ALTERNATIVE

HCM Unsignalized Intersection Capacity Analysis
1: Broadway St & Monterey St.

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↰	↱
Volume (veh/h)	0	58	0	0	255	0	0	0	0	0	0	60
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	63	0	0	277	0	0	0	0	0	0	65
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	277			63			340	340	63	340	340	277
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	277			63			340	340	63	340	340	277
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	91
cM capacity (veh/h)	1286			1540			561	581	1002	614	581	762

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total	63	277	0	0	65
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	65
cSH	1286	1540	1700	1700	762
Volume to Capacity	0.00	0.00	0.00	0.00	0.09
Queue Length 95th (ft)	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	10.2
Lane LOS			A	A	B
Approach Delay (s)	0.0	0.0	0.0	10.2	
Approach LOS			A	B	

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Broadway St & Monterey St.

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↰	↱
Volume (veh/h)	0	46	0	0	402	0	0	0	0	0	0	157
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	50	0	0	437	0	0	0	0	0	0	171
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	437			50			487	487	50	487	487	437
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	437			50			487	487	50	487	487	437
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	72
cM capacity (veh/h)	1123			1557			356	481	1018	491	481	620

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total	50	437	0	0	171
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	171
cSH	1123	1557	1700	1700	620
Volume to Capacity	0.00	0.00	0.00	0.00	0.28
Queue Length 95th (ft)	0	0	0	0	28
Control Delay (s)	0.0	0.0	0.0	0.0	13.0
Lane LOS			A	A	B
Approach Delay (s)	0.0	0.0	0.0	13.0	
Approach LOS			A	B	

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: Van Ness Ave & San Benito St

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	19	268	0	0	196	47	480	112	90	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	291	0	0	213	51	522	122	98	0	0	0

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	118	194	142	122	583	159
Volume Left (vph)	21	0	0	0	522	0
Volume Right (vph)	0	0	0	51	0	98
Hadj (s)	0.12	0.03	0.03	-0.26	0.48	-0.40
Departure Headway (s)	7.2	7.1	7.2	6.9	6.7	5.8
Degree Utilization, x	0.23	0.38	0.28	0.23	1.09	0.26
Capacity (veh/h)	492	501	493	513	529	602
Control Delay (s)	11.1	13.1	11.7	10.7	88.1	9.6
Approach Delay (s)	12.4		11.3		71.3	
Approach LOS	B		B		F	

Intersection Summary			
Delay	45.3		
HCM Level of Service	E		
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: Van Ness Ave & 41 NB Off-Ramp

4/9/2012

Movement	SBL2	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop		Stop				Stop			Stop	
Volume (vph)	92	275	0	0	495	118	271	61	112	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	299	0	0	538	128	295	66	122	0	0	0

Direction, Lane #	SB 1	SB 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	200	199	359	308	328	155
Volume Left (vph)	100	0	0	0	295	0
Volume Right (vph)	0	0	0	128	0	122
Hadj (s)	0.28	0.03	0.03	-0.26	0.48	-0.52
Departure Headway (s)	7.6	7.3	7.0	6.7	7.7	6.7
Degree Utilization, x	0.42	0.41	0.70	0.57	0.70	0.29
Capacity (veh/h)	458	474	502	518	446	513
Control Delay (s)	14.8	14.0	23.2	17.0	25.9	11.2
Approach Delay (s)	14.4		20.3		21.2	
Approach LOS	B		C		C	

Intersection Summary			
Delay	19.1		
HCM Level of Service	C		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		↰	↱
Volume (veh/h)	0	666	59	0	6	808
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	724	64	0	7	878
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1131				
pX, platoon unblocked						
vC, conflicting volume	64				788	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64				788	64
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	12
cM capacity (veh/h)	1538				360	1000

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	724	64	7	878
Volume Left	0	0	7	0
Volume Right	0	0	0	878
cSH	1700	1700	360	1000
Volume to Capacity	0.43	0.04	0.02	0.88
Queue Length 95th (ft)	0	0	1	302
Control Delay (s)	0.0	0.0	15.2	27.8
Lane LOS			C	D
Approach Delay (s)	0.0	0.0	27.7	
Approach LOS			D	

Intersection Summary			
Average Delay	14.7		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		↰	↱
Volume (veh/h)	0	710	120	0	267	759
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	772	130	0	290	825
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1132				
pX, platoon unblocked					0.86	
vC, conflicting volume	130				902	130
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	130				807	130
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				4	10
cM capacity (veh/h)	1455				303	919

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	772	130	290	825
Volume Left	0	0	290	0
Volume Right	0	0	0	825
cSH	1700	1700	303	919
Volume to Capacity	0.45	0.08	0.96	0.90
Queue Length 95th (ft)	0	0	242	317
Control Delay (s)	0.0	0.0	79.9	31.8
Lane LOS			F	D
Approach Delay (s)	0.0	0.0	44.3	
Approach LOS			E	

Intersection Summary			
Average Delay	24.5		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Van Ness Ave & 41 SB Off-Ramp

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	272	335	102	469	0	0	0	0	170	452	575
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	296	364	111	510	0	0	0	0	185	491	625
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		735										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	510			660			1200	1209	478	1209	1391	255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	510			606			1181	1191	412	1191	1384	255
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			88			0	100	100	0	0	16
cM capacity (veh/h)	1052			910			0	154	553	122	117	744

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	660	281	340	884	417
Volume Left	0	111	0	185	0
Volume Right	364	0	0	208	417
cSH	1700	910	1700	148	744
Volume to Capacity	0.39	0.12	0.20	5.98	0.56
Queue Length 95th (ft)	0	10	0	Err	88
Control Delay (s)	0.0	4.5	0.0	Err	15.8
Lane LOS		A		F	C
Approach Delay (s)	0.0	2.1		6801.9	
Approach LOS				F	

Intersection Summary				
Average Delay	3428.7			
Intersection Capacity Utilization	105.6%	ICU Level of Service	G	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	197	591	275	488	0	0	0	0	91	655	693
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	214	642	299	530	0	0	0	0	99	712	753
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		735										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	530			857			1754	1664	535	1664	1985	265
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	530			748			1797	1691	372	1691	2067	265
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			59			0	100	100	0	0	0
cM capacity (veh/h)	1033			733			0	47	535	35	27	733

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	857	476	354	1062	502
Volume Left	0	299	0	99	0
Volume Right	642	0	0	251	502
cSH	1700	733	1700	36	733
Volume to Capacity	0.50	0.41	0.21	29.31	0.69
Queue Length 95th (ft)	0	50	0	Err	137
Control Delay (s)	0.0	10.6	0.0	Err	19.9
Lane LOS		B		F	C
Approach Delay (s)	0.0	6.1		6795.1	
Approach LOS				F	

Intersection Summary				
Average Delay	3271.9			
Intersection Capacity Utilization	131.8%	ICU Level of Service	H	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	316	0	317	0	0	0	0	997	223	226	555	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2						5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00						0.95		1.00	0.95	
Frt	1.00	0.85						0.97		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583						3442		1770	3539	
Flt Permitted	0.95	1.00						1.00		0.17	1.00	
Satd. Flow (perm)	1770	1583						3442		322	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	343	0	345	0	0	0	0	1084	242	246	603	0
RTOR Reduction (vph)	0	282	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	343	63	0	0	0	0	0	1310	0	246	603	0
Turn Type	Split									Perm		
Protected Phases	4	4						2			2	
Permitted Phases										2		
Actuated Green, G (s)	21.8	21.8						88.8		88.8	88.8	
Effective Green, g (s)	21.8	21.8						88.8		88.8	88.8	
Actuated g/C Ratio	0.18	0.18						0.74		0.74	0.74	
Clearance Time (s)	4.2	4.2						5.2		5.2	5.2	
Vehicle Extension (s)	5.2	5.2						0.2		0.2	0.2	
Lane Grp Cap (vph)	322	288						2547		238	2619	
v/s Ratio Prot	c0.19	0.04						0.38			0.17	
v/s Ratio Perm										c0.76		
v/c Ratio	1.07	0.22						0.51		1.03	0.23	
Uniform Delay, d1	49.1	41.8						6.5		15.6	4.9	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	68.5	0.9						0.1		67.4	0.0	
Delay (s)	117.6	42.7						6.6		83.0	4.9	
Level of Service	F	D						A		F	A	
Approach Delay (s)		80.0			0.0			6.6			27.5	
Approach LOS		F			A			A			C	

Intersection Summary

HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	160	6	535	0	0	0	0	1073	183	442	1261	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2						5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00						0.95		1.00	0.95	
Frt	1.00	0.85						0.98		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1587						3462		1770	3539	
Flt Permitted	0.95	1.00						1.00		0.16	1.00	
Satd. Flow (perm)	1770	1587						3462		301	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	7	582	0	0	0	0	1166	199	480	1371	0
RTOR Reduction (vph)	0	75	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	174	514	0	0	0	0	0	1356	0	480	1371	0
Turn Type	Split									Perm		
Protected Phases	4	4						2			2	
Permitted Phases										2		
Actuated Green, G (s)	29.8	29.8						110.8		110.8	110.8	
Effective Green, g (s)	29.8	29.8						110.8		110.8	110.8	
Actuated g/C Ratio	0.20	0.20						0.74		0.74	0.74	
Clearance Time (s)	4.2	4.2						5.2		5.2	5.2	
Vehicle Extension (s)	5.2	5.2						0.2		0.2	0.2	
Lane Grp Cap (vph)	352	315						2557		222	2614	
v/s Ratio Prot	0.10	c0.32						0.39			0.39	
v/s Ratio Perm										c1.60		
v/c Ratio	0.49	1.63						0.53		2.16	0.52	
Uniform Delay, d1	53.4	60.1						8.4		19.6	8.4	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.4	299.0						0.1		537.6	0.1	
Delay (s)	55.8	359.1						8.5		557.2	8.4	
Level of Service	E	F						A		F	A	
Approach Delay (s)		290.0			0.0			8.5			150.8	
Approach LOS		F			A			A			F	

Intersection Summary

HCM Average Control Delay	128.7	HCM Level of Service	F
HCM Volume to Capacity ratio	2.05		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
6: SR99 N On-Ramp & Ventura Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	115	24	426	386	931	0	0	676	214
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	125	26	463	420	1012	0	0	735	233
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								284			1117	
pX, platoon unblocked												
vC, conflicting volume	2672	2702	484	2218	2818	506	967			1012		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2672	2702	484	2218	2818	506	967			1012		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	0	0	9	41			100		
cM capacity (veh/h)	0	9	529	13	7	512	708			681		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	138	476	420	506	506	490	478
Volume Left	125	0	420	0	0	0	0
Volume Right	0	463	0	0	0	0	233
cSH	12	175	708	1700	1700	1700	1700
Volume to Capacity	11.67	2.73	0.59	0.30	0.30	0.29	0.28
Queue Length 95th (ft)	Err	1048	98	0	0	0	0
Control Delay (s)	Err	833.3	17.2	0.0	0.0	0.0	0.0
Lane LOS	F	F	C				
Approach Delay (s)	2893.6		5.0			0.0	
Approach LOS	F						

Intersection Summary				
Average Delay	592.2			
Intersection Capacity Utilization	85.6%	ICU Level of Service	E	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6: SR99 N On-Ramp & Ventura Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	300	5	374	314	917	0	0	1330	408
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	326	5	407	341	997	0	0	1446	443
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								284			1117	
pX, platoon unblocked	0.85	0.85	0.78	0.85	0.85	0.87	0.78			0.87		
vC, conflicting volume	3258	3347	945	2402	3568	498	1889			997		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2610	2715	377	1602	2976	122	1582			695		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	100	0	0	48	0			100		
cM capacity (veh/h)	0	0	486	0	0	788	323			779		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	329	409	341	498	498	964	925
Volume Left	326	0	341	0	0	0	0
Volume Right	0	407	0	0	0	0	443
cSH	0	0	323	1700	1700	1700	1700
Volume to Capacity	Err	Err	1.06	0.29	0.29	0.57	0.54
Queue Length 95th (ft)	Err	Err	314	0	0	0	0
Control Delay (s)	Err	Err	103.3	0.0	0.0	0.0	0.0
Lane LOS	F	F	F				
Approach Delay (s)	Err		26.4			0.0	
Approach LOS	F						

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	105.6%	ICU Level of Service	G	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
7: E St & Ventura Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	21	4	38	49	19	13	190	1156	3	1	814	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	4	41	53	21	14	207	1257	3	1	885	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)								595			806	
pX, platoon unblocked	0.97	0.97	0.97	0.97	0.97		0.97					
vC, conflicting volume	1969	2576	459	2159	2591	630	917			1260		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1932	2561	368	2129	2576	630	843			1260		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	76	93	0	0	97	73			100		
cM capacity (veh/h)	0	18	607	16	18	424	761			548		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	68	88	835	632	443	475
Volume Left	23	53	207	0	1	0
Volume Right	41	14	0	3	0	33
cSH	0	20	761	1700	548	1700
Volume to Capacity	Err	4.43	0.27	0.37	0.00	0.28
Queue Length 95th (ft)	Err	Err	27	0	0	0
Control Delay (s)	Err	Err	6.6	0.0	0.1	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	Err	Err	3.7		0.0	
Approach LOS	F	F				

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	79.0%	ICU Level of Service	D	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
7: E St & Ventura Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	33	5	93	250	162	153	274	998	82	6	1238	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	5	101	272	176	166	298	1085	89	7	1346	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)								595			806	
pX, platoon unblocked	0.77	0.77	0.72	0.77	0.77	0.90	0.72			0.90		
vC, conflicting volume	2767	3145	689	2515	3116	587	1378			1174		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2143	2632	0	1815	2596	333	757			982		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	41	87	0	0	72	52			99		
cM capacity (veh/h)	0	9	784	11	10	599	614			632		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	142	614	840	632	679	705
Volume Left	36	272	298	0	7	0
Volume Right	101	166	0	89	0	33
cSH	0	14	614	1700	632	1700
Volume to Capacity	Err	42.67	0.48	0.37	0.01	0.41
Queue Length 95th (ft)	Err	Err	66	0	1	0
Control Delay (s)	Err	Err	13.2	0.0	0.3	0.0
Lane LOS	F	F	B		A	
Approach Delay (s)	Err	Err	7.5		0.1	
Approach LOS	F	F				

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	121.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	221	501	53	326	553	104	150	725	441	82	461	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.94		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)	1770	3488		1770	1819		1770	3339		1770	3321	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3488		1770	1819		1770	3339		1770	3321	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	240	545	58	354	601	113	163	788	479	89	501	350
RTOR Reduction (vph)	0	6	0	0	5	0	0	63	0	0	87	0
Lane Group Flow (vph)	240	597	0	354	709	0	163	1204	0	89	764	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	23.8	23.8		45.4	45.4		8.0	48.4		8.0	48.4	
Effective Green, g (s)	23.8	23.8		45.4	45.4		8.0	48.4		8.0	48.4	
Actuated g/C Ratio	0.16	0.16		0.31	0.31		0.06	0.33		0.06	0.33	
Clearance Time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	291	573		554	570		98	1115		98	1109	
v/s Ratio Prot	0.14	c0.17		0.20	c0.39		c0.09	c0.36		0.05	0.23	
v/s Ratio Perm												
v/c Ratio	0.82	1.04		0.64	1.24		1.66	1.08		0.91	0.69	
Uniform Delay, d1	58.6	60.6		42.8	49.8		68.5	48.3		68.1	41.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.3	49.0		1.8	124.1		339.0	51.1		60.5	1.4	
Delay (s)	74.9	109.6		44.5	173.9		407.5	99.4		128.6	43.2	
Level of Service	E	F		D	F		F	F		F	D	
Approach Delay (s)		99.7			131.0			134.6			51.3	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM Average Control Delay	108.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	19.4
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	197	769	88	273	386	159	347	843	412	168	895	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.96		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3485		1770	1781		1770	3365		1770	3406	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3485		1770	1781		1770	3365		1770	3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	836	96	297	420	173	377	916	448	183	973	325
RTOR Reduction (vph)	0	6	0	0	11	0	0	44	0	0	24	0
Lane Group Flow (vph)	214	926	0	297	582	0	377	1320	0	183	1274	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	30.4	30.4		31.4	31.4		10.0	45.8		8.0	43.8	
Effective Green, g (s)	30.4	30.4		31.4	31.4		10.0	45.8		8.0	43.8	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.07	0.34		0.06	0.32	
Clearance Time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	399	785		412	414		131	1142		105	1105	
v/s Ratio Prot	0.12	c0.27		0.17	c0.33		c0.21	c0.39		0.10	0.37	
v/s Ratio Perm												
v/c Ratio	0.54	1.18		0.72	1.41		2.88	1.16		1.74	1.15	
Uniform Delay, d1	46.1	52.3		47.8	51.8		62.5	44.6		63.5	45.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	93.7		5.2	196.9		865.6	80.2		370.6	79.3	
Delay (s)	46.8	146.0		53.0	248.7		928.1	124.8		434.1	124.9	
Level of Service	D	F		D	F		F	F		F	F	
Approach Delay (s)		127.5			183.4			298.8			163.1	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	203.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	110.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	35	216	56	254	522	194	61	720	159	189	543	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2		4.2	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3430		1770	3395		1770	3443		1770	3449	
Flt Permitted	0.20	1.00		0.57	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	369	3430		1059	3395		1770	3443		1770	3449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	235	61	276	567	211	66	783	173	205	590	121
RTOR Reduction (vph)	0	36	0	0	60	0	0	28	0	0	24	0
Lane Group Flow (vph)	38	260	0	276	718	0	66	928	0	205	687	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	20.2	20.2		20.2	20.2		5.0	24.0		8.8	27.8	
Effective Green, g (s)	20.2	20.2		20.2	20.2		5.0	24.0		8.8	27.8	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.08	0.37		0.13	0.43	
Clearance Time (s)	4.2	4.2		4.2	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	4.8	4.8		4.8	4.8		2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	114	1059		327	1049		135	1263		238	1466	
v/s Ratio Prot		0.08			0.21		0.04	c0.27		c0.12	0.20	
v/s Ratio Perm	0.10			c0.26								
v/c Ratio	0.33	0.25		0.84	0.68		0.49	0.73		0.86	0.47	
Uniform Delay, d1	17.4	16.9		21.1	19.8		29.0	17.9		27.7	13.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.3	0.2		19.2	2.3		1.0	2.7		25.1	0.5	
Delay (s)	20.8	17.1		40.3	22.1		30.0	20.6		52.8	14.0	
Level of Service	C	B		D	C		C	C		D	B	
Approach Delay (s)		17.5			26.9			21.2			22.6	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	12.4
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	155	495	101	480	506	176	58	890	171	97	707	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2		4.2	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3449		1770	3402		1770	3454		1770	3480	
Flt Permitted	0.31	1.00		0.35	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	576	3449		656	3402		1770	3454		1770	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	538	110	522	550	191	63	967	186	105	768	97
RTOR Reduction (vph)	0	11	0	0	23	0	0	11	0	0	6	0
Lane Group Flow (vph)	168	637	0	522	718	0	63	1142	0	105	859	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	84.8	84.8		84.8	84.8		9.6	41.3		12.2	43.9	
Effective Green, g (s)	84.8	84.8		84.8	84.8		9.6	41.3		12.2	43.9	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.06	0.27		0.08	0.29	
Clearance Time (s)	4.2	4.2		4.2	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	4.8	4.8		4.8	4.8		2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	324	1941		369	1914		113	947		143	1014	
v/s Ratio Prot		0.18			0.21		0.04	c0.33		0.06	c0.25	
v/s Ratio Perm	0.29			c0.80								
v/c Ratio	0.52	0.33		1.41	0.38		0.56	1.21		0.73	0.85	
Uniform Delay, d1	20.3	17.7		32.9	18.3		68.5	54.7		67.7	50.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.2		202.0	0.2		3.4	102.8		15.4	7.3	
Delay (s)	22.9	17.9		234.9	18.5		71.8	157.5		83.1	57.5	
Level of Service	C	B		F	B		E	F		F	E	
Approach Delay (s)		18.9			107.9			153.0			60.3	
Approach LOS		B			F			F			E	

Intersection Summary

HCM Average Control Delay	92.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	150.7	Sum of lost time (s)	12.6
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	440	151	0	0	0	0	836	98	24	773	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.98		1.00	1.00	
Flt Protected		1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5065	1583					3483		1770	3539	
Flt Permitted		1.00	1.00					1.00		0.20	1.00	
Satd. Flow (perm)		5065	1583					3483		365	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	478	164	0	0	0	0	909	107	26	840	0
RTOR Reduction (vph)	0	0	68	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	520	96	0	0	0	0	1001	0	26	840	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					25.6		25.6	25.6	
Effective Green, g (s)		20.0	20.0					25.6		25.6	25.6	
Actuated g/C Ratio		0.37	0.37					0.47		0.47	0.47	
Clearance Time (s)		4.2	4.2					4.2		4.2	4.2	
Vehicle Extension (s)		2.0	2.0					2.0		2.0	2.0	
Lane Grp Cap (vph)		1876	586					1651		173	1678	
v/s Ratio Prot		c0.10						c0.29			0.24	
v/s Ratio Perm			0.06							0.07		
v/c Ratio		0.28	0.16					0.61		0.15	0.50	
Uniform Delay, d1		11.9	11.4					10.5		8.0	9.8	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.4		0.1	0.1	
Delay (s)		12.0	11.4					10.9		8.2	9.9	
Level of Service		B	B					B		A	A	
Approach Delay (s)		11.8			0.0			10.9			9.8	
Approach LOS		B			A			B			A	

Intersection Summary				
HCM Average Control Delay	10.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.46			
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	8.4	
Intersection Capacity Utilization	49.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	155	1766	46	0	0	0	0	1131	48	73	916	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.99		1.00	1.00	
Flt Protected		1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5065	1583					3518		1770	3539	
Flt Permitted		1.00	1.00					1.00		0.15	1.00	
Satd. Flow (perm)		5065	1583					3518		274	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	1920	50	0	0	0	0	1229	52	79	996	0
RTOR Reduction (vph)	0	0	20	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	2088	30	0	0	0	0	1279	0	79	996	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		28.8	28.8					27.2		27.2	27.2	
Effective Green, g (s)		28.8	28.8					27.2		27.2	27.2	
Actuated g/C Ratio		0.45	0.45					0.42		0.42	0.42	
Clearance Time (s)		4.2	4.2					4.2		4.2	4.2	
Vehicle Extension (s)		2.0	2.0					2.0		2.0	2.0	
Lane Grp Cap (vph)		2265	708					1486		116	1495	
v/s Ratio Prot		c0.41						c0.36			0.28	
v/s Ratio Perm			0.02							0.29		
v/c Ratio		0.92	0.04					0.86		0.68	0.67	
Uniform Delay, d1		16.7	10.0					16.9		15.1	15.0	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		6.7	0.0					5.2		12.3	0.9	
Delay (s)		23.5	10.0					22.1		27.4	15.8	
Level of Service		C	B					C		C	B	
Approach Delay (s)		23.2			0.0			22.1			16.7	
Approach LOS		C			A			C			B	

Intersection Summary

HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	64.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	79	43	37	156	324	17	85	727	5	25	701	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.2	4.2	4.0	4.2	4.2
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	47	40	170	352	18	92	790	5	27	762	40
RTOR Reduction (vph)	0	0	35	0	0	13	0	0	3	0	0	28
Lane Group Flow (vph)	86	47	5	170	352	5	92	790	2	27	762	12
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	5		6	6		3	8		7	4	
Permitted Phases			5			6			8			4
Actuated Green, G (s)	8.5	8.5	8.5	18.6	18.6	18.6	5.8	24.9	24.9	2.8	21.9	21.9
Effective Green, g (s)	8.5	8.5	8.5	18.6	18.6	18.6	5.8	24.9	24.9	2.8	21.9	21.9
Actuated g/C Ratio	0.12	0.12	0.12	0.26	0.26	0.26	0.08	0.35	0.35	0.04	0.31	0.31
Clearance Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.2	4.2	4.0	4.2	4.2
Vehicle Extension (s)	4.9	4.9	4.9	4.9	4.9	4.9	2.0	4.9	4.9	2.0	4.9	4.9
Lane Grp Cap (vph)	211	222	188	894	485	412	144	1234	552	69	1085	486
v/s Ratio Prot	c0.05	0.03		0.05	c0.19		c0.05	c0.22		0.02	0.22	
v/s Ratio Perm			0.00			0.00			0.00			0.01
v/c Ratio	0.41	0.21	0.03	0.19	0.73	0.01	0.64	0.64	0.00	0.39	0.70	0.03
Uniform Delay, d1	29.1	28.4	27.8	20.5	24.1	19.6	31.8	19.5	15.2	33.5	21.9	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	1.0	0.1	0.2	6.4	0.0	6.7	1.5	0.0	1.3	2.6	0.0
Delay (s)	31.7	29.4	27.9	20.7	30.5	19.6	38.5	21.0	15.2	34.8	24.4	17.3
Level of Service	C	C	C	C	C	B	D	C	B	C	C	B
Approach Delay (s)		30.2			27.1			22.8			24.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	16.6
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	183	303	162	98	265	47	58	1148	70	67	760	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.2	4.2	4.0	4.2	4.2
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	329	176	107	288	51	63	1248	76	73	826	51
RTOR Reduction (vph)	0	0	65	0	0	41	0	0	32	0	0	30
Lane Group Flow (vph)	199	329	111	107	288	10	63	1248	44	73	826	21
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	5		6	6		3	8		7	4	
Permitted Phases			5			6			8			4
Actuated Green, G (s)	20.2	20.2	20.2	19.4	19.4	19.4	9.1	29.3	29.3	9.1	29.3	29.3
Effective Green, g (s)	20.2	20.2	20.2	19.4	19.4	19.4	9.1	29.3	29.3	9.1	29.3	29.3
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.10	0.31	0.31	0.10	0.31	0.31
Clearance Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.2	4.2	4.0	4.2	4.2
Vehicle Extension (s)	4.9	4.9	4.9	4.9	4.9	4.9	2.0	4.9	4.9	2.0	4.9	4.9
Lane Grp Cap (vph)	378	398	338	704	382	325	170	1096	490	170	1096	490
v/s Ratio Prot	0.11	c0.18		0.03	c0.15		0.04	c0.35		c0.04	0.23	
v/s Ratio Perm			0.07			0.01			0.03			0.01
v/c Ratio	0.53	0.83	0.33	0.15	0.75	0.03	0.37	1.14	0.09	0.43	0.75	0.04
Uniform Delay, d1	33.0	35.5	31.5	30.9	35.4	30.1	40.1	32.6	23.2	40.3	29.4	22.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	14.5	1.1	0.2	9.6	0.1	0.5	73.8	0.2	0.6	3.5	0.1
Delay (s)	35.4	50.1	32.6	31.1	44.9	30.2	40.6	106.5	23.3	40.9	32.9	22.9
Level of Service	D	D	C	C	D	C	D	F	C	D	C	C
Approach Delay (s)		41.6			39.9			98.9			33.0	
Approach LOS		D			D			F			C	

Intersection Summary

HCM Average Control Delay	61.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	16.6
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	35	104	112	0	0	162	658	0	0	745	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2			4.2	4.2			4.2	4.2
Lane Util. Factor		0.97	1.00			1.00	0.95			0.95	1.00
Frt		1.00	0.85			1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00			0.95	1.00			1.00	1.00
Satd. Flow (prot)		3433	1583			1770	3539			3539	1583
Flt Permitted		0.95	1.00			0.34	1.00			1.00	1.00
Satd. Flow (perm)		3433	1583			637	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	113	122	0	0	176	715	0	0	810	447
RTOR Reduction (vph)	0	0	103	0	0	0	0	0	0	0	171
Lane Group Flow (vph)	0	151	19	0	0	176	715	0	0	810	276
Turn Type	Split		Perm			Perm					Perm
Protected Phases	8	8					2			6	
Permitted Phases			8			2					6
Actuated Green, G (s)		6.0	6.0			23.2	23.2			23.2	23.2
Effective Green, g (s)		6.0	6.0			23.2	23.2			23.2	23.2
Actuated g/C Ratio		0.16	0.16			0.62	0.62			0.62	0.62
Clearance Time (s)		4.2	4.2			4.2	4.2			4.2	4.2
Vehicle Extension (s)		2.0	2.0			2.0	2.0			2.0	2.0
Lane Grp Cap (vph)		548	253			393	2184			2184	977
v/s Ratio Prot		c0.04					0.20			0.23	
v/s Ratio Perm			0.01			c0.28					0.17
v/c Ratio		0.28	0.08			0.45	0.33			0.37	0.28
Uniform Delay, d1		13.9	13.4			3.8	3.5			3.6	3.3
Progression Factor		1.00	1.00			1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1	0.0			0.3	0.0			0.0	0.1
Delay (s)		14.0	13.5			4.1	3.5			3.6	3.4
Level of Service		B	B			A	A			A	A
Approach Delay (s)		13.8		0.0			3.6			3.5	
Approach LOS		B		A			A			A	

Intersection Summary

HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	37.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	31	168	254	231	1153	0	0	845	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					4.2	4.2	4.2	4.2			4.2	4.2
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3512	1583	1770	3539			3539	1583
Flt Permitted					0.99	1.00	0.28	1.00			1.00	1.00
Satd. Flow (perm)					3512	1583	519	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	34	183	276	251	1253	0	0	918	482
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	0	0	0	164
Lane Group Flow (vph)	0	0	0	0	217	216	251	1253	0	0	918	318
Turn Type				Split		Perm	Perm					Perm
Protected Phases				8	8			2			6	
Permitted Phases						8	2					6
Actuated Green, G (s)					13.7	13.7	37.8	37.8			37.8	37.8
Effective Green, g (s)					13.7	13.7	37.8	37.8			37.8	37.8
Actuated g/C Ratio					0.23	0.23	0.63	0.63			0.63	0.63
Clearance Time (s)					4.2	4.2	4.2	4.2			4.2	4.2
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					803	362	328	2233			2233	999
v/s Ratio Prot					0.06			0.35			0.26	
v/s Ratio Perm						c0.14	c0.48					0.20
v/c Ratio					0.27	0.60	0.77	0.56			0.41	0.32
Uniform Delay, d1					19.0	20.6	7.9	6.3			5.5	5.1
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.1	1.8	9.2	0.2			0.0	0.1
Delay (s)					19.1	22.4	17.1	6.5			5.6	5.2
Level of Service					B	C	B	A			A	A
Approach Delay (s)		0.0			20.9			8.3			5.4	
Approach LOS		A			C			A			A	

Intersection Summary

HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	59.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	600	7	12	1088	153	14	142	5	183	128	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6		4.0	4.6	4.6	4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5076		1770	5085	1583	1770	3523		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.67	1.00		0.65	1.00	1.00
Satd. Flow (perm)	1770	5076		1770	5085	1583	1245	3523		1213	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	652	8	13	1183	166	15	154	5	199	139	284
RTOR Reduction (vph)	0	1	0	0	0	65	0	4	0	0	0	203
Lane Group Flow (vph)	135	659	0	13	1183	101	15	155	0	199	139	81
Turn Type	Prot			Prot		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		4
Actuated Green, G (s)	7.1	34.7		1.0	28.6	28.6	15.2	15.2		15.2	15.2	15.2
Effective Green, g (s)	7.1	34.7		1.0	28.6	28.6	15.2	15.2		15.2	15.2	15.2
Actuated g/C Ratio	0.11	0.54		0.02	0.45	0.45	0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	4.0	4.6		4.0	4.6	4.6	4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	196	2748		28	2269	706	295	835		288	442	375
v/s Ratio Prot	c0.08	0.13		0.01	c0.23			0.04			0.07	
v/s Ratio Perm						0.06	0.01			c0.16		0.05
v/c Ratio	0.69	0.24		0.46	0.52	0.14	0.05	0.19		0.69	0.31	0.22
Uniform Delay, d1	27.4	7.7		31.3	12.8	10.5	18.9	19.5		22.3	20.2	19.7
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	7.8	0.0		4.4	0.1	0.0	0.0	0.0		5.7	0.1	0.1
Delay (s)	35.2	7.8		35.7	12.9	10.5	18.9	19.6		28.0	20.3	19.8
Level of Service	D	A		D	B	B	B	B		C	C	B
Approach Delay (s)		12.4			12.8			19.5			22.5	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	13.2
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	288	1564	17	39	1322	468	26	312	28	408	294	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6		4.0	4.6	4.6	4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5077		1770	5085	1583	1770	3496		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.45	1.00		0.50	1.00	1.00
Satd. Flow (perm)	1770	5077		1770	5085	1583	843	3496		935	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	313	1700	18	42	1437	509	28	339	30	443	320	350
RTOR Reduction (vph)	0	1	0	0	0	160	0	7	0	0	0	163
Lane Group Flow (vph)	313	1717	0	42	1437	349	28	362	0	443	320	187
Turn Type	Prot			Prot		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		4
Actuated Green, G (s)	13.0	37.6		4.4	29.0	29.0	36.4	36.4		36.4	36.4	36.4
Effective Green, g (s)	13.0	37.6		4.4	29.0	29.0	36.4	36.4		36.4	36.4	36.4
Actuated g/C Ratio	0.14	0.41		0.05	0.32	0.32	0.40	0.40		0.40	0.40	0.40
Clearance Time (s)	4.0	4.6		4.0	4.6	4.6	4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	251	2084		85	1610	501	335	1389		372	740	629
v/s Ratio Prot	c0.18	c0.34		0.02	0.28			0.10			0.17	
v/s Ratio Perm						0.22	0.03			c0.47		0.12
v/c Ratio	1.25	0.82		0.49	0.89	0.70	0.08	0.26		1.19	0.43	0.30
Uniform Delay, d1	39.3	24.0		42.5	29.8	27.4	17.2	18.6		27.6	20.1	18.9
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	139.9	2.6		1.6	6.6	3.4	0.0	0.0		109.6	0.1	0.1
Delay (s)	179.2	26.7		44.2	36.4	30.8	17.2	18.6		137.2	20.2	19.0
Level of Service	F	C		D	D	C	B	B		F	C	B
Approach Delay (s)		50.2			35.1			18.5			66.4	
Approach LOS		D			D			B			E	

Intersection Summary

HCM Average Control Delay	45.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	91.6	Sum of lost time (s)	8.6
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	146	0	18	171	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	159	0	20	186	17	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	484			1038		
pX, platoon unblocked						
vC, conflicting volume			159		384	159
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			159		384	159
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	100
cM capacity (veh/h)			1421		611	887

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	159	205	22
Volume Left	0	20	17
Volume Right	0	0	4
cSH	1700	1421	651
Volume to Capacity	0.09	0.01	0.03
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.8	10.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.8	10.7
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	363	0	22	514	27	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	395	0	24	559	29	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	484			1038		
pX, platoon unblocked						
vC, conflicting volume			395		1001	395
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			395		1001	395
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		89	99
cM capacity (veh/h)			1164		264	655

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	395	583	37
Volume Left	0	24	29
Volume Right	0	0	8
cSH	1700	1164	301
Volume to Capacity	0.23	0.02	0.12
Queue Length 95th (ft)	0	2	10
Control Delay (s)	0.0	0.6	18.7
Lane LOS		A	C
Approach Delay (s)	0.0	0.6	18.7
Approach LOS			C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	632	102	0	0	218	161	0	27	0	7	63	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	15	12	12	15	15	15	12	15	12
Total Lost time (s)	4.0	4.2			4.2	4.2		4.2			4.0	4.2
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	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		1.00			0.99	1.00
Satd. Flow (prot)	1770	3539			3539	1583		2049			2038	1583
Flt Permitted	0.95	1.00			1.00	1.00		1.00			0.98	1.00
Satd. Flow (perm)	1770	3539			3539	1583		2049			2005	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	687	111	0	0	237	175	0	29	0	8	68	249
RTOR Reduction (vph)	0	0	0	0	0	143	0	0	0	0	0	197
Lane Group Flow (vph)	687	111	0	0	237	32	0	29	0	0	76	52
Turn Type	Prot					Perm	Perm			Prot		custom
Protected Phases	5	2			6			4		3	8	
Permitted Phases						6	4					4
Actuated Green, G (s)	29.2	45.8			12.6	12.6		14.2			14.4	14.2
Effective Green, g (s)	29.2	45.8			12.6	12.6		14.2			14.4	14.2
Actuated g/C Ratio	0.43	0.67			0.18	0.18		0.21			0.21	0.21
Clearance Time (s)	4.0	4.2			4.2	4.2		4.2			4.0	4.2
Vehicle Extension (s)	3.0	4.8			4.8	4.8		2.0			3.0	2.0
Lane Grp Cap (vph)	756	2370			652	292		425			422	329
v/s Ratio Prot	c0.39	0.03			c0.07			0.01				
v/s Ratio Perm						0.02					c0.04	0.03
v/c Ratio	0.91	0.05			0.36	0.11		0.07			0.18	0.16
Uniform Delay, d1	18.4	3.9			24.4	23.2		21.8			22.2	22.2
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	14.7	0.0			0.7	0.3		0.0			0.2	0.1
Delay (s)	33.0	3.9			25.1	23.6		21.8			22.4	22.3
Level of Service	C	A			C	C		C			C	C
Approach Delay (s)		29.0			24.4			21.8			22.3	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.2
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	500	211	0	0	143	89	0	63	0	91	27	502
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	15	12	12	15	15	15	12	15	12
Total Lost time (s)	4.0	4.2			4.2	4.2		4.2			4.0	4.2
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	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		1.00			0.96	1.00
Satd. Flow (prot)	1770	3539			3539	1583		2049			1973	1583
Flt Permitted	0.95	1.00			1.00	1.00		1.00			0.74	1.00
Satd. Flow (perm)	1770	3539			3539	1583		2049			1515	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	543	229	0	0	155	97	0	68	0	99	29	546
RTOR Reduction (vph)	0	0	0	0	0	82	0	0	0	0	0	416
Lane Group Flow (vph)	543	229	0	0	155	15	0	68	0	0	128	130
Turn Type	Prot					Perm	Perm			Prot		custom
Protected Phases	5	2			6			4		3	8	
Permitted Phases						6	4					4
Actuated Green, G (s)	29.0	43.3			10.3	10.3		16.2			16.4	16.2
Effective Green, g (s)	29.0	43.3			10.3	10.3		16.2			16.4	16.2
Actuated g/C Ratio	0.43	0.64			0.15	0.15		0.24			0.24	0.24
Clearance Time (s)	4.0	4.2			4.2	4.2		4.2			4.0	4.2
Vehicle Extension (s)	3.0	4.8			4.8	4.8		2.0			3.0	2.0
Lane Grp Cap (vph)	756	2257			537	240		489			366	378
v/s Ratio Prot	c0.31	0.06			c0.04			0.03				
v/s Ratio Perm						0.01					c0.08	0.08
v/c Ratio	0.72	0.10			0.29	0.06		0.14			0.35	0.34
Uniform Delay, d1	16.1	4.8			25.5	24.7		20.4			21.3	21.4
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	3.3	0.0			0.6	0.2		0.0			0.6	0.2
Delay (s)	19.4	4.8			26.1	24.9		20.4			21.9	21.6
Level of Service	B	A			C	C		C			C	C
Approach Delay (s)		15.0			25.6			20.4			21.7	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	12.2
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	222	78	205	455	54	111	205	105	13	111	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3401		1770	3483		1770	1768		1770	1828	
Flt Permitted	0.42	1.00		0.55	1.00		0.67	1.00		0.46	1.00	
Satd. Flow (perm)	775	3401		1033	3483		1246	1768		863	1828	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	241	85	223	495	59	121	223	114	14	121	17
RTOR Reduction (vph)	0	46	0	0	16	0	0	30	0	0	9	0
Lane Group Flow (vph)	5	280	0	223	538	0	121	307	0	14	129	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.0	26.0		26.0	26.0		22.0	22.0		22.0	22.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0		22.0	22.0		22.0	22.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.39	0.39		0.39	0.39	
Clearance Time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	357	1568		476	1606		486	690		337	713	
v/s Ratio Prot		0.08			0.15			c0.17			0.07	
v/s Ratio Perm	0.01			c0.22			0.10			0.02		
v/c Ratio	0.01	0.18		0.47	0.34		0.25	0.45		0.04	0.18	
Uniform Delay, d1	8.2	8.9		10.4	9.7		11.6	12.7		10.7	11.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0		0.3	0.0		0.1	0.2		0.0	0.0	
Delay (s)	8.3	8.9		10.7	9.7		11.7	12.9		10.7	11.3	
Level of Service	A	A		B	A		B	B		B	B	
Approach Delay (s)		8.9			10.0			12.6			11.3	
Approach LOS		A			B			B			B	

Intersection Summary

HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	84	425	126	94	361	114	104	265	114	99	411	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.95		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)	1770	3418		1770	3412		1770	1779		1770	1776	
Flt Permitted	0.44	1.00		0.38	1.00		0.17	1.00		0.39	1.00	
Satd. Flow (perm)	812	3418		715	3412		318	1779		721	1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	462	137	102	392	124	113	288	124	108	447	200
RTOR Reduction (vph)	0	47	0	0	52	0	0	26	0	0	26	0
Lane Group Flow (vph)	91	552	0	102	464	0	113	386	0	108	621	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.0	26.0		26.0	26.0		23.4	23.4		23.4	23.4	
Effective Green, g (s)	26.0	26.0		26.0	26.0		23.4	23.4		23.4	23.4	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	365	1538		322	1535		129	720		292	719	
v/s Ratio Prot		c0.16			0.14			0.22			0.35	
v/s Ratio Perm	0.11			0.14			c0.35			0.15		
v/c Ratio	0.25	0.36		0.32	0.30		0.88	0.54		0.37	0.86	
Uniform Delay, d1	9.9	10.4		10.2	10.1		15.9	13.1		12.0	15.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.2	0.0		42.7	0.4		0.3	10.2	
Delay (s)	10.0	10.5		10.4	10.2		58.6	13.5		12.3	25.9	
Level of Service	A	B		B	B		E	B		B	C	
Approach Delay (s)		10.4			10.2			23.2			24.0	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	8.4
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	36	461	75	0	0	0	0	61	71	59	203	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5						4.5		4.5	4.5	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frt		0.98						0.93		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		4969						1727		1770	1863	
Flt Permitted		1.00						1.00		0.67	1.00	
Satd. Flow (perm)		4969						1727		1240	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	501	82	0	0	0	0	66	77	64	221	0
RTOR Reduction (vph)	0	32	0	0	0	0	0	52	0	0	0	0
Lane Group Flow (vph)	0	590	0	0	0	0	0	91	0	64	221	0
Turn Type	Split									Perm		
Protected Phases	2	2						8			4	
Permitted Phases										4		
Actuated Green, G (s)		24.8						16.6		16.6	16.6	
Effective Green, g (s)		24.8						16.6		16.6	16.6	
Actuated g/C Ratio		0.49						0.33		0.33	0.33	
Clearance Time (s)		4.5						4.5		4.5	4.5	
Vehicle Extension (s)		0.2						0.2		0.2	0.2	
Lane Grp Cap (vph)		2445						569		408	614	
v/s Ratio Prot		c0.12						0.05			c0.12	
v/s Ratio Perm										0.05		
v/c Ratio		0.24						0.16		0.16	0.36	
Uniform Delay, d1		7.4						12.0		12.0	12.9	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.0						0.0		0.1	0.1	
Delay (s)		7.4						12.0		12.0	13.0	
Level of Service		A						B		B	B	
Approach Delay (s)		7.4			0.0			12.0			12.8	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	50.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	109	1367	252	0	0	0	0	292	294	81	391	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5						4.5		4.5	4.5	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frt		0.98						0.93		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		4958						1736		1770	1863	
Flt Permitted		1.00						1.00		0.18	1.00	
Satd. Flow (perm)		4958						1736		342	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	1486	274	0	0	0	0	317	320	88	425	0
RTOR Reduction (vph)	0	43	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	1835	0	0	0	0	0	632	0	88	425	0
Turn Type	Split									Perm		
Protected Phases	2	2						8			4	
Permitted Phases										4		
Actuated Green, G (s)		23.0						23.0		23.0	23.0	
Effective Green, g (s)		23.0						23.0		23.0	23.0	
Actuated g/C Ratio		0.42						0.42		0.42	0.42	
Clearance Time (s)		4.5						4.5		4.5	4.5	
Vehicle Extension (s)		0.2						0.2		0.2	0.2	
Lane Grp Cap (vph)		2073						726		143	779	
v/s Ratio Prot		c0.37						c0.36			0.23	
v/s Ratio Perm										0.26		
v/c Ratio		0.89						0.87		0.62	0.55	
Uniform Delay, d1		14.8						14.6		12.5	12.1	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		4.8						10.8		5.4	0.4	
Delay (s)		19.6						25.5		18.0	12.5	
Level of Service		B						C		B	B	
Approach Delay (s)		19.6			0.0			25.5			13.4	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	127	449	17	14	9	0	0	19	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	138	488	18	15	10	0	0	21	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1000			1010							
pX, platoon unblocked												
vC, conflicting volume	507			0			538	783	0	778	773	253
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507			0			538	783	0	778	773	253
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			96	97	100	100	93	99
cM capacity (veh/h)	1054			1622			374	296	1084	261	300	746

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	SW 1
Volume Total	382	262	15	10	28
Volume Left	138	0	15	0	0
Volume Right	0	18	0	0	8
cSH	1622	1700	374	296	358
Volume to Capacity	0.09	0.15	0.04	0.03	0.08
Queue Length 95th (ft)	7	0	3	3	6
Control Delay (s)	3.2	0.0	15.0	17.6	15.9
Lane LOS	A		C	C	C
Approach Delay (s)	1.9		16.0		15.9
Approach LOS			C		C

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	68.8%	ICU Level of Service		C
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	283	561	38	101	25	0	0	18	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	308	610	41	110	27	0	0	20	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1000			1010							
pX, platoon unblocked												
vC, conflicting volume	651			0			934	1266	0	1259	1246	326
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	651			0			934	1266	0	1259	1246	326
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			81			35	80	100	100	86	99
cM capacity (veh/h)	931			1622			168	136	1084	92	140	670

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	SW 1
Volume Total	612	346	110	27	24
Volume Left	308	0	110	0	0
Volume Right	0	41	0	0	4
cSH	1622	1700	168	136	163
Volume to Capacity	0.19	0.20	0.65	0.20	0.15
Queue Length 95th (ft)	17	0	94	18	13
Control Delay (s)	4.8	0.0	60.0	38.0	30.8
Lane LOS	A		F	E	D
Approach Delay (s)	3.1		55.6		30.8
Approach LOS			F		D

Intersection Summary			
Average Delay	10.1		
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	98	9	112	57	2	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.8			4.8	4.8	
Lane Util. Factor	0.95			0.95	1.00	
Frt	0.99			1.00	0.88	
Flt Protected	1.00			0.97	1.00	
Satd. Flow (prot)	3494			3426	1624	
Flt Permitted	1.00			0.95	1.00	
Satd. Flow (perm)	3494			3380	1624	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	10	122	62	2	25
RTOR Reduction (vph)	9	0	0	0	24	0
Lane Group Flow (vph)	109	0	0	184	3	0
Turn Type			Perm			
Protected Phases	2			2		
Permitted Phases			2		4	
Actuated Green, G (s)	1.8			1.8	0.6	
Effective Green, g (s)	1.8			1.8	0.6	
Actuated g/C Ratio	0.15			0.15	0.05	
Clearance Time (s)	4.8			4.8	4.8	
Vehicle Extension (s)	0.2			0.2	0.2	
Lane Grp Cap (vph)	524			507	81	
v/s Ratio Prot	0.03					
v/s Ratio Perm				c0.05	c0.00	
v/c Ratio	0.21			0.36	0.04	
Uniform Delay, d1	4.5			4.6	5.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.1			0.2	0.1	
Delay (s)	4.5			4.7	5.5	
Level of Service	A			A	A	
Approach Delay (s)	4.5			4.7	5.5	
Approach LOS	A			A	A	

Intersection Summary

HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	12.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	267	104	339	184	153	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.8			4.8	4.8	
Lane Util. Factor	0.95			0.95	1.00	
Frt	0.96			1.00	0.94	
Flt Protected	1.00			0.97	0.97	
Satd. Flow (prot)	3390			3428	1706	
Flt Permitted	1.00			0.67	0.97	
Satd. Flow (perm)	3390			2379	1706	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	290	113	368	200	166	126
RTOR Reduction (vph)	58	0	0	0	48	0
Lane Group Flow (vph)	345	0	0	568	244	0
Turn Type			Perm			
Protected Phases	2			2		
Permitted Phases			2		4	
Actuated Green, G (s)	11.1			11.1	8.1	
Effective Green, g (s)	11.1			11.1	8.1	
Actuated g/C Ratio	0.39			0.39	0.28	
Clearance Time (s)	4.8			4.8	4.8	
Vehicle Extension (s)	0.2			0.2	0.2	
Lane Grp Cap (vph)	1307			917	480	
v/s Ratio Prot	0.10					
v/s Ratio Perm				c0.24	c0.14	
v/c Ratio	0.26			1.03dl	0.51	
Uniform Delay, d1	6.1			7.1	8.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.0			0.9	0.3	
Delay (s)	6.1			8.0	9.0	
Level of Service	A			A	A	
Approach Delay (s)	6.1			8.0	9.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	28.8	Sum of lost time (s)	9.6
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

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

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	449	202	240	240	31	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	488	220	261	261	34	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	537			471		
pX, platoon unblocked			0.96		0.97	0.96
vC, conflicting volume			708		1250	354
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			609		1114	241
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			72		76	93
cM capacity (veh/h)			926		140	729

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	325	382	348	174	85
Volume Left	0	0	261	0	34
Volume Right	0	220	0	0	51
cSH	1700	1700	926	1700	273
Volume to Capacity	0.19	0.22	0.28	0.10	0.31
Queue Length 95th (ft)	0	0	29	0	32
Control Delay (s)	0.0	0.0	8.6	0.0	24.0
Lane LOS			A		C
Approach Delay (s)	0.0		5.7		24.0
Approach LOS					C

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	656	62	39	586	109	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	713	67	42	637	118	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	537			479		
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			780		1150	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			568		973	141
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		45	90
cM capacity (veh/h)			913		217	805

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	475	305	255	425	202
Volume Left	0	0	42	0	118
Volume Right	0	67	0	0	84
cSH	1700	1700	913	1700	311
Volume to Capacity	0.28	0.18	0.05	0.25	0.65
Queue Length 95th (ft)	0	0	4	0	106
Control Delay (s)	0.0	0.0	1.9	0.0	35.7
Lane LOS			A		E
Approach Delay (s)	0.0		0.7		35.7
Approach LOS					E

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	285	58	56	9	245	4	307	486	233	135	61	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.98			1.00		1.00	0.95		1.00	0.88	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1764			1856		1770	1772		1770	1647	
Flt Permitted		0.59			0.98		0.53	1.00		0.13	1.00	
Satd. Flow (perm)		1071			1829		991	1772		238	1647	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	310	63	61	10	266	4	334	528	253	147	66	223
RTOR Reduction (vph)	0	9	0	0	1	0	0	24	0	0	120	0
Lane Group Flow (vph)	0	425	0	0	279	0	334	757	0	147	169	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		27.9			27.9		31.3	31.3		31.3	31.3	
Effective Green, g (s)		27.9			27.9		31.3	31.3		31.3	31.3	
Actuated g/C Ratio		0.41			0.41		0.46	0.46		0.46	0.46	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		442			755		459	820		110	763	
v/s Ratio Prot								0.43			0.10	
v/s Ratio Perm		c0.40			0.15		0.34			c0.62		
v/c Ratio		0.96			0.37		0.73	0.92		1.34	0.22	
Uniform Delay, d1		19.3			13.8		14.7	17.0		18.1	10.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		32.8			0.1		4.8	15.6		200.5	0.1	
Delay (s)		52.1			13.9		19.5	32.7		218.6	10.9	
Level of Service		D			B		B	C		F	B	
Approach Delay (s)		52.1			13.9			28.7			80.9	
Approach LOS		D			B			C			F	

Intersection Summary

HCM Average Control Delay	41.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	116.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	277	74	255	79	446	71	241	412	265	326	1473	796
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			0.98		1.00	0.94		1.00	0.95	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1718			1821		1770	1753		1770	1765	
Flt Permitted		0.42			0.85		0.05	1.00		0.18	1.00	
Satd. Flow (perm)		731			1565		98	1753		337	1765	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	301	80	277	86	485	77	262	448	288	354	1601	865
RTOR Reduction (vph)	0	11	0	0	4	0	0	17	0	0	14	0
Lane Group Flow (vph)	0	647	0	0	644	0	262	719	0	354	2452	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		55.8			55.8		75.8	75.8		75.8	75.8	
Effective Green, g (s)		55.8			55.8		75.8	75.8		75.8	75.8	
Actuated g/C Ratio		0.40			0.40		0.54	0.54		0.54	0.54	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		291			624		53	949		182	956	
v/s Ratio Prot								0.41			1.39	
v/s Ratio Perm		c0.88			0.41		c2.67			1.05		
v/c Ratio		2.22			1.03		4.94	0.76		1.95	2.57	
Uniform Delay, d1		42.1			42.1		32.1	25.0		32.1	32.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		560.9			44.7		1816.1	3.1		444.7	707.4	
Delay (s)		603.0			86.8		1848.2	28.1		476.8	739.5	
Level of Service		F			F		F	C		F	F	
Approach Delay (s)		603.0			86.8			505.9			706.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	575.8	HCM Level of Service	F
HCM Volume to Capacity ratio	3.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	232.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	154	360	64	89	385	60	118	529	160	90	137	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.97		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1820		1770	3468		1770	3416		1770	3224	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1820		1770	3468		1770	3416		1770	3224	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	391	70	97	418	65	128	575	174	98	149	218
RTOR Reduction (vph)	0	8	0	0	16	0	0	38	0	0	154	0
Lane Group Flow (vph)	167	453	0	97	467	0	128	711	0	98	213	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	8.7	21.0		6.1	18.4		5.9	20.7		5.7	20.5	
Effective Green, g (s)	8.7	21.0		6.1	18.4		5.9	20.7		5.7	20.5	
Actuated g/C Ratio	0.12	0.30		0.09	0.26		0.08	0.30		0.08	0.29	
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	220	547		154	913		149	1012		144	946	
v/s Ratio Prot	c0.09	c0.25		0.05	0.13		c0.07	c0.21		0.06	0.07	
v/s Ratio Perm												
v/c Ratio	0.76	0.83		0.63	0.51		0.86	0.70		0.68	0.23	
Uniform Delay, d1	29.6	22.8		30.8	21.9		31.6	21.9		31.2	18.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.5	11.1		5.7	1.0		34.7	2.8		10.1	0.3	
Delay (s)	42.1	33.9		36.5	22.9		66.3	24.7		41.3	18.9	
Level of Service	D	C		D	C		E	C		D	B	
Approach Delay (s)		36.0			25.2			30.7			23.6	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	69.9	Sum of lost time (s)	12.2
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	205	499	155	226	450	94	140	880	156	139	801	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1797		1770	3448		1770	3459		1770	3421	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1797		1770	3448		1770	3459		1770	3421	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	542	168	246	489	102	152	957	170	151	871	250
RTOR Reduction (vph)	0	8	0	0	12	0	0	10	0	0	18	0
Lane Group Flow (vph)	223	702	0	246	579	0	152	1117	0	151	1103	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	18.0	43.8		22.9	48.7		10.0	52.3		12.0	54.3	
Effective Green, g (s)	18.0	43.8		22.9	48.7		10.0	52.3		12.0	54.3	
Actuated g/C Ratio	0.12	0.30		0.16	0.33		0.07	0.35		0.08	0.37	
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	216	534		275	1139		120	1227		144	1260	
v/s Ratio Prot	c0.13	c0.39		c0.14	0.17		c0.09	c0.32		0.09	0.32	
v/s Ratio Perm												
v/c Ratio	1.03	1.32		0.89	0.51		1.27	0.91		1.05	0.88	
Uniform Delay, d1	64.7	51.8		61.1	39.7		68.7	45.3		67.7	43.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	69.9	154.7		28.0	0.7		170.2	10.7		88.5	7.6	
Delay (s)	134.6	206.5		89.1	40.5		238.9	56.1		156.2	51.0	
Level of Service	F	F		F	D		F	E		F	D	
Approach Delay (s)		189.3			54.7			77.8			63.5	
Approach LOS		F			D			E			E	

Intersection Summary

HCM Average Control Delay	93.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	147.4	Sum of lost time (s)	16.4
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	167	374	180	0	0	0	0	514	156	176	627	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5	4.5					4.5		4.5	4.5	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.97		1.00	1.00	
Flt Protected		0.98	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5008	1583					3415		1770	3539	
Flt Permitted		0.98	1.00					1.00		0.33	1.00	
Satd. Flow (perm)		5008	1583					3415		618	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	182	407	196	0	0	0	0	559	170	191	682	0
RTOR Reduction (vph)	0	0	128	0	0	0	0	51	0	0	0	0
Lane Group Flow (vph)	0	589	68	0	0	0	0	678	0	191	682	0
Turn Type	Split		Perm							Perm		
Protected Phases	2	2						4			4	
Permitted Phases			2							4		
Actuated Green, G (s)		19.0	19.0					27.1		27.1	27.1	
Effective Green, g (s)		19.0	19.0					27.1		27.1	27.1	
Actuated g/C Ratio		0.34	0.34					0.49		0.49	0.49	
Clearance Time (s)		4.5	4.5					4.5		4.5	4.5	
Vehicle Extension (s)		0.2	0.2					0.2		0.2	0.2	
Lane Grp Cap (vph)		1727	546					1680		304	1741	
v/s Ratio Prot		c0.12						0.20			0.19	
v/s Ratio Perm			0.04							c0.31		
v/c Ratio		0.34	0.12					0.40		0.63	0.39	
Uniform Delay, d1		13.4	12.4					8.9		10.3	8.8	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.1		2.9	0.1	
Delay (s)		13.4	12.4					8.9		13.2	8.9	
Level of Service		B	B					A		B	A	
Approach Delay (s)		13.2			0.0			8.9			9.8	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	213	1195	408	0	0	0	0	870	222	238	1263	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5	4.5					4.5		4.5	4.5	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.97		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5047	1583					3431		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.16	1.00	
Satd. Flow (perm)		5047	1583					3431		294	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	1299	443	0	0	0	0	946	241	259	1373	0
RTOR Reduction (vph)	0	0	22	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	1531	421	0	0	0	0	1185	0	259	1373	0
Turn Type	Split		Perm							Perm		
Protected Phases	2	2						4			4	
Permitted Phases			2							4		
Actuated Green, G (s)		19.4	19.4					31.5		31.5	31.5	
Effective Green, g (s)		19.4	19.4					31.5		31.5	31.5	
Actuated g/C Ratio		0.32	0.32					0.53		0.53	0.53	
Clearance Time (s)		4.5	4.5					4.5		4.5	4.5	
Vehicle Extension (s)		0.2	0.2					0.2		0.2	0.2	
Lane Grp Cap (vph)		1635	513					1804		155	1861	
v/s Ratio Prot		c0.30						0.35			0.39	
v/s Ratio Perm			0.27							c0.88		
v/c Ratio		0.94	0.82					0.66		1.67	0.74	
Uniform Delay, d1		19.7	18.7					10.3		14.2	11.0	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		10.4	9.7					0.7		328.5	1.3	
Delay (s)		30.0	28.4					11.0		342.7	12.3	
Level of Service		C	C					B		F	B	
Approach Delay (s)		29.7			0.0			11.0			64.8	
Approach LOS		C			A			B			E	

Intersection Summary			
HCM Average Control Delay	37.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	59.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	119	306	43	128	352	0	0	1032	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				4.2	4.2	4.2	4.2	4.2			4.2	4.2
Lane Util. Factor				1.00	1.00	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	3539			3539	1583
Flt Permitted				0.95	1.00	1.00	0.19	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	357	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	129	333	47	139	383	0	0	1122	112
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	0	43
Lane Group Flow (vph)	0	0	0	129	333	24	139	383	0	0	1122	69
Turn Type				Split		Perm	Perm					Perm
Protected Phases				6	6			8			4	
Permitted Phases						6	8					4
Actuated Green, G (s)				15.7	15.7	15.7	30.8	30.8			30.8	30.8
Effective Green, g (s)				15.7	15.7	15.7	30.8	30.8			30.8	30.8
Actuated g/C Ratio				0.29	0.29	0.29	0.56	0.56			0.56	0.56
Clearance Time (s)				4.2	4.2	4.2	4.2	4.2			4.2	4.2
Vehicle Extension (s)				3.0	3.0	3.0	5.0	5.0			5.0	5.0
Lane Grp Cap (vph)				506	533	453	200	1985			1985	888
v/s Ratio Prot				0.07	c0.18			0.11			0.32	
v/s Ratio Perm						0.02	c0.39					0.04
v/c Ratio				0.25	0.62	0.05	0.69	0.19			0.57	0.08
Uniform Delay, d1				15.1	17.0	14.2	8.7	5.9			7.7	5.5
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.3	2.3	0.0	12.6	0.1			0.6	0.1
Delay (s)				15.4	19.3	14.3	21.2	6.0			8.4	5.6
Level of Service				B	B	B	C	A			A	A
Approach Delay (s)		0.0			17.9			10.1			8.1	
Approach LOS		A			B			B			A	

Intersection Summary

HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	84	568	95	163	1298	0	0	1226	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				4.2	4.2	4.2	4.2	4.2			4.2	4.2
Lane Util. Factor				1.00	1.00	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	3539			3539	1583
Flt Permitted				0.95	1.00	1.00	0.13	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	243	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	91	617	103	177	1411	0	0	1333	200
RTOR Reduction (vph)	0	0	0	0	0	19	0	0	0	0	0	32
Lane Group Flow (vph)	0	0	0	91	617	84	177	1411	0	0	1333	168
Turn Type				Split		Perm	Perm					Perm
Protected Phases				6	6			8			4	
Permitted Phases						6	8					4
Actuated Green, G (s)				24.8	24.8	24.8	46.8	46.8			46.8	46.8
Effective Green, g (s)				24.8	24.8	24.8	46.8	46.8			46.8	46.8
Actuated g/C Ratio				0.31	0.31	0.31	0.58	0.58			0.58	0.58
Clearance Time (s)				4.2	4.2	4.2	4.2	4.2			4.2	4.2
Vehicle Extension (s)				3.0	3.0	3.0	5.0	5.0			5.0	5.0
Lane Grp Cap (vph)				549	578	491	142	2070			2070	926
v/s Ratio Prot				0.05	c0.33			0.40			0.38	
v/s Ratio Perm						0.05	c0.73					0.11
v/c Ratio				0.17	1.07	0.17	1.25	0.68			0.64	0.18
Uniform Delay, d1				20.1	27.6	20.1	16.6	11.5			11.1	7.7
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.1	56.7	0.2	156.4	1.2			1.0	0.2
Delay (s)				20.2	84.3	20.3	173.0	12.7			12.0	7.9
Level of Service				C	F	C	F	B			B	A
Approach Delay (s)		0.0			69.0			30.5			11.5	
Approach LOS		A			E			C			B	

Intersection Summary			
HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	156	44	118	210	81	47	298	26	90	1054	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3497		1770	3490	
Flt Permitted	0.58	1.00	1.00	0.65	1.00	1.00	0.13	1.00		0.54	1.00	
Satd. Flow (perm)	1083	1863	1583	1210	1863	1583	247	3497		1008	3490	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	170	48	128	228	88	51	324	28	98	1146	116
RTOR Reduction (vph)	0	0	32	0	0	59	0	11	0	0	13	0
Lane Group Flow (vph)	40	170	16	128	228	29	51	341	0	98	1249	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	19.0	19.0	19.0	19.0	19.0	19.0	30.3	30.3		30.3	30.3	
Effective Green, g (s)	19.0	19.0	19.0	19.0	19.0	19.0	30.3	30.3		30.3	30.3	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.52	0.52		0.52	0.52	
Clearance Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	354	609	518	396	609	518	129	1824		526	1820	
v/s Ratio Prot		0.09			c0.12			0.10			c0.36	
v/s Ratio Perm	0.04		0.01	0.11		0.02	0.21			0.10		
v/c Ratio	0.11	0.28	0.03	0.32	0.37	0.06	0.40	0.19		0.19	0.69	
Uniform Delay, d1	13.7	14.5	13.3	14.7	15.0	13.4	8.4	7.4		7.4	10.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.2	0.1	0.0	0.7	0.0		0.1	0.9	
Delay (s)	13.7	14.6	13.3	14.9	15.1	13.4	9.1	7.4		7.4	11.2	
Level of Service	B	B	B	B	B	B	A	A		A	B	
Approach Delay (s)		14.2			14.7			7.6			11.0	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	8.8
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	113	421	166	243	370	103	125	986	247	65	995	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3433		1770	3514	
Flt Permitted	0.39	1.00	1.00	0.33	1.00	1.00	0.14	1.00		0.13	1.00	
Satd. Flow (perm)	734	1863	1583	623	1863	1583	262	3433		248	3514	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	458	180	264	402	112	136	1072	268	71	1082	53
RTOR Reduction (vph)	0	0	28	0	0	29	0	34	0	0	5	0
Lane Group Flow (vph)	123	458	152	264	402	83	136	1306	0	71	1130	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	26.2	26.2	26.2	26.2	26.2	26.2	30.0	30.0		30.0	30.0	
Effective Green, g (s)	26.2	26.2	26.2	26.2	26.2	26.2	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.46	0.46		0.46	0.46	
Clearance Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	296	751	638	251	751	638	121	1584		114	1622	
v/s Ratio Prot		0.25			0.22			0.38			0.32	
v/s Ratio Perm	0.17		0.10	c0.42		0.05	c0.52			0.29		
v/c Ratio	0.42	0.61	0.24	1.05	0.54	0.13	1.12	0.82		0.62	0.70	
Uniform Delay, d1	13.9	15.4	12.8	19.4	14.8	12.2	17.5	15.2		13.2	13.9	
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	0.3	1.0	0.1	71.1	0.4	0.0	119.0	3.5		7.4	1.1	
Delay (s)	14.3	16.3	12.9	90.5	15.1	12.3	136.5	18.7		20.6	15.0	
Level of Service	B	B	B	F	B	B	F	B		C	B	
Approach Delay (s)		15.2			40.3			29.5			15.3	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	205	38	0	0	0	21	307	74	307	1217	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6				4.6	4.6		4.6	4.6	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	0.97		1.00	0.98	
Flt Protected		0.99	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1848	1583				1770	3437		1770	3478	
Flt Permitted		0.99	1.00				0.13	1.00		0.51	1.00	
Satd. Flow (perm)		1848	1583				234	3437		949	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	223	41	0	0	0	23	334	80	334	1323	174
RTOR Reduction (vph)	0	0	17	0	0	0	0	21	0	0	10	0
Lane Group Flow (vph)	0	265	24	0	0	0	23	393	0	334	1487	0
Turn Type	Split		Perm				Perm			Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)		10.5	10.5				31.9	31.9		31.9	31.9	
Effective Green, g (s)		10.5	10.5				31.9	31.9		31.9	31.9	
Actuated g/C Ratio		0.20	0.20				0.62	0.62		0.62	0.62	
Clearance Time (s)		4.6	4.6				4.6	4.6		4.6	4.6	
Vehicle Extension (s)		0.2	0.2				4.1	4.1		4.1	4.1	
Lane Grp Cap (vph)		376	322				145	2125		587	2150	
v/s Ratio Prot		c0.14						0.11			c0.43	
v/s Ratio Perm			0.02				0.10			0.35		
v/c Ratio		0.70	0.08				0.16	0.18		0.57	0.69	
Uniform Delay, d1		19.1	16.6				4.2	4.2		5.8	6.6	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.9	0.0				0.7	0.1		1.6	1.1	
Delay (s)		24.0	16.7				4.9	4.3		7.4	7.6	
Level of Service		C	B				A	A		A	A	
Approach Delay (s)		23.0			0.0			4.3			7.6	
Approach LOS		C			A			A			A	

Intersection Summary

HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	9.2
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	254	486	59	0	0	0	30	965	85	304	999	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6				4.6	4.6		4.6	4.6	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	0.99		1.00	0.98	
Flt Protected		0.98	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831	1583				1770	3496		1770	3457	
Flt Permitted		0.98	1.00				0.13	1.00		0.17	1.00	
Satd. Flow (perm)		1831	1583				248	3496		322	3457	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	276	528	64	0	0	0	33	1049	92	330	1086	198
RTOR Reduction (vph)	0	0	9	0	0	0	0	7	0	0	15	0
Lane Group Flow (vph)	0	804	55	0	0	0	33	1134	0	330	1269	0
Turn Type	Split		Perm				Perm			Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)		34.4	34.4				56.4	56.4		56.4	56.4	
Effective Green, g (s)		34.4	34.4				56.4	56.4		56.4	56.4	
Actuated g/C Ratio		0.34	0.34				0.56	0.56		0.56	0.56	
Clearance Time (s)		4.6	4.6				4.6	4.6		4.6	4.6	
Vehicle Extension (s)		0.2	0.2				4.1	4.1		4.1	4.1	
Lane Grp Cap (vph)		630	545				140	1972		182	1950	
v/s Ratio Prot		c0.44						0.32			0.37	
v/s Ratio Perm			0.04				0.13			c1.02		
v/c Ratio		1.28	0.10				0.24	0.58		1.81	0.65	
Uniform Delay, d1		32.8	22.3				11.0	14.1		21.8	15.0	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		136.3	0.0				1.2	0.5		386.8	0.9	
Delay (s)		169.1	22.3				12.2	14.6		408.6	15.9	
Level of Service		F	C				B	B		F	B	
Approach Delay (s)		158.3			0.0			14.5			96.2	
Approach LOS		F			A			B			F	

Intersection Summary			
HCM Average Control Delay	84.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	0	903	0	337	623	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.1		4.1	4.6	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		2787		3539	3539	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		2787		3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	982	0	366	677	0
RTOR Reduction (vph)	0	541	0	0	0	0
Lane Group Flow (vph)	0	441	0	366	677	0
Turn Type		custom				
Protected Phases				6	4	
Permitted Phases		7				
Actuated Green, G (s)		15.4		10.7	14.9	
Effective Green, g (s)		15.4		10.7	14.9	
Actuated g/C Ratio		0.45		0.31	0.43	
Clearance Time (s)		4.1		4.1	4.6	
Vehicle Extension (s)		1.2		3.0	4.0	
Lane Grp Cap (vph)		1251		1104	1537	
v/s Ratio Prot				c0.10	c0.19	
v/s Ratio Perm		0.16				
v/c Ratio		0.35		0.33	0.44	
Uniform Delay, d1		6.2		9.1	6.8	
Progression Factor		1.00		1.00	1.00	
Incremental Delay, d2		0.1		0.2	0.3	
Delay (s)		6.2		9.2	7.1	
Level of Service		A		A	A	
Approach Delay (s)	6.2			9.2	7.1	
Approach LOS	A			A	A	

Intersection Summary

HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	8.7
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	0	1123	0	1244	467	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.1		4.1	4.6	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		2787		3539	3539	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		2787		3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1221	0	1352	508	0
RTOR Reduction (vph)	0	840	0	0	0	0
Lane Group Flow (vph)	0	381	0	1352	508	0
Turn Type		custom				
Protected Phases				6	4	
Permitted Phases		7				
Actuated Green, G (s)		14.1		22.9	13.6	
Effective Green, g (s)		14.1		22.9	13.6	
Actuated g/C Ratio		0.31		0.51	0.30	
Clearance Time (s)		4.1		4.1	4.6	
Vehicle Extension (s)		1.2		3.0	4.0	
Lane Grp Cap (vph)		869		1793	1065	
v/s Ratio Prot				c0.38	c0.14	
v/s Ratio Perm		0.14				
v/c Ratio		0.44		0.75	0.48	
Uniform Delay, d1		12.4		8.9	12.9	
Progression Factor		1.00		1.00	1.00	
Incremental Delay, d2		0.1		1.8	0.5	
Delay (s)		12.5		10.7	13.4	
Level of Service		B		B	B	
Approach Delay (s)	12.5			10.7	13.4	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	45.2	Sum of lost time (s)	8.7
Intersection Capacity Utilization	59.4%	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)	0	603	9	0	530	0	0	0	0	434	920	819
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.0			4.0					4.0	4.0	4.0
Lane Util. Factor		0.95			0.95					0.91	0.91	1.00
Frt		1.00			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	1.00	1.00
Satd. Flow (prot)		3531			3539					1610	3383	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3531			3539					1610	3383	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	655	10	0	576	0	0	0	0	472	1000	890
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	664	0	0	576	0	0	0	0	425	1047	866
Turn Type										Perm		Perm
Protected Phases		4			8						2	
Permitted Phases										2		2
Actuated Green, G (s)		14.9			14.9					35.9	35.9	35.9
Effective Green, g (s)		14.9			14.9					35.9	35.9	35.9
Actuated g/C Ratio		0.25			0.25					0.61	0.61	0.61
Clearance Time (s)		4.0			4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		895			897					983	2065	966
v/s Ratio Prot		c0.19			0.16							
v/s Ratio Perm										0.26	0.31	c0.55
v/c Ratio		0.74			0.64					0.43	0.51	0.90
Uniform Delay, d1		20.2			19.6					6.1	6.5	9.9
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		3.3			1.6					0.3	0.2	10.8
Delay (s)		23.5			21.2					6.4	6.7	20.7
Level of Service		C			C					A	A	C
Approach Delay (s)		23.5			21.2			0.0			11.9	
Approach LOS		C			C			A			B	

Intersection Summary

HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.0%	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)	0	1157	70	0	734	0	0	0	0	543	1084	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.0			4.0					4.0	4.0	4.0
Lane Util. Factor		0.95			0.95					0.91	0.91	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	1.00	1.00
Satd. Flow (prot)		3509			3539					1610	3382	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3509			3539					1610	3382	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1258	76	0	798	0	0	0	0	590	1178	728
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	35
Lane Group Flow (vph)	0	1327	0	0	798	0	0	0	0	531	1237	693
Turn Type										Perm		Perm
Protected Phases		4			8						2	
Permitted Phases										2		2
Actuated Green, G (s)		25.0			25.0					32.0	32.0	32.0
Effective Green, g (s)		25.0			25.0					32.0	32.0	32.0
Actuated g/C Ratio		0.38			0.38					0.49	0.49	0.49
Clearance Time (s)		4.0			4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1350			1361					793	1665	779
v/s Ratio Prot		c0.38			0.23							
v/s Ratio Perm										0.33	0.37	c0.44
v/c Ratio		0.98			0.59					0.67	0.74	0.89
Uniform Delay, d1		19.8			15.9					12.5	13.2	14.9
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		20.4			0.7					2.2	1.8	12.4
Delay (s)		40.2			16.5					14.7	15.0	27.3
Level of Service		D			B					B	B	C
Approach Delay (s)		40.2			16.5			0.0			18.5	
Approach LOS		D			B			A			B	

Intersection Summary

HCM Average Control Delay	24.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑	↰	↱
Volume (vph)	133	248	0	413	212	473
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.1	4.1		4.1	4.1	4.1
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3539	1583		3539	1770	1583
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3539	1583		3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	270	0	449	230	514
RTOR Reduction (vph)	0	174	0	0	0	254
Lane Group Flow (vph)	145	96	0	449	230	260
Turn Type		Perm				Perm
Protected Phases	6			6	8	
Permitted Phases		6				8
Actuated Green, G (s)	20.8	20.8		20.8	29.7	29.7
Effective Green, g (s)	20.8	20.8		20.8	29.7	29.7
Actuated g/C Ratio	0.35	0.35		0.35	0.51	0.51
Clearance Time (s)	4.1	4.1		4.1	4.1	4.1
Vehicle Extension (s)	3.0	3.0		3.0	0.2	0.2
Lane Grp Cap (vph)	1254	561		1254	896	801
v/s Ratio Prot	0.04			c0.13	0.13	
v/s Ratio Perm		0.06				c0.16
v/c Ratio	0.12	0.17		0.36	0.26	0.32
Uniform Delay, d1	12.8	13.0		14.0	8.2	8.6
Progression Factor	1.00	1.00		0.61	1.00	1.00
Incremental Delay, d2	0.0	0.1		0.1	0.1	0.1
Delay (s)	12.8	13.2		8.8	8.3	8.7
Level of Service	B	B		A	A	A
Approach Delay (s)	13.0			8.8	8.5	
Approach LOS	B			A	A	

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	8.2
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑	↰	↱
Volume (vph)	611	730	0	341	197	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.1	4.1		4.1	4.1	4.1
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3539	1583		3539	1770	1583
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3539	1583		3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	664	793	0	371	214	593
RTOR Reduction (vph)	0	529	0	0	0	33
Lane Group Flow (vph)	664	264	0	371	214	560
Turn Type		Perm				Perm
Protected Phases	6			6	8	
Permitted Phases		6				8
Actuated Green, G (s)	26.6	26.6		26.6	45.2	45.2
Effective Green, g (s)	26.6	26.6		26.6	45.2	45.2
Actuated g/C Ratio	0.33	0.33		0.33	0.57	0.57
Clearance Time (s)	4.1	4.1		4.1	4.1	4.1
Vehicle Extension (s)	3.0	3.0		3.0	0.2	0.2
Lane Grp Cap (vph)	1177	526		1177	1000	894
v/s Ratio Prot	c0.19			0.10	0.12	
v/s Ratio Perm		0.17				c0.35
v/c Ratio	0.56	0.50		0.32	0.21	0.63
Uniform Delay, d1	21.9	21.4		19.9	8.6	11.7
Progression Factor	1.00	1.00		0.62	1.00	1.00
Incremental Delay, d2	0.6	0.8		0.1	0.0	1.0
Delay (s)	22.6	22.1		12.5	8.6	12.7
Level of Service	C	C		B	A	B
Approach Delay (s)	22.3			12.5	11.6	
Approach LOS	C			B	B	

Intersection Summary

HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.2
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	394	533	501	531	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.1	4.1	4.1		
Lane Util. Factor	0.97	0.95	0.95	1.00		
Frt	1.00	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	1.00		
Satd. Flow (prot)	3776	3893	3893	1742		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	3776	3893	3893	1742		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	579	545	577	0	0
RTOR Reduction (vph)	0	0	0	403	0	0
Lane Group Flow (vph)	428	579	545	174	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	8.3	29.7	17.7	17.7		
Effective Green, g (s)	8.3	29.7	17.7	17.7		
Actuated g/C Ratio	0.14	0.51	0.30	0.30		
Clearance Time (s)	3.7	4.1	4.1	4.1		
Vehicle Extension (s)	8.0	0.2	4.1	4.1		
Lane Grp Cap (vph)	534	1970	1174	525		
v/s Ratio Prot	c0.11	0.15	c0.14			
v/s Ratio Perm				0.10		
v/c Ratio	0.80	0.29	0.46	0.33		
Uniform Delay, d1	24.4	8.4	16.6	15.9		
Progression Factor	1.00	1.00	1.15	2.37		
Incremental Delay, d2	10.9	0.0	0.4	0.5		
Delay (s)	35.3	8.4	19.6	38.2		
Level of Service	D	A	B	D		
Approach Delay (s)		19.9	29.2		0.0	
Approach LOS		B	C		A	

Intersection Summary

HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	32.7
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	981	757	704	520	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.1	4.1	4.1		
Lane Util. Factor	0.97	0.95	0.95	1.00		
Frt	1.00	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	1.00		
Satd. Flow (prot)	3776	3893	3893	1742		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	3776	3893	3893	1742		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1066	823	765	565	0	0
RTOR Reduction (vph)	0	0	0	431	0	0
Lane Group Flow (vph)	1066	823	765	134	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	22.5	45.2	19.0	19.0		
Effective Green, g (s)	22.5	45.2	19.0	19.0		
Actuated g/C Ratio	0.28	0.57	0.24	0.24		
Clearance Time (s)	3.7	4.1	4.1	4.1		
Vehicle Extension (s)	8.0	0.2	4.1	4.1		
Lane Grp Cap (vph)	1062	2200	925	414		
v/s Ratio Prot	c0.28	0.21	c0.20			
v/s Ratio Perm				0.08		
v/c Ratio	1.00	0.37	0.83	0.32		
Uniform Delay, d1	28.8	9.6	28.9	25.2		
Progression Factor	1.00	1.00	1.15	2.50		
Incremental Delay, d2	28.5	0.0	5.5	0.6		
Delay (s)	57.3	9.6	38.7	63.6		
Level of Service	E	A	D	E		
Approach Delay (s)		36.5	49.3		0.0	
Approach LOS		D	D		A	

Intersection Summary			
HCM Average Control Delay	41.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	38.5
Intersection Capacity Utilization	71.4%	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)	347	596	88	93	712	164	388	274	27	275	410	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6	4.6	4.0	4.9		4.0	4.6	4.6	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3440		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3440		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	377	648	96	101	774	178	422	298	29	299	446	305
RTOR Reduction (vph)	0	0	46	0	20	0	0	0	22	0	0	156
Lane Group Flow (vph)	377	648	50	101	932	0	422	298	7	299	446	149
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8						6			2
Actuated Green, G (s)	9.0	33.3	33.3	5.7	29.7		10.0	21.4	21.4	11.6	22.7	22.7
Effective Green, g (s)	9.0	33.3	33.3	5.7	29.7		10.0	21.4	21.4	11.6	22.7	22.7
Actuated g/C Ratio	0.10	0.37	0.37	0.06	0.33		0.11	0.24	0.24	0.13	0.25	0.25
Clearance Time (s)	4.0	4.6	4.6	4.0	4.9		4.0	4.6	4.6	4.0	4.9	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.2		2.0	5.0	5.0	2.0	5.2	5.2
Lane Grp Cap (vph)	346	1321	591	219	1145		385	849	380	446	901	403
v/s Ratio Prot	c0.11	c0.18		0.03	c0.27		c0.12	0.08		0.09	c0.13	
v/s Ratio Perm			0.03						0.00			0.09
v/c Ratio	1.09	0.49	0.09	0.46	0.81		1.10	0.35	0.02	0.67	0.50	0.37
Uniform Delay, d1	40.1	21.4	18.1	40.3	27.2		39.6	28.1	25.9	37.0	28.4	27.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	74.5	0.6	0.1	0.6	5.2		74.3	0.5	0.0	3.1	1.0	1.3
Delay (s)	114.6	22.0	18.2	40.8	32.4		113.9	28.7	25.9	40.1	29.3	28.7
Level of Service	F	C	B	D	C		F	C	C	D	C	C
Approach Delay (s)		52.9			33.2			76.6			32.2	
Approach LOS		D			C			E			C	

Intersection Summary

HCM Average Control Delay	46.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	17.5
Intersection Capacity Utilization	72.0%	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)	566	853	174	138	701	182	359	765	48	451	789	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6	4.6	4.0	4.9		4.0	4.6	4.6	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3430		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3430		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	615	927	189	150	762	198	390	832	52	490	858	189
RTOR Reduction (vph)	0	0	61	0	22	0	0	0	19	0	0	100
Lane Group Flow (vph)	615	927	128	150	938	0	390	832	33	490	858	89
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8						6			2
Actuated Green, G (s)	18.0	39.1	39.1	8.2	29.0		12.0	25.5	25.5	15.0	28.2	28.2
Effective Green, g (s)	18.0	39.1	39.1	8.2	29.0		12.0	25.5	25.5	15.0	28.2	28.2
Actuated g/C Ratio	0.17	0.37	0.37	0.08	0.28		0.11	0.24	0.24	0.14	0.27	0.27
Clearance Time (s)	4.0	4.6	4.6	4.0	4.9		4.0	4.6	4.6	4.0	4.9	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.2		2.0	5.0	5.0	2.0	5.2	5.2
Lane Grp Cap (vph)	589	1318	589	268	947		392	859	384	490	950	425
v/s Ratio Prot	c0.18	0.26		0.04	c0.27		0.11	0.24		c0.14	c0.24	
v/s Ratio Perm			0.08						0.02			0.06
v/c Ratio	1.04	0.70	0.22	0.56	0.99		0.99	0.97	0.09	1.00	0.90	0.21
Uniform Delay, d1	43.5	28.0	22.5	46.7	37.9		46.5	39.4	30.7	45.0	37.1	29.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	49.1	2.2	0.4	1.4	26.8		43.8	23.4	0.2	40.7	12.5	0.5
Delay (s)	92.6	30.2	22.9	48.1	64.7		90.3	62.7	30.9	85.7	49.6	30.3
Level of Service	F	C	C	D	E		F	E	C	F	D	C
Approach Delay (s)		51.6			62.4			69.9			58.7	
Approach LOS		D			E			E			E	

Intersection Summary

HCM Average Control Delay	59.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	42	498	122	194	225	270	8	106	9	183	64	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91			0.95			1.00			1.00	
Frt	1.00	0.97			0.94			0.99			0.93	
Flt Protected	0.95	1.00			0.99			1.00			0.98	
Satd. Flow (prot)	1770	4935			3285			1838			1704	
Flt Permitted	0.32	1.00			0.64			0.96			0.84	
Satd. Flow (perm)	592	4935			2140			1777			1464	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	541	133	211	245	293	9	115	10	199	70	278
RTOR Reduction (vph)	0	68	0	0	149	0	0	5	0	0	61	0
Lane Group Flow (vph)	46	606	0	0	600	0	0	129	0	0	486	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	29.0	29.0			29.0			21.0			21.0	
Effective Green, g (s)	29.0	29.0			29.0			21.0			21.0	
Actuated g/C Ratio	0.49	0.49			0.49			0.36			0.36	
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	
Vehicle Extension (s)	0.2	0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)	291	2426			1052			632			521	
v/s Ratio Prot		0.12										
v/s Ratio Perm	0.08				c0.28			0.07			c0.33	
v/c Ratio	0.16	0.25			0.57			0.20			0.93	
Uniform Delay, d1	8.3	8.7			10.6			13.2			18.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.0			0.5			0.1			23.5	
Delay (s)	8.4	8.7			11.1			13.3			41.8	
Level of Service	A	A			B			B			D	
Approach Delay (s)		8.7			11.1			13.3			41.8	
Approach LOS		A			B			B			D	

Intersection Summary

HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	148	313	52	235	450	462	121	147	33	84	8	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91			0.95			1.00			1.00	
Frt	1.00	0.98			0.94			0.99			0.92	
Flt Protected	0.95	1.00			0.99			0.98			0.98	
Satd. Flow (prot)	1770	4976			3292			1799			1687	
Flt Permitted	0.13	1.00			0.76			0.78			0.77	
Satd. Flow (perm)	248	4976			2534			1439			1328	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	161	340	57	255	489	502	132	160	36	91	9	132
RTOR Reduction (vph)	0	29	0	0	196	0	0	7	0	0	79	0
Lane Group Flow (vph)	161	369	0	0	1051	0	0	321	0	0	153	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	30.0	30.0			30.0			21.0			21.0	
Effective Green, g (s)	30.0	30.0			30.0			21.0			21.0	
Actuated g/C Ratio	0.50	0.50			0.50			0.35			0.35	
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	
Vehicle Extension (s)	0.2	0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)	124	2488			1267			504			465	
v/s Ratio Prot		0.07										
v/s Ratio Perm	c0.65				0.41			c0.22			0.11	
v/c Ratio	1.30	0.15			0.83			0.64			0.33	
Uniform Delay, d1	15.0	8.1			12.8			16.3			14.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	181.1	0.0			4.4			1.9			0.2	
Delay (s)	196.1	8.1			17.2			18.3			14.5	
Level of Service	F	A			B			B			B	
Approach Delay (s)		62.4			17.2			18.3			14.5	
Approach LOS		E			B			B			B	

Intersection Summary

HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	128	21	49	40	25	39	83	1210	31	93	910	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2	4.2	4.0	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1693		1770	3526		1770	3474	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.21	1.00		0.15	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1693		383	3526		273	3474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	23	53	43	27	42	90	1315	34	101	989	138
RTOR Reduction (vph)	0	0	46	0	38	0	0	1	0	0	10	0
Lane Group Flow (vph)	139	23	7	43	31	0	90	1348	0	101	1117	0
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	8.1	10.4	10.4	4.1	6.4		48.3	48.3		48.3	48.3	
Effective Green, g (s)	8.1	10.4	10.4	4.1	6.4		48.3	48.3		48.3	48.3	
Actuated g/C Ratio	0.11	0.14	0.14	0.05	0.09		0.64	0.64		0.64	0.64	
Clearance Time (s)	4.0	4.2	4.2	4.0	4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	191	258	219	97	144		246	2265		175	2231	
v/s Ratio Prot	c0.08	c0.01		0.02	c0.02			c0.38			0.32	
v/s Ratio Perm			0.00				0.24			0.37		
v/c Ratio	0.73	0.09	0.03	0.44	0.21		0.37	0.59		0.58	0.50	
Uniform Delay, d1	32.5	28.3	28.0	34.4	32.1		6.3	7.8		7.6	7.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.1	0.1	0.0	1.2	0.3		2.6	0.8		8.9	0.5	
Delay (s)	43.6	28.3	28.1	35.6	32.3		8.9	8.6		16.5	7.6	
Level of Service	D	C	C	D	C		A	A		B	A	
Approach Delay (s)		38.1			33.6			8.6			8.3	
Approach LOS		D			C			A			A	

Intersection Summary

HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	16.6
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	253	99	338	379	189	77	158	1205	50	104	1321	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2	4.2	4.0	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1782		1770	3518		1770	3472	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.07	1.00		0.10	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1782		125	3518		190	3472	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	275	108	367	412	205	84	172	1310	54	113	1436	207
RTOR Reduction (vph)	0	0	23	0	13	0	0	3	0	0	10	0
Lane Group Flow (vph)	275	108	344	412	276	0	172	1361	0	113	1633	0
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	15.0	21.8	21.8	16.0	22.8		59.8	59.8		59.8	59.8	
Effective Green, g (s)	15.0	21.8	21.8	16.0	22.8		59.8	59.8		59.8	59.8	
Actuated g/C Ratio	0.14	0.20	0.20	0.15	0.21		0.54	0.54		0.54	0.54	
Clearance Time (s)	4.0	4.2	4.2	4.0	4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	241	369	314	257	369		68	1913		103	1888	
v/s Ratio Prot	0.16	0.06		c0.23	0.15			0.39			0.47	
v/s Ratio Perm			c0.22				c1.38			0.59		
v/c Ratio	1.14	0.29	1.09	1.60	0.75		2.53	0.71		1.10	0.86	
Uniform Delay, d1	47.5	37.5	44.1	47.0	40.9		25.1	18.7		25.1	21.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	101.3	0.2	78.6	288.9	7.0		729.5	1.8		117.3	5.0	
Delay (s)	148.8	37.7	122.7	335.9	47.9		754.6	20.5		142.4	26.6	
Level of Service	F	D	F	F	D		F	C		F	C	
Approach Delay (s)		120.0			217.2			102.7			34.1	
Approach LOS		F			F			F			C	

Intersection Summary

HCM Average Control Delay	97.0	HCM Level of Service	F
HCM Volume to Capacity ratio	2.06		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	630	485	409	0	0	0	0	863	458	261	639	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.7	4.7	4.7					5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3355		1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3355		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	685	527	445	0	0	0	0	938	498	284	695	0
RTOR Reduction (vph)	0	0	147	0	0	0	0	63	0	0	0	0
Lane Group Flow (vph)	685	527	298	0	0	0	0	1373	0	284	695	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	37.3	37.3	37.3					41.8		15.8	62.8	
Effective Green, g (s)	37.3	37.3	37.3					41.8		15.8	62.8	
Actuated g/C Ratio	0.34	0.34	0.34					0.38		0.14	0.57	
Clearance Time (s)	4.7	4.7	4.7					5.2		5.2	5.2	
Vehicle Extension (s)	6.2	6.2	6.2					0.2		2.0	0.2	
Lane Grp Cap (vph)	600	632	537					1275		254	2020	
v/s Ratio Prot	c0.39	0.28						c0.41		c0.16	0.20	
v/s Ratio Perm			0.19									
v/c Ratio	1.14	0.83	0.56					1.08		1.12	0.34	
Uniform Delay, d1	36.4	33.5	29.6					34.1		47.1	12.6	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	82.4	10.8	2.8					48.6		91.9	0.0	
Delay (s)	118.8	44.3	32.4					82.7		139.0	12.6	
Level of Service	F	D	C					F		F	B	
Approach Delay (s)		71.9			0.0			82.7			49.3	
Approach LOS		E			A			F			D	

Intersection Summary			
HCM Average Control Delay	70.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	247	721	790	0	0	0	0	1003	479	390	741	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.7	4.7	4.7					5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3368		1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3368		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	784	859	0	0	0	0	1090	521	424	805	0
RTOR Reduction (vph)	0	0	124	0	0	0	0	30	0	0	0	0
Lane Group Flow (vph)	268	784	735	0	0	0	0	1581	0	424	805	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	50.3	50.3	50.3					56.8		27.8	89.8	
Effective Green, g (s)	50.3	50.3	50.3					56.8		27.8	89.8	
Actuated g/C Ratio	0.34	0.34	0.34					0.38		0.19	0.60	
Clearance Time (s)	4.7	4.7	4.7					5.2		5.2	5.2	
Vehicle Extension (s)	6.2	6.2	6.2					0.2		2.0	0.2	
Lane Grp Cap (vph)	594	625	531					1275		328	2119	
v/s Ratio Prot	0.15	0.42						c0.47		c0.24	0.23	
v/s Ratio Perm			c0.46									
v/c Ratio	0.45	1.25	1.38					1.24		1.29	0.38	
Uniform Delay, d1	39.0	49.9	49.9					46.6		61.1	15.6	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	1.6	127.3	184.1					114.7		152.6	0.0	
Delay (s)	40.7	177.1	233.9					161.3		213.7	15.7	
Level of Service	D	F	F					F		F	B	
Approach Delay (s)		183.5			0.0			161.3			84.0	
Approach LOS		F			A			F			F	

Intersection Summary

HCM Average Control Delay	150.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	135.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	352	517	443	643	857	0	0	539	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3469	1583	1770	3539			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3469	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	383	562	482	699	932	0	0	586	261
RTOR Reduction (vph)	0	0	0	0	0	103	0	0	0	0	0	72
Lane Group Flow (vph)	0	0	0	0	945	379	699	932	0	0	586	189
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					32.0	32.0	41.3	65.0			20.0	20.0
Effective Green, g (s)					32.0	32.0	41.3	65.0			20.0	20.0
Actuated g/C Ratio					0.30	0.30	0.38	0.60			0.19	0.19
Clearance Time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Vehicle Extension (s)					5.0	5.0	2.0	0.2			0.2	0.2
Lane Grp Cap (vph)					1032	471	679	2138			658	294
v/s Ratio Prot					c0.27		c0.40	0.26			c0.17	
v/s Ratio Perm						0.24						0.12
v/c Ratio					0.92	0.80	1.03	0.44			0.89	0.64
Uniform Delay, d1					36.5	34.9	33.1	11.4			42.7	40.5
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					12.9	10.9	42.3	0.1			13.9	3.6
Delay (s)					49.4	45.8	75.4	11.5			56.7	44.1
Level of Service					D	D	E	B			E	D
Approach Delay (s)		0.0			48.2			38.9			52.8	
Approach LOS		A			D			D			D	

Intersection Summary

HCM Average Control Delay	45.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	14.3
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	335	511	609	647	594	0	0	786	1028
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3470	1583	1770	3539			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3470	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	364	555	662	703	646	0	0	854	1117
RTOR Reduction (vph)	0	0	0	0	0	253	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	0	0	919	409	703	646	0	0	854	1099
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					34.6	34.6	36.3	104.8			64.8	64.8
Effective Green, g (s)					34.6	34.6	36.3	104.8			64.8	64.8
Actuated g/C Ratio					0.23	0.23	0.24	0.70			0.43	0.43
Clearance Time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Vehicle Extension (s)					5.0	5.0	2.0	0.2			0.2	0.2
Lane Grp Cap (vph)					800	365	428	2473			1529	684
v/s Ratio Prot					c0.26		c0.40	0.18			0.24	
v/s Ratio Perm						0.26						c0.69
v/c Ratio					1.15	1.12	1.64	0.26			0.56	1.61
Uniform Delay, d1					57.7	57.7	56.9	8.3			31.9	42.6
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					81.3	83.8	299.5	0.0			0.3	279.7
Delay (s)					139.0	141.5	356.4	8.4			32.1	322.3
Level of Service					F	F	F	A			C	F
Approach Delay (s)		0.0			140.0			189.7			196.6	
Approach LOS		A			F			F			F	

Intersection Summary

HCM Average Control Delay	176.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	135.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
40: H St & Fresno

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	263	351	993	178	250	120	69	902	346	21	503	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	2049	1742	1947	3704		1947	3731		1947	3871	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.38	1.00		0.17	1.00	
Satd. Flow (perm)	1947	2049	1742	1947	3704		776	3731		340	3871	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	286	382	1079	193	272	130	75	980	376	23	547	22
RTOR Reduction (vph)	0	0	0	0	47	0	0	59	0	0	4	0
Lane Group Flow (vph)	286	382	1079	193	355	0	75	1297	0	23	565	0
Turn Type	Prot		Free	Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases			Free				4			8		
Actuated Green, G (s)	11.5	15.7	60.5	8.7	12.9		24.1	24.1		24.1	24.1	
Effective Green, g (s)	11.5	15.7	60.5	8.7	12.9		24.1	24.1		24.1	24.1	
Actuated g/C Ratio	0.19	0.26	1.00	0.14	0.21		0.40	0.40		0.40	0.40	
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)	370	532	1742	280	790		309	1486		135	1542	
v/s Ratio Prot	c0.15	c0.19		0.10	0.10			c0.35			0.15	
v/s Ratio Perm			c0.62				0.10			0.07		
v/c Ratio	0.77	0.72	0.62	0.69	0.45		0.24	0.87		0.17	0.37	
Uniform Delay, d1	23.3	20.4	0.0	24.6	20.7		12.1	16.8		11.7	12.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.7	4.6	1.7	6.9	0.4		0.4	6.0		0.6	0.1	
Delay (s)	32.9	25.0	1.7	31.5	21.1		12.5	22.8		12.3	13.0	
Level of Service	C	C	A	C	C		B	C		B	B	
Approach Delay (s)		11.9			24.5			22.2			12.9	
Approach LOS		B			C			C			B	

Intersection Summary

HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	60.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
40: H St & Fresno

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	214	336	1444	284	461	224	143	608	253	20	1200	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.96		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	2049	1742	1947	3702		1947	3722		1947	3883	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.17	1.00		0.19	1.00	
Satd. Flow (perm)	1947	2049	1742	1947	3702		342	3722		387	3883	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	365	1570	309	501	243	155	661	275	22	1304	23
RTOR Reduction (vph)	0	0	0	0	89	0	0	75	0	0	2	0
Lane Group Flow (vph)	233	365	1570	309	655	0	155	861	0	22	1325	0
Turn Type	Prot		Free	Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases			Free				4			8		
Actuated Green, G (s)	8.0	14.9	58.9	8.0	14.9		24.0	24.0		24.0	24.0	
Effective Green, g (s)	8.0	14.9	58.9	8.0	14.9		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.14	0.25	1.00	0.14	0.25		0.41	0.41		0.41	0.41	
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)	264	518	1742	264	936		139	1517		158	1582	
v/s Ratio Prot	0.12	0.18		0.16	0.18			0.23			0.34	
v/s Ratio Perm			c0.90				c0.45			0.06		
v/c Ratio	0.88	0.70	0.90	1.17	0.70		1.12	0.57		0.14	0.84	
Uniform Delay, d1	25.0	20.0	0.0	25.4	20.0		17.4	13.5		11.0	15.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	27.3	4.3	8.0	109.5	2.3		110.6	0.5		0.4	4.1	
Delay (s)	52.3	24.3	8.0	135.0	22.3		128.0	13.9		11.4	19.7	
Level of Service	D	C	A	F	C		F	B		B	B	
Approach Delay (s)		15.5			55.3			30.2			19.6	
Approach LOS		B			E			C			B	

Intersection Summary

HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	4.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	57	23	19	14	1	3	173	72	994	82	196	511
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	12	12	12	12	12	12	12
Total Lost time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Lane Util. Factor	1.00	1.00			1.00	1.00			0.95		1.00	1.00
Frt	1.00	0.93			1.00	0.85			0.99		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00			1.00		0.95	1.00
Satd. Flow (prot)	1770	1735			1947	1588			3490		1770	1863
Flt Permitted	0.66	1.00			0.73	1.00			0.89		0.19	1.00
Satd. Flow (perm)	1221	1735			1490	1588			3115		353	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	25	21	15	1	3	188	78	1080	89	213	555
RTOR Reduction (vph)	0	0	0	0	0	27	0	0	5	0	0	0
Lane Group Flow (vph)	62	46	0	0	16	164	0	0	1242	0	213	555
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases		4				4			2			2
Permitted Phases	4			4	4			2			2	
Actuated Green, G (s)	6.1	6.1			6.1	6.1			27.2		27.2	27.2
Effective Green, g (s)	6.1	6.1			6.1	6.1			27.2		27.2	27.2
Actuated g/C Ratio	0.14	0.14			0.14	0.14			0.63		0.63	0.63
Clearance Time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Vehicle Extension (s)	0.2	0.2			0.2	0.2			0.2		0.2	0.2
Lane Grp Cap (vph)	174	247			212	226			1975		224	1181
v/s Ratio Prot		0.03				c0.10						0.30
v/s Ratio Perm	0.05				0.01				0.40		c0.60	
v/c Ratio	0.36	0.19			0.08	0.73			0.63		0.95	0.47
Uniform Delay, d1	16.6	16.2			16.0	17.6			4.8		7.2	4.1
Progression Factor	1.00	1.00			1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.5	0.1			0.1	9.5			0.5		46.0	0.1
Delay (s)	17.1	16.3			16.0	27.1			5.2		53.2	4.2
Level of Service	B	B			B	C			A		D	A
Approach Delay (s)		16.8				26.2			5.2			16.8
Approach LOS		B				C			A			B

Intersection Summary

HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	9.6
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Volume (vph)	5	47
Ideal Flow (vphpl)	1900	1900
Lane Width	15	12
Total Lost time (s)	4.8	
Lane Util. Factor	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1742	
Flt Permitted	1.00	
Satd. Flow (perm)	1742	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	5	51
RTOR Reduction (vph)	19	0
Lane Group Flow (vph)	37	0
Turn Type	Perm	
Protected Phases		
Permitted Phases	2	
Actuated Green, G (s)	27.2	
Effective Green, g (s)	27.2	
Actuated g/C Ratio	0.63	
Clearance Time (s)	4.8	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	1104	
v/s Ratio Prot		
v/s Ratio Perm	0.02	
v/c Ratio	0.03	
Uniform Delay, d1	2.9	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	2.9	
Level of Service	A	
Approach Delay (s)		
Approach LOS		

Intersection Summary

Movement	SEL	SET	SER	NWL2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	69	8	63	117	4	90	421	80	825	39	208	1020
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	12	12	12	12	12	12	12
Total Lost time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Lane Util. Factor	1.00	1.00			1.00	1.00			0.95		1.00	1.00
Frt	1.00	0.87			1.00	0.88			0.99		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00			1.00		0.95	1.00
Satd. Flow (prot)	1770	1616			1947	1633			3503		1770	1863
Flt Permitted	0.15	1.00			0.71	1.00			0.52		0.22	1.00
Satd. Flow (perm)	282	1616			1448	1633			1825		413	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	9	68	127	4	98	458	87	897	42	226	1109
RTOR Reduction (vph)	0	0	0	0	0	97	0	0	3	0	0	0
Lane Group Flow (vph)	75	77	0	0	131	459	0	0	1023	0	226	1109
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases		4				4			2			2
Permitted Phases	4			4	4			2			2	
Actuated Green, G (s)	26.4	26.4			26.4	26.4			51.7		51.7	51.7
Effective Green, g (s)	26.4	26.4			26.4	26.4			51.7		51.7	51.7
Actuated g/C Ratio	0.30	0.30			0.30	0.30			0.59		0.59	0.59
Clearance Time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Vehicle Extension (s)	0.2	0.2			0.2	0.2			0.2		0.2	0.2
Lane Grp Cap (vph)	85	486			436	492			1076		243	1098
v/s Ratio Prot		0.05				c0.28						c0.60
v/s Ratio Perm	0.27				0.09				0.56		0.55	
v/c Ratio	0.88	0.16			0.30	0.93			1.00dl		0.93	1.01
Uniform Delay, d1	29.2	22.5			23.6	29.8			16.8		16.4	18.0
Progression Factor	1.00	1.00			1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	58.9	0.1			0.1	24.5			16.7		38.6	29.6
Delay (s)	88.1	22.6			23.7	54.3			33.5		55.0	47.6
Level of Service	F	C			C	D			C		D	D
Approach Delay (s)		54.9				48.4			33.5			37.4
Approach LOS		D				D			C			D

Intersection Summary

HCM Average Control Delay	39.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	9.6
Intersection Capacity Utilization	130.6%	ICU Level of Service	H
Analysis Period (min)	15		

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

Movement	SWR	SWR2
Lane Configurations		
Volume (vph)	37	467
Ideal Flow (vphpl)	1900	1900
Lane Width	15	12
Total Lost time (s)	4.8	
Lane Util. Factor	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1742	
Flt Permitted	1.00	
Satd. Flow (perm)	1742	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	40	508
RTOR Reduction (vph)	209	0
Lane Group Flow (vph)	339	0
Turn Type	Perm	
Protected Phases		
Permitted Phases	2	
Actuated Green, G (s)	51.7	
Effective Green, g (s)	51.7	
Actuated g/C Ratio	0.59	
Clearance Time (s)	4.8	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	1027	
v/s Ratio Prot		
v/s Ratio Perm	0.19	
v/c Ratio	0.33	
Uniform Delay, d1	9.2	
Progression Factor	1.00	
Incremental Delay, d2	0.1	
Delay (s)	9.2	
Level of Service	A	
Approach Delay (s)		
Approach LOS		

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	214	156	235	144	265	204	173	611	354	64	459	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1695		1770	3308		1770	3344		1770	3427	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1695		1770	3308		1770	3344		1770	3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	170	255	157	288	222	188	664	385	70	499	134
RTOR Reduction (vph)	0	67	0	0	168	0	0	93	0	0	28	0
Lane Group Flow (vph)	233	358	0	157	342	0	188	956	0	70	605	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	11.3	22.1		8.4	19.2		9.0	25.9		6.0	22.9	
Effective Green, g (s)	11.3	22.1		8.4	19.2		9.0	25.9		6.0	22.9	
Actuated g/C Ratio	0.14	0.28		0.11	0.24		0.11	0.33		0.08	0.29	
Clearance Time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	253	474		188	804		202	1096		134	993	
v/s Ratio Prot	c0.13	c0.21		0.09	0.10		c0.11	c0.29		0.04	0.18	
v/s Ratio Perm												
v/c Ratio	0.92	0.76		0.84	0.43		0.93	0.87		0.52	0.61	
Uniform Delay, d1	33.4	26.0		34.6	25.2		34.7	25.0		35.1	24.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.9	8.0		26.1	0.8		44.0	8.5		3.6	1.6	
Delay (s)	69.4	34.0		60.7	26.0		78.7	33.5		38.8	25.8	
Level of Service	E	C		E	C		E	C		D	C	
Approach Delay (s)		46.5			34.2			40.3			27.0	
Approach LOS		D			C			D			C	

Intersection Summary

HCM Average Control Delay	37.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	106	278	238	222	441	194	313	663	370	183	1052	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1734		1770	3377		1770	3349		1770	3488	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1734		1770	3377		1770	3349		1770	3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	302	259	241	479	211	340	721	402	199	1143	123
RTOR Reduction (vph)	0	29	0	0	47	0	0	73	0	0	8	0
Lane Group Flow (vph)	115	532	0	241	643	0	340	1051	0	199	1258	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	9.6	31.8		10.9	33.1		14.9	32.5		13.2	30.8	
Effective Green, g (s)	9.6	31.8		10.9	33.1		14.9	32.5		13.2	30.8	
Actuated g/C Ratio	0.09	0.30		0.10	0.32		0.14	0.31		0.13	0.29	
Clearance Time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	162	525		184	1065		251	1037		223	1023	
v/s Ratio Prot	0.06	c0.31		c0.14	0.19		c0.19	0.31		0.11	c0.36	
v/s Ratio Perm												
v/c Ratio	0.71	1.01		1.31	0.60		1.35	1.01		0.89	1.23	
Uniform Delay, d1	46.3	36.6		47.0	30.4		45.0	36.2		45.2	37.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.3	42.5		172.8	1.4		183.4	31.2		32.9	112.2	
Delay (s)	59.7	79.1		219.8	31.8		228.4	67.5		78.1	149.3	
Level of Service	E	E		F	C		F	E		E	F	
Approach Delay (s)		75.8			80.5			104.9			139.6	
Approach LOS		E			F			F			F	

Intersection Summary

HCM Average Control Delay	106.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	126	893	102	0	0	0	0	420	213	246	593	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.95		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5054	1583					3360		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.35	1.00	
Satd. Flow (perm)		5054	1583					3360		657	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	971	111	0	0	0	0	457	232	267	645	0
RTOR Reduction (vph)	0	0	74	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	1108	37	0	0	0	0	679	0	267	645	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			2	
Permitted Phases			4							2		
Actuated Green, G (s)		20.0	20.0					31.2		31.2	31.2	
Effective Green, g (s)		20.0	20.0					31.2		31.2	31.2	
Actuated g/C Ratio		0.34	0.34					0.52		0.52	0.52	
Clearance Time (s)		4.2	4.2					4.2		4.2	4.2	
Vehicle Extension (s)		0.2	0.2					0.2		0.2	0.2	
Lane Grp Cap (vph)		1696	531					1759		344	1853	
v/s Ratio Prot		c0.22						0.20			0.18	
v/s Ratio Perm			0.02							c0.41		
v/c Ratio		0.65	0.07					0.39		0.78	0.35	
Uniform Delay, d1		16.8	13.5					8.5		11.4	8.3	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0					0.1		9.6	0.0	
Delay (s)		17.5	13.5					8.5		21.0	8.3	
Level of Service		B	B					A		C	A	
Approach Delay (s)		17.2			0.0			8.5			12.0	
Approach LOS		B			A			A			B	

Intersection Summary

HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	228	982	78	0	0	0	0	860	255	327	1139	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.97		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5038	1583					3418		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.18	1.00	
Satd. Flow (perm)		5038	1583					3418		326	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	248	1067	85	0	0	0	0	935	277	355	1238	0
RTOR Reduction (vph)	0	0	39	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	1315	46	0	0	0	0	1210	0	355	1238	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			2	
Permitted Phases			4							2		
Actuated Green, G (s)		20.0	20.0					46.6		46.6	46.6	
Effective Green, g (s)		20.0	20.0					46.6		46.6	46.6	
Actuated g/C Ratio		0.27	0.27					0.62		0.62	0.62	
Clearance Time (s)		4.2	4.2					4.2		4.2	4.2	
Vehicle Extension (s)		0.2	0.2					0.2		0.2	0.2	
Lane Grp Cap (vph)		1343	422					2124		203	2199	
v/s Ratio Prot		c0.26						0.35			0.35	
v/s Ratio Perm			0.03							c1.09		
v/c Ratio		0.98	0.11					0.57		1.75	0.56	
Uniform Delay, d1		27.3	20.8					8.3		14.2	8.3	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		19.4	0.0					0.2		356.5	0.2	
Delay (s)		46.7	20.8					8.5		370.7	8.5	
Level of Service		D	C					A		F	A	
Approach Delay (s)		45.1			0.0			8.5			89.2	
Approach LOS		D			A			A			F	

Intersection Summary

HCM Average Control Delay	51.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	64	221	90	59	626	0	0	1015	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	15	15	15	12	12	15	15	12	12
Total Lost time (s)					4.2		4.2	4.2			4.2	4.2
Lane Util. Factor					0.95		1.00	0.95			0.95	1.00
Frt					0.96		1.00	1.00			1.00	0.85
Flt Protected					0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)					3721		1770	3539			3539	1583
Flt Permitted					0.99		0.16	1.00			1.00	1.00
Satd. Flow (perm)					3721		291	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	70	240	98	64	680	0	0	1103	218
RTOR Reduction (vph)	0	0	0	0	50	0	0	0	0	0	0	117
Lane Group Flow (vph)	0	0	0	0	358	0	64	680	0	0	1103	101
Turn Type				Split			Perm					Perm
Protected Phases				2	2			4			4	
Permitted Phases							4					4
Actuated Green, G (s)					23.0		27.2	27.2			27.2	27.2
Effective Green, g (s)					23.0		27.2	27.2			27.2	27.2
Actuated g/C Ratio					0.39		0.46	0.46			0.46	0.46
Clearance Time (s)					4.2		4.2	4.2			4.2	4.2
Vehicle Extension (s)					0.2		0.2	0.2			0.2	0.2
Lane Grp Cap (vph)					1460		135	1643			1643	735
v/s Ratio Prot					c0.10			0.19			c0.31	
v/s Ratio Perm							0.22					0.06
v/c Ratio					0.24		0.47	0.41			0.67	0.14
Uniform Delay, d1					12.0		10.8	10.4			12.2	9.0
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					0.0		1.0	0.1			0.9	0.0
Delay (s)					12.0		11.7	10.5			13.1	9.0
Level of Service					B		B	B			B	A
Approach Delay (s)		0.0			12.0			10.6			12.4	
Approach LOS		A			B			B			B	

Intersection Summary

HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	57	693	262	127	1482	0	0	1315	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	15	15	15	12	12	15	15	12	12
Total Lost time (s)					4.2		4.2	4.2			4.2	
Lane Util. Factor					0.95		1.00	0.95			0.91	
Frt					0.96		1.00	1.00			0.96	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					3731		1770	3539			4883	
Flt Permitted					1.00		0.11	1.00			1.00	
Satd. Flow (perm)					3731		197	3539			4883	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	62	753	285	138	1611	0	0	1429	517
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	0	0	0	1087	0	138	1611	0	0	1920	0
Turn Type				Split			Perm					
Protected Phases				2	2			4			4	
Permitted Phases							4					
Actuated Green, G (s)					23.5		37.8	37.8			37.8	
Effective Green, g (s)					23.5		37.8	37.8			37.8	
Actuated g/C Ratio					0.34		0.54	0.54			0.54	
Clearance Time (s)					4.2		4.2	4.2			4.2	
Vehicle Extension (s)					0.2		0.2	0.2			0.2	
Lane Grp Cap (vph)					1258		107	1919			2648	
v/s Ratio Prot					c0.29			0.46			0.39	
v/s Ratio Perm							c0.70					
v/c Ratio					0.86		1.29	0.84			0.73	
Uniform Delay, d1					21.6		16.0	13.4			12.0	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					6.2		183.6	3.3			0.9	
Delay (s)					27.8		199.5	16.7			12.9	
Level of Service					C		F	B			B	
Approach Delay (s)		0.0			27.8			31.1			12.9	
Approach LOS		A			C			C			B	

Intersection Summary

HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	8.4
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	158	183	295	99	180	53	300	404	32	68	875	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1799		1770	5029		1770	3539	1583
Flt Permitted	0.42	1.00	1.00	0.51	1.00		0.26	1.00		0.47	1.00	1.00
Satd. Flow (perm)	778	1863	1583	957	1799		486	5029		877	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	199	321	108	196	58	326	439	35	74	951	243
RTOR Reduction (vph)	0	0	121	0	10	0	0	9	0	0	0	84
Lane Group Flow (vph)	172	199	200	108	244	0	326	465	0	74	951	159
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2	2	2	2			4			4		4
Actuated Green, G (s)	25.3	25.3	25.3	25.3	25.3		65.5	65.5		65.5	65.5	65.5
Effective Green, g (s)	25.3	25.3	25.3	25.3	25.3		65.5	65.5		65.5	65.5	65.5
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25		0.66	0.66		0.66	0.66	0.66
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	0.2
Lane Grp Cap (vph)	197	472	401	243	456		319	3301		576	2323	1039
v/s Ratio Prot		0.11			0.14			0.09			0.27	
v/s Ratio Perm	c0.22		0.13	0.11			c0.67			0.08		0.10
v/c Ratio	0.87	0.42	0.50	0.44	0.53		1.02	0.14		0.13	0.41	0.15
Uniform Delay, d1	35.7	31.1	31.8	31.3	32.2		17.1	6.5		6.4	8.1	6.6
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	31.2	0.2	0.4	0.5	0.6		56.1	0.0		0.0	0.0	0.0
Delay (s)	66.9	31.4	32.2	31.8	32.8		73.3	6.5		6.5	8.1	6.6
Level of Service	E	C	C	C	C		E	A		A	A	A
Approach Delay (s)		40.6			32.5			33.7			7.7	
Approach LOS		D			C			C			A	

Intersection Summary

HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	308	427	449	173	339	94	385	1221	166	56	1169	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1802		1770	4994		1770	3539	1583
Flt Permitted	0.26	1.00	1.00	0.27	1.00		0.13	1.00		0.11	1.00	1.00
Satd. Flow (perm)	483	1863	1583	495	1802		234	4994		210	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	335	464	488	188	368	102	418	1327	180	61	1271	310
RTOR Reduction (vph)	0	0	29	0	9	0	0	16	0	0	0	106
Lane Group Flow (vph)	335	464	459	188	461	0	418	1491	0	61	1271	204
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2	2	2	2			4			4		4
Actuated Green, G (s)	41.5	41.5	41.5	41.5	41.5		59.5	59.5		59.5	59.5	59.5
Effective Green, g (s)	41.5	41.5	41.5	41.5	41.5		59.5	59.5		59.5	59.5	59.5
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	0.2
Lane Grp Cap (vph)	182	703	597	187	680		127	2701		114	1914	856
v/s Ratio Prot		0.25			0.26			0.30			0.36	
v/s Ratio Perm	c0.69		0.29	0.38			c1.79			0.29		0.13
v/c Ratio	1.84	0.66	0.77	1.01	0.68		3.29	0.55		0.54	0.66	0.24
Uniform Delay, d1	34.2	28.4	30.1	34.2	28.7		25.2	16.5		16.3	18.1	13.3
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	398.8	1.8	5.4	67.2	2.1		1051.1	0.1		2.4	0.7	0.1
Delay (s)	433.1	30.2	35.4	101.5	30.8		1076.3	16.7		18.7	18.8	13.4
Level of Service	F	C	D	F	C		F	B		B	B	B
Approach Delay (s)		137.0			51.0			246.8			17.7	
Approach LOS		F			D			F			B	

Intersection Summary

HCM Average Control Delay	129.5	HCM Level of Service	F
HCM Volume to Capacity ratio	2.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	8	117	13	635	202	367	355	547	47	80	150	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.88	1.00	1.00	0.97	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1835		1681	1723	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.29	1.00		0.67	0.76	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	532	1835		1180	1340	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	127	14	690	220	399	386	595	51	87	163	313
RTOR Reduction (vph)	0	5	0	0	0	235	0	0	32	0	0	264
Lane Group Flow (vph)	9	136	0	435	475	164	386	595	19	87	163	49
Turn Type	Perm			Perm		Perm		custom	custom	Prot		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4			2			6
Actuated Green, G (s)	31.0	31.0		31.0	31.0	31.0	19.6	24.5	24.5	6.9	11.8	11.8
Effective Green, g (s)	31.0	31.0		31.0	31.0	31.0	19.6	24.5	24.5	6.9	11.8	11.8
Actuated g/C Ratio	0.41	0.41		0.41	0.41	0.41	0.26	0.32	0.32	0.09	0.16	0.16
Clearance Time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Vehicle Extension (s)	3.0	3.0		3.5	3.5	3.5	3.0	4.8	4.8	2.0	4.8	4.8
Lane Grp Cap (vph)	218	752		484	549	649	459	903	513	162	536	247
v/s Ratio Prot		0.07					c0.22	c0.21		0.05	0.05	
v/s Ratio Perm	0.02			c0.37	0.35	0.10			0.01			0.03
v/c Ratio	0.04	0.18		0.90	0.87	0.25	0.84	0.66	0.04	0.54	0.30	0.20
Uniform Delay, d1	13.4	14.2		20.8	20.4	14.7	26.5	22.0	17.5	32.8	28.3	27.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1		19.5	13.7	0.2	13.0	2.3	0.1	1.7	0.6	0.8
Delay (s)	13.5	14.3		40.3	34.1	14.9	39.6	24.2	17.5	34.5	28.9	28.5
Level of Service	B	B		D	C	B	D	C	B	C	C	C
Approach Delay (s)		14.3			30.3		29.6				29.6	
Approach LOS		B			C		C				C	

Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	75.6	Sum of lost time (s)	8.6
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	12	247	43	794	44	424	412	612	13	17	763	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.88	1.00	1.00	0.97	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.85	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1821		1681	1694	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.30	1.00		0.46	0.45	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	559	1821		815	789	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	268	47	863	48	461	448	665	14	18	829	893
RTOR Reduction (vph)	0	4	0	0	0	246	0	0	4	0	0	284
Lane Group Flow (vph)	13	311	0	449	462	215	448	665	10	18	829	609
Turn Type	Perm			Perm		Perm		custom	custom	Prot		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4			2			6
Actuated Green, G (s)	68.4	68.4		68.4	68.4	68.4	30.0	65.8	65.8	4.2	40.0	40.0
Effective Green, g (s)	68.4	68.4		68.4	68.4	68.4	30.0	65.8	65.8	4.2	40.0	40.0
Actuated g/C Ratio	0.45	0.45		0.45	0.45	0.45	0.20	0.43	0.43	0.03	0.26	0.26
Clearance Time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Vehicle Extension (s)	3.0	3.0		3.5	3.5	3.5	3.0	4.8	4.8	2.0	4.8	4.8
Lane Grp Cap (vph)	252	822		368	356	714	350	1210	687	49	906	418
v/s Ratio Prot		0.17					c0.25	0.24		0.01	0.24	
v/s Ratio Perm	0.02			0.55	c0.59	0.14			0.01			c0.38
v/c Ratio	0.05	0.38		1.22	1.30	0.30	1.28	0.55	0.01	0.37	0.92	1.46
Uniform Delay, d1	23.4	27.5		41.6	41.6	26.4	60.8	31.9	24.4	72.4	54.2	55.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3		121.2	153.3	0.3	146.3	0.9	0.0	1.7	14.1	218.4
Delay (s)	23.5	27.8		162.8	194.9	26.7	207.1	32.7	24.5	74.1	68.3	274.2
Level of Service	C	C		F	F	C	F	C	C	E	E	F
Approach Delay (s)		27.6			127.9		101.9				174.0	
Approach LOS		C			F		F				F	

Intersection Summary

HCM Average Control Delay	131.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	151.6	Sum of lost time (s)	13.2
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (vph)	15	134	110	1572	331	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.68	1.00	0.54	1.00	1.00	1.00
Satd. Flow (perm)	1266	1583	1000	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	146	120	1709	360	30
RTOR Reduction (vph)	0	98	0	0	0	14
Lane Group Flow (vph)	16	48	120	1709	360	16
Turn Type		custom	Perm			Perm
Protected Phases		4		2	6	
Permitted Phases	4		2			6
Actuated Green, G (s)	19.0	19.0	30.1	30.1	30.1	30.1
Effective Green, g (s)	19.0	19.0	30.1	30.1	30.1	30.1
Actuated g/C Ratio	0.33	0.33	0.52	0.52	0.52	0.52
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)	414	518	518	1833	1833	820
v/s Ratio Prot		c0.03		c0.48	0.10	
v/s Ratio Perm	0.01		0.12			0.01
v/c Ratio	0.04	0.09	0.23	0.93	0.20	0.02
Uniform Delay, d1	13.3	13.6	7.7	13.1	7.5	6.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.0	0.1	9.1	0.0	0.0
Delay (s)	13.3	13.6	7.8	22.2	7.5	6.8
Level of Service	B	B	A	C	A	A
Approach Delay (s)	13.6			21.2	7.5	
Approach LOS	B			C	A	

Intersection Summary

HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (vph)	360	271	103	1600	592	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.68	1.00	0.35	1.00	1.00	1.00
Satd. Flow (perm)	1276	1583	661	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	295	112	1739	643	46
RTOR Reduction (vph)	0	90	0	0	0	26
Lane Group Flow (vph)	391	205	112	1739	643	20
Turn Type		custom	Perm			Perm
Protected Phases		4		2	6	
Permitted Phases	4		2			6
Actuated Green, G (s)	25.0	25.0	26.0	26.0	26.0	26.0
Effective Green, g (s)	25.0	25.0	26.0	26.0	26.0	26.0
Actuated g/C Ratio	0.42	0.42	0.43	0.43	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)	532	660	286	1534	1534	686
v/s Ratio Prot		0.13		c0.49	0.18	
v/s Ratio Perm	c0.31		0.17			0.01
v/c Ratio	0.73	0.31	0.39	1.13	0.42	0.03
Uniform Delay, d1	14.7	11.7	11.6	17.0	11.8	9.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.5	0.1	0.3	68.8	0.1	0.0
Delay (s)	19.2	11.8	11.9	85.8	11.8	9.8
Level of Service	B	B	B	F	B	A
Approach Delay (s)	16.0			81.4	11.7	
Approach LOS	B			F	B	

Intersection Summary

HCM Average Control Delay	52.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	177	100	0	0	481	245	606	388	575	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.95			0.95				
Flt Protected		0.97			1.00			0.98				
Satd. Flow (prot)		3430			3360			4715				
Flt Permitted		0.62			1.00			0.98				
Satd. Flow (perm)		2182			3360			4715				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	109	0	0	523	266	659	422	625	0	0	0
RTOR Reduction (vph)	0	0	0	0	116	0	0	192	0	0	0	0
Lane Group Flow (vph)	0	301	0	0	673	0	0	1514	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		8			4		2	2				
Permitted Phases	8											
Actuated Green, G (s)		19.0			19.0			25.2				
Effective Green, g (s)		19.0			19.0			25.2				
Actuated g/C Ratio		0.35			0.35			0.46				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		765			1178			2192				
v/s Ratio Prot					c0.20			c0.32				
v/s Ratio Perm		0.14										
v/c Ratio		1.18dl			0.57			0.69				
Uniform Delay, d1		13.3			14.3			11.4				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.1			0.4			0.8				
Delay (s)		13.4			14.7			12.2				
Level of Service		B			B			B				
Approach Delay (s)		13.4			14.7			12.2			0.0	
Approach LOS		B			B			B			A	

Intersection Summary

HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	339	156	0	0	377	208	521	225	531	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.95			0.94				
Flt Protected		0.97			1.00			0.98				
Satd. Flow (prot)		3422			3351			4673				
Flt Permitted		0.61			1.00			0.98				
Satd. Flow (perm)		2158			3351			4673				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	368	170	0	0	410	226	566	245	577	0	0	0
RTOR Reduction (vph)	0	0	0	0	138	0	0	230	0	0	0	0
Lane Group Flow (vph)	0	538	0	0	498	0	0	1158	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		8			4		2	2				
Permitted Phases	8											
Actuated Green, G (s)		19.2			19.2			25.0				
Effective Green, g (s)		19.2			19.2			25.0				
Actuated g/C Ratio		0.35			0.35			0.46				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		764			1187			2155				
v/s Ratio Prot					0.15			c0.25				
v/s Ratio Perm		c0.25										
v/c Ratio		1.61dl			0.42			0.54				
Uniform Delay, d1		15.1			13.3			10.5				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		2.4			0.1			0.1				
Delay (s)		17.5			13.4			10.6				
Level of Service		B			B			B				
Approach Delay (s)		17.5			13.4			10.6			0.0	
Approach LOS		B			B			B			A	

Intersection Summary

HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	108	889	0	0	76	71	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.2	4.2						
Lane Util. Factor	1.00	1.00			1.00	1.00						
Frt	1.00	1.00			1.00	0.85						
Flt Protected	0.95	1.00			1.00	1.00						
Satd. Flow (prot)	1770	1863			1863	1583						
Flt Permitted	0.95	1.00			1.00	1.00						
Satd. Flow (perm)	1770	1863			1863	1583						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	966	0	0	83	77	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	69	0	0	0	0	0	0
Lane Group Flow (vph)	117	966	0	0	83	8	0	0	0	0	0	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	2	2		1	1			8			8	
Permitted Phases						1	8		8	8		
Actuated Green, G (s)	42.6	42.6			6.0	6.0						
Effective Green, g (s)	42.6	42.6			6.0	6.0						
Actuated g/C Ratio	0.74	0.74			0.10	0.10						
Clearance Time (s)	4.6	4.6			4.2	4.2						
Vehicle Extension (s)	3.8	3.8			2.0	2.0						
Lane Grp Cap (vph)	1314	1383			195	165						
v/s Ratio Prot	0.07	c0.52			c0.04							
v/s Ratio Perm						0.01						
v/c Ratio	0.09	0.70			0.43	0.05						
Uniform Delay, d1	2.0	4.0			24.1	23.1						
Progression Factor	1.00	1.00			1.00	1.00						
Incremental Delay, d2	0.0	1.7			0.5	0.0						
Delay (s)	2.1	5.6			24.6	23.2						
Level of Service	A	A			C	C						
Approach Delay (s)		5.2			23.9			0.0			0.0	
Approach LOS		A			C			A			A	

Intersection Summary

HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	8.8
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	464	390	0	0	436	100	0	200	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.2	4.2		4.2				
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		1.00				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1770	1863			1863	1583		1863				
Flt Permitted	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	1770	1863			1863	1583		1863				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	504	424	0	0	474	109	0	217	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	78	0	0	0	0	0	0
Lane Group Flow (vph)	504	424	0	0	474	31	0	217	0	0	0	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	2	2		1	1			8			8	
Permitted Phases						1	8		8	8		
Actuated Green, G (s)	28.9	28.9			24.2	24.2		19.2				
Effective Green, g (s)	28.9	28.9			24.2	24.2		19.2				
Actuated g/C Ratio	0.34	0.34			0.28	0.28		0.23				
Clearance Time (s)	4.6	4.6			4.2	4.2		4.2				
Vehicle Extension (s)	3.8	3.8			2.0	2.0		2.0				
Lane Grp Cap (vph)	600	631			529	449		419				
v/s Ratio Prot	c0.28	0.23			c0.25			c0.12				
v/s Ratio Perm						0.02						
v/c Ratio	0.84	0.67			0.90	0.07		0.52				
Uniform Delay, d1	26.1	24.1			29.3	22.3		29.0				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	10.4	3.0			17.2	0.0		0.5				
Delay (s)	36.5	27.2			46.5	22.3		29.4				
Level of Service	D	C			D	C		C				
Approach Delay (s)		32.2			42.0			29.4			0.0	
Approach LOS		C			D			C			A	

Intersection Summary

HCM Average Control Delay	35.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	486	477	0	0	308	67	42	265	102	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.2	4.2				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.97		1.00	0.96				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	1863			1813		1770	1785				
Flt Permitted	0.44	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	819	1863			1813		1770	1785				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	528	518	0	0	335	73	46	288	111	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	23	0	0	0	0
Lane Group Flow (vph)	528	518	0	0	395	0	46	376	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		2			6		8	8				
Permitted Phases	2			6								
Actuated Green, G (s)	29.6	29.6			29.6		22.0	22.0				
Effective Green, g (s)	29.6	29.6			29.6		22.0	22.0				
Actuated g/C Ratio	0.49	0.49			0.49		0.37	0.37				
Clearance Time (s)	4.2	4.2			4.2		4.2	4.2				
Vehicle Extension (s)	0.2	0.2			0.2		0.2	0.2				
Lane Grp Cap (vph)	404	919			894		649	655				
v/s Ratio Prot		0.28			0.22		0.03	c0.21				
v/s Ratio Perm	c0.65											
v/c Ratio	1.31	0.56			0.44		0.07	0.57				
Uniform Delay, d1	15.2	10.7			9.8		12.4	15.2				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	155.0	0.5			0.1		0.0	0.8				
Delay (s)	170.2	11.1			10.0		12.4	16.0				
Level of Service	F	B			A		B	B				
Approach Delay (s)		91.4			10.0			15.6			0.0	
Approach LOS		F			A			B			A	

Intersection Summary

HCM Average Control Delay	56.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	408	370	0	0	691	115	46	242	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.2	4.2				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.98		1.00	0.95				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	1863			1823		1770	1763				
Flt Permitted	0.24	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	450	1863			1823		1770	1763				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	443	402	0	0	751	125	50	263	146	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	17	0	0	0	0
Lane Group Flow (vph)	443	402	0	0	871	0	50	392	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		2			6		8	8				
Permitted Phases	2			6								
Actuated Green, G (s)	88.8	88.8			88.8		22.8	22.8				
Effective Green, g (s)	88.8	88.8			88.8		22.8	22.8				
Actuated g/C Ratio	0.74	0.74			0.74		0.19	0.19				
Clearance Time (s)	4.2	4.2			4.2		4.2	4.2				
Vehicle Extension (s)	0.2	0.2			0.2		0.2	0.2				
Lane Grp Cap (vph)	333	1379			1349		336	335				
v/s Ratio Prot		0.22			0.48		0.03	c0.22				
v/s Ratio Perm	c0.98											
v/c Ratio	1.33	0.29			0.65		0.15	1.17				
Uniform Delay, d1	15.6	5.2			7.8		40.5	48.6				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	167.9	0.0			0.8		0.1	103.8				
Delay (s)	183.5	5.2			8.6		40.6	152.4				
Level of Service	F	A			A		D	F				
Approach Delay (s)		98.7			8.6			140.2			0.0	
Approach LOS		F			A			F			A	

Intersection Summary

HCM Average Control Delay	71.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	60	317	306	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2			
Lane Util. Factor		1.00	0.95			
Frt		0.86	0.93			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		1611	3278			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		1611	3278			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	65	345	333	0	0
RTOR Reduction (vph)	0	58	140	0	0	0
Lane Group Flow (vph)	0	7	538	0	0	0
Turn Type		custom				
Protected Phases			8			
Permitted Phases		2				
Actuated Green, G (s)		2.8	15.4			
Effective Green, g (s)		2.8	15.4			
Actuated g/C Ratio		0.11	0.58			
Clearance Time (s)		4.2	4.2			
Vehicle Extension (s)		0.2	6.0			
Lane Grp Cap (vph)		170	1898			
v/s Ratio Prot			c0.16			
v/s Ratio Perm		c0.00				
v/c Ratio		0.04	0.28			
Uniform Delay, d1		10.7	2.8			
Progression Factor		1.00	1.00			
Incremental Delay, d2		0.0	0.2			
Delay (s)		10.7	3.1			
Level of Service		B	A			
Approach Delay (s)	10.7		3.1		0.0	
Approach LOS	B		A		A	

Intersection Summary			
HCM Average Control Delay	3.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	26.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	266	586	267	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2			
Lane Util. Factor		1.00	0.95			
Frt		0.86	0.95			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		1611	3373			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		1611	3373			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	289	637	290	0	0
RTOR Reduction (vph)	0	106	77	0	0	0
Lane Group Flow (vph)	0	183	850	0	0	0
Turn Type		custom				
Protected Phases			8			
Permitted Phases		2				
Actuated Green, G (s)		6.5	18.9			
Effective Green, g (s)		6.5	18.9			
Actuated g/C Ratio		0.19	0.56			
Clearance Time (s)		4.2	4.2			
Vehicle Extension (s)		0.2	6.0			
Lane Grp Cap (vph)		310	1886			
v/s Ratio Prot			c0.25			
v/s Ratio Perm		c0.11				
v/c Ratio		0.59	0.45			
Uniform Delay, d1		12.4	4.4			
Progression Factor		1.00	1.00			
Incremental Delay, d2		2.0	0.5			
Delay (s)		14.4	4.9			
Level of Service		B	A			
Approach Delay (s)	14.4		4.9		0.0	
Approach LOS	B		A		A	

Intersection Summary			
HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	33.8	Sum of lost time (s)	8.4
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	263	263	90	262	606	0	0	0	25	1026	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4			5.4					4.0	5.4	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frt		0.93			0.91					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3274			3188					1770	3501	
Flt Permitted		1.00			0.80					0.95	1.00	
Satd. Flow (perm)		3274			2579					1770	3501	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	286	286	98	285	659	0	0	0	27	1115	86
RTOR Reduction (vph)	0	95	0	0	335	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	477	0	0	707	0	0	0	0	27	1193	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2			2								
Actuated Green, G (s)		21.6			21.6					5.5	25.7	
Effective Green, g (s)		21.6			21.6					5.5	25.7	
Actuated g/C Ratio		0.37			0.37					0.09	0.44	
Clearance Time (s)		5.4			5.4					4.0	5.4	
Vehicle Extension (s)		0.2			0.2					3.0	0.2	
Lane Grp Cap (vph)		1217			959					168	1549	
v/s Ratio Prot		0.15								0.02	c0.34	
v/s Ratio Perm					c0.27							
v/c Ratio		0.39			0.74					0.16	0.77	
Uniform Delay, d1		13.4			15.8					24.2	13.7	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.1			2.6					0.5	2.2	
Delay (s)		13.5			18.4					24.6	15.9	
Level of Service		B			B					C	B	
Approach Delay (s)		13.5			18.4			0.0			16.1	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	10.8
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	448	572	108	159	602	0	0	0	60	2571	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4			5.4					5.4	5.4	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frt		0.92			0.90					1.00	0.99	
Flt Protected		1.00			0.99					0.95	1.00	
Satd. Flow (prot)		3241			3152					1770	3520	
Flt Permitted		1.00			0.51					0.95	1.00	
Satd. Flow (perm)		3241			1619					1770	3520	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	487	622	117	173	654	0	0	0	65	2795	107
RTOR Reduction (vph)	0	45	0	0	267	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	1064	0	0	677	0	0	0	0	65	2901	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2			2								
Actuated Green, G (s)		42.6			42.6					52.6	92.2	
Effective Green, g (s)		42.6			42.6					52.6	92.2	
Actuated g/C Ratio		0.29			0.29					0.36	0.63	
Clearance Time (s)		5.4			5.4					5.4	5.4	
Vehicle Extension (s)		0.2			0.2					0.2	0.2	
Lane Grp Cap (vph)		948			474					639	2229	
v/s Ratio Prot		0.33								0.04	c0.82	
v/s Ratio Perm					c0.42							
v/c Ratio		1.17dr			1.43					0.10	1.30	
Uniform Delay, d1		51.5			51.5					30.8	26.7	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		68.9			204.3					0.0	139.0	
Delay (s)		120.4			255.8					30.9	165.7	
Level of Service		F			F					C	F	
Approach Delay (s)		120.4			255.8			0.0			162.7	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	170.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	145.6	Sum of lost time (s)	10.8
Intersection Capacity Utilization	145.4%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	137	496	10	159	0	52	493	708	115	635	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.0	4.2		4.0	4.2	4.2	4.0	4.2	4.2
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.88		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1644		1770	1863		1770	1863	1583	1770	1863	1583
Flt Permitted		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1644		1770	1863		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	149	539	11	173	0	57	536	770	125	690	17
RTOR Reduction (vph)	0	145	0	0	0	0	0	0	388	0	0	3
Lane Group Flow (vph)	0	543	0	11	173	0	57	536	382	125	690	14
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases									4			8
Actuated Green, G (s)		29.5		0.7	34.2		3.1	32.5	32.5	7.0	36.4	36.4
Effective Green, g (s)		29.5		0.7	34.2		3.1	32.5	32.5	7.0	36.4	36.4
Actuated g/C Ratio		0.34		0.01	0.40		0.04	0.38	0.38	0.08	0.42	0.42
Clearance Time (s)		4.2		4.0	4.2		4.0	4.2	4.2	4.0	4.2	4.2
Vehicle Extension (s)		0.2		3.0	0.2		3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)		563		14	740		64	703	598	144	788	669
v/s Ratio Prot		c0.33		c0.01	0.09		0.03	0.29		c0.07	c0.37	
v/s Ratio Perm									0.24			0.01
v/c Ratio		0.96		0.79	0.23		0.89	0.76	0.64	0.87	0.88	0.02
Uniform Delay, d1		27.8		42.6	17.2		41.3	23.4	22.0	39.1	22.8	14.5
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		28.7		130.6	0.1		74.9	4.4	1.6	38.7	10.4	0.0
Delay (s)		56.5		173.2	17.3		116.2	27.8	23.6	77.7	33.2	14.5
Level of Service		E		F	B		F	C	C	E	C	B
Approach Delay (s)		56.5			26.6			29.2			39.5	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM Average Control Delay	37.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	16.4
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	112	380	188	176	0	242	740	695	40	1398	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.0	4.2		4.0	4.2	4.2	4.2	4.2	4.2
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.88		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1647		1770	1863		1770	1863	1583	1770	1863	1583
Flt Permitted		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1647		1770	1863		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	122	413	204	191	0	263	804	755	43	1520	372
RTOR Reduction (vph)	0	84	0	0	0	0	0	0	228	0	0	23
Lane Group Flow (vph)	0	451	0	204	191	0	263	804	527	43	1520	349
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases									4			8
Actuated Green, G (s)		28.8		14.0	46.8		15.0	61.6	61.6	24.8	71.6	71.6
Effective Green, g (s)		28.8		14.0	46.8		15.0	61.6	61.6	24.8	71.6	71.6
Actuated g/C Ratio		0.20		0.10	0.32		0.10	0.42	0.42	0.17	0.49	0.49
Clearance Time (s)		4.2		4.0	4.2		4.0	4.2	4.2	4.2	4.2	4.2
Vehicle Extension (s)		0.2		3.0	0.2		3.0	0.2	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		325		170	598		182	787	669	301	915	777
v/s Ratio Prot		c0.27		c0.12	0.10		c0.15	0.43		0.02	c0.82	
v/s Ratio Perm									0.33			0.22
v/c Ratio		1.39		1.20	0.32		1.45	1.02	0.79	0.14	1.66	0.45
Uniform Delay, d1		58.5		65.9	37.5		65.4	42.1	36.4	51.5	37.1	24.2
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		192.1		133.0	0.1		228.4	37.6	5.7	0.1	302.4	0.2
Delay (s)		250.6		198.9	37.6		293.8	79.7	42.1	51.5	339.5	24.4
Level of Service		F		F	D		F	E	D	D	F	C
Approach Delay (s)		250.6			120.9			95.0			272.5	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	188.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	145.8	Sum of lost time (s)	16.4
Intersection Capacity Utilization	140.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	303	15	76	272	0	0	0	400	247	633	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.99		1.00	1.00			0.85		1.00	0.99	
Flt Protected		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1851		1770	1863			1583		1770	1845	
Flt Permitted		1.00		0.37	1.00			1.00		0.95	1.00	
Satd. Flow (perm)		1851		692	1863			1583		1770	1845	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	329	16	83	296	0	0	0	435	268	688	47
RTOR Reduction (vph)	0	2	0	0	0	0	0	219	0	0	2	0
Lane Group Flow (vph)	0	343	0	83	296	0	0	216	0	268	733	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6								
Actuated Green, G (s)		28.0		28.0	28.0			22.0		22.0	48.2	
Effective Green, g (s)		28.0		28.0	28.0			22.0		22.0	48.2	
Actuated g/C Ratio		0.33		0.33	0.33			0.26		0.26	0.57	
Clearance Time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Vehicle Extension (s)		0.2		0.2	0.2			0.2		0.2	0.2	
Lane Grp Cap (vph)		613		229	617			412		460	1051	
v/s Ratio Prot		c0.19			0.16			0.14		0.15	c0.40	
v/s Ratio Perm				0.12								
v/c Ratio		0.56		0.36	0.48			0.52		0.58	0.70	
Uniform Delay, d1		23.2		21.5	22.5			26.8		27.3	13.0	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.6		0.4	0.2			0.6		1.2	1.6	
Delay (s)		23.9		21.9	22.7			27.4		28.5	14.6	
Level of Service		C		C	C			C		C	B	
Approach Delay (s)		23.9			22.5			27.4			18.3	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	103.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	234	27	211	506	0	0	0	370	155	1539	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.99		1.00	1.00			0.85		1.00	0.99	
Flt Protected		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1837		1770	1863			1583		1770	1848	
Flt Permitted		1.00		0.39	1.00			1.00		0.95	1.00	
Satd. Flow (perm)		1837		734	1863			1583		1770	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	254	29	229	550	0	0	0	402	168	1673	90
RTOR Reduction (vph)	0	3	0	0	0	0	0	189	0	0	1	0
Lane Group Flow (vph)	0	280	0	229	550	0	0	213	0	168	1762	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6								
Actuated Green, G (s)		40.8		40.8	40.8			59.6		22.0	85.8	
Effective Green, g (s)		40.8		40.8	40.8			59.6		22.0	85.8	
Actuated g/C Ratio		0.30		0.30	0.30			0.44		0.16	0.64	
Clearance Time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Vehicle Extension (s)		0.2		0.2	0.2			0.2		0.2	0.2	
Lane Grp Cap (vph)		555		222	563			699		288	1175	
v/s Ratio Prot		0.15			0.30			0.13		0.09	c0.95	
v/s Ratio Perm				c0.31								
v/c Ratio		0.50		1.03	0.98			0.30		0.58	1.50	
Uniform Delay, d1		38.8		47.1	46.6			24.3		52.3	24.6	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.3		68.9	31.6			0.1		1.9	229.3	
Delay (s)		39.0		116.0	78.3			24.4		54.2	253.9	
Level of Service		D		F	E			C		D	F	
Approach Delay (s)		39.0			89.3			24.4			236.5	
Approach LOS		D			F			C			F	

Intersection Summary

HCM Average Control Delay	161.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	153.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SBR2	SET	SER	NWL	NWT	NET	SWL	SWT
Lane Configurations										
Volume (vph)	294	1099	3	0	40	23	47	0	97	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.9	4.9		4.2			4.0		4.6	4.6
Lane Util. Factor	1.00	0.88		1.00			1.00		1.00	1.00
Frt	1.00	0.85		0.86			1.00		1.00	1.00
Flt Protected	0.95	1.00		1.00			0.98		0.95	1.00
Satd. Flow (prot)	1770	2787		1611			1833		1770	1863
Flt Permitted	0.95	1.00		1.00			0.98		0.76	1.00
Satd. Flow (perm)	1770	2787		1611			1833		1410	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	320	1195	3	0	43	25	51	0	105	111
RTOR Reduction (vph)	0	0	0	41	0	0	0	0	0	0
Lane Group Flow (vph)	320	1198	0	2	0	0	76	0	105	111
Turn Type		Prot				Split			Perm	
Protected Phases	2	2		3		1	1	4		4
Permitted Phases									4	
Actuated Green, G (s)	35.5	35.5		3.2			6.3		9.2	9.2
Effective Green, g (s)	35.5	35.5		3.2			6.3		9.2	9.2
Actuated g/C Ratio	0.49	0.49		0.04			0.09		0.13	0.13
Clearance Time (s)	4.9	4.9		4.2			4.0		4.6	4.6
Vehicle Extension (s)	4.0	4.0		2.0			2.0		4.0	4.0
Lane Grp Cap (vph)	874	1376		72			161		180	238
v/s Ratio Prot	0.18	c0.43		c0.00			c0.04			0.06
v/s Ratio Perm									c0.07	
v/c Ratio	0.37	0.87		0.03			0.47		0.58	0.47
Uniform Delay, d1	11.2	16.2		32.9			31.2		29.5	29.1
Progression Factor	1.00	1.00		1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4	6.5		0.1			0.8		5.6	2.0
Delay (s)	11.6	22.6		32.9			32.0		35.1	31.0
Level of Service	B	C		C			C		D	C
Approach Delay (s)	20.3			32.9			32.0	0.0		33.0
Approach LOS	C			C			C	A		C

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	17.7
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SBR2	SET	SER	NWL	NWT	NET	SWL	SWT
Lane Configurations										
Volume (vph)	452	1341	5	0	67	15	26	0	114	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.9	4.9		4.6			4.0		4.6	4.6
Lane Util. Factor	1.00	0.88		1.00			1.00		1.00	1.00
Frt	1.00	0.85		0.86			1.00		1.00	1.00
Flt Protected	0.95	1.00		1.00			0.98		0.95	1.00
Satd. Flow (prot)	1770	2787		1611			1829		1770	1863
Flt Permitted	0.95	1.00		1.00			0.98		0.76	1.00
Satd. Flow (perm)	1770	2787		1611			1829		1410	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	491	1458	5	0	73	16	28	0	124	208
RTOR Reduction (vph)	0	0	0	69	0	0	0	0	0	0
Lane Group Flow (vph)	491	1463	0	4	0	0	44	0	124	208
Turn Type		Prot				Split			Perm	
Protected Phases	2	2		3		1	1	4		4
Permitted Phases									4	
Actuated Green, G (s)	56.1	56.1		5.7			6.0		14.4	14.4
Effective Green, g (s)	56.1	56.1		5.7			6.0		14.4	14.4
Actuated g/C Ratio	0.56	0.56		0.06			0.06		0.14	0.14
Clearance Time (s)	4.9	4.9		4.6			4.0		4.6	4.6
Vehicle Extension (s)	4.0	4.0		4.0			2.0		4.0	4.0
Lane Grp Cap (vph)	990	1559		92			109		202	267
v/s Ratio Prot	0.28	c0.53		c0.00			c0.02			c0.11
v/s Ratio Perm									0.09	
v/c Ratio	0.50	0.94		0.05			0.40		0.61	0.78
Uniform Delay, d1	13.5	20.5		44.7			45.4		40.3	41.4
Progression Factor	1.00	1.00		1.00			1.00		1.00	1.00
Incremental Delay, d2	0.5	11.3		0.3			0.9		6.2	14.1
Delay (s)	14.0	31.8		45.0			46.3		46.5	55.5
Level of Service	B	C		D			D		D	E
Approach Delay (s)	27.3			45.0			46.3	0.0		52.2
Approach LOS	C			D			D	A		D

Intersection Summary			
HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.3	Sum of lost time (s)	18.1
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	NEL
Right Turn Channelized											
Volume (veh/h)	135	375	21	72	94	50	225	74	488	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	147	408	23	78	102	54	245	80	530	24	0
Approach Volume (veh/h)		577			235				879		0
Crossing Volume (veh/h)		323			1002				554		554
High Capacity (veh/h)		1075			621				894		894
High v/c (veh/h)		0.54			0.38				0.98		0.00
Low Capacity (veh/h)		881			482				719		719
Low v/c (veh/h)		0.66			0.49				1.22		0.00

Intersection Summary				
Maximum v/c High	0.98			
Maximum v/c Low	1.22			
Intersection Capacity Utilization	64.0%	ICU Level of Service	B	

Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	NEL
Right Turn Channelized											
Volume (veh/h)	262	296	8	113	263	182	237	266	1613	29	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	285	322	9	123	286	198	258	289	1753	32	0
Approach Volume (veh/h)		615			607				2332		0
Crossing Volume (veh/h)		380			2585#				607		607
High Capacity (veh/h)		1027			161				857		857
High v/c (veh/h)		0.60			3.77				2.72		0.00
Low Capacity (veh/h)		838			107				687		687
Low v/c (veh/h)		0.73			5.69				3.39		0.00

Intersection Summary

Maximum v/c High	3.77		
Maximum v/c Low	5.69		
Intersection Capacity Utilization	128.6%	ICU Level of Service	H

Crossing flow exceeds 1200, method is not applicable

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	425	40	0	328	0	0	0	0	105	1354	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5					4.9	4.9	4.9
Lane Util. Factor		0.95			0.95					1.00	0.95	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	1.00	1.00
Satd. Flow (prot)		3494			3539					1770	3539	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3494			3539					1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	462	43	0	357	0	0	0	0	114	1472	187
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	52
Lane Group Flow (vph)	0	499	0	0	357	0	0	0	0	114	1472	135
Turn Type										Split		Perm
Protected Phases		4			4					2	2	
Permitted Phases												2
Actuated Green, G (s)		27.0			27.0					28.6	28.6	28.6
Effective Green, g (s)		27.0			27.0					28.6	28.6	28.6
Actuated g/C Ratio		0.42			0.42					0.44	0.44	0.44
Clearance Time (s)		4.5			4.5					4.9	4.9	4.9
Vehicle Extension (s)		5.0			5.0					5.0	5.0	5.0
Lane Grp Cap (vph)		1451			1470					779	1557	697
v/s Ratio Prot		c0.14			0.10					0.06	c0.42	
v/s Ratio Perm												0.09
v/c Ratio		0.34			0.24					0.15	0.95	0.19
Uniform Delay, d1		13.0			12.4					10.9	17.5	11.1
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.3			0.2					0.2	12.5	0.3
Delay (s)		13.3			12.5					11.1	29.9	11.4
Level of Service		B			B					B	C	B
Approach Delay (s)		13.3			12.5			0.0			26.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	440	74	0	1089	0	0	0	0	119	1718	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5					4.9	4.9	4.9
Lane Util. Factor		0.95			0.95					1.00	0.95	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	1.00	1.00
Satd. Flow (prot)		3463			3539					1770	3539	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3463			3539					1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	478	80	0	1184	0	0	0	0	129	1867	324
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	5
Lane Group Flow (vph)	0	552	0	0	1184	0	0	0	0	129	1867	319
Turn Type										Split		Perm
Protected Phases		4			4					2	2	
Permitted Phases												2
Actuated Green, G (s)		27.8			27.8					42.8	42.8	42.8
Effective Green, g (s)		27.8			27.8					42.8	42.8	42.8
Actuated g/C Ratio		0.35			0.35					0.53	0.53	0.53
Clearance Time (s)		4.5			4.5					4.9	4.9	4.9
Vehicle Extension (s)		5.0			5.0					5.0	5.0	5.0
Lane Grp Cap (vph)		1203			1230					947	1893	847
v/s Ratio Prot		0.16			c0.33					0.07	c0.53	
v/s Ratio Perm												0.20
v/c Ratio		0.46			0.96					0.14	0.99	0.38
Uniform Delay, d1		20.3			25.6					9.3	18.3	10.8
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6			17.6					0.1	17.5	0.6
Delay (s)		20.8			43.2					9.5	35.8	11.4
Level of Service		C			D					A	D	B
Approach Delay (s)		20.8			43.2			0.0			30.9	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	33.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	6	1594	354	10	9	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	1733	385	11	10	8
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	396				2136	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	396				2136	390
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				82	99
cM capacity (veh/h)	1163				54	658

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	1739	396	17
Volume Left	7	0	10
Volume Right	0	11	8
cSH	1163	1700	90
Volume to Capacity	0.01	0.23	0.19
Queue Length 95th (ft)	0	0	17
Control Delay (s)	0.0	0.0	54.4
Lane LOS	A		F
Approach Delay (s)	0.0	0.0	54.4
Approach LOS			F

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		98.7%	ICU Level of Service F
Analysis Period (min)		15	

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	1688	608	4	4	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	1835	661	4	4	2
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	665				2509	663
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	665				2509	663
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				86	100
cM capacity (veh/h)	924				31	461

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	1840	665	7
Volume Left	5	0	4
Volume Right	0	4	2
cSH	924	1700	45
Volume to Capacity	0.01	0.39	0.14
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.0	0.0	97.7
Lane LOS	A		F
Approach Delay (s)	0.0	0.0	97.7
Approach LOS			F

Intersection Summary

Average Delay	0.3		
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	443	317	7	277	23	2	11	14	35	259	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4	5.4		5.4		5.4	5.4		5.4	5.4	
Lane Util. Factor		0.95	1.00		0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.99		1.00	0.92		1.00	0.96	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3528	1583		3495		1770	1708		1770	1794	
Flt Permitted		0.92	1.00		0.94		0.38	1.00		0.74	1.00	
Satd. Flow (perm)		3243	1583		3300		710	1708		1378	1794	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	482	345	8	301	25	2	12	15	38	282	92
RTOR Reduction (vph)	0	0	165	0	10	0	0	10	0	0	19	0
Lane Group Flow (vph)	0	516	180	0	324	0	2	17	0	38	355	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		30.6	30.6		30.6		18.6	18.6		18.6	18.6	
Effective Green, g (s)		30.6	30.6		30.6		18.6	18.6		18.6	18.6	
Actuated g/C Ratio		0.51	0.51		0.51		0.31	0.31		0.31	0.31	
Clearance Time (s)		5.4	5.4		5.4		5.4	5.4		5.4	5.4	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		1654	807		1683		220	529		427	556	
v/s Ratio Prot								0.01			c0.20	
v/s Ratio Perm		c0.16	0.11		0.10		0.00			0.03		
v/c Ratio		0.31	0.22		0.19		0.01	0.03		0.09	0.64	
Uniform Delay, d1		8.6	8.1		8.0		14.3	14.4		14.7	17.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.1		0.0		0.0	0.0		0.0	1.8	
Delay (s)		8.6	8.2		8.0		14.3	14.4		14.7	19.6	
Level of Service		A	A		A		B	B		B	B	
Approach Delay (s)		8.4			8.0			14.4			19.1	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	447	263	22	1018	203	18	32	22	55	304	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4	5.4		5.4		5.4	5.4		5.4	5.4	
Lane Util. Factor		0.95	1.00		0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	0.94		1.00	0.95	
Flt Protected		0.99	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3490	1583		3449		1770	1749		1770	1771	
Flt Permitted		0.54	1.00		0.94		0.22	1.00		0.72	1.00	
Satd. Flow (perm)		1897	1583		3232		408	1749		1338	1771	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	486	286	24	1107	221	20	35	24	60	330	162
RTOR Reduction (vph)	0	0	134	0	27	0	0	17	0	0	30	0
Lane Group Flow (vph)	0	678	152	0	1325	0	20	42	0	60	462	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		30.6	30.6		30.6		18.6	18.6		18.6	18.6	
Effective Green, g (s)		30.6	30.6		30.6		18.6	18.6		18.6	18.6	
Actuated g/C Ratio		0.51	0.51		0.51		0.31	0.31		0.31	0.31	
Clearance Time (s)		5.4	5.4		5.4		5.4	5.4		5.4	5.4	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		967	807		1648		126	542		415	549	
v/s Ratio Prot								0.02			c0.26	
v/s Ratio Perm		0.36	0.10		c0.41		0.05			0.04		
v/c Ratio		1.55dl	0.19		0.80		0.16	0.08		0.14	0.84	
Uniform Delay, d1		11.2	8.0		12.2		15.0	14.6		15.0	19.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.9	0.0		2.8		0.2	0.0		0.1	10.8	
Delay (s)		13.1	8.0		15.0		15.2	14.7		15.0	30.1	
Level of Service		B	A		B		B	B		B	C	
Approach Delay (s)		11.6			15.0			14.8			28.5	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	49	1548	342	21	52	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	1683	372	23	57	62
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	395				2172	383
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	395				2172	383
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				0	91
cM capacity (veh/h)	1164				49	664

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	1736	395	118
Volume Left	53	0	57
Volume Right	0	23	62
cSH	1164	1700	95
Volume to Capacity	0.05	0.23	1.25
Queue Length 95th (ft)	4	0	208
Control Delay (s)	8.2	0.0	255.2
Lane LOS	A		F
Approach Delay (s)	8.2	0.0	255.2
Approach LOS			F

Intersection Summary			
Average Delay		19.8	
Intersection Capacity Utilization		119.8%	ICU Level of Service H
Analysis Period (min)		15	

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	118	1626	547	69	73	240
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	128	1767	595	75	79	261
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	670				2656	632
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	670				2656	632
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				0	46
cM capacity (veh/h)	921				22	480

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	1896	670	340
Volume Left	128	0	79
Volume Right	0	75	261
cSH	921	1700	81
Volume to Capacity	0.14	0.39	4.21
Queue Length 95th (ft)	12	0	Err
Control Delay (s)	0.6	0.0	Err
Lane LOS	A		F
Approach Delay (s)	0.6	0.0	Err
Approach LOS			F

Intersection Summary			
Average Delay	1171.3		
Intersection Capacity Utilization	153.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations											
Volume (vph)	175	0	36	0	805	168	5	352	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.9		4.9	4.9			
Lane Util. Factor		0.97			0.95		1.00	1.00			
Frt		0.97			0.97		1.00	1.00			
Flt Protected		0.96			1.00		0.95	1.00			
Satd. Flow (prot)		3381			3447		1770	1863			
Flt Permitted		0.76			1.00		0.22	1.00			
Satd. Flow (perm)		2687			3447		403	1863			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	0	39	0	875	183	5	383	0	0	0
RTOR Reduction (vph)	0	28	0	0	28	0	0	0	0	0	0
Lane Group Flow (vph)	0	201	0	0	1030	0	5	383	0	0	0
Turn Type	Perm			Perm			Perm		Perm		Over
Protected Phases		4			2			2			4
Permitted Phases	4			2			2		2	4	
Actuated Green, G (s)		15.3			30.8		30.8	30.8			
Effective Green, g (s)		15.3			30.8		30.8	30.8			
Actuated g/C Ratio		0.28			0.55		0.55	0.55			
Clearance Time (s)		4.5			4.9		4.9	4.9			
Vehicle Extension (s)		5.0			4.0		4.0	4.0			
Lane Grp Cap (vph)		741			1913		224	1034			
v/s Ratio Prot					c0.30			0.21			
v/s Ratio Perm		c0.07					0.01				
v/c Ratio		0.27			0.54		0.02	0.37			
Uniform Delay, d1		15.7			7.8		5.6	6.9			
Progression Factor		1.00			1.00		1.00	1.00			
Incremental Delay, d2		0.4			0.4		0.1	0.3			
Delay (s)		16.1			8.2		5.6	7.2			
Level of Service		B			A		A	A			
Approach Delay (s)		16.1			8.2			7.2		0.0	
Approach LOS		B			A			A		A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	9.4
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations											
Volume (vph)	207	0	33	0	785	86	21	1011	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.9		4.9	4.9			
Lane Util. Factor		0.97			0.95		1.00	1.00			
Frt		0.98			0.99		1.00	1.00			
Flt Protected		0.96			1.00		0.95	1.00			
Satd. Flow (prot)		3393			3487		1770	1863			
Flt Permitted		0.75			1.00		0.28	1.00			
Satd. Flow (perm)		2672			3487		525	1863			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	225	0	36	0	853	93	23	1099	0	0	0
RTOR Reduction (vph)	0	10	0	0	4	0	0	0	0	0	0
Lane Group Flow (vph)	0	251	0	0	942	0	23	1099	0	0	0
Turn Type	Perm			Perm			Perm		Perm		Over
Protected Phases		4			2			2			4
Permitted Phases	4			2			2		2	4	
Actuated Green, G (s)		19.1			87.7		87.7	87.7			
Effective Green, g (s)		19.1			87.7		87.7	87.7			
Actuated g/C Ratio		0.16			0.75		0.75	0.75			
Clearance Time (s)		4.5			4.9		4.9	4.9			
Vehicle Extension (s)		5.0			4.0		4.0	4.0			
Lane Grp Cap (vph)		439			2632		396	1406			
v/s Ratio Prot					0.27			c0.59			
v/s Ratio Perm		c0.09					0.04				
v/c Ratio		0.93dl			0.36		0.06	0.78			
Uniform Delay, d1		44.8			4.8		3.7	8.5			
Progression Factor		1.00			1.00		1.00	1.00			
Incremental Delay, d2		2.9			0.1		0.1	3.1			
Delay (s)		47.6			4.9		3.7	11.6			
Level of Service		D			A		A	B			
Approach Delay (s)		47.6			4.9			11.4		0.0	
Approach LOS		D			A			B		A	

Intersection Summary

HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	116.2	Sum of lost time (s)	9.4
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

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

Movement	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL
Lane Configurations												
Volume (vph)	29	9	11	35	774	1	42	288	0	42	3	719
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6	4.6				4.6	4.6	4.2	4.6
Lane Util. Factor	1.00			0.95	0.95				0.95	1.00	1.00	0.97
Frt	0.97			0.87	0.85				1.00	0.85	0.86	0.90
Flt Protected	1.00			1.00	1.00				0.95	1.00	1.00	0.98
Satd. Flow (prot)	1803			1532	1504				3362	1583	1611	3196
Flt Permitted	1.00			0.99	1.00				0.95	1.00	1.00	0.46
Satd. Flow (perm)	1803			1525	1504				3362	1583	1611	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	10	12	38	841	1	46	313	0	46	3	782
RTOR Reduction (vph)	6	0	0	0	0	0	0	0	0	39	3	0
Lane Group Flow (vph)	36	0	0	445	447	0	0	0	359	7	0	2412
Turn Type			Perm		Perm		Perm	Perm		Perm	custom	
Protected Phases	6			6					4		8	5
Permitted Phases			6		6		4	4		4		2
Actuated Green, G (s)	45.7			45.7	45.7				17.4	17.4	17.8	39.8
Effective Green, g (s)	45.7			45.7	45.7				17.4	17.4	17.8	39.8
Actuated g/C Ratio	0.39			0.39	0.39				0.15	0.15	0.15	0.34
Clearance Time (s)	4.6			4.6	4.6				4.6	4.6	4.2	4.6
Vehicle Extension (s)	5.0			5.0	5.0				4.0	4.0	2.0	5.0
Lane Grp Cap (vph)	706			597	589				501	236	246	1090
v/s Ratio Prot	0.02										0.00	c0.75
v/s Ratio Perm				0.29	c0.30				0.11	0.00		
v/c Ratio	0.05			0.75	0.76				1.36dl	0.03	0.00	2.97dr
Uniform Delay, d1	22.0			30.5	30.7				47.3	42.4	41.9	38.5
Progression Factor	1.00			1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1			6.0	6.6				5.2	0.1	0.0	548.8
Delay (s)	22.1			36.5	37.4				52.5	42.5	41.9	587.2
Level of Service	C			D	D				D	D	D	F
Approach Delay (s)	22.1			36.9					51.4			587.2
Approach LOS	C			D					D			F

Intersection Summary			
HCM Average Control Delay	391.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	116.7	Sum of lost time (s)	13.8
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

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

Movement	SER	SER2
Lane Configurations		
Volume (vph)	1499	1
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1629	1
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
Intersection Summary		

Movement	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL2	SEL
Lane Configurations												
Volume (vph)	52	42	22	1545	2	9	691	0	44	6	1	987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6		4.6	4.6				4.6	4.6	4.2		4.6
Lane Util. Factor	1.00		0.95	0.95				0.95	1.00	1.00		0.97
Frt	0.94		0.85	0.85				1.00	0.85	0.86		0.91
Flt Protected	1.00		1.00	1.00				0.95	1.00	1.00		0.98
Satd. Flow (prot)	1750		1512	1504				3362	1583	1611		3232
Flt Permitted	1.00		1.00	1.00				0.95	1.00	1.00		0.95
Satd. Flow (perm)	1750		1512	1504				3362	1583	1611		3151
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	46	24	1679	2	10	751	0	48	7	1	1073
RTOR Reduction (vph)	19	0	0	0	0	0	0	0	32	6	0	0
Lane Group Flow (vph)	84	0	847	858	0	0	0	761	16	1	0	2556
Turn Type				custom		Perm	Perm		Perm	custom	Perm	
Protected Phases	6		6	2				4		8		5
Permitted Phases				6		4	4		4		5	2
Actuated Green, G (s)	53.4		53.4	77.8				24.4	24.4	24.8		53.8
Effective Green, g (s)	53.4		53.4	77.8				24.4	24.4	24.8		53.8
Actuated g/C Ratio	0.36		0.36	0.52				0.16	0.16	0.17		0.36
Clearance Time (s)	4.6		4.6	4.6				4.6	4.6	4.2		4.6
Vehicle Extension (s)	5.0		5.0	5.0				4.0	4.0	2.0		5.0
Lane Grp Cap (vph)	623		538	780				547	258	266		1146
v/s Ratio Prot	0.05		c0.56	0.18						0.00		c0.44
v/s Ratio Perm				0.39				0.23	0.01			c0.36
v/c Ratio	0.13		1.57	1.10				2.64dl	0.06	0.00		2.36dr
Uniform Delay, d1	32.7		48.3	36.1				62.8	53.1	52.3		52.1
Progression Factor	1.00		1.00	1.00				1.00	1.00	1.00		1.00
Incremental Delay, d2	0.2		267.3	63.1				187.1	0.1	0.0		556.5
Delay (s)	32.9		315.6	99.2				249.9	53.3	52.3		608.6
Level of Service	C		F	F				F	D	D		F
Approach Delay (s)	32.9		206.7					238.2				608.6
Approach LOS	C		F					F				F

Intersection Summary			
HCM Average Control Delay	406.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	154.1%	ICU Level of Service	H
Analysis Period (min)	15		

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

Movement	SER	SER2
Lane Configurations		
Volume (vph)	1357	6
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1475	7
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
Intersection Summary		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	86	1021	258	15	621	31	157	308	151	20	35	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6		4.6		4.6	4.6		4.6	4.6	
Lane Util. Factor		0.95	1.00		0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.99		1.00	0.95		1.00	0.98	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3526	1583		3510		1770	1771		1770	1819	
Flt Permitted		0.83	1.00		0.92		0.73	1.00		0.28	1.00	
Satd. Flow (perm)		2921	1583		3229		1356	1771		525	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	1110	280	16	675	34	171	335	164	22	38	7
RTOR Reduction (vph)	0	0	116	0	6	0	0	29	0	0	4	0
Lane Group Flow (vph)	0	1203	164	0	719	0	171	470	0	22	41	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		26.6	26.6		26.6		22.1	22.1		22.1	22.1	
Effective Green, g (s)		26.6	26.6		26.6		22.1	22.1		22.1	22.1	
Actuated g/C Ratio		0.46	0.46		0.46		0.38	0.38		0.38	0.38	
Clearance Time (s)		4.6	4.6		4.6		4.6	4.6		4.6	4.6	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		1342	727		1483		518	676		200	694	
v/s Ratio Prot								c0.27			0.02	
v/s Ratio Perm		c0.41	0.10		0.22		0.13			0.04		
v/c Ratio		0.90	0.23		0.48		0.33	0.70		0.11	0.06	
Uniform Delay, d1		14.4	9.4		10.9		12.7	15.1		11.6	11.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		8.0	0.1		0.1		0.1	2.5		0.1	0.0	
Delay (s)		22.3	9.5		11.0		12.8	17.6		11.6	11.3	
Level of Service		C	A		B		B	B		B	B	
Approach Delay (s)		19.9			11.0			16.4			11.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	9.2
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	75	1030	286	41	1187	158	153	232	85	297	306	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6		4.6		4.6	4.6		4.6	4.6	
Lane Util. Factor		0.95	1.00		0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	0.96		1.00	0.99	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3527	1583		3473		1770	1788		1770	1835	
Flt Permitted		0.59	1.00		0.82		0.39	1.00		0.42	1.00	
Satd. Flow (perm)		2072	1583		2841		723	1788		776	1835	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1120	311	45	1290	172	166	252	92	323	333	36
RTOR Reduction (vph)	0	0	83	0	11	0	0	15	0	0	4	0
Lane Group Flow (vph)	0	1202	228	0	1496	0	166	329	0	323	365	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		46.4	46.4		46.4		34.4	34.4		34.4	34.4	
Effective Green, g (s)		46.4	46.4		46.4		34.4	34.4		34.4	34.4	
Actuated g/C Ratio		0.52	0.52		0.52		0.38	0.38		0.38	0.38	
Clearance Time (s)		4.6	4.6		4.6		4.6	4.6		4.6	4.6	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		1068	816		1465		276	683		297	701	
v/s Ratio Prot								0.18			0.20	
v/s Ratio Perm		c0.58	0.14		0.53		0.23			c0.42		
v/c Ratio		1.13	0.28		1.02		0.60	0.48		1.09	0.52	
Uniform Delay, d1		21.8	12.3		21.8		22.3	21.1		27.8	21.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		68.9	0.1		29.0		2.5	0.2		77.6	0.3	
Delay (s)		90.7	12.4		50.8		24.8	21.2		105.4	21.8	
Level of Service		F	B		D		C	C		F	C	
Approach Delay (s)		74.6			50.8			22.4			60.8	
Approach LOS		E			D			C			E	

Intersection Summary

HCM Average Control Delay	57.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1173	18	8	287	0	27	0	16	255	505	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5		4.5		4.5	4.5	4.5	
Lane Util. Factor		0.95			0.95		1.00		1.00	1.00	0.95	
Frt		1.00			1.00		1.00		0.85	1.00	0.94	
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)		3531			3534		1770		1583	1770	3314	
Flt Permitted		1.00			0.92		0.19		1.00	0.95	1.00	
Satd. Flow (perm)		3531			3244		349		1583	1770	3314	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1275	20	9	312	0	29	0	17	277	549	403
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	10	0	223	0
Lane Group Flow (vph)	0	1293	0	0	321	0	29	0	7	277	729	0
Turn Type				Perm			D.Pm		custom	Perm		
Protected Phases		4			4				2		2	
Permitted Phases				4			2		2	2		
Actuated Green, G (s)		26.2			26.2		24.1		24.1	24.1	24.1	
Effective Green, g (s)		26.2			26.2		24.1		24.1	24.1	24.1	
Actuated g/C Ratio		0.44			0.44		0.41		0.41	0.41	0.41	
Clearance Time (s)		4.5			4.5		4.5		4.5	4.5	4.5	
Vehicle Extension (s)		2.0			2.0		2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		1560			1433		142		643	719	1347	
v/s Ratio Prot		c0.37							0.00		c0.22	
v/s Ratio Perm					0.10		0.08			0.16		
v/c Ratio		0.83			0.22		0.20		0.01	0.39	0.54	
Uniform Delay, d1		14.6			10.3		11.4		10.5	12.4	13.4	
Progression Factor		1.00			1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2		3.6			0.0		0.3		0.0	0.1	0.2	
Delay (s)		18.2			10.3		11.7		10.5	12.5	13.6	
Level of Service		B			B		B		B	B	B	
Approach Delay (s)		18.2			10.3			11.2			13.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1184	27	7	1073	0	30	0	43	284	221	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5		4.5		4.5	4.5	4.5	
Lane Util. Factor		0.95			0.95		1.00		1.00	1.00	0.95	
Frt		1.00			1.00		1.00		0.85	1.00	0.91	
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)		3528			3538		1770		1583	1770	3220	
Flt Permitted		1.00			0.94		0.37		1.00	0.95	1.00	
Satd. Flow (perm)		3528			3342		690		1583	1770	3220	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1287	29	8	1166	0	33	0	47	309	240	361
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	13	0	18	0
Lane Group Flow (vph)	0	1313	0	0	1174	0	33	0	34	309	583	0
Turn Type				Perm			D.Pm		custom	Perm		
Protected Phases		4			4				2		2	
Permitted Phases				4			2		2	2		
Actuated Green, G (s)		26.5			26.5		24.1		24.1	24.1	24.1	
Effective Green, g (s)		26.5			26.5		24.1		24.1	24.1	24.1	
Actuated g/C Ratio		0.44			0.44		0.40		0.40	0.40	0.40	
Clearance Time (s)		4.5			4.5		4.5		4.5	4.5	4.5	
Vehicle Extension (s)		2.0			2.0		2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		1569			1486		279		640	716	1302	
v/s Ratio Prot		c0.37							0.02		c0.18	
v/s Ratio Perm					0.35		0.05			0.17		
v/c Ratio		0.84			0.79		0.12		0.05	0.43	0.45	
Uniform Delay, d1		14.6			14.2		11.1		10.8	12.8	12.9	
Progression Factor		1.00			1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2		3.9			2.7		0.1		0.0	0.2	0.1	
Delay (s)		18.5			16.9		11.2		10.8	13.0	13.0	
Level of Service		B			B		B		B	B	B	
Approach Delay (s)		18.5			16.9			11.0			13.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	398	720	272	6	226	44	60	163	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5			4.2				
Lane Util. Factor		0.95			0.95			0.95				
Frt		0.97			0.98			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		3387			3451			3463				
Flt Permitted		0.75			0.92			0.99				
Satd. Flow (perm)		2581			3185			3463				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	433	783	296	7	246	48	65	177	16	0	0	0
RTOR Reduction (vph)	0	27	0	0	19	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	1485	0	0	282	0	0	252	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		8			4		6	6				
Permitted Phases	8			4								
Actuated Green, G (s)		45.7			45.7			22.1				
Effective Green, g (s)		45.7			45.7			22.1				
Actuated g/C Ratio		0.60			0.60			0.29				
Clearance Time (s)		4.5			4.5			4.2				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		1542			1903			1000				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		c0.58			0.09							
v/c Ratio		0.96			0.15			0.25				
Uniform Delay, d1		14.6			6.8			20.9				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		14.9			0.0			0.0				
Delay (s)		29.4			6.8			20.9				
Level of Service		C			A			C				
Approach Delay (s)		29.4			6.8			20.9			0.0	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	8.7
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	800	508	179	9	897	108	178	537	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5			4.2				
Lane Util. Factor		0.95			0.95			0.95				
Frt		0.98			0.98			1.00				
Flt Protected		0.97			1.00			0.99				
Satd. Flow (prot)		3384			3481			3485				
Flt Permitted		0.50			0.93			0.99				
Satd. Flow (perm)		1732			3240			3485				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	870	552	195	10	975	117	193	584	18	0	0	0
RTOR Reduction (vph)	0	8	0	0	4	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	1609	0	0	1098	0	0	794	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		8			4		6	6				
Permitted Phases	8			4								
Actuated Green, G (s)		104.5			104.5			26.8				
Effective Green, g (s)		104.5			104.5			26.8				
Actuated g/C Ratio		0.75			0.75			0.19				
Clearance Time (s)		4.5			4.5			4.2				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		1293			2418			667				
v/s Ratio Prot								c0.23				
v/s Ratio Perm		c0.93			0.34							
v/c Ratio		2.68dl			0.45			1.19				
Uniform Delay, d1		17.8			6.8			56.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		116.8			0.0			100.2				
Delay (s)		134.5			6.9			156.8				
Level of Service		F			A			F				
Approach Delay (s)		134.5			6.9			156.8			0.0	
Approach LOS		F			A			F			A	

Intersection Summary

HCM Average Control Delay	99.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

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

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	57	0	18	2	0	0	1	2190	29	40	1119	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6			4.2	4.2		4.2	
Lane Util. Factor	1.00	1.00			1.00			0.95	1.00		0.95	
Frt	1.00	0.85			1.00			1.00	0.85		1.00	
Flt Protected	0.95	1.00			0.95			1.00	1.00		1.00	
Satd. Flow (prot)	1770	1583			1770			3539	1583		3530	
Flt Permitted	0.76	1.00			0.74			0.95	1.00		0.64	
Satd. Flow (perm)	1409	1583			1386			3379	1583		2276	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	0	20	2	0	0	1	2380	32	43	1216	7
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	62	20	0	0	2	0	0	2381	28	0	1266	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)	14.0	14.0			14.0			43.8	43.8		43.8	
Effective Green, g (s)	14.0	14.0			14.0			43.8	43.8		43.8	
Actuated g/C Ratio	0.21	0.21			0.21			0.66	0.66		0.66	
Clearance Time (s)	4.6	4.6			4.6			4.2	4.2		4.2	
Vehicle Extension (s)	5.0	5.0			5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	296	333			291			2222	1041		1497	
v/s Ratio Prot		0.01										
v/s Ratio Perm	c0.04				0.00			c0.70	0.02		0.56	
v/c Ratio	0.21	0.06			0.01			1.07	0.03		0.85	
Uniform Delay, d1	21.7	21.0			20.8			11.4	4.0		8.8	
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.2			0.0			41.6	0.0		4.8	
Delay (s)	22.5	21.2			20.8			53.0	4.0		13.6	
Level of Service	C	C			C			D	A		B	
Approach Delay (s)		22.2			20.8			52.3			13.6	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	8.8
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	29	0	23	0	0	2	1	2328	57	25	2269	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6			4.2	4.2		4.2	
Lane Util. Factor	1.00	1.00			1.00			0.95	1.00		0.95	
Frt	1.00	0.85			0.86			1.00	0.85		1.00	
Flt Protected	0.95	1.00			1.00			1.00	1.00		1.00	
Satd. Flow (prot)	1770	1583			1611			3539	1583		3537	
Flt Permitted	0.76	1.00			1.00			0.91	1.00		0.66	
Satd. Flow (perm)	1409	1583			1611			3205	1583		2344	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	0	25	0	0	2	1	2530	62	27	2466	1
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	5	0	0	0
Lane Group Flow (vph)	32	24	0	0	1	0	0	2531	57	0	2494	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)	21.1	21.1			21.1			78.2	78.2		78.2	
Effective Green, g (s)	21.1	21.1			21.1			78.2	78.2		78.2	
Actuated g/C Ratio	0.20	0.20			0.20			0.72	0.72		0.72	
Clearance Time (s)	4.6	4.6			4.6			4.2	4.2		4.2	
Vehicle Extension (s)	5.0	5.0			5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	275	309			314			2319	1145		1696	
v/s Ratio Prot		0.02			0.00							
v/s Ratio Perm	c0.02							0.79	0.04		c1.06	
v/c Ratio	0.12	0.08			0.00			1.09	0.05		1.47	
Uniform Delay, d1	35.8	35.6			35.0			14.9	4.3		14.9	
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.2			0.0			48.9	0.0		215.0	
Delay (s)	36.2	35.8			35.0			63.9	4.3		230.0	
Level of Service	D	D			D			E	A		F	
Approach Delay (s)		36.0			35.0			62.5			230.0	
Approach LOS		D			D			E			F	

Intersection Summary

HCM Average Control Delay	143.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	8.8
Intersection Capacity Utilization	111.0%	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)	0	174	59	86	114	0	0	0	0	181	1445	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.9	
Lane Util. Factor		1.00			1.00						0.91	
Frt		0.97			1.00						0.99	
Flt Protected		1.00			0.98						0.99	
Satd. Flow (prot)		1799			1824						5024	
Flt Permitted		1.00			0.75						0.99	
Satd. Flow (perm)		1799			1395						5024	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	189	64	93	124	0	0	0	0	197	1571	85
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	246	0	0	217	0	0	0	0	0	1844	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		13.1			13.1						23.3	
Effective Green, g (s)		13.1			13.1						23.3	
Actuated g/C Ratio		0.29			0.29						0.51	
Clearance Time (s)		4.2			4.2						4.9	
Vehicle Extension (s)		4.0			4.0						5.0	
Lane Grp Cap (vph)		518			402						2573	
v/s Ratio Prot		0.14									c0.37	
v/s Ratio Perm					c0.16							
v/c Ratio		0.47			0.54						0.72	
Uniform Delay, d1		13.4			13.7						8.6	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.9			1.8						1.2	
Delay (s)		14.3			15.4						9.8	
Level of Service		B			B						A	
Approach Delay (s)		14.3			15.4			0.0			9.8	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	9.1
Intersection Capacity Utilization	67.9%	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)	0	326	160	164	303	0	0	0	0	184	1788	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.9	
Lane Util. Factor		1.00			1.00						0.91	
Frt		0.96			1.00						0.99	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1780			1831						4995	
Flt Permitted		1.00			0.45						1.00	
Satd. Flow (perm)		1780			840						4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	354	174	178	329	0	0	0	0	200	1943	215
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	527	0	0	507	0	0	0	0	0	2347	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		54.8			54.8						46.1	
Effective Green, g (s)		54.8			54.8						46.1	
Actuated g/C Ratio		0.50			0.50						0.42	
Clearance Time (s)		4.2			4.2						4.9	
Vehicle Extension (s)		4.0			4.0						5.0	
Lane Grp Cap (vph)		887			418						2093	
v/s Ratio Prot		0.30									c0.47	
v/s Ratio Perm					c0.60							
v/c Ratio		0.59			1.21						1.12	
Uniform Delay, d1		19.7			27.6						31.9	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		1.3			116.1						61.6	
Delay (s)		20.9			143.7						93.6	
Level of Service		C			F						F	
Approach Delay (s)		20.9			143.7			0.0			93.6	
Approach LOS		C			F			A			F	

Intersection Summary			
HCM Average Control Delay	89.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	105.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	265	0	0	161	92	45	642	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2			4.9				
Lane Util. Factor		1.00			1.00			0.91				
Frt		1.00			0.95			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1843			1771			5010				
Flt Permitted		0.87			1.00			1.00				
Satd. Flow (perm)		1624			1771			5010				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	288	0	0	175	100	49	698	64	0	0	0
RTOR Reduction (vph)	0	0	0	0	45	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	367	0	0	230	0	0	793	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		15.3			15.3			19.2				
Effective Green, g (s)		15.3			15.3			19.2				
Actuated g/C Ratio		0.35			0.35			0.44				
Clearance Time (s)		4.2			4.2			4.9				
Vehicle Extension (s)		4.0			4.0			0.2				
Lane Grp Cap (vph)		570			621			2206				
v/s Ratio Prot					0.13			c0.16				
v/s Ratio Perm		c0.23										
v/c Ratio		0.64			0.37			0.36				
Uniform Delay, d1		11.9			10.6			8.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		2.8			0.5			0.0				
Delay (s)		14.6			11.1			8.1				
Level of Service		B			B			A				
Approach Delay (s)		14.6			11.1			8.1			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	59.0%	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)	66	110	0	0	136	151	37	1517	46	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2			4.9				
Lane Util. Factor		1.00			1.00			0.91				
Frt		1.00			0.93			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1828			1731			5058				
Flt Permitted		0.78			1.00			1.00				
Satd. Flow (perm)		1457			1731			5058				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	120	0	0	148	164	40	1649	50	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	192	0	0	308	0	0	1733	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		13.4			13.4			20.3				
Effective Green, g (s)		13.4			13.4			20.3				
Actuated g/C Ratio		0.31			0.31			0.47				
Clearance Time (s)		4.2			4.2			4.9				
Vehicle Extension (s)		4.0			4.0			0.2				
Lane Grp Cap (vph)		456			542			2399				
v/s Ratio Prot					c0.18			c0.34				
v/s Ratio Perm		0.13										
v/c Ratio		0.42			0.57			0.72				
Uniform Delay, d1		11.6			12.3			9.0				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.9			1.7			0.9				
Delay (s)		12.5			13.9			9.9				
Level of Service		B			B			A				
Approach Delay (s)		12.5			13.9			9.9			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	42.8	Sum of lost time (s)	9.1
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)	0	636	163	0	0	0	0	0	0	886	836	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2									4.6	
Lane Util. Factor		0.95									0.95	
Frt		0.97									1.00	
Flt Protected		1.00									0.97	
Satd. Flow (prot)		3431									3450	
Flt Permitted		1.00									0.97	
Satd. Flow (perm)		3431									3450	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	691	177	0	0	0	0	0	0	963	909	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	38	0
Lane Group Flow (vph)	0	843	0	0	0	0	0	0	0	0	1834	0
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		31.1									48.9	
Effective Green, g (s)		31.1									48.9	
Actuated g/C Ratio		0.35									0.55	
Clearance Time (s)		4.2									4.6	
Vehicle Extension (s)		6.4									5.6	
Lane Grp Cap (vph)		1202									1900	
v/s Ratio Prot		c0.25										
v/s Ratio Perm											0.53	
v/c Ratio		0.70									0.97	
Uniform Delay, d1		24.8									19.1	
Progression Factor		1.00									1.00	
Incremental Delay, d2		2.9									13.7	
Delay (s)		27.8									32.8	
Level of Service		C									C	
Approach Delay (s)		27.8			0.0			0.0			32.8	
Approach LOS		C			A			A			C	

Intersection Summary

HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	8.8
Intersection Capacity Utilization	79.2%	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)	0	563	227	0	0	0	0	0	0	857	585	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2									4.6	
Lane Util. Factor		0.95									0.95	
Frt		0.96									1.00	
Flt Protected		1.00									0.97	
Satd. Flow (prot)		3387									3437	
Flt Permitted		1.00									0.97	
Satd. Flow (perm)		3387									3437	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	612	247	0	0	0	0	0	0	932	636	0
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	87	0
Lane Group Flow (vph)	0	799	0	0	0	0	0	0	0	0	1481	0
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		29.1									34.3	
Effective Green, g (s)		29.1									34.3	
Actuated g/C Ratio		0.40									0.48	
Clearance Time (s)		4.2									4.6	
Vehicle Extension (s)		6.4									5.6	
Lane Grp Cap (vph)		1365									1633	
v/s Ratio Prot		c0.24										
v/s Ratio Perm											0.43	
v/c Ratio		0.59									1.00dl	
Uniform Delay, d1		16.8									17.5	
Progression Factor		1.00									1.00	
Incremental Delay, d2		1.3									8.3	
Delay (s)		18.2									25.8	
Level of Service		B									C	
Approach Delay (s)		18.2			0.0			0.0			25.8	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	8.8
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

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

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	370	1155	0	0	287	330	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.95	1.00					
Frt	1.00	1.00			1.00	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3539	1583					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3539	1583					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	402	1255	0	0	312	359	0	0	0	0	0
RTOR Reduction (vph)	37	0	0	0	0	86	0	0	0	0	0
Lane Group Flow (vph)	365	1255	0	0	312	273	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	71.4	71.4			19.2	19.2					
Effective Green, g (s)	71.4	71.4			19.2	19.2					
Actuated g/C Ratio	0.72	0.72			0.19	0.19					
Clearance Time (s)	4.6	4.6			4.6	4.6					
Vehicle Extension (s)	5.0	5.0			4.5	4.5					
Lane Grp Cap (vph)	1266	1266			681	305					
v/s Ratio Prot	0.21	c0.71			0.09						
v/s Ratio Perm						c0.17					
v/c Ratio	0.29	0.99			0.46	0.89					
Uniform Delay, d1	5.1	13.9			35.7	39.3					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.3	23.2			0.8	27.4					
Delay (s)	5.4	37.1			36.5	66.7					
Level of Service	A	D			D	E					
Approach Delay (s)		29.4			52.7			0.0		0.0	
Approach LOS		C			D			A		A	

Intersection Summary

HCM Average Control Delay	36.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	9.2
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	321	1101	0	0	507	824	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.95	1.00					
Frt	1.00	1.00			1.00	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3539	1583					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3539	1583					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	349	1197	0	0	551	896	0	0	0	0	0
RTOR Reduction (vph)	77	0	0	0	0	33	0	0	0	0	0
Lane Group Flow (vph)	272	1197	0	0	551	863	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	80.4	80.4			60.4	60.4					
Effective Green, g (s)	80.4	80.4			60.4	60.4					
Actuated g/C Ratio	0.54	0.54			0.40	0.40					
Clearance Time (s)	4.6	4.6			4.6	4.6					
Vehicle Extension (s)	5.0	5.0			4.5	4.5					
Lane Grp Cap (vph)	949	949			1425	637					
v/s Ratio Prot	0.15	c0.68			0.16						
v/s Ratio Perm						c0.55					
v/c Ratio	0.29	1.26			0.39	1.36					
Uniform Delay, d1	19.1	34.8			31.7	44.8					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.4	126.1			0.3	169.9					
Delay (s)	19.4	160.9			32.0	214.7					
Level of Service	B	F			C	F					
Approach Delay (s)		129.0			145.1			0.0		0.0	
Approach LOS		F			F			A		A	

Intersection Summary

HCM Average Control Delay	136.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1013	563	6	51	0	0	0	0	0	955	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.7	3.7		3.7						4.1	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frt		1.00	0.85		1.00						0.98	
Flt Protected		1.00	1.00		0.99						1.00	
Satd. Flow (prot)		1863	1583		1852						3460	
Flt Permitted		1.00	1.00		0.67						1.00	
Satd. Flow (perm)		1863	1583		1250						3460	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1101	612	7	55	0	0	0	0	0	1038	182
RTOR Reduction (vph)	0	0	8	0	0	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	1101	604	0	62	0	0	0	0	0	1206	0
Turn Type			Perm	Perm								
Protected Phases		4			8						6	
Permitted Phases			4	8								
Actuated Green, G (s)		57.3	57.3		57.3						34.9	
Effective Green, g (s)		57.3	57.3		57.3						34.9	
Actuated g/C Ratio		0.57	0.57		0.57						0.35	
Clearance Time (s)		3.7	3.7		3.7						4.1	
Vehicle Extension (s)		5.0	5.0		4.8						4.6	
Lane Grp Cap (vph)		1067	907		716						1208	
v/s Ratio Prot		c0.59									c0.35	
v/s Ratio Perm			0.38		0.05							
v/c Ratio		1.03	0.67		0.09						1.00	
Uniform Delay, d1		21.4	14.7		9.6						32.5	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		36.1	2.5		0.1						25.3	
Delay (s)		57.4	17.2		9.7						57.8	
Level of Service		E	B		A						E	
Approach Delay (s)		43.0			9.7			0.0			57.8	
Approach LOS		D			A			A			E	

Intersection Summary			
HCM Average Control Delay	48.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	7.8
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1303	479	7	97	0	0	0	0	0	956	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.7	3.7		3.7						4.1	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frt		1.00	0.85		1.00						0.96	
Flt Protected		1.00	1.00		1.00						1.00	
Satd. Flow (prot)		1863	1583		1856						3403	
Flt Permitted		1.00	1.00		0.64						1.00	
Satd. Flow (perm)		1863	1583		1184						3403	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1416	521	8	105	0	0	0	0	0	1039	357
RTOR Reduction (vph)	0	0	7	0	0	0	0	0	0	0	28	0
Lane Group Flow (vph)	0	1416	514	0	113	0	0	0	0	0	1368	0
Turn Type			Perm	Perm								
Protected Phases		4			8						6	
Permitted Phases			4	8								
Actuated Green, G (s)		71.3	71.3		71.3						40.9	
Effective Green, g (s)		71.3	71.3		71.3						40.9	
Actuated g/C Ratio		0.59	0.59		0.59						0.34	
Clearance Time (s)		3.7	3.7		3.7						4.1	
Vehicle Extension (s)		5.0	5.0		4.8						4.6	
Lane Grp Cap (vph)		1107	941		703						1160	
v/s Ratio Prot		c0.76									c0.40	
v/s Ratio Perm			0.32		0.10							
v/c Ratio		1.28	0.55		0.16						1.18	
Uniform Delay, d1		24.4	14.6		10.9						39.5	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		132.7	1.1		0.2						89.7	
Delay (s)		157.0	15.8		11.1						129.3	
Level of Service		F	B		B						F	
Approach Delay (s)		119.0			11.1			0.0			129.3	
Approach LOS		F			B			A			F	

Intersection Summary			
HCM Average Control Delay	119.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.8
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1040	0	56	611	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	1.00			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			1.00		
Satd. Flow (prot)	1770			3524		
Flt Permitted	0.95			1.00		
Satd. Flow (perm)	1770			3524		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1130	0	61	664	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1130	0	0	725	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	57.4			23.0		
Effective Green, g (s)	57.4			23.0		
Actuated g/C Ratio	0.64			0.26		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	1134			905		
v/s Ratio Prot	c0.64			c0.21		
v/s Ratio Perm						
v/c Ratio	1.00			0.80		
Uniform Delay, d1	16.0			31.2		
Progression Factor	1.00			1.00		
Incremental Delay, d2	25.7			5.8		
Delay (s)	41.7			37.0		
Level of Service	D			D		
Approach Delay (s)	41.7			37.0	0.0	
Approach LOS	D			D	A	

Intersection Summary

HCM Average Control Delay	39.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	89.6	Sum of lost time (s)	9.2
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1305	0	105	721	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	1.00			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	1770			3517		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	1770			3517		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1418	0	114	784	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1418	0	0	898	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	98.4			32.4		
Effective Green, g (s)	98.4			32.4		
Actuated g/C Ratio	0.70			0.23		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	1244			814		
v/s Ratio Prot	c0.80			c0.26		
v/s Ratio Perm						
v/c Ratio	1.14			1.10		
Uniform Delay, d1	20.8			53.8		
Progression Factor	1.00			1.00		
Incremental Delay, d2	73.1			63.7		
Delay (s)	93.9			117.5		
Level of Service	F			F		
Approach Delay (s)	93.9			117.5	0.0	
Approach LOS	F			F	A	

Intersection Summary			
HCM Average Control Delay	103.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	102.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1474	145	111	376	0	0	0	0	376	1457	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2						4.9	
Lane Util. Factor		0.95		1.00	0.95						0.91	
Frt		0.99		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3492		1770	3539						4937	
Flt Permitted		1.00		0.95	1.00						0.99	
Satd. Flow (perm)		3492		1770	3539						4937	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1602	158	121	409	0	0	0	0	409	1584	316
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	1755	0	121	409	0	0	0	0	0	2295	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		64.8		8.3	76.8						64.1	
Effective Green, g (s)		64.8		8.3	76.8						64.1	
Actuated g/C Ratio		0.43		0.06	0.51						0.43	
Clearance Time (s)		4.2		3.7	4.2						4.9	
Vehicle Extension (s)		6.8		2.0	6.8						0.2	
Lane Grp Cap (vph)		1509		98	1812						2110	
v/s Ratio Prot		c0.50		c0.07	0.12						c0.46	
v/s Ratio Perm												
v/c Ratio		1.16		1.23	0.23						1.09	
Uniform Delay, d1		42.6		70.8	20.2						43.0	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		81.0		166.8	0.2						48.1	
Delay (s)		123.6		237.6	20.4						91.0	
Level of Service		F		F	C						F	
Approach Delay (s)		123.6			70.0			0.0			91.0	
Approach LOS		F			E			A			F	

Intersection Summary			
HCM Average Control Delay	101.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1673	179	251	1353	0	0	0	0	364	1740	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2						4.9	
Lane Util. Factor		0.95		1.00	0.95						0.91	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3488		1770	3539						4893	
Flt Permitted		1.00		0.95	1.00						0.99	
Satd. Flow (perm)		3488		1770	3539						4893	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1818	195	273	1471	0	0	0	0	396	1891	603
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	2007	0	273	1471	0	0	0	0	0	2877	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		57.8		16.3	77.8						63.1	
Effective Green, g (s)		57.8		16.3	77.8						63.1	
Actuated g/C Ratio		0.39		0.11	0.52						0.42	
Clearance Time (s)		4.2		3.7	4.2						4.9	
Vehicle Extension (s)		6.8		2.0	6.8						0.2	
Lane Grp Cap (vph)		1344		192	1836						2058	
v/s Ratio Prot		c0.58		c0.15	0.42						c0.59	
v/s Ratio Perm												
v/c Ratio		1.49		1.42	0.80						1.40	
Uniform Delay, d1		46.1		66.8	29.7						43.5	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		226.1		217.4	3.2						182.0	
Delay (s)		272.2		284.3	33.0						225.5	
Level of Service		F		F	C						F	
Approach Delay (s)		272.2			72.3			0.0			225.5	
Approach LOS		F			E			A			F	

Intersection Summary			
HCM Average Control Delay	199.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	130.2%	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)	908	934	0	0	459	158	44	714	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	3.7	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			3539	1583		5071	1583			
Flt Permitted	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1770	3539			3539	1583		5071	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	987	1015	0	0	499	172	48	776	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	58	0	0	18	0	0	0
Lane Group Flow (vph)	987	1015	0	0	499	114	0	824	9	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	80.4	108.7			24.6	24.6		26.0	26.0			
Effective Green, g (s)	80.4	108.7			24.6	24.6		26.0	26.0			
Actuated g/C Ratio	0.56	0.76			0.17	0.17		0.18	0.18			
Clearance Time (s)	3.7	4.2			4.2	4.2		4.9	4.9			
Vehicle Extension (s)	2.0	5.1			5.1	5.1		0.2	0.2			
Lane Grp Cap (vph)	990	2675			605	271		917	286			
v/s Ratio Prot	c0.56	0.29			c0.14			c0.16				
v/s Ratio Perm						0.07			0.01			
v/c Ratio	1.00	0.38			0.82	0.42		0.90	0.03			
Uniform Delay, d1	31.6	6.0			57.5	53.2		57.6	48.5			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	27.6	0.2			10.0	2.3		11.2	0.0			
Delay (s)	59.2	6.2			67.6	55.5		68.8	48.5			
Level of Service	E	A			E	E		E	D			
Approach Delay (s)		32.3			64.5			68.2			0.0	
Approach LOS		C			E			E			A	

Intersection Summary			
HCM Average Control Delay	47.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	143.8	Sum of lost time (s)	12.8
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	422	1610	0	0	1540	302	62	1620	29	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	3.7	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			3539	1583		5076	1583			
Flt Permitted	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1770	3539			3539	1583		5076	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	459	1750	0	0	1674	328	67	1761	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	12	0	0	10	0	0	0
Lane Group Flow (vph)	459	1750	0	0	1674	316	0	1828	22	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	28.3	86.8			54.8	54.8		44.1	44.1			
Effective Green, g (s)	28.3	86.8			54.8	54.8		44.1	44.1			
Actuated g/C Ratio	0.20	0.62			0.39	0.39		0.32	0.32			
Clearance Time (s)	3.7	4.2			4.2	4.2		4.9	4.9			
Vehicle Extension (s)	2.0	5.1			5.1	5.1		0.2	0.2			
Lane Grp Cap (vph)	358	2194			1385	620		1599	499			
v/s Ratio Prot	c0.26	0.49			c0.47			c0.36				
v/s Ratio Perm						0.20			0.01			
v/c Ratio	1.28	0.80			1.21	0.51		1.14	0.04			
Uniform Delay, d1	55.9	20.0			42.6	32.4		48.0	33.3			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	146.7	2.4			100.9	1.4		72.4	0.0			
Delay (s)	202.6	22.4			143.5	33.8		120.4	33.3			
Level of Service	F	C			F	C		F	C			
Approach Delay (s)		59.9			125.5			118.9			0.0	
Approach LOS		E			F			F			A	

Intersection Summary			
HCM Average Control Delay	99.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	130.2%	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)	55	688	144	418	510	38	70	183	104	68	353	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6		4.0	4.6		4.0	14.6		4.0	4.6	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3447		1770	3503		1770	3347		1770	3463	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3447		1770	3503		1770	3347		1770	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	748	157	454	554	41	76	199	113	74	384	64
RTOR Reduction (vph)	0	12	0	0	3	0	0	61	0	0	10	0
Lane Group Flow (vph)	60	893	0	454	592	0	76	251	0	74	438	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	7.0	39.5		36.8	69.3		8.1	18.8		7.7	28.4	
Effective Green, g (s)	7.0	39.5		36.8	69.3		8.1	18.8		7.7	28.4	
Actuated g/C Ratio	0.05	0.30		0.28	0.53		0.06	0.14		0.06	0.22	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	14.6		4.0	4.6	
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	95	1047		501	1867		110	484		105	757	
v/s Ratio Prot	0.03	c0.26		c0.26	0.17		c0.04	0.08		0.04	c0.13	
v/s Ratio Perm												
v/c Ratio	0.63	0.85		0.91	0.32		0.69	0.52		0.70	0.58	
Uniform Delay, d1	60.2	42.5		44.9	17.1		59.7	51.4		60.0	45.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.6	7.5		19.5	0.2		14.0	1.9		16.1	1.7	
Delay (s)	69.9	50.1		64.4	17.3		73.7	53.3		76.1	47.2	
Level of Service	E	D		E	B		E	D		E	D	
Approach Delay (s)		51.3			37.7			57.3			51.3	
Approach LOS		D			D			E			D	

Intersection Summary

HCM Average Control Delay	47.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	1327	109	184	1298	145	172	647	217	452	709	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6		4.0	4.6		4.0	14.6		4.0	4.6	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		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)	1770	3499		1770	3486		1770	3406		1770	3351	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3499		1770	3486		1770	3406		1770	3351	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	1442	118	200	1411	158	187	703	236	491	771	425
RTOR Reduction (vph)	0	4	0	0	6	0	0	22	0	0	52	0
Lane Group Flow (vph)	132	1556	0	200	1563	0	187	917	0	491	1144	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	12.0	43.4		13.0	44.4		15.0	36.4		25.0	56.4	
Effective Green, g (s)	12.0	43.4		13.0	44.4		15.0	36.4		25.0	56.4	
Actuated g/C Ratio	0.08	0.30		0.09	0.31		0.10	0.25		0.17	0.39	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	14.6		4.0	4.6	
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	146	1047		159	1067		183	855		305	1303	
v/s Ratio Prot	0.07	0.44		c0.11	c0.45		0.11	0.27		c0.28	c0.34	
v/s Ratio Perm												
v/c Ratio	0.90	1.49		1.26	1.47		1.02	1.07		1.61	0.88	
Uniform Delay, d1	65.9	50.8		66.0	50.3		65.0	54.3		60.0	41.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.1	223.8		156.9	214.6		72.4	51.9		289.2	7.6	
Delay (s)	112.0	274.6		222.9	264.9		137.4	106.2		349.2	48.7	
Level of Service	F	F		F	F		F	F		F	D	
Approach Delay (s)		261.9			260.1			111.4			136.1	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	200.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	123.0%	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)	136	498	215	154	651	114	284	462	55	101	638	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3460		1770	3483		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3460		1770	3483		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	148	541	234	167	708	124	309	502	60	110	693	184
RTOR Reduction (vph)	0	0	131	0	15	0	0	9	0	0	0	95
Lane Group Flow (vph)	148	541	103	167	817	0	309	553	0	110	693	89
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									2
Actuated Green, G (s)	8.0	24.4	24.4	10.0	26.4		17.0	33.9		8.4	25.3	25.3
Effective Green, g (s)	8.0	24.4	24.4	10.0	26.4		17.0	33.9		8.4	25.3	25.3
Actuated g/C Ratio	0.08	0.26	0.26	0.11	0.28		0.18	0.36		0.09	0.27	0.27
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Vehicle Extension (s)	2.0	4.5	4.5	2.0	4.5		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	150	914	409	187	967		318	1249		157	947	424
v/s Ratio Prot	0.08	0.15		c0.09	c0.24		c0.17	0.16		0.06	c0.20	
v/s Ratio Perm			0.06									0.06
v/c Ratio	0.99	0.59	0.25	0.89	0.84		0.97	0.44		0.70	0.73	0.21
Uniform Delay, d1	43.2	30.7	27.8	41.7	32.1		38.5	23.1		41.8	31.5	26.8
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	68.7	1.4	0.6	36.6	7.4		42.4	0.5		10.9	3.6	0.5
Delay (s)	111.9	32.1	28.4	78.3	39.5		80.9	23.6		52.7	35.1	27.4
Level of Service	F	C	C	E	D		F	C		D	D	C
Approach Delay (s)		43.9			46.0			44.0			35.6	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	12.9
Intersection Capacity Utilization	77.4%	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)	307	1343	437	167	1022	167	442	918	98	209	801	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3464		1770	3488		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3464		1770	3488		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	334	1460	475	182	1111	182	480	998	107	227	871	290
RTOR Reduction (vph)	0	0	63	0	9	0	0	5	0	0	0	76
Lane Group Flow (vph)	334	1460	412	182	1284	0	480	1100	0	227	871	214
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									2
Actuated Green, G (s)	22.0	55.1	55.1	12.0	45.1		31.0	47.1		18.0	34.1	34.1
Effective Green, g (s)	22.0	55.1	55.1	12.0	45.1		31.0	47.1		18.0	34.1	34.1
Actuated g/C Ratio	0.15	0.37	0.37	0.08	0.30		0.21	0.31		0.12	0.23	0.23
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Vehicle Extension (s)	2.0	4.5	4.5	2.0	4.5		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	260	1300	581	142	1042		366	1095		212	805	360
v/s Ratio Prot	c0.19	0.41		0.10	c0.37		c0.27	0.32		0.13	c0.25	
v/s Ratio Perm			0.26									0.14
v/c Ratio	1.28	1.12	0.71	1.28	1.23		1.31	1.00		1.07	1.08	0.60
Uniform Delay, d1	64.0	47.5	40.6	69.0	52.5		59.5	51.5		66.0	58.0	51.8
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	154.1	66.0	4.5	169.8	113.0		158.5	28.2		81.8	56.2	4.0
Delay (s)	218.1	113.4	45.1	238.8	165.4		218.0	79.6		147.8	114.2	55.7
Level of Service	F	F	D	F	F		F	E		F	F	E
Approach Delay (s)		114.5			174.5			121.5			107.5	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	127.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	112.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	168	0	0	0	271	1960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.2					4.9
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1770					5055
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1770					5055
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	0	0	0	295	2130
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	183	0	0	0	0	2425
Turn Type					Split	
Protected Phases	8				6	6
Permitted Phases						
Actuated Green, G (s)	9.8					30.7
Effective Green, g (s)	9.8					30.7
Actuated g/C Ratio	0.20					0.62
Clearance Time (s)	4.2					4.9
Vehicle Extension (s)	4.8					5.4
Lane Grp Cap (vph)	350					3129
v/s Ratio Prot	c0.10					c0.48
v/s Ratio Perm						
v/c Ratio	0.52					0.78
Uniform Delay, d1	17.8					6.9
Progression Factor	1.00					1.00
Incremental Delay, d2	2.5					1.5
Delay (s)	20.3					8.4
Level of Service	C					A
Approach Delay (s)	20.3		0.0			8.4
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	49.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	155.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	102	0	0	0	504	2551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.2					4.9
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1770					5044
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1770					5044
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	0	0	0	548	2773
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	111	0	0	0	0	3321
Turn Type					Split	
Protected Phases	8				6	6
Permitted Phases						
Actuated Green, G (s)	10.0					60.5
Effective Green, g (s)	10.0					60.5
Actuated g/C Ratio	0.13					0.76
Clearance Time (s)	4.2					4.9
Vehicle Extension (s)	4.8					5.4
Lane Grp Cap (vph)	222					3834
v/s Ratio Prot	c0.06					c0.66
v/s Ratio Perm						
v/c Ratio	0.50					0.87
Uniform Delay, d1	32.5					6.7
Progression Factor	1.00					1.00
Incremental Delay, d2	3.4					2.5
Delay (s)	35.9					9.2
Level of Service	D					A
Approach Delay (s)	35.9		0.0			9.2
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	181.3%	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)	7	272	0	0	169	489	2	636	1129	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	1.00			1.00	1.00		0.91	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	1863			1863	1583		5085	1583			
Flt Permitted	0.48	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	892	1863			1863	1583		5085	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	296	0	0	184	532	2	691	1227	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	241	0	0	54	0	0	0
Lane Group Flow (vph)	8	296	0	0	184	291	0	693	1173	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	25.5	25.5			25.5	25.5		84.6	84.6			
Effective Green, g (s)	25.5	25.5			25.5	25.5		84.6	84.6			
Actuated g/C Ratio	0.21	0.21			0.21	0.21		0.71	0.71			
Clearance Time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Vehicle Extension (s)	5.7	5.7			5.7	5.7		5.2	5.2			
Lane Grp Cap (vph)	191	399			399	339		3609	1124			
v/s Ratio Prot		0.16			0.10			0.14				
v/s Ratio Perm	0.01					c0.18			c0.74			
v/c Ratio	0.04	0.74			0.46	0.86		0.19	1.04			
Uniform Delay, d1	37.2	43.8			40.9	45.1		5.8	17.3			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.2	9.4			2.2	21.2		0.1	39.0			
Delay (s)	37.4	53.2			43.0	66.3		5.9	56.3			
Level of Service	D	D			D	E		A	E			
Approach Delay (s)		52.7			60.3			38.1			0.0	
Approach LOS		D			E			D			A	

Intersection Summary			
HCM Average Control Delay	45.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	119.2	Sum of lost time (s)	9.1
Intersection Capacity Utilization	141.4%	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)	23	480	0	0	102	581	0	1187	1197	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	1.00			1.00	1.00		0.91	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	1863			1863	1583		5085	1583			
Flt Permitted	0.66	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1225	1863			1863	1583		5085	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	522	0	0	111	632	0	1290	1301	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	46	0	0	0
Lane Group Flow (vph)	25	522	0	0	111	586	0	1290	1255	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	40.8	40.8			40.8	40.8		80.1	80.1			
Effective Green, g (s)	40.8	40.8			40.8	40.8		80.1	80.1			
Actuated g/C Ratio	0.31	0.31			0.31	0.31		0.62	0.62			
Clearance Time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Vehicle Extension (s)	5.7	5.7			5.7	5.7		5.2	5.2			
Lane Grp Cap (vph)	384	585			585	497		3133	975			
v/s Ratio Prot		0.28			0.06			0.25				
v/s Ratio Perm	0.02					c0.37			c0.79			
v/c Ratio	0.07	0.89			0.19	1.18		0.41	1.29			
Uniform Delay, d1	31.2	42.5			32.5	44.6		12.8	25.0			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.2	17.2			0.4	99.9		0.2	136.8			
Delay (s)	31.4	59.7			33.0	144.5		13.0	161.8			
Level of Service	C	E			C	F		B	F			
Approach Delay (s)		58.4			127.8			87.7			0.0	
Approach LOS		E			F			F			A	

Intersection Summary			
HCM Average Control Delay	91.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	167.4%	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)	0	415	1268	5	146	0	0	0	0	3	935	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2						4.9	4.9
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frt		0.90		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		1673		1770	1863						3539	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1673		1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	451	1378	5	159	0	0	0	0	3	1016	352
RTOR Reduction (vph)	0	57	0	0	0	0	0	0	0	0	0	171
Lane Group Flow (vph)	0	1772	0	5	159	0	0	0	0	0	1019	181
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		93.9		1.1	98.7						36.1	36.1
Effective Green, g (s)		93.9		1.1	98.7						36.1	36.1
Actuated g/C Ratio		0.65		0.01	0.69						0.25	0.25
Clearance Time (s)		4.2		3.7	4.2						4.9	4.9
Vehicle Extension (s)		4.9		2.0	4.6						5.2	5.2
Lane Grp Cap (vph)		1092		14	1278						888	397
v/s Ratio Prot		c1.06		c0.00	0.09						c0.29	
v/s Ratio Perm												0.11
v/c Ratio		1.62		0.36	0.12						1.15	0.46
Uniform Delay, d1		25.0		71.0	7.8						53.9	45.6
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		284.5		5.6	0.1						79.5	1.9
Delay (s)		309.5		76.7	7.8						133.4	47.5
Level of Service		F		E	A						F	D
Approach Delay (s)		309.5			9.9			0.0			111.4	
Approach LOS		F			A			A			F	

Intersection Summary

HCM Average Control Delay	214.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	143.9	Sum of lost time (s)	12.8
Intersection Capacity Utilization	133.4%	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)	0	594	1192	20	303	0	0	0	0	5	1819	674
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2						4.9	4.9
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frt		0.91		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		1695		1770	1863						3539	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1695		1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	646	1296	22	329	0	0	0	0	5	1977	733
RTOR Reduction (vph)	0	46	0	0	0	0	0	0	0	0	0	183
Lane Group Flow (vph)	0	1896	0	22	329	0	0	0	0	0	1982	550
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		76.0		6.9	86.6						49.5	49.5
Effective Green, g (s)		76.0		6.9	86.6						49.5	49.5
Actuated g/C Ratio		0.52		0.05	0.60						0.34	0.34
Clearance Time (s)		4.2		3.7	4.2						4.9	4.9
Vehicle Extension (s)		4.9		2.0	4.6						5.2	5.2
Lane Grp Cap (vph)		887		84	1111						1206	540
v/s Ratio Prot		c1.12		0.01	c0.18						c0.56	
v/s Ratio Perm												0.35
v/c Ratio		2.14		0.26	0.30						1.64	1.02
Uniform Delay, d1		34.6		66.7	14.4						47.8	47.8
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		515.6		0.6	0.3						293.3	43.7
Delay (s)		550.2		67.3	14.6						341.2	91.5
Level of Service		F		E	B						F	F
Approach Delay (s)		550.2			17.9			0.0			273.8	
Approach LOS		F			B			A			F	

Intersection Summary			
HCM Average Control Delay	363.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.87		
Actuated Cycle Length (s)	145.2	Sum of lost time (s)	13.3
Intersection Capacity Utilization	162.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	7	562	26	57	49	32	5	37	29	17	24	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	611	28	62	53	35	5	40	32	18	26	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1300										
pX, platoon unblocked												
vC, conflicting volume	88			639			851	852	320	567	849	71
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	88			639			851	852	320	567	849	71
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			93			98	85	95	94	91	100
cM capacity (veh/h)	1506			941			222	274	676	326	276	977

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	313	334	150	77	48
Volume Left	8	0	62	5	18
Volume Right	0	28	35	32	3
cSH	1506	1700	941	354	309
Volume to Capacity	0.01	0.20	0.07	0.22	0.15
Queue Length 95th (ft)	0	0	5	20	14
Control Delay (s)	0.2	0.0	4.1	18.0	18.8
Lane LOS	A		A	C	C
Approach Delay (s)	0.1		4.1	18.0	18.8
Approach LOS				C	C

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	41.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	193	65	160	237	271	0	14	1624	1	276	1961	99
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	210	71	174	258	295	0	15	1765	1	300	2132	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1300										
pX, platoon unblocked												
vC, conflicting volume	295			245			2560	1387	122	2148	1474	295
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	295			245			2560	1387	122	2148	1474	295
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			80			0	0	100	0	0	85
cM capacity (veh/h)	1264			1319			0	95	906	0	84	702

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	245	209	552	1782	2539
Volume Left	210	0	258	15	300
Volume Right	0	174	0	1	108
cSH	1264	1700	1319	0	0
Volume to Capacity	0.17	0.12	0.20	Err	Err
Queue Length 95th (ft)	15	0	18	Err	Err
Control Delay (s)	7.4	0.0	5.0	Err	Err
Lane LOS	A		A	F	F
Approach Delay (s)	4.0		5.0	Err	Err
Approach LOS				F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	264.0%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	26	540	45	20	117	35	0	59	32	55	71	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	587	49	22	127	38	0	64	35	60	77	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1008							
pX, platoon unblocked												
vC, conflicting volume	165			636			914	877	318	607	882	146
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	165			636			914	877	318	607	882	146
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			100	77	95	79	72	98
cM capacity (veh/h)	1410			943			169	273	678	287	271	874

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	322	342	187	99	154
Volume Left	28	0	22	0	60
Volume Right	0	49	38	35	17
cSH	1410	1700	943	346	301
Volume to Capacity	0.02	0.20	0.02	0.29	0.51
Queue Length 95th (ft)	2	0	2	29	69
Control Delay (s)	0.8	0.0	1.2	19.5	28.9
Lane LOS	A		A	C	D
Approach Delay (s)	0.4		1.2	19.5	28.9
Approach LOS				C	D

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	56	435	27	35	700	26	5	96	10	67	42	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	473	29	38	761	28	5	104	11	73	46	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1008							
pX, platoon unblocked	0.81						0.81	0.81		0.81	0.81	0.81
vC, conflicting volume	789			502			1522	1474	251	1272	1475	775
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	618			502			1528	1468	251	1218	1469	601
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			96			83	0	99	0	50	89
cM capacity (veh/h)	772			1058			32	91	749	0	90	358

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	297	266	827	121	158
Volume Left	61	0	38	5	73
Volume Right	0	29	28	11	39
cSH	772	1700	1058	90	0
Volume to Capacity	0.08	0.16	0.04	1.34	Err
Queue Length 95th (ft)	6	0	3	222	Err
Control Delay (s)	2.8	0.0	0.9	292.8	Err
Lane LOS	A		A	F	F
Approach Delay (s)	1.5		0.9	292.8	Err
Approach LOS				F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	79.6%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	11	44	38	98	12	138	77	1080	88	48	643	907
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	2049	1742	1947	2049	1742	1947	3849		1947	3551	
Flt Permitted	0.75	1.00	1.00	0.73	1.00	1.00	0.25	1.00		0.25	1.00	
Satd. Flow (perm)	1535	2049	1742	1487	2049	1742	519	3849		519	3551	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	48	41	107	13	150	84	1174	96	52	699	986
RTOR Reduction (vph)	0	0	31	0	0	15	0	13	0	0	495	0
Lane Group Flow (vph)	12	48	10	107	13	135	84	1257	0	52	1190	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2		2	4			8		
Actuated Green, G (s)	7.9	7.9	7.9	7.9	7.9	7.9	15.8	15.8		15.8	15.8	
Effective Green, g (s)	7.9	7.9	7.9	7.9	7.9	7.9	15.8	15.8		15.8	15.8	
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.25	0.50	0.50		0.50	0.50	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	383	511	434	371	511	434	259	1918		259	1770	
v/s Ratio Prot		0.02			0.01			0.33			c0.34	
v/s Ratio Perm	0.01		0.01	0.07		c0.08	0.16			0.10		
v/c Ratio	0.03	0.09	0.02	0.29	0.03	0.31	0.32	0.66		0.20	0.67	
Uniform Delay, d1	9.0	9.1	9.0	9.6	9.0	9.7	4.8	5.9		4.4	6.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.1	0.0	0.4	0.0	0.4	0.7	0.8		0.4	1.0	
Delay (s)	9.0	9.2	9.0	10.1	9.0	10.1	5.5	6.7		4.8	7.0	
Level of Service	A	A	A	B	A	B	A	A		A	A	
Approach Delay (s)		9.1			10.0			6.7			7.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	31.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	79	33	157	221	468	120	440	621	120	147	1457	1374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	2049	1742	1947	2049	1742	1947	3799		1947	3610	
Flt Permitted	0.29	1.00	1.00	0.73	1.00	1.00	0.25	1.00		0.29	1.00	
Satd. Flow (perm)	592	2049	1742	1503	2049	1742	509	3799		590	3610	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	36	171	240	509	130	478	675	130	160	1584	1493
RTOR Reduction (vph)	0	0	3	0	0	74	0	38	0	0	120	0
Lane Group Flow (vph)	86	36	168	240	509	56	478	767	0	160	2957	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2		2	4			8		
Actuated Green, G (s)	14.0	14.0	14.0	14.0	14.0	14.0	16.1	16.1		16.1	16.1	
Effective Green, g (s)	14.0	14.0	14.0	14.0	14.0	14.0	16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.42	0.42		0.42	0.42	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	218	753	640	552	753	640	215	1605		249	1525	
v/s Ratio Prot		0.02			c0.25			0.20			0.82	
v/s Ratio Perm	0.15		0.10	0.16		0.03	c0.94			0.27		
v/c Ratio	0.39	0.05	0.26	0.43	0.68	0.09	2.22	0.48		0.64	1.94	
Uniform Delay, d1	8.9	7.8	8.4	9.1	10.1	7.9	11.0	8.0		8.7	11.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.0	0.2	0.6	2.4	0.1	565.3	0.2		5.6	425.1	
Delay (s)	10.1	7.8	8.7	9.6	12.6	7.9	576.3	8.2		14.3	436.1	
Level of Service	B	A	A	A	B	A	F	A		B	F	
Approach Delay (s)		9.0			11.1			219.8			415.3	
Approach LOS		A			B			F			F	

Intersection Summary			
HCM Average Control Delay	287.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	38.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	151.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	95	34	52	127	2	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	37	57	138	2	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	978			544		
pX, platoon unblocked						
vC, conflicting volume			140		373	122
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			140		373	122
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	99
cM capacity (veh/h)			1443		603	929

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	140	195	12
Volume Left	0	57	2
Volume Right	37	0	10
cSH	1700	1443	846
Volume to Capacity	0.08	0.04	0.01
Queue Length 95th (ft)	0	3	1
Control Delay (s)	0.0	2.4	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	2.4	9.3
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	235	88	76	510	22	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	255	96	83	554	24	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	986			536		
pX, platoon unblocked					0.93	
vC, conflicting volume			351		1023	303
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			351		986	303
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		90	94
cM capacity (veh/h)			1208		238	736

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	351	637	65
Volume Left	0	83	24
Volume Right	96	0	41
cSH	1700	1208	416
Volume to Capacity	0.21	0.07	0.16
Queue Length 95th (ft)	0	5	14
Control Delay (s)	0.0	1.8	15.3
Lane LOS		A	C
Approach Delay (s)	0.0	1.8	15.3
Approach LOS			C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	98	34	9	10	321	30	7	5	8	8	8	28
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	107	37	10	11	349	33	8	5	9	9	9	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		469										
pX, platoon unblocked												
vC, conflicting volume	382			47			677	658	42	653	647	365
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	382			47			677	658	42	653	647	365
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 %	91			99			98	98	99	97	98	96
cM capacity (veh/h)	1177			1561			318	347	1029	345	352	680

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	153	392	22	48
Volume Left	107	11	8	9
Volume Right	10	33	9	30
cSH	1177	1561	453	505
Volume to Capacity	0.09	0.01	0.05	0.09
Queue Length 95th (ft)	7	1	4	8
Control Delay (s)	6.0	0.3	13.4	12.9
Lane LOS	A	A	B	B
Approach Delay (s)	6.0	0.3	13.4	12.9
Approach LOS			B	B

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	224	112	8	2	182	35	4	9	7	10	14	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	243	122	9	2	198	38	4	10	8	11	15	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		466										
pX, platoon unblocked				0.98			0.98	0.98	0.98	0.98	0.98	
vC, conflicting volume	236			130			853	853	126	847	839	217
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236			107			842	842	103	836	827	217
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 %	82			100			98	96	99	95	94	99
cM capacity (veh/h)	1331			1459			226	241	936	233	246	823

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	374	238	22	37
Volume Left	243	2	4	11
Volume Right	9	38	8	11
cSH	1331	1459	320	304
Volume to Capacity	0.18	0.00	0.07	0.12
Queue Length 95th (ft)	17	0	5	10
Control Delay (s)	6.0	0.1	17.1	18.5
Lane LOS	A	A	C	C
Approach Delay (s)	6.0	0.1	17.1	18.5
Approach LOS			C	C

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↰	↑↕		↰	↑↕	
Volume (veh/h)	69	22	34	21	13	4	81	1067	11	7	766	247
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	24	37	23	14	4	88	1160	12	8	833	268
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								699			472	
pX, platoon unblocked	0.83	0.83		0.83	0.83	0.83				0.83		
vC, conflicting volume	1749	2330	551	1822	2458	586	1101			1172		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1501	2197	551	1589	2351	107	1101			809		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	24	92	0	44	99	86			99		
cM capacity (veh/h)	35	32	478	19	25	773	630			678		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	136	41	88	773	399	8	555	546
Volume Left	75	23	88	0	0	8	0	0
Volume Right	37	4	0	0	12	0	0	268
cSH	45	23	630	1700	1700	678	1700	1700
Volume to Capacity	3.00	1.77	0.14	0.45	0.23	0.01	0.33	0.32
Queue Length 95th (ft)	369	130	12	0	0	1	0	0
Control Delay (s)	1089.0	722.8	11.6	0.0	0.0	10.4	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	1089.0	722.8	0.8			0.1		
Approach LOS	F	F						

Intersection Summary				
Average Delay	70.3			
Intersection Capacity Utilization	52.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	153	10	141	17	10	14	93	1123	18	2	1247	99
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	166	11	153	18	11	15	101	1221	20	2	1355	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								687			485	
pX, platoon unblocked	0.79	0.79	0.70	0.79	0.79	0.82	0.70			0.82		
vC, conflicting volume	2247	2856	732	2273	2900	620	1463			1240		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1025	1801	0	1059	1857	107	795			861		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	79	80	77	77	98	82			100		
cM capacity (veh/h)	104	51	756	81	47	762	573			639		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	330	45	101	814	426	2	904	559
Volume Left	166	18	101	0	0	2	0	0
Volume Right	153	15	0	0	20	0	0	108
cSH	164	93	573	1700	1700	639	1700	1700
Volume to Capacity	2.02	0.48	0.18	0.48	0.25	0.00	0.53	0.33
Queue Length 95th (ft)	642	51	16	0	0	0	0	0
Control Delay (s)	524.9	75.1	12.6	0.0	0.0	10.7	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	524.9	75.1	1.0			0.0		
Approach LOS	F	F						

Intersection Summary				
Average Delay	56.0			
Intersection Capacity Utilization	77.1%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	55	30	0	379	0	0	0	0	225	102	608
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	60	33	0	412	0	0	0	0	245	111	661

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total (vph)	92	412	0	355	661
Volume Left (vph)	0	0	0	245	0
Volume Right (vph)	33	0	0	0	661
Hadj (s)	-0.18	0.03	0.00	0.17	-0.57
Departure Headway (s)	5.4	5.1	5.9	5.4	3.2
Degree Utilization, x	0.14	0.59	0.00	0.53	0.59
Capacity (veh/h)	609	671	533	631	1118
Control Delay (s)	9.2	15.1	8.9	14.4	10.6
Approach Delay (s)	9.2	15.1	0.0	12.0	
Approach LOS	A	C	A	B	

Intersection Summary			
Delay	12.7		
HCM Level of Service	B		
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	341	81	0	533	0	0	0	11	316	27	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	371	88	0	579	0	0	0	12	343	29	147

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total (vph)	459	579	12	373	147
Volume Left (vph)	0	0	0	343	0
Volume Right (vph)	88	0	12	0	147
Hadj (s)	-0.08	0.03	-0.57	0.22	-0.57
Departure Headway (s)	6.4	6.4	7.9	7.0	3.2
Degree Utilization, x	0.81	1.03	0.03	0.73	0.13
Capacity (veh/h)	556	553	388	373	1121
Control Delay (s)	31.4	70.3	11.2	26.7	6.7
Approach Delay (s)	31.4	70.3	11.2	21.1	
Approach LOS	D	F	B	C	

Intersection Summary			
Delay	42.2		
HCM Level of Service	E		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	196	211	0	0	0	171	0	108	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	213	229	0	0	0	186	0	117	12	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			229			748	655	115	611	655	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			229			748	655	115	611	655	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	87			100			100	65	99	100	100	100
cM capacity (veh/h)	1622			1336			271	333	916	245	333	1084

Direction, Lane #	SE 1	SE 2	SE 3	NW 1	NE 1	NE 2
Volume Total	213	115	115	186	78	51
Volume Left	213	0	0	0	0	0
Volume Right	0	0	0	186	0	12
cSH	1622	1700	1700	1700	333	392
Volume to Capacity	0.13	0.07	0.07	0.11	0.23	0.13
Queue Length 95th (ft)	11	0	0	0	22	11
Control Delay (s)	7.6	0.0	0.0	0.0	19.1	15.6
Lane LOS	A				C	C
Approach Delay (s)	3.6			0.0	17.7	
Approach LOS					C	

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	34.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	853	497	0	0	0	251	0	170	117	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	927	540	0	0	0	273	0	185	127	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1065										
pX, platoon unblocked												
vC, conflicting volume	0			540			2531	2395	270	2344	2395	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			540			2531	2395	270	2344	2395	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	43			100			100	0	83	0	100	100
cM capacity (veh/h)	1622			1024			8	14	728	0	14	1084

Direction, Lane #	SE 1	SE 2	SE 3	NW 1	NE 1	NE 2
Volume Total	927	270	270	273	123	189
Volume Left	927	0	0	0	0	0
Volume Right	0	0	0	273	0	127
cSH	1622	1700	1700	1700	14	42
Volume to Capacity	0.57	0.16	0.16	0.16	8.67	4.51
Queue Length 95th (ft)	96	0	0	0	Err	Err
Control Delay (s)	10.1	0.0	0.0	0.0	Err	Err
Lane LOS	B				F	F
Approach Delay (s)	6.4			0.0	Err	
Approach LOS					F	

Intersection Summary				
Average Delay	1524.6			
Intersection Capacity Utilization	74.7%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↑			↕	
Volume (veh/h)	141	325	10	5	138	35	6	4	18	60	18	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	153	353	11	5	150	38	7	4	20	65	20	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)		502										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	188			364			888	864	359	867	851	169
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188			172			784	756	165	760	741	169
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 %	89			100			97	98	97	73	92	96
cM capacity (veh/h)	1386			1202			220	255	752	242	261	875

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	517	193	30	117
Volume Left	153	5	7	65
Volume Right	11	38	20	33
cSH	1386	1202	419	308
Volume to Capacity	0.11	0.00	0.07	0.38
Queue Length 95th (ft)	9	0	6	43
Control Delay (s)	3.1	0.3	14.3	23.8
Lane LOS	A	A	B	C
Approach Delay (s)	3.1	0.3	14.3	23.8
Approach LOS			B	C

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	34	474	0	7	382	35	4	2	6	71	31	73
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	515	0	8	415	38	4	2	7	77	34	79
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		478										
pX, platoon unblocked												
vC, conflicting volume	453			515			1135	1058	258	789	1039	434
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	453			515			1135	1058	258	789	1039	434
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			96	99	99	71	85	86
cM capacity (veh/h)	1104			1047			116	214	741	268	220	570

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	295	258	461	13	190
Volume Left	37	0	8	4	77
Volume Right	0	0	38	7	79
cSH	1104	1700	1047	231	328
Volume to Capacity	0.03	0.15	0.01	0.06	0.58
Queue Length 95th (ft)	3	0	1	4	86
Control Delay (s)	1.3	0.0	0.2	21.5	30.1
Lane LOS	A		A	C	D
Approach Delay (s)	0.7		0.2	21.5	30.1
Approach LOS				C	D

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
91: E Hamilton Ave & Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	3	2	4	6	0	23	5	96	8	79	171	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	4	7	0	25	5	104	9	86	186	46

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	10	7	25	118	317
Volume Left (vph)	3	7	0	5	86
Volume Right (vph)	4	0	25	9	46
Hadj (s)	-0.17	0.23	-0.57	0.00	0.00
Departure Headway (s)	4.7	5.1	3.2	4.2	4.1
Degree Utilization, x	0.01	0.01	0.02	0.14	0.36
Capacity (veh/h)	696	643	1121	827	878
Control Delay (s)	7.7	8.1	6.3	7.9	9.3
Approach Delay (s)	7.7	6.7		7.9	9.3
Approach LOS	A	A		A	A

Intersection Summary			
Delay	8.8		
HCM Level of Service	A		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
91: E Hamilton Ave & Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	17	4	2	44	1	77	11	273	35	44	335	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	4	2	48	1	84	12	297	38	48	364	15

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	25	49	84	347	427
Volume Left (vph)	18	48	0	12	48
Volume Right (vph)	2	0	84	38	15
Hadj (s)	0.13	0.23	-0.57	-0.02	0.04
Departure Headway (s)	5.9	5.9	3.2	4.6	4.6
Degree Utilization, x	0.04	0.08	0.07	0.44	0.54
Capacity (veh/h)	526	529	1121	764	770
Control Delay (s)	9.1	9.4	6.5	11.1	12.8
Approach Delay (s)	9.1	7.6		11.1	12.8
Approach LOS	A	A		B	B

Intersection Summary				
Delay	11.3			
HCM Level of Service	B			
Intersection Capacity Utilization	52.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
92: E California Ave & Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	21	360	70	15	284	25	31	100	16	139	140	77
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	391	76	16	309	27	34	109	17	151	152	84
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	862	690	194	953	723	117	236			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	862	690	194	953	723	117	236			126		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	91	0	0	97	97			90		
cM capacity (veh/h)	0	322	847	0	308	935	1331			1460		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	490	352	160	387
Volume Left	23	16	34	151
Volume Right	76	27	17	84
cSH	0	0	1331	1460
Volume to Capacity	Err	Err	0.03	0.10
Queue Length 95th (ft)	Err	Err	2	9
Control Delay (s)	Err	Err	1.8	3.6
Lane LOS	F	F	A	A
Approach Delay (s)	Err	Err	1.8	3.6
Approach LOS	F	F		

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	63.8%	ICU Level of Service	B	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
92: E California Ave & Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	142	538	60	92	474	43	113	132	171	402	222	135
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	154	585	65	100	515	47	123	143	186	437	241	147
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	1975	1764	315	2028	1744	236	388			329		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1975	1764	315	2028	1744	236	388			329		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	91	0	0	94	90			64		
cM capacity (veh/h)	0	49	726	0	50	803	1170			1230		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	804	662	452	825
Volume Left	154	100	123	437
Volume Right	65	47	186	147
cSH	0	0	1170	1230
Volume to Capacity	Err	Err	0.10	0.36
Queue Length 95th (ft)	Err	Err	9	41
Control Delay (s)	Err	Err	3.1	7.1
Lane LOS	F	F	A	A
Approach Delay (s)	Err	Err	3.1	7.1
Approach LOS	F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	133.7%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
96: E Church Ave & Golden State Blvd

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	135	543	420	151	445	395	529	1113	156	268	946	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	3893	1742	1947	2049	1742	1947	3821		1947	3761	
Flt Permitted	0.25	1.00	1.00	0.29	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	512	3893	1742	595	2049	1742	1947	3821		1947	3761	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	590	457	164	484	429	575	1210	170	291	1028	301
RTOR Reduction (vph)	0	0	291	0	0	315	0	18	0	0	39	0
Lane Group Flow (vph)	147	590	166	164	484	114	575	1362	0	291	1290	0
Turn Type	Perm		Perm	Perm		Perm	Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4		4						
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0	15.0	22.0		10.0	17.0	
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0	15.0	22.0		10.0	17.0	
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.27	0.25	0.37		0.17	0.28	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	137	1038	465	159	546	465	487	1401		325	1066	
v/s Ratio Prot		0.15			0.24		c0.30	0.36		0.15	c0.34	
v/s Ratio Perm	c0.29		0.10	0.28		0.07						
v/c Ratio	1.07	0.57	0.36	1.03	0.89	0.25	1.18	0.97		0.90	1.21	
Uniform Delay, d1	22.0	19.0	17.8	22.0	21.1	17.3	22.5	18.7		24.5	21.5	
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	97.7	0.7	0.5	79.9	15.9	0.3	100.8	17.7		25.4	103.6	
Delay (s)	119.7	19.7	18.3	101.9	37.0	17.5	123.3	36.4		49.9	125.1	
Level of Service	F	B	B	F	D	B	F	D		D	F	
Approach Delay (s)		31.5			39.1			61.9			111.6	
Approach LOS		C			D			E			F	

Intersection Summary			
HCM Average Control Delay	65.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
96: E Church Ave & Golden State Blvd

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	184	615	366	224	825	550	674	1463	176	494	1097	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	3893	1742	1947	2049	1742	1947	3831		1947	3666	
Flt Permitted	0.15	1.00	1.00	0.30	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	315	3893	1742	606	2049	1742	1947	3831		1947	3666	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	668	398	243	897	598	733	1590	191	537	1192	761
RTOR Reduction (vph)	0	0	206	0	0	207	0	13	0	0	53	0
Lane Group Flow (vph)	200	668	192	243	897	391	733	1768	0	537	1901	0
Turn Type	Perm		Perm	Perm		Perm	Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4		4						
Actuated Green, G (s)	26.0	26.0	26.0	26.0	26.0	26.0	11.0	23.0		9.0	21.0	
Effective Green, g (s)	26.0	26.0	26.0	26.0	26.0	26.0	11.0	23.0		9.0	21.0	
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.16	0.33		0.13	0.30	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	117	1446	647	225	761	647	306	1259		250	1100	
v/s Ratio Prot		0.17			0.44		c0.38	0.46		0.28	c0.52	
v/s Ratio Perm	c0.63		0.11	0.40		0.22						
v/c Ratio	1.71	0.46	0.30	1.08	1.18	0.60	2.40	1.40		2.15	1.73	
Uniform Delay, d1	22.0	16.7	15.5	22.0	22.0	17.8	29.5	23.5		30.5	24.5	
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	352.8	0.2	0.3	82.9	93.8	1.6	637.9	186.6		529.7	331.3	
Delay (s)	374.8	16.9	15.8	104.9	115.8	19.4	667.4	210.1		560.2	355.8	
Level of Service	F	B	B	F	F	B	F	F		F	F	
Approach Delay (s)		73.1			81.1			343.4			399.9	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM Average Control Delay	261.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.83		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	157.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
101: S East Ave & Golden State Blvd

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	104	335	67	137	265	26	24	1336	342	116	1262	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1947	1998		1947	2022		1947	3893	1742	1947	3893	1742
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1947	1998		1947	2022		1947	3893	1742	1947	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	364	73	149	288	28	26	1452	372	126	1372	103
RTOR Reduction (vph)	0	10	0	0	5	0	0	0	218	0	0	44
Lane Group Flow (vph)	113	427	0	149	311	0	26	1452	154	126	1372	59
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	6.2	15.1		7.8	16.7		2.9	25.7	25.7	6.2	29.0	29.0
Effective Green, g (s)	6.2	15.1		7.8	16.7		2.9	25.7	25.7	6.2	29.0	29.0
Actuated g/C Ratio	0.09	0.21		0.11	0.24		0.04	0.36	0.36	0.09	0.41	0.41
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	171	426		215	477		80	1413	632	171	1595	714
v/s Ratio Prot	0.06	c0.21		c0.08	0.15		0.01	c0.37		c0.06	c0.35	
v/s Ratio Perm									0.09			0.03
v/c Ratio	0.66	1.00		0.69	0.65		0.33	1.03	0.24	0.74	0.86	0.08
Uniform Delay, d1	31.3	27.8		30.3	24.4		33.0	22.5	15.8	31.5	19.1	12.8
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	9.2	44.1		9.3	3.2		2.4	31.3	0.2	15.2	5.0	0.1
Delay (s)	40.5	71.9		39.6	27.6		35.4	53.8	16.0	46.7	24.0	12.8
Level of Service	D	E		D	C		D	D	B	D	C	B
Approach Delay (s)		65.4			31.5			45.9			25.1	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM Average Control Delay	39.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
101: S East Ave & Golden State Blvd

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	65	25	29	49	37	6	1	1627	39	18	2574	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1947	1882		1947	2003		1947	3893	1742	1947	3893	1742
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1947	1882		1947	2003		1947	3893	1742	1947	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	27	32	53	40	7	1	1768	42	20	2798	38
RTOR Reduction (vph)	0	28	0	0	6	0	0	0	13	0	0	5
Lane Group Flow (vph)	71	31	0	53	41	0	1	1768	29	20	2798	33
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	5.9	9.5		4.3	7.9		1.0	43.6	43.6	2.5	45.1	45.1
Effective Green, g (s)	5.9	9.5		4.3	7.9		1.0	43.6	43.6	2.5	45.1	45.1
Actuated g/C Ratio	0.08	0.13		0.06	0.10		0.01	0.57	0.57	0.03	0.59	0.59
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	151	236		110	208		26	2236	1001	64	2313	1035
v/s Ratio Prot	c0.04	0.02		0.03	c0.02		0.00	0.45		c0.01	c0.72	
v/s Ratio Perm									0.02			0.02
v/c Ratio	0.47	0.13		0.48	0.20		0.04	0.79	0.03	0.31	1.21	0.03
Uniform Delay, d1	33.5	29.5		34.7	31.1		37.0	12.6	7.0	35.9	15.4	6.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.3		3.3	0.5		0.6	2.0	0.0	2.8	98.7	0.0
Delay (s)	35.8	29.8		38.0	31.6		37.6	14.6	7.0	38.6	114.1	6.4
Level of Service	D	C		D	C		D	B	A	D	F	A
Approach Delay (s)		33.1			35.0			14.4			112.1	
Approach LOS		C			C			B			F	

Intersection Summary

HCM Average Control Delay	72.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
102: E Jensen Ave & Golden State Blvd

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	378	405	159	954	670	18	183	182	1365	412	254	2038
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95			0.97	0.95		0.97	0.95
Frt	1.00	0.96		1.00	1.00			1.00	0.97		1.00	0.97
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	3776	3728		3776	3878			3776	3758		3776	3759
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (perm)	3776	3728		3776	3878			3776	3758		3776	3759
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	411	440	173	1037	728	20	199	198	1484	448	276	2215
RTOR Reduction (vph)	0	28	0	0	2	0	0	0	19	0	0	18
Lane Group Flow (vph)	411	585	0	1037	746	0	0	397	1913	0	276	2860
Turn Type	Prot			Prot			Prot	Prot			Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases												
Actuated Green, G (s)	17.0	19.0		29.0	31.0			9.0	75.0		11.0	77.0
Effective Green, g (s)	17.0	19.0		29.0	31.0			9.0	75.0		11.0	77.0
Actuated g/C Ratio	0.11	0.13		0.19	0.21			0.06	0.50		0.07	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)	428	472		730	801			227	1879		277	1930
v/s Ratio Prot	0.11	c0.16		c0.27	0.19			c0.11	0.51		0.07	c0.76
v/s Ratio Perm												
v/c Ratio	0.96	1.24		1.42	0.93			1.75	1.02		1.00	1.48
Uniform Delay, d1	66.2	65.5		60.5	58.5			70.5	37.5		69.5	36.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	33.3	124.8		197.2	17.4			354.6	25.4		52.7	219.6
Delay (s)	99.4	190.3		257.7	75.9			425.1	62.9		122.2	256.1
Level of Service	F	F		F	E			F	E		F	F
Approach Delay (s)		153.8			181.5				124.7			244.3
Approach LOS		F			F				F			F

Intersection Summary			
HCM Average Control Delay	186.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	143.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	610
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	663
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: E Jensen Ave & Golden State Blvd

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	653	621	517	1124	914	32	281	271	1920	443	502	2970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95			0.97	0.95		0.97	0.95
Frt	1.00	0.93		1.00	0.99			1.00	0.97		1.00	0.97
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	3776	3628		3776	3873			3776	3784		3776	3788
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (perm)	3776	3628		3776	3873			3776	3784		3776	3788
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	710	675	562	1222	993	35	305	295	2087	482	546	3228
RTOR Reduction (vph)	0	90	0	0	0	0	0	0	13	0	0	12
Lane Group Flow (vph)	710	1147	0	1222	1028	0	0	600	2556	0	546	3921
Turn Type	Prot			Prot			Prot	Prot			Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases												
Actuated Green, G (s)	15.0	28.0		24.0	37.0			10.0	70.0		12.0	72.0
Effective Green, g (s)	15.0	28.0		24.0	37.0			10.0	70.0		12.0	72.0
Actuated g/C Ratio	0.10	0.19		0.16	0.25			0.07	0.47		0.08	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)	378	677		604	955			252	1766		302	1818
v/s Ratio Prot	0.19	c0.32		c0.32	0.27			c0.16	0.68		0.14	c1.03
v/s Ratio Perm												
v/c Ratio	1.88	1.69		2.02	1.08			2.38	1.45		1.81	2.16
Uniform Delay, d1	67.5	61.0		63.0	56.5			70.0	40.0		69.0	39.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	405.2	318.6		466.2	52.0			633.5	204.5		376.5	522.3
Delay (s)	472.7	379.6		529.2	108.5			703.5	244.5		445.5	561.3
Level of Service	F	F		F	F			F	F		F	F
Approach Delay (s)		413.5			337.0				331.4			547.1
Approach LOS		F			F				F			F

Intersection Summary			
HCM Average Control Delay	427.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	197.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	649
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	705
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis
104: Orange Ave & Golden State Blvd

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	51	0	27	0	0	0	0	1081	79	29	1020	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	0	29	0	0	0	0	1175	86	32	1109	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1835	2390	630	1759	2433	554	1109			1261		
vC1, stage 1 conf vol	1218	1218		1172	1172							
vC2, stage 2 conf vol	617	1172		588	1261							
vCu, unblocked vol	1835	2390	630	1759	2433	554	1109			1261		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	60	100	93	100	100	100	100			94		
cM capacity (veh/h)	137	129	424	137	117	476	626			547		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	85	0	0	783	478	32	739	370
Volume Left	55	0	0	0	0	32	0	0
Volume Right	29	0	0	0	86	0	0	0
cSH	179	1700	1700	1700	1700	547	1700	1700
Volume to Capacity	0.47	0.00	0.00	0.46	0.28	0.06	0.43	0.22
Queue Length 95th (ft)	57	0	0	0	0	5	0	0
Control Delay (s)	42.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0
Lane LOS	E	A				B		
Approach Delay (s)	42.0	0.0	0.0			0.3		
Approach LOS	E	A						

Intersection Summary

Average Delay	1.6		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
104: Orange Ave & Golden State Blvd

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	150	0	96	0	0	0	0	1562	96	61	1990	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	163	0	104	0	0	0	0	1698	104	66	2163	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2964	4046	901	3145	4098	1082	2163			1802		
vC1, stage 1 conf vol	1750	1750		2296	2296							
vC2, stage 2 conf vol	1214	2296		849	1802							
vCu, unblocked vol	2964	4046	901	3145	4098	1082	2163			1802		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	63	100	100	100	100			80		
cM capacity (veh/h)	54	38	281	24	29	213	244			338		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	267	0	0	1132	670	66	1442	721
Volume Left	163	0	0	0	0	66	0	0
Volume Right	104	0	0	0	104	0	0	0
cSH	79	1700	1700	1700	1700	338	1700	1700
Volume to Capacity	3.40	0.00	0.00	0.67	0.39	0.20	0.85	0.42
Queue Length 95th (ft)	Err	0	0	0	0	18	0	0
Control Delay (s)	Err	0.0	0.0	0.0	0.0	18.2	0.0	0.0
Lane LOS	F	A				C		
Approach Delay (s)	Err	0.0	0.0			0.5		
Approach LOS	F	A						

Intersection Summary				
Average Delay	622.2			
Intersection Capacity Utilization	75.9%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Right Turn Channelized												
Volume (veh/h)	0	464	286	0	0	0	0	0	0	781	398	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	504	311	0	0	0	0	0	0	849	433	0
Approach Volume (veh/h)		815			0			0			1282	
Crossing Volume (veh/h)		1282#			0			1353#			0	
High Capacity (veh/h)		493			1385			465			1385	
High v/c (veh/h)		1.65			0.00			0.00			0.93	
Low Capacity (veh/h)		373			1161			349			1161	
Low v/c (veh/h)		2.19			0.00			0.00			1.10	

Intersection Summary

Maximum v/c High	1.65		
Maximum v/c Low	2.19		
Intersection Capacity Utilization	112.7%	ICU Level of Service	H

Crossing flow exceeds 1200, method is not applicable

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Right Turn Channelized												
Volume (veh/h)	0	169	332	0	0	0	0	0	0	1156	1950	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.81	0.81	0.81
Hourly flow rate (vph)	0	184	361	0	0	0	0	0	0	1427	2407	0
Approach Volume (veh/h)		545			0			0			3835	
Crossing Volume (veh/h)		3835#			0			1611#			0	
High Capacity (veh/h)		52			1385			374			1385	
High v/c (veh/h)		10.49			0.00			0.00			2.77	
Low Capacity (veh/h)		30			1161			274			1161	
Low v/c (veh/h)		18.36			0.00			0.00			3.30	

Intersection Summary			
Maximum v/c High	10.49		
Maximum v/c Low	18.36		
Intersection Capacity Utilization	202.5%	ICU Level of Service	H

Crossing flow exceeds 1200, method is not applicable

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Right Turn Channelized												Yes
Volume (veh/h)	0	0	0	58	222	0	0	0	0	0	1120	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	63	241	0	0	0	0	0	1217	153
Approach Volume (veh/h)		0			304			0			1217	
Crossing Volume (veh/h)		1280#			0			0			304	
High Capacity (veh/h)		494			1385			1385			1091	
High v/c (veh/h)		0.00			0.22			0.00			1.12	
Low Capacity (veh/h)		373			1161			1161			895	
Low v/c (veh/h)		0.00			0.26			0.00			1.36	

Intersection Summary			
Maximum v/c High	1.12		
Maximum v/c Low	1.36		
Intersection Capacity Utilization	80.5%	ICU Level of Service	D

Crossing flow exceeds 1200, method is not applicable

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Right Turn Channelized												Yes
Volume (veh/h)	0	0	0	468	577	0	0	0	0	0	2654	638
Peak Hour Factor	0.92	0.92	0.92	0.78	0.78	0.78	0.92	0.92	0.92	0.71	0.71	0.71
Hourly flow rate (vph)	0	0	0	600	740	0	0	0	0	0	3738	899
Approach Volume (veh/h)		0			1340			0			3738	
Crossing Volume (veh/h)		4338#			0			0			1340#	
High Capacity (veh/h)		32			1385			1385			470	
High v/c (veh/h)		0.00			0.97			0.00			7.96	
Low Capacity (veh/h)		17			1161			1161			353	
Low v/c (veh/h)		0.00			1.15			0.00			10.58	

Intersection Summary			
Maximum v/c High	7.96		
Maximum v/c Low	10.58		
Intersection Capacity Utilization	202.6%	ICU Level of Service	H

Crossing flow exceeds 1200, method is not applicable

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	545	672	0	0	0	0	0	568	371	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.91				
Frt		1.00						0.94				
Flt Protected		0.98						1.00				
Satd. Flow (prot)		3808						5262				
Flt Permitted		0.98						1.00				
Satd. Flow (perm)		3808						5262				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	592	730	0	0	0	0	0	617	403	0	0	0
RTOR Reduction (vph)	0	83	0	0	0	0	0	61	0	0	0	0
Lane Group Flow (vph)	0	1239	0	0	0	0	0	959	0	0	0	0
Turn Type	Split											
Protected Phases	6	6						4				
Permitted Phases												
Actuated Green, G (s)		15.7						14.0				
Effective Green, g (s)		15.7						14.0				
Actuated g/C Ratio		0.42						0.37				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		1586						1954				
v/s Ratio Prot		c0.33						c0.18				
v/s Ratio Perm												
v/c Ratio		0.78						0.49				
Uniform Delay, d1		9.5						9.1				
Progression Factor		1.00						1.00				
Incremental Delay, d2		2.6						0.2				
Delay (s)		12.1						9.3				
Level of Service		B						A				
Approach Delay (s)		12.1			0.0			9.3			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	37.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	362	957	0	0	0	0	0	405	122	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.91				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3840						5400				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3840						5400				
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	402	1063	0	0	0	0	0	455	137	0	0	0
RTOR Reduction (vph)	0	78	0	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	0	1387	0	0	0	0	0	555	0	0	0	0
Turn Type	Split											
Protected Phases	6	6						4				
Permitted Phases												
Actuated Green, G (s)		20.0						10.3				
Effective Green, g (s)		20.0						10.3				
Actuated g/C Ratio		0.52						0.27				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		2005						1452				
v/s Ratio Prot		c0.36						c0.10				
v/s Ratio Perm												
v/c Ratio		0.69						0.38				
Uniform Delay, d1		6.8						11.4				
Progression Factor		1.00						1.00				
Incremental Delay, d2		1.0						0.2				
Delay (s)		7.9						11.6				
Level of Service		A						B				
Approach Delay (s)		7.9			0.0			11.6			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	38.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	63	505	210	988	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.95			0.91				
Frt					0.87			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					3374			5545				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					3374			5545				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	68	549	228	1074	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	19	0	0	78	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	598	0	0	1224	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Actuated Green, G (s)					12.0			15.1				
Effective Green, g (s)					12.0			15.1				
Actuated g/C Ratio					0.34			0.43				
Clearance Time (s)					4.0			4.0				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					1154			2385				
v/s Ratio Prot					c0.18			c0.22				
v/s Ratio Perm												
v/c Ratio					0.88dr			0.51				
Uniform Delay, d1					9.2			7.3				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.4			0.2				
Delay (s)					9.6			7.5				
Level of Service					A			A				
Approach Delay (s)		0.0			9.6			7.5			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	35.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	664	793	371	398	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.95			0.91				
Frt					0.92			1.00				
Flt Protected					1.00			0.98				
Satd. Flow (prot)					3575			5462				
Flt Permitted					1.00			0.98				
Satd. Flow (perm)					3575			5462				
Peak-hour factor, PHF	0.92	0.92	0.92	0.73	0.73	0.73	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	910	1086	412	442	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	47	0	0	112	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1949	0	0	742	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Actuated Green, G (s)					36.0			14.2				
Effective Green, g (s)					36.0			14.2				
Actuated g/C Ratio					0.62			0.24				
Clearance Time (s)					4.0			4.0				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					2211			1333				
v/s Ratio Prot					c0.55			c0.14				
v/s Ratio Perm												
v/c Ratio					0.95dr			0.56				
Uniform Delay, d1					9.3			19.2				
Progression Factor					1.00			1.00				
Incremental Delay, d2					4.5			0.5				
Delay (s)					13.8			19.8				
Level of Service					B			B				
Approach Delay (s)		0.0			13.8			19.8			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	15	647	606	0	52	1078
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	1742	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	1742	2049		1947	3893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	703	659	0	57	1172
RTOR Reduction (vph)	0	173	0	0	0	0
Lane Group Flow (vph)	16	530	659	0	57	1172
Turn Type		Prot			Prot	
Protected Phases	2	2	4		3	8
Permitted Phases						
Actuated Green, G (s)	17.6	17.6	19.4		2.2	25.6
Effective Green, g (s)	17.6	17.6	19.4		2.2	25.6
Actuated g/C Ratio	0.34	0.34	0.38		0.04	0.50
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	669	599	776		84	1947
v/s Ratio Prot	0.01	c0.30	c0.32		0.03	c0.30
v/s Ratio Perm						
v/c Ratio	0.02	0.88	0.85		0.68	0.60
Uniform Delay, d1	11.1	15.8	14.6		24.2	9.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	14.5	8.6		19.6	0.5
Delay (s)	11.1	30.4	23.2		43.8	9.7
Level of Service	B	C	C		D	A
Approach Delay (s)	29.9		23.2			11.3
Approach LOS	C		C			B

Intersection Summary			
HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	51.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	530	1075	602	0	42	2202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	1742	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	1742	2049		1947	3893
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	596	1208	654	0	47	2474
RTOR Reduction (vph)	0	118	0	0	0	0
Lane Group Flow (vph)	596	1090	654	0	47	2474
Turn Type		Perm			Prot	
Protected Phases	2		4		3	8
Permitted Phases		2				
Actuated Green, G (s)	55.0	55.0	49.8		4.0	57.8
Effective Green, g (s)	55.0	55.0	49.8		4.0	57.8
Actuated g/C Ratio	0.46	0.46	0.41		0.03	0.48
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	886	793	845		64	1863
v/s Ratio Prot	0.31		0.32		0.02	c0.64
v/s Ratio Perm		c0.63				
v/c Ratio	0.67	1.37	0.77		0.73	1.33
Uniform Delay, d1	25.8	32.9	30.6		57.9	31.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.0	176.4	4.5		35.0	151.4
Delay (s)	27.9	209.3	35.1		92.9	182.9
Level of Service	C	F	D		F	F
Approach Delay (s)	149.3		35.1			181.2
Approach LOS	F		D			F

Intersection Summary

HCM Average Control Delay	150.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	55	0	0	48	0	612	0	126	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		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)		2049			2049		1947		1742			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		2049			2049		1947		1742			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	60	0	0	52	0	665	0	137	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	56	0	0	0
Lane Group Flow (vph)	0	60	0	0	52	0	665	0	81	0	0	0
Turn Type	Perm						Prot		Perm	Prot		custom
Protected Phases		6			2		7	4		3		8
Permitted Phases	6								4			
Actuated Green, G (s)		6.5			6.5		21.0		21.0			
Effective Green, g (s)		6.5			6.5		21.0		21.0			
Actuated g/C Ratio		0.18			0.18		0.59		0.59			
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)		375			375		1152		1030			
v/s Ratio Prot		c0.03			0.03		c0.34					
v/s Ratio Perm									0.05			
v/c Ratio		0.16			0.14		0.58		0.08			
Uniform Delay, d1		12.2			12.2		4.5		3.1			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.2			0.2		0.7		0.0			
Delay (s)		12.4			12.3		5.2		3.1			
Level of Service		B			B		A		A			
Approach Delay (s)		12.4			12.3			4.8			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	35.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	37	0	0	995	0	623	0	173	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		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)		2049			2049		1947		1742			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		2049			2049		1947		1742			
Peak-hour factor, PHF	0.75	0.75	0.75	0.73	0.73	0.73	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	0	49	0	0	1363	0	670	0	186	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	127	0	0	0
Lane Group Flow (vph)	0	49	0	0	1363	0	670	0	59	0	0	0
Turn Type	Perm						Prot		Perm	Prot		custom
Protected Phases		6			2		7	4		3		8
Permitted Phases	6								4			
Actuated Green, G (s)		81.0			81.0		41.0		41.0			
Effective Green, g (s)		81.0			81.0		41.0		41.0			
Actuated g/C Ratio		0.62			0.62		0.32		0.32			
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)		1277			1277		614		549			
v/s Ratio Prot		0.02			c0.67		c0.34					
v/s Ratio Perm									0.03			
v/c Ratio		0.04			1.07		1.09		0.11			
Uniform Delay, d1		9.5			24.5		44.5		31.5			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.0			45.3		63.7		0.1			
Delay (s)		9.5			69.8		108.2		31.6			
Level of Service		A			E		F		C			
Approach Delay (s)		9.5			69.8			91.5			0.0	
Approach LOS		A			E			F			A	

Intersection Summary

HCM Average Control Delay	76.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	656	192	18	100	0	0	400	93	56	532	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.97		1.00	1.00			0.97		1.00	0.98	
Flt Protected		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1979		1947	2049			1991		1947	2004	
Flt Permitted		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (perm)		1979		1947	2049			1991		1947	2004	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	713	209	20	109	0	0	435	101	61	578	99
RTOR Reduction (vph)	0	10	0	0	0	0	0	8	0	0	5	0
Lane Group Flow (vph)	0	912	0	20	109	0	0	528	0	61	672	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		44.2		1.5	49.7			30.2		3.9	38.1	
Effective Green, g (s)		44.2		1.5	49.7			30.2		3.9	38.1	
Actuated g/C Ratio		0.46		0.02	0.52			0.32		0.04	0.40	
Clearance Time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		913		30	1063			628		79	797	
v/s Ratio Prot		c0.46		c0.01	0.05			0.27		0.03	c0.34	
v/s Ratio Perm												
v/c Ratio		1.00		0.67	0.10			0.84		0.77	0.84	
Uniform Delay, d1		25.8		46.9	11.7			30.6		45.5	26.1	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		29.2		44.1	0.0			9.9		36.4	8.1	
Delay (s)		55.0		91.0	11.8			40.4		81.9	34.2	
Level of Service		D		F	B			D		F	C	
Approach Delay (s)		55.0			24.0			40.4			38.2	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	44.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	95.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	468	107	123	185	0	0	370	370	0	1644	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frt		0.97		1.00	1.00			0.93			0.99	
Flt Protected		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1992		1947	2049			1895			2024	
Flt Permitted		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (perm)		1992		1947	2049			1895			2024	
Peak-hour factor, PHF	0.82	0.82	0.82	0.48	0.48	0.48	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	571	130	256	385	0	0	402	402	0	2192	196
RTOR Reduction (vph)	0	5	0	0	0	0	0	19	0	0	2	0
Lane Group Flow (vph)	0	696	0	256	385	0	0	785	0	0	2386	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		34.0		11.0	49.0			85.0			85.0	
Effective Green, g (s)		34.0		11.0	49.0			85.0			85.0	
Actuated g/C Ratio		0.24		0.08	0.35			0.60			0.60	
Clearance Time (s)		4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		477		151	707			1134			1212	
v/s Ratio Prot		c0.35		c0.13	0.19			0.41			c1.18	
v/s Ratio Perm												
v/c Ratio		1.46		1.70	0.54			0.69			1.97	
Uniform Delay, d1		54.0		65.5	37.5			19.5			28.5	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		217.7		339.7	0.9			1.8			438.9	
Delay (s)		271.7		405.2	38.4			21.4			467.4	
Level of Service		F		F	D			C			F	
Approach Delay (s)		271.7			184.9			21.4			467.4	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM Average Control Delay	318.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.81		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	143.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	818	0	420	251	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0		
Lane Util. Factor	1.00		1.00	1.00		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1947		1947	2049		
Flt Permitted	0.95		0.76	1.00		
Satd. Flow (perm)	1947		1552	2049		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	889	0	457	273	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	889	0	457	273	0	0
Turn Type		Perm	Perm			
Protected Phases	6			4	8	
Permitted Phases		6	4			
Actuated Green, G (s)	24.4		15.7	15.7		
Effective Green, g (s)	24.4		15.7	15.7		
Actuated g/C Ratio	0.51		0.33	0.33		
Clearance Time (s)	4.0		4.0	4.0		
Vehicle Extension (s)	3.0		3.0	3.0		
Lane Grp Cap (vph)	988		507	669		
v/s Ratio Prot	c0.46			0.13		
v/s Ratio Perm			c0.29			
v/c Ratio	0.90		0.90	0.41		
Uniform Delay, d1	10.7		15.5	12.6		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	10.9		19.1	0.4		
Delay (s)	21.6		34.5	13.0		
Level of Service	C		C	B		
Approach Delay (s)	21.6			26.5	0.0	
Approach LOS	C			C	A	

Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	48.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	698	0	228	237	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0		
Lane Util. Factor	1.00		1.00	1.00		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1947		1947	2049		
Flt Permitted	0.95		0.76	1.00		
Satd. Flow (perm)	1947		1552	2049		
Peak-hour factor, PHF	0.81	0.81	0.83	0.83	0.92	0.92
Adj. Flow (vph)	862	0	275	286	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	862	0	275	286	0	0
Turn Type		Perm	Perm			
Protected Phases	6			4	8	
Permitted Phases		6	4			
Actuated Green, G (s)	17.4		11.9	11.9		
Effective Green, g (s)	17.4		11.9	11.9		
Actuated g/C Ratio	0.47		0.32	0.32		
Clearance Time (s)	4.0		4.0	4.0		
Vehicle Extension (s)	3.0		3.0	3.0		
Lane Grp Cap (vph)	908		495	654		
v/s Ratio Prot	c0.44			0.14		
v/s Ratio Perm			c0.18			
v/c Ratio	0.95		0.56	0.44		
Uniform Delay, d1	9.5		10.5	10.1		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	18.5		1.4	0.5		
Delay (s)	28.1		11.9	10.5		
Level of Service	C		B	B		
Approach Delay (s)	28.1			11.2	0.0	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	37.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	171	21	115	122	0	0	0	0	202	716	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		0.99			1.00					1.00	1.00	
Flt Protected		1.00			0.98					0.95	1.00	
Satd. Flow (prot)		2019			2001					1947	2046	
Flt Permitted		1.00			0.98					0.95	1.00	
Satd. Flow (perm)		2019			2001					1947	2046	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	186	23	125	133	0	0	0	0	220	778	7
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	203	0	0	258	0	0	0	0	220	784	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		11.7			13.0					28.2	28.2	
Effective Green, g (s)		11.7			13.0					28.2	28.2	
Actuated g/C Ratio		0.18			0.20					0.43	0.43	
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)		364			401					846	889	
v/s Ratio Prot		c0.10			c0.13					0.11	c0.38	
v/s Ratio Perm												
v/c Ratio		0.56			0.64					0.26	0.88	
Uniform Delay, d1		24.2			23.8					11.7	16.8	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.9			3.5					0.2	10.3	
Delay (s)		26.1			27.3					11.9	27.1	
Level of Service		C			C					B	C	
Approach Delay (s)		26.1			27.3			0.0			23.8	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	64.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	129	72	230	476	0	0	0	0	226	1549	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		0.95			1.00					1.00	1.00	
Flt Protected		1.00			0.98					0.95	1.00	
Satd. Flow (prot)		1950			2016					1947	2046	
Flt Permitted		1.00			0.98					0.95	1.00	
Satd. Flow (perm)		1950			2016					1947	2046	
Peak-hour factor, PHF	0.77	0.77	0.77	0.75	0.75	0.75	0.92	0.92	0.92	0.81	0.81	0.81
Adj. Flow (vph)	0	168	94	307	635	0	0	0	0	279	1912	17
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	249	0	0	942	0	0	0	0	279	1929	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		16.0			42.0					72.0	72.0	
Effective Green, g (s)		16.0			42.0					72.0	72.0	
Actuated g/C Ratio		0.11			0.30					0.51	0.51	
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)		220			596					987	1037	
v/s Ratio Prot		c0.13			c0.47					0.14	c0.94	
v/s Ratio Perm												
v/c Ratio		1.13			1.58					0.28	1.86	
Uniform Delay, d1		63.0			50.0					20.1	35.0	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		100.2			269.2					0.2	390.8	
Delay (s)		163.2			319.2					20.3	425.8	
Level of Service		F			F					C	F	
Approach Delay (s)		163.2			319.2			0.0			374.6	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	343.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	141.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	33	640	0	0	120	48	180	552	89	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frt		1.00			0.96			0.98				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		2044			1970			3788				
Flt Permitted		0.98			1.00			0.99				
Satd. Flow (perm)		2010			1970			3788				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	696	0	0	130	52	196	600	97	0	0	0
RTOR Reduction (vph)	0	0	0	0	29	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	732	0	0	153	0	0	872	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		6			2		4	4				
Permitted Phases	6											
Actuated Green, G (s)		18.5			18.5			14.5				
Effective Green, g (s)		18.5			18.5			14.5				
Actuated g/C Ratio		0.45			0.45			0.35				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		907			889			1340				
v/s Ratio Prot					0.08			c0.23				
v/s Ratio Perm		c0.36										
v/c Ratio		0.81			0.17			0.65				
Uniform Delay, d1		9.7			6.7			11.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		5.3			0.1			1.1				
Delay (s)		15.0			6.8			12.3				
Level of Service		B			A			B				
Approach Delay (s)		15.0			6.8			12.3			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	41.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	78	0	0	250	140	48	670	34	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frt		1.00			0.95			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		2008			1950			3855				
Flt Permitted		0.61			1.00			1.00				
Satd. Flow (perm)		1254			1950			3855				
Peak-hour factor, PHF	0.79	0.79	0.79	0.74	0.74	0.74	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	67	99	0	0	338	189	50	698	35	0	0	0
RTOR Reduction (vph)	0	0	0	0	53	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	166	0	0	474	0	0	774	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		6			2		4	4				
Permitted Phases	6											
Actuated Green, G (s)		12.6			12.6			13.1				
Effective Green, g (s)		12.6			12.6			13.1				
Actuated g/C Ratio		0.37			0.37			0.39				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		469			729			1499				
v/s Ratio Prot					c0.24			c0.20				
v/s Ratio Perm		0.13										
v/c Ratio		0.35			0.65			0.52				
Uniform Delay, d1		7.6			8.7			7.9				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.5			2.1			0.3				
Delay (s)		8.1			10.8			8.2				
Level of Service		A			B			A				
Approach Delay (s)		8.1			10.8			8.2			0.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	33.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	444	230	0	0	0	0	0	0	760	693	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		1.00								1.00	1.00	
Frt		0.95								1.00	1.00	
Flt Protected		1.00								0.95	1.00	
Satd. Flow (prot)		1955								1947	2040	
Flt Permitted		1.00								0.95	1.00	
Satd. Flow (perm)		1955								1947	2040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	483	250	0	0	0	0	0	0	826	753	22
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	720	0	0	0	0	0	0	0	826	774	0
Turn Type	Perm						Prot			Prot		
Protected Phases		6					7	4		3	8	
Permitted Phases	6											
Actuated Green, G (s)		47.0								55.7	55.7	
Effective Green, g (s)		47.0								55.7	55.7	
Actuated g/C Ratio		0.42								0.50	0.50	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		830								980	1026	
v/s Ratio Prot		c0.37								c0.42	0.38	
v/s Ratio Perm												
v/c Ratio		0.87								0.84	0.75	
Uniform Delay, d1		29.0								23.7	22.0	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		9.5								6.7	3.2	
Delay (s)		38.5								30.4	25.2	
Level of Service		D								C	C	
Approach Delay (s)		38.5			0.0			0.0			27.9	
Approach LOS		D			A			A			C	

Intersection Summary

HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	365	403	0	0	0	0	0	0	590	1385	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		1.00								1.00	1.00	
Frt		0.93								1.00	0.99	
Flt Protected		1.00								0.95	1.00	
Satd. Flow (prot)		1904								1947	2038	
Flt Permitted		1.00								0.95	1.00	
Satd. Flow (perm)		1904								1947	2038	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	0	440	486	0	0	0	0	0	0	702	1649	60
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	900	0	0	0	0	0	0	0	702	1708	0
Turn Type	Perm						Prot			Prot		
Protected Phases		6					7	4		3	8	
Permitted Phases	6											
Actuated Green, G (s)		50.0								84.0	84.0	
Effective Green, g (s)		50.0								84.0	84.0	
Actuated g/C Ratio		0.35								0.59	0.59	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		670								1152	1206	
v/s Ratio Prot		c0.47								0.36	c0.84	
v/s Ratio Perm												
v/c Ratio		1.34								0.61	1.42	
Uniform Delay, d1		46.0								18.5	29.0	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		164.4								0.9	192.3	
Delay (s)		210.4								19.4	221.3	
Level of Service		F								B	F	
Approach Delay (s)		210.4			0.0			0.0			162.5	
Approach LOS		F			A			A			F	

Intersection Summary

HCM Average Control Delay	175.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	126.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	106	1110	0	0	0	0	0	508	168	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.95				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		3876						3748				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		3876						3748				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	1207	0	0	0	0	0	552	183	0	0	0
RTOR Reduction (vph)	0	17	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	1305	0	0	0	0	0	723	0	0	0	0
Turn Type	Perm											
Protected Phases		6						4				
Permitted Phases	6											
Actuated Green, G (s)		15.8						13.0				
Effective Green, g (s)		15.8						13.0				
Actuated g/C Ratio		0.43						0.35				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		1664						1324				
v/s Ratio Prot								c0.19				
v/s Ratio Perm		0.34										
v/c Ratio		0.78						0.55				
Uniform Delay, d1		9.0						9.5				
Progression Factor		1.00						1.00				
Incremental Delay, d2		2.5						0.5				
Delay (s)		11.5						10.0				
Level of Service		B						B				
Approach Delay (s)		11.5			0.0			10.0			0.0	
Approach LOS		B			A			B			A	

Intersection Summary

HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	36.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	260	705	0	0	0	0	0	587	298	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.95				
Frt		1.00						0.95				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3841						3697				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3841						3697				
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	289	783	0	0	0	0	0	631	320	0	0	0
RTOR Reduction (vph)	0	82	0	0	0	0	0	50	0	0	0	0
Lane Group Flow (vph)	0	990	0	0	0	0	0	901	0	0	0	0
Turn Type	Perm											
Protected Phases		6						4				
Permitted Phases	6											
Actuated Green, G (s)		15.0						14.5				
Effective Green, g (s)		15.0						14.5				
Actuated g/C Ratio		0.40						0.39				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		1536						1430				
v/s Ratio Prot								c0.24				
v/s Ratio Perm		0.26										
v/c Ratio		0.64						0.63				
Uniform Delay, d1		9.1						9.3				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.9						0.9				
Delay (s)		10.0						10.2				
Level of Service		B						B				
Approach Delay (s)		10.0			0.0			10.2			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	37.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	221	40	239	44	0	0	0	0	388	1086	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.98		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		2002		1947	2049					1947	2045	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		2002		1947	2049					1947	2045	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	240	43	260	48	0	0	0	0	422	1180	14
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	276	0	260	48	0	0	0	0	422	1194	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		15.9		12.0	31.9					51.0	51.0	
Effective Green, g (s)		15.9		12.0	31.9					51.0	51.0	
Actuated g/C Ratio		0.17		0.13	0.35					0.56	0.56	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		350		257	719					1092	1147	
v/s Ratio Prot		c0.14		c0.13	0.02					0.22	c0.58	
v/s Ratio Perm												
v/c Ratio		0.79		1.01	0.07					0.39	1.04	
Uniform Delay, d1		35.9		39.5	19.6					11.2	20.0	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		11.3		59.2	0.0					0.2	37.7	
Delay (s)		47.2		98.6	19.6					11.4	57.7	
Level of Service		D		F	B					B	E	
Approach Delay (s)		47.2			86.3			0.0			45.6	
Approach LOS		D			F			A			D	

Intersection Summary			
HCM Average Control Delay	51.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	122	33	392	462	0	0	0	0	339	1740	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1984		1947	2049					1947	2049	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1984		1947	2049					1947	2049	
Peak-hour factor, PHF	0.55	0.55	0.55	0.57	0.57	0.57	0.92	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	222	60	688	811	0	0	0	0	399	2047	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	276	0	688	811	0	0	0	0	399	2047	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		19.0		28.0	51.0					83.0	83.0	
Effective Green, g (s)		19.0		28.0	51.0					83.0	83.0	
Actuated g/C Ratio		0.13		0.20	0.36					0.58	0.58	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		265		384	736					1138	1198	
v/s Ratio Prot		0.14		c0.35	c0.40					0.20	c1.00	
v/s Ratio Perm												
v/c Ratio		1.04		1.79	1.10					0.35	1.71	
Uniform Delay, d1		61.5		57.0	45.5					15.4	29.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		66.5		366.6	64.6					0.2	322.5	
Delay (s)		128.0		423.6	110.1					15.6	352.0	
Level of Service		F		F	F					B	F	
Approach Delay (s)		128.0			254.0			0.0			297.1	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	270.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.61		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	131.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	152	390	0	0	248	47	112	453	44	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1947	2049			2049	1742		3816				
Flt Permitted	0.59	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	1215	2049			2049	1742		3816				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	424	0	0	270	51	122	492	48	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	32	0	15	0	0	0	0
Lane Group Flow (vph)	165	424	0	0	270	19	0	647	0	0	0	0
Turn Type	Perm					Perm	Perm					
Protected Phases		6			2			4				
Permitted Phases	6					2	4					
Actuated Green, G (s)	12.0	12.0			12.0	12.0		11.9				
Effective Green, g (s)	12.0	12.0			12.0	12.0		11.9				
Actuated g/C Ratio	0.38	0.38			0.38	0.38		0.37				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	457	771			771	655		1424				
v/s Ratio Prot		c0.21			0.13							
v/s Ratio Perm	0.14					0.01		0.17				
v/c Ratio	0.36	0.55			0.35	0.03		0.45				
Uniform Delay, d1	7.2	7.8			7.1	6.3		7.5				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	0.5	0.8			0.3	0.0		0.2				
Delay (s)	7.7	8.6			7.4	6.3		7.8				
Level of Service	A	A			A	A		A				
Approach Delay (s)		8.4			7.2			7.8			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	31.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	46	108	0	0	271	80	59	759	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1947	2049			2049	1742		3859				
Flt Permitted	0.35	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	707	2049			2049	1742		3859				
Peak-hour factor, PHF	0.72	0.72	0.72	0.59	0.59	0.59	0.75	0.75	0.75	0.92	0.92	0.92
Adj. Flow (vph)	64	150	0	0	459	136	79	1012	41	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	23	0	6	0	0	0	0
Lane Group Flow (vph)	64	150	0	0	459	113	0	1126	0	0	0	0
Turn Type	Perm					Perm	Perm					
Protected Phases		6			2			4				
Permitted Phases	6					2	4					
Actuated Green, G (s)	12.8	12.8			12.8	12.8		15.2				
Effective Green, g (s)	12.8	12.8			12.8	12.8		15.2				
Actuated g/C Ratio	0.36	0.36			0.36	0.36		0.42				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	251	729			729	619		1629				
v/s Ratio Prot		0.07			c0.22							
v/s Ratio Perm	0.09					0.06		0.29				
v/c Ratio	0.25	0.21			0.63	0.18		0.69				
Uniform Delay, d1	8.2	8.1			9.6	8.0		8.5				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	0.5	0.1			1.7	0.1		1.3				
Delay (s)	8.8	8.2			11.3	8.1		9.8				
Level of Service	A	A			B	A		A				
Approach Delay (s)		8.4			10.6			9.8			0.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	36.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	483	808	650	40	20	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	3893	3860		1947	1742
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	3893	3860		1947	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	525	878	707	43	22	389
RTOR Reduction (vph)	0	0	7	0	0	330
Lane Group Flow (vph)	525	878	743	0	22	59
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	16.1	34.9	14.8		7.6	7.6
Effective Green, g (s)	16.1	34.9	14.8		7.6	7.6
Actuated g/C Ratio	0.32	0.69	0.29		0.15	0.15
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	621	2690	1131		293	262
v/s Ratio Prot	c0.27	0.23	c0.19		0.01	
v/s Ratio Perm						c0.03
v/c Ratio	0.85	0.33	0.66		0.08	0.22
Uniform Delay, d1	16.0	3.1	15.6		18.4	18.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.3	0.1	1.4		0.1	0.4
Delay (s)	26.3	3.2	17.0		18.5	19.3
Level of Service	C	A	B		B	B
Approach Delay (s)		11.8	17.0		19.3	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	597	1390	990	60	59	607
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	3893	3860		1947	1742
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	3893	3860		1947	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	649	1511	1076	65	64	660
RTOR Reduction (vph)	0	0	5	0	0	517
Lane Group Flow (vph)	649	1511	1136	0	64	143
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	30.0	61.4	27.4		11.6	11.6
Effective Green, g (s)	30.0	61.4	27.4		11.6	11.6
Actuated g/C Ratio	0.37	0.76	0.34		0.14	0.14
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	721	2951	1306		279	249
v/s Ratio Prot	c0.33	0.39	c0.29		0.03	
v/s Ratio Perm						c0.08
v/c Ratio	0.90	0.51	0.87		0.23	0.58
Uniform Delay, d1	24.1	3.9	25.1		30.7	32.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	14.3	0.2	6.6		0.4	3.2
Delay (s)	38.4	4.0	31.7		31.2	35.6
Level of Service	D	A	C		C	D
Approach Delay (s)		14.4	31.7		35.2	
Approach LOS		B	C		D	

Intersection Summary

HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	81.0	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

HCM Unsignalized Intersection Capacity Analysis
120: W McKinley Avenue & SR 99 Southbound Ramp

4/9/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1814	337	288	1598	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1972	366	313	1737	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				932		
pX, platoon unblocked					0.80	
vC, conflicting volume			2338		3649	1169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2338		3814	1169
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			0		0	100
cM capacity (veh/h)			208		0	186

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1314	1024	892	1158
Volume Left	0	0	313	0
Volume Right	0	366	0	0
cSH	1700	1700	208	1700
Volume to Capacity	0.77	0.60	1.50	0.68
Queue Length 95th (ft)	0	0	481	0
Control Delay (s)	0.0	0.0	292.5	0.0
Lane LOS			F	
Approach Delay (s)	0.0		127.3	
Approach LOS				

Intersection Summary			
Average Delay	59.5		
Intersection Capacity Utilization	120.1%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
120: W McKinley Avenue & SR 99 Southbound Ramp

4/9/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1556	247	227	2538	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1691	268	247	2759	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				932		
pX, platoon unblocked					0.56	
vC, conflicting volume			1960		3698	980
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1960		4254	980
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			16		100	100
cM capacity (veh/h)			293		0	249

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1128	832	1166	1839
Volume Left	0	0	247	0
Volume Right	0	268	0	0
cSH	1700	1700	293	1700
Volume to Capacity	0.66	0.49	0.84	1.08
Queue Length 95th (ft)	0	0	178	0
Control Delay (s)	0.0	0.0	58.4	0.0
Lane LOS			F	
Approach Delay (s)	0.0		22.7	
Approach LOS				

Intersection Summary			
Average Delay	13.7		
Intersection Capacity Utilization	134.3%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
121: W McKinley Ave &

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	1788	0	0	1434	9	319	8	135	3	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	1943	0	0	1559	10	347	9	147	3	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					578							
pX, platoon unblocked	0.80						0.80	0.80		0.80	0.80	0.80
vC, conflicting volume	1568			1943			2791	3577	972	2605	3572	784
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1201			1943			2738	3725	972	2503	3719	215
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			0	0	42	0	100	99
cM capacity (veh/h)	459			298			7	3	252	0	3	628

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	680	1296	1039	529	502	7
Volume Left	33	0	0	0	347	3
Volume Right	0	0	0	10	147	3
cSH	459	1700	1700	1700	10	0
Volume to Capacity	0.07	0.76	0.61	0.31	52.00	Err
Queue Length 95th (ft)	6	0	0	0	Err	Err
Control Delay (s)	2.1	0.0	0.0	0.0	Err	Err
Lane LOS	A				F	F
Approach Delay (s)	0.7		0.0		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
121: W McKinley Ave &

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1548	0	0	2383	2	374	3	287	21	0	31
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	1683	0	0	2590	2	407	3	312	23	0	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					578							
pX, platoon unblocked	0.56						0.56	0.56		0.56	0.56	0.56
vC, conflicting volume	2592			1683			3031	4295	841	3454	4293	1296
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2272			1683			3055	5312	841	3810	5310	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			0	0	0	0	100	94
cM capacity (veh/h)	124			376			3	0	308	0	0	607

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	571	1122	1727	866	722	57
Volume Left	10	0	0	0	407	23
Volume Right	0	0	0	2	312	34
cSH	124	1700	1700	1700	4	0
Volume to Capacity	0.08	0.66	1.02	0.51	172.36	Err
Queue Length 95th (ft)	6	0	0	0	Err	Err
Control Delay (s)	4.9	0.0	0.0	0.0	Err	Err
Lane LOS	A				F	F
Approach Delay (s)	1.6		0.0		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	117.7%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	219	1542	1251	164	423	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00
Frt		1.00	0.98		1.00	0.85
Flt Protected		0.99	1.00		0.95	1.00
Satd. Flow (prot)		3517	3478		1770	1583
Flt Permitted		0.51	1.00		0.95	1.00
Satd. Flow (perm)		1816	3478		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	238	1676	1360	178	460	195
RTOR Reduction (vph)	0	0	7	0	0	75
Lane Group Flow (vph)	0	1914	1531	0	460	120
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)		111.0	111.0		31.0	31.0
Effective Green, g (s)		111.0	111.0		31.0	31.0
Actuated g/C Ratio		0.74	0.74		0.21	0.21
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1344	2574		366	327
v/s Ratio Prot			0.44		c0.26	
v/s Ratio Perm		c1.05				0.08
v/c Ratio		1.42	0.59		1.26	0.37
Uniform Delay, d1		19.5	9.1		59.5	51.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		195.2	0.4		136.0	0.7
Delay (s)		214.7	9.4		195.5	51.8
Level of Service		F	A		F	D
Approach Delay (s)		214.7	9.4		152.7	
Approach LOS		F	A		F	

Intersection Summary			
HCM Average Control Delay	128.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	122.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	298	1326	1661	327	368	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00
Frt		1.00	0.98		1.00	0.85
Flt Protected		0.99	1.00		0.95	1.00
Satd. Flow (prot)		3507	3452		1770	1583
Flt Permitted		0.49	1.00		0.95	1.00
Satd. Flow (perm)		1737	3452		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	324	1441	1805	355	400	346
RTOR Reduction (vph)	0	0	13	0	0	34
Lane Group Flow (vph)	0	1765	2147	0	400	312
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)		97.0	97.0		25.0	25.0
Effective Green, g (s)		97.0	97.0		25.0	25.0
Actuated g/C Ratio		0.75	0.75		0.19	0.19
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)		1296	2576		340	304
v/s Ratio Prot			0.62		c0.23	
v/s Ratio Perm		c1.02				0.20
v/c Ratio		5.68dl	0.83		1.18	1.03
Uniform Delay, d1		16.5	11.1		52.5	52.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		167.9	2.5		105.9	58.6
Delay (s)		184.4	13.5		158.4	111.1
Level of Service		F	B		F	F
Approach Delay (s)		184.4	13.5		136.5	
Approach LOS		F	B		F	

Intersection Summary

HCM Average Control Delay	97.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	132.0%	ICU Level of Service	H
Analysis Period (min)	15		

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	689	1187	91	55	898	175	237	415	10	165	816	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3453		1770	3527		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3453		1770	3527		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	749	1290	99	60	976	190	258	451	11	179	887	651
RTOR Reduction (vph)	0	0	19	0	12	0	0	1	0	0	0	155
Lane Group Flow (vph)	749	1290	80	60	1154	0	258	461	0	179	887	496
Turn Type	Prot		custom	Prot			Prot			Prot		custom
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			4									6
Actuated Green, G (s)	35.0	63.6	34.9	6.3	34.9		14.0	33.1		10.0	29.1	33.1
Effective Green, g (s)	35.0	63.6	34.9	6.3	34.9		14.0	33.1		10.0	29.1	33.1
Actuated g/C Ratio	0.27	0.49	0.27	0.05	0.27		0.11	0.25		0.08	0.22	0.25
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Vehicle Extension (s)	2.0	5.2	5.2	2.0	5.2		2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	474	1721	422	85	921		189	893		135	787	401
v/s Ratio Prot	c0.42	0.36		0.03	c0.33		c0.15	0.13		0.10	0.25	
v/s Ratio Perm			0.05									c0.31
v/c Ratio	1.58	0.75	0.19	0.71	1.25		1.37	0.52		1.33	1.13	1.24
Uniform Delay, d1	47.9	27.2	37.0	61.3	48.0		58.4	42.0		60.4	50.9	48.9
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	271.0	2.3	0.5	19.5	122.6		194.4	1.1		188.8	73.1	126.8
Delay (s)	318.9	29.4	37.5	80.8	170.6		252.8	43.0		249.2	123.9	175.6
Level of Service	F	C	D	F	F		F	D		F	F	F
Approach Delay (s)		131.2			166.2			118.2			156.6	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	144.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	17.8
Intersection Capacity Utilization	119.1%	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)	865	1054	102	99	1316	309	345	660	22	429	771	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3438		1770	3522		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3438		1770	3522		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	940	1146	111	108	1430	336	375	717	24	466	838	672
RTOR Reduction (vph)	0	0	21	0	13	0	0	2	0	0	0	147
Lane Group Flow (vph)	940	1146	90	108	1753	0	375	739	0	466	838	525
Turn Type	Prot		custom	Prot			Prot			Prot		custom
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			4									6
Actuated Green, G (s)	36.0	68.0	45.1	13.1	45.1		16.0	31.1		20.0	35.1	31.1
Effective Green, g (s)	36.0	68.0	45.1	13.1	45.1		16.0	31.1		20.0	35.1	31.1
Actuated g/C Ratio	0.24	0.45	0.30	0.09	0.30		0.11	0.21		0.13	0.23	0.21
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Vehicle Extension (s)	2.0	5.2	5.2	2.0	5.2		2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	425	1604	476	155	1034		189	730		236	828	328
v/s Ratio Prot	c0.53	0.32		0.06	c0.51		0.21	0.21		c0.26	c0.24	
v/s Ratio Perm			0.06									c0.33
v/c Ratio	2.21	0.71	0.19	0.70	1.70		1.98	1.01		1.97	1.01	1.60
Uniform Delay, d1	57.0	33.2	38.9	66.5	52.5		67.0	59.5		65.0	57.5	59.5
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	552.9	2.0	0.4	10.5	317.0		461.3	36.6		453.5	34.3	284.7
Delay (s)	609.9	35.1	39.3	77.0	369.4		528.3	96.0		518.5	91.7	344.1
Level of Service	F	D	D	E	F		F	F		F	F	F
Approach Delay (s)		281.3			352.6			241.3			278.2	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	292.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.90		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	151.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	693	691	478	304	0	0	0	0	1100	0	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.93		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.97	
Satd. Flow (prot)		3274		1770	3539						1725	
Flt Permitted		1.00		0.95	1.00						0.97	
Satd. Flow (perm)		3274		1770	3539						1725	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	753	751	520	330	0	0	0	0	1196	0	534
RTOR Reduction (vph)	0	120	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	1384	0	520	330	0	0	0	0	0	1719	0
Turn Type				Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases										6		
Actuated Green, G (s)		38.0		24.0	66.0						76.0	
Effective Green, g (s)		38.0		24.0	66.0						76.0	
Actuated g/C Ratio		0.25		0.16	0.44						0.51	
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)		829		283	1557						874	
v/s Ratio Prot		c0.42		c0.29	0.09							
v/s Ratio Perm											1.00	
v/c Ratio		1.67		1.84	0.21						1.97	
Uniform Delay, d1		56.0		63.0	25.9						37.0	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		306.5		390.3	0.1						439.3	
Delay (s)		362.5		453.3	26.0						476.3	
Level of Service		F		F	C						F	
Approach Delay (s)		362.5			287.4			0.0			476.3	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	395.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.86		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	178.8%	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)	0	715	614	587	481	0	0	0	0	897	0	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.93		1.00	1.00						0.95	
Flt Protected		1.00		0.95	1.00						0.97	
Satd. Flow (prot)		3294		1770	3539						1714	
Flt Permitted		1.00		0.95	1.00						0.97	
Satd. Flow (perm)		3294		1770	3539						1714	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	777	667	638	523	0	0	0	0	975	0	601
RTOR Reduction (vph)	0	111	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	1333	0	638	523	0	0	0	0	0	1560	0
Turn Type				Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases										6		
Actuated Green, G (s)		34.0		28.0	66.0						66.0	
Effective Green, g (s)		34.0		28.0	66.0						66.0	
Actuated g/C Ratio		0.24		0.20	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)		800		354	1668						808	
v/s Ratio Prot		c0.40		c0.36	0.15							
v/s Ratio Perm											0.91	
v/c Ratio		1.67		1.80	0.31						1.93	
Uniform Delay, d1		53.0		56.0	22.9						37.0	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		305.6		372.1	0.1						423.5	
Delay (s)		358.6		428.1	23.1						460.5	
Level of Service		F		F	C						F	
Approach Delay (s)		358.6			245.6			0.0			460.5	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	365.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	219.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	447	1325	0	0	634	188	155	0	342	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0		
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		
Frt	1.00	1.00			0.97			1.00	0.85		
Flt Protected	0.95	1.00			1.00			0.95	1.00		
Satd. Flow (prot)	1770	3539			3418			1770	1583		
Flt Permitted	0.95	1.00			1.00			0.95	1.00		
Satd. Flow (perm)	1770	3539			3418			1770	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	486	1440	0	0	689	204	168	0	372	0	0
RTOR Reduction (vph)	0	0	0	0	39	0	0	0	41	0	0
Lane Group Flow (vph)	486	1440	0	0	854	0	0	168	331	0	0
Turn Type	Prot						Perm		Perm		
Protected Phases	7	4			8			2			
Permitted Phases							2		2		
Actuated Green, G (s)	20.9	43.7			18.8			16.2	16.2		
Effective Green, g (s)	20.9	43.7			18.8			16.2	16.2		
Actuated g/C Ratio	0.31	0.64			0.28			0.24	0.24		
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)	545	2278			946			422	378		
v/s Ratio Prot	c0.27	0.41			c0.25						
v/s Ratio Perm								0.09	c0.21		
v/c Ratio	0.89	0.63			0.90			0.40	0.88		
Uniform Delay, d1	22.4	7.3			23.7			21.7	24.9		
Progression Factor	1.00	1.00			1.00			1.00	1.00		
Incremental Delay, d2	16.7	0.6			11.7			0.6	19.6		
Delay (s)	39.1	7.8			35.4			22.4	44.5		
Level of Service	D	A			D			C	D		
Approach Delay (s)		15.7			35.4			37.6		0.0	
Approach LOS		B			D			D		A	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	178.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	769	540	0	0	736	627	986	0	855	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0		
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		
Frt	1.00	1.00			0.93			1.00	0.85		
Flt Protected	0.95	1.00			1.00			0.95	1.00		
Satd. Flow (prot)	1770	3539			3295			1770	1583		
Flt Permitted	0.95	1.00			1.00			0.95	1.00		
Satd. Flow (perm)	1770	3539			3295			1770	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	836	587	0	0	800	682	1072	0	929	0	0
RTOR Reduction (vph)	0	0	0	0	103	0	0	0	180	0	0
Lane Group Flow (vph)	836	587	0	0	1379	0	0	1072	749	0	0
Turn Type	Prot						Perm		Perm		
Protected Phases	7	4			8			2			
Permitted Phases							2		2		
Actuated Green, G (s)	42.0	86.0			40.0			56.0	56.0		
Effective Green, g (s)	42.0	86.0			40.0			56.0	56.0		
Actuated g/C Ratio	0.28	0.57			0.27			0.37	0.37		
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)	496	2029			879			661	591		
v/s Ratio Prot	c0.47	0.17			c0.42						
v/s Ratio Perm								0.61	0.47		
v/c Ratio	1.69	0.29			1.57			1.62	1.27		
Uniform Delay, d1	54.0	16.4			55.0			47.0	47.0		
Progression Factor	1.00	1.00			1.00			1.00	1.00		
Incremental Delay, d2	317.1	0.1			261.7			286.7	133.0		
Delay (s)	371.1	16.4			316.7			333.7	180.0		
Level of Service	F	B			F			F	F		
Approach Delay (s)		224.8			316.7			262.4		0.0	
Approach LOS		F			F			F		A	

Intersection Summary

HCM Average Control Delay	267.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	219.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
126: W Olive Ave & N West Ave

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	122	1540	6	44	798	76	2	0	8	64	0	69
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	133	1674	7	48	867	83	2	0	9	70	0	75
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		755										
pX, platoon unblocked				0.75			0.75	0.75	0.75	0.75	0.75	
vC, conflicting volume	950			1680			2547	2988	840	2115	2950	475
vC1, stage 1 conf vol							1942	1942		1004	1004	
vC2, stage 2 conf vol							604	1046		1111	1946	
vCu, unblocked vol	950			1239			2395	2984	118	1819	2933	475
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	82			89			97	100	99	59	100	86
cM capacity (veh/h)	719			418			63	77	683	171	51	536

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	133	1116	564	48	578	372	11	70	75
Volume Left	133	0	0	48	0	0	2	70	0
Volume Right	0	0	7	0	0	83	9	0	75
cSH	719	1700	1700	418	1700	1700	231	171	536
Volume to Capacity	0.18	0.66	0.33	0.11	0.34	0.22	0.05	0.41	0.14
Queue Length 95th (ft)	17	0	0	10	0	0	4	45	12
Control Delay (s)	11.1	0.0	0.0	14.7	0.0	0.0	21.3	39.6	12.8
Lane LOS	B			B			C	E	B
Approach Delay (s)	0.8			0.7			21.3	25.7	
Approach LOS							C	D	

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
126: W Olive Ave & N West Ave

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	1342	1	4	1217	53	5	0	9	56	0	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	1459	1	4	1323	58	5	0	10	61	0	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		755										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	1380			1460			2271	2946	730	2197	2918	690
vC1, stage 1 conf vol							1557	1557		1360	1360	
vC2, stage 2 conf vol							714	1389		837	1558	
vCu, unblocked vol	1380			1328			2208	2942	536	2129	2911	690
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			99			95	100	98	56	100	89
cM capacity (veh/h)	492			475			106	108	450	137	122	387

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	49	972	487	4	882	499	15	61	43
Volume Left	49	0	0	4	0	0	5	61	0
Volume Right	0	0	1	0	0	58	10	0	43
cSH	492	1700	1700	475	1700	1700	208	137	387
Volume to Capacity	0.10	0.57	0.29	0.01	0.52	0.29	0.07	0.44	0.11
Queue Length 95th (ft)	8	0	0	1	0	0	6	50	9
Control Delay (s)	13.1	0.0	0.0	12.6	0.0	0.0	23.7	50.7	15.5
Lane LOS	B			B			C	F	C
Approach Delay (s)	0.4			0.0			23.7	36.0	
Approach LOS							C	E	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (veh/h)	0	1147	645	251	491	0	220	18	155	10	0	20
Sign Control		Free			Free			Stop		Stop		
Grade		0%			0%			0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1247	701	273	534	0	239	20	168	11	0	22
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	534			1948			1724	3027	267	2420	2677	974
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534			1948			1724	3027	267	2420	2677	974
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			8			0	0	77	0	100	91
cM capacity (veh/h)	1030			297			10	1	731	0	2	251

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	NW 1
Volume Total	831	1117	451	356	427	33
Volume Left	0	0	273	0	239	11
Volume Right	0	701	0	0	168	22
cSH	1700	1700	297	1700	10	0
Volume to Capacity	0.49	0.66	0.92	0.21	42.66	Err
Queue Length 95th (ft)	0	0	218	0	Err	Err
Control Delay (s)	0.0	0.0	72.2	0.0	Err	Err
Lane LOS			F		F	F
Approach Delay (s)	0.0		40.4		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (veh/h)	0	729	400	416	2028	0	304	7	284	17	0	16
Sign Control		Free			Free			Stop		Stop		
Grade		0%			0%			0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	792	435	452	2204	0	330	8	309	18	0	17
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	2204			1227			3522	4336	1102	3020	4118	614
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2204			1227			3522	4336	1102	3020	4118	614
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			20			0	0	0	0	100	96
cM capacity (veh/h)	235			564			1	0	206	0	0	435

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	NW 1
Volume Total	528	699	1187	1470	647	36
Volume Left	0	0	452	0	330	18
Volume Right	0	435	0	0	309	17
cSH	1700	1700	564	1700	1	0
Volume to Capacity	0.31	0.41	0.80	0.86	478.09	Err
Queue Length 95th (ft)	0	0	195	0	Err	Err
Control Delay (s)	0.0	0.0	32.3	0.0	Err	Err
Lane LOS			D		F	F
Approach Delay (s)	0.0		14.5		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	152.4%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (veh/h)	216	1478	0	0	524	163	228	0	445	0	0
Sign Control		Free			Free			Stop		Stop	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	235	1607	0	0	570	177	248	0	484	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	747			1607			2361	2823	803	1931	2734
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	747			1607			2361	2823	803	1931	2734
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	73			100			0	100	0	0	100
cM capacity (veh/h)	857			403			15	13	326	0	15

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	770	1071	380	367	248	484
Volume Left	235	0	0	0	248	0
Volume Right	0	0	0	177	0	484
cSH	857	1700	1700	1700	15	326
Volume to Capacity	0.27	0.63	0.22	0.22	16.84	1.48
Queue Length 95th (ft)	28	0	0	0	Err	663
Control Delay (s)	6.3	0.0	0.0	0.0	Err	262.9
Lane LOS	A				F	F
Approach Delay (s)	2.6		0.0		3561.3	
Approach LOS					F	

Intersection Summary				
Average Delay	786.2			
Intersection Capacity Utilization	89.4%	ICU Level of Service	E	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (veh/h)	445	593	0	0	1078	766	1359	0	828	0	0
Sign Control		Free			Free			Stop		Stop	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	484	645	0	0	1172	833	1477	0	900	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	2004			645			2198	3616	322	2878	3200
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	2004			645			2198	3616	322	2878	3200
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0			100			0	0	0	0	0
cM capacity (veh/h)	282			936			0	0	673	0	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	699	430	781	1223	1477	900
Volume Left	484	0	0	0	1477	0
Volume Right	0	0	0	833	0	900
cSH	282	1700	1700	1700	0	673
Volume to Capacity	1.72	0.25	0.46	0.72	Err	1.34
Queue Length 95th (ft)	777	0	0	0	Err	934
Control Delay (s)	368.2	0.0	0.0	0.0	Err	180.6
Lane LOS	F				F	F
Approach Delay (s)	228.0		0.0		Err	
Approach LOS					F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	169.0%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	980	784	24	1108	70	1508	139	17	51	108	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00			0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1846			1780			1674	
Flt Permitted	0.24	1.00	1.00	0.24	1.00			0.36			0.99	
Satd. Flow (perm)	438	1863	1583	438	1846			665			1670	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	1065	852	26	1204	76	1639	151	18	55	117	449
RTOR Reduction (vph)	0	0	486	0	5	0	0	1	0	0	8	0
Lane Group Flow (vph)	315	1065	366	26	1275	0	0	1807	0	0	613	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.0	17.0	17.0	17.0	17.0			20.0			20.0	
Effective Green, g (s)	17.0	17.0	17.0	17.0	17.0			20.0			20.0	
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38			0.44			0.44	
Clearance Time (s)	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	
Lane Grp Cap (vph)	165	704	598	165	697			296			742	
v/s Ratio Prot		0.57			0.69							
v/s Ratio Perm	c0.72		0.23	0.06				c2.72			0.37	
v/c Ratio	1.91	1.51	0.61	0.16	1.83			6.11			0.83	
Uniform Delay, d1	14.0	14.0	11.3	9.3	14.0			12.5			11.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	430.8	238.1	1.9	0.4	378.8			2305.1			7.5	
Delay (s)	444.8	252.1	13.2	9.7	392.8			2317.6			18.5	
Level of Service	F	F	B	A	F			F			B	
Approach Delay (s)		188.1			385.2			2317.6			18.5	
Approach LOS		F			F			F			B	

Intersection Summary

HCM Average Control Delay	858.8	HCM Level of Service	F
HCM Volume to Capacity ratio	4.18		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	217.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	451	1069	820	8	678	55	283	43	7	34	120	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00			0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1842			1782			1680	
Flt Permitted	0.22	1.00	1.00	0.22	1.00			0.39			0.96	
Satd. Flow (perm)	414	1863	1583	414	1842			717			1621	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	490	1162	891	9	737	60	308	47	8	37	130	396
RTOR Reduction (vph)	0	0	442	0	7	0	0	2	0	0	55	0
Lane Group Flow (vph)	490	1162	449	9	790	0	0	361	0	0	508	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	18.0	18.0	18.0	18.0	18.0			19.0			19.0	
Effective Green, g (s)	18.0	18.0	18.0	18.0	18.0			19.0			19.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40			0.42			0.42	
Clearance Time (s)	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	
Lane Grp Cap (vph)	166	745	633	166	737			303			684	
v/s Ratio Prot		0.62			0.43							
v/s Ratio Perm	c1.18		0.28	0.02				c0.50			0.31	
v/c Ratio	2.95	1.56	0.71	0.05	1.07			1.19			0.74	
Uniform Delay, d1	13.5	13.5	11.3	8.3	13.5			13.0			10.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	894.4	258.4	3.6	0.1	54.3			114.4			4.4	
Delay (s)	907.9	271.9	14.9	8.4	67.8			127.4			15.3	
Level of Service	F	F	B	A	E			F			B	
Approach Delay (s)		304.4			67.1			127.4			15.3	
Approach LOS		F			E			F			B	

Intersection Summary

HCM Average Control Delay	206.6	HCM Level of Service	F
HCM Volume to Capacity ratio	2.05		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	126.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

FRESNO UNDERPASS ALTERNATIVE

HCM Unsignalized Intersection Capacity Analysis

1: Broadway St & Monterey St.

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	46	0	0	402	0	0	0	0	0	0	157
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	50	0	0	437	0	0	0	0	0	0	171
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	437			50			487	487	50	487	487	437
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	437			50			487	487	50	487	487	437
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	72
cM capacity (veh/h)	1123			1557			356	481	1018	491	481	620

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total	50	437	0	0	171
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	171
cSH	1123	1557	1700	1700	620
Volume to Capacity	0.00	0.00	0.00	0.00	0.28
Queue Length 95th (ft)	0	0	0	0	28
Control Delay (s)	0.0	0.0	0.0	0.0	13.0
Lane LOS			A	A	B
Approach Delay (s)	0.0	0.0	0.0	13.0	
Approach LOS			A	B	

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	37.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Broadway St & Monterey St.

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	58	0	0	255	0	0	0	0	0	0	60
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	63	0	0	277	0	0	0	0	0	0	65
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	277			63			340	340	63	340	340	277
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	277			63			340	340	63	340	340	277
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	91
cM capacity (veh/h)	1286			1540			561	581	1002	614	581	762

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total	63	277	0	0	65
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	65
cSH	1286	1540	1700	1700	762
Volume to Capacity	0.00	0.00	0.00	0.00	0.09
Queue Length 95th (ft)	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	10.2
Lane LOS			A	A	B
Approach Delay (s)	0.0	0.0	0.0	10.2	
Approach LOS			A	B	

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
2: Van Ness Ave & 41 NB Off-Ramp

4/10/2012

Movement	SBL2	SBL	SBR	NWL	NWR	NWR2	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop		Stop				Stop			Stop	
Volume (vph)	92	275	0	0	495	118	271	61	112	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	299	0	0	538	128	295	66	122	0	0	0

Direction, Lane #	SB 1	SB 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	200	199	359	308	328	155
Volume Left (vph)	100	0	0	0	295	0
Volume Right (vph)	0	0	0	128	0	122
Hadj (s)	0.28	0.03	0.03	-0.26	0.48	-0.52
Departure Headway (s)	7.6	7.3	7.0	6.7	7.7	6.7
Degree Utilization, x	0.42	0.41	0.70	0.57	0.70	0.29
Capacity (veh/h)	458	474	502	518	446	513
Control Delay (s)	14.8	14.0	23.2	17.0	25.9	11.2
Approach Delay (s)	14.4		20.3		21.2	
Approach LOS	B		C		C	

Intersection Summary			
Delay	19.1		
HCM Level of Service	C		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: Van Ness Ave & San Benito St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	19	268	0	0	196	47	480	112	90	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	291	0	0	213	51	522	122	98	0	0	0

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	118	194	142	122	583	159
Volume Left (vph)	21	0	0	0	522	0
Volume Right (vph)	0	0	0	51	0	98
Hadj (s)	0.12	0.03	0.03	-0.26	0.48	-0.40
Departure Headway (s)	7.2	7.1	7.2	6.9	6.7	5.8
Degree Utilization, x	0.23	0.38	0.28	0.23	1.09	0.26
Capacity (veh/h)	492	501	493	513	529	602
Control Delay (s)	11.1	13.1	11.7	10.7	88.1	9.6
Approach Delay (s)	12.4		11.3		71.3	
Approach LOS	B		B		F	

Intersection Summary			
Delay	45.3		
HCM Level of Service	E		
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		↰	↱
Volume (veh/h)	0	710	120	0	267	759
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	772	130	0	290	825
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1132				
pX, platoon unblocked					0.98	
vC, conflicting volume	130				902	130
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	130				891	130
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				5	10
cM capacity (veh/h)	1455				307	919

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	772	130	290	825
Volume Left	0	0	290	0
Volume Right	0	0	0	825
cSH	1700	1700	307	919
Volume to Capacity	0.45	0.08	0.95	0.90
Queue Length 95th (ft)	0	0	236	317
Control Delay (s)	0.0	0.0	76.0	31.8
Lane LOS			F	D
Approach Delay (s)	0.0	0.0	43.3	
Approach LOS			E	

Intersection Summary			
Average Delay	24.0		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: 41 SB Off-Ramp &

4/10/2012

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		↰	↱
Volume (veh/h)	0	666	59	0	6	808
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	724	64	0	7	878
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1131				
pX, platoon unblocked						
vC, conflicting volume	64				788	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64				788	64
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	12
cM capacity (veh/h)	1538				360	1000

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	724	64	7	878
Volume Left	0	0	7	0
Volume Right	0	0	0	878
cSH	1700	1700	360	1000
Volume to Capacity	0.43	0.04	0.02	0.88
Queue Length 95th (ft)	0	0	1	302
Control Delay (s)	0.0	0.0	15.2	27.8
Lane LOS			C	D
Approach Delay (s)	0.0	0.0	27.7	
Approach LOS			D	

Intersection Summary			
Average Delay	14.7		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Van Ness Ave & 41 SB Off-Ramp

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	197	591	275	488	0	0	0	0	91	655	693
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	214	642	299	530	0	0	0	0	99	712	753
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		735										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	530			857			1754	1664	535	1664	1985	265
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	530			748			1797	1691	372	1691	2067	265
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			59			0	100	100	0	0	0
cM capacity (veh/h)	1033			733			0	47	535	35	27	733

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	857	476	354	1062	502
Volume Left	0	299	0	99	0
Volume Right	642	0	0	251	502
cSH	1700	733	1700	36	733
Volume to Capacity	0.50	0.41	0.21	29.31	0.69
Queue Length 95th (ft)	0	50	0	Err	137
Control Delay (s)	0.0	10.6	0.0	Err	19.9
Lane LOS		B		F	C
Approach Delay (s)	0.0	6.1		6795.1	
Approach LOS				F	

Intersection Summary			
Average Delay	3271.9		
Intersection Capacity Utilization	131.8%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Van Ness Ave & 41 SB Off-Ramp

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	272	335	102	469	0	0	0	0	170	452	575
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	296	364	111	510	0	0	0	0	185	491	625
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		735										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	510			660			1200	1209	478	1209	1391	255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	510			607			1181	1191	413	1191	1384	255
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			88			0	100	100	0	0	16
cM capacity (veh/h)	1052			910			0	154	553	122	118	744

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	660	281	340	884	417
Volume Left	0	111	0	185	0
Volume Right	364	0	0	208	417
cSH	1700	910	1700	148	744
Volume to Capacity	0.39	0.12	0.20	5.98	0.56
Queue Length 95th (ft)	0	10	0	Err	88
Control Delay (s)	0.0	4.5	0.0	Err	15.8
Lane LOS		A		F	C
Approach Delay (s)	0.0	2.0		6801.9	
Approach LOS				F	

Intersection Summary				
Average Delay	3428.7			
Intersection Capacity Utilization	105.6%	ICU Level of Service	G	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
5: SR99 S Off-ramp & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	160	6	535	0	0	0	0	1073	183	442	1261	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2						5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00						0.95		1.00	0.95	
Frt	1.00	0.85						0.98		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1587						3462		1770	3539	
Flt Permitted	0.95	1.00						1.00		0.16	1.00	
Satd. Flow (perm)	1770	1587						3462		301	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	7	582	0	0	0	0	1166	199	480	1371	0
RTOR Reduction (vph)	0	75	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	174	514	0	0	0	0	0	1356	0	480	1371	0
Turn Type	Split									Perm		
Protected Phases	4	4						2			2	
Permitted Phases										2		
Actuated Green, G (s)	29.8	29.8						110.8		110.8	110.8	
Effective Green, g (s)	29.8	29.8						110.8		110.8	110.8	
Actuated g/C Ratio	0.20	0.20						0.74		0.74	0.74	
Clearance Time (s)	4.2	4.2						5.2		5.2	5.2	
Vehicle Extension (s)	5.2	5.2						0.2		0.2	0.2	
Lane Grp Cap (vph)	352	315						2557		222	2614	
v/s Ratio Prot	0.10	c0.32						0.39			0.39	
v/s Ratio Perm										c1.60		
v/c Ratio	0.49	1.63						0.53		2.16	0.52	
Uniform Delay, d1	53.4	60.1						8.4		19.6	8.4	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.4	299.0						0.1		537.6	0.1	
Delay (s)	55.8	359.1						8.5		557.2	8.4	
Level of Service	E	F						A		F	A	
Approach Delay (s)		290.0			0.0			8.5			150.8	
Approach LOS		F			A			A			F	

Intersection Summary			
HCM Average Control Delay	128.7	HCM Level of Service	F
HCM Volume to Capacity ratio	2.05		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: SR99 S Off-ramp & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	316	0	317	0	0	0	0	997	223	226	555	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2						5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00						0.95		1.00	0.95	
Frt	1.00	0.85						0.97		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583						3442		1770	3539	
Flt Permitted	0.95	1.00						1.00		0.17	1.00	
Satd. Flow (perm)	1770	1583						3442		322	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	343	0	345	0	0	0	0	1084	242	246	603	0
RTOR Reduction (vph)	0	282	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	343	63	0	0	0	0	0	1310	0	246	603	0
Turn Type	Split									Perm		
Protected Phases	4	4						2			2	
Permitted Phases										2		
Actuated Green, G (s)	21.8	21.8						88.8		88.8	88.8	
Effective Green, g (s)	21.8	21.8						88.8		88.8	88.8	
Actuated g/C Ratio	0.18	0.18						0.74		0.74	0.74	
Clearance Time (s)	4.2	4.2						5.2		5.2	5.2	
Vehicle Extension (s)	5.2	5.2						0.2		0.2	0.2	
Lane Grp Cap (vph)	322	288						2547		238	2619	
v/s Ratio Prot	c0.19	0.04						0.38			0.17	
v/s Ratio Perm										c0.76		
v/c Ratio	1.07	0.22						0.51		1.03	0.23	
Uniform Delay, d1	49.1	41.8						6.5		15.6	4.9	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	68.5	0.9						0.1		67.4	0.0	
Delay (s)	117.6	42.7						6.6		83.0	4.9	
Level of Service	F	D						A		F	A	
Approach Delay (s)		80.0			0.0			6.6			27.5	
Approach LOS		F			A			A			C	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
6: SR99 N On-Ramp & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	300	5	374	314	917	0	0	1330	408
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	326	5	407	341	997	0	0	1446	443
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								284			1117	
pX, platoon unblocked	0.85	0.85	0.79	0.85	0.85	0.87	0.79			0.87		
vC, conflicting volume	3258	3347	945	2402	3568	498	1889			997		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2612	2717	396	1612	2976	122	1593			695		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	100	0	0	48	0			100		
cM capacity (veh/h)	0	0	476	0	0	788	322			779		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	329	409	341	498	498	964	925
Volume Left	326	0	341	0	0	0	0
Volume Right	0	407	0	0	0	0	443
cSH	0	0	322	1700	1700	1700	1700
Volume to Capacity	Err	Err	1.06	0.29	0.29	0.57	0.54
Queue Length 95th (ft)	Err	Err	315	0	0	0	0
Control Delay (s)	Err	Err	104.0	0.0	0.0	0.0	0.0
Lane LOS	F	F	F				
Approach Delay (s)	Err		26.5			0.0	
Approach LOS	F						

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: SR99 N On-Ramp & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	115	24	426	386	931	0	0	676	214
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	125	26	463	420	1012	0	0	735	233
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								284			1117	
pX, platoon unblocked												
vC, conflicting volume	2672	2702	484	2218	2818	506	967			1012		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2672	2702	484	2218	2818	506	967			1012		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	0	0	9	41			100		
cM capacity (veh/h)	0	9	529	13	7	512	708			681		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	138	476	420	506	506	490	478
Volume Left	125	0	420	0	0	0	0
Volume Right	0	463	0	0	0	0	233
cSH	12	175	708	1700	1700	1700	1700
Volume to Capacity	11.67	2.73	0.59	0.30	0.30	0.29	0.28
Queue Length 95th (ft)	Err	1048	98	0	0	0	0
Control Delay (s)	Err	833.3	17.2	0.0	0.0	0.0	0.0
Lane LOS	F	F	C				
Approach Delay (s)	2893.6		5.0			0.0	
Approach LOS	F						

Intersection Summary				
Average Delay	592.2			
Intersection Capacity Utilization	85.6%	ICU Level of Service	E	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
7: E St & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	21	4	38	49	19	13	190	1156	3	1	814	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	4	41	53	21	14	207	1257	3	1	885	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)								595			806	
pX, platoon unblocked	0.97	0.97	0.97	0.97	0.97		0.97					
vC, conflicting volume	1969	2576	459	2159	2591	630	917			1260		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1932	2561	368	2129	2576	630	843			1260		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	76	93	0	0	97	73			100		
cM capacity (veh/h)	0	18	607	16	18	424	761			548		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	68	88	835	632	443	475
Volume Left	23	53	207	0	1	0
Volume Right	41	14	0	3	0	33
cSH	0	20	761	1700	548	1700
Volume to Capacity	Err	4.43	0.27	0.37	0.00	0.28
Queue Length 95th (ft)	Err	Err	27	0	0	0
Control Delay (s)	Err	Err	6.6	0.0	0.1	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	Err	Err	3.7		0.0	
Approach LOS	F	F				

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	79.0%	ICU Level of Service	D	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
7: E St & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	33	5	93	250	162	153	274	998	82	6	1238	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	5	101	272	176	166	298	1085	89	7	1346	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)								595			806	
pX, platoon unblocked	0.78	0.78	0.73	0.78	0.78	0.90	0.73			0.90		
vC, conflicting volume	2767	3145	689	2515	3116	587	1378			1174		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2149	2635	0	1823	2598	333	773			982		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	40	87	0	0	72	51			99		
cM capacity (veh/h)	0	9	790	11	10	599	610			632		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	142	614	840	632	679	705
Volume Left	36	272	298	0	7	0
Volume Right	101	166	0	89	0	33
cSH	0	14	610	1700	632	1700
Volume to Capacity	Err	43.05	0.49	0.37	0.01	0.41
Queue Length 95th (ft)	Err	Err	67	0	1	0
Control Delay (s)	Err	Err	13.4	0.0	0.3	0.0
Lane LOS	F	F	B		A	
Approach Delay (s)	Err	Err	7.6		0.1	
Approach LOS	F	F				

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	121.9%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
9: Broadway St & Ventura Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	255	501	68	336	553	30	72	638	388	60	461	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3476		1770	1848		1770	3338		1770	3389	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3476		1770	1848		1770	3338		1770	3389	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	545	74	365	601	33	78	693	422	65	501	198
RTOR Reduction (vph)	0	7	0	0	1	0	0	64	0	0	29	0
Lane Group Flow (vph)	277	612	0	365	633	0	78	1051	0	65	670	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	23.9	23.9		45.6	45.6		8.0	46.4		6.2	44.6	
Effective Green, g (s)	23.9	23.9		45.6	45.6		8.0	46.4		6.2	44.6	
Actuated g/C Ratio	0.17	0.17		0.32	0.32		0.06	0.33		0.04	0.32	
Clearance Time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	299	587		570	596		100	1095		78	1068	
v/s Ratio Prot	0.16	c0.18		0.21	c0.34		c0.04	c0.31		0.04	0.20	
v/s Ratio Perm												
v/c Ratio	0.93	1.04		0.64	1.06		0.78	0.96		0.83	0.63	
Uniform Delay, d1	57.9	58.8		40.9	48.0		65.9	46.6		67.1	41.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	32.7	48.5		1.8	54.3		29.5	18.0		48.6	0.8	
Delay (s)	90.6	107.3		42.8	102.2		95.4	64.6		115.7	42.2	
Level of Service	F	F		D	F		F	E		F	D	
Approach Delay (s)		102.1			80.5			66.6			48.4	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM Average Control Delay	74.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	141.5	Sum of lost time (s)	15.2
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
9: Broadway St & Ventura Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	273	769	154	281	386	64	202	648	351	123	895	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3451		1770	1823		1770	3352		1770	3452	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3451		1770	1823		1770	3352		1770	3452	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	297	836	167	305	420	70	220	704	382	134	973	191
RTOR Reduction (vph)	0	12	0	0	5	0	0	54	0	0	12	0
Lane Group Flow (vph)	297	991	0	305	485	0	220	1032	0	134	1152	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	30.4	30.4		31.4	31.4		10.0	45.8		8.0	43.8	
Effective Green, g (s)	30.4	30.4		31.4	31.4		10.0	45.8		8.0	43.8	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.07	0.34		0.06	0.32	
Clearance Time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	399	777		412	424		131	1137		105	1120	
v/s Ratio Prot	0.17	c0.29		0.17	c0.27		c0.12	0.31		0.08	c0.33	
v/s Ratio Perm												
v/c Ratio	0.74	1.27		0.74	1.14		1.68	0.91		1.28	1.03	
Uniform Delay, d1	48.7	52.3		48.0	51.8		62.5	42.6		63.5	45.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	133.7		6.2	89.6		336.6	10.3		179.2	34.4	
Delay (s)	55.2	186.0		54.2	141.4		399.1	52.9		242.7	80.0	
Level of Service	E	F		D	F		F	D		F	F	
Approach Delay (s)		156.1			107.9			111.2			96.8	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	119.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	19.4
Intersection Capacity Utilization	99.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	35	216	56	254	522	194	61	706	159	189	543	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2		4.2	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3430		1770	3395		1770	3442		1770	3449	
Flt Permitted	0.20	1.00		0.57	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	369	3430		1061	3395		1770	3442		1770	3449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	235	61	276	567	211	66	767	173	205	590	121
RTOR Reduction (vph)	0	36	0	0	60	0	0	29	0	0	24	0
Lane Group Flow (vph)	38	260	0	276	718	0	66	911	0	205	687	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	20.2	20.2		20.2	20.2		5.0	23.7		8.8	27.5	
Effective Green, g (s)	20.2	20.2		20.2	20.2		5.0	23.7		8.8	27.5	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.08	0.36		0.14	0.42	
Clearance Time (s)	4.2	4.2		4.2	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	4.8	4.8		4.8	4.8		2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	114	1064		329	1053		136	1253		239	1457	
v/s Ratio Prot		0.08			0.21		0.04	c0.26		c0.12	0.20	
v/s Ratio Perm	0.10			c0.26								
v/c Ratio	0.33	0.24		0.84	0.68		0.49	0.73		0.86	0.47	
Uniform Delay, d1	17.3	16.8		20.9	19.6		28.8	17.9		27.5	13.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.3	0.2		18.4	2.3		1.0	2.5		24.1	0.5	
Delay (s)	20.6	17.0		39.3	21.9		29.8	20.4		51.6	14.0	
Level of Service	C	B		D	C		C	C		D	B	
Approach Delay (s)		17.4			26.5			21.1			22.4	
Approach LOS		B			C			C			C	

Intersection Summary

HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	65.1	Sum of lost time (s)	12.4
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
10: Van Ness Ave & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	155	495	101	480	506	176	58	862	171	97	707	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2		4.2	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3449		1770	3402		1770	3451		1770	3480	
Flt Permitted	0.31	1.00		0.35	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	576	3449		656	3402		1770	3451		1770	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	538	110	522	550	191	63	937	186	105	768	97
RTOR Reduction (vph)	0	11	0	0	23	0	0	11	0	0	6	0
Lane Group Flow (vph)	168	637	0	522	718	0	63	1112	0	105	859	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	84.8	84.8		84.8	84.8		9.6	41.3		12.2	43.9	
Effective Green, g (s)	84.8	84.8		84.8	84.8		9.6	41.3		12.2	43.9	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.06	0.27		0.08	0.29	
Clearance Time (s)	4.2	4.2		4.2	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	4.8	4.8		4.8	4.8		2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	324	1941		369	1914		113	946		143	1014	
v/s Ratio Prot		0.18			0.21		0.04	c0.32		0.06	c0.25	
v/s Ratio Perm	0.29			c0.80								
v/c Ratio	0.52	0.33		1.41	0.38		0.56	1.18		0.73	0.85	
Uniform Delay, d1	20.3	17.7		32.9	18.3		68.5	54.7		67.7	50.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.2		202.0	0.2		3.4	90.2		15.4	7.3	
Delay (s)	22.9	17.9		234.9	18.5		71.8	144.9		83.1	57.5	
Level of Service	C	B		F	B		E	F		F	E	
Approach Delay (s)		18.9			107.9			141.0			60.3	
Approach LOS		B			F			F			E	

Intersection Summary

HCM Average Control Delay	89.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	150.7	Sum of lost time (s)	12.6
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
11: M St & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	440	151	0	0	0	0	836	98	24	773	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.98		1.00	1.00	
Flt Protected		1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5065	1583					3483		1770	3539	
Flt Permitted		1.00	1.00					1.00		0.20	1.00	
Satd. Flow (perm)		5065	1583					3483		365	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	478	164	0	0	0	0	909	107	26	840	0
RTOR Reduction (vph)	0	0	68	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	520	96	0	0	0	0	1001	0	26	840	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					25.6		25.6	25.6	
Effective Green, g (s)		20.0	20.0					25.6		25.6	25.6	
Actuated g/C Ratio		0.37	0.37					0.47		0.47	0.47	
Clearance Time (s)		4.2	4.2					4.2		4.2	4.2	
Vehicle Extension (s)		2.0	2.0					2.0		2.0	2.0	
Lane Grp Cap (vph)		1876	586					1651		173	1678	
v/s Ratio Prot		c0.10						c0.29			0.24	
v/s Ratio Perm			0.06							0.07		
v/c Ratio		0.28	0.16					0.61		0.15	0.50	
Uniform Delay, d1		11.9	11.4					10.5		8.0	9.8	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.4		0.1	0.1	
Delay (s)		12.0	11.4					10.9		8.2	9.9	
Level of Service		B	B					B		A	A	
Approach Delay (s)		11.8			0.0			10.9			9.8	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
11: M St & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	155	1766	46	0	0	0	0	1131	48	73	916	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.99		1.00	1.00	
Flt Protected		1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5065	1583					3518		1770	3539	
Flt Permitted		1.00	1.00					1.00		0.15	1.00	
Satd. Flow (perm)		5065	1583					3518		274	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	1920	50	0	0	0	0	1229	52	79	996	0
RTOR Reduction (vph)	0	0	20	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	2088	30	0	0	0	0	1279	0	79	996	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		28.8	28.8					27.2		27.2	27.2	
Effective Green, g (s)		28.8	28.8					27.2		27.2	27.2	
Actuated g/C Ratio		0.45	0.45					0.42		0.42	0.42	
Clearance Time (s)		4.2	4.2					4.2		4.2	4.2	
Vehicle Extension (s)		2.0	2.0					2.0		2.0	2.0	
Lane Grp Cap (vph)		2265	708					1486		116	1495	
v/s Ratio Prot		c0.41						c0.36			0.28	
v/s Ratio Perm			0.02							0.29		
v/c Ratio		0.92	0.04					0.86		0.68	0.67	
Uniform Delay, d1		16.7	10.0					16.9		15.1	15.0	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		6.7	0.0					5.2		12.3	0.9	
Delay (s)		23.5	10.0					22.1		27.4	15.8	
Level of Service		C	B					C		C	B	
Approach Delay (s)		23.2			0.0			22.1			16.7	
Approach LOS		C			A			C			B	

Intersection Summary				
HCM Average Control Delay	21.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	64.4	Sum of lost time (s)	8.4	
Intersection Capacity Utilization	101.4%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	79	43	37	156	324	17	85	727	5	25	701	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.2	4.2	4.0	4.2	4.2
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	47	40	170	352	18	92	790	5	27	762	40
RTOR Reduction (vph)	0	0	35	0	0	13	0	0	3	0	0	28
Lane Group Flow (vph)	86	47	5	170	352	5	92	790	2	27	762	12
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	5		6	6		3	8		7	4	
Permitted Phases			5			6			8			4
Actuated Green, G (s)	8.5	8.5	8.5	18.6	18.6	18.6	5.8	24.9	24.9	2.8	21.9	21.9
Effective Green, g (s)	8.5	8.5	8.5	18.6	18.6	18.6	5.8	24.9	24.9	2.8	21.9	21.9
Actuated g/C Ratio	0.12	0.12	0.12	0.26	0.26	0.26	0.08	0.35	0.35	0.04	0.31	0.31
Clearance Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.2	4.2	4.0	4.2	4.2
Vehicle Extension (s)	4.9	4.9	4.9	4.9	4.9	4.9	2.0	4.9	4.9	2.0	4.9	4.9
Lane Grp Cap (vph)	211	222	188	894	485	412	144	1234	552	69	1085	486
v/s Ratio Prot	c0.05	0.03		0.05	c0.19		c0.05	c0.22		0.02	0.22	
v/s Ratio Perm			0.00			0.00			0.00			0.01
v/c Ratio	0.41	0.21	0.03	0.19	0.73	0.01	0.64	0.64	0.00	0.39	0.70	0.03
Uniform Delay, d1	29.1	28.4	27.8	20.5	24.1	19.6	31.8	19.5	15.2	33.5	21.9	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	1.0	0.1	0.2	6.4	0.0	6.7	1.5	0.0	1.3	2.6	0.0
Delay (s)	31.7	29.4	27.9	20.7	30.5	19.6	38.5	21.0	15.2	34.8	24.4	17.3
Level of Service	C	C	C	C	C	B	D	C	B	C	C	B
Approach Delay (s)		30.2			27.1			22.8			24.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	16.6
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
12: O St & Ventura Ave

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	183	303	162	98	265	47	58	1148	70	67	760	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.2	4.2	4.0	4.2	4.2
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	3433	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	329	176	107	288	51	63	1248	76	73	826	51
RTOR Reduction (vph)	0	0	65	0	0	41	0	0	32	0	0	30
Lane Group Flow (vph)	199	329	111	107	288	10	63	1248	44	73	826	21
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	5		6	6		3	8		7	4	
Permitted Phases			5			6			8			4
Actuated Green, G (s)	20.2	20.2	20.2	19.4	19.4	19.4	9.1	29.3	29.3	9.1	29.3	29.3
Effective Green, g (s)	20.2	20.2	20.2	19.4	19.4	19.4	9.1	29.3	29.3	9.1	29.3	29.3
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.10	0.31	0.31	0.10	0.31	0.31
Clearance Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.2	4.2	4.0	4.2	4.2
Vehicle Extension (s)	4.9	4.9	4.9	4.9	4.9	4.9	2.0	4.9	4.9	2.0	4.9	4.9
Lane Grp Cap (vph)	378	398	338	704	382	325	170	1096	490	170	1096	490
v/s Ratio Prot	0.11	c0.18		0.03	c0.15		0.04	c0.35		c0.04	0.23	
v/s Ratio Perm			0.07			0.01			0.03			0.01
v/c Ratio	0.53	0.83	0.33	0.15	0.75	0.03	0.37	1.14	0.09	0.43	0.75	0.04
Uniform Delay, d1	33.0	35.5	31.5	30.9	35.4	30.1	40.1	32.6	23.2	40.3	29.4	22.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	14.5	1.1	0.2	9.6	0.1	0.5	73.8	0.2	0.6	3.5	0.1
Delay (s)	35.4	50.1	32.6	31.1	44.9	30.2	40.6	106.5	23.3	40.9	32.9	22.9
Level of Service	D	D	C	C	D	C	D	F	C	D	C	C
Approach Delay (s)		41.6			39.9			98.9			33.0	
Approach LOS		D			D			F			C	

Intersection Summary

HCM Average Control Delay	61.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	16.6
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	35	104	112	0	0	162	658	0	0	745	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2			4.2	4.2			4.2	4.2
Lane Util. Factor		0.97	1.00			1.00	0.95			0.95	1.00
Frt		1.00	0.85			1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00			0.95	1.00			1.00	1.00
Satd. Flow (prot)		3433	1583			1770	3539			3539	1583
Flt Permitted		0.95	1.00			0.34	1.00			1.00	1.00
Satd. Flow (perm)		3433	1583			637	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	113	122	0	0	176	715	0	0	810	447
RTOR Reduction (vph)	0	0	103	0	0	0	0	0	0	0	171
Lane Group Flow (vph)	0	151	19	0	0	176	715	0	0	810	276
Turn Type	Split		Perm			Perm					Perm
Protected Phases	8	8					2			6	
Permitted Phases			8			2					6
Actuated Green, G (s)		6.0	6.0			23.2	23.2			23.2	23.2
Effective Green, g (s)		6.0	6.0			23.2	23.2			23.2	23.2
Actuated g/C Ratio		0.16	0.16			0.62	0.62			0.62	0.62
Clearance Time (s)		4.2	4.2			4.2	4.2			4.2	4.2
Vehicle Extension (s)		2.0	2.0			2.0	2.0			2.0	2.0
Lane Grp Cap (vph)		548	253			393	2184			2184	977
v/s Ratio Prot		c0.04					0.20			0.23	
v/s Ratio Perm			0.01			c0.28					0.17
v/c Ratio		0.28	0.08			0.45	0.33			0.37	0.28
Uniform Delay, d1		13.9	13.4			3.8	3.5			3.6	3.3
Progression Factor		1.00	1.00			1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1	0.0			0.3	0.0			0.0	0.1
Delay (s)		14.0	13.5			4.1	3.5			3.6	3.4
Level of Service		B	B			A	A			A	A
Approach Delay (s)		13.8		0.0			3.6			3.5	
Approach LOS		B		A			A			A	

Intersection Summary			
HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	37.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	31	168	254	231	1153	0	0	845	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					4.2	4.2	4.2	4.2			4.2	4.2
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3512	1583	1770	3539			3539	1583
Flt Permitted					0.99	1.00	0.28	1.00			1.00	1.00
Satd. Flow (perm)					3512	1583	519	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	34	183	276	251	1253	0	0	918	482
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	0	0	0	164
Lane Group Flow (vph)	0	0	0	0	217	216	251	1253	0	0	918	318
Turn Type				Split		Perm	Perm					Perm
Protected Phases				8	8			2			6	
Permitted Phases						8	2					6
Actuated Green, G (s)					13.7	13.7	37.8	37.8			37.8	37.8
Effective Green, g (s)					13.7	13.7	37.8	37.8			37.8	37.8
Actuated g/C Ratio					0.23	0.23	0.63	0.63			0.63	0.63
Clearance Time (s)					4.2	4.2	4.2	4.2			4.2	4.2
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					803	362	328	2233			2233	999
v/s Ratio Prot					0.06			0.35			0.26	
v/s Ratio Perm						c0.14	c0.48					0.20
v/c Ratio					0.27	0.60	0.77	0.56			0.41	0.32
Uniform Delay, d1					19.0	20.6	7.9	6.3			5.5	5.1
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.1	1.8	9.2	0.2			0.0	0.1
Delay (s)					19.1	22.4	17.1	6.5			5.6	5.2
Level of Service					B	C	B	A			A	A
Approach Delay (s)		0.0			20.9			8.3			5.4	
Approach LOS		A			C			A			A	

Intersection Summary

HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	59.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	600	7	12	1088	153	14	142	5	183	128	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6		4.0	4.6	4.6	4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5076		1770	5085	1583	1770	3523		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.67	1.00		0.65	1.00	1.00
Satd. Flow (perm)	1770	5076		1770	5085	1583	1245	3523		1213	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	652	8	13	1183	166	15	154	5	199	139	284
RTOR Reduction (vph)	0	1	0	0	0	65	0	4	0	0	0	203
Lane Group Flow (vph)	135	659	0	13	1183	101	15	155	0	199	139	81
Turn Type	Prot			Prot		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		4
Actuated Green, G (s)	7.1	34.7		1.0	28.6	28.6	15.2	15.2		15.2	15.2	15.2
Effective Green, g (s)	7.1	34.7		1.0	28.6	28.6	15.2	15.2		15.2	15.2	15.2
Actuated g/C Ratio	0.11	0.54		0.02	0.45	0.45	0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	4.0	4.6		4.0	4.6	4.6	4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	196	2748		28	2269	706	295	835		288	442	375
v/s Ratio Prot	c0.08	0.13		0.01	c0.23			0.04			0.07	
v/s Ratio Perm						0.06	0.01			c0.16		0.05
v/c Ratio	0.69	0.24		0.46	0.52	0.14	0.05	0.19		0.69	0.31	0.22
Uniform Delay, d1	27.4	7.7		31.3	12.8	10.5	18.9	19.5		22.3	20.2	19.7
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	7.8	0.0		4.4	0.1	0.0	0.0	0.0		5.7	0.1	0.1
Delay (s)	35.2	7.8		35.7	12.9	10.5	18.9	19.6		28.0	20.3	19.8
Level of Service	D	A		D	B	B	B	B		C	C	B
Approach Delay (s)		12.4			12.8			19.5			22.5	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	13.2
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
14: Ventura Ave & S 1st St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	288	1564	17	39	1322	468	26	312	28	408	294	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6		4.0	4.6	4.6	4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5077		1770	5085	1583	1770	3496		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.45	1.00		0.50	1.00	1.00
Satd. Flow (perm)	1770	5077		1770	5085	1583	843	3496		935	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	313	1700	18	42	1437	509	28	339	30	443	320	350
RTOR Reduction (vph)	0	1	0	0	0	160	0	7	0	0	0	163
Lane Group Flow (vph)	313	1717	0	42	1437	349	28	362	0	443	320	187
Turn Type	Prot			Prot		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		4
Actuated Green, G (s)	13.0	37.6		4.4	29.0	29.0	36.4	36.4		36.4	36.4	36.4
Effective Green, g (s)	13.0	37.6		4.4	29.0	29.0	36.4	36.4		36.4	36.4	36.4
Actuated g/C Ratio	0.14	0.41		0.05	0.32	0.32	0.40	0.40		0.40	0.40	0.40
Clearance Time (s)	4.0	4.6		4.0	4.6	4.6	4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	251	2084		85	1610	501	335	1389		372	740	629
v/s Ratio Prot	c0.18	c0.34		0.02	0.28			0.10			0.17	
v/s Ratio Perm						0.22	0.03			c0.47		0.12
v/c Ratio	1.25	0.82		0.49	0.89	0.70	0.08	0.26		1.19	0.43	0.30
Uniform Delay, d1	39.3	24.0		42.5	29.8	27.4	17.2	18.6		27.6	20.1	18.9
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	139.9	2.6		1.6	6.6	3.4	0.0	0.0		109.6	0.1	0.1
Delay (s)	179.2	26.7		44.2	36.4	30.8	17.2	18.6		137.2	20.2	19.0
Level of Service	F	C		D	D	C	B	B		F	C	B
Approach Delay (s)		50.2			35.1			18.5			66.4	
Approach LOS		D			D			B			E	

Intersection Summary			
HCM Average Control Delay	45.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	91.6	Sum of lost time (s)	8.6
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
15: G St & Inyo St

4/10/2012

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	146	0	18	171	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	159	0	20	186	17	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	484			1038		
pX, platoon unblocked						
vC, conflicting volume			159		384	159
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			159		384	159
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	100
cM capacity (veh/h)			1421		611	887

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	159	205	22
Volume Left	0	20	17
Volume Right	0	0	4
cSH	1700	1421	651
Volume to Capacity	0.09	0.01	0.03
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.8	10.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.8	10.7
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	363	0	22	514	27	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	395	0	24	559	29	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	484			1038		
pX, platoon unblocked						
vC, conflicting volume			395		1001	395
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			395		1001	395
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		89	99
cM capacity (veh/h)			1164		264	655

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	395	583	37
Volume Left	0	24	29
Volume Right	0	0	8
cSH	1700	1164	301
Volume to Capacity	0.23	0.02	0.12
Queue Length 95th (ft)	0	2	10
Control Delay (s)	0.0	0.6	18.7
Lane LOS		A	C
Approach Delay (s)	0.0	0.6	18.7
Approach LOS			C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
16: H St & Inyo St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	650	102	0	0	176	161	0	27	0	7	63	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	15	12	12	15	15	15	12	15	12
Total Lost time (s)	4.0	4.2			4.2	4.2		4.2			4.0	4.2
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	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		1.00			0.99	1.00
Satd. Flow (prot)	1770	3539			3539	1583		2049			2038	1583
Flt Permitted	0.95	1.00			1.00	1.00		1.00			0.98	1.00
Satd. Flow (perm)	1770	3539			3539	1583		2049			2005	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	707	111	0	0	191	175	0	29	0	8	68	292
RTOR Reduction (vph)	0	0	0	0	0	145	0	0	0	0	0	230
Lane Group Flow (vph)	707	111	0	0	191	30	0	29	0	0	76	62
Turn Type	Prot					Perm	Perm			Prot		custom
Protected Phases	5	2			6			4		3	8	
Permitted Phases						6	4					4
Actuated Green, G (s)	29.2	44.6			11.4	11.4		14.2			14.4	14.2
Effective Green, g (s)	29.2	44.6			11.4	11.4		14.2			14.4	14.2
Actuated g/C Ratio	0.43	0.66			0.17	0.17		0.21			0.21	0.21
Clearance Time (s)	4.0	4.2			4.2	4.2		4.2			4.0	4.2
Vehicle Extension (s)	3.0	4.8			4.8	4.8		2.0			3.0	2.0
Lane Grp Cap (vph)	769	2349			600	269		433			430	335
v/s Ratio Prot	c0.40	0.03			c0.05			0.01				
v/s Ratio Perm						0.02					0.04	c0.04
v/c Ratio	0.92	0.05			0.32	0.11		0.07			0.18	0.18
Uniform Delay, d1	17.9	3.9			24.5	23.6		21.2			21.6	21.7
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	15.9	0.0			0.6	0.4		0.0			0.2	0.1
Delay (s)	33.8	3.9			25.1	24.0		21.2			21.8	21.8
Level of Service	C	A			C	C		C			C	C
Approach Delay (s)		29.7			24.6			21.2			21.8	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	67.2	Sum of lost time (s)	12.4
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
16: H St & Inyo St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	540	211	0	0	109	89	0	63	0	91	27	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	15	15	12	12	15	15	15	12	15	12
Total Lost time (s)	4.0	4.2			4.2	4.2		4.2			4.0	4.2
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	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		1.00			0.96	1.00
Satd. Flow (prot)	1770	3539			3539	1583		2049			1973	1583
Flt Permitted	0.95	1.00			1.00	1.00		1.00			0.74	1.00
Satd. Flow (perm)	1770	3539			3539	1583		2049			1516	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	587	229	0	0	118	97	0	68	0	99	29	565
RTOR Reduction (vph)	0	0	0	0	0	83	0	0	0	0	0	429
Lane Group Flow (vph)	587	229	0	0	118	14	0	68	0	0	128	136
Turn Type	Prot					Perm	Perm			Prot		custom
Protected Phases	5	2			6			4		3	8	
Permitted Phases						6	4					4
Actuated Green, G (s)	29.1	42.6			9.5	9.5		16.2			16.4	16.2
Effective Green, g (s)	29.1	42.6			9.5	9.5		16.2			16.4	16.2
Actuated g/C Ratio	0.43	0.63			0.14	0.14		0.24			0.24	0.24
Clearance Time (s)	4.0	4.2			4.2	4.2		4.2			4.0	4.2
Vehicle Extension (s)	3.0	4.8			4.8	4.8		2.0			3.0	2.0
Lane Grp Cap (vph)	766	2243			500	224		494			370	382
v/s Ratio Prot	c0.33	0.06			c0.03			0.03				
v/s Ratio Perm						0.01					0.08	c0.09
v/c Ratio	0.77	0.10			0.24	0.06		0.14			0.35	0.36
Uniform Delay, d1	16.2	4.8			25.6	25.0		20.0			21.0	21.2
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.6	0.0			0.5	0.2		0.0			0.6	0.2
Delay (s)	20.8	4.9			26.1	25.2		20.1			21.5	21.4
Level of Service	C	A			C	C		C			C	C
Approach Delay (s)		16.3			25.7			20.1			21.4	
Approach LOS		B			C			C			C	

Intersection Summary

HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	67.2	Sum of lost time (s)	12.4
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
17: Van Ness Ave & Inyo St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	222	78	205	455	54	111	205	105	13	111	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3401		1770	3483		1770	1768		1770	1828	
Flt Permitted	0.42	1.00		0.55	1.00		0.67	1.00		0.46	1.00	
Satd. Flow (perm)	775	3401		1033	3483		1246	1768		863	1828	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	241	85	223	495	59	121	223	114	14	121	17
RTOR Reduction (vph)	0	46	0	0	16	0	0	30	0	0	9	0
Lane Group Flow (vph)	5	280	0	223	538	0	121	307	0	14	129	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.0	26.0		26.0	26.0		22.0	22.0		22.0	22.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0		22.0	22.0		22.0	22.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.39	0.39		0.39	0.39	
Clearance Time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	357	1568		476	1606		486	690		337	713	
v/s Ratio Prot		0.08			0.15			c0.17			0.07	
v/s Ratio Perm	0.01			c0.22			0.10			0.02		
v/c Ratio	0.01	0.18		0.47	0.34		0.25	0.45		0.04	0.18	
Uniform Delay, d1	8.2	8.9		10.4	9.7		11.6	12.7		10.7	11.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0		0.3	0.0		0.1	0.2		0.0	0.0	
Delay (s)	8.3	8.9		10.7	9.7		11.7	12.9		10.7	11.3	
Level of Service	A	A		B	A		B	B		B	B	
Approach Delay (s)		8.9			10.0			12.6			11.3	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
17: Van Ness Ave & Inyo St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	84	425	126	94	361	114	104	265	114	99	411	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.95		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)	1770	3418		1770	3412		1770	1779		1770	1776	
Flt Permitted	0.44	1.00		0.38	1.00		0.17	1.00		0.39	1.00	
Satd. Flow (perm)	812	3418		715	3412		318	1779		721	1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	462	137	102	392	124	113	288	124	108	447	200
RTOR Reduction (vph)	0	47	0	0	52	0	0	26	0	0	26	0
Lane Group Flow (vph)	91	552	0	102	464	0	113	386	0	108	621	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.0	26.0		26.0	26.0		23.4	23.4		23.4	23.4	
Effective Green, g (s)	26.0	26.0		26.0	26.0		23.4	23.4		23.4	23.4	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.2	4.2		4.2	4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	365	1538		322	1535		129	720		292	719	
v/s Ratio Prot		c0.16			0.14			0.22			0.35	
v/s Ratio Perm	0.11			0.14			c0.35			0.15		
v/c Ratio	0.25	0.36		0.32	0.30		0.88	0.54		0.37	0.86	
Uniform Delay, d1	9.9	10.4		10.2	10.1		15.9	13.1		12.0	15.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.2	0.0		42.7	0.4		0.3	10.2	
Delay (s)	10.0	10.5		10.4	10.2		58.6	13.5		12.3	25.9	
Level of Service	A	B		B	B		E	B		B	C	
Approach Delay (s)		10.4			10.2			23.2			24.0	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	8.4
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	36	461	75	0	0	0	0	61	71	59	203	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5						4.5		4.5	4.5	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frt		0.98						0.93		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		4969						1727		1770	1863	
Flt Permitted		1.00						1.00		0.67	1.00	
Satd. Flow (perm)		4969						1727		1240	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	501	82	0	0	0	0	66	77	64	221	0
RTOR Reduction (vph)	0	32	0	0	0	0	0	52	0	0	0	0
Lane Group Flow (vph)	0	590	0	0	0	0	0	91	0	64	221	0
Turn Type	Split									Perm		
Protected Phases	2	2						8			4	
Permitted Phases										4		
Actuated Green, G (s)		24.8						16.6		16.6	16.6	
Effective Green, g (s)		24.8						16.6		16.6	16.6	
Actuated g/C Ratio		0.49						0.33		0.33	0.33	
Clearance Time (s)		4.5						4.5		4.5	4.5	
Vehicle Extension (s)		0.2						0.2		0.2	0.2	
Lane Grp Cap (vph)		2445						569		408	614	
v/s Ratio Prot		c0.12						0.05			c0.12	
v/s Ratio Perm										0.05		
v/c Ratio		0.24						0.16		0.16	0.36	
Uniform Delay, d1		7.4						12.0		12.0	12.9	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.0						0.0		0.1	0.1	
Delay (s)		7.4						12.0		12.0	13.0	
Level of Service		A						B		B	B	
Approach Delay (s)		7.4			0.0			12.0			12.8	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	50.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
18: M St & Inyo St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	109	1367	252	0	0	0	0	292	294	81	391	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5						4.5		4.5	4.5	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frt		0.98						0.93		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		4958						1736		1770	1863	
Flt Permitted		1.00						1.00		0.18	1.00	
Satd. Flow (perm)		4958						1736		342	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	1486	274	0	0	0	0	317	320	88	425	0
RTOR Reduction (vph)	0	43	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	1835	0	0	0	0	0	632	0	88	425	0
Turn Type	Split									Perm		
Protected Phases	2	2						8			4	
Permitted Phases										4		
Actuated Green, G (s)		23.0						23.0		23.0	23.0	
Effective Green, g (s)		23.0						23.0		23.0	23.0	
Actuated g/C Ratio		0.42						0.42		0.42	0.42	
Clearance Time (s)		4.5						4.5		4.5	4.5	
Vehicle Extension (s)		0.2						0.2		0.2	0.2	
Lane Grp Cap (vph)		2073						726		143	779	
v/s Ratio Prot		c0.37						c0.36			0.23	
v/s Ratio Perm										0.26		
v/c Ratio		0.89						0.87		0.62	0.55	
Uniform Delay, d1		14.8						14.6		12.5	12.1	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		4.8						10.8		5.4	0.4	
Delay (s)		19.6						25.5		18.0	12.5	
Level of Service		B						C		B	B	
Approach Delay (s)		19.6			0.0			25.5			13.4	
Approach LOS		B			A			C			B	

Intersection Summary

HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
19: P St & Inyo St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	127	449	17	14	9	0	0	19	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	138	488	18	15	10	0	0	21	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1000			1010							
pX, platoon unblocked												
vC, conflicting volume	507			0			538	783	0	778	773	253
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507			0			538	783	0	778	773	253
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			96	97	100	100	93	99
cM capacity (veh/h)	1054			1622			374	296	1084	261	300	746

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	SW 1
Volume Total	382	262	15	10	28
Volume Left	138	0	15	0	0
Volume Right	0	18	0	0	8
cSH	1622	1700	374	296	358
Volume to Capacity	0.09	0.15	0.04	0.03	0.08
Queue Length 95th (ft)	7	0	3	3	6
Control Delay (s)	3.2	0.0	15.0	17.6	15.9
Lane LOS	A		C	C	C
Approach Delay (s)	1.9		16.0		15.9
Approach LOS			C		C

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	68.8%	ICU Level of Service	C	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
19: P St & Inyo St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	283	561	38	101	25	0	0	18	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	308	610	41	110	27	0	0	20	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1000			1010							
pX, platoon unblocked												
vC, conflicting volume	651			0			934	1266	0	1259	1246	326
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	651			0			934	1266	0	1259	1246	326
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			81			35	80	100	100	86	99
cM capacity (veh/h)	931			1622			168	136	1084	92	140	670

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	SW 1
Volume Total	612	346	110	27	24
Volume Left	308	0	110	0	0
Volume Right	0	41	0	0	4
cSH	1622	1700	168	136	163
Volume to Capacity	0.19	0.20	0.65	0.20	0.15
Queue Length 95th (ft)	17	0	94	18	13
Control Delay (s)	4.8	0.0	60.0	38.0	30.8
Lane LOS	A		F	E	D
Approach Delay (s)	3.1		55.6		30.8
Approach LOS			F		D

Intersection Summary			
Average Delay	10.1		
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	76	9	66	103	2	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.8			4.8	4.8	
Lane Util. Factor	0.95			0.95	1.00	
Frt	0.98			1.00	0.87	
Flt Protected	1.00			0.98	1.00	
Satd. Flow (prot)	3482			3471	1618	
Flt Permitted	1.00			0.95	1.00	
Satd. Flow (perm)	3482			3380	1618	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	10	72	112	2	49
RTOR Reduction (vph)	9	0	0	0	47	0
Lane Group Flow (vph)	85	0	0	184	4	0
Turn Type			Perm			
Protected Phases	2			2		
Permitted Phases			2		4	
Actuated Green, G (s)	1.8			1.8	0.6	
Effective Green, g (s)	1.8			1.8	0.6	
Actuated g/C Ratio	0.15			0.15	0.05	
Clearance Time (s)	4.8			4.8	4.8	
Vehicle Extension (s)	0.2			0.2	0.2	
Lane Grp Cap (vph)	522			507	81	
v/s Ratio Prot	0.02					
v/s Ratio Perm				c0.05	c0.00	
v/c Ratio	0.16			0.36	0.05	
Uniform Delay, d1	4.4			4.6	5.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.1			0.2	0.1	
Delay (s)	4.5			4.7	5.5	
Level of Service	A			A	A	
Approach Delay (s)	4.5			4.7	5.5	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	4.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	12.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	224	104	234	289	153	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.8			4.8	4.8	
Lane Util. Factor	0.95			0.95	1.00	
Frt	0.95			1.00	0.93	
Flt Protected	1.00			0.98	0.98	
Satd. Flow (prot)	3371			3462	1693	
Flt Permitted	1.00			0.71	0.98	
Satd. Flow (perm)	3371			2508	1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	243	113	254	314	166	173
RTOR Reduction (vph)	72	0	0	0	65	0
Lane Group Flow (vph)	284	0	0	568	274	0
Turn Type			Perm			
Protected Phases	2			2		
Permitted Phases			2		4	
Actuated Green, G (s)	10.4			10.4	8.4	
Effective Green, g (s)	10.4			10.4	8.4	
Actuated g/C Ratio	0.37			0.37	0.30	
Clearance Time (s)	4.8			4.8	4.8	
Vehicle Extension (s)	0.2			0.2	0.2	
Lane Grp Cap (vph)	1234			918	501	
v/s Ratio Prot	0.08					
v/s Ratio Perm				c0.23	c0.16	
v/c Ratio	0.23			0.62	0.55	
Uniform Delay, d1	6.2			7.4	8.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.0			0.9	0.7	
Delay (s)	6.3			8.3	9.1	
Level of Service	A			A	A	
Approach Delay (s)	6.3			8.3	9.1	
Approach LOS	A			A	A	

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	28.4	Sum of lost time (s)	9.6
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
21: H St & Kern St

4/10/2012

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	449	202	240	219	31	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	488	220	261	238	34	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	537			471		
pX, platoon unblocked						
vC, conflicting volume			708		1239	354
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			708		1239	354
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			71		72	92
cM capacity (veh/h)			887		118	643

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	325	382	340	159	85
Volume Left	0	0	261	0	34
Volume Right	0	220	0	0	51
cSH	1700	1700	887	1700	233
Volume to Capacity	0.19	0.22	0.29	0.09	0.36
Queue Length 95th (ft)	0	0	31	0	40
Control Delay (s)	0.0	0.0	9.0	0.0	29.1
Lane LOS			A		D
Approach Delay (s)	0.0		6.1		29.1
Approach LOS					D

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	656	62	39	569	109	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	713	67	42	618	118	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	537			479		
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			780		1141	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			656		1036	243
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		42	88
cM capacity (veh/h)			878		205	717

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	475	305	249	412	202
Volume Left	0	0	42	0	118
Volume Right	0	67	0	0	84
cSH	1700	1700	878	1700	291
Volume to Capacity	0.28	0.18	0.05	0.24	0.70
Queue Length 95th (ft)	0	0	4	0	120
Control Delay (s)	0.0	0.0	2.0	0.0	41.5
Lane LOS			A		E
Approach Delay (s)	0.0		0.8		41.5
Approach LOS					E

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
22: E St & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	285	58	56	4	199	9	146	486	4	3	61	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.98			0.99		1.00	1.00		1.00	0.93	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1764			1850		1770	1861		1770	1733	
Flt Permitted		0.63			0.99		0.68	1.00		0.31	1.00	
Satd. Flow (perm)		1155			1840		1263	1861		584	1733	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	310	63	61	4	216	10	159	528	4	3	66	57
RTOR Reduction (vph)	0	9	0	0	2	0	0	1	0	0	30	0
Lane Group Flow (vph)	0	425	0	0	228	0	159	531	0	3	93	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		26.0			26.0		31.2	31.2		31.2	31.2	
Effective Green, g (s)		26.0			26.0		31.2	31.2		31.2	31.2	
Actuated g/C Ratio		0.40			0.40		0.48	0.48		0.48	0.48	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		458			729		601	885		278	824	
v/s Ratio Prot								c0.29			0.05	
v/s Ratio Perm		c0.37			0.12		0.13			0.01		
v/c Ratio		0.93			0.31		0.26	0.60		0.01	0.11	
Uniform Delay, d1		18.9			13.6		10.3	12.6		9.1	9.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		24.6			0.1		0.1	0.8		0.0	0.0	
Delay (s)		43.5			13.7		10.4	13.4		9.1	9.6	
Level of Service		D			B		B	B		A	A	
Approach Delay (s)		43.5			13.7			12.7			9.5	
Approach LOS		D			B			B			A	

Intersection Summary

HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
22: E St & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	277	74	255	71	341	79	52	412	14	25	1473	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1718			1809		1770	1854		1770	1834	
Flt Permitted		0.48			0.85		0.05	1.00		0.38	1.00	
Satd. Flow (perm)		838			1542		98	1854		705	1834	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	301	80	277	77	371	86	57	448	15	27	1601	187
RTOR Reduction (vph)	0	11	0	0	5	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	647	0	0	529	0	57	462	0	27	1785	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		55.8			55.8		75.8	75.8		75.8	75.8	
Effective Green, g (s)		55.8			55.8		75.8	75.8		75.8	75.8	
Actuated g/C Ratio		0.40			0.40		0.54	0.54		0.54	0.54	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		334			615		53	1004		382	993	
v/s Ratio Prot								0.25			c0.97	
v/s Ratio Perm		c0.77			0.34		0.58			0.04		
v/c Ratio		1.94			0.86		1.08	0.46		0.07	1.80	
Uniform Delay, d1		42.1			38.5		32.1	19.6		15.3	32.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		432.0			11.4		146.3	0.1		0.0	362.9	
Delay (s)		474.1			50.0		178.4	19.7		15.3	395.0	
Level of Service		F			D		F	B		B	F	
Approach Delay (s)		474.1			50.0			37.1			389.3	
Approach LOS		F			D			D			F	

Intersection Summary			
HCM Average Control Delay	301.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	160.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	112	86	10	9	28	137	68	608	102	86	70	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.89		1.00	0.98		1.00	0.90	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1802			1660		1770	1823		1770	1685	
Flt Permitted		0.74			0.98		0.63	1.00		0.20	1.00	
Satd. Flow (perm)		1377			1635		1168	1823		364	1685	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	93	11	10	30	149	74	661	111	93	76	133
RTOR Reduction (vph)	0	3	0	0	104	0	0	10	0	0	59	0
Lane Group Flow (vph)	0	223	0	0	85	0	74	762	0	93	150	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		18.1			18.1		33.0	33.0		33.0	33.0	
Effective Green, g (s)		18.1			18.1		33.0	33.0		33.0	33.0	
Actuated g/C Ratio		0.30			0.30		0.55	0.55		0.55	0.55	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		419			497		648	1011		202	935	
v/s Ratio Prot								c0.42			0.09	
v/s Ratio Perm		c0.16			0.05		0.06			0.26		
v/c Ratio		0.53			0.17		0.11	0.75		0.46	0.16	
Uniform Delay, d1		17.2			15.2		6.3	10.1		7.9	6.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7			0.1		0.0	2.9		0.6	0.0	
Delay (s)		17.8			15.3		6.3	13.0		8.5	6.5	
Level of Service		B			B		A	B		A	A	
Approach Delay (s)		17.8			15.3			12.4			7.1	
Approach LOS		B			B			B			A	

Intersection Summary

HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	59.5	Sum of lost time (s)	8.4
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
23: F st & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	296	121	228	102	211	102	125	480	147	154	1313	528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.97		1.00	0.96		1.00	0.96	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1734			1779		1770	1797		1770	1783	
Flt Permitted		0.43			0.78		0.04	1.00		0.35	1.00	
Satd. Flow (perm)		758			1396		69	1797		647	1783	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	322	132	248	111	229	111	136	522	160	167	1427	574
RTOR Reduction (vph)	0	14	0	0	8	0	0	8	0	0	10	0
Lane Group Flow (vph)	0	688	0	0	443	0	136	674	0	167	1991	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		23.8			23.8		107.8	107.8		107.8	107.8	
Effective Green, g (s)		23.8			23.8		107.8	107.8		107.8	107.8	
Actuated g/C Ratio		0.17			0.17		0.77	0.77		0.77	0.77	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)		0.2			0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		129			237		53	1384		498	1373	
v/s Ratio Prot								0.38			1.12	
v/s Ratio Perm		c0.91			0.32		c1.97			0.26		
v/c Ratio		5.33			1.87		2.57	0.49		0.34	1.45	
Uniform Delay, d1		58.1			58.1		16.1	5.9		5.0	16.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1966.6			406.3		756.6	0.1		0.1	206.6	
Delay (s)		2024.7			464.4		772.7	6.0		5.1	222.7	
Level of Service		F			F		F	A		A	F	
Approach Delay (s)		2024.7			464.4			133.5			205.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	528.2	HCM Level of Service	F
HCM Volume to Capacity ratio	3.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	198.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
25: H St & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	243	524	43	105	292	123	121	663	153	161	193	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5		4.5	4.5		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.96		1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3499		1770	3381		1770	3440		1770	3390	
Flt Permitted	0.48	1.00		0.37	1.00		0.57	1.00		0.23	1.00	
Satd. Flow (perm)	892	3499		685	3381		1068	3440		422	3390	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	570	47	114	317	134	132	721	166	175	210	82
RTOR Reduction (vph)	0	10	0	0	64	0	0	32	0	0	47	0
Lane Group Flow (vph)	264	607	0	114	387	0	132	855	0	175	245	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	24.2	24.2		24.2	24.2		25.0	25.0		25.0	25.0	
Effective Green, g (s)	24.2	24.2		24.2	24.2		25.0	25.0		25.0	25.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.43	0.43		0.43	0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	373	1462		286	1413		461	1485		182	1464	
v/s Ratio Prot		0.17			0.11			0.25			0.07	
v/s Ratio Perm	c0.30			0.17			0.12			c0.41		
v/c Ratio	0.71	0.41		0.40	0.27		0.29	0.58		0.96	0.17	
Uniform Delay, d1	13.9	11.9		11.8	11.1		10.7	12.4		16.0	10.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	0.1		0.3	0.0		0.1	0.3		55.0	0.0	
Delay (s)	18.9	11.9		12.1	11.1		10.8	12.8		70.9	10.1	
Level of Service	B	B		B	B		B	B		E	B	
Approach Delay (s)		14.0			11.3			12.5			32.9	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	8.7
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
25: H St & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	189	456	197	187	400	245	88	781	131	218	1656	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5		4.5	4.5		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.94		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3379		1770	3338		1770	3463		1770	3476	
Flt Permitted	0.24	1.00		0.23	1.00		0.06	1.00		0.22	1.00	
Satd. Flow (perm)	446	3379		436	3338		117	3463		415	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	496	214	203	435	266	96	849	142	237	1800	243
RTOR Reduction (vph)	0	11	0	0	84	0	0	12	0	0	10	0
Lane Group Flow (vph)	205	699	0	203	617	0	96	979	0	237	2033	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	37.5	37.5		37.5	37.5		63.8	63.8		63.8	63.8	
Effective Green, g (s)	37.5	37.5		37.5	37.5		63.8	63.8		63.8	63.8	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.58	0.58		0.58	0.58	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	152	1152		149	1138		68	2009		241	2016	
v/s Ratio Prot		0.21			0.18			0.28			0.58	
v/s Ratio Perm	0.46			c0.47			c0.82			0.57		
v/c Ratio	1.35	0.61		1.36	0.54		1.41	0.49		0.98	1.01	
Uniform Delay, d1	36.2	30.1		36.2	29.3		23.1	13.5		22.6	23.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	194.0	0.6		200.1	0.3		252.0	0.1		52.8	22.2	
Delay (s)	230.2	30.8		236.4	29.6		275.1	13.6		75.4	45.3	
Level of Service	F	C		F	C		F	B		E	D	
Approach Delay (s)		75.4			76.0			36.7			48.4	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	55.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	126.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
26: Van Ness Ave & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	210	140	136	385	60	142	529	160	90	273	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		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)	1770	1751		1770	3468		1770	3416		1770	3346	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1751		1770	3468		1770	3416		1770	3346	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	228	152	148	418	65	154	575	174	98	297	170
RTOR Reduction (vph)	0	32	0	0	15	0	0	37	0	0	110	0
Lane Group Flow (vph)	92	348	0	148	468	0	154	712	0	98	357	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	6.2	19.1		8.4	21.3		7.9	22.0		5.8	19.9	
Effective Green, g (s)	6.2	19.1		8.4	21.3		7.9	22.0		5.8	19.9	
Actuated g/C Ratio	0.09	0.27		0.12	0.30		0.11	0.31		0.08	0.28	
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	153	466		207	1030		195	1048		143	929	
v/s Ratio Prot	0.05	c0.20		c0.08	0.13		c0.09	c0.21		0.06	0.11	
v/s Ratio Perm												
v/c Ratio	0.60	0.75		0.71	0.45		0.79	0.68		0.69	0.38	
Uniform Delay, d1	31.6	24.1		30.5	20.5		31.1	21.8		32.1	20.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.5	7.7		9.4	0.7		17.5	2.3		10.3	0.6	
Delay (s)	36.1	31.8		39.8	21.1		48.6	24.1		42.4	21.5	
Level of Service	D	C		D	C		D	C		D	C	
Approach Delay (s)		32.6			25.5			28.3			25.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	71.7	Sum of lost time (s)	12.2
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
26: Van Ness Ave & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	110	399	231	348	450	94	195	880	156	139	1354	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1760		1770	3448		1770	3459		1770	3468	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1760		1770	3448		1770	3459		1770	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	434	251	378	489	102	212	957	170	151	1472	229
RTOR Reduction (vph)	0	14	0	0	11	0	0	10	0	0	8	0
Lane Group Flow (vph)	120	671	0	378	580	0	212	1117	0	151	1693	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	14.0	43.8		25.0	54.8		10.0	52.8		12.0	54.8	
Effective Green, g (s)	14.0	43.8		25.0	54.8		10.0	52.8		12.0	54.8	
Actuated g/C Ratio	0.09	0.29		0.17	0.37		0.07	0.35		0.08	0.37	
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	165	514		295	1260		118	1218		142	1267	
v/s Ratio Prot	0.07	c0.38		c0.21	0.17		c0.12	0.32		0.09	c0.49	
v/s Ratio Perm												
v/c Ratio	0.73	1.31		1.28	0.46		1.80	0.92		1.06	1.34	
Uniform Delay, d1	66.1	53.1		62.5	36.3		70.0	46.5		69.0	47.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.7	150.9		150.1	0.6		390.1	11.4		93.4	156.7	
Delay (s)	78.8	204.0		212.6	36.9		460.1	57.9		162.4	204.3	
Level of Service	E	F		F	D		F	E		F	F	
Approach Delay (s)		185.4			105.4			121.6			200.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	158.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	123.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
27: M St & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	167	374	180	0	0	0	0	514	156	176	627	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5	4.5					4.5		4.5	4.5	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.97		1.00	1.00	
Flt Protected		0.98	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5008	1583					3415		1770	3539	
Flt Permitted		0.98	1.00					1.00		0.33	1.00	
Satd. Flow (perm)		5008	1583					3415		618	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	182	407	196	0	0	0	0	559	170	191	682	0
RTOR Reduction (vph)	0	0	128	0	0	0	0	51	0	0	0	0
Lane Group Flow (vph)	0	589	68	0	0	0	0	678	0	191	682	0
Turn Type	Split		Perm							Perm		
Protected Phases	2	2						4			4	
Permitted Phases			2							4		
Actuated Green, G (s)		19.0	19.0					27.1		27.1	27.1	
Effective Green, g (s)		19.0	19.0					27.1		27.1	27.1	
Actuated g/C Ratio		0.34	0.34					0.49		0.49	0.49	
Clearance Time (s)		4.5	4.5					4.5		4.5	4.5	
Vehicle Extension (s)		0.2	0.2					0.2		0.2	0.2	
Lane Grp Cap (vph)		1727	546					1680		304	1741	
v/s Ratio Prot		c0.12						0.20			0.19	
v/s Ratio Perm			0.04							c0.31		
v/c Ratio		0.34	0.12					0.40		0.63	0.39	
Uniform Delay, d1		13.4	12.4					8.9		10.3	8.8	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.1		2.9	0.1	
Delay (s)		13.4	12.4					8.9		13.2	8.9	
Level of Service		B	B					A		B	A	
Approach Delay (s)		13.2			0.0			8.9			9.8	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM Average Control Delay	10.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	70.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
27: M St & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	213	1195	408	0	0	0	0	870	222	238	1263	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5	4.5					4.5		4.5	4.5	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.97		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5047	1583					3431		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.16	1.00	
Satd. Flow (perm)		5047	1583					3431		294	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	1299	443	0	0	0	0	946	241	259	1373	0
RTOR Reduction (vph)	0	0	22	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	1531	421	0	0	0	0	1185	0	259	1373	0
Turn Type	Split		Perm							Perm		
Protected Phases	2	2						4			4	
Permitted Phases			2							4		
Actuated Green, G (s)		19.4	19.4					31.5		31.5	31.5	
Effective Green, g (s)		19.4	19.4					31.5		31.5	31.5	
Actuated g/C Ratio		0.32	0.32					0.53		0.53	0.53	
Clearance Time (s)		4.5	4.5					4.5		4.5	4.5	
Vehicle Extension (s)		0.2	0.2					0.2		0.2	0.2	
Lane Grp Cap (vph)		1635	513					1804		155	1861	
v/s Ratio Prot		c0.30						0.35			0.39	
v/s Ratio Perm			0.27							c0.88		
v/c Ratio		0.94	0.82					0.66		1.67	0.74	
Uniform Delay, d1		19.7	18.7					10.3		14.2	11.0	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		10.4	9.7					0.7		328.5	1.3	
Delay (s)		30.0	28.4					11.0		342.7	12.3	
Level of Service		C	C					B		F	B	
Approach Delay (s)		29.7			0.0			11.0			64.8	
Approach LOS		C			A			B			E	

Intersection Summary			
HCM Average Control Delay	37.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	59.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
28: P St & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	119	306	43	128	352	0	0	1032	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				4.2	4.2	4.2	4.2	4.2			4.2	4.2
Lane Util. Factor				1.00	1.00	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	3539			3539	1583
Flt Permitted				0.95	1.00	1.00	0.19	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	357	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	129	333	47	139	383	0	0	1122	112
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	0	43
Lane Group Flow (vph)	0	0	0	129	333	24	139	383	0	0	1122	69
Turn Type				Split		Perm	Perm					Perm
Protected Phases				6	6			8			4	
Permitted Phases						6	8					4
Actuated Green, G (s)				15.7	15.7	15.7	30.8	30.8			30.8	30.8
Effective Green, g (s)				15.7	15.7	15.7	30.8	30.8			30.8	30.8
Actuated g/C Ratio				0.29	0.29	0.29	0.56	0.56			0.56	0.56
Clearance Time (s)				4.2	4.2	4.2	4.2	4.2			4.2	4.2
Vehicle Extension (s)				3.0	3.0	3.0	5.0	5.0			5.0	5.0
Lane Grp Cap (vph)				506	533	453	200	1985			1985	888
v/s Ratio Prot				0.07	c0.18			0.11			0.32	
v/s Ratio Perm						0.02	c0.39					0.04
v/c Ratio				0.25	0.62	0.05	0.69	0.19			0.57	0.08
Uniform Delay, d1				15.1	17.0	14.2	8.7	5.9			7.7	5.5
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.3	2.3	0.0	12.6	0.1			0.6	0.1
Delay (s)				15.4	19.3	14.3	21.2	6.0			8.4	5.6
Level of Service				B	B	B	C	A			A	A
Approach Delay (s)		0.0			17.9			10.1			8.1	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	84	568	95	163	1298	0	0	1226	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				4.2	4.2	4.2	4.2	4.2			4.2	4.2
Lane Util. Factor				1.00	1.00	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	3539			3539	1583
Flt Permitted				0.95	1.00	1.00	0.13	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	243	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	91	617	103	177	1411	0	0	1333	200
RTOR Reduction (vph)	0	0	0	0	0	19	0	0	0	0	0	32
Lane Group Flow (vph)	0	0	0	91	617	84	177	1411	0	0	1333	168
Turn Type				Split		Perm	Perm					Perm
Protected Phases				6	6			8			4	
Permitted Phases						6	8					4
Actuated Green, G (s)				24.8	24.8	24.8	46.8	46.8			46.8	46.8
Effective Green, g (s)				24.8	24.8	24.8	46.8	46.8			46.8	46.8
Actuated g/C Ratio				0.31	0.31	0.31	0.58	0.58			0.58	0.58
Clearance Time (s)				4.2	4.2	4.2	4.2	4.2			4.2	4.2
Vehicle Extension (s)				3.0	3.0	3.0	5.0	5.0			5.0	5.0
Lane Grp Cap (vph)				549	578	491	142	2070			2070	926
v/s Ratio Prot				0.05	c0.33			0.40			0.38	
v/s Ratio Perm						0.05	c0.73					0.11
v/c Ratio				0.17	1.07	0.17	1.25	0.68			0.64	0.18
Uniform Delay, d1				20.1	27.6	20.1	16.6	11.5			11.1	7.7
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.1	56.7	0.2	156.4	1.2			1.0	0.2
Delay (s)				20.2	84.3	20.3	173.0	12.7			12.0	7.9
Level of Service				C	F	C	F	B			B	A
Approach Delay (s)		0.0			69.0			30.5			11.5	
Approach LOS		A			E			C			B	

Intersection Summary

HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
29: R Street & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	156	44	118	210	81	47	298	26	90	1054	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3497		1770	3490	
Flt Permitted	0.58	1.00	1.00	0.65	1.00	1.00	0.13	1.00		0.54	1.00	
Satd. Flow (perm)	1083	1863	1583	1210	1863	1583	247	3497		1008	3490	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	170	48	128	228	88	51	324	28	98	1146	116
RTOR Reduction (vph)	0	0	32	0	0	59	0	11	0	0	13	0
Lane Group Flow (vph)	40	170	16	128	228	29	51	341	0	98	1249	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	19.0	19.0	19.0	19.0	19.0	19.0	30.3	30.3		30.3	30.3	
Effective Green, g (s)	19.0	19.0	19.0	19.0	19.0	19.0	30.3	30.3		30.3	30.3	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.52	0.52		0.52	0.52	
Clearance Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	354	609	518	396	609	518	129	1824		526	1820	
v/s Ratio Prot		0.09			c0.12			0.10			c0.36	
v/s Ratio Perm	0.04		0.01	0.11		0.02	0.21			0.10		
v/c Ratio	0.11	0.28	0.03	0.32	0.37	0.06	0.40	0.19		0.19	0.69	
Uniform Delay, d1	13.7	14.5	13.3	14.7	15.0	13.4	8.4	7.4		7.4	10.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.2	0.1	0.0	0.7	0.0		0.1	0.9	
Delay (s)	13.7	14.6	13.3	14.9	15.1	13.4	9.1	7.4		7.4	11.2	
Level of Service	B	B	B	B	B	B	A	A		A	B	
Approach Delay (s)		14.2			14.7			7.6			11.0	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	8.8
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
29: R Street & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	113	421	166	243	370	103	125	986	247	65	995	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3433		1770	3514	
Flt Permitted	0.39	1.00	1.00	0.33	1.00	1.00	0.14	1.00		0.13	1.00	
Satd. Flow (perm)	734	1863	1583	623	1863	1583	262	3433		248	3514	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	458	180	264	402	112	136	1072	268	71	1082	53
RTOR Reduction (vph)	0	0	28	0	0	29	0	34	0	0	5	0
Lane Group Flow (vph)	123	458	152	264	402	83	136	1306	0	71	1130	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	26.2	26.2	26.2	26.2	26.2	26.2	30.0	30.0		30.0	30.0	
Effective Green, g (s)	26.2	26.2	26.2	26.2	26.2	26.2	30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.46	0.46		0.46	0.46	
Clearance Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2		4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	296	751	638	251	751	638	121	1584		114	1622	
v/s Ratio Prot		0.25			0.22			0.38			0.32	
v/s Ratio Perm	0.17		0.10	c0.42		0.05	c0.52			0.29		
v/c Ratio	0.42	0.61	0.24	1.05	0.54	0.13	1.12	0.82		0.62	0.70	
Uniform Delay, d1	13.9	15.4	12.8	19.4	14.8	12.2	17.5	15.2		13.2	13.9	
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	0.3	1.0	0.1	71.1	0.4	0.0	119.0	3.5		7.4	1.1	
Delay (s)	14.3	16.3	12.9	90.5	15.1	12.3	136.5	18.7		20.6	15.0	
Level of Service	B	B	B	F	B	B	F	B		C	B	
Approach Delay (s)		15.2			40.3			29.5			15.3	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
30: U Street & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	205	38	0	0	0	21	307	74	307	1217	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6				4.6	4.6		4.6	4.6	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	0.97		1.00	0.98	
Flt Protected		0.99	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1848	1583				1770	3437		1770	3478	
Flt Permitted		0.99	1.00				0.13	1.00		0.51	1.00	
Satd. Flow (perm)		1848	1583				234	3437		949	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	223	41	0	0	0	23	334	80	334	1323	174
RTOR Reduction (vph)	0	0	17	0	0	0	0	21	0	0	10	0
Lane Group Flow (vph)	0	265	24	0	0	0	23	393	0	334	1487	0
Turn Type	Split		Perm				Perm			Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)		10.5	10.5				31.9	31.9		31.9	31.9	
Effective Green, g (s)		10.5	10.5				31.9	31.9		31.9	31.9	
Actuated g/C Ratio		0.20	0.20				0.62	0.62		0.62	0.62	
Clearance Time (s)		4.6	4.6				4.6	4.6		4.6	4.6	
Vehicle Extension (s)		0.2	0.2				4.1	4.1		4.1	4.1	
Lane Grp Cap (vph)		376	322				145	2125		587	2150	
v/s Ratio Prot		c0.14						0.11			c0.43	
v/s Ratio Perm			0.02				0.10			0.35		
v/c Ratio		0.70	0.08				0.16	0.18		0.57	0.69	
Uniform Delay, d1		19.1	16.6				4.2	4.2		5.8	6.6	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.9	0.0				0.7	0.1		1.6	1.1	
Delay (s)		24.0	16.7				4.9	4.3		7.4	7.6	
Level of Service		C	B				A	A		A	A	
Approach Delay (s)		23.0			0.0			4.3			7.6	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	9.2
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
30: U Street & Tulare St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	254	486	59	0	0	0	30	965	85	304	999	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6				4.6	4.6		4.6	4.6	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	0.99		1.00	0.98	
Flt Protected		0.98	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831	1583				1770	3496		1770	3457	
Flt Permitted		0.98	1.00				0.13	1.00		0.17	1.00	
Satd. Flow (perm)		1831	1583				248	3496		322	3457	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	276	528	64	0	0	0	33	1049	92	330	1086	198
RTOR Reduction (vph)	0	0	9	0	0	0	0	7	0	0	15	0
Lane Group Flow (vph)	0	804	55	0	0	0	33	1134	0	330	1269	0
Turn Type	Split		Perm				Perm			Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)		34.4	34.4				56.4	56.4		56.4	56.4	
Effective Green, g (s)		34.4	34.4				56.4	56.4		56.4	56.4	
Actuated g/C Ratio		0.34	0.34				0.56	0.56		0.56	0.56	
Clearance Time (s)		4.6	4.6				4.6	4.6		4.6	4.6	
Vehicle Extension (s)		0.2	0.2				4.1	4.1		4.1	4.1	
Lane Grp Cap (vph)		630	545				140	1972		182	1950	
v/s Ratio Prot		c0.44						0.32			0.37	
v/s Ratio Perm			0.04				0.13			c1.02		
v/c Ratio		1.28	0.10				0.24	0.58		1.81	0.65	
Uniform Delay, d1		32.8	22.3				11.0	14.1		21.8	15.0	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		136.3	0.0				1.2	0.5		386.8	0.9	
Delay (s)		169.1	22.3				12.2	14.6		408.6	15.9	
Level of Service		F	C				B	B		F	B	
Approach Delay (s)		158.3			0.0			14.5			96.2	
Approach LOS		F			A			B			F	

Intersection Summary

HCM Average Control Delay	84.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	0	903	0	337	623	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.1		4.1	4.6	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		2787		3539	3539	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		2787		3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	982	0	366	677	0
RTOR Reduction (vph)	0	541	0	0	0	0
Lane Group Flow (vph)	0	441	0	366	677	0
Turn Type		custom				
Protected Phases				6	4	
Permitted Phases		7				
Actuated Green, G (s)		15.4		10.7	14.9	
Effective Green, g (s)		15.4		10.7	14.9	
Actuated g/C Ratio		0.45		0.31	0.43	
Clearance Time (s)		4.1		4.1	4.6	
Vehicle Extension (s)		1.2		3.0	4.0	
Lane Grp Cap (vph)		1251		1104	1537	
v/s Ratio Prot				c0.10	c0.19	
v/s Ratio Perm		0.16				
v/c Ratio		0.35		0.33	0.44	
Uniform Delay, d1		6.2		9.1	6.8	
Progression Factor		1.00		1.00	1.00	
Incremental Delay, d2		0.1		0.2	0.3	
Delay (s)		6.2		9.2	7.1	
Level of Service		A		A	A	
Approach Delay (s)	6.2			9.2	7.1	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	8.7
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	0	1123	0	1244	467	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.1		4.1	4.6	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		2787		3539	3539	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		2787		3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1221	0	1352	508	0
RTOR Reduction (vph)	0	840	0	0	0	0
Lane Group Flow (vph)	0	381	0	1352	508	0
Turn Type		custom				
Protected Phases				6	4	
Permitted Phases		7				
Actuated Green, G (s)		14.1		22.9	13.6	
Effective Green, g (s)		14.1		22.9	13.6	
Actuated g/C Ratio		0.31		0.51	0.30	
Clearance Time (s)		4.1		4.1	4.6	
Vehicle Extension (s)		1.2		3.0	4.0	
Lane Grp Cap (vph)		869		1793	1065	
v/s Ratio Prot				c0.38	c0.14	
v/s Ratio Perm		0.14				
v/c Ratio		0.44		0.75	0.48	
Uniform Delay, d1		12.4		8.9	12.9	
Progression Factor		1.00		1.00	1.00	
Incremental Delay, d2		0.1		1.8	0.5	
Delay (s)		12.5		10.7	13.4	
Level of Service		B		B	B	
Approach Delay (s)	12.5			10.7	13.4	
Approach LOS	B			B	B	

Intersection Summary

HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	45.2	Sum of lost time (s)	8.7
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
32: E Divisadero St & 41 SB Off-Ramp

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	603	9	0	530	0	0	0	0	434	920	819
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.0			4.0					4.0	4.0	4.0
Lane Util. Factor		0.95			0.95					0.91	0.91	1.00
Frt		1.00			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	1.00	1.00
Satd. Flow (prot)		3531			3539					1610	3383	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3531			3539					1610	3383	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	655	10	0	576	0	0	0	0	472	1000	890
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	664	0	0	576	0	0	0	0	425	1047	866
Turn Type										Perm		Perm
Protected Phases		4			8						2	
Permitted Phases										2		2
Actuated Green, G (s)		14.9			14.9					35.9	35.9	35.9
Effective Green, g (s)		14.9			14.9					35.9	35.9	35.9
Actuated g/C Ratio		0.25			0.25					0.61	0.61	0.61
Clearance Time (s)		4.0			4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		895			897					983	2065	966
v/s Ratio Prot		c0.19			0.16							
v/s Ratio Perm										0.26	0.31	c0.55
v/c Ratio		0.74			0.64					0.43	0.51	0.90
Uniform Delay, d1		20.2			19.6					6.1	6.5	9.9
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		3.3			1.6					0.3	0.2	10.8
Delay (s)		23.5			21.2					6.4	6.7	20.7
Level of Service		C			C					A	A	C
Approach Delay (s)		23.5			21.2			0.0			11.9	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.0%	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)	0	1157	70	0	734	0	0	0	0	543	1084	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.0			4.0					4.0	4.0	4.0
Lane Util. Factor		0.95			0.95					0.91	0.91	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	1.00	1.00
Satd. Flow (prot)		3509			3539					1610	3382	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3509			3539					1610	3382	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1258	76	0	798	0	0	0	0	590	1178	728
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	35
Lane Group Flow (vph)	0	1327	0	0	798	0	0	0	0	531	1237	693
Turn Type										Perm		Perm
Protected Phases		4			8						2	
Permitted Phases										2		2
Actuated Green, G (s)		25.0			25.0					32.0	32.0	32.0
Effective Green, g (s)		25.0			25.0					32.0	32.0	32.0
Actuated g/C Ratio		0.38			0.38					0.49	0.49	0.49
Clearance Time (s)		4.0			4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1350			1361					793	1665	779
v/s Ratio Prot		c0.38			0.23							
v/s Ratio Perm										0.33	0.37	c0.44
v/c Ratio		0.98			0.59					0.67	0.74	0.89
Uniform Delay, d1		19.8			15.9					12.5	13.2	14.9
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		20.4			0.7					2.2	1.8	12.4
Delay (s)		40.2			16.5					14.7	15.0	27.3
Level of Service		D			B					B	B	C
Approach Delay (s)		40.2			16.5			0.0			18.5	
Approach LOS		D			B			A			B	

Intersection Summary			
HCM Average Control Delay	24.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑	↰	↱
Volume (vph)	133	248	0	413	212	473
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.1	4.1		4.1	4.1	4.1
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3539	1583		3539	1770	1583
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3539	1583		3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	270	0	449	230	514
RTOR Reduction (vph)	0	174	0	0	0	254
Lane Group Flow (vph)	145	96	0	449	230	260
Turn Type		Perm				Perm
Protected Phases	6			6	8	
Permitted Phases		6				8
Actuated Green, G (s)	20.8	20.8		20.8	29.7	29.7
Effective Green, g (s)	20.8	20.8		20.8	29.7	29.7
Actuated g/C Ratio	0.35	0.35		0.35	0.51	0.51
Clearance Time (s)	4.1	4.1		4.1	4.1	4.1
Vehicle Extension (s)	3.0	3.0		3.0	0.2	0.2
Lane Grp Cap (vph)	1254	561		1254	896	801
v/s Ratio Prot	0.04			c0.13	0.13	
v/s Ratio Perm		0.06				c0.16
v/c Ratio	0.12	0.17		0.36	0.26	0.32
Uniform Delay, d1	12.8	13.0		14.0	8.2	8.6
Progression Factor	1.00	1.00		0.61	1.00	1.00
Incremental Delay, d2	0.0	0.1		0.1	0.1	0.1
Delay (s)	12.8	13.2		8.8	8.3	8.7
Level of Service	B	B		A	A	A
Approach Delay (s)	13.0			8.8	8.5	
Approach LOS	B			A	A	

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	8.2
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑	↰	↱
Volume (vph)	611	730	0	341	197	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.1	4.1		4.1	4.1	4.1
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3539	1583		3539	1770	1583
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3539	1583		3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	664	793	0	371	214	593
RTOR Reduction (vph)	0	529	0	0	0	33
Lane Group Flow (vph)	664	264	0	371	214	560
Turn Type		Perm				Perm
Protected Phases	6			6	8	
Permitted Phases		6				8
Actuated Green, G (s)	26.6	26.6		26.6	45.2	45.2
Effective Green, g (s)	26.6	26.6		26.6	45.2	45.2
Actuated g/C Ratio	0.33	0.33		0.33	0.57	0.57
Clearance Time (s)	4.1	4.1		4.1	4.1	4.1
Vehicle Extension (s)	3.0	3.0		3.0	0.2	0.2
Lane Grp Cap (vph)	1177	526		1177	1000	894
v/s Ratio Prot	c0.19			0.10	0.12	
v/s Ratio Perm		0.17				c0.35
v/c Ratio	0.56	0.50		0.32	0.21	0.63
Uniform Delay, d1	21.9	21.4		19.9	8.6	11.7
Progression Factor	1.00	1.00		0.62	1.00	1.00
Incremental Delay, d2	0.6	0.8		0.1	0.0	1.0
Delay (s)	22.6	22.1		12.5	8.6	12.7
Level of Service	C	C		B	A	B
Approach Delay (s)	22.3			12.5	11.6	
Approach LOS	C			B	B	

Intersection Summary

HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.2
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	394	533	501	531	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.1	4.1	4.1		
Lane Util. Factor	0.97	0.95	0.95	1.00		
Frt	1.00	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	1.00		
Satd. Flow (prot)	3776	3893	3893	1742		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	3776	3893	3893	1742		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	579	545	577	0	0
RTOR Reduction (vph)	0	0	0	403	0	0
Lane Group Flow (vph)	428	579	545	174	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	8.3	29.7	17.7	17.7		
Effective Green, g (s)	8.3	29.7	17.7	17.7		
Actuated g/C Ratio	0.14	0.51	0.30	0.30		
Clearance Time (s)	3.7	4.1	4.1	4.1		
Vehicle Extension (s)	8.0	0.2	4.1	4.1		
Lane Grp Cap (vph)	534	1970	1174	525		
v/s Ratio Prot	c0.11	0.15	c0.14			
v/s Ratio Perm				0.10		
v/c Ratio	0.80	0.29	0.46	0.33		
Uniform Delay, d1	24.4	8.4	16.6	15.9		
Progression Factor	1.00	1.00	1.15	2.37		
Incremental Delay, d2	10.9	0.0	0.4	0.5		
Delay (s)	35.3	8.4	19.6	38.2		
Level of Service	D	A	B	D		
Approach Delay (s)		19.9	29.2		0.0	
Approach LOS		B	C		A	

Intersection Summary

HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	32.7
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	981	757	704	520	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.1	4.1	4.1		
Lane Util. Factor	0.97	0.95	0.95	1.00		
Frt	1.00	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	1.00		
Satd. Flow (prot)	3776	3893	3893	1742		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	3776	3893	3893	1742		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1066	823	765	565	0	0
RTOR Reduction (vph)	0	0	0	431	0	0
Lane Group Flow (vph)	1066	823	765	134	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	22.5	45.2	19.0	19.0		
Effective Green, g (s)	22.5	45.2	19.0	19.0		
Actuated g/C Ratio	0.28	0.57	0.24	0.24		
Clearance Time (s)	3.7	4.1	4.1	4.1		
Vehicle Extension (s)	8.0	0.2	4.1	4.1		
Lane Grp Cap (vph)	1062	2200	925	414		
v/s Ratio Prot	c0.28	0.21	c0.20			
v/s Ratio Perm				0.08		
v/c Ratio	1.00	0.37	0.83	0.32		
Uniform Delay, d1	28.8	9.6	28.9	25.2		
Progression Factor	1.00	1.00	1.15	2.50		
Incremental Delay, d2	28.5	0.0	5.5	0.6		
Delay (s)	57.3	9.6	38.7	63.6		
Level of Service	E	A	D	E		
Approach Delay (s)		36.5	49.3		0.0	
Approach LOS		D	D		A	

Intersection Summary			
HCM Average Control Delay	41.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	38.5
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
34: Tulare St & First Steet

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	347	596	88	93	712	164	388	274	27	275	410	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6	4.6	4.0	4.9		4.0	4.6	4.6	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3440		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3440		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	377	648	96	101	774	178	422	298	29	299	446	305
RTOR Reduction (vph)	0	0	46	0	20	0	0	0	22	0	0	156
Lane Group Flow (vph)	377	648	50	101	932	0	422	298	7	299	446	149
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8						6			2
Actuated Green, G (s)	9.0	33.3	33.3	5.7	29.7		10.0	21.4	21.4	11.6	22.7	22.7
Effective Green, g (s)	9.0	33.3	33.3	5.7	29.7		10.0	21.4	21.4	11.6	22.7	22.7
Actuated g/C Ratio	0.10	0.37	0.37	0.06	0.33		0.11	0.24	0.24	0.13	0.25	0.25
Clearance Time (s)	4.0	4.6	4.6	4.0	4.9		4.0	4.6	4.6	4.0	4.9	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.2		2.0	5.0	5.0	2.0	5.2	5.2
Lane Grp Cap (vph)	346	1321	591	219	1145		385	849	380	446	901	403
v/s Ratio Prot	c0.11	c0.18		0.03	c0.27		c0.12	0.08		0.09	c0.13	
v/s Ratio Perm			0.03						0.00			0.09
v/c Ratio	1.09	0.49	0.09	0.46	0.81		1.10	0.35	0.02	0.67	0.50	0.37
Uniform Delay, d1	40.1	21.4	18.1	40.3	27.2		39.6	28.1	25.9	37.0	28.4	27.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	74.5	0.6	0.1	0.6	5.2		74.3	0.5	0.0	3.1	1.0	1.3
Delay (s)	114.6	22.0	18.2	40.8	32.4		113.9	28.7	25.9	40.1	29.3	28.7
Level of Service	F	C	B	D	C		F	C	C	D	C	C
Approach Delay (s)		52.9			33.2			76.6			32.2	
Approach LOS		D			C			E			C	

Intersection Summary

HCM Average Control Delay	46.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	17.5
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
34: Tulare St & First Steet

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	566	853	174	138	701	182	359	765	48	451	789	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6	4.6	4.0	4.9		4.0	4.6	4.6	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3430		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3430		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	615	927	189	150	762	198	390	832	52	490	858	189
RTOR Reduction (vph)	0	0	61	0	22	0	0	0	19	0	0	100
Lane Group Flow (vph)	615	927	128	150	938	0	390	832	33	490	858	89
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8						6			2
Actuated Green, G (s)	18.0	39.1	39.1	8.2	29.0		12.0	25.5	25.5	15.0	28.2	28.2
Effective Green, g (s)	18.0	39.1	39.1	8.2	29.0		12.0	25.5	25.5	15.0	28.2	28.2
Actuated g/C Ratio	0.17	0.37	0.37	0.08	0.28		0.11	0.24	0.24	0.14	0.27	0.27
Clearance Time (s)	4.0	4.6	4.6	4.0	4.9		4.0	4.6	4.6	4.0	4.9	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.2		2.0	5.0	5.0	2.0	5.2	5.2
Lane Grp Cap (vph)	589	1318	589	268	947		392	859	384	490	950	425
v/s Ratio Prot	c0.18	0.26		0.04	c0.27		0.11	0.24		c0.14	c0.24	
v/s Ratio Perm			0.08						0.02			0.06
v/c Ratio	1.04	0.70	0.22	0.56	0.99		0.99	0.97	0.09	1.00	0.90	0.21
Uniform Delay, d1	43.5	28.0	22.5	46.7	37.9		46.5	39.4	30.7	45.0	37.1	29.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	49.1	2.2	0.4	1.4	26.8		43.8	23.4	0.2	40.7	12.5	0.5
Delay (s)	92.6	30.2	22.9	48.1	64.7		90.3	62.7	30.9	85.7	49.6	30.3
Level of Service	F	C	C	D	E		F	E	C	F	D	C
Approach Delay (s)		51.6			62.4			69.9			58.7	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM Average Control Delay	59.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
35: H St & Mariposa St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	42	1069	122	68	229	147	8	106	9	83	64	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91			0.95			1.00			1.00	
Frt	1.00	0.98			0.95			0.99			0.91	
Flt Protected	0.95	1.00			0.99			1.00			0.99	
Satd. Flow (prot)	1770	5007			3338			1838			1686	
Flt Permitted	0.47	1.00			0.68			0.97			0.91	
Satd. Flow (perm)	874	5007			2304			1785			1542	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	1162	133	74	249	160	9	115	10	90	70	278
RTOR Reduction (vph)	0	24	0	0	81	0	0	5	0	0	103	0
Lane Group Flow (vph)	46	1271	0	0	402	0	0	129	0	0	335	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	29.0	29.0			29.0			21.0			21.0	
Effective Green, g (s)	29.0	29.0			29.0			21.0			21.0	
Actuated g/C Ratio	0.49	0.49			0.49			0.36			0.36	
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	
Vehicle Extension (s)	0.2	0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)	430	2461			1132			635			549	
v/s Ratio Prot		c0.25										
v/s Ratio Perm	0.05				0.17			0.07			c0.22	
v/c Ratio	0.11	0.52			0.35			0.20			0.61	
Uniform Delay, d1	8.1	10.2			9.2			13.2			15.6	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.1			0.1			1.4	
Delay (s)	8.1	10.3			9.3			13.3			17.0	
Level of Service	A	B			A			B			B	
Approach Delay (s)		10.2			9.3			13.3			17.0	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	148	956	52	31	459	217	121	147	33	41	8	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91			0.95			1.00			1.00	
Frt	1.00	0.99			0.95			0.99			0.90	
Flt Protected	0.95	1.00			1.00			0.98			0.99	
Satd. Flow (prot)	1770	5046			3369			1799			1664	
Flt Permitted	0.31	1.00			0.87			0.81			0.88	
Satd. Flow (perm)	574	5046			2945			1492			1482	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	161	1039	57	34	499	236	132	160	36	45	9	132
RTOR Reduction (vph)	0	10	0	0	85	0	0	7	0	0	85	0
Lane Group Flow (vph)	161	1086	0	0	684	0	0	321	0	0	101	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	29.2	29.2			29.2			21.0			21.0	
Effective Green, g (s)	29.2	29.2			29.2			21.0			21.0	
Actuated g/C Ratio	0.49	0.49			0.49			0.35			0.35	
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	
Vehicle Extension (s)	0.2	0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)	283	2489			1453			529			526	
v/s Ratio Prot		0.22										
v/s Ratio Perm	c0.28				0.23			c0.22			0.07	
v/c Ratio	0.57	0.44			0.47			0.61			0.19	
Uniform Delay, d1	10.6	9.7			9.9			15.7			13.2	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	1.6	0.0			0.1			1.4			0.1	
Delay (s)	12.1	9.7			10.0			17.1			13.3	
Level of Service	B	A			A			B			B	
Approach Delay (s)		10.0			10.0			17.1			13.3	
Approach LOS		B			A			B			B	

Intersection Summary

HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
36: C Street & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	128	21	49	40	25	39	83	1210	31	93	910	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2	4.2	4.0	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1693		1770	3526		1770	3474	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.21	1.00		0.15	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1693		383	3526		273	3474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	23	53	43	27	42	90	1315	34	101	989	138
RTOR Reduction (vph)	0	0	46	0	38	0	0	1	0	0	10	0
Lane Group Flow (vph)	139	23	7	43	31	0	90	1348	0	101	1117	0
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	8.1	10.4	10.4	4.1	6.4		48.3	48.3		48.3	48.3	
Effective Green, g (s)	8.1	10.4	10.4	4.1	6.4		48.3	48.3		48.3	48.3	
Actuated g/C Ratio	0.11	0.14	0.14	0.05	0.09		0.64	0.64		0.64	0.64	
Clearance Time (s)	4.0	4.2	4.2	4.0	4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	191	258	219	97	144		246	2265		175	2231	
v/s Ratio Prot	c0.08	c0.01		0.02	c0.02			c0.38			0.32	
v/s Ratio Perm			0.00				0.24			0.37		
v/c Ratio	0.73	0.09	0.03	0.44	0.21		0.37	0.59		0.58	0.50	
Uniform Delay, d1	32.5	28.3	28.0	34.4	32.1		6.3	7.8		7.6	7.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.1	0.1	0.0	1.2	0.3		2.6	0.8		8.9	0.5	
Delay (s)	43.6	28.3	28.1	35.6	32.3		8.9	8.6		16.5	7.6	
Level of Service	D	C	C	D	C		A	A		B	A	
Approach Delay (s)		38.1			33.6			8.6			8.3	
Approach LOS		D			C			A			A	

Intersection Summary

HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	16.6
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
36: C Street & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	253	99	338	379	189	77	158	1205	50	104	1321	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2	4.2	4.0	4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1782		1770	3518		1770	3472	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.07	1.00		0.10	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1782		125	3518		190	3472	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	275	108	367	412	205	84	172	1310	54	113	1436	207
RTOR Reduction (vph)	0	0	23	0	13	0	0	3	0	0	10	0
Lane Group Flow (vph)	275	108	344	412	276	0	172	1361	0	113	1633	0
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	15.0	21.8	21.8	16.0	22.8		59.8	59.8		59.8	59.8	
Effective Green, g (s)	15.0	21.8	21.8	16.0	22.8		59.8	59.8		59.8	59.8	
Actuated g/C Ratio	0.14	0.20	0.20	0.15	0.21		0.54	0.54		0.54	0.54	
Clearance Time (s)	4.0	4.2	4.2	4.0	4.2		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	241	369	314	257	369		68	1913		103	1888	
v/s Ratio Prot	0.16	0.06		c0.23	0.15			0.39			0.47	
v/s Ratio Perm			c0.22				c1.38			0.59		
v/c Ratio	1.14	0.29	1.09	1.60	0.75		2.53	0.71		1.10	0.86	
Uniform Delay, d1	47.5	37.5	44.1	47.0	40.9		25.1	18.7		25.1	21.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	101.3	0.2	78.6	288.9	7.0		729.5	1.8		117.3	5.0	
Delay (s)	148.8	37.7	122.7	335.9	47.9		754.6	20.5		142.4	26.6	
Level of Service	F	D	F	F	D		F	C		F	C	
Approach Delay (s)		120.0			217.2			102.7			34.1	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM Average Control Delay	97.0	HCM Level of Service	F
HCM Volume to Capacity ratio	2.06		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
37: 99 SB Off-Ramp & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	630	485	409	0	0	0	0	863	458	261	639	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.7	4.7	4.7					5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3355		1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3355		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	685	527	445	0	0	0	0	938	498	284	695	0
RTOR Reduction (vph)	0	0	147	0	0	0	0	63	0	0	0	0
Lane Group Flow (vph)	685	527	298	0	0	0	0	1373	0	284	695	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	37.3	37.3	37.3					41.8		15.8	62.8	
Effective Green, g (s)	37.3	37.3	37.3					41.8		15.8	62.8	
Actuated g/C Ratio	0.34	0.34	0.34					0.38		0.14	0.57	
Clearance Time (s)	4.7	4.7	4.7					5.2		5.2	5.2	
Vehicle Extension (s)	6.2	6.2	6.2					0.2		2.0	0.2	
Lane Grp Cap (vph)	600	632	537					1275		254	2020	
v/s Ratio Prot	c0.39	0.28						c0.41		c0.16	0.20	
v/s Ratio Perm			0.19									
v/c Ratio	1.14	0.83	0.56					1.08		1.12	0.34	
Uniform Delay, d1	36.4	33.5	29.6					34.1		47.1	12.6	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	82.4	10.8	2.8					48.6		91.9	0.0	
Delay (s)	118.8	44.3	32.4					82.7		139.0	12.6	
Level of Service	F	D	C					F		F	B	
Approach Delay (s)		71.9			0.0			82.7			49.3	
Approach LOS		E			A			F			D	

Intersection Summary

HCM Average Control Delay	70.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	247	721	790	0	0	0	0	1003	479	390	741	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.7	4.7	4.7					5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3368		1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3368		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	784	859	0	0	0	0	1090	521	424	805	0
RTOR Reduction (vph)	0	0	124	0	0	0	0	30	0	0	0	0
Lane Group Flow (vph)	268	784	735	0	0	0	0	1581	0	424	805	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	50.3	50.3	50.3					56.8		27.8	89.8	
Effective Green, g (s)	50.3	50.3	50.3					56.8		27.8	89.8	
Actuated g/C Ratio	0.34	0.34	0.34					0.38		0.19	0.60	
Clearance Time (s)	4.7	4.7	4.7					5.2		5.2	5.2	
Vehicle Extension (s)	6.2	6.2	6.2					0.2		2.0	0.2	
Lane Grp Cap (vph)	594	625	531					1275		328	2119	
v/s Ratio Prot	0.15	0.42						c0.47		c0.24	0.23	
v/s Ratio Perm			c0.46									
v/c Ratio	0.45	1.25	1.38					1.24		1.29	0.38	
Uniform Delay, d1	39.0	49.9	49.9					46.6		61.1	15.6	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	1.6	127.3	184.1					114.7		152.6	0.0	
Delay (s)	40.7	177.1	233.9					161.3		213.7	15.7	
Level of Service	D	F	F					F		F	B	
Approach Delay (s)		183.5			0.0			161.3			84.0	
Approach LOS		F			A			F			F	

Intersection Summary

HCM Average Control Delay	150.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	134.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
38: 99 NB On-Ramp & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	352	517	443	643	857	0	0	539	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3469	1583	1770	3539			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3469	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	383	562	482	699	932	0	0	586	260
RTOR Reduction (vph)	0	0	0	0	0	103	0	0	0	0	0	72
Lane Group Flow (vph)	0	0	0	0	945	379	699	932	0	0	586	188
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					32.0	32.0	41.3	65.0			20.0	20.0
Effective Green, g (s)					32.0	32.0	41.3	65.0			20.0	20.0
Actuated g/C Ratio					0.30	0.30	0.38	0.60			0.19	0.19
Clearance Time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Vehicle Extension (s)					5.0	5.0	2.0	0.2			0.2	0.2
Lane Grp Cap (vph)					1032	471	679	2138			658	294
v/s Ratio Prot					c0.27		c0.40	0.26			c0.17	
v/s Ratio Perm						0.24						0.12
v/c Ratio					0.92	0.80	1.03	0.44			0.89	0.64
Uniform Delay, d1					36.5	34.9	33.1	11.4			42.7	40.5
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					12.9	10.9	42.3	0.1			13.9	3.5
Delay (s)					49.4	45.8	75.4	11.5			56.7	44.0
Level of Service					D	D	E	B			E	D
Approach Delay (s)		0.0			48.2			38.9			52.8	
Approach LOS		A			D			D			D	

Intersection Summary			
HCM Average Control Delay	45.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	14.3
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
38: 99 NB On-Ramp & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	335	511	609	647	594	0	0	786	1003
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3470	1583	1770	3539			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3470	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	364	555	662	703	646	0	0	854	1090
RTOR Reduction (vph)	0	0	0	0	0	253	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	0	0	919	409	703	646	0	0	854	1072
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					34.6	34.6	36.3	104.8			64.8	64.8
Effective Green, g (s)					34.6	34.6	36.3	104.8			64.8	64.8
Actuated g/C Ratio					0.23	0.23	0.24	0.70			0.43	0.43
Clearance Time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Vehicle Extension (s)					5.0	5.0	2.0	0.2			0.2	0.2
Lane Grp Cap (vph)					800	365	428	2473			1529	684
v/s Ratio Prot					c0.26		c0.40	0.18			0.24	
v/s Ratio Perm						0.26						c0.68
v/c Ratio					1.15	1.12	1.64	0.26			0.56	1.57
Uniform Delay, d1					57.7	57.7	56.9	8.3			31.9	42.6
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					81.3	83.8	299.5	0.0			0.3	262.2
Delay (s)					139.0	141.5	356.4	8.4			32.1	304.8
Level of Service					F	F	F	A			C	F
Approach Delay (s)		0.0			140.0			189.7			185.0	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM Average Control Delay	171.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	134.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
40: H St & Fresno

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	20	637	950	22	250	120	69	765	276	21	503	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	3893	1742	1947	3704		1947	3738		1947	3871	
Flt Permitted	0.47	1.00	1.00	0.25	1.00		0.44	1.00		0.95	1.00	
Satd. Flow (perm)	969	3893	1742	519	3704		898	3738		1947	3871	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	692	1033	24	272	130	75	832	300	23	547	22
RTOR Reduction (vph)	0	0	0	0	65	0	0	40	0	0	4	0
Lane Group Flow (vph)	22	692	1033	24	337	0	75	1092	0	23	565	0
Turn Type	Perm		Free	Perm			Perm			Prot		
Protected Phases		6			2			4		3	8	
Permitted Phases	6		Free	2			4					
Actuated Green, G (s)	18.9	18.9	60.6	18.9	18.9		27.6	27.6		2.1	33.7	
Effective Green, g (s)	18.9	18.9	60.6	18.9	18.9		27.6	27.6		2.1	33.7	
Actuated g/C Ratio	0.31	0.31	1.00	0.31	0.31		0.46	0.46		0.03	0.56	
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)	302	1214	1742	162	1155		409	1702		67	2153	
v/s Ratio Prot		0.18			0.09			0.29		0.01	0.15	
v/s Ratio Perm	0.02		c0.59	0.05			0.08					
v/c Ratio	0.07	0.57	0.59	0.15	0.29		0.18	0.64		0.34	0.26	
Uniform Delay, d1	14.7	17.4	0.0	15.0	15.8		9.8	12.7		28.6	7.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7	1.5	0.4	0.1		0.2	0.8		3.1	0.1	
Delay (s)	14.8	18.1	1.5	15.5	15.9		10.0	13.5		31.6	7.1	
Level of Service	B	B	A	B	B		B	B		C	A	
Approach Delay (s)		8.2			15.9			13.3			8.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	0.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
40: H St & Fresno

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	25	722	1247	80	461	224	143	506	253	20	1200	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.95		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	3893	1742	1947	3702		1947	3698		1947	3883	
Flt Permitted	0.21	1.00	1.00	0.19	1.00		0.15	1.00		0.95	1.00	
Satd. Flow (perm)	429	3893	1742	382	3702		309	3698		1947	3883	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	785	1355	87	501	243	155	550	275	22	1304	23
RTOR Reduction (vph)	0	0	0	0	63	0	0	67	0	0	2	0
Lane Group Flow (vph)	27	785	1355	87	681	0	155	758	0	22	1325	0
Turn Type	Perm		Free	Perm			Perm			Prot		
Protected Phases		6			2			4		3	8	
Permitted Phases	6		Free	2			4					
Actuated Green, G (s)	25.4	25.4	79.3	25.4	25.4		39.3	39.3		2.6	45.9	
Effective Green, g (s)	25.4	25.4	79.3	25.4	25.4		39.3	39.3		2.6	45.9	
Actuated g/C Ratio	0.32	0.32	1.00	0.32	0.32		0.50	0.50		0.03	0.58	
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)	137	1247	1742	122	1186		153	1833		64	2248	
v/s Ratio Prot		0.20			0.18			0.21		0.01	0.34	
v/s Ratio Perm	0.06		c0.78	0.23			c0.50					
v/c Ratio	0.20	0.63	0.78	0.71	0.57		1.01	0.41		0.34	0.59	
Uniform Delay, d1	19.6	22.9	0.0	23.7	22.4		20.0	12.7		37.5	10.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.0	3.5	17.8	0.7		76.2	0.2		3.2	0.4	
Delay (s)	20.3	23.9	3.5	41.6	23.1		96.2	12.8		40.7	11.1	
Level of Service	C	C	A	D	C		F	B		D	B	
Approach Delay (s)		11.1			25.1			26.0			11.6	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	79.3	Sum of lost time (s)	4.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
41: To H St & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	84	23	19	14	1	3	57	72	751	82	106	511
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	12	12	12	12	12	12	12
Total Lost time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Lane Util. Factor	1.00	1.00			1.00	1.00			0.95		1.00	1.00
Frt	1.00	0.93			1.00	0.86			0.99		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00			1.00		0.95	1.00
Satd. Flow (prot)	1770	1735			1947	1596			3477		1770	1863
Flt Permitted	0.89	1.00			0.89	1.00			0.88		0.28	1.00
Satd. Flow (perm)	1656	1735			1821	1596			3065		522	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	25	21	15	1	3	62	78	816	89	115	555
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	7	0	0	0
Lane Group Flow (vph)	91	46	0	0	16	10	0	0	976	0	115	555
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases		4				4			2			2
Permitted Phases	4			4	4			2			2	
Actuated Green, G (s)	4.5	4.5			4.5	4.5			23.3		23.3	23.3
Effective Green, g (s)	4.5	4.5			4.5	4.5			23.3		23.3	23.3
Actuated g/C Ratio	0.12	0.12			0.12	0.12			0.62		0.62	0.62
Clearance Time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Vehicle Extension (s)	0.2	0.2			0.2	0.2			0.2		0.2	0.2
Lane Grp Cap (vph)	199	209			219	192			1909		325	1161
v/s Ratio Prot		0.03				0.01						0.30
v/s Ratio Perm	c0.05				0.01				c0.32		0.22	
v/c Ratio	0.46	0.22			0.07	0.05			0.51		0.35	0.48
Uniform Delay, d1	15.3	14.9			14.6	14.6			3.9		3.4	3.8
Progression Factor	1.00	1.00			1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.6	0.2			0.1	0.0			0.1		0.2	0.1
Delay (s)	15.9	15.1			14.7	14.6			4.0		3.7	3.9
Level of Service	B	B			B	B			A		A	A
Approach Delay (s)		15.6				14.6			4.0			3.7
Approach LOS		B				B			A			A

Intersection Summary			
HCM Average Control Delay	5.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	37.4	Sum of lost time (s)	9.6
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

41: To H St & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	139	8	63	117	4	90	186	80	636	39	172	1020
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	12	12	12	12	12	12	12
Total Lost time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Lane Util. Factor	1.00	1.00			1.00	1.00			0.95		1.00	1.00
Frt	1.00	0.87			1.00	0.90			0.99		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.99		0.95	1.00
Satd. Flow (prot)	1770	1616			1947	1675			3493		1770	1863
Flt Permitted	0.32	1.00			0.71	1.00			0.59		0.32	1.00
Satd. Flow (perm)	604	1616			1448	1675			2060		593	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	151	9	68	127	4	98	202	87	691	42	187	1109
RTOR Reduction (vph)	0	0	0	0	0	95	0	0	3	0	0	0
Lane Group Flow (vph)	151	77	0	0	131	205	0	0	817	0	187	1109
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases		4				4			2			2
Permitted Phases	4			4	4			2			2	
Actuated Green, G (s)	17.2	17.2			17.2	17.2			52.1		52.1	52.1
Effective Green, g (s)	17.2	17.2			17.2	17.2			52.1		52.1	52.1
Actuated g/C Ratio	0.22	0.22			0.22	0.22			0.66		0.66	0.66
Clearance Time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Vehicle Extension (s)	0.2	0.2			0.2	0.2			0.2		0.2	0.2
Lane Grp Cap (vph)	132	352			316	365			1360		392	1230
v/s Ratio Prot		0.05				0.12						c0.60
v/s Ratio Perm	c0.25				0.09				0.40		0.32	
v/c Ratio	1.14	0.22			0.41	0.56			0.89dl		0.48	0.90
Uniform Delay, d1	30.9	25.3			26.5	27.5			7.5		6.6	11.2
Progression Factor	1.00	1.00			1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	122.2	0.1			0.3	1.2			0.5		0.3	9.1
Delay (s)	153.1	25.4			26.8	28.7			8.1		7.0	20.4
Level of Service	F	C			C	C			A		A	C
Approach Delay (s)		110.0				28.1			8.1			14.6
Approach LOS		F				C			A			B

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	9.6
Intersection Capacity Utilization	114.7%	ICU Level of Service	H
Analysis Period (min)	15		

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

c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Volume (vph)	5	117
Ideal Flow (vphpl)	1900	1900
Lane Width	15	12
Total Lost time (s)	4.8	
Lane Util. Factor	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1742	
Flt Permitted	1.00	
Satd. Flow (perm)	1742	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	5	127
RTOR Reduction (vph)	48	0
Lane Group Flow (vph)	84	0
Turn Type	Perm	
Protected Phases		
Permitted Phases	2	
Actuated Green, G (s)	23.3	
Effective Green, g (s)	23.3	
Actuated g/C Ratio	0.62	
Clearance Time (s)	4.8	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	1085	
v/s Ratio Prot		
v/s Ratio Perm	0.05	
v/c Ratio	0.08	
Uniform Delay, d1	2.8	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	2.8	
Level of Service	A	
Approach Delay (s)		
Approach LOS		

Intersection Summary

Movement	SWR	SWR2
Lane Configurations		
Volume (vph)	37	494
Ideal Flow (vphpl)	1900	1900
Lane Width	15	12
Total Lost time (s)	4.8	
Lane Util. Factor	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1742	
Flt Permitted	1.00	
Satd. Flow (perm)	1742	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	40	537
RTOR Reduction (vph)	182	0
Lane Group Flow (vph)	395	0
Turn Type	Perm	
Protected Phases		
Permitted Phases	2	
Actuated Green, G (s)	52.1	
Effective Green, g (s)	52.1	
Actuated g/C Ratio	0.66	
Clearance Time (s)	4.8	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	1150	
v/s Ratio Prot		
v/s Ratio Perm	0.23	
v/c Ratio	0.34	
Uniform Delay, d1	5.9	
Progression Factor	1.00	
Incremental Delay, d2	0.1	
Delay (s)	6.0	
Level of Service	A	
Approach Delay (s)		
Approach LOS		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
42: Van Ness Ave & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	214	211	180	99	265	204	149	611	92	64	459	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.93		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1734		1770	3308		1770	3470		1770	3427	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1734		1770	3308		1770	3470		1770	3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	229	196	108	288	222	162	664	100	70	499	134
RTOR Reduction (vph)	0	36	0	0	165	0	0	14	0	0	29	0
Lane Group Flow (vph)	233	389	0	108	345	0	162	750	0	70	604	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	11.3	25.6		6.3	20.6		9.0	25.9		6.0	22.9	
Effective Green, g (s)	11.3	25.6		6.3	20.6		9.0	25.9		6.0	22.9	
Actuated g/C Ratio	0.14	0.32		0.08	0.26		0.11	0.32		0.07	0.28	
Clearance Time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	249	552		139	848		198	1118		132	976	
v/s Ratio Prot	c0.13	c0.22		0.06	0.10		c0.09	c0.22		0.04	0.18	
v/s Ratio Perm												
v/c Ratio	0.94	0.70		0.78	0.41		0.82	0.67		0.53	0.62	
Uniform Delay, d1	34.2	24.1		36.4	24.8		34.9	23.6		35.8	25.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	39.5	5.1		23.4	0.7		22.4	2.1		4.0	1.7	
Delay (s)	73.7	29.2		59.7	25.5		57.3	25.7		39.9	26.7	
Level of Service	E	C		E	C		E	C		D	C	
Approach Delay (s)		44.9			31.5			31.2			28.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	33.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	12.4
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	106	302	214	203	441	194	258	663	136	183	1052	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.95		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1747		1770	3377		1770	3449		1770	3488	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1747		1770	3377		1770	3449		1770	3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	328	233	221	479	211	280	721	148	199	1143	123
RTOR Reduction (vph)	0	24	0	0	47	0	0	17	0	0	8	0
Lane Group Flow (vph)	115	537	0	221	643	0	280	852	0	199	1258	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	9.6	31.8		10.9	33.1		14.9	32.5		13.2	30.8	
Effective Green, g (s)	9.6	31.8		10.9	33.1		14.9	32.5		13.2	30.8	
Actuated g/C Ratio	0.09	0.30		0.10	0.32		0.14	0.31		0.13	0.29	
Clearance Time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	162	529		184	1065		251	1068		223	1023	
v/s Ratio Prot	0.06	c0.31		c0.12	0.19		c0.16	0.25		0.11	c0.36	
v/s Ratio Perm												
v/c Ratio	0.71	1.01		1.20	0.60		1.12	0.80		0.89	1.23	
Uniform Delay, d1	46.3	36.6		47.0	30.4		45.0	33.2		45.2	37.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.3	42.8		130.9	1.4		91.4	4.9		32.9	112.2	
Delay (s)	59.7	79.4		177.9	31.8		136.4	38.1		78.1	149.3	
Level of Service	E	E		F	C		F	D		E	F	
Approach Delay (s)		76.0			67.3			62.1			139.6	
Approach LOS		E			E			E			F	

Intersection Summary

HCM Average Control Delay	92.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: M St & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	126	893	102	0	0	0	0	420	213	246	593	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.95		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5054	1583					3360		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.35	1.00	
Satd. Flow (perm)		5054	1583					3360		657	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	971	111	0	0	0	0	457	232	267	645	0
RTOR Reduction (vph)	0	0	74	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	1108	37	0	0	0	0	679	0	267	645	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			2	
Permitted Phases			4							2		
Actuated Green, G (s)		20.0	20.0					31.2		31.2	31.2	
Effective Green, g (s)		20.0	20.0					31.2		31.2	31.2	
Actuated g/C Ratio		0.34	0.34					0.52		0.52	0.52	
Clearance Time (s)		4.2	4.2					4.2		4.2	4.2	
Vehicle Extension (s)		0.2	0.2					0.2		0.2	0.2	
Lane Grp Cap (vph)		1696	531					1759		344	1853	
v/s Ratio Prot		c0.22						0.20			0.18	
v/s Ratio Perm			0.02							c0.41		
v/c Ratio		0.65	0.07					0.39		0.78	0.35	
Uniform Delay, d1		16.8	13.5					8.5		11.4	8.3	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0					0.1		9.6	0.0	
Delay (s)		17.5	13.5					8.5		21.0	8.3	
Level of Service		B	B					A		C	A	
Approach Delay (s)		17.2			0.0			8.5			12.0	
Approach LOS		B			A			A			B	

Intersection Summary				
HCM Average Control Delay	13.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	8.4	
Intersection Capacity Utilization	82.0%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: M St & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	228	982	78	0	0	0	0	860	255	327	1139	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.97		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5038	1583					3418		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.18	1.00	
Satd. Flow (perm)		5038	1583					3418		326	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	248	1067	85	0	0	0	0	935	277	355	1238	0
RTOR Reduction (vph)	0	0	39	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	1315	46	0	0	0	0	1210	0	355	1238	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			2	
Permitted Phases			4							2		
Actuated Green, G (s)		20.0	20.0					46.6		46.6	46.6	
Effective Green, g (s)		20.0	20.0					46.6		46.6	46.6	
Actuated g/C Ratio		0.27	0.27					0.62		0.62	0.62	
Clearance Time (s)		4.2	4.2					4.2		4.2	4.2	
Vehicle Extension (s)		0.2	0.2					0.2		0.2	0.2	
Lane Grp Cap (vph)		1343	422					2124		203	2199	
v/s Ratio Prot		c0.26						0.35			0.35	
v/s Ratio Perm			0.03							c1.09		
v/c Ratio		0.98	0.11					0.57		1.75	0.56	
Uniform Delay, d1		27.3	20.8					8.3		14.2	8.3	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		19.4	0.0					0.2		356.5	0.2	
Delay (s)		46.7	20.8					8.5		370.7	8.5	
Level of Service		D	C					A		F	A	
Approach Delay (s)		45.1			0.0			8.5			89.2	
Approach LOS		D			A			A			F	

Intersection Summary			
HCM Average Control Delay	51.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: P St & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	64	221	90	59	626	0	0	1015	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	15	15	15	12	12	15	15	12	12
Total Lost time (s)					4.2		4.2	4.2			4.2	4.2
Lane Util. Factor					0.95		1.00	0.95			0.95	1.00
Frt					0.96		1.00	1.00			1.00	0.85
Flt Protected					0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)					3721		1770	3539			3539	1583
Flt Permitted					0.99		0.16	1.00			1.00	1.00
Satd. Flow (perm)					3721		291	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	70	240	98	64	680	0	0	1103	218
RTOR Reduction (vph)	0	0	0	0	50	0	0	0	0	0	0	117
Lane Group Flow (vph)	0	0	0	0	358	0	64	680	0	0	1103	101
Turn Type				Split			Perm					Perm
Protected Phases				2	2			4			4	
Permitted Phases							4					4
Actuated Green, G (s)					23.0		27.2	27.2			27.2	27.2
Effective Green, g (s)					23.0		27.2	27.2			27.2	27.2
Actuated g/C Ratio					0.39		0.46	0.46			0.46	0.46
Clearance Time (s)					4.2		4.2	4.2			4.2	4.2
Vehicle Extension (s)					0.2		0.2	0.2			0.2	0.2
Lane Grp Cap (vph)					1460		135	1643			1643	735
v/s Ratio Prot					c0.10			0.19			c0.31	
v/s Ratio Perm							0.22					0.06
v/c Ratio					0.24		0.47	0.41			0.67	0.14
Uniform Delay, d1					12.0		10.8	10.4			12.2	9.0
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					0.0		1.0	0.1			0.9	0.0
Delay (s)					12.0		11.7	10.5			13.1	9.0
Level of Service					B		B	B			B	A
Approach Delay (s)		0.0			12.0			10.6			12.4	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: P St & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	57	693	262	127	1482	0	0	1315	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	15	15	15	12	12	15	15	12	12
Total Lost time (s)					4.2		4.2	4.2			4.2	
Lane Util. Factor					0.95		1.00	0.95			0.91	
Frt					0.96		1.00	1.00			0.96	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					3731		1770	3539			4883	
Flt Permitted					1.00		0.11	1.00			1.00	
Satd. Flow (perm)					3731		197	3539			4883	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	62	753	285	138	1611	0	0	1429	517
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	0	0	0	1087	0	138	1611	0	0	1920	0
Turn Type				Split			Perm					
Protected Phases				2	2			4			4	
Permitted Phases							4					
Actuated Green, G (s)					23.5		37.8	37.8			37.8	
Effective Green, g (s)					23.5		37.8	37.8			37.8	
Actuated g/C Ratio					0.34		0.54	0.54			0.54	
Clearance Time (s)					4.2		4.2	4.2			4.2	
Vehicle Extension (s)					0.2		0.2	0.2			0.2	
Lane Grp Cap (vph)					1258		107	1919			2648	
v/s Ratio Prot					c0.29			0.46			0.39	
v/s Ratio Perm							c0.70					
v/c Ratio					0.86		1.29	0.84			0.73	
Uniform Delay, d1					21.6		16.0	13.4			12.0	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					6.2		183.6	3.3			0.9	
Delay (s)					27.8		199.5	16.7			12.9	
Level of Service					C		F	B			B	
Approach Delay (s)		0.0			27.8			31.1			12.9	
Approach LOS		A			C			C			B	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	8.4
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

45: R Street & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	158	183	295	99	180	53	300	404	32	68	875	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1799		1770	5029		1770	3539	1583
Flt Permitted	0.42	1.00	1.00	0.51	1.00		0.26	1.00		0.47	1.00	1.00
Satd. Flow (perm)	778	1863	1583	957	1799		486	5029		877	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	199	321	108	196	58	326	439	35	74	951	243
RTOR Reduction (vph)	0	0	121	0	10	0	0	9	0	0	0	84
Lane Group Flow (vph)	172	199	200	108	244	0	326	465	0	74	951	159
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2	2	2	2			4			4		4
Actuated Green, G (s)	25.3	25.3	25.3	25.3	25.3		65.5	65.5		65.5	65.5	65.5
Effective Green, g (s)	25.3	25.3	25.3	25.3	25.3		65.5	65.5		65.5	65.5	65.5
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25		0.66	0.66		0.66	0.66	0.66
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	0.2
Lane Grp Cap (vph)	197	472	401	243	456		319	3301		576	2323	1039
v/s Ratio Prot		0.11			0.14			0.09			0.27	
v/s Ratio Perm	c0.22		0.13	0.11			c0.67			0.08		0.10
v/c Ratio	0.87	0.42	0.50	0.44	0.53		1.02	0.14		0.13	0.41	0.15
Uniform Delay, d1	35.7	31.1	31.8	31.3	32.2		17.1	6.5		6.4	8.1	6.6
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	31.2	0.2	0.4	0.5	0.6		56.1	0.0		0.0	0.0	0.0
Delay (s)	66.9	31.4	32.2	31.8	32.8		73.3	6.5		6.5	8.1	6.6
Level of Service	E	C	C	C	C		E	A		A	A	A
Approach Delay (s)		40.6			32.5			33.7			7.7	
Approach LOS		D			C			C			A	

Intersection Summary

HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: R Street & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	308	427	449	173	339	94	385	1221	166	56	1169	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1802		1770	4994		1770	3539	1583
Flt Permitted	0.26	1.00	1.00	0.27	1.00		0.13	1.00		0.11	1.00	1.00
Satd. Flow (perm)	483	1863	1583	495	1802		234	4994		210	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	335	464	488	188	368	102	418	1327	180	61	1271	310
RTOR Reduction (vph)	0	0	29	0	9	0	0	16	0	0	0	106
Lane Group Flow (vph)	335	464	459	188	461	0	418	1491	0	61	1271	204
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2	2	2	2			4			4		4
Actuated Green, G (s)	41.5	41.5	41.5	41.5	41.5		59.5	59.5		59.5	59.5	59.5
Effective Green, g (s)	41.5	41.5	41.5	41.5	41.5		59.5	59.5		59.5	59.5	59.5
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	0.2
Lane Grp Cap (vph)	182	703	597	187	680		127	2701		114	1914	856
v/s Ratio Prot		0.25			0.26			0.30			0.36	
v/s Ratio Perm	c0.69		0.29	0.38			c1.79			0.29		0.13
v/c Ratio	1.84	0.66	0.77	1.01	0.68		3.29	0.55		0.54	0.66	0.24
Uniform Delay, d1	34.2	28.4	30.1	34.2	28.7		25.2	16.5		16.3	18.1	13.3
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	398.8	1.8	5.4	67.2	2.1		1051.1	0.1		2.4	0.7	0.1
Delay (s)	433.1	30.2	35.4	101.5	30.8		1076.3	16.7		18.7	18.8	13.4
Level of Service	F	C	D	F	C		F	B		B	B	B
Approach Delay (s)		137.0			51.0			246.8			17.7	
Approach LOS		F			D			F			B	

Intersection Summary

HCM Average Control Delay	129.5	HCM Level of Service	F
HCM Volume to Capacity ratio	2.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
46: E Divisadero St & Fresno St.

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	8	117	13	635	202	367	355	547	47	80	150	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.88	1.00	1.00	0.97	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1835		1681	1723	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.29	1.00		0.67	0.76	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	532	1835		1180	1340	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	127	14	690	220	399	386	595	51	87	163	313
RTOR Reduction (vph)	0	5	0	0	0	235	0	0	32	0	0	264
Lane Group Flow (vph)	9	136	0	435	475	164	386	595	19	87	163	49
Turn Type	Perm			Perm		Perm		custom	custom	Prot		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4			2			6
Actuated Green, G (s)	31.0	31.0		31.0	31.0	31.0	19.6	24.5	24.5	6.9	11.8	11.8
Effective Green, g (s)	31.0	31.0		31.0	31.0	31.0	19.6	24.5	24.5	6.9	11.8	11.8
Actuated g/C Ratio	0.41	0.41		0.41	0.41	0.41	0.26	0.32	0.32	0.09	0.16	0.16
Clearance Time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Vehicle Extension (s)	3.0	3.0		3.5	3.5	3.5	3.0	4.8	4.8	2.0	4.8	4.8
Lane Grp Cap (vph)	218	752		484	549	649	459	903	513	162	536	247
v/s Ratio Prot		0.07					c0.22	c0.21		0.05	0.05	
v/s Ratio Perm	0.02			c0.37	0.35	0.10			0.01			0.03
v/c Ratio	0.04	0.18		0.90	0.87	0.25	0.84	0.66	0.04	0.54	0.30	0.20
Uniform Delay, d1	13.4	14.2		20.8	20.4	14.7	26.5	22.0	17.5	32.8	28.3	27.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1		19.5	13.7	0.2	13.0	2.3	0.1	1.7	0.6	0.8
Delay (s)	13.5	14.3		40.3	34.1	14.9	39.6	24.2	17.5	34.5	28.9	28.5
Level of Service	B	B		D	C	B	D	C	B	C	C	C
Approach Delay (s)		14.3			30.3		29.6				29.6	
Approach LOS		B			C		C				C	

Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	75.6	Sum of lost time (s)	8.6
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
46: E Divisadero St & Fresno St.

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	12	247	43	794	44	424	412	612	13	17	763	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.88	1.00	1.00	0.97	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.85	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1821		1681	1694	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.30	1.00		0.46	0.45	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	559	1821		815	789	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	268	47	863	48	461	448	665	14	18	829	893
RTOR Reduction (vph)	0	4	0	0	0	246	0	0	4	0	0	284
Lane Group Flow (vph)	13	311	0	449	462	215	448	665	10	18	829	609
Turn Type	Perm			Perm		Perm		custom	custom	Prot		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4			2			6
Actuated Green, G (s)	68.4	68.4		68.4	68.4	68.4	30.0	65.8	65.8	4.2	40.0	40.0
Effective Green, g (s)	68.4	68.4		68.4	68.4	68.4	30.0	65.8	65.8	4.2	40.0	40.0
Actuated g/C Ratio	0.45	0.45		0.45	0.45	0.45	0.20	0.43	0.43	0.03	0.26	0.26
Clearance Time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Vehicle Extension (s)	3.0	3.0		3.5	3.5	3.5	3.0	4.8	4.8	2.0	4.8	4.8
Lane Grp Cap (vph)	252	822		368	356	714	350	1210	687	49	906	418
v/s Ratio Prot		0.17					c0.25	0.24		0.01	0.24	
v/s Ratio Perm	0.02			0.55	c0.59	0.14			0.01			c0.38
v/c Ratio	0.05	0.38		1.22	1.30	0.30	1.28	0.55	0.01	0.37	0.92	1.46
Uniform Delay, d1	23.4	27.5		41.6	41.6	26.4	60.8	31.9	24.4	72.4	54.2	55.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3		121.2	153.3	0.3	146.3	0.9	0.0	1.7	14.1	218.4
Delay (s)	23.5	27.8		162.8	194.9	26.7	207.1	32.7	24.5	74.1	68.3	274.2
Level of Service	C	C		F	F	C	F	C	C	E	E	F
Approach Delay (s)		27.6			127.9		101.9				174.0	
Approach LOS		C			F		F				F	

Intersection Summary			
HCM Average Control Delay	131.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	151.6	Sum of lost time (s)	13.2
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (vph)	15	134	110	1572	331	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.68	1.00	0.54	1.00	1.00	1.00
Satd. Flow (perm)	1266	1583	1000	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	146	120	1709	360	30
RTOR Reduction (vph)	0	98	0	0	0	14
Lane Group Flow (vph)	16	48	120	1709	360	16
Turn Type		custom	Perm			Perm
Protected Phases		4		2	6	
Permitted Phases	4		2			6
Actuated Green, G (s)	19.0	19.0	30.1	30.1	30.1	30.1
Effective Green, g (s)	19.0	19.0	30.1	30.1	30.1	30.1
Actuated g/C Ratio	0.33	0.33	0.52	0.52	0.52	0.52
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)	414	518	518	1833	1833	820
v/s Ratio Prot		c0.03		c0.48	0.10	
v/s Ratio Perm	0.01		0.12			0.01
v/c Ratio	0.04	0.09	0.23	0.93	0.20	0.02
Uniform Delay, d1	13.3	13.6	7.7	13.1	7.5	6.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.0	0.1	9.1	0.0	0.0
Delay (s)	13.3	13.6	7.8	22.2	7.5	6.8
Level of Service	B	B	A	C	A	A
Approach Delay (s)	13.6			21.2	7.5	
Approach LOS	B			C	A	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (vph)	360	271	103	1600	592	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.68	1.00	0.35	1.00	1.00	1.00
Satd. Flow (perm)	1276	1583	661	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	295	112	1739	643	46
RTOR Reduction (vph)	0	90	0	0	0	26
Lane Group Flow (vph)	391	205	112	1739	643	20
Turn Type		custom	Perm			Perm
Protected Phases		4		2	6	
Permitted Phases	4		2			6
Actuated Green, G (s)	25.0	25.0	26.0	26.0	26.0	26.0
Effective Green, g (s)	25.0	25.0	26.0	26.0	26.0	26.0
Actuated g/C Ratio	0.42	0.42	0.43	0.43	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)	532	660	286	1534	1534	686
v/s Ratio Prot		0.13		c0.49	0.18	
v/s Ratio Perm	c0.31		0.17			0.01
v/c Ratio	0.73	0.31	0.39	1.13	0.42	0.03
Uniform Delay, d1	14.7	11.7	11.6	17.0	11.8	9.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.5	0.1	0.3	68.8	0.1	0.0
Delay (s)	19.2	11.8	11.9	85.8	11.8	9.8
Level of Service	B	B	B	F	B	A
Approach Delay (s)	16.0			81.4	11.7	
Approach LOS	B			F	B	

Intersection Summary

HCM Average Control Delay	52.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	31	100	0	0	448	242	543	451	575	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.95			0.95				
Flt Protected		0.99			1.00			0.98				
Satd. Flow (prot)		3498			3353			4724				
Flt Permitted		0.77			1.00			0.98				
Satd. Flow (perm)		2739			3353			4724				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	109	0	0	487	263	590	490	625	0	0	0
RTOR Reduction (vph)	0	0	0	0	129	0	0	192	0	0	0	0
Lane Group Flow (vph)	0	143	0	0	621	0	0	1513	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		8			4		2	2				
Permitted Phases	8											
Actuated Green, G (s)		19.0			19.0			25.2				
Effective Green, g (s)		19.0			19.0			25.2				
Actuated g/C Ratio		0.35			0.35			0.46				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		960			1175			2196				
v/s Ratio Prot					c0.19			c0.32				
v/s Ratio Perm		0.05										
v/c Ratio		0.15			0.53			0.69				
Uniform Delay, d1		12.1			14.0			11.4				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.0			0.2			0.7				
Delay (s)		12.1			14.2			12.1				
Level of Service		B			B			B				
Approach Delay (s)		12.1			14.2			12.1			0.0	
Approach LOS		B			B			B			A	

Intersection Summary

HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	32	156	0	0	308	197	389	358	531	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.94			0.94				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		3509			3332			4697				
Flt Permitted		0.83			1.00			0.99				
Satd. Flow (perm)		2939			3332			4697				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	170	0	0	335	214	423	389	577	0	0	0
RTOR Reduction (vph)	0	0	0	0	139	0	0	237	0	0	0	0
Lane Group Flow (vph)	0	205	0	0	410	0	0	1152	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		8			4		2	2				
Permitted Phases	8											
Actuated Green, G (s)		19.0			19.0			25.0				
Effective Green, g (s)		19.0			19.0			25.0				
Actuated g/C Ratio		0.35			0.35			0.46				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		1034			1172			2175				
v/s Ratio Prot					c0.12			c0.25				
v/s Ratio Perm		0.07										
v/c Ratio		0.20			0.35			0.53				
Uniform Delay, d1		12.2			12.9			10.3				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.0			0.1			0.1				
Delay (s)		12.2			13.0			10.4				
Level of Service		B			B			B				
Approach Delay (s)		12.2			13.0			10.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	108	735	0	0	76	71	0	0	177	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.2	4.2			4.2			
Lane Util. Factor	1.00	1.00			1.00	1.00			1.00			
Frt	1.00	1.00			1.00	0.85			0.85			
Flt Protected	0.95	1.00			1.00	1.00			1.00			
Satd. Flow (prot)	1770	1863			1863	1583			1583			
Flt Permitted	0.95	1.00			1.00	1.00			1.00			
Satd. Flow (perm)	1770	1863			1863	1583			1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	799	0	0	83	77	0	0	192	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	70	0	0	143	0	0	0
Lane Group Flow (vph)	117	799	0	0	83	7	0	0	49	0	0	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	2	2		1	1			8			8	
Permitted Phases						1	8		8	8		
Actuated Green, G (s)	38.3	38.3			6.6	6.6			19.6			
Effective Green, g (s)	38.3	38.3			6.6	6.6			19.6			
Actuated g/C Ratio	0.49	0.49			0.09	0.09			0.25			
Clearance Time (s)	4.6	4.6			4.2	4.2			4.2			
Vehicle Extension (s)	3.8	3.8			2.0	2.0			2.0			
Lane Grp Cap (vph)	875	921			159	135			400			
v/s Ratio Prot	0.07	c0.43			c0.04							
v/s Ratio Perm						0.00			c0.03			
v/c Ratio	0.13	0.87			0.52	0.05			0.12			
Uniform Delay, d1	10.6	17.4			33.9	32.6			22.3			
Progression Factor	1.00	1.00			1.00	1.00			1.00			
Incremental Delay, d2	0.1	8.9			1.4	0.1			0.0			
Delay (s)	10.7	26.3			35.4	32.6			22.4			
Level of Service	B	C			D	C			C			
Approach Delay (s)		24.3			34.0			22.4			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	77.5	Sum of lost time (s)	13.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	319	390	0	0	436	100	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.2	4.2						
Lane Util. Factor	1.00	1.00			1.00	1.00						
Frt	1.00	1.00			1.00	0.85						
Flt Protected	0.95	1.00			1.00	1.00						
Satd. Flow (prot)	1770	1863			1863	1583						
Flt Permitted	0.95	1.00			1.00	1.00						
Satd. Flow (perm)	1770	1863			1863	1583						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	347	424	0	0	474	109	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	67	0	0	0	0	0	0
Lane Group Flow (vph)	347	424	0	0	474	42	0	0	0	0	0	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	2	2		1	1			8			8	
Permitted Phases						1	8		8	8		
Actuated Green, G (s)	20.6	20.6			18.5	18.5						
Effective Green, g (s)	20.6	20.6			18.5	18.5						
Actuated g/C Ratio	0.43	0.43			0.39	0.39						
Clearance Time (s)	4.6	4.6			4.2	4.2						
Vehicle Extension (s)	3.8	3.8			2.0	2.0						
Lane Grp Cap (vph)	761	801			720	611						
v/s Ratio Prot	0.20	c0.23			c0.25							
v/s Ratio Perm						0.03						
v/c Ratio	0.46	0.53			0.66	0.07						
Uniform Delay, d1	9.7	10.1			12.1	9.3						
Progression Factor	1.00	1.00			1.00	1.00						
Incremental Delay, d2	0.6	0.8			1.7	0.0						
Delay (s)	10.2	10.9			13.8	9.3						
Level of Service	B	B			B	A						
Approach Delay (s)		10.6			12.9			0.0			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	8.8
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	519	477	0	0	308	67	42	232	102	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.2	4.2				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.97		1.00	0.95				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	1863			1813		1770	1777				
Flt Permitted	0.44	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	819	1863			1813		1770	1777				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	564	518	0	0	335	73	46	252	111	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	27	0	0	0	0
Lane Group Flow (vph)	564	518	0	0	395	0	46	336	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		2			6		8	8				
Permitted Phases	2			6								
Actuated Green, G (s)	29.6	29.6			29.6		22.0	22.0				
Effective Green, g (s)	29.6	29.6			29.6		22.0	22.0				
Actuated g/C Ratio	0.49	0.49			0.49		0.37	0.37				
Clearance Time (s)	4.2	4.2			4.2		4.2	4.2				
Vehicle Extension (s)	0.2	0.2			0.2		0.2	0.2				
Lane Grp Cap (vph)	404	919			894		649	652				
v/s Ratio Prot		0.28			0.22		0.03	c0.19				
v/s Ratio Perm	c0.69											
v/c Ratio	1.40	0.56			0.44		0.07	0.52				
Uniform Delay, d1	15.2	10.7			9.8		12.4	14.8				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	192.7	0.5			0.1		0.0	0.3				
Delay (s)	207.9	11.1			10.0		12.4	15.1				
Level of Service	F	B			A		B	B				
Approach Delay (s)		113.7			10.0			14.8			0.0	
Approach LOS		F			A			B			A	

Intersection Summary

HCM Average Control Delay	70.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	293	370	0	0	691	115	46	357	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.2	4.2				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.98		1.00	0.96				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	1863			1823		1770	1786				
Flt Permitted	0.21	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	384	1863			1823		1770	1786				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	318	402	0	0	751	125	50	388	146	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	11	0	0	0	0
Lane Group Flow (vph)	318	402	0	0	871	0	50	523	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		2			6		8	8				
Permitted Phases	2			6								
Actuated Green, G (s)	81.8	81.8			81.8		29.8	29.8				
Effective Green, g (s)	81.8	81.8			81.8		29.8	29.8				
Actuated g/C Ratio	0.68	0.68			0.68		0.25	0.25				
Clearance Time (s)	4.2	4.2			4.2		4.2	4.2				
Vehicle Extension (s)	0.2	0.2			0.2		0.2	0.2				
Lane Grp Cap (vph)	262	1270			1243		440	444				
v/s Ratio Prot		0.22			0.48		0.03	c0.29				
v/s Ratio Perm	c0.83											
v/c Ratio	1.21	0.32			0.70		0.11	1.18				
Uniform Delay, d1	19.1	7.8			11.6		34.9	45.1				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	126.0	0.1			1.5		0.0	101.0				
Delay (s)	145.1	7.8			13.1		34.9	146.1				
Level of Service	F	A			B		C	F				
Approach Delay (s)		68.4			13.1			136.6			0.0	
Approach LOS		E			B			F			A	

Intersection Summary

HCM Average Control Delay	64.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	60	317	306	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2			
Lane Util. Factor		1.00	0.95			
Frt		0.86	0.93			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		1611	3278			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		1611	3278			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	65	345	333	0	0
RTOR Reduction (vph)	0	58	140	0	0	0
Lane Group Flow (vph)	0	7	538	0	0	0
Turn Type		custom				
Protected Phases			8			
Permitted Phases		2				
Actuated Green, G (s)		2.8	15.4			
Effective Green, g (s)		2.8	15.4			
Actuated g/C Ratio		0.11	0.58			
Clearance Time (s)		4.2	4.2			
Vehicle Extension (s)		0.2	6.0			
Lane Grp Cap (vph)		170	1898			
v/s Ratio Prot			c0.16			
v/s Ratio Perm		c0.00				
v/c Ratio		0.04	0.28			
Uniform Delay, d1		10.7	2.8			
Progression Factor		1.00	1.00			
Incremental Delay, d2		0.0	0.2			
Delay (s)		10.7	3.1			
Level of Service		B	A			
Approach Delay (s)	10.7		3.1		0.0	
Approach LOS	B		A		A	

Intersection Summary			
HCM Average Control Delay	3.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	26.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	266	586	267	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2			
Lane Util. Factor		1.00	0.95			
Frt		0.86	0.95			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		1611	3373			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		1611	3373			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	289	637	290	0	0
RTOR Reduction (vph)	0	106	77	0	0	0
Lane Group Flow (vph)	0	183	850	0	0	0
Turn Type		custom				
Protected Phases			8			
Permitted Phases		2				
Actuated Green, G (s)		6.5	18.9			
Effective Green, g (s)		6.5	18.9			
Actuated g/C Ratio		0.19	0.56			
Clearance Time (s)		4.2	4.2			
Vehicle Extension (s)		0.2	6.0			
Lane Grp Cap (vph)		310	1886			
v/s Ratio Prot			c0.25			
v/s Ratio Perm		c0.11				
v/c Ratio		0.59	0.45			
Uniform Delay, d1		12.4	4.4			
Progression Factor		1.00	1.00			
Incremental Delay, d2		2.0	0.5			
Delay (s)		14.4	4.9			
Level of Service		B	A			
Approach Delay (s)	14.4		4.9		0.0	
Approach LOS	B		A		A	

Intersection Summary			
HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	33.8	Sum of lost time (s)	8.4
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	117	124	90	262	519	0	0	0	25	905	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4			5.4					4.0	5.4	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frt		0.92			0.91					1.00	0.99	
Flt Protected		1.00			0.99					0.95	1.00	
Satd. Flow (prot)		3266			3206					1770	3497	
Flt Permitted		1.00			0.88					0.95	1.00	
Satd. Flow (perm)		3266			2822					1770	3497	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	127	135	98	285	564	0	0	0	27	984	86
RTOR Reduction (vph)	0	94	0	0	318	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	168	0	0	629	0	0	0	0	27	1061	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2			2								
Actuated Green, G (s)		14.0			14.0					4.0	21.4	
Effective Green, g (s)		14.0			14.0					4.0	21.4	
Actuated g/C Ratio		0.30			0.30					0.09	0.46	
Clearance Time (s)		5.4			5.4					4.0	5.4	
Vehicle Extension (s)		0.2			0.2					3.0	0.2	
Lane Grp Cap (vph)		990			855					153	1620	
v/s Ratio Prot		0.05								0.02	c0.30	
v/s Ratio Perm					c0.22							
v/c Ratio		0.17			0.74					0.18	0.66	
Uniform Delay, d1		11.8			14.4					19.6	9.6	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.0			2.9					0.6	0.7	
Delay (s)		11.9			17.3					20.1	10.3	
Level of Service		B			B					C	B	
Approach Delay (s)		11.9			17.3			0.0			10.5	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	46.2	Sum of lost time (s)	10.8
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	141	337	108	159	414	0	0	0	60	2254	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4			5.4					5.4	5.4	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frt		0.89			0.91					1.00	0.99	
Flt Protected		1.00			0.99					0.95	1.00	
Satd. Flow (prot)		3165			3191					1770	3518	
Flt Permitted		1.00			0.63					0.95	1.00	
Satd. Flow (perm)		3165			2030					1770	3518	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	153	366	117	173	450	0	0	0	65	2450	104
RTOR Reduction (vph)	0	38	0	0	185	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	481	0	0	555	0	0	0	0	65	2552	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2			2								
Actuated Green, G (s)		38.6			38.6					55.6	97.2	
Effective Green, g (s)		38.6			38.6					55.6	97.2	
Actuated g/C Ratio		0.26			0.26					0.38	0.66	
Clearance Time (s)		5.4			5.4					5.4	5.4	
Vehicle Extension (s)		0.2			0.2					0.2	0.2	
Lane Grp Cap (vph)		833			535					671	2333	
v/s Ratio Prot		0.15								0.04	c0.73	
v/s Ratio Perm					c0.27							
v/c Ratio		0.58			1.04					0.10	1.09	
Uniform Delay, d1		46.9			54.0					29.3	24.7	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.6			49.0					0.0	49.9	
Delay (s)		47.5			103.0					29.3	74.6	
Level of Service		D			F					C	E	
Approach Delay (s)		47.5			103.0			0.0			73.5	
Approach LOS		D			F			A			E	

Intersection Summary			
HCM Average Control Delay	75.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	146.6	Sum of lost time (s)	10.8
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

53: Broadway St & Stanislaus St

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	137	496	10	159	0	52	467	554	115	635	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.0	4.2		4.0	4.2	4.2	4.0	4.2	4.2
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.88		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1644		1770	1863		1770	1863	1583	1770	1863	1583
Flt Permitted		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1644		1770	1863		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	149	539	11	173	0	57	508	602	125	690	17
RTOR Reduction (vph)	0	145	0	0	0	0	0	0	375	0	0	3
Lane Group Flow (vph)	0	543	0	11	173	0	57	508	227	125	690	14
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases									4			8
Actuated Green, G (s)		29.5		0.7	34.2		3.1	32.5	32.5	7.0	36.4	36.4
Effective Green, g (s)		29.5		0.7	34.2		3.1	32.5	32.5	7.0	36.4	36.4
Actuated g/C Ratio		0.34		0.01	0.40		0.04	0.38	0.38	0.08	0.42	0.42
Clearance Time (s)		4.2		4.0	4.2		4.0	4.2	4.2	4.0	4.2	4.2
Vehicle Extension (s)		0.2		3.0	0.2		3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)		563		14	740		64	703	598	144	788	669
v/s Ratio Prot		c0.33		c0.01	0.09		0.03	0.27		c0.07	c0.37	
v/s Ratio Perm									0.14			0.01
v/c Ratio		0.96		0.79	0.23		0.89	0.72	0.38	0.87	0.88	0.02
Uniform Delay, d1		27.8		42.6	17.2		41.3	22.9	19.5	39.1	22.8	14.5
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		28.7		130.6	0.1		74.9	3.1	0.1	38.7	10.4	0.0
Delay (s)		56.5		173.2	17.3		116.2	26.1	19.6	77.7	33.2	14.5
Level of Service		E		F	B		F	C	B	E	C	B
Approach Delay (s)		56.5			26.6			27.1			39.5	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM Average Control Delay	37.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	16.4
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	112	380	188	418	0	242	510	550	40	1398	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.0	4.2		4.0	4.2	4.2	4.2	4.2	4.2
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.88		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1647		1770	1863		1770	1863	1583	1770	1863	1583
Flt Permitted		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1647		1770	1863		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	122	413	204	454	0	263	554	598	43	1520	372
RTOR Reduction (vph)	0	84	0	0	0	0	0	0	256	0	0	23
Lane Group Flow (vph)	0	451	0	204	454	0	263	554	342	43	1520	349
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases									4			8
Actuated Green, G (s)		28.8		14.0	46.8		15.0	61.6	61.6	24.8	71.6	71.6
Effective Green, g (s)		28.8		14.0	46.8		15.0	61.6	61.6	24.8	71.6	71.6
Actuated g/C Ratio		0.20		0.10	0.32		0.10	0.42	0.42	0.17	0.49	0.49
Clearance Time (s)		4.2		4.0	4.2		4.0	4.2	4.2	4.2	4.2	4.2
Vehicle Extension (s)		0.2		3.0	0.2		3.0	0.2	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		325		170	598		182	787	669	301	915	777
v/s Ratio Prot		c0.27		c0.12	0.24		c0.15	0.30		0.02	c0.82	
v/s Ratio Perm									0.22			0.22
v/c Ratio		1.39		1.20	0.76		1.45	0.70	0.51	0.14	1.66	0.45
Uniform Delay, d1		58.5		65.9	44.4		65.4	34.6	31.0	51.5	37.1	24.2
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		192.1		133.0	4.9		228.4	2.4	0.3	0.1	302.4	0.2
Delay (s)		250.6		198.9	49.3		293.8	37.0	31.3	51.5	339.5	24.4
Level of Service		F		F	D		F	D	C	D	F	C
Approach Delay (s)		250.6			95.7			82.3			272.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	185.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	145.8	Sum of lost time (s)	16.4
Intersection Capacity Utilization	140.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	303	15	76	272	0	0	0	433	247	633	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.99		1.00	1.00			0.85		1.00	0.99	
Flt Protected		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1851		1770	1863			1583		1770	1845	
Flt Permitted		1.00		0.37	1.00			1.00		0.95	1.00	
Satd. Flow (perm)		1851		692	1863			1583		1770	1845	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	329	16	83	296	0	0	0	471	268	688	47
RTOR Reduction (vph)	0	2	0	0	0	0	0	219	0	0	2	0
Lane Group Flow (vph)	0	343	0	83	296	0	0	252	0	268	733	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6								
Actuated Green, G (s)		28.0		28.0	28.0			22.0		22.0	48.2	
Effective Green, g (s)		28.0		28.0	28.0			22.0		22.0	48.2	
Actuated g/C Ratio		0.33		0.33	0.33			0.26		0.26	0.57	
Clearance Time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Vehicle Extension (s)		0.2		0.2	0.2			0.2		0.2	0.2	
Lane Grp Cap (vph)		613		229	617			412		460	1051	
v/s Ratio Prot		c0.19			0.16			0.16		0.15	c0.40	
v/s Ratio Perm				0.12								
v/c Ratio		0.56		0.36	0.48			0.61		0.58	0.70	
Uniform Delay, d1		23.2		21.5	22.5			27.5		27.3	13.0	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.6		0.4	0.2			1.9		1.2	1.6	
Delay (s)		23.9		21.9	22.7			29.4		28.5	14.6	
Level of Service		C		C	C			C		C	B	
Approach Delay (s)		23.9			22.5			29.4			18.3	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	234	27	211	506	0	0	0	255	155	1539	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.99		1.00	1.00			0.85		1.00	0.99	
Flt Protected		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1837		1770	1863			1583		1770	1848	
Flt Permitted		1.00		0.39	1.00			1.00		0.95	1.00	
Satd. Flow (perm)		1837		734	1863			1583		1770	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	254	29	229	550	0	0	0	277	168	1673	90
RTOR Reduction (vph)	0	3	0	0	0	0	0	155	0	0	1	0
Lane Group Flow (vph)	0	280	0	229	550	0	0	122	0	168	1762	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6								
Actuated Green, G (s)		40.8		40.8	40.8			59.6		22.0	85.8	
Effective Green, g (s)		40.8		40.8	40.8			59.6		22.0	85.8	
Actuated g/C Ratio		0.30		0.30	0.30			0.44		0.16	0.64	
Clearance Time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Vehicle Extension (s)		0.2		0.2	0.2			0.2		0.2	0.2	
Lane Grp Cap (vph)		555		222	563			699		288	1175	
v/s Ratio Prot		0.15			0.30			0.08		0.09	c0.95	
v/s Ratio Perm				c0.31								
v/c Ratio		0.50		1.03	0.98			0.17		0.58	1.50	
Uniform Delay, d1		38.8		47.1	46.6			22.8		52.3	24.6	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.3		68.9	31.6			0.0		1.9	229.3	
Delay (s)		39.0		116.0	78.3			22.9		54.2	253.9	
Level of Service		D		F	E			C		D	F	
Approach Delay (s)		39.0			89.3			22.9			236.5	
Approach LOS		D			F			C			F	

Intersection Summary

HCM Average Control Delay	166.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	153.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SBR2	SET	SER	NWL	NWT	NET	SWL	SWT
Lane Configurations										
Volume (vph)	294	1099	3	0	40	23	47	0	97	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.9	4.9		4.2			4.0		4.6	4.6
Lane Util. Factor	1.00	0.88		1.00			1.00		1.00	1.00
Frt	1.00	0.85		0.86			1.00		1.00	1.00
Flt Protected	0.95	1.00		1.00			0.98		0.95	1.00
Satd. Flow (prot)	1770	2787		1611			1833		1770	1863
Flt Permitted	0.95	1.00		1.00			0.98		0.76	1.00
Satd. Flow (perm)	1770	2787		1611			1833		1410	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	320	1195	3	0	43	25	51	0	105	111
RTOR Reduction (vph)	0	0	0	41	0	0	0	0	0	0
Lane Group Flow (vph)	320	1198	0	2	0	0	76	0	105	111
Turn Type		Prot				Split			Perm	
Protected Phases	2	2		3		1	1	4		4
Permitted Phases									4	
Actuated Green, G (s)	35.5	35.5		3.2			6.3		9.2	9.2
Effective Green, g (s)	35.5	35.5		3.2			6.3		9.2	9.2
Actuated g/C Ratio	0.49	0.49		0.04			0.09		0.13	0.13
Clearance Time (s)	4.9	4.9		4.2			4.0		4.6	4.6
Vehicle Extension (s)	4.0	4.0		2.0			2.0		4.0	4.0
Lane Grp Cap (vph)	874	1376		72			161		180	238
v/s Ratio Prot	0.18	c0.43		c0.00			c0.04			0.06
v/s Ratio Perm									c0.07	
v/c Ratio	0.37	0.87		0.03			0.47		0.58	0.47
Uniform Delay, d1	11.2	16.2		32.9			31.2		29.5	29.1
Progression Factor	1.00	1.00		1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4	6.5		0.1			0.8		5.6	2.0
Delay (s)	11.6	22.6		32.9			32.0		35.1	31.0
Level of Service	B	C		C			C		D	C
Approach Delay (s)	20.3			32.9			32.0	0.0		33.0
Approach LOS	C			C			C	A		C

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	17.7
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SBR2	SET	SER	NWL	NWT	NET	SWL	SWT
Lane Configurations										
Volume (vph)	452	1341	5	0	67	15	26	0	114	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.9	4.9		4.6			4.0		4.6	4.6
Lane Util. Factor	1.00	0.88		1.00			1.00		1.00	1.00
Frt	1.00	0.85		0.86			1.00		1.00	1.00
Flt Protected	0.95	1.00		1.00			0.98		0.95	1.00
Satd. Flow (prot)	1770	2787		1611			1829		1770	1863
Flt Permitted	0.95	1.00		1.00			0.98		0.76	1.00
Satd. Flow (perm)	1770	2787		1611			1829		1410	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	491	1458	5	0	73	16	28	0	124	208
RTOR Reduction (vph)	0	0	0	69	0	0	0	0	0	0
Lane Group Flow (vph)	491	1463	0	4	0	0	44	0	124	208
Turn Type		Prot				Split			Perm	
Protected Phases	2	2		3		1	1	4		4
Permitted Phases									4	
Actuated Green, G (s)	56.1	56.1		5.7			6.0		14.4	14.4
Effective Green, g (s)	56.1	56.1		5.7			6.0		14.4	14.4
Actuated g/C Ratio	0.56	0.56		0.06			0.06		0.14	0.14
Clearance Time (s)	4.9	4.9		4.6			4.0		4.6	4.6
Vehicle Extension (s)	4.0	4.0		4.0			2.0		4.0	4.0
Lane Grp Cap (vph)	990	1559		92			109		202	267
v/s Ratio Prot	0.28	c0.53		c0.00			c0.02			c0.11
v/s Ratio Perm									0.09	
v/c Ratio	0.50	0.94		0.05			0.40		0.61	0.78
Uniform Delay, d1	13.5	20.5		44.7			45.4		40.3	41.4
Progression Factor	1.00	1.00		1.00			1.00		1.00	1.00
Incremental Delay, d2	0.5	11.3		0.3			0.9		6.2	14.1
Delay (s)	14.0	31.8		45.0			46.3		46.5	55.5
Level of Service	B	C		D			D		D	E
Approach Delay (s)	27.3			45.0			46.3	0.0		52.2
Approach LOS	C			D			D	A		D

Intersection Summary			
HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.3	Sum of lost time (s)	18.1
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
56: Divisadero St & Stanislaus St

4/9/2012

Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	NEL
Right Turn Channelized											
Volume (veh/h)	135	375	21	72	94	50	225	74	488	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	147	408	23	78	102	54	245	80	530	24	0
Approach Volume (veh/h)		577			235				879		0
Crossing Volume (veh/h)		323			1002				554		554
High Capacity (veh/h)		1075			621				894		894
High v/c (veh/h)		0.54			0.38				0.98		0.00
Low Capacity (veh/h)		881			482				719		719
Low v/c (veh/h)		0.66			0.49				1.22		0.00

Intersection Summary				
Maximum v/c High	0.98			
Maximum v/c Low	1.22			
Intersection Capacity Utilization	64.0%	ICU Level of Service	B	

Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	NEL
Right Turn Channelized											
Volume (veh/h)	262	296	8	113	263	182	237	266	1613	29	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	285	322	9	123	286	198	258	289	1753	32	0
Approach Volume (veh/h)		615			607				2332		0
Crossing Volume (veh/h)		380			2585#				607		607
High Capacity (veh/h)		1027			161				857		857
High v/c (veh/h)		0.60			3.77				2.72		0.00
Low Capacity (veh/h)		838			107				687		687
Low v/c (veh/h)		0.73			5.69				3.39		0.00

Intersection Summary			
Maximum v/c High	3.77		
Maximum v/c Low	5.69		
Intersection Capacity Utilization	128.6%	ICU Level of Service	H

Crossing flow exceeds 1200, method is not applicable

HCM Signalized Intersection Capacity Analysis
57: E Divisadero St & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	425	40	0	328	0	0	0	0	105	1354	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5					4.9	4.9	4.9
Lane Util. Factor		0.95			0.95					1.00	0.95	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	1.00	1.00
Satd. Flow (prot)		3494			3539					1770	3539	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3494			3539					1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	462	43	0	357	0	0	0	0	114	1472	187
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	52
Lane Group Flow (vph)	0	499	0	0	357	0	0	0	0	114	1472	135
Turn Type										Split		Perm
Protected Phases		4			4					2	2	
Permitted Phases												2
Actuated Green, G (s)		27.0			27.0					28.6	28.6	28.6
Effective Green, g (s)		27.0			27.0					28.6	28.6	28.6
Actuated g/C Ratio		0.42			0.42					0.44	0.44	0.44
Clearance Time (s)		4.5			4.5					4.9	4.9	4.9
Vehicle Extension (s)		5.0			5.0					5.0	5.0	5.0
Lane Grp Cap (vph)		1451			1470					779	1557	697
v/s Ratio Prot		c0.14			0.10					0.06	c0.42	
v/s Ratio Perm												0.09
v/c Ratio		0.34			0.24					0.15	0.95	0.19
Uniform Delay, d1		13.0			12.4					10.9	17.5	11.1
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.3			0.2					0.2	12.5	0.3
Delay (s)		13.3			12.5					11.1	29.9	11.4
Level of Service		B			B					B	C	B
Approach Delay (s)		13.3			12.5			0.0			26.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
57: E Divisadero St & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	440	74	0	1089	0	0	0	0	119	1718	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5					4.9	4.9	4.9
Lane Util. Factor		0.95			0.95					1.00	0.95	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	1.00	1.00
Satd. Flow (prot)		3463			3539					1770	3539	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3463			3539					1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	478	80	0	1184	0	0	0	0	129	1867	324
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	5
Lane Group Flow (vph)	0	552	0	0	1184	0	0	0	0	129	1867	319
Turn Type										Split		Perm
Protected Phases		4			4					2	2	
Permitted Phases												2
Actuated Green, G (s)		27.8			27.8					42.8	42.8	42.8
Effective Green, g (s)		27.8			27.8					42.8	42.8	42.8
Actuated g/C Ratio		0.35			0.35					0.53	0.53	0.53
Clearance Time (s)		4.5			4.5					4.9	4.9	4.9
Vehicle Extension (s)		5.0			5.0					5.0	5.0	5.0
Lane Grp Cap (vph)		1203			1230					947	1893	847
v/s Ratio Prot		0.16			c0.33					0.07	c0.53	
v/s Ratio Perm												0.20
v/c Ratio		0.46			0.96					0.14	0.99	0.38
Uniform Delay, d1		20.3			25.6					9.3	18.3	10.8
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6			17.6					0.1	17.5	0.6
Delay (s)		20.8			43.2					9.5	35.8	11.4
Level of Service		C			D					A	D	B
Approach Delay (s)		20.8			43.2			0.0			30.9	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	33.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	6	1594	354	10	9	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	1733	385	11	10	8
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	396				2136	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	396				2136	390
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				82	99
cM capacity (veh/h)	1163				54	658

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	1739	396	17
Volume Left	7	0	10
Volume Right	0	11	8
cSH	1163	1700	90
Volume to Capacity	0.01	0.23	0.19
Queue Length 95th (ft)	0	0	17
Control Delay (s)	0.0	0.0	54.4
Lane LOS	A		F
Approach Delay (s)	0.0	0.0	54.4
Approach LOS			F

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
58: H St & San Joaquin St

4/10/2012

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	1688	608	4	4	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	1835	661	4	4	2
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	665				2509	663
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	665				2509	663
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				86	100
cM capacity (veh/h)	924				31	461

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	1840	665	7
Volume Left	5	0	4
Volume Right	0	4	2
cSH	924	1700	45
Volume to Capacity	0.01	0.39	0.14
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.0	0.0	97.7
Lane LOS	A		F
Approach Delay (s)	0.0	0.0	97.7
Approach LOS			F

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
59: E Divisadero St & N San Pablo Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	443	317	7	277	23	2	11	14	35	259	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4	5.4		5.4		5.4	5.4		5.4	5.4	
Lane Util. Factor		0.95	1.00		0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.99		1.00	0.92		1.00	0.96	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3528	1583		3495		1770	1708		1770	1794	
Flt Permitted		0.92	1.00		0.94		0.38	1.00		0.74	1.00	
Satd. Flow (perm)		3243	1583		3300		710	1708		1378	1794	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	482	345	8	301	25	2	12	15	38	282	92
RTOR Reduction (vph)	0	0	165	0	10	0	0	10	0	0	19	0
Lane Group Flow (vph)	0	516	180	0	324	0	2	17	0	38	355	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		30.6	30.6		30.6		18.6	18.6		18.6	18.6	
Effective Green, g (s)		30.6	30.6		30.6		18.6	18.6		18.6	18.6	
Actuated g/C Ratio		0.51	0.51		0.51		0.31	0.31		0.31	0.31	
Clearance Time (s)		5.4	5.4		5.4		5.4	5.4		5.4	5.4	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		1654	807		1683		220	529		427	556	
v/s Ratio Prot								0.01			c0.20	
v/s Ratio Perm		c0.16	0.11		0.10		0.00			0.03		
v/c Ratio		0.31	0.22		0.19		0.01	0.03		0.09	0.64	
Uniform Delay, d1		8.6	8.1		8.0		14.3	14.4		14.7	17.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.1		0.0		0.0	0.0		0.0	1.8	
Delay (s)		8.6	8.2		8.0		14.3	14.4		14.7	19.6	
Level of Service		A	A		A		B	B		B	B	
Approach Delay (s)		8.4			8.0			14.4			19.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

59: E Divisadero St & N San Pablo Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	447	263	22	1018	203	18	32	22	55	304	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4	5.4		5.4		5.4	5.4		5.4	5.4	
Lane Util. Factor		0.95	1.00		0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	0.94		1.00	0.95	
Flt Protected		0.99	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3490	1583		3449		1770	1749		1770	1771	
Flt Permitted		0.54	1.00		0.94		0.22	1.00		0.72	1.00	
Satd. Flow (perm)		1897	1583		3232		408	1749		1338	1771	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	486	286	24	1107	221	20	35	24	60	330	162
RTOR Reduction (vph)	0	0	134	0	27	0	0	17	0	0	30	0
Lane Group Flow (vph)	0	678	152	0	1325	0	20	42	0	60	462	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		30.6	30.6		30.6		18.6	18.6		18.6	18.6	
Effective Green, g (s)		30.6	30.6		30.6		18.6	18.6		18.6	18.6	
Actuated g/C Ratio		0.51	0.51		0.51		0.31	0.31		0.31	0.31	
Clearance Time (s)		5.4	5.4		5.4		5.4	5.4		5.4	5.4	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		967	807		1648		126	542		415	549	
v/s Ratio Prot								0.02			c0.26	
v/s Ratio Perm		0.36	0.10		c0.41		0.05			0.04		
v/c Ratio		1.55dl	0.19		0.80		0.16	0.08		0.14	0.84	
Uniform Delay, d1		11.2	8.0		12.2		15.0	14.6		15.0	19.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.9	0.0		2.8		0.2	0.0		0.1	10.8	
Delay (s)		13.1	8.0		15.0		15.2	14.7		15.0	30.1	
Level of Service		B	A		B		B	B		B	C	
Approach Delay (s)		11.6			15.0			14.8			28.5	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

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

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
60: H St & Amador St

4/10/2012

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	49	1548	342	21	52	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	1683	372	23	57	62
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	395				2172	383
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	395				2172	383
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				0	91
cM capacity (veh/h)	1164				49	664

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	1736	395	118
Volume Left	53	0	57
Volume Right	0	23	62
cSH	1164	1700	95
Volume to Capacity	0.05	0.23	1.25
Queue Length 95th (ft)	4	0	208
Control Delay (s)	8.2	0.0	255.2
Lane LOS	A		F
Approach Delay (s)	8.2	0.0	255.2
Approach LOS			F

Intersection Summary			
Average Delay	19.8		
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
60: H St & Amador St

4/10/2012

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	118	1626	547	69	73	240
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	128	1767	595	75	79	261
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	670				2656	632
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	670				2656	632
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				0	46
cM capacity (veh/h)	921				22	480

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	1896	670	340
Volume Left	128	0	79
Volume Right	0	75	261
cSH	921	1700	81
Volume to Capacity	0.14	0.39	4.21
Queue Length 95th (ft)	12	0	Err
Control Delay (s)	0.6	0.0	Err
Lane LOS	A		F
Approach Delay (s)	0.6	0.0	Err
Approach LOS			F

Intersection Summary			
Average Delay	1171.3		
Intersection Capacity Utilization	153.9%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
61: E Divisadero St & G St

4/10/2012

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations											
Volume (vph)	175	0	36	0	805	168	5	352	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.9		4.9	4.9			
Lane Util. Factor		0.97			0.95		1.00	1.00			
Frt		0.97			0.97		1.00	1.00			
Flt Protected		0.96			1.00		0.95	1.00			
Satd. Flow (prot)		3381			3447		1770	1863			
Flt Permitted		0.76			1.00		0.22	1.00			
Satd. Flow (perm)		2687			3447		403	1863			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	0	39	0	875	183	5	383	0	0	0
RTOR Reduction (vph)	0	28	0	0	28	0	0	0	0	0	0
Lane Group Flow (vph)	0	201	0	0	1030	0	5	383	0	0	0
Turn Type	Perm			Perm			Perm		Perm		Over
Protected Phases		4			2			2			4
Permitted Phases	4			2			2		2	4	
Actuated Green, G (s)		15.3			30.8		30.8	30.8			
Effective Green, g (s)		15.3			30.8		30.8	30.8			
Actuated g/C Ratio		0.28			0.55		0.55	0.55			
Clearance Time (s)		4.5			4.9		4.9	4.9			
Vehicle Extension (s)		5.0			4.0		4.0	4.0			
Lane Grp Cap (vph)		741			1913		224	1034			
v/s Ratio Prot					c0.30			0.21			
v/s Ratio Perm		c0.07					0.01				
v/c Ratio		0.27			0.54		0.02	0.37			
Uniform Delay, d1		15.7			7.8		5.6	6.9			
Progression Factor		1.00			1.00		1.00	1.00			
Incremental Delay, d2		0.4			0.4		0.1	0.3			
Delay (s)		16.1			8.2		5.6	7.2			
Level of Service		B			A		A	A			
Approach Delay (s)		16.1			8.2			7.2		0.0	
Approach LOS		B			A			A		A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	9.4
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations											
Volume (vph)	207	0	33	0	785	86	21	1011	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.9		4.9	4.9			
Lane Util. Factor		0.97			0.95		1.00	1.00			
Frt		0.98			0.99		1.00	1.00			
Flt Protected		0.96			1.00		0.95	1.00			
Satd. Flow (prot)		3393			3487		1770	1863			
Flt Permitted		0.75			1.00		0.28	1.00			
Satd. Flow (perm)		2672			3487		525	1863			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	225	0	36	0	853	93	23	1099	0	0	0
RTOR Reduction (vph)	0	10	0	0	4	0	0	0	0	0	0
Lane Group Flow (vph)	0	251	0	0	942	0	23	1099	0	0	0
Turn Type	Perm			Perm			Perm		Perm		Over
Protected Phases		4			2			2			4
Permitted Phases	4			2			2		2	4	
Actuated Green, G (s)		19.1			87.7		87.7	87.7			
Effective Green, g (s)		19.1			87.7		87.7	87.7			
Actuated g/C Ratio		0.16			0.75		0.75	0.75			
Clearance Time (s)		4.5			4.9		4.9	4.9			
Vehicle Extension (s)		5.0			4.0		4.0	4.0			
Lane Grp Cap (vph)		439			2632		396	1406			
v/s Ratio Prot					0.27			c0.59			
v/s Ratio Perm		c0.09					0.04				
v/c Ratio		0.93dl			0.36		0.06	0.78			
Uniform Delay, d1		44.8			4.8		3.7	8.5			
Progression Factor		1.00			1.00		1.00	1.00			
Incremental Delay, d2		2.9			0.1		0.1	3.1			
Delay (s)		47.6			4.9		3.7	11.6			
Level of Service		D			A		A	B			
Approach Delay (s)		47.6			4.9			11.4		0.0	
Approach LOS		D			A			B		A	

Intersection Summary

HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	116.2	Sum of lost time (s)	9.4
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

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

HCM Signalized Intersection Capacity Analysis
63: E Divisadero St & N Echo St

4/10/2012

Movement	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL
Lane Configurations												
Volume (vph)	29	9	11	35	774	1	42	288	0	42	3	719
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6	4.6				4.6	4.6	4.2	4.6
Lane Util. Factor	1.00			0.95	0.95				0.95	1.00	1.00	0.97
Frt	0.97			0.87	0.85				1.00	0.85	0.86	0.90
Flt Protected	1.00			1.00	1.00				0.95	1.00	1.00	0.98
Satd. Flow (prot)	1803			1532	1504				3362	1583	1611	3196
Flt Permitted	1.00			0.99	1.00				0.95	1.00	1.00	0.46
Satd. Flow (perm)	1803			1525	1504				3362	1583	1611	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	10	12	38	841	1	46	313	0	46	3	782
RTOR Reduction (vph)	6	0	0	0	0	0	0	0	0	39	3	0
Lane Group Flow (vph)	36	0	0	445	447	0	0	0	359	7	0	2412
Turn Type			Perm		Perm		Perm	Perm		Perm	custom	
Protected Phases	6			6					4		8	5
Permitted Phases			6		6		4	4		4		2
Actuated Green, G (s)	45.7			45.7	45.7				17.4	17.4	17.8	39.8
Effective Green, g (s)	45.7			45.7	45.7				17.4	17.4	17.8	39.8
Actuated g/C Ratio	0.39			0.39	0.39				0.15	0.15	0.15	0.34
Clearance Time (s)	4.6			4.6	4.6				4.6	4.6	4.2	4.6
Vehicle Extension (s)	5.0			5.0	5.0				4.0	4.0	2.0	5.0
Lane Grp Cap (vph)	706			597	589				501	236	246	1090
v/s Ratio Prot	0.02										0.00	c0.75
v/s Ratio Perm				0.29	c0.30				0.11	0.00		
v/c Ratio	0.05			0.75	0.76				1.36dl	0.03	0.00	2.97dr
Uniform Delay, d1	22.0			30.5	30.7				47.3	42.4	41.9	38.5
Progression Factor	1.00			1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1			6.0	6.6				5.2	0.1	0.0	548.8
Delay (s)	22.1			36.5	37.4				52.5	42.5	41.9	587.2
Level of Service	C			D	D				D	D	D	F
Approach Delay (s)	22.1			36.9					51.4			587.2
Approach LOS	C			D					D			F

Intersection Summary			
HCM Average Control Delay	391.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	116.7	Sum of lost time (s)	13.8
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

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

Movement	SER	SER2
Lane Configurations		
Volume (vph)	1499	1
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1629	1
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
63: E Divisadero St & N Echo St

4/10/2012

Movement	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL2	SEL
Lane Configurations												
Volume (vph)	52	42	22	1545	2	9	691	0	44	6	1	987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6		4.6	4.6				4.6	4.6	4.2		4.6
Lane Util. Factor	1.00		0.95	0.95				0.95	1.00	1.00		0.97
Frt	0.94		0.85	0.85				1.00	0.85	0.86		0.91
Flt Protected	1.00		1.00	1.00				0.95	1.00	1.00		0.98
Satd. Flow (prot)	1750		1512	1504				3362	1583	1611		3232
Flt Permitted	1.00		1.00	1.00				0.95	1.00	1.00		0.95
Satd. Flow (perm)	1750		1512	1504				3362	1583	1611		3151
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	46	24	1679	2	10	751	0	48	7	1	1073
RTOR Reduction (vph)	19	0	0	0	0	0	0	0	32	6	0	0
Lane Group Flow (vph)	84	0	847	858	0	0	0	761	16	1	0	2556
Turn Type				custom		Perm	Perm		Perm	custom	Perm	
Protected Phases	6		6	2				4		8		5
Permitted Phases				6		4	4		4		5	2
Actuated Green, G (s)	53.4		53.4	77.8				24.4	24.4	24.8		53.8
Effective Green, g (s)	53.4		53.4	77.8				24.4	24.4	24.8		53.8
Actuated g/C Ratio	0.36		0.36	0.52				0.16	0.16	0.17		0.36
Clearance Time (s)	4.6		4.6	4.6				4.6	4.6	4.2		4.6
Vehicle Extension (s)	5.0		5.0	5.0				4.0	4.0	2.0		5.0
Lane Grp Cap (vph)	623		538	780				547	258	266		1146
v/s Ratio Prot	0.05		c0.56	0.18						0.00		c0.44
v/s Ratio Perm				0.39				0.23	0.01			c0.36
v/c Ratio	0.13		1.57	1.10				2.64dl	0.06	0.00		2.36dr
Uniform Delay, d1	32.7		48.3	36.1				62.8	53.1	52.3		52.1
Progression Factor	1.00		1.00	1.00				1.00	1.00	1.00		1.00
Incremental Delay, d2	0.2		267.3	63.1				187.1	0.1	0.0		556.5
Delay (s)	32.9		315.6	99.2				249.9	53.3	52.3		608.6
Level of Service	C		F	F				F	D	D		F
Approach Delay (s)	32.9		206.7					238.2				608.6
Approach LOS	C		F					F				F

Intersection Summary			
HCM Average Control Delay	406.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	154.1%	ICU Level of Service	H
Analysis Period (min)	15		

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

Movement	SER	SER2
Lane Configurations		
Volume (vph)	1357	6
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1475	7
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
64: E Divisadero St & Broadway St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	86	1021	258	15	621	31	157	308	151	20	35	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6		4.6		4.6	4.6		4.6	4.6	
Lane Util. Factor		0.95	1.00		0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.99		1.00	0.95		1.00	0.98	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3526	1583		3510		1770	1771		1770	1819	
Flt Permitted		0.83	1.00		0.92		0.73	1.00		0.28	1.00	
Satd. Flow (perm)		2921	1583		3229		1356	1771		525	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	1110	280	16	675	34	171	335	164	22	38	7
RTOR Reduction (vph)	0	0	116	0	6	0	0	29	0	0	4	0
Lane Group Flow (vph)	0	1203	164	0	719	0	171	470	0	22	41	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		26.6	26.6		26.6		22.1	22.1		22.1	22.1	
Effective Green, g (s)		26.6	26.6		26.6		22.1	22.1		22.1	22.1	
Actuated g/C Ratio		0.46	0.46		0.46		0.38	0.38		0.38	0.38	
Clearance Time (s)		4.6	4.6		4.6		4.6	4.6		4.6	4.6	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		1342	727		1483		518	676		200	694	
v/s Ratio Prot								c0.27			0.02	
v/s Ratio Perm		c0.41	0.10		0.22		0.13			0.04		
v/c Ratio		0.90	0.23		0.48		0.33	0.70		0.11	0.06	
Uniform Delay, d1		14.4	9.4		10.9		12.7	15.1		11.6	11.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		8.0	0.1		0.1		0.1	2.5		0.1	0.0	
Delay (s)		22.3	9.5		11.0		12.8	17.6		11.6	11.3	
Level of Service		C	A		B		B	B		B	B	
Approach Delay (s)		19.9			11.0			16.4			11.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	9.2
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
64: E Divisadero St & Broadway St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	75	1030	286	41	1187	158	153	232	85	297	306	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6		4.6		4.6	4.6		4.6	4.6	
Lane Util. Factor		0.95	1.00		0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	0.96		1.00	0.99	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3527	1583		3473		1770	1788		1770	1835	
Flt Permitted		0.59	1.00		0.82		0.39	1.00		0.42	1.00	
Satd. Flow (perm)		2072	1583		2841		723	1788		776	1835	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1120	311	45	1290	172	166	252	92	323	333	36
RTOR Reduction (vph)	0	0	83	0	11	0	0	15	0	0	4	0
Lane Group Flow (vph)	0	1202	228	0	1496	0	166	329	0	323	365	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		46.4	46.4		46.4		34.4	34.4		34.4	34.4	
Effective Green, g (s)		46.4	46.4		46.4		34.4	34.4		34.4	34.4	
Actuated g/C Ratio		0.52	0.52		0.52		0.38	0.38		0.38	0.38	
Clearance Time (s)		4.6	4.6		4.6		4.6	4.6		4.6	4.6	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		1068	816		1465		276	683		297	701	
v/s Ratio Prot								0.18			0.20	
v/s Ratio Perm		c0.58	0.14		0.53		0.23			c0.42		
v/c Ratio		1.13	0.28		1.02		0.60	0.48		1.09	0.52	
Uniform Delay, d1		21.8	12.3		21.8		22.3	21.1		27.8	21.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		68.9	0.1		29.0		2.5	0.2		77.6	0.3	
Delay (s)		90.7	12.4		50.8		24.8	21.2		105.4	21.8	
Level of Service		F	B		D		C	C		F	C	
Approach Delay (s)		74.6			50.8			22.4			60.8	
Approach LOS		E			D			C			E	

Intersection Summary			
HCM Average Control Delay	57.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
65: E Divisadero St & N Fulton St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1173	18	8	287	0	27	0	16	255	505	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5		4.5		4.5	4.5	4.5	
Lane Util. Factor		0.95			0.95		1.00		1.00	1.00	0.95	
Frt		1.00			1.00		1.00		0.85	1.00	0.94	
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)		3531			3534		1770		1583	1770	3314	
Flt Permitted		1.00			0.92		0.19		1.00	0.95	1.00	
Satd. Flow (perm)		3531			3244		349		1583	1770	3314	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1275	20	9	312	0	29	0	17	277	549	403
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	10	0	223	0
Lane Group Flow (vph)	0	1293	0	0	321	0	29	0	7	277	729	0
Turn Type				Perm			D.Pm		custom	Perm		
Protected Phases		4			4				2		2	
Permitted Phases				4			2		2	2		
Actuated Green, G (s)		26.2			26.2		24.1		24.1	24.1	24.1	
Effective Green, g (s)		26.2			26.2		24.1		24.1	24.1	24.1	
Actuated g/C Ratio		0.44			0.44		0.41		0.41	0.41	0.41	
Clearance Time (s)		4.5			4.5		4.5		4.5	4.5	4.5	
Vehicle Extension (s)		2.0			2.0		2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		1560			1433		142		643	719	1347	
v/s Ratio Prot		c0.37							0.00		c0.22	
v/s Ratio Perm					0.10		0.08			0.16		
v/c Ratio		0.83			0.22		0.20		0.01	0.39	0.54	
Uniform Delay, d1		14.6			10.3		11.4		10.5	12.4	13.4	
Progression Factor		1.00			1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2		3.6			0.0		0.3		0.0	0.1	0.2	
Delay (s)		18.2			10.3		11.7		10.5	12.5	13.6	
Level of Service		B			B		B		B	B	B	
Approach Delay (s)		18.2			10.3			11.2			13.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
65: E Divisadero St & N Fulton St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1184	27	7	1073	0	30	0	43	284	221	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5		4.5		4.5	4.5	4.5	
Lane Util. Factor		0.95			0.95		1.00		1.00	1.00	0.95	
Frt		1.00			1.00		1.00		0.85	1.00	0.91	
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)		3528			3538		1770		1583	1770	3220	
Flt Permitted		1.00			0.94		0.37		1.00	0.95	1.00	
Satd. Flow (perm)		3528			3342		690		1583	1770	3220	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1287	29	8	1166	0	33	0	47	309	240	361
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	13	0	18	0
Lane Group Flow (vph)	0	1313	0	0	1174	0	33	0	34	309	583	0
Turn Type				Perm			D.Pm		custom	Perm		
Protected Phases		4			4				2		2	
Permitted Phases				4			2		2	2		
Actuated Green, G (s)		26.5			26.5		24.1		24.1	24.1	24.1	
Effective Green, g (s)		26.5			26.5		24.1		24.1	24.1	24.1	
Actuated g/C Ratio		0.44			0.44		0.40		0.40	0.40	0.40	
Clearance Time (s)		4.5			4.5		4.5		4.5	4.5	4.5	
Vehicle Extension (s)		2.0			2.0		2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		1569			1486		279		640	716	1302	
v/s Ratio Prot		c0.37							0.02		c0.18	
v/s Ratio Perm					0.35		0.05			0.17		
v/c Ratio		0.84			0.79		0.12		0.05	0.43	0.45	
Uniform Delay, d1		14.6			14.2		11.1		10.8	12.8	12.9	
Progression Factor		1.00			1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2		3.9			2.7		0.1		0.0	0.2	0.1	
Delay (s)		18.5			16.9		11.2		10.8	13.0	13.0	
Level of Service		B			B		B		B	B	B	
Approach Delay (s)		18.5			16.9			11.0			13.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
66: E Divisadero St & N Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	398	720	272	6	226	44	60	163	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5			4.2				
Lane Util. Factor		0.95			0.95			0.95				
Frt		0.97			0.98			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		3387			3451			3463				
Flt Permitted		0.75			0.92			0.99				
Satd. Flow (perm)		2581			3185			3463				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	433	783	296	7	246	48	65	177	16	0	0	0
RTOR Reduction (vph)	0	27	0	0	19	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	1485	0	0	282	0	0	252	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		8			4		6	6				
Permitted Phases	8			4								
Actuated Green, G (s)		45.7			45.7			22.1				
Effective Green, g (s)		45.7			45.7			22.1				
Actuated g/C Ratio		0.60			0.60			0.29				
Clearance Time (s)		4.5			4.5			4.2				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		1542			1903			1000				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		c0.58			0.09							
v/c Ratio		0.96			0.15			0.25				
Uniform Delay, d1		14.6			6.8			20.9				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		14.9			0.0			0.0				
Delay (s)		29.4			6.8			20.9				
Level of Service		C			A			C				
Approach Delay (s)		29.4			6.8			20.9			0.0	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	8.7
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
66: E Divisadero St & N Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	800	508	179	9	897	108	178	537	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5			4.2				
Lane Util. Factor		0.95			0.95			0.95				
Frt		0.98			0.98			1.00				
Flt Protected		0.97			1.00			0.99				
Satd. Flow (prot)		3384			3481			3485				
Flt Permitted		0.50			0.93			0.99				
Satd. Flow (perm)		1732			3240			3485				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	870	552	195	10	975	117	193	584	18	0	0	0
RTOR Reduction (vph)	0	8	0	0	4	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	1609	0	0	1098	0	0	794	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		8			4		6	6				
Permitted Phases	8			4								
Actuated Green, G (s)		104.5			104.5			26.8				
Effective Green, g (s)		104.5			104.5			26.8				
Actuated g/C Ratio		0.75			0.75			0.19				
Clearance Time (s)		4.5			4.5			4.2				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		1293			2418			667				
v/s Ratio Prot								c0.23				
v/s Ratio Perm		c0.93			0.34							
v/c Ratio		2.68dl			0.45			1.19				
Uniform Delay, d1		17.8			6.8			56.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		116.8			0.0			100.2				
Delay (s)		134.5			6.9			156.8				
Level of Service		F			A			F				
Approach Delay (s)		134.5			6.9			156.8			0.0	
Approach LOS		F			A			F			A	

Intersection Summary

HCM Average Control Delay	99.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

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

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
67: N Roosevelt Ave. & N H St

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	57	0	18	2	0	0	1	2190	29	40	1119	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6			4.2	4.2		4.2	
Lane Util. Factor	1.00	1.00			1.00			0.95	1.00		0.95	
Frt	1.00	0.85			1.00			1.00	0.85		1.00	
Flt Protected	0.95	1.00			0.95			1.00	1.00		1.00	
Satd. Flow (prot)	1770	1583			1770			3539	1583		3530	
Flt Permitted	0.76	1.00			0.74			0.95	1.00		0.64	
Satd. Flow (perm)	1409	1583			1386			3379	1583		2276	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	0	20	2	0	0	1	2380	32	43	1216	7
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	62	20	0	0	2	0	0	2381	28	0	1266	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)	14.0	14.0			14.0			43.8	43.8		43.8	
Effective Green, g (s)	14.0	14.0			14.0			43.8	43.8		43.8	
Actuated g/C Ratio	0.21	0.21			0.21			0.66	0.66		0.66	
Clearance Time (s)	4.6	4.6			4.6			4.2	4.2		4.2	
Vehicle Extension (s)	5.0	5.0			5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	296	333			291			2222	1041		1497	
v/s Ratio Prot		0.01										
v/s Ratio Perm	c0.04				0.00			c0.70	0.02		0.56	
v/c Ratio	0.21	0.06			0.01			1.07	0.03		0.85	
Uniform Delay, d1	21.7	21.0			20.8			11.4	4.0		8.8	
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.2			0.0			41.6	0.0		4.8	
Delay (s)	22.5	21.2			20.8			53.0	4.0		13.6	
Level of Service	C	C			C			D	A		B	
Approach Delay (s)		22.2			20.8			52.3			13.6	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	8.8
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
67: N Roosevelt Ave. & N H St

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	29	0	23	0	0	2	1	2328	57	25	2269	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6			4.2	4.2		4.2	
Lane Util. Factor	1.00	1.00			1.00			0.95	1.00		0.95	
Frt	1.00	0.85			0.86			1.00	0.85		1.00	
Flt Protected	0.95	1.00			1.00			1.00	1.00		1.00	
Satd. Flow (prot)	1770	1583			1611			3539	1583		3537	
Flt Permitted	0.76	1.00			1.00			0.91	1.00		0.66	
Satd. Flow (perm)	1409	1583			1611			3205	1583		2344	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	0	25	0	0	2	1	2530	62	27	2466	1
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	5	0	0	0
Lane Group Flow (vph)	32	24	0	0	1	0	0	2531	57	0	2494	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)	21.1	21.1			21.1			78.2	78.2		78.2	
Effective Green, g (s)	21.1	21.1			21.1			78.2	78.2		78.2	
Actuated g/C Ratio	0.20	0.20			0.20			0.72	0.72		0.72	
Clearance Time (s)	4.6	4.6			4.6			4.2	4.2		4.2	
Vehicle Extension (s)	5.0	5.0			5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	275	309			314			2319	1145		1696	
v/s Ratio Prot		0.02			0.00							
v/s Ratio Perm	c0.02							0.79	0.04		c1.06	
v/c Ratio	0.12	0.08			0.00			1.09	0.05		1.47	
Uniform Delay, d1	35.8	35.6			35.0			14.9	4.3		14.9	
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.2			0.0			48.9	0.0		215.0	
Delay (s)	36.2	35.8			35.0			63.9	4.3		230.0	
Level of Service	D	D			D			E	A		F	
Approach Delay (s)		36.0			35.0			62.5			230.0	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM Average Control Delay	143.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	8.8
Intersection Capacity Utilization	111.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: E McKenzie Ave. & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	174	59	86	114	0	0	0	0	181	1445	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.9	
Lane Util. Factor		1.00			1.00						0.91	
Frt		0.97			1.00						0.99	
Flt Protected		1.00			0.98						0.99	
Satd. Flow (prot)		1799			1824						5024	
Flt Permitted		1.00			0.75						0.99	
Satd. Flow (perm)		1799			1395						5024	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	189	64	93	124	0	0	0	0	197	1571	85
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	246	0	0	217	0	0	0	0	0	1844	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		13.1			13.1						23.3	
Effective Green, g (s)		13.1			13.1						23.3	
Actuated g/C Ratio		0.29			0.29						0.51	
Clearance Time (s)		4.2			4.2						4.9	
Vehicle Extension (s)		4.0			4.0						5.0	
Lane Grp Cap (vph)		518			402						2573	
v/s Ratio Prot		0.14									c0.37	
v/s Ratio Perm					c0.16							
v/c Ratio		0.47			0.54						0.72	
Uniform Delay, d1		13.4			13.7						8.6	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.9			1.8						1.2	
Delay (s)		14.3			15.4						9.8	
Level of Service		B			B						A	
Approach Delay (s)		14.3			15.4			0.0			9.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	9.1
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: E McKenzie Ave. & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	326	160	164	303	0	0	0	0	184	1788	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.9	
Lane Util. Factor		1.00			1.00						0.91	
Frt		0.96			1.00						0.99	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1780			1831						4995	
Flt Permitted		1.00			0.45						1.00	
Satd. Flow (perm)		1780			840						4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	354	174	178	329	0	0	0	0	200	1943	215
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	527	0	0	507	0	0	0	0	0	2347	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		54.8			54.8						46.1	
Effective Green, g (s)		54.8			54.8						46.1	
Actuated g/C Ratio		0.50			0.50						0.42	
Clearance Time (s)		4.2			4.2						4.9	
Vehicle Extension (s)		4.0			4.0						5.0	
Lane Grp Cap (vph)		887			418						2093	
v/s Ratio Prot		0.30									c0.47	
v/s Ratio Perm					c0.60							
v/c Ratio		0.59			1.21						1.12	
Uniform Delay, d1		19.7			27.6						31.9	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		1.3			116.1						61.6	
Delay (s)		20.9			143.7						93.6	
Level of Service		C			F						F	
Approach Delay (s)		20.9			143.7			0.0			93.6	
Approach LOS		C			F			A			F	

Intersection Summary			
HCM Average Control Delay	89.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	105.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: E McKenzie Ave. & N Abby St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	265	0	0	161	92	45	642	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2			4.9				
Lane Util. Factor		1.00			1.00			0.91				
Frt		1.00			0.95			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1843			1771			5010				
Flt Permitted		0.87			1.00			1.00				
Satd. Flow (perm)		1624			1771			5010				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	288	0	0	175	100	49	698	64	0	0	0
RTOR Reduction (vph)	0	0	0	0	45	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	367	0	0	230	0	0	793	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		15.3			15.3			19.2				
Effective Green, g (s)		15.3			15.3			19.2				
Actuated g/C Ratio		0.35			0.35			0.44				
Clearance Time (s)		4.2			4.2			4.9				
Vehicle Extension (s)		4.0			4.0			0.2				
Lane Grp Cap (vph)		570			621			2206				
v/s Ratio Prot					0.13			c0.16				
v/s Ratio Perm		c0.23										
v/c Ratio		0.64			0.37			0.36				
Uniform Delay, d1		11.9			10.6			8.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		2.8			0.5			0.0				
Delay (s)		14.6			11.1			8.1				
Level of Service		B			B			A				
Approach Delay (s)		14.6			11.1			8.1			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: E McKenzie Ave. & N Abby St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	110	0	0	136	151	37	1517	46	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2			4.9				
Lane Util. Factor		1.00			1.00			0.91				
Frt		1.00			0.93			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1828			1731			5058				
Flt Permitted		0.78			1.00			1.00				
Satd. Flow (perm)		1457			1731			5058				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	120	0	0	148	164	40	1649	50	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	192	0	0	308	0	0	1733	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		13.4			13.4			20.3				
Effective Green, g (s)		13.4			13.4			20.3				
Actuated g/C Ratio		0.31			0.31			0.47				
Clearance Time (s)		4.2			4.2			4.9				
Vehicle Extension (s)		4.0			4.0			0.2				
Lane Grp Cap (vph)		456			542			2399				
v/s Ratio Prot					c0.18			c0.34				
v/s Ratio Perm		0.13										
v/c Ratio		0.42			0.57			0.72				
Uniform Delay, d1		11.6			12.3			9.0				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.9			1.7			0.9				
Delay (s)		12.5			13.9			9.9				
Level of Service		B			B			A				
Approach Delay (s)		12.5			13.9			9.9			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	42.8	Sum of lost time (s)	9.1
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
70: 180 EB Off-Ramp & N Fulton St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	636	163	0	0	0	0	0	0	886	836	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2									4.6	
Lane Util. Factor		0.95									0.95	
Frt		0.97									1.00	
Flt Protected		1.00									0.97	
Satd. Flow (prot)		3431									3450	
Flt Permitted		1.00									0.97	
Satd. Flow (perm)		3431									3450	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	691	177	0	0	0	0	0	0	963	909	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	38	0
Lane Group Flow (vph)	0	843	0	0	0	0	0	0	0	0	1834	0
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		31.1									48.9	
Effective Green, g (s)		31.1									48.9	
Actuated g/C Ratio		0.35									0.55	
Clearance Time (s)		4.2									4.6	
Vehicle Extension (s)		6.4									5.6	
Lane Grp Cap (vph)		1202									1900	
v/s Ratio Prot		c0.25										
v/s Ratio Perm											0.53	
v/c Ratio		0.70									0.97	
Uniform Delay, d1		24.8									19.1	
Progression Factor		1.00									1.00	
Incremental Delay, d2		2.9									13.7	
Delay (s)		27.8									32.8	
Level of Service		C									C	
Approach Delay (s)		27.8			0.0			0.0			32.8	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	8.8
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
70: 180 EB Off-Ramp & N Fulton St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	563	227	0	0	0	0	0	0	857	585	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2									4.6	
Lane Util. Factor		0.95									0.95	
Frt		0.96									1.00	
Flt Protected		1.00									0.97	
Satd. Flow (prot)		3387									3437	
Flt Permitted		1.00									0.97	
Satd. Flow (perm)		3387									3437	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	612	247	0	0	0	0	0	0	932	636	0
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	87	0
Lane Group Flow (vph)	0	799	0	0	0	0	0	0	0	0	1481	0
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		29.1									34.3	
Effective Green, g (s)		29.1									34.3	
Actuated g/C Ratio		0.40									0.48	
Clearance Time (s)		4.2									4.6	
Vehicle Extension (s)		6.4									5.6	
Lane Grp Cap (vph)		1365									1633	
v/s Ratio Prot		c0.24										
v/s Ratio Perm											0.43	
v/c Ratio		0.59									1.00dl	
Uniform Delay, d1		16.8									17.5	
Progression Factor		1.00									1.00	
Incremental Delay, d2		1.3									8.3	
Delay (s)		18.2									25.8	
Level of Service		B									C	
Approach Delay (s)		18.2			0.0			0.0			25.8	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	8.8
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

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

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	370	1155	0	0	287	330	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.95	1.00					
Frt	1.00	1.00			1.00	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3539	1583					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3539	1583					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	402	1255	0	0	312	359	0	0	0	0	0
RTOR Reduction (vph)	37	0	0	0	0	86	0	0	0	0	0
Lane Group Flow (vph)	365	1255	0	0	312	273	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	71.4	71.4			19.2	19.2					
Effective Green, g (s)	71.4	71.4			19.2	19.2					
Actuated g/C Ratio	0.72	0.72			0.19	0.19					
Clearance Time (s)	4.6	4.6			4.6	4.6					
Vehicle Extension (s)	5.0	5.0			4.5	4.5					
Lane Grp Cap (vph)	1266	1266			681	305					
v/s Ratio Prot	0.21	c0.71			0.09						
v/s Ratio Perm						c0.17					
v/c Ratio	0.29	0.99			0.46	0.89					
Uniform Delay, d1	5.1	13.9			35.7	39.3					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.3	23.2			0.8	27.4					
Delay (s)	5.4	37.1			36.5	66.7					
Level of Service	A	D			D	E					
Approach Delay (s)		29.4			52.7			0.0		0.0	
Approach LOS		C			D			A		A	

Intersection Summary

HCM Average Control Delay	36.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	9.2
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
71: 180 EB On-Ramp & N Van Ness Ave

4/10/2012

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	321	1101	0	0	507	824	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.95	1.00					
Frt	1.00	1.00			1.00	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3539	1583					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3539	1583					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	349	1197	0	0	551	896	0	0	0	0	0
RTOR Reduction (vph)	77	0	0	0	0	33	0	0	0	0	0
Lane Group Flow (vph)	272	1197	0	0	551	863	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	80.4	80.4			60.4	60.4					
Effective Green, g (s)	80.4	80.4			60.4	60.4					
Actuated g/C Ratio	0.54	0.54			0.40	0.40					
Clearance Time (s)	4.6	4.6			4.6	4.6					
Vehicle Extension (s)	5.0	5.0			4.5	4.5					
Lane Grp Cap (vph)	949	949			1425	637					
v/s Ratio Prot	0.15	c0.68			0.16						
v/s Ratio Perm						c0.55					
v/c Ratio	0.29	1.26			0.39	1.36					
Uniform Delay, d1	19.1	34.8			31.7	44.8					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.4	126.1			0.3	169.9					
Delay (s)	19.4	160.9			32.0	214.7					
Level of Service	B	F			C	F					
Approach Delay (s)		129.0			145.1			0.0		0.0	
Approach LOS		F			F			A		A	

Intersection Summary			
HCM Average Control Delay	136.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
72: 180 WB Ramps & N Fulton St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1013	563	6	51	0	0	0	0	0	955	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.7	3.7		3.7						4.1	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frt		1.00	0.85		1.00						0.98	
Flt Protected		1.00	1.00		0.99						1.00	
Satd. Flow (prot)		1863	1583		1852						3460	
Flt Permitted		1.00	1.00		0.67						1.00	
Satd. Flow (perm)		1863	1583		1250						3460	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1101	612	7	55	0	0	0	0	0	1038	182
RTOR Reduction (vph)	0	0	8	0	0	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	1101	604	0	62	0	0	0	0	0	1206	0
Turn Type			Perm	Perm								
Protected Phases		4			8						6	
Permitted Phases			4	8								
Actuated Green, G (s)		57.3	57.3		57.3						34.9	
Effective Green, g (s)		57.3	57.3		57.3						34.9	
Actuated g/C Ratio		0.57	0.57		0.57						0.35	
Clearance Time (s)		3.7	3.7		3.7						4.1	
Vehicle Extension (s)		5.0	5.0		4.8						4.6	
Lane Grp Cap (vph)		1067	907		716						1208	
v/s Ratio Prot		c0.59									c0.35	
v/s Ratio Perm			0.38		0.05							
v/c Ratio		1.03	0.67		0.09						1.00	
Uniform Delay, d1		21.4	14.7		9.6						32.5	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		36.1	2.5		0.1						25.3	
Delay (s)		57.4	17.2		9.7						57.8	
Level of Service		E	B		A						E	
Approach Delay (s)		43.0			9.7			0.0			57.8	
Approach LOS		D			A			A			E	

Intersection Summary			
HCM Average Control Delay	48.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	7.8
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

72: 180 WB Ramps & N Fulton St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1303	479	7	97	0	0	0	0	0	956	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.7	3.7		3.7						4.1	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frt		1.00	0.85		1.00						0.96	
Flt Protected		1.00	1.00		1.00						1.00	
Satd. Flow (prot)		1863	1583		1856						3403	
Flt Permitted		1.00	1.00		0.64						1.00	
Satd. Flow (perm)		1863	1583		1184						3403	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1416	521	8	105	0	0	0	0	0	1039	357
RTOR Reduction (vph)	0	0	7	0	0	0	0	0	0	0	28	0
Lane Group Flow (vph)	0	1416	514	0	113	0	0	0	0	0	1368	0
Turn Type			Perm	Perm								
Protected Phases		4			8						6	
Permitted Phases			4	8								
Actuated Green, G (s)		71.3	71.3		71.3						40.9	
Effective Green, g (s)		71.3	71.3		71.3						40.9	
Actuated g/C Ratio		0.59	0.59		0.59						0.34	
Clearance Time (s)		3.7	3.7		3.7						4.1	
Vehicle Extension (s)		5.0	5.0		4.8						4.6	
Lane Grp Cap (vph)		1107	941		703						1160	
v/s Ratio Prot		c0.76									c0.40	
v/s Ratio Perm			0.32		0.10							
v/c Ratio		1.28	0.55		0.16						1.18	
Uniform Delay, d1		24.4	14.6		10.9						39.5	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		132.7	1.1		0.2						89.7	
Delay (s)		157.0	15.8		11.1						129.3	
Level of Service		F	B		B						F	
Approach Delay (s)		119.0			11.1			0.0			129.3	
Approach LOS		F			B			A			F	

Intersection Summary

HCM Average Control Delay	119.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.8
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1040	0	56	611	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	1.00			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			1.00		
Satd. Flow (prot)	1770			3524		
Flt Permitted	0.95			1.00		
Satd. Flow (perm)	1770			3524		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1130	0	61	664	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1130	0	0	725	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	57.4			23.0		
Effective Green, g (s)	57.4			23.0		
Actuated g/C Ratio	0.64			0.26		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	1134			905		
v/s Ratio Prot	c0.64			c0.21		
v/s Ratio Perm						
v/c Ratio	1.00			0.80		
Uniform Delay, d1	16.0			31.2		
Progression Factor	1.00			1.00		
Incremental Delay, d2	25.7			5.8		
Delay (s)	41.7			37.0		
Level of Service	D			D		
Approach Delay (s)	41.7			37.0	0.0	
Approach LOS	D			D	A	

Intersection Summary			
HCM Average Control Delay	39.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	89.6	Sum of lost time (s)	9.2
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1305	0	105	721	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	1.00			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	1770			3517		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	1770			3517		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1418	0	114	784	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1418	0	0	898	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	98.4			32.4		
Effective Green, g (s)	98.4			32.4		
Actuated g/C Ratio	0.70			0.23		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	1244			814		
v/s Ratio Prot	c0.80			c0.26		
v/s Ratio Perm						
v/c Ratio	1.14			1.10		
Uniform Delay, d1	20.8			53.8		
Progression Factor	1.00			1.00		
Incremental Delay, d2	73.1			63.7		
Delay (s)	93.9			117.5		
Level of Service	F			F		
Approach Delay (s)	93.9			117.5	0.0	
Approach LOS	F			F	A	

Intersection Summary			
HCM Average Control Delay	103.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	102.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
74: E Belmont Ave. & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱		↰	↑↑						↰↑↑↱	
Volume (vph)	0	1474	145	111	376	0	0	0	0	376	1457	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2						4.9	
Lane Util. Factor		0.95		1.00	0.95						0.91	
Frt		0.99		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3492		1770	3539						4937	
Flt Permitted		1.00		0.95	1.00						0.99	
Satd. Flow (perm)		3492		1770	3539						4937	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1602	158	121	409	0	0	0	0	409	1584	316
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	1755	0	121	409	0	0	0	0	0	2295	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		64.8		8.3	76.8						64.1	
Effective Green, g (s)		64.8		8.3	76.8						64.1	
Actuated g/C Ratio		0.43		0.06	0.51						0.43	
Clearance Time (s)		4.2		3.7	4.2						4.9	
Vehicle Extension (s)		6.8		2.0	6.8						0.2	
Lane Grp Cap (vph)		1509		98	1812						2110	
v/s Ratio Prot		c0.50		c0.07	0.12						c0.46	
v/s Ratio Perm												
v/c Ratio		1.16		1.23	0.23						1.09	
Uniform Delay, d1		42.6		70.8	20.2						43.0	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		81.0		166.8	0.2						48.1	
Delay (s)		123.6		237.6	20.4						91.0	
Level of Service		F		F	C						F	
Approach Delay (s)		123.6			70.0			0.0			91.0	
Approach LOS		F			E			A			F	

Intersection Summary			
HCM Average Control Delay	101.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
74: E Belmont Ave. & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1673	179	251	1353	0	0	0	0	364	1740	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2						4.9	
Lane Util. Factor		0.95		1.00	0.95						0.91	
Frt		0.99		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3488		1770	3539						4893	
Flt Permitted		1.00		0.95	1.00						0.99	
Satd. Flow (perm)		3488		1770	3539						4893	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1818	195	273	1471	0	0	0	0	396	1891	603
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	2007	0	273	1471	0	0	0	0	0	2877	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		57.8		16.3	77.8						63.1	
Effective Green, g (s)		57.8		16.3	77.8						63.1	
Actuated g/C Ratio		0.39		0.11	0.52						0.42	
Clearance Time (s)		4.2		3.7	4.2						4.9	
Vehicle Extension (s)		6.8		2.0	6.8						0.2	
Lane Grp Cap (vph)		1344		192	1836						2058	
v/s Ratio Prot		c0.58		c0.15	0.42						c0.59	
v/s Ratio Perm												
v/c Ratio		1.49		1.42	0.80						1.40	
Uniform Delay, d1		46.1		66.8	29.7						43.5	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		226.1		217.4	3.2						182.0	
Delay (s)		272.2		284.3	33.0						225.5	
Level of Service		F		F	C						F	
Approach Delay (s)		272.2			72.3			0.0			225.5	
Approach LOS		F			E			A			F	

Intersection Summary			
HCM Average Control Delay	199.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	130.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
75: E Belmont Ave. & N Abby St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	908	934	0	0	459	158	44	714	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	3.7	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			3539	1583		5071	1583			
Flt Permitted	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1770	3539			3539	1583		5071	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	987	1015	0	0	499	172	48	776	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	58	0	0	18	0	0	0
Lane Group Flow (vph)	987	1015	0	0	499	114	0	824	9	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	80.4	108.7			24.6	24.6		26.0	26.0			
Effective Green, g (s)	80.4	108.7			24.6	24.6		26.0	26.0			
Actuated g/C Ratio	0.56	0.76			0.17	0.17		0.18	0.18			
Clearance Time (s)	3.7	4.2			4.2	4.2		4.9	4.9			
Vehicle Extension (s)	2.0	5.1			5.1	5.1		0.2	0.2			
Lane Grp Cap (vph)	990	2675			605	271		917	286			
v/s Ratio Prot	c0.56	0.29			c0.14			c0.16				
v/s Ratio Perm						0.07			0.01			
v/c Ratio	1.00	0.38			0.82	0.42		0.90	0.03			
Uniform Delay, d1	31.6	6.0			57.5	53.2		57.6	48.5			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	27.6	0.2			10.0	2.3		11.2	0.0			
Delay (s)	59.2	6.2			67.6	55.5		68.8	48.5			
Level of Service	E	A			E	E		E	D			
Approach Delay (s)		32.3			64.5			68.2			0.0	
Approach LOS		C			E			E			A	

Intersection Summary			
HCM Average Control Delay	47.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	143.8	Sum of lost time (s)	12.8
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
75: E Belmont Ave. & N Abby St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	422	1610	0	0	1540	302	62	1620	29	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	3.7	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			3539	1583		5076	1583			
Flt Permitted	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1770	3539			3539	1583		5076	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	459	1750	0	0	1674	328	67	1761	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	12	0	0	10	0	0	0
Lane Group Flow (vph)	459	1750	0	0	1674	316	0	1828	22	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	28.3	86.8			54.8	54.8		44.1	44.1			
Effective Green, g (s)	28.3	86.8			54.8	54.8		44.1	44.1			
Actuated g/C Ratio	0.20	0.62			0.39	0.39		0.32	0.32			
Clearance Time (s)	3.7	4.2			4.2	4.2		4.9	4.9			
Vehicle Extension (s)	2.0	5.1			5.1	5.1		0.2	0.2			
Lane Grp Cap (vph)	358	2194			1385	620		1599	499			
v/s Ratio Prot	c0.26	0.49			c0.47			c0.36				
v/s Ratio Perm						0.20			0.01			
v/c Ratio	1.28	0.80			1.21	0.51		1.14	0.04			
Uniform Delay, d1	55.9	20.0			42.6	32.4		48.0	33.3			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	146.7	2.4			100.9	1.4		72.4	0.0			
Delay (s)	202.6	22.4			143.5	33.8		120.4	33.3			
Level of Service	F	C			F	C		F	C			
Approach Delay (s)		59.9			125.5			118.9			0.0	
Approach LOS		E			F			F			A	

Intersection Summary			
HCM Average Control Delay	99.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	130.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
76: Fresno St. &

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	688	144	418	510	38	70	183	104	68	353	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6		4.0	4.6		4.0	14.6		4.0	4.6	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.99		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3447		1770	3503		1770	3347		1770	3463	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3447		1770	3503		1770	3347		1770	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	748	157	454	554	41	76	199	113	74	384	64
RTOR Reduction (vph)	0	12	0	0	3	0	0	61	0	0	10	0
Lane Group Flow (vph)	60	893	0	454	592	0	76	251	0	74	438	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	7.0	39.5		36.8	69.3		8.1	18.8		7.7	28.4	
Effective Green, g (s)	7.0	39.5		36.8	69.3		8.1	18.8		7.7	28.4	
Actuated g/C Ratio	0.05	0.30		0.28	0.53		0.06	0.14		0.06	0.22	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	14.6		4.0	4.6	
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	95	1047		501	1867		110	484		105	757	
v/s Ratio Prot	0.03	c0.26		c0.26	0.17		c0.04	0.08		0.04	c0.13	
v/s Ratio Perm												
v/c Ratio	0.63	0.85		0.91	0.32		0.69	0.52		0.70	0.58	
Uniform Delay, d1	60.2	42.5		44.9	17.1		59.7	51.4		60.0	45.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.6	7.5		19.5	0.2		14.0	1.9		16.1	1.7	
Delay (s)	69.9	50.1		64.4	17.3		73.7	53.3		76.1	47.2	
Level of Service	E	D		E	B		E	D		E	D	
Approach Delay (s)		51.3			37.7			57.3			51.3	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	47.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	1327	109	184	1298	145	172	647	217	452	709	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.6		4.0	4.6		4.0	14.6		4.0	4.6	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		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)	1770	3499		1770	3486		1770	3406		1770	3351	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3499		1770	3486		1770	3406		1770	3351	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	1442	118	200	1411	158	187	703	236	491	771	425
RTOR Reduction (vph)	0	4	0	0	6	0	0	22	0	0	52	0
Lane Group Flow (vph)	132	1556	0	200	1563	0	187	917	0	491	1144	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	12.0	43.4		13.0	44.4		15.0	36.4		25.0	56.4	
Effective Green, g (s)	12.0	43.4		13.0	44.4		15.0	36.4		25.0	56.4	
Actuated g/C Ratio	0.08	0.30		0.09	0.31		0.10	0.25		0.17	0.39	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	14.6		4.0	4.6	
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	146	1047		159	1067		183	855		305	1303	
v/s Ratio Prot	0.07	0.44		c0.11	c0.45		0.11	0.27		c0.28	c0.34	
v/s Ratio Perm												
v/c Ratio	0.90	1.49		1.26	1.47		1.02	1.07		1.61	0.88	
Uniform Delay, d1	65.9	50.8		66.0	50.3		65.0	54.3		60.0	41.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.1	223.8		156.9	214.6		72.4	51.9		289.2	7.6	
Delay (s)	112.0	274.6		222.9	264.9		137.4	106.2		349.2	48.7	
Level of Service	F	F		F	F		F	F		F	D	
Approach Delay (s)		261.9			260.1			111.4			136.1	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	200.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	123.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
77: Belmont Steet & First Street

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	498	215	154	651	114	284	462	55	101	638	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3460		1770	3483		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3460		1770	3483		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	148	541	234	167	708	124	309	502	60	110	693	184
RTOR Reduction (vph)	0	0	131	0	15	0	0	9	0	0	0	95
Lane Group Flow (vph)	148	541	103	167	817	0	309	553	0	110	693	89
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									2
Actuated Green, G (s)	8.0	24.4	24.4	10.0	26.4		17.0	33.9		8.4	25.3	25.3
Effective Green, g (s)	8.0	24.4	24.4	10.0	26.4		17.0	33.9		8.4	25.3	25.3
Actuated g/C Ratio	0.08	0.26	0.26	0.11	0.28		0.18	0.36		0.09	0.27	0.27
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Vehicle Extension (s)	2.0	4.5	4.5	2.0	4.5		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	150	914	409	187	967		318	1249		157	947	424
v/s Ratio Prot	0.08	0.15		c0.09	c0.24		c0.17	0.16		0.06	c0.20	
v/s Ratio Perm			0.06									0.06
v/c Ratio	0.99	0.59	0.25	0.89	0.84		0.97	0.44		0.70	0.73	0.21
Uniform Delay, d1	43.2	30.7	27.8	41.7	32.1		38.5	23.1		41.8	31.5	26.8
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	68.7	1.4	0.6	36.6	7.4		42.4	0.5		10.9	3.6	0.5
Delay (s)	111.9	32.1	28.4	78.3	39.5		80.9	23.6		52.7	35.1	27.4
Level of Service	F	C	C	E	D		F	C		D	D	C
Approach Delay (s)		43.9			46.0			44.0			35.6	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	12.9
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
77: Belmont Steet & First Street

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	307	1343	437	167	1022	167	442	918	98	209	801	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3464		1770	3488		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3464		1770	3488		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	334	1460	475	182	1111	182	480	998	107	227	871	290
RTOR Reduction (vph)	0	0	63	0	9	0	0	5	0	0	0	76
Lane Group Flow (vph)	334	1460	412	182	1284	0	480	1100	0	227	871	214
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									2
Actuated Green, G (s)	22.0	55.1	55.1	12.0	45.1		31.0	47.1		18.0	34.1	34.1
Effective Green, g (s)	22.0	55.1	55.1	12.0	45.1		31.0	47.1		18.0	34.1	34.1
Actuated g/C Ratio	0.15	0.37	0.37	0.08	0.30		0.21	0.31		0.12	0.23	0.23
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Vehicle Extension (s)	2.0	4.5	4.5	2.0	4.5		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	260	1300	581	142	1042		366	1095		212	805	360
v/s Ratio Prot	c0.19	0.41		0.10	c0.37		c0.27	0.32		0.13	c0.25	
v/s Ratio Perm			0.26									0.14
v/c Ratio	1.28	1.12	0.71	1.28	1.23		1.31	1.00		1.07	1.08	0.60
Uniform Delay, d1	64.0	47.5	40.6	69.0	52.5		59.5	51.5		66.0	58.0	51.8
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	154.1	66.0	4.5	169.8	113.0		158.5	28.2		81.8	56.2	4.0
Delay (s)	218.1	113.4	45.1	238.8	165.4		218.0	79.6		147.8	114.2	55.7
Level of Service	F	F	D	F	F		F	E		F	F	E
Approach Delay (s)		114.5			174.5			121.5			107.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	127.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	112.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	168	0	0	0	271	1960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.2					4.9
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1770					5055
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1770					5055
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	0	0	0	295	2130
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	183	0	0	0	0	2425
Turn Type					Split	
Protected Phases	8				6	6
Permitted Phases						
Actuated Green, G (s)	9.8					30.7
Effective Green, g (s)	9.8					30.7
Actuated g/C Ratio	0.20					0.62
Clearance Time (s)	4.2					4.9
Vehicle Extension (s)	4.8					5.4
Lane Grp Cap (vph)	350					3129
v/s Ratio Prot	c0.10					c0.48
v/s Ratio Perm						
v/c Ratio	0.52					0.78
Uniform Delay, d1	17.8					6.9
Progression Factor	1.00					1.00
Incremental Delay, d2	2.5					1.5
Delay (s)	20.3					8.4
Level of Service	C					A
Approach Delay (s)	20.3		0.0			8.4
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	49.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	155.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	102	0	0	0	504	2551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.2					4.9
Lane Util. Factor	1.00					0.91
Frt	1.00					1.00
Flt Protected	0.95					0.99
Satd. Flow (prot)	1770					5044
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1770					5044
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	0	0	0	548	2773
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	111	0	0	0	0	3321
Turn Type					Split	
Protected Phases	8				6	6
Permitted Phases						
Actuated Green, G (s)	10.0					60.5
Effective Green, g (s)	10.0					60.5
Actuated g/C Ratio	0.13					0.76
Clearance Time (s)	4.2					4.9
Vehicle Extension (s)	4.8					5.4
Lane Grp Cap (vph)	222					3834
v/s Ratio Prot	c0.06					c0.66
v/s Ratio Perm						
v/c Ratio	0.50					0.87
Uniform Delay, d1	32.5					6.7
Progression Factor	1.00					1.00
Incremental Delay, d2	3.4					2.5
Delay (s)	35.9					9.2
Level of Service	D					A
Approach Delay (s)	35.9		0.0			9.2
Approach LOS	D		A			A

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	181.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
79: CA 180 EB & N Abby St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	272	0	0	169	489	2	636	1129	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	1.00			1.00	1.00		0.91	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	1863			1863	1583		5085	1583			
Flt Permitted	0.48	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	892	1863			1863	1583		5085	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	296	0	0	184	532	2	691	1227	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	241	0	0	54	0	0	0
Lane Group Flow (vph)	8	296	0	0	184	291	0	693	1173	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	25.5	25.5			25.5	25.5		84.6	84.6			
Effective Green, g (s)	25.5	25.5			25.5	25.5		84.6	84.6			
Actuated g/C Ratio	0.21	0.21			0.21	0.21		0.71	0.71			
Clearance Time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Vehicle Extension (s)	5.7	5.7			5.7	5.7		5.2	5.2			
Lane Grp Cap (vph)	191	399			399	339		3609	1124			
v/s Ratio Prot		0.16			0.10			0.14				
v/s Ratio Perm	0.01					c0.18			c0.74			
v/c Ratio	0.04	0.74			0.46	0.86		0.19	1.04			
Uniform Delay, d1	37.2	43.8			40.9	45.1		5.8	17.3			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.2	9.4			2.2	21.2		0.1	39.0			
Delay (s)	37.4	53.2			43.0	66.3		5.9	56.3			
Level of Service	D	D			D	E		A	E			
Approach Delay (s)		52.7			60.3			38.1			0.0	
Approach LOS		D			E			D			A	

Intersection Summary			
HCM Average Control Delay	45.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	119.2	Sum of lost time (s)	9.1
Intersection Capacity Utilization	141.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
79: CA 180 EB & N Abby St

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	480	0	0	102	581	0	1187	1197	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	1.00			1.00	1.00		0.91	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	1863			1863	1583		5085	1583			
Flt Permitted	0.66	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1225	1863			1863	1583		5085	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	522	0	0	111	632	0	1290	1301	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	46	0	0	0
Lane Group Flow (vph)	25	522	0	0	111	586	0	1290	1255	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	40.8	40.8			40.8	40.8		80.1	80.1			
Effective Green, g (s)	40.8	40.8			40.8	40.8		80.1	80.1			
Actuated g/C Ratio	0.31	0.31			0.31	0.31		0.62	0.62			
Clearance Time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Vehicle Extension (s)	5.7	5.7			5.7	5.7		5.2	5.2			
Lane Grp Cap (vph)	384	585			585	497		3133	975			
v/s Ratio Prot		0.28			0.06			0.25				
v/s Ratio Perm	0.02					c0.37			c0.79			
v/c Ratio	0.07	0.89			0.19	1.18		0.41	1.29			
Uniform Delay, d1	31.2	42.5			32.5	44.6		12.8	25.0			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.2	17.2			0.4	99.9		0.2	136.8			
Delay (s)	31.4	59.7			33.0	144.5		13.0	161.8			
Level of Service	C	E			C	F		B	F			
Approach Delay (s)		58.4			127.8			87.7			0.0	
Approach LOS		E			F			F			A	

Intersection Summary			
HCM Average Control Delay	91.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	167.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
80: CA 180 WB & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	415	1268	5	146	0	0	0	0	3	935	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2						4.9	4.9
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frt		0.90		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		1673		1770	1863						3539	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1673		1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	451	1378	5	159	0	0	0	0	3	1016	352
RTOR Reduction (vph)	0	57	0	0	0	0	0	0	0	0	0	171
Lane Group Flow (vph)	0	1772	0	5	159	0	0	0	0	0	1019	181
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		93.9		1.1	98.7						36.1	36.1
Effective Green, g (s)		93.9		1.1	98.7						36.1	36.1
Actuated g/C Ratio		0.65		0.01	0.69						0.25	0.25
Clearance Time (s)		4.2		3.7	4.2						4.9	4.9
Vehicle Extension (s)		4.9		2.0	4.6						5.2	5.2
Lane Grp Cap (vph)		1092		14	1278						888	397
v/s Ratio Prot		c1.06		c0.00	0.09						c0.29	
v/s Ratio Perm												0.11
v/c Ratio		1.62		0.36	0.12						1.15	0.46
Uniform Delay, d1		25.0		71.0	7.8						53.9	45.6
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		284.5		5.6	0.1						79.5	1.9
Delay (s)		309.5		76.7	7.8						133.4	47.5
Level of Service		F		E	A						F	D
Approach Delay (s)		309.5			9.9			0.0			111.4	
Approach LOS		F			A			A			F	

Intersection Summary			
HCM Average Control Delay	214.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	143.9	Sum of lost time (s)	12.8
Intersection Capacity Utilization	133.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
80: CA 180 WB & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	594	1192	20	303	0	0	0	0	5	1819	674
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2						4.9	4.9
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frt		0.91		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		1695		1770	1863						3539	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1695		1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	646	1296	22	329	0	0	0	0	5	1977	733
RTOR Reduction (vph)	0	46	0	0	0	0	0	0	0	0	0	183
Lane Group Flow (vph)	0	1896	0	22	329	0	0	0	0	0	1982	550
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		76.0		6.9	86.6						49.5	49.5
Effective Green, g (s)		76.0		6.9	86.6						49.5	49.5
Actuated g/C Ratio		0.52		0.05	0.60						0.34	0.34
Clearance Time (s)		4.2		3.7	4.2						4.9	4.9
Vehicle Extension (s)		4.9		2.0	4.6						5.2	5.2
Lane Grp Cap (vph)		887		84	1111						1206	540
v/s Ratio Prot		c1.12		0.01	c0.18						c0.56	
v/s Ratio Perm												0.35
v/c Ratio		2.14		0.26	0.30						1.64	1.02
Uniform Delay, d1		34.6		66.7	14.4						47.8	47.8
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		515.6		0.6	0.3						293.3	43.7
Delay (s)		550.2		67.3	14.6						341.2	91.5
Level of Service		F		E	B						F	F
Approach Delay (s)		550.2			17.9			0.0			273.8	
Approach LOS		F			B			A			F	

Intersection Summary			
HCM Average Control Delay	363.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.87		
Actuated Cycle Length (s)	145.2	Sum of lost time (s)	13.3
Intersection Capacity Utilization	162.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
81: Broadway St & Amador St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	7	562	26	57	49	32	5	37	29	17	24	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	611	28	62	53	35	5	40	32	18	26	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1300										
pX, platoon unblocked												
vC, conflicting volume	88			639			851	852	320	567	849	71
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	88			639			851	852	320	567	849	71
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			93			98	85	95	94	91	100
cM capacity (veh/h)	1506			941			222	274	676	326	276	977

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	313	334	150	77	48
Volume Left	8	0	62	5	18
Volume Right	0	28	35	32	3
cSH	1506	1700	941	354	309
Volume to Capacity	0.01	0.20	0.07	0.22	0.15
Queue Length 95th (ft)	0	0	5	20	14
Control Delay (s)	0.2	0.0	4.1	18.0	18.8
Lane LOS	A		A	C	C
Approach Delay (s)	0.1		4.1	18.0	18.8
Approach LOS				C	C

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
81: Broadway St & Amador St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	193	65	160	237	271	0	14	1624	1	276	1961	99
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	210	71	174	258	295	0	15	1765	1	300	2132	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1300										
pX, platoon unblocked												
vC, conflicting volume	295			245			2560	1387	122	2148	1474	295
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	295			245			2560	1387	122	2148	1474	295
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			80			0	0	100	0	0	85
cM capacity (veh/h)	1264			1319			0	95	906	0	84	702

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	245	209	552	1782	2539
Volume Left	210	0	258	15	300
Volume Right	0	174	0	1	108
cSH	1264	1700	1319	0	0
Volume to Capacity	0.17	0.12	0.20	Err	Err
Queue Length 95th (ft)	15	0	18	Err	Err
Control Delay (s)	7.4	0.0	5.0	Err	Err
Lane LOS	A		A	F	F
Approach Delay (s)	4.0		5.0	Err	Err
Approach LOS				F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	264.0%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
82: Broadway St & San Joaquin St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	26	540	45	20	117	35	0	59	32	55	71	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	587	49	22	127	38	0	64	35	60	77	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1008							
pX, platoon unblocked												
vC, conflicting volume	165			636			914	877	318	607	882	146
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	165			636			914	877	318	607	882	146
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			100	77	95	79	72	98
cM capacity (veh/h)	1410			943			169	273	678	287	271	874

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	322	342	187	99	154
Volume Left	28	0	22	0	60
Volume Right	0	49	38	35	17
cSH	1410	1700	943	346	301
Volume to Capacity	0.02	0.20	0.02	0.29	0.51
Queue Length 95th (ft)	2	0	2	29	69
Control Delay (s)	0.8	0.0	1.2	19.5	28.9
Lane LOS	A		A	C	D
Approach Delay (s)	0.4		1.2	19.5	28.9
Approach LOS				C	D

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
82: Broadway St & San Joaquin St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	56	435	27	35	700	26	5	96	10	67	42	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	473	29	38	761	28	5	104	11	73	46	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1008							
pX, platoon unblocked	0.81						0.81	0.81		0.81	0.81	0.81
vC, conflicting volume	789			502			1522	1474	251	1272	1475	775
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	618			502			1528	1468	251	1218	1469	601
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			96			83	0	99	0	50	89
cM capacity (veh/h)	772			1058			32	91	749	0	90	358

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	297	266	827	121	158
Volume Left	61	0	38	5	73
Volume Right	0	29	28	11	39
cSH	772	1700	1058	90	0
Volume to Capacity	0.08	0.16	0.04	1.34	Err
Queue Length 95th (ft)	6	0	3	222	Err
Control Delay (s)	2.8	0.0	0.9	292.8	Err
Lane LOS	A		A	F	F
Approach Delay (s)	1.5		0.9	292.8	Err
Approach LOS				F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	79.6%	ICU Level of Service	D	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
83: F St & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	115	168	106	12	30	77	1080	88	28	622	779
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	2049	1742	1947	2049	1742	1947	3849		1947	3568	
Flt Permitted	0.75	1.00	1.00	0.68	1.00	1.00	0.26	1.00		0.26	1.00	
Satd. Flow (perm)	1535	2049	1742	1387	2049	1742	529	3849		529	3568	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	125	183	115	13	33	84	1174	96	30	676	847
RTOR Reduction (vph)	0	0	87	0	0	15	0	13	0	0	433	0
Lane Group Flow (vph)	80	125	96	115	13	18	84	1257	0	30	1090	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2		2	4			8		
Actuated Green, G (s)	8.2	8.2	8.2	8.2	8.2	8.2	15.5	15.5		15.5	15.5	
Effective Green, g (s)	8.2	8.2	8.2	8.2	8.2	8.2	15.5	15.5		15.5	15.5	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.26	0.49	0.49		0.49	0.49	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	397	530	451	359	530	451	259	1882		259	1745	
v/s Ratio Prot		0.06			0.01			c0.33			0.31	
v/s Ratio Perm	0.05		0.06	c0.08		0.01	0.16			0.06		
v/c Ratio	0.20	0.24	0.21	0.32	0.02	0.04	0.32	0.67		0.12	0.62	
Uniform Delay, d1	9.2	9.3	9.2	9.5	8.8	8.8	4.9	6.1		4.4	6.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.2	0.2	0.5	0.0	0.0	0.7	0.9		0.2	0.7	
Delay (s)	9.4	9.5	9.5	10.0	8.8	8.8	5.7	7.1		4.6	6.7	
Level of Service	A	A	A	B	A	A	A	A		A	A	
Approach Delay (s)		9.5			9.7			7.0			6.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	31.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

83: F st & Fresno

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	158	279	188	156	468	86	440	591	120	50	1440	1087
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	2049	1742	1947	2049	1742	1947	3795		1947	3642	
Flt Permitted	0.29	1.00	1.00	0.54	1.00	1.00	0.25	1.00		0.31	1.00	
Satd. Flow (perm)	594	2049	1742	1104	2049	1742	509	3795		628	3642	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	303	204	170	509	93	478	642	130	54	1565	1182
RTOR Reduction (vph)	0	0	3	0	0	59	0	41	0	0	119	0
Lane Group Flow (vph)	172	303	201	170	509	34	478	731	0	54	2628	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2		2	4			8		
Actuated Green, G (s)	13.8	13.8	13.8	13.8	13.8	13.8	16.1	16.1		16.1	16.1	
Effective Green, g (s)	13.8	13.8	13.8	13.8	13.8	13.8	16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.36	0.36	0.36	0.36	0.36	0.36	0.42	0.42		0.42	0.42	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	216	746	634	402	746	634	216	1612		267	1547	
v/s Ratio Prot		0.15			0.25			0.19			0.72	
v/s Ratio Perm	c0.29		0.12	0.15		0.02	c0.94			0.09		
v/c Ratio	0.80	0.41	0.32	0.42	0.68	0.05	2.21	0.45		0.20	1.70	
Uniform Delay, d1	10.8	9.0	8.7	9.1	10.2	7.8	10.9	7.8		6.9	10.9	
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	18.1	0.4	0.3	0.7	2.6	0.0	560.6	0.2		0.4	317.2	
Delay (s)	28.9	9.4	9.0	9.8	12.8	7.8	571.5	8.0		7.2	328.1	
Level of Service	C	A	A	A	B	A	F	A		A	F	
Approach Delay (s)		14.2			11.5			223.5			321.9	
Approach LOS		B			B			F			F	

Intersection Summary			
HCM Average Control Delay	218.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.56		
Actuated Cycle Length (s)	37.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	145.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
84: G St & Mono Street

4/10/2012

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	61	68	124	91	38	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	74	135	99	41	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	978			544		
pX, platoon unblocked						
vC, conflicting volume			140		472	103
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			140		472	103
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		92	99
cM capacity (veh/h)			1443		499	952

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	140	234	51
Volume Left	0	135	41
Volume Right	74	0	10
cSH	1700	1443	549
Volume to Capacity	0.08	0.09	0.09
Queue Length 95th (ft)	0	8	8
Control Delay (s)	0.0	4.8	12.2
Lane LOS		A	B
Approach Delay (s)	0.0	4.8	12.2
Approach LOS			B

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

84: G St & Mono St

4/10/2012

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	105	218	164	348	184	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	114	237	178	378	200	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	986			536		
pX, platoon unblocked					0.94	
vC, conflicting volume			351		967	233
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			351		933	233
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		15	95
cM capacity (veh/h)			1208		237	807

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	351	557	241
Volume Left	0	178	200
Volume Right	237	0	41
cSH	1700	1208	269
Volume to Capacity	0.21	0.15	0.90
Queue Length 95th (ft)	0	13	198
Control Delay (s)	0.0	3.8	72.2
Lane LOS		A	F
Approach Delay (s)	0.0	3.8	72.2
Approach LOS			F

Intersection Summary			
Average Delay	17.0		
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
85: H St & Mono Street

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	80	85	9	10	156	0	7	5	8	8	8	171
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	92	10	11	170	0	8	5	9	9	9	186
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		469										
pX, platoon unblocked												
vC, conflicting volume	170			102			653	462	97	474	467	170
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	170			102			653	462	97	474	467	170
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 %	94			99			97	99	99	98	98	79
cM capacity (veh/h)	1408			1490			280	462	959	466	459	874

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	189	180	22	203
Volume Left	87	11	8	9
Volume Right	10	0	9	186
cSH	1408	1490	453	812
Volume to Capacity	0.06	0.01	0.05	0.25
Queue Length 95th (ft)	5	1	4	25
Control Delay (s)	3.8	0.5	13.3	10.9
Lane LOS	A	A	B	B
Approach Delay (s)	3.8	0.5	13.3	10.9
Approach LOS			B	B

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
85: H St & Mono St

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	218	259	8	2	87	0	4	9	7	10	14	87
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	237	282	9	2	95	0	4	10	8	11	15	95
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		466										
pX, platoon unblocked				0.98			0.98	0.98	0.98	0.98	0.98	
vC, conflicting volume	95			290			961	859	286	871	863	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	95			269			952	848	265	860	852	95
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 %	84			100			98	96	99	95	94	90
cM capacity (veh/h)	1499			1272			178	247	761	229	245	962

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	527	97	22	121
Volume Left	237	2	4	11
Volume Right	9	0	8	95
cSH	1499	1272	293	580
Volume to Capacity	0.16	0.00	0.07	0.21
Queue Length 95th (ft)	14	0	6	19
Control Delay (s)	4.4	0.2	18.3	12.8
Lane LOS	A	A	C	B
Approach Delay (s)	4.4	0.2	18.3	12.8
Approach LOS			C	B

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
86: H St & Ventura Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↰	↑↑↱		↰	↑↑↱	
Volume (veh/h)	103	22	53	31	13	6	126	1058	16	10	762	370
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	112	24	58	34	14	7	137	1150	17	11	828	402
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								699			472	
pX, platoon unblocked	0.92	0.92	0.87	0.92	0.92	0.86	0.87			0.86		
vC, conflicting volume	1914	2492	615	1938	2685	584	1230			1167		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1169	1797	246	1196	2005	176	957			858		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	57	91	49	66	99	78			98		
cM capacity (veh/h)	83	56	653	66	42	716	619			666		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	193	54	137	767	401	11	552	678
Volume Left	112	34	137	0	0	11	0	0
Volume Right	58	7	0	0	17	0	0	402
cSH	104	63	619	1700	1700	666	1700	1700
Volume to Capacity	1.87	0.86	0.22	0.45	0.24	0.02	0.32	0.40
Queue Length 95th (ft)	395	100	21	0	0	1	0	0
Control Delay (s)	494.0	181.4	12.5	0.0	0.0	10.5	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	494.0	181.4	1.3			0.1		
Approach LOS	F	F						

Intersection Summary			
Average Delay	38.4		
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
86: H St & Ventura Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	229	10	216	25	10	21	141	1119	27	3	1238	148
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	11	235	27	11	23	153	1216	29	3	1346	161
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								687			485	
pX, platoon unblocked	0.78	0.78	0.70	0.78	0.78	0.84	0.70			0.84		
vC, conflicting volume	2376	2985	753	2457	3051	623	1507			1246		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1267	2051	0	1372	2135	168	857			910		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	64	69	16	60	97	72			99		
cM capacity (veh/h)	51	31	756	32	27	711	543			625		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	495	61	153	811	435	3	897	609
Volume Left	249	27	153	0	0	3	0	0
Volume Right	235	23	0	0	29	0	0	161
cSH	90	48	543	1700	1700	625	1700	1700
Volume to Capacity	5.51	1.28	0.28	0.48	0.26	0.01	0.53	0.36
Queue Length 95th (ft)	Err	142	29	0	0	0	0	0
Control Delay (s)	Err	360.9	14.2	0.0	0.0	10.8	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	Err	360.9	1.6			0.0		
Approach LOS	F	F						

Intersection Summary				
Average Delay	1434.5			
Intersection Capacity Utilization	89.9%	ICU Level of Service	E	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
87: O St & Santa Clara Street

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	55	30	0	379	0	0	0	0	225	102	608
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	60	33	0	412	0	0	0	0	245	111	661

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total (vph)	92	412	0	355	661
Volume Left (vph)	0	0	0	245	0
Volume Right (vph)	33	0	0	0	661
Hadj (s)	-0.18	0.03	0.00	0.17	-0.57
Departure Headway (s)	5.4	5.1	5.9	5.4	3.2
Degree Utilization, x	0.14	0.59	0.00	0.53	0.59
Capacity (veh/h)	609	671	533	631	1118
Control Delay (s)	9.2	15.1	8.9	14.4	10.6
Approach Delay (s)	9.2	15.1	0.0	12.0	
Approach LOS	A	C	A	B	

Intersection Summary			
Delay	12.7		
HCM Level of Service	B		
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
87: O St & Santa Clara Street

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	341	81	0	533	0	0	0	11	316	27	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	371	88	0	579	0	0	0	12	343	29	147

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total (vph)	459	579	12	373	147
Volume Left (vph)	0	0	0	343	0
Volume Right (vph)	88	0	12	0	147
Hadj (s)	-0.08	0.03	-0.57	0.22	-0.57
Departure Headway (s)	6.4	6.4	7.9	7.0	3.2
Degree Utilization, x	0.81	1.03	0.03	0.73	0.13
Capacity (veh/h)	556	553	388	373	1121
Control Delay (s)	31.4	70.3	11.2	26.7	6.7
Approach Delay (s)	31.4	70.3	11.2	21.1	
Approach LOS	D	F	B	C	

Intersection Summary			
Delay	42.2		
HCM Level of Service	E		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
89: M St & San Benito Street

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	196	211	0	0	0	171	0	108	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	213	229	0	0	0	186	0	117	12	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			229			748	655	115	611	655	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			229			748	655	115	611	655	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	87			100			100	65	99	100	100	100
cM capacity (veh/h)	1622			1336			271	333	916	245	333	1084

Direction, Lane #	SE 1	SE 2	SE 3	NW 1	NE 1	NE 2
Volume Total	213	115	115	186	78	51
Volume Left	213	0	0	0	0	0
Volume Right	0	0	0	186	0	12
cSH	1622	1700	1700	1700	333	392
Volume to Capacity	0.13	0.07	0.07	0.11	0.23	0.13
Queue Length 95th (ft)	11	0	0	0	22	11
Control Delay (s)	7.6	0.0	0.0	0.0	19.1	15.6
Lane LOS	A				C	C
Approach Delay (s)	3.6			0.0	17.7	
Approach LOS					C	

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	34.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

89: M St &

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	853	497	0	0	0	251	0	170	117	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	927	540	0	0	0	273	0	185	127	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1065										
pX, platoon unblocked												
vC, conflicting volume	0			540			2531	2395	270	2344	2395	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			540			2531	2395	270	2344	2395	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	43			100			100	0	83	0	100	100
cM capacity (veh/h)	1622			1024			8	14	728	0	14	1084

Direction, Lane #	SE 1	SE 2	SE 3	NW 1	NE 1	NE 2
Volume Total	927	270	270	273	123	189
Volume Left	927	0	0	0	0	0
Volume Right	0	0	0	273	0	127
cSH	1622	1700	1700	1700	14	42
Volume to Capacity	0.57	0.16	0.16	0.16	8.67	4.51
Queue Length 95th (ft)	96	0	0	0	Err	Err
Control Delay (s)	10.1	0.0	0.0	0.0	Err	Err
Lane LOS	B				F	F
Approach Delay (s)	6.4			0.0	Err	
Approach LOS					F	

Intersection Summary				
Average Delay	1524.6			
Intersection Capacity Utilization	74.7%	ICU Level of Service	D	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
90: Broadway St & Santa Clara Street

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	141	242	28	5	62	35	31	10	12	60	18	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	153	263	30	5	67	38	34	11	13	65	20	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)		502										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	105			293			724	701	278	701	697	86
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	105			102			601	574	84	574	570	86
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 %	90			100			89	97	98	80	94	97
cM capacity (veh/h)	1486			1286			302	331	841	327	332	972

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	447	111	58	117
Volume Left	153	5	34	65
Volume Right	30	38	13	33
cSH	1486	1286	360	402
Volume to Capacity	0.10	0.00	0.16	0.29
Queue Length 95th (ft)	9	0	14	30
Control Delay (s)	3.3	0.4	16.9	17.6
Lane LOS	A	A	C	C
Approach Delay (s)	3.3	0.4	16.9	17.6
Approach LOS			C	C

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
90: Broadway St & Santa Clara Street

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	34	357	20	7	280	35	35	3	5	71	31	73
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	388	22	8	304	38	38	3	5	77	34	79
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		478										
pX, platoon unblocked												
vC, conflicting volume	342			410			908	830	205	614	822	323
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	342			410			908	830	205	614	822	323
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			79	99	99	79	89	88
cM capacity (veh/h)	1213			1146			180	293	802	360	296	672

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	231	216	350	47	190
Volume Left	37	0	8	38	77
Volume Right	0	22	38	5	79
cSH	1213	1700	1146	204	426
Volume to Capacity	0.03	0.13	0.01	0.23	0.45
Queue Length 95th (ft)	2	0	1	21	56
Control Delay (s)	1.5	0.0	0.2	27.8	20.1
Lane LOS	A		A	D	C
Approach Delay (s)	0.8		0.2	27.8	20.1
Approach LOS				D	C

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
91: E Hamilton Ave & Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	3	2	4	6	0	23	5	96	8	79	171	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	4	7	0	25	5	104	9	86	186	46

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	10	7	25	118	317
Volume Left (vph)	3	7	0	5	86
Volume Right (vph)	4	0	25	9	46
Hadj (s)	-0.17	0.23	-0.57	0.00	0.00
Departure Headway (s)	4.7	5.1	3.2	4.2	4.1
Degree Utilization, x	0.01	0.01	0.02	0.14	0.36
Capacity (veh/h)	696	643	1121	827	878
Control Delay (s)	7.7	8.1	6.3	7.9	9.3
Approach Delay (s)	7.7	6.7		7.9	9.3
Approach LOS	A	A		A	A

Intersection Summary			
Delay	8.8		
HCM Level of Service	A		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
91: E Hamilton Ave & Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↰↑	↱		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	17	4	2	44	1	77	11	273	35	44	335	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	4	2	48	1	84	12	297	38	48	364	15

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	25	49	84	347	427
Volume Left (vph)	18	48	0	12	48
Volume Right (vph)	2	0	84	38	15
Hadj (s)	0.13	0.23	-0.57	-0.02	0.04
Departure Headway (s)	5.9	5.9	3.2	4.6	4.6
Degree Utilization, x	0.04	0.08	0.07	0.44	0.54
Capacity (veh/h)	526	529	1121	764	770
Control Delay (s)	9.1	9.4	6.5	11.1	12.8
Approach Delay (s)	9.1	7.6		11.1	12.8
Approach LOS	A	A		B	B

Intersection Summary				
Delay	11.3			
HCM Level of Service	B			
Intersection Capacity Utilization	52.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
92: E California Ave & Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	21	360	70	15	284	25	31	100	16	139	140	77
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	391	76	16	309	27	34	109	17	151	152	84
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	862	690	194	953	723	117	236			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	862	690	194	953	723	117	236			126		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	91	0	0	97	97			90		
cM capacity (veh/h)	0	322	847	0	308	935	1331			1460		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	490	352	160	387
Volume Left	23	16	34	151
Volume Right	76	27	17	84
cSH	0	0	1331	1460
Volume to Capacity	Err	Err	0.03	0.10
Queue Length 95th (ft)	Err	Err	2	9
Control Delay (s)	Err	Err	1.8	3.6
Lane LOS	F	F	A	A
Approach Delay (s)	Err	Err	1.8	3.6
Approach LOS	F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
92: E California Ave & Van Ness Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	142	538	60	92	474	43	113	132	171	402	222	135
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	154	585	65	100	515	47	123	143	186	437	241	147
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	1975	1764	315	2028	1744	236	388			329		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1975	1764	315	2028	1744	236	388			329		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	91	0	0	94	90			64		
cM capacity (veh/h)	0	49	726	0	50	803	1170			1230		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	804	662	452	825
Volume Left	154	100	123	437
Volume Right	65	47	186	147
cSH	0	0	1170	1230
Volume to Capacity	Err	Err	0.10	0.36
Queue Length 95th (ft)	Err	Err	9	41
Control Delay (s)	Err	Err	3.1	7.1
Lane LOS	F	F	A	A
Approach Delay (s)	Err	Err	3.1	7.1
Approach LOS	F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	133.7%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
96: E Church Ave & Golden State Blvd

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	135	543	420	151	445	395	529	1113	156	268	946	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	3893	1742	1947	2049	1742	1947	3821		1947	3761	
Flt Permitted	0.25	1.00	1.00	0.29	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	512	3893	1742	595	2049	1742	1947	3821		1947	3761	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	590	457	164	484	429	575	1210	170	291	1028	301
RTOR Reduction (vph)	0	0	291	0	0	315	0	18	0	0	39	0
Lane Group Flow (vph)	147	590	166	164	484	114	575	1362	0	291	1290	0
Turn Type	Perm		Perm	Perm		Perm	Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4		4						
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0	15.0	22.0		10.0	17.0	
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0	15.0	22.0		10.0	17.0	
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.27	0.25	0.37		0.17	0.28	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	137	1038	465	159	546	465	487	1401		325	1066	
v/s Ratio Prot		0.15			0.24		c0.30	0.36		0.15	c0.34	
v/s Ratio Perm	c0.29		0.10	0.28		0.07						
v/c Ratio	1.07	0.57	0.36	1.03	0.89	0.25	1.18	0.97		0.90	1.21	
Uniform Delay, d1	22.0	19.0	17.8	22.0	21.1	17.3	22.5	18.7		24.5	21.5	
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	97.7	0.7	0.5	79.9	15.9	0.3	100.8	17.7		25.4	103.6	
Delay (s)	119.7	19.7	18.3	101.9	37.0	17.5	123.3	36.4		49.9	125.1	
Level of Service	F	B	B	F	D	B	F	D		D	F	
Approach Delay (s)		31.5			39.1			61.9			111.6	
Approach LOS		C			D			E			F	

Intersection Summary			
HCM Average Control Delay	65.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
96: E Church Ave & Golden State Blvd

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	184	615	366	224	825	550	674	1463	176	494	1097	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1947	3893	1742	1947	2049	1742	1947	3831		1947	3666	
Flt Permitted	0.15	1.00	1.00	0.30	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	315	3893	1742	606	2049	1742	1947	3831		1947	3666	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	668	398	243	897	598	733	1590	191	537	1192	761
RTOR Reduction (vph)	0	0	206	0	0	207	0	13	0	0	53	0
Lane Group Flow (vph)	200	668	192	243	897	391	733	1768	0	537	1901	0
Turn Type	Perm		Perm	Perm		Perm	Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4		4						
Actuated Green, G (s)	26.0	26.0	26.0	26.0	26.0	26.0	11.0	23.0		9.0	21.0	
Effective Green, g (s)	26.0	26.0	26.0	26.0	26.0	26.0	11.0	23.0		9.0	21.0	
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.16	0.33		0.13	0.30	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	117	1446	647	225	761	647	306	1259		250	1100	
v/s Ratio Prot		0.17			0.44		c0.38	0.46		0.28	c0.52	
v/s Ratio Perm	c0.63		0.11	0.40		0.22						
v/c Ratio	1.71	0.46	0.30	1.08	1.18	0.60	2.40	1.40		2.15	1.73	
Uniform Delay, d1	22.0	16.7	15.5	22.0	22.0	17.8	29.5	23.5		30.5	24.5	
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	352.8	0.2	0.3	82.9	93.8	1.6	637.9	186.6		529.7	331.3	
Delay (s)	374.8	16.9	15.8	104.9	115.8	19.4	667.4	210.1		560.2	355.8	
Level of Service	F	B	B	F	F	B	F	F		F	F	
Approach Delay (s)		73.1			81.1			343.4			399.9	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM Average Control Delay	261.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.83		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	157.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
101: S East Ave & Golden State Blvd

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	104	335	67	137	265	26	24	1336	342	116	1262	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1947	1998		1947	2022		1947	3893	1742	1947	3893	1742
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1947	1998		1947	2022		1947	3893	1742	1947	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	364	73	149	288	28	26	1452	372	126	1372	103
RTOR Reduction (vph)	0	10	0	0	5	0	0	0	218	0	0	44
Lane Group Flow (vph)	113	427	0	149	311	0	26	1452	154	126	1372	59
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	6.2	15.1		7.8	16.7		2.9	25.7	25.7	6.2	29.0	29.0
Effective Green, g (s)	6.2	15.1		7.8	16.7		2.9	25.7	25.7	6.2	29.0	29.0
Actuated g/C Ratio	0.09	0.21		0.11	0.24		0.04	0.36	0.36	0.09	0.41	0.41
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	171	426		215	477		80	1413	632	171	1595	714
v/s Ratio Prot	0.06	c0.21		c0.08	0.15		0.01	c0.37		c0.06	c0.35	
v/s Ratio Perm									0.09			0.03
v/c Ratio	0.66	1.00		0.69	0.65		0.33	1.03	0.24	0.74	0.86	0.08
Uniform Delay, d1	31.3	27.8		30.3	24.4		33.0	22.5	15.8	31.5	19.1	12.8
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	9.2	44.1		9.3	3.2		2.4	31.3	0.2	15.2	5.0	0.1
Delay (s)	40.5	71.9		39.6	27.6		35.4	53.8	16.0	46.7	24.0	12.8
Level of Service	D	E		D	C		D	D	B	D	C	B
Approach Delay (s)		65.4			31.5			45.9			25.1	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM Average Control Delay	39.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	65	25	29	49	37	6	1	1627	39	18	2574	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1947	1882		1947	2003		1947	3893	1742	1947	3893	1742
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1947	1882		1947	2003		1947	3893	1742	1947	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	27	32	53	40	7	1	1768	42	20	2798	38
RTOR Reduction (vph)	0	28	0	0	6	0	0	0	13	0	0	5
Lane Group Flow (vph)	71	31	0	53	41	0	1	1768	29	20	2798	33
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	5.9	9.5		4.3	7.9		1.0	43.6	43.6	2.5	45.1	45.1
Effective Green, g (s)	5.9	9.5		4.3	7.9		1.0	43.6	43.6	2.5	45.1	45.1
Actuated g/C Ratio	0.08	0.13		0.06	0.10		0.01	0.57	0.57	0.03	0.59	0.59
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	151	236		110	208		26	2236	1001	64	2313	1035
v/s Ratio Prot	c0.04	0.02		0.03	c0.02		0.00	0.45		c0.01	c0.72	
v/s Ratio Perm									0.02			0.02
v/c Ratio	0.47	0.13		0.48	0.20		0.04	0.79	0.03	0.31	1.21	0.03
Uniform Delay, d1	33.5	29.5		34.7	31.1		37.0	12.6	7.0	35.9	15.4	6.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.3		3.3	0.5		0.6	2.0	0.0	2.8	98.7	0.0
Delay (s)	35.8	29.8		38.0	31.6		37.6	14.6	7.0	38.6	114.1	6.4
Level of Service	D	C		D	C		D	B	A	D	F	A
Approach Delay (s)		33.1			35.0			14.4			112.1	
Approach LOS		C			C			B			F	

Intersection Summary			
HCM Average Control Delay	72.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
102: E Jensen Ave & Golden State Blvd

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	378	405	159	954	670	18	183	182	1365	412	254	2038
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95			0.97	0.95		0.97	0.95
Frt	1.00	0.96		1.00	1.00			1.00	0.97		1.00	0.97
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	3776	3728		3776	3878			3776	3758		3776	3759
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (perm)	3776	3728		3776	3878			3776	3758		3776	3759
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	411	440	173	1037	728	20	199	198	1484	448	276	2215
RTOR Reduction (vph)	0	28	0	0	2	0	0	0	19	0	0	18
Lane Group Flow (vph)	411	585	0	1037	746	0	0	397	1913	0	276	2860
Turn Type	Prot			Prot			Prot	Prot			Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases												
Actuated Green, G (s)	17.0	19.0		29.0	31.0			9.0	75.0		11.0	77.0
Effective Green, g (s)	17.0	19.0		29.0	31.0			9.0	75.0		11.0	77.0
Actuated g/C Ratio	0.11	0.13		0.19	0.21			0.06	0.50		0.07	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)	428	472		730	801			227	1879		277	1930
v/s Ratio Prot	0.11	c0.16		c0.27	0.19			c0.11	0.51		0.07	c0.76
v/s Ratio Perm												
v/c Ratio	0.96	1.24		1.42	0.93			1.75	1.02		1.00	1.48
Uniform Delay, d1	66.2	65.5		60.5	58.5			70.5	37.5		69.5	36.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	33.3	124.8		197.2	17.4			354.6	25.4		52.7	219.6
Delay (s)	99.4	190.3		257.7	75.9			425.1	62.9		122.2	256.1
Level of Service	F	F		F	E			F	E		F	F
Approach Delay (s)		153.8			181.5				124.7			244.3
Approach LOS		F			F				F			F

Intersection Summary			
HCM Average Control Delay	186.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	143.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	610
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	663
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
102: E Jensen Ave & Golden State Blvd

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	653	621	517	1124	914	32	281	271	1920	443	502	2970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95			0.97	0.95		0.97	0.95
Frt	1.00	0.93		1.00	0.99			1.00	0.97		1.00	0.97
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	3776	3628		3776	3873			3776	3784		3776	3788
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (perm)	3776	3628		3776	3873			3776	3784		3776	3788
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	710	675	562	1222	993	35	305	295	2087	482	546	3228
RTOR Reduction (vph)	0	90	0	0	0	0	0	0	13	0	0	12
Lane Group Flow (vph)	710	1147	0	1222	1028	0	0	600	2556	0	546	3921
Turn Type	Prot			Prot			Prot	Prot			Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases												
Actuated Green, G (s)	15.0	28.0		24.0	37.0			10.0	70.0		12.0	72.0
Effective Green, g (s)	15.0	28.0		24.0	37.0			10.0	70.0		12.0	72.0
Actuated g/C Ratio	0.10	0.19		0.16	0.25			0.07	0.47		0.08	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)	378	677		604	955			252	1766		302	1818
v/s Ratio Prot	0.19	c0.32		c0.32	0.27			c0.16	0.68		0.14	c1.03
v/s Ratio Perm												
v/c Ratio	1.88	1.69		2.02	1.08			2.38	1.45		1.81	2.16
Uniform Delay, d1	67.5	61.0		63.0	56.5			70.0	40.0		69.0	39.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	405.2	318.6		466.2	52.0			633.5	204.5		376.5	522.3
Delay (s)	472.7	379.6		529.2	108.5			703.5	244.5		445.5	561.3
Level of Service	F	F		F	F			F	F		F	F
Approach Delay (s)		413.5			337.0				331.4			547.1
Approach LOS		F			F				F			F

Intersection Summary			
HCM Average Control Delay	427.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	197.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	649
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	705
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis
104: Orange Ave & Golden State Blvd

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	51	0	27	0	0	0	0	1081	79	29	1020	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	0	29	0	0	0	0	1175	86	32	1109	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1835	2390	630	1759	2433	554	1109			1261		
vC1, stage 1 conf vol	1218	1218		1172	1172							
vC2, stage 2 conf vol	617	1172		588	1261							
vCu, unblocked vol	1835	2390	630	1759	2433	554	1109			1261		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	60	100	93	100	100	100	100			94		
cM capacity (veh/h)	137	129	424	137	117	476	626			547		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	85	0	0	783	478	32	739	370
Volume Left	55	0	0	0	0	32	0	0
Volume Right	29	0	0	0	86	0	0	0
cSH	179	1700	1700	1700	1700	547	1700	1700
Volume to Capacity	0.47	0.00	0.00	0.46	0.28	0.06	0.43	0.22
Queue Length 95th (ft)	57	0	0	0	0	5	0	0
Control Delay (s)	42.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0
Lane LOS	E	A				B		
Approach Delay (s)	42.0	0.0	0.0			0.3		
Approach LOS	E	A						

Intersection Summary

Average Delay	1.6		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
104: Orange Ave & Golden State Blvd

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	150	0	96	0	0	0	0	1562	96	61	1990	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	163	0	104	0	0	0	0	1698	104	66	2163	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2964	4046	901	3145	4098	1082	2163			1802		
vC1, stage 1 conf vol	1750	1750		2296	2296							
vC2, stage 2 conf vol	1214	2296		849	1802							
vCu, unblocked vol	2964	4046	901	3145	4098	1082	2163			1802		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	63	100	100	100	100			80		
cM capacity (veh/h)	54	38	281	24	29	213	244			338		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	267	0	0	1132	670	66	1442	721
Volume Left	163	0	0	0	0	66	0	0
Volume Right	104	0	0	0	104	0	0	0
cSH	79	1700	1700	1700	1700	338	1700	1700
Volume to Capacity	3.40	0.00	0.00	0.67	0.39	0.20	0.85	0.42
Queue Length 95th (ft)	Err	0	0	0	0	18	0	0
Control Delay (s)	Err	0.0	0.0	0.0	0.0	18.2	0.0	0.0
Lane LOS	F	A				C		
Approach Delay (s)	Err	0.0	0.0			0.5		
Approach LOS	F	A						

Intersection Summary				
Average Delay	622.2			
Intersection Capacity Utilization	75.9%	ICU Level of Service	D	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
105: SR 99 South Offramp & White Bridge Ave

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Right Turn Channelized												
Volume (veh/h)	0	464	286	0	0	0	0	0	0	781	138	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	504	311	0	0	0	0	0	0	849	150	0
Approach Volume (veh/h)		815			0			0			999	
Crossing Volume (veh/h)		999			0			1353#			0	
High Capacity (veh/h)		623			1385			465			1385	
High v/c (veh/h)		1.31			0.00			0.00			0.72	
Low Capacity (veh/h)		483			1161			349			1161	
Low v/c (veh/h)		1.69			0.00			0.00			0.86	

Intersection Summary			
Maximum v/c High	1.31		
Maximum v/c Low	1.69		
Intersection Capacity Utilization	99.1%	ICU Level of Service	F

Crossing flow exceeds 1200, method is not applicable

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Right Turn Channelized												
Volume (veh/h)	0	169	332	0	0	0	0	0	0	1156	1398	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.81	0.81	0.81
Hourly flow rate (vph)	0	184	361	0	0	0	0	0	0	1427	1726	0
Approach Volume (veh/h)		545			0			0			3153	
Crossing Volume (veh/h)		3153#			0			1611#			0	
High Capacity (veh/h)		97			1385			374			1385	
High v/c (veh/h)		5.62			0.00			0.00			2.28	
Low Capacity (veh/h)		60			1161			274			1161	
Low v/c (veh/h)		9.06			0.00			0.00			2.72	

Intersection Summary			
Maximum v/c High	5.62		
Maximum v/c Low	9.06		
Intersection Capacity Utilization	173.5%	ICU Level of Service	H

Crossing flow exceeds 1200, method is not applicable

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Right Turn Channelized												Yes
Volume (veh/h)	0	0	0	58	222	0	0	0	0	0	860	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	63	241	0	0	0	0	0	935	153
Approach Volume (veh/h)		0			304			0			935	
Crossing Volume (veh/h)		998			0			0			304	
High Capacity (veh/h)		624			1385			1385			1091	
High v/c (veh/h)		0.00			0.22			0.00			0.86	
Low Capacity (veh/h)		484			1161			1161			895	
Low v/c (veh/h)		0.00			0.26			0.00			1.04	

Intersection Summary				
Maximum v/c High	0.86			
Maximum v/c Low	1.04			
Intersection Capacity Utilization	66.8%	ICU Level of Service	C	

HCM Unsignalized Intersection Capacity Analysis
106: SR 99 North Onramp & Stanislaus St

4/9/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Right Turn Channelized												Yes
Volume (veh/h)	0	0	0	468	577	0	0	0	0	0	2102	638
Peak Hour Factor	0.92	0.92	0.92	0.78	0.78	0.78	0.92	0.92	0.92	0.71	0.71	0.71
Hourly flow rate (vph)	0	0	0	600	740	0	0	0	0	0	2961	899
Approach Volume (veh/h)		0			1340			0			2961	
Crossing Volume (veh/h)		3561#			0			0			1340#	
High Capacity (veh/h)		67			1385			1385			470	
High v/c (veh/h)		0.00			0.97			0.00			6.30	
Low Capacity (veh/h)		39			1161			1161			353	
Low v/c (veh/h)		0.00			1.15			0.00			8.38	

Intersection Summary			
Maximum v/c High	6.30		
Maximum v/c Low	8.38		
Intersection Capacity Utilization	173.6%	ICU Level of Service	H

Crossing flow exceeds 1200, method is not applicable

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	545	672	0	0	0	0	0	568	371	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.91				
Frt		1.00						0.94				
Flt Protected		0.98						1.00				
Satd. Flow (prot)		3808						5262				
Flt Permitted		0.98						1.00				
Satd. Flow (perm)		3808						5262				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	592	730	0	0	0	0	0	617	403	0	0	0
RTOR Reduction (vph)	0	83	0	0	0	0	0	61	0	0	0	0
Lane Group Flow (vph)	0	1239	0	0	0	0	0	959	0	0	0	0
Turn Type	Split											
Protected Phases	6	6						4				
Permitted Phases												
Actuated Green, G (s)		15.7						14.0				
Effective Green, g (s)		15.7						14.0				
Actuated g/C Ratio		0.42						0.37				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		1586						1954				
v/s Ratio Prot		c0.33						c0.18				
v/s Ratio Perm												
v/c Ratio		0.78						0.49				
Uniform Delay, d1		9.5						9.1				
Progression Factor		1.00						1.00				
Incremental Delay, d2		2.6						0.2				
Delay (s)		12.1						9.3				
Level of Service		B						A				
Approach Delay (s)		12.1			0.0			9.3			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	37.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	362	957	0	0	0	0	0	405	122	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.91				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3840						5400				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3840						5400				
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	402	1063	0	0	0	0	0	455	137	0	0	0
RTOR Reduction (vph)	0	78	0	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	0	1387	0	0	0	0	0	555	0	0	0	0
Turn Type	Split											
Protected Phases	6	6						4				
Permitted Phases												
Actuated Green, G (s)		20.0						10.3				
Effective Green, g (s)		20.0						10.3				
Actuated g/C Ratio		0.52						0.27				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		2005						1452				
v/s Ratio Prot		c0.36						c0.10				
v/s Ratio Perm												
v/c Ratio		0.69						0.38				
Uniform Delay, d1		6.8						11.4				
Progression Factor		1.00						1.00				
Incremental Delay, d2		1.0						0.2				
Delay (s)		7.9						11.6				
Level of Service		A						B				
Approach Delay (s)		7.9			0.0			11.6			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	38.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	63	505	210	987	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.95			0.91				
Frt					0.87			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					3374			5545				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					3374			5545				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	68	549	228	1073	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	19	0	0	78	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	598	0	0	1223	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Actuated Green, G (s)					12.0			15.1				
Effective Green, g (s)					12.0			15.1				
Actuated g/C Ratio					0.34			0.43				
Clearance Time (s)					4.0			4.0				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					1154			2385				
v/s Ratio Prot					c0.18			c0.22				
v/s Ratio Perm												
v/c Ratio					0.88dr			0.51				
Uniform Delay, d1					9.2			7.3				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.4			0.2				
Delay (s)					9.6			7.5				
Level of Service					A			A				
Approach Delay (s)		0.0			9.6			7.5			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	35.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	15	554	519	0	52	957
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	1742	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	1742	2049		1947	3893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	602	564	0	57	1040
RTOR Reduction (vph)	0	209	0	0	0	0
Lane Group Flow (vph)	16	393	564	0	57	1040
Turn Type		Prot			Prot	
Protected Phases	2	2	4		3	8
Permitted Phases						
Actuated Green, G (s)	14.0	14.0	18.0		2.0	24.0
Effective Green, g (s)	14.0	14.0	18.0		2.0	24.0
Actuated g/C Ratio	0.30	0.30	0.39		0.04	0.52
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	593	530	802		85	2031
v/s Ratio Prot	0.01	c0.23	c0.28		0.03	c0.27
v/s Ratio Perm						
v/c Ratio	0.03	0.74	0.70		0.67	0.51
Uniform Delay, d1	11.2	14.4	11.8		21.7	7.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	5.6	2.8		18.8	0.2
Delay (s)	11.2	19.9	14.6		40.5	7.4
Level of Service	B	B	B		D	A
Approach Delay (s)	19.7		14.6			9.1
Approach LOS	B		B			A

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	664	793	371	398	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.95			0.91				
Frt					0.92			1.00				
Flt Protected					1.00			0.98				
Satd. Flow (prot)					3575			5462				
Flt Permitted					1.00			0.98				
Satd. Flow (perm)					3575			5462				
Peak-hour factor, PHF	0.92	0.92	0.92	0.73	0.73	0.73	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	910	1086	412	442	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	47	0	0	112	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1949	0	0	742	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Actuated Green, G (s)					36.0			14.2				
Effective Green, g (s)					36.0			14.2				
Actuated g/C Ratio					0.62			0.24				
Clearance Time (s)					4.0			4.0				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					2211			1333				
v/s Ratio Prot					c0.55			c0.14				
v/s Ratio Perm												
v/c Ratio					0.95dr			0.56				
Uniform Delay, d1					9.3			19.2				
Progression Factor					1.00			1.00				
Incremental Delay, d2					4.5			0.5				
Delay (s)					13.8			19.8				
Level of Service					B			B				
Approach Delay (s)		0.0			13.8			19.8			0.0	
Approach LOS		A			B			B			A	

Intersection Summary

HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	55	0	0	48	0	524	0	126	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0		4.0			
Lane Util. Factor	1.00	1.00			1.00		1.00		1.00			
Frt	1.00	1.00			1.00		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	1947	2049			2049		1947		1742			
Flt Permitted	0.72	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1482	2049			2049		1947		1742			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	60	0	0	52	0	570	0	137	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	66	0	0	0
Lane Group Flow (vph)	5	60	0	0	52	0	570	0	71	0	0	0
Turn Type	Perm						Prot		Perm	Prot		custom
Protected Phases		6			2		7	4		3		8
Permitted Phases	6								4			
Actuated Green, G (s)	6.5	6.5			6.5		15.7		15.7			
Effective Green, g (s)	6.5	6.5			6.5		15.7		15.7			
Actuated g/C Ratio	0.22	0.22			0.22		0.52		0.52			
Clearance Time (s)	4.0	4.0			4.0		4.0		4.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)	319	441			441		1012		906			
v/s Ratio Prot		c0.03			0.03		c0.29					
v/s Ratio Perm	0.00								0.04			
v/c Ratio	0.02	0.14			0.12		0.56		0.08			
Uniform Delay, d1	9.3	9.6			9.5		4.9		3.6			
Progression Factor	1.00	1.00			1.00		1.00		1.00			
Incremental Delay, d2	0.0	0.1			0.1		0.7		0.0			
Delay (s)	9.4	9.7			9.7		5.6		3.7			
Level of Service	A	A			A		A		A			
Approach Delay (s)		9.7			9.7			5.3			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	5.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	30.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	530	888	414	0	42	1885
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	1742	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	1742	2049		1947	3893
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	596	998	450	0	47	2118
RTOR Reduction (vph)	0	229	0	0	0	0
Lane Group Flow (vph)	596	769	450	0	47	2118
Turn Type		Perm			Prot	
Protected Phases	2		4		3	8
Permitted Phases		2				
Actuated Green, G (s)	49.0	49.0	53.6		6.2	63.8
Effective Green, g (s)	49.0	49.0	53.6		6.2	63.8
Actuated g/C Ratio	0.41	0.41	0.44		0.05	0.53
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	790	707	909		100	2056
v/s Ratio Prot	0.31		0.22		0.02	c0.54
v/s Ratio Perm		c0.44				
v/c Ratio	0.75	1.09	0.50		0.47	1.03
Uniform Delay, d1	30.7	35.9	24.0		55.7	28.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.1	60.0	0.4		3.5	28.0
Delay (s)	34.9	95.9	24.4		59.2	56.5
Level of Service	C	F	C		E	E
Approach Delay (s)	73.1		24.4			56.6
Approach LOS	E		C			E

Intersection Summary			
HCM Average Control Delay	59.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	37	0	0	995	0	436	0	173	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		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)		2049			2049		1947		1742			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		2049			2049		1947		1742			
Peak-hour factor, PHF	0.75	0.75	0.75	0.73	0.73	0.73	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	0	49	0	0	1363	0	469	0	186	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	140	0	0	0
Lane Group Flow (vph)	0	49	0	0	1363	0	469	0	46	0	0	0
Turn Type	Perm						Prot		Perm	Prot		custom
Protected Phases		6			2		7	4		3		8
Permitted Phases	6								4			
Actuated Green, G (s)		90.0			90.0		32.0		32.0			
Effective Green, g (s)		90.0			90.0		32.0		32.0			
Actuated g/C Ratio		0.69			0.69		0.25		0.25			
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)		1419			1419		479		429			
v/s Ratio Prot		0.02			c0.67		c0.24					
v/s Ratio Perm									0.03			
v/c Ratio		0.03			0.96		0.98		0.11			
Uniform Delay, d1		6.3			18.4		48.7		37.9			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.0			15.5		35.3		0.1			
Delay (s)		6.3			33.8		83.9		38.0			
Level of Service		A			C		F		D			
Approach Delay (s)		6.3			33.8			70.9			0.0	
Approach LOS		A			C			E			A	

Intersection Summary			
HCM Average Control Delay	44.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	656	192	18	100	0	0	433	34	56	532	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.97		1.00	1.00			0.99		1.00	0.98	
Flt Protected		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1979		1947	2049			2027		1947	2004	
Flt Permitted		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (perm)		1979		1947	2049			2027		1947	2004	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	713	209	20	109	0	0	471	37	61	578	99
RTOR Reduction (vph)	0	10	0	0	0	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	912	0	20	109	0	0	505	0	61	671	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		45.2		1.5	50.7			28.9		3.9	36.8	
Effective Green, g (s)		45.2		1.5	50.7			28.9		3.9	36.8	
Actuated g/C Ratio		0.47		0.02	0.53			0.30		0.04	0.39	
Clearance Time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		937		31	1088			613		80	772	
v/s Ratio Prot		c0.46		c0.01	0.05			0.25		0.03	c0.34	
v/s Ratio Perm												
v/c Ratio		0.97		0.65	0.10			0.82		0.76	0.87	
Uniform Delay, d1		24.6		46.7	11.1			30.9		45.3	27.1	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		22.9		37.9	0.0			8.8		34.2	10.3	
Delay (s)		47.5		84.6	11.1			39.8		79.5	37.4	
Level of Service		D		F	B			D		E	D	
Approach Delay (s)		47.5			22.5			39.8			40.9	
Approach LOS		D			C			D			D	

Intersection Summary

HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	95.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	468	107	123	185	0	0	255	255	0	1644	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frt		0.97		1.00	1.00			0.93			0.99	
Flt Protected		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1992		1947	2049			1895			2024	
Flt Permitted		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (perm)		1992		1947	2049			1895			2024	
Peak-hour factor, PHF	0.82	0.82	0.82	0.48	0.48	0.48	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	571	130	256	385	0	0	277	277	0	2192	196
RTOR Reduction (vph)	0	5	0	0	0	0	0	19	0	0	2	0
Lane Group Flow (vph)	0	696	0	256	385	0	0	535	0	0	2386	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		34.0		11.0	49.0			85.0			85.0	
Effective Green, g (s)		34.0		11.0	49.0			85.0			85.0	
Actuated g/C Ratio		0.24		0.08	0.35			0.60			0.60	
Clearance Time (s)		4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		477		151	707			1134			1212	
v/s Ratio Prot		c0.35		c0.13	0.19			0.28			c1.18	
v/s Ratio Perm												
v/c Ratio		1.46		1.70	0.54			0.47			1.97	
Uniform Delay, d1		54.0		65.5	37.5			15.9			28.5	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		217.7		339.7	0.9			0.3			438.9	
Delay (s)		271.7		405.2	38.4			16.3			467.4	
Level of Service		F		F	D			B			F	
Approach Delay (s)		271.7			184.9			16.3			467.4	
Approach LOS		F			F			B			F	

Intersection Summary

HCM Average Control Delay	334.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.81		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	143.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	759	0	420	185	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0		
Lane Util. Factor	1.00		1.00	1.00		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1947		1947	2049		
Flt Permitted	0.95		0.76	1.00		
Satd. Flow (perm)	1947		1552	2049		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	825	0	457	201	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	825	0	457	201	0	0
Turn Type		Perm	Perm			
Protected Phases	6			4	8	
Permitted Phases		6	4			
Actuated Green, G (s)	23.0		15.7	15.7		
Effective Green, g (s)	23.0		15.7	15.7		
Actuated g/C Ratio	0.49		0.34	0.34		
Clearance Time (s)	4.0		4.0	4.0		
Vehicle Extension (s)	3.0		3.0	3.0		
Lane Grp Cap (vph)	959		522	689		
v/s Ratio Prot	c0.42			0.10		
v/s Ratio Perm			c0.29			
v/c Ratio	0.86		0.88	0.29		
Uniform Delay, d1	10.4		14.6	11.4		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	8.0		15.1	0.2		
Delay (s)	18.4		29.7	11.6		
Level of Service	B		C	B		
Approach Delay (s)	18.4			24.2	0.0	
Approach LOS	B			C	A	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	46.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	583	0	298	50	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0		
Lane Util. Factor	1.00		1.00	1.00		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1947		1947	2049		
Flt Permitted	0.95		0.76	1.00		
Satd. Flow (perm)	1947		1552	2049		
Peak-hour factor, PHF	0.81	0.81	0.83	0.83	0.92	0.92
Adj. Flow (vph)	720	0	359	60	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	720	0	359	60	0	0
Turn Type		Perm	Perm			
Protected Phases	6			4	8	
Permitted Phases		6	4			
Actuated Green, G (s)	17.7		13.0	13.0		
Effective Green, g (s)	17.7		13.0	13.0		
Actuated g/C Ratio	0.46		0.34	0.34		
Clearance Time (s)	4.0		4.0	4.0		
Vehicle Extension (s)	3.0		3.0	3.0		
Lane Grp Cap (vph)	890		521	688		
v/s Ratio Prot	c0.37			0.03		
v/s Ratio Perm			c0.23			
v/c Ratio	0.81		0.69	0.09		
Uniform Delay, d1	9.0		11.1	8.8		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	5.5		3.8	0.1		
Delay (s)	14.5		14.9	8.8		
Level of Service	B		B	A		
Approach Delay (s)	14.5			14.0	0.0	
Approach LOS	B			B	A	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	38.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	171	21	115	122	0	0	0	0	202	716	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		0.99			1.00					1.00	1.00	
Flt Protected		1.00			0.98					0.95	1.00	
Satd. Flow (prot)		2019			2001					1947	2046	
Flt Permitted		1.00			0.98					0.95	1.00	
Satd. Flow (perm)		2019			2001					1947	2046	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	186	23	125	133	0	0	0	0	220	778	7
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	203	0	0	258	0	0	0	0	220	784	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		11.7			13.0					28.2	28.2	
Effective Green, g (s)		11.7			13.0					28.2	28.2	
Actuated g/C Ratio		0.18			0.20					0.43	0.43	
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)		364			401					846	889	
v/s Ratio Prot		c0.10			c0.13					0.11	c0.38	
v/s Ratio Perm												
v/c Ratio		0.56			0.64					0.26	0.88	
Uniform Delay, d1		24.2			23.8					11.7	16.8	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.9			3.5					0.2	10.3	
Delay (s)		26.1			27.3					11.9	27.1	
Level of Service		C			C					B	C	
Approach Delay (s)		26.1			27.3			0.0			23.8	
Approach LOS		C			C			A			C	

Intersection Summary

HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	64.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	129	72	230	476	0	0	0	0	226	1549	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	
Lane Util. Factor		1.00			1.00					1.00	1.00	
Frt		0.95			1.00					1.00	1.00	
Flt Protected		1.00			0.98					0.95	1.00	
Satd. Flow (prot)		1950			2016					1947	2046	
Flt Permitted		1.00			0.98					0.95	1.00	
Satd. Flow (perm)		1950			2016					1947	2046	
Peak-hour factor, PHF	0.77	0.77	0.77	0.75	0.75	0.75	0.92	0.92	0.92	0.81	0.81	0.81
Adj. Flow (vph)	0	168	94	307	635	0	0	0	0	279	1912	17
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	249	0	0	942	0	0	0	0	279	1929	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		16.0			42.0					72.0	72.0	
Effective Green, g (s)		16.0			42.0					72.0	72.0	
Actuated g/C Ratio		0.11			0.30					0.51	0.51	
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)		220			596					987	1037	
v/s Ratio Prot		c0.13			c0.47					0.14	c0.94	
v/s Ratio Perm												
v/c Ratio		1.13			1.58					0.28	1.86	
Uniform Delay, d1		63.0			50.0					20.1	35.0	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		100.2			269.2					0.2	390.8	
Delay (s)		163.2			319.2					20.3	425.8	
Level of Service		F			F					C	F	
Approach Delay (s)		163.2			319.2			0.0			374.6	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	343.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	141.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	33	640	0	0	120	48	180	552	89	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frt		1.00			0.96			0.98				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		2044			1970			3788				
Flt Permitted		0.98			1.00			0.99				
Satd. Flow (perm)		2010			1970			3788				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	696	0	0	130	52	196	600	97	0	0	0
RTOR Reduction (vph)	0	0	0	0	29	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	732	0	0	153	0	0	872	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		6			2		4	4				
Permitted Phases	6											
Actuated Green, G (s)		18.5			18.5			14.5				
Effective Green, g (s)		18.5			18.5			14.5				
Actuated g/C Ratio		0.45			0.45			0.35				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		907			889			1340				
v/s Ratio Prot					0.08			c0.23				
v/s Ratio Perm		c0.36										
v/c Ratio		0.81			0.17			0.65				
Uniform Delay, d1		9.7			6.7			11.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		5.3			0.1			1.1				
Delay (s)		15.0			6.8			12.3				
Level of Service		B			A			B				
Approach Delay (s)		15.0			6.8			12.3			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	41.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	78	0	0	250	140	48	670	34	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frt		1.00			0.95			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		2008			1950			3855				
Flt Permitted		0.61			1.00			1.00				
Satd. Flow (perm)		1254			1950			3855				
Peak-hour factor, PHF	0.79	0.79	0.79	0.74	0.74	0.74	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	67	99	0	0	338	189	50	698	35	0	0	0
RTOR Reduction (vph)	0	0	0	0	53	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	166	0	0	474	0	0	774	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		6			2		4	4				
Permitted Phases	6											
Actuated Green, G (s)		12.6			12.6			13.1				
Effective Green, g (s)		12.6			12.6			13.1				
Actuated g/C Ratio		0.37			0.37			0.39				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		469			729			1499				
v/s Ratio Prot					c0.24			c0.20				
v/s Ratio Perm		0.13										
v/c Ratio		0.35			0.65			0.52				
Uniform Delay, d1		7.6			8.7			7.9				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.5			2.1			0.3				
Delay (s)		8.1			10.8			8.2				
Level of Service		A			B			A				
Approach Delay (s)		8.1			10.8			8.2			0.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	33.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	444	230	0	0	0	0	0	0	760	693	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		1.00								1.00	1.00	
Frt		0.95								1.00	1.00	
Flt Protected		1.00								0.95	1.00	
Satd. Flow (prot)		1955								1947	2040	
Flt Permitted		1.00								0.95	1.00	
Satd. Flow (perm)		1955								1947	2040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	483	250	0	0	0	0	0	0	826	753	22
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	720	0	0	0	0	0	0	0	826	774	0
Turn Type	Perm						Prot			Prot		
Protected Phases		6					7	4		3	8	
Permitted Phases	6											
Actuated Green, G (s)		47.0								55.7	55.7	
Effective Green, g (s)		47.0								55.7	55.7	
Actuated g/C Ratio		0.42								0.50	0.50	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		830								980	1026	
v/s Ratio Prot		c0.37								c0.42	0.38	
v/s Ratio Perm												
v/c Ratio		0.87								0.84	0.75	
Uniform Delay, d1		29.0								23.7	22.0	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		9.5								6.7	3.2	
Delay (s)		38.5								30.4	25.2	
Level of Service		D								C	C	
Approach Delay (s)		38.5			0.0			0.0			27.9	
Approach LOS		D			A			A			C	

Intersection Summary

HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	365	403	0	0	0	0	0	0	590	1385	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		1.00								1.00	1.00	
Frt		0.93								1.00	0.99	
Flt Protected		1.00								0.95	1.00	
Satd. Flow (prot)		1904								1947	2038	
Flt Permitted		1.00								0.95	1.00	
Satd. Flow (perm)		1904								1947	2038	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	0	440	486	0	0	0	0	0	0	702	1649	60
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	900	0	0	0	0	0	0	0	702	1708	0
Turn Type	Perm						Prot			Prot		
Protected Phases		6					7	4		3	8	
Permitted Phases	6											
Actuated Green, G (s)		50.0								84.0	84.0	
Effective Green, g (s)		50.0								84.0	84.0	
Actuated g/C Ratio		0.35								0.59	0.59	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		670								1152	1206	
v/s Ratio Prot		c0.47								0.36	c0.84	
v/s Ratio Perm												
v/c Ratio		1.34								0.61	1.42	
Uniform Delay, d1		46.0								18.5	29.0	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		164.4								0.9	192.3	
Delay (s)		210.4								19.4	221.3	
Level of Service		F								B	F	
Approach Delay (s)		210.4			0.0			0.0			162.5	
Approach LOS		F			A			A			F	

Intersection Summary			
HCM Average Control Delay	175.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	126.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	106	1107	0	0	0	0	0	508	168	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.95				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		3876						3748				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		3876						3748				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	1203	0	0	0	0	0	552	183	0	0	0
RTOR Reduction (vph)	0	17	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	1301	0	0	0	0	0	723	0	0	0	0
Turn Type	Perm											
Protected Phases		6						4				
Permitted Phases	6											
Actuated Green, G (s)		15.8						13.0				
Effective Green, g (s)		15.8						13.0				
Actuated g/C Ratio		0.43						0.35				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		1664						1324				
v/s Ratio Prot								c0.19				
v/s Ratio Perm		0.34										
v/c Ratio		0.78						0.55				
Uniform Delay, d1		9.0						9.5				
Progression Factor		1.00						1.00				
Incremental Delay, d2		2.5						0.5				
Delay (s)		11.5						10.0				
Level of Service		B						B				
Approach Delay (s)		11.5			0.0			10.0			0.0	
Approach LOS		B			A			B			A	

Intersection Summary

HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	36.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	260	704	0	0	0	0	0	587	298	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.95				
Frt		1.00						0.95				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3841						3697				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3841						3697				
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	289	782	0	0	0	0	0	631	320	0	0	0
RTOR Reduction (vph)	0	82	0	0	0	0	0	50	0	0	0	0
Lane Group Flow (vph)	0	989	0	0	0	0	0	901	0	0	0	0
Turn Type	Perm											
Protected Phases		6						4				
Permitted Phases	6											
Actuated Green, G (s)		15.0						14.5				
Effective Green, g (s)		15.0						14.5				
Actuated g/C Ratio		0.40						0.39				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		1536						1430				
v/s Ratio Prot								c0.24				
v/s Ratio Perm		0.26										
v/c Ratio		0.64						0.63				
Uniform Delay, d1		9.1						9.3				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.9						0.9				
Delay (s)		10.0						10.2				
Level of Service		B						B				
Approach Delay (s)		10.0			0.0			10.2			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	37.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	221	40	239	44	0	0	0	0	388	1086	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.98		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		2002		1947	2049					1947	2045	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		2002		1947	2049					1947	2045	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	240	43	260	48	0	0	0	0	422	1180	14
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	276	0	260	48	0	0	0	0	422	1194	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		15.9		12.0	31.9					51.0	51.0	
Effective Green, g (s)		15.9		12.0	31.9					51.0	51.0	
Actuated g/C Ratio		0.17		0.13	0.35					0.56	0.56	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		350		257	719					1092	1147	
v/s Ratio Prot		c0.14		c0.13	0.02					0.22	c0.58	
v/s Ratio Perm												
v/c Ratio		0.79		1.01	0.07					0.39	1.04	
Uniform Delay, d1		35.9		39.5	19.6					11.2	20.0	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		11.3		59.2	0.0					0.2	37.7	
Delay (s)		47.2		98.6	19.6					11.4	57.7	
Level of Service		D		F	B					B	E	
Approach Delay (s)		47.2			86.3			0.0			45.6	
Approach LOS		D			F			A			D	

Intersection Summary			
HCM Average Control Delay	51.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	122	33	392	462	0	0	0	0	339	1740	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1984		1947	2049					1947	2049	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1984		1947	2049					1947	2049	
Peak-hour factor, PHF	0.55	0.55	0.55	0.57	0.57	0.57	0.92	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	222	60	688	811	0	0	0	0	399	2047	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	276	0	688	811	0	0	0	0	399	2047	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		19.0		28.0	51.0					83.0	83.0	
Effective Green, g (s)		19.0		28.0	51.0					83.0	83.0	
Actuated g/C Ratio		0.13		0.20	0.36					0.58	0.58	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		265		384	736					1138	1198	
v/s Ratio Prot		0.14		c0.35	c0.40					0.20	c1.00	
v/s Ratio Perm												
v/c Ratio		1.04		1.79	1.10					0.35	1.71	
Uniform Delay, d1		61.5		57.0	45.5					15.4	29.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		66.5		366.6	64.6					0.2	322.5	
Delay (s)		128.0		423.6	110.1					15.6	352.0	
Level of Service		F		F	F					B	F	
Approach Delay (s)		128.0			254.0			0.0			297.1	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	270.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.61		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	131.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	152	390	0	0	248	47	112	453	44	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1947	2049			2049	1742		3816				
Flt Permitted	0.59	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	1215	2049			2049	1742		3816				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	424	0	0	270	51	122	492	48	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	32	0	15	0	0	0	0
Lane Group Flow (vph)	165	424	0	0	270	19	0	647	0	0	0	0
Turn Type	Perm					Perm	Perm					
Protected Phases		6			2			4				
Permitted Phases	6					2	4					
Actuated Green, G (s)	12.0	12.0			12.0	12.0		11.9				
Effective Green, g (s)	12.0	12.0			12.0	12.0		11.9				
Actuated g/C Ratio	0.38	0.38			0.38	0.38		0.37				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	457	771			771	655		1424				
v/s Ratio Prot		c0.21			0.13							
v/s Ratio Perm	0.14					0.01		0.17				
v/c Ratio	0.36	0.55			0.35	0.03		0.45				
Uniform Delay, d1	7.2	7.8			7.1	6.3		7.5				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	0.5	0.8			0.3	0.0		0.2				
Delay (s)	7.7	8.6			7.4	6.3		7.8				
Level of Service	A	A			A	A		A				
Approach Delay (s)		8.4			7.2			7.8			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	31.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	46	108	0	0	271	80	59	759	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1947	2049			2049	1742		3859				
Flt Permitted	0.35	1.00			1.00	1.00		1.00				
Satd. Flow (perm)	707	2049			2049	1742		3859				
Peak-hour factor, PHF	0.72	0.72	0.72	0.59	0.59	0.59	0.75	0.75	0.75	0.92	0.92	0.92
Adj. Flow (vph)	64	150	0	0	459	136	79	1012	41	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	23	0	6	0	0	0	0
Lane Group Flow (vph)	64	150	0	0	459	113	0	1126	0	0	0	0
Turn Type	Perm					Perm	Perm					
Protected Phases		6			2			4				
Permitted Phases	6					2	4					
Actuated Green, G (s)	12.8	12.8			12.8	12.8		15.2				
Effective Green, g (s)	12.8	12.8			12.8	12.8		15.2				
Actuated g/C Ratio	0.36	0.36			0.36	0.36		0.42				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	251	729			729	619		1629				
v/s Ratio Prot		0.07			c0.22							
v/s Ratio Perm	0.09					0.06		0.29				
v/c Ratio	0.25	0.21			0.63	0.18		0.69				
Uniform Delay, d1	8.2	8.1			9.6	8.0		8.5				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	0.5	0.1			1.7	0.1		1.3				
Delay (s)	8.8	8.2			11.3	8.1		9.8				
Level of Service	A	A			B	A		A				
Approach Delay (s)		8.4			10.6			9.8			0.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	36.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	483	808	650	40	20	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	3893	3860		1947	1742
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	3893	3860		1947	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	525	878	707	43	22	389
RTOR Reduction (vph)	0	0	7	0	0	330
Lane Group Flow (vph)	525	878	743	0	22	59
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	16.1	34.9	14.8		7.6	7.6
Effective Green, g (s)	16.1	34.9	14.8		7.6	7.6
Actuated g/C Ratio	0.32	0.69	0.29		0.15	0.15
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	621	2690	1131		293	262
v/s Ratio Prot	c0.27	0.23	c0.19		0.01	
v/s Ratio Perm						c0.03
v/c Ratio	0.85	0.33	0.66		0.08	0.22
Uniform Delay, d1	16.0	3.1	15.6		18.4	18.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.3	0.1	1.4		0.1	0.4
Delay (s)	26.3	3.2	17.0		18.5	19.3
Level of Service	C	A	B		B	B
Approach Delay (s)		11.8	17.0		19.3	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	597	1390	990	60	59	607
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	3893	3860		1947	1742
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	3893	3860		1947	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	649	1511	1076	65	64	660
RTOR Reduction (vph)	0	0	5	0	0	517
Lane Group Flow (vph)	649	1511	1136	0	64	143
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	30.0	61.4	27.4		11.6	11.6
Effective Green, g (s)	30.0	61.4	27.4		11.6	11.6
Actuated g/C Ratio	0.37	0.76	0.34		0.14	0.14
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	721	2951	1306		279	249
v/s Ratio Prot	c0.33	0.39	c0.29		0.03	
v/s Ratio Perm						c0.08
v/c Ratio	0.90	0.51	0.87		0.23	0.58
Uniform Delay, d1	24.1	3.9	25.1		30.7	32.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	14.3	0.2	6.6		0.4	3.2
Delay (s)	38.4	4.0	31.7		31.2	35.6
Level of Service	D	A	C		C	D
Approach Delay (s)		14.4	31.7		35.2	
Approach LOS		B	C		D	

Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	81.0	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

HCM Unsignalized Intersection Capacity Analysis
120: W McKinley Avenue & SR 99 Southbound Ramp

4/9/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1814	337	288	1598	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1972	366	313	1737	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				932		
pX, platoon unblocked					0.80	
vC, conflicting volume			2338		3649	1169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2338		3814	1169
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			0		0	100
cM capacity (veh/h)			208		0	186

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1314	1024	892	1158
Volume Left	0	0	313	0
Volume Right	0	366	0	0
cSH	1700	1700	208	1700
Volume to Capacity	0.77	0.60	1.50	0.68
Queue Length 95th (ft)	0	0	481	0
Control Delay (s)	0.0	0.0	292.5	0.0
Lane LOS			F	
Approach Delay (s)	0.0		127.3	
Approach LOS				

Intersection Summary			
Average Delay	59.5		
Intersection Capacity Utilization	120.1%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
120: W McKinley Avenue & SR 99 Southbound Ramp

4/9/2012

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1556	247	227	2538	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1691	268	247	2759	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				932		
pX, platoon unblocked					0.56	
vC, conflicting volume			1960		3698	980
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1960		4254	980
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			16		100	100
cM capacity (veh/h)			293		0	249

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1128	832	1166	1839
Volume Left	0	0	247	0
Volume Right	0	268	0	0
cSH	1700	1700	293	1700
Volume to Capacity	0.66	0.49	0.84	1.08
Queue Length 95th (ft)	0	0	178	0
Control Delay (s)	0.0	0.0	58.4	0.0
Lane LOS			F	
Approach Delay (s)	0.0		22.7	
Approach LOS				

Intersection Summary			
Average Delay	13.7		
Intersection Capacity Utilization	134.3%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
121: W McKinley Ave &

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	1788	0	0	1434	9	319	8	135	3	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	1943	0	0	1559	10	347	9	147	3	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					578							
pX, platoon unblocked	0.80						0.80	0.80		0.80	0.80	0.80
vC, conflicting volume	1568			1943			2791	3577	972	2605	3572	784
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1201			1943			2738	3725	972	2503	3719	215
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			0	0	42	0	100	99
cM capacity (veh/h)	459			298			7	3	252	0	3	628

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	680	1296	1039	529	502	7
Volume Left	33	0	0	0	347	3
Volume Right	0	0	0	10	147	3
cSH	459	1700	1700	1700	10	0
Volume to Capacity	0.07	0.76	0.61	0.31	52.00	Err
Queue Length 95th (ft)	6	0	0	0	Err	Err
Control Delay (s)	2.1	0.0	0.0	0.0	Err	Err
Lane LOS	A				F	F
Approach Delay (s)	0.7		0.0		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

121: W McKinley Ave &

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1548	0	0	2383	2	374	3	287	21	0	31
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	1683	0	0	2590	2	407	3	312	23	0	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					578							
pX, platoon unblocked	0.56						0.56	0.56		0.56	0.56	0.56
vC, conflicting volume	2592			1683			3031	4295	841	3454	4293	1296
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2272			1683			3055	5312	841	3810	5310	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			0	0	0	0	100	94
cM capacity (veh/h)	124			376			3	0	308	0	0	607

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	571	1122	1727	866	722	57
Volume Left	10	0	0	0	407	23
Volume Right	0	0	0	2	312	34
cSH	124	1700	1700	1700	4	0
Volume to Capacity	0.08	0.66	1.02	0.51	172.36	Err
Queue Length 95th (ft)	6	0	0	0	Err	Err
Control Delay (s)	4.9	0.0	0.0	0.0	Err	Err
Lane LOS	A				F	F
Approach Delay (s)	1.6		0.0		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	117.7%	ICU Level of Service	H	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	219	1542	1251	164	423	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00
Frt		1.00	0.98		1.00	0.85
Flt Protected		0.99	1.00		0.95	1.00
Satd. Flow (prot)		3517	3478		1770	1583
Flt Permitted		0.51	1.00		0.95	1.00
Satd. Flow (perm)		1816	3478		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	238	1676	1360	178	460	195
RTOR Reduction (vph)	0	0	7	0	0	75
Lane Group Flow (vph)	0	1914	1531	0	460	120
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)		111.0	111.0		31.0	31.0
Effective Green, g (s)		111.0	111.0		31.0	31.0
Actuated g/C Ratio		0.74	0.74		0.21	0.21
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1344	2574		366	327
v/s Ratio Prot			0.44		c0.26	
v/s Ratio Perm		c1.05				0.08
v/c Ratio		1.42	0.59		1.26	0.37
Uniform Delay, d1		19.5	9.1		59.5	51.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		195.2	0.4		136.0	0.7
Delay (s)		214.7	9.4		195.5	51.8
Level of Service		F	A		F	D
Approach Delay (s)		214.7	9.4		152.7	
Approach LOS		F	A		F	

Intersection Summary			
HCM Average Control Delay	128.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	122.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	298	1326	1661	327	368	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00
Frt		1.00	0.98		1.00	0.85
Flt Protected		0.99	1.00		0.95	1.00
Satd. Flow (prot)		3507	3452		1770	1583
Flt Permitted		0.49	1.00		0.95	1.00
Satd. Flow (perm)		1737	3452		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	324	1441	1805	355	400	346
RTOR Reduction (vph)	0	0	13	0	0	34
Lane Group Flow (vph)	0	1765	2147	0	400	312
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)		97.0	97.0		25.0	25.0
Effective Green, g (s)		97.0	97.0		25.0	25.0
Actuated g/C Ratio		0.75	0.75		0.19	0.19
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)		1296	2576		340	304
v/s Ratio Prot			0.62		c0.23	
v/s Ratio Perm		c1.02				0.20
v/c Ratio		5.68dl	0.83		1.18	1.03
Uniform Delay, d1		16.5	11.1		52.5	52.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		167.9	2.5		105.9	58.6
Delay (s)		184.4	13.5		158.4	111.1
Level of Service		F	B		F	F
Approach Delay (s)		184.4	13.5		136.5	
Approach LOS		F	B		F	

Intersection Summary

HCM Average Control Delay	97.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	132.0%	ICU Level of Service	H
Analysis Period (min)	15		

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

HCM Signalized Intersection Capacity Analysis
123: W McKinley Ave & N West Ave

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	689	1187	91	55	898	175	237	415	10	165	816	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3453		1770	3527		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3453		1770	3527		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	749	1290	99	60	976	190	258	451	11	179	887	651
RTOR Reduction (vph)	0	0	19	0	12	0	0	1	0	0	0	155
Lane Group Flow (vph)	749	1290	80	60	1154	0	258	461	0	179	887	496
Turn Type	Prot		custom	Prot			Prot			Prot		custom
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			4									6
Actuated Green, G (s)	35.0	63.6	34.9	6.3	34.9		14.0	33.1		10.0	29.1	33.1
Effective Green, g (s)	35.0	63.6	34.9	6.3	34.9		14.0	33.1		10.0	29.1	33.1
Actuated g/C Ratio	0.27	0.49	0.27	0.05	0.27		0.11	0.25		0.08	0.22	0.25
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Vehicle Extension (s)	2.0	5.2	5.2	2.0	5.2		2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	474	1721	422	85	921		189	893		135	787	401
v/s Ratio Prot	c0.42	0.36		0.03	c0.33		c0.15	0.13		0.10	0.25	
v/s Ratio Perm			0.05									c0.31
v/c Ratio	1.58	0.75	0.19	0.71	1.25		1.37	0.52		1.33	1.13	1.24
Uniform Delay, d1	47.9	27.2	37.0	61.3	48.0		58.4	42.0		60.4	50.9	48.9
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	271.0	2.3	0.5	19.5	122.6		194.4	1.1		188.8	73.1	126.8
Delay (s)	318.9	29.4	37.5	80.8	170.6		252.8	43.0		249.2	123.9	175.6
Level of Service	F	C	D	F	F		F	D		F	F	F
Approach Delay (s)		131.2			166.2			118.2			156.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	144.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	17.8
Intersection Capacity Utilization	119.1%	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)	865	1054	102	99	1316	309	345	660	22	429	771	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3438		1770	3522		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3438		1770	3522		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	940	1146	111	108	1430	336	375	717	24	466	838	672
RTOR Reduction (vph)	0	0	21	0	13	0	0	2	0	0	0	147
Lane Group Flow (vph)	940	1146	90	108	1753	0	375	739	0	466	838	525
Turn Type	Prot		custom	Prot			Prot			Prot		custom
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			4									6
Actuated Green, G (s)	36.0	68.0	45.1	13.1	45.1		16.0	31.1		20.0	35.1	31.1
Effective Green, g (s)	36.0	68.0	45.1	13.1	45.1		16.0	31.1		20.0	35.1	31.1
Actuated g/C Ratio	0.24	0.45	0.30	0.09	0.30		0.11	0.21		0.13	0.23	0.21
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9		4.0	4.9		4.0	4.9	4.9
Vehicle Extension (s)	2.0	5.2	5.2	2.0	5.2		2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	425	1604	476	155	1034		189	730		236	828	328
v/s Ratio Prot	c0.53	0.32		0.06	c0.51		0.21	0.21		c0.26	c0.24	
v/s Ratio Perm			0.06									c0.33
v/c Ratio	2.21	0.71	0.19	0.70	1.70		1.98	1.01		1.97	1.01	1.60
Uniform Delay, d1	57.0	33.2	38.9	66.5	52.5		67.0	59.5		65.0	57.5	59.5
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	552.9	2.0	0.4	10.5	317.0		461.3	36.6		453.5	34.3	284.7
Delay (s)	609.9	35.1	39.3	77.0	369.4		528.3	96.0		518.5	91.7	344.1
Level of Service	F	D	D	E	F		F	F		F	F	F
Approach Delay (s)		281.3			352.6			241.3			278.2	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	292.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.90		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	151.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	693	691	478	304	0	0	0	0	1100	0	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.93		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.97	
Satd. Flow (prot)		3274		1770	3539						1725	
Flt Permitted		1.00		0.95	1.00						0.97	
Satd. Flow (perm)		3274		1770	3539						1725	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	753	751	520	330	0	0	0	0	1196	0	534
RTOR Reduction (vph)	0	120	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	1384	0	520	330	0	0	0	0	0	1719	0
Turn Type				Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases										6		
Actuated Green, G (s)		38.0		24.0	66.0						76.0	
Effective Green, g (s)		38.0		24.0	66.0						76.0	
Actuated g/C Ratio		0.25		0.16	0.44						0.51	
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)		829		283	1557						874	
v/s Ratio Prot		c0.42		c0.29	0.09							
v/s Ratio Perm											1.00	
v/c Ratio		1.67		1.84	0.21						1.97	
Uniform Delay, d1		56.0		63.0	25.9						37.0	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		306.5		390.3	0.1						439.3	
Delay (s)		362.5		453.3	26.0						476.3	
Level of Service		F		F	C						F	
Approach Delay (s)		362.5			287.4			0.0			476.3	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	395.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.86		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	178.8%	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)	0	715	614	587	481	0	0	0	0	897	0	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.93		1.00	1.00						0.95	
Flt Protected		1.00		0.95	1.00						0.97	
Satd. Flow (prot)		3294		1770	3539						1714	
Flt Permitted		1.00		0.95	1.00						0.97	
Satd. Flow (perm)		3294		1770	3539						1714	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	777	667	638	523	0	0	0	0	975	0	601
RTOR Reduction (vph)	0	111	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	1333	0	638	523	0	0	0	0	0	1560	0
Turn Type				Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases										6		
Actuated Green, G (s)		34.0		28.0	66.0						66.0	
Effective Green, g (s)		34.0		28.0	66.0						66.0	
Actuated g/C Ratio		0.24		0.20	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)		800		354	1668						808	
v/s Ratio Prot		c0.40		c0.36	0.15							
v/s Ratio Perm											0.91	
v/c Ratio		1.67		1.80	0.31						1.93	
Uniform Delay, d1		53.0		56.0	22.9						37.0	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		305.6		372.1	0.1						423.5	
Delay (s)		358.6		428.1	23.1						460.5	
Level of Service		F		F	C						F	
Approach Delay (s)		358.6			245.6			0.0			460.5	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	365.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	219.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	447	1325	0	0	634	188	155	0	342	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0		
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		
Frt	1.00	1.00			0.97			1.00	0.85		
Flt Protected	0.95	1.00			1.00			0.95	1.00		
Satd. Flow (prot)	1770	3539			3418			1770	1583		
Flt Permitted	0.95	1.00			1.00			0.95	1.00		
Satd. Flow (perm)	1770	3539			3418			1770	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	486	1440	0	0	689	204	168	0	372	0	0
RTOR Reduction (vph)	0	0	0	0	39	0	0	0	41	0	0
Lane Group Flow (vph)	486	1440	0	0	854	0	0	168	331	0	0
Turn Type	Prot						Perm		Perm		
Protected Phases	7	4			8			2			
Permitted Phases							2		2		
Actuated Green, G (s)	20.9	43.7			18.8			16.2	16.2		
Effective Green, g (s)	20.9	43.7			18.8			16.2	16.2		
Actuated g/C Ratio	0.31	0.64			0.28			0.24	0.24		
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)	545	2278			946			422	378		
v/s Ratio Prot	c0.27	0.41			c0.25						
v/s Ratio Perm								0.09	c0.21		
v/c Ratio	0.89	0.63			0.90			0.40	0.88		
Uniform Delay, d1	22.4	7.3			23.7			21.7	24.9		
Progression Factor	1.00	1.00			1.00			1.00	1.00		
Incremental Delay, d2	16.7	0.6			11.7			0.6	19.6		
Delay (s)	39.1	7.8			35.4			22.4	44.5		
Level of Service	D	A			D			C	D		
Approach Delay (s)		15.7			35.4			37.6		0.0	
Approach LOS		B			D			D		A	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	178.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	769	540	0	0	736	627	986	0	855	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0		
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		
Frt	1.00	1.00			0.93			1.00	0.85		
Flt Protected	0.95	1.00			1.00			0.95	1.00		
Satd. Flow (prot)	1770	3539			3295			1770	1583		
Flt Permitted	0.95	1.00			1.00			0.95	1.00		
Satd. Flow (perm)	1770	3539			3295			1770	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	836	587	0	0	800	682	1072	0	929	0	0
RTOR Reduction (vph)	0	0	0	0	103	0	0	0	180	0	0
Lane Group Flow (vph)	836	587	0	0	1379	0	0	1072	749	0	0
Turn Type	Prot						Perm		Perm		
Protected Phases	7	4			8			2			
Permitted Phases							2		2		
Actuated Green, G (s)	42.0	86.0			40.0			56.0	56.0		
Effective Green, g (s)	42.0	86.0			40.0			56.0	56.0		
Actuated g/C Ratio	0.28	0.57			0.27			0.37	0.37		
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0		
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)	496	2029			879			661	591		
v/s Ratio Prot	c0.47	0.17			c0.42						
v/s Ratio Perm								0.61	0.47		
v/c Ratio	1.69	0.29			1.57			1.62	1.27		
Uniform Delay, d1	54.0	16.4			55.0			47.0	47.0		
Progression Factor	1.00	1.00			1.00			1.00	1.00		
Incremental Delay, d2	317.1	0.1			261.7			286.7	133.0		
Delay (s)	371.1	16.4			316.7			333.7	180.0		
Level of Service	F	B			F			F	F		
Approach Delay (s)		224.8			316.7			262.4		0.0	
Approach LOS		F			F			F		A	

Intersection Summary

HCM Average Control Delay	267.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	219.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
126: W Olive Ave & N West Ave

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	122	1540	6	44	798	76	2	0	8	64	0	69
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	133	1674	7	48	867	83	2	0	9	70	0	75
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		755										
pX, platoon unblocked				0.75			0.75	0.75	0.75	0.75	0.75	
vC, conflicting volume	950			1680			2547	2988	840	2115	2950	475
vC1, stage 1 conf vol							1942	1942		1004	1004	
vC2, stage 2 conf vol							604	1046		1111	1946	
vCu, unblocked vol	950			1239			2395	2984	118	1819	2933	475
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	82			89			97	100	99	59	100	86
cM capacity (veh/h)	719			418			63	77	683	171	51	536

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	133	1116	564	48	578	372	11	70	75
Volume Left	133	0	0	48	0	0	2	70	0
Volume Right	0	0	7	0	0	83	9	0	75
cSH	719	1700	1700	418	1700	1700	231	171	536
Volume to Capacity	0.18	0.66	0.33	0.11	0.34	0.22	0.05	0.41	0.14
Queue Length 95th (ft)	17	0	0	10	0	0	4	45	12
Control Delay (s)	11.1	0.0	0.0	14.7	0.0	0.0	21.3	39.6	12.8
Lane LOS	B			B			C	E	B
Approach Delay (s)	0.8			0.7			21.3	25.7	
Approach LOS							C	D	

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
126: W Olive Ave & N West Ave

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	1342	1	4	1217	53	5	0	9	56	0	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	1459	1	4	1323	58	5	0	10	61	0	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		755										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	1380			1460			2271	2946	730	2197	2918	690
vC1, stage 1 conf vol							1557	1557		1360	1360	
vC2, stage 2 conf vol							714	1389		837	1558	
vCu, unblocked vol	1380			1328			2208	2942	536	2129	2911	690
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			99			95	100	98	56	100	89
cM capacity (veh/h)	492			475			106	108	450	137	122	387

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	49	972	487	4	882	499	15	61	43
Volume Left	49	0	0	4	0	0	5	61	0
Volume Right	0	0	1	0	0	58	10	0	43
cSH	492	1700	1700	475	1700	1700	208	137	387
Volume to Capacity	0.10	0.57	0.29	0.01	0.52	0.29	0.07	0.44	0.11
Queue Length 95th (ft)	8	0	0	1	0	0	6	50	9
Control Delay (s)	13.1	0.0	0.0	12.6	0.0	0.0	23.7	50.7	15.5
Lane LOS	B			B			C	F	C
Approach Delay (s)	0.4			0.0			23.7	36.0	
Approach LOS							C	E	

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	52.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
129: W Belmont Avenue & SR 99 SB Off-Ramp

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (veh/h)	0	1147	645	251	491	0	220	18	155	10	0	20
Sign Control		Free			Free			Stop		Stop		
Grade		0%			0%			0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1247	701	273	534	0	239	20	168	11	0	22
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	534			1948			1724	3027	267	2420	2677	974
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534			1948			1724	3027	267	2420	2677	974
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			8			0	0	77	0	100	91
cM capacity (veh/h)	1030			297			10	1	731	0	2	251

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	NW 1
Volume Total	831	1117	451	356	427	33
Volume Left	0	0	273	0	239	11
Volume Right	0	701	0	0	168	22
cSH	1700	1700	297	1700	10	0
Volume to Capacity	0.49	0.66	0.92	0.21	42.66	Err
Queue Length 95th (ft)	0	0	218	0	Err	Err
Control Delay (s)	0.0	0.0	72.2	0.0	Err	Err
Lane LOS			F		F	F
Approach Delay (s)	0.0		40.4		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
129: W Belmont Avenue & SR 99 SB Off-Ramp

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (veh/h)	0	729	400	416	2028	0	304	7	284	17	0	16
Sign Control		Free			Free			Stop		Stop		
Grade		0%			0%			0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	792	435	452	2204	0	330	8	309	18	0	17
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	2204			1227			3522	4336	1102	3020	4118	614
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2204			1227			3522	4336	1102	3020	4118	614
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			20			0	0	0	0	100	96
cM capacity (veh/h)	235			564			1	0	206	0	0	435

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	NW 1
Volume Total	528	699	1187	1470	647	36
Volume Left	0	0	452	0	330	18
Volume Right	0	435	0	0	309	17
cSH	1700	1700	564	1700	1	0
Volume to Capacity	0.31	0.41	0.80	0.86	478.09	Err
Queue Length 95th (ft)	0	0	195	0	Err	Err
Control Delay (s)	0.0	0.0	32.3	0.0	Err	Err
Lane LOS			D		F	F
Approach Delay (s)	0.0		14.5		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	152.4%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
130: W Belmont Avenue & SR 99 NB On-Ramp

4/9/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (veh/h)	216	1478	0	0	524	163	228	0	445	0	0
Sign Control		Free			Free			Stop		Stop	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	235	1607	0	0	570	177	248	0	484	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	747			1607			2361	2823	803	1931	2734
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	747			1607			2361	2823	803	1931	2734
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	73			100			0	100	0	0	100
cM capacity (veh/h)	857			403			15	13	326	0	15

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	770	1071	380	367	248	484
Volume Left	235	0	0	0	248	0
Volume Right	0	0	0	177	0	484
cSH	857	1700	1700	1700	15	326
Volume to Capacity	0.27	0.63	0.22	0.22	16.84	1.48
Queue Length 95th (ft)	28	0	0	0	Err	663
Control Delay (s)	6.3	0.0	0.0	0.0	Err	262.9
Lane LOS	A				F	F
Approach Delay (s)	2.6		0.0		3561.3	
Approach LOS					F	

Intersection Summary			
Average Delay	786.2		
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (veh/h)	445	593	0	0	1078	766	1359	0	828	0	0
Sign Control		Free			Free			Stop		Stop	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	484	645	0	0	1172	833	1477	0	900	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	2004			645			2198	3616	322	2878	3200
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	2004			645			2198	3616	322	2878	3200
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0			100			0	0	0	0	0
cM capacity (veh/h)	282			936			0	0	673	0	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	699	430	781	1223	1477	900
Volume Left	484	0	0	0	1477	0
Volume Right	0	0	0	833	0	900
cSH	282	1700	1700	1700	0	673
Volume to Capacity	1.72	0.25	0.46	0.72	Err	1.34
Queue Length 95th (ft)	777	0	0	0	Err	934
Control Delay (s)	368.2	0.0	0.0	0.0	Err	180.6
Lane LOS	F				F	F
Approach Delay (s)	228.0		0.0		Err	
Approach LOS					F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	169.0%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	451	1069	820	8	678	55	283	43	7	34	120	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00			0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1842			1782			1680	
Flt Permitted	0.22	1.00	1.00	0.22	1.00			0.39			0.96	
Satd. Flow (perm)	414	1863	1583	414	1842			717			1621	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	490	1162	891	9	737	60	308	47	8	37	130	396
RTOR Reduction (vph)	0	0	442	0	7	0	0	2	0	0	55	0
Lane Group Flow (vph)	490	1162	449	9	790	0	0	361	0	0	508	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	18.0	18.0	18.0	18.0	18.0			19.0			19.0	
Effective Green, g (s)	18.0	18.0	18.0	18.0	18.0			19.0			19.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40			0.42			0.42	
Clearance Time (s)	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	
Lane Grp Cap (vph)	166	745	633	166	737			303			684	
v/s Ratio Prot		0.62			0.43							
v/s Ratio Perm	c1.18		0.28	0.02				c0.50			0.31	
v/c Ratio	2.95	1.56	0.71	0.05	1.07			1.19			0.74	
Uniform Delay, d1	13.5	13.5	11.3	8.3	13.5			13.0			10.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	894.4	258.4	3.6	0.1	54.3			114.4			4.4	
Delay (s)	907.9	271.9	14.9	8.4	67.8			127.4			15.3	
Level of Service	F	F	B	A	E			F			B	
Approach Delay (s)		304.4			67.1			127.4			15.3	
Approach LOS		F			E			F			B	

Intersection Summary			
HCM Average Control Delay	206.6	HCM Level of Service	F
HCM Volume to Capacity ratio	2.05		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	126.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

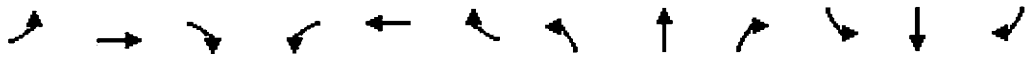
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	980	784	24	1108	70	1508	139	17	51	108	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00			0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1846			1780			1674	
Flt Permitted	0.24	1.00	1.00	0.24	1.00			0.36			0.99	
Satd. Flow (perm)	438	1863	1583	438	1846			665			1670	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	1065	852	26	1204	76	1639	151	18	55	117	449
RTOR Reduction (vph)	0	0	486	0	5	0	0	1	0	0	8	0
Lane Group Flow (vph)	315	1065	366	26	1275	0	0	1807	0	0	613	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.0	17.0	17.0	17.0	17.0			20.0			20.0	
Effective Green, g (s)	17.0	17.0	17.0	17.0	17.0			20.0			20.0	
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38			0.44			0.44	
Clearance Time (s)	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	
Lane Grp Cap (vph)	165	704	598	165	697			296			742	
v/s Ratio Prot		0.57			0.69							
v/s Ratio Perm	c0.72		0.23	0.06				c2.72			0.37	
v/c Ratio	1.91	1.51	0.61	0.16	1.83			6.11			0.83	
Uniform Delay, d1	14.0	14.0	11.3	9.3	14.0			12.5			11.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	430.8	238.1	1.9	0.4	378.8			2305.1			7.5	
Delay (s)	444.8	252.1	13.2	9.7	392.8			2317.6			18.5	
Level of Service	F	F	B	A	F			F			B	
Approach Delay (s)		188.1			385.2			2317.6			18.5	
Approach LOS		F			F			F			B	

Intersection Summary

HCM Average Control Delay	858.8	HCM Level of Service	F
HCM Volume to Capacity ratio	4.18		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	217.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HANFORD PROJECT CONDITIONS
SYNCHRO OUTPUT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	754	26	117	907	28	0	0	49	0	0	565
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	820	28	127	986	30	0	0	53	0	0	614
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	1016			848			2299	2209	424	1823	2208	508
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1016			848			2299	2209	424	1823	2208	508
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			84			0	100	91	100	100	0
cM capacity (veh/h)	678			785			0	34	579	36	34	510

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	52	546	301	127	657	359	53	614
Volume Left	52	0	0	127	0	0	0	0
Volume Right	0	0	28	0	0	30	53	614
cSH	678	1700	1700	785	1700	1700	579	510
Volume to Capacity	0.08	0.32	0.18	0.16	0.39	0.21	0.09	1.20
Queue Length 95th (ft)	6	0	0	14	0	0	8	576
Control Delay (s)	10.7	0.0	0.0	10.5	0.0	0.0	11.9	135.1
Lane LOS	B			B			B	F
Approach Delay (s)	0.6			1.2			11.9	135.1
Approach LOS							B	F

Intersection Summary				
Average Delay	31.5			
Intersection Capacity Utilization	67.6%	ICU Level of Service		C
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: SR 198 & 9 th Ave

10/12/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	838	988	33	40	1009	59	0	0	315	0	0	95
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	911	1074	36	43	1097	64	0	0	342	0	0	103
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	1161			1110			3652	4161	555	3917	4147	580
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1161			1110			3652	4161	555	3917	4147	580
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	0			93			0	0	28	0	0	77
cM capacity (veh/h)	598			625			0	0	475	0	0	457

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SE
Volume Total	911	716	394	43	731	430	342	103
Volume Left	911	0	0	43	0	0	0	0
Volume Right	0	0	36	0	0	64	342	103
cSH	598	1700	1700	625	1700	1700	475	457
Volume to Capacity	1.52	0.42	0.23	0.07	0.43	0.25	0.72	0.23
Queue Length 95th (ft)	1163	0	0	6	0	0	144	21
Control Delay (s)	263.3	0.0	0.0	11.2	0.0	0.0	29.7	15.2
Lane LOS	F			B			D	C
Approach Delay (s)	118.7			0.4			29.7	15.2
Approach LOS							D	C

Intersection Summary			
Average Delay	68.7		
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (veh/h)	40	0	145	0	276	0	0	585	102	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	0	158	0	300	0	0	636	111	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)			1								
Median type					None			None			
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	991	1047	300	747			300			1070	991
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	991	1047	300	747			300			1070	991
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5
tC, 2 stage (s)											
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0
p0 queue free %	81	100	79	100			100			100	100
cM capacity (veh/h)	225	228	740	862			1261			156	246

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	201	300	747
Volume Left	43	0	0
Volume Right	158	0	111
cSH	944	1700	1700
Volume to Capacity	0.21	0.18	0.44
Queue Length 95th (ft)	20	0	0
Control Delay (s)	14.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.1	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (veh/h)	48	0	209	0	746	0	0	332	134	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	0	227	0	811	0	0	361	146	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)			1								
Median type					None			None			
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	1245	1317	811	507			811			1358	1245
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1245	1317	811	507			811			1358	1245
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5
tC, 2 stage (s)											
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0
p0 queue free %	65	100	40	100			100			100	100
cM capacity (veh/h)	151	157	379	1058			815			51	174

Direction, Lane #	WB 1	NB 1	SE
Volume Total	279	811	507
Volume Left	52	0	0
Volume Right	227	0	146
cSH	381	1700	1700
Volume to Capacity	0.73	0.48	0.30
Queue Length 95th (ft)	142	0	0
Control Delay (s)	36.3	0.0	0.0
Lane LOS	E		
Approach Delay (s)	36.3	0.0	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (veh/h)	110	0	228	0	273	35	0	574	0	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	0	248	0	297	38	0	624	0	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)			1								
Median type					None			None			
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	940	959	624	624			335			1064	940
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	940	959	624	624			335			1064	940
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5
tC, 2 stage (s)											
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0
p0 queue free %	51	100	49	100			100			100	100
cM capacity (veh/h)	244	257	485	957			1225			98	264

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	367	335	624
Volume Left	120	0	0
Volume Right	248	38	0
cSH	543	1700	1700
Volume to Capacity	0.68	0.20	0.37
Queue Length 95th (ft)	127	0	0
Control Delay (s)	24.3	0.0	0.0
Lane LOS	C		
Approach Delay (s)	24.3	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (veh/h)	105	0	213	0	822	109	0	290	0	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	114	0	232	0	893	118	0	315	0	0	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)			1								
Median type					None			None			
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	1268	1327	315	315			1012			1384	1268
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1268	1327	315	315			1012			1384	1268
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5
tC, 2 stage (s)											
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0
p0 queue free %	22	100	68	100			100			100	100
cM capacity (veh/h)	145	155	725	1245			685			82	169

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	346	1012	315
Volume Left	114	0	0
Volume Right	232	118	0
cSH	345	1700	1700
Volume to Capacity	1.00	0.60	0.19
Queue Length 95th (ft)	286	0	0
Control Delay (s)	84.6	0.0	0.0
Lane LOS	F		
Approach Delay (s)	84.6	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	17.5		
Intersection Capacity Utilization	58.9%	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)	97	569	7	47	828	11	6	12	17	79	14	100
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	105	618	8	51	900	12	7	13	18	86	15	109
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	912			626			1502	1847	313	1553	1845	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912			626			1502	1847	313	1553	1845	456
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			95			86	78	97	0	75	80
cM capacity (veh/h)	743			951			47	60	683	54	60	551

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	105	412	214	51	600	312	38	210
Volume Left	105	0	0	51	0	0	7	86
Volume Right	0	0	8	0	0	12	18	109
cSH	743	1700	1700	951	1700	1700	99	102
Volume to Capacity	0.14	0.24	0.13	0.05	0.35	0.18	0.38	2.05
Queue Length 95th (ft)	12	0	0	4	0	0	39	446
Control Delay (s)	10.6	0.0	0.0	9.0	0.0	0.0	62.4	574.9
Lane LOS	B			A			F	F
Approach Delay (s)	1.5			0.5			62.4	574.9
Approach LOS							F	F

Intersection Summary			
Average Delay	64.1		
Intersection Capacity Utilization	56.5%	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)	55	1032	13	18	1057	9	47	155	67	16	7	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	1122	14	20	1149	10	51	168	73	17	8	23
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	1159			1136			1889	2446	568	2030	2448	579
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1159			1136			1889	2446	568	2030	2448	579
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			97			0	0	84	0	72	95
cM capacity (veh/h)	599			611			29	27	466	0	27	458

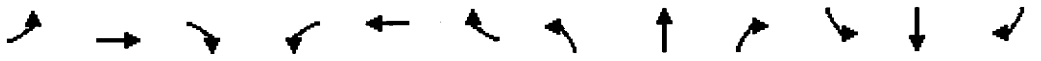
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	60	748	388	20	766	393	232	48
Volume Left	60	0	0	20	0	0	51	17
Volume Right	0	0	14	0	0	10	73	23
cSH	599	1700	1700	611	1700	1700	36	0
Volume to Capacity	0.10	0.44	0.23	0.03	0.45	0.23	8.22	Err
Queue Length 95th (ft)	8	0	0	2	0	0	Err	Err
Control Delay (s)	11.7	0.0	0.0	11.1	0.0	0.0	Err	Err
Lane LOS	B			B			F	F
Approach Delay (s)	0.6			0.2			Err	Err
Approach LOS							F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	59.1%	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)	87	556	13	4	791	4	12	5	6	4	8	87
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	604	14	4	860	4	13	5	7	4	9	95
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	864			618			1338	1673	309	1371	1678	432
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	864			618			1338	1673	309	1371	1678	432
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			100			83	93	99	95	89	83
cM capacity (veh/h)	774			958			77	83	687	89	82	572

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	95	403	216	4	573	291	25	108
Volume Left	95	0	0	4	0	0	13	4
Volume Right	0	0	14	0	0	4	7	95
cSH	774	1700	1700	958	1700	1700	102	336
Volume to Capacity	0.12	0.24	0.13	0.00	0.34	0.17	0.24	0.32
Queue Length 95th (ft)	10	0	0	0	0	0	22	34
Control Delay (s)	10.3	0.0	0.0	8.8	0.0	0.0	51.2	20.7
Lane LOS	B			A			F	C
Approach Delay (s)	1.4			0.0			51.2	20.7
Approach LOS							F	C

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	43.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	102	997	9	3	973	10	0	42	23	2	3	104
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	1084	10	3	1058	11	0	46	25	2	3	113
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	1068			1093			1960	2385	547	1881	2385	534
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1068			1093			1960	2385	547	1881	2385	534
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			99			100	0	95	0	88	77
cM capacity (veh/h)	648			634			23	28	481	0	28	490

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	111	722	371	3	705	363	71	118
Volume Left	111	0	0	3	0	0	0	2
Volume Right	0	0	10	0	0	11	25	113
cSH	648	1700	1700	634	1700	1700	42	0
Volume to Capacity	0.17	0.42	0.22	0.01	0.41	0.21	1.70	Err
Queue Length 95th (ft)	15	0	0	0	0	0	182	Err
Control Delay (s)	11.7	0.0	0.0	10.7	0.0	0.0	549.4	Err
Lane LOS	B			B			F	F
Approach Delay (s)	1.1			0.0			549.4	Err
Approach LOS							F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	539	16	114	780	4	7	6	44	2	7	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	586	17	124	848	4	8	7	48	2	8	20
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	852			603			1298	1703	302	1451	1710	426
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	852			603			1298	1703	302	1451	1710	426
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			87			92	92	93	97	90	97
cM capacity (veh/h)	782			970			96	79	694	72	78	577

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SE
Volume Total	4	391	213	124	565	287	62	29
Volume Left	4	0	0	124	0	0	8	2
Volume Right	0	0	17	0	0	4	48	20
cSH	782	1700	1700	970	1700	1700	268	181
Volume to Capacity	0.01	0.23	0.13	0.13	0.33	0.17	0.23	0.16
Queue Length 95th (ft)	0	0	0	11	0	0	22	14
Control Delay (s)	9.6	0.0	0.0	9.3	0.0	0.0	22.4	28.6
Lane LOS	A			A			C	D
Approach Delay (s)	0.1			1.2			22.4	28.6
Approach LOS							C	D

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	994	21	45	912	8	12	8	132	3	13	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	1080	23	49	991	9	13	9	143	3	14	17
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	1000			1103			1755	2235	552	1827	2242	500
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1000			1103			1755	2235	552	1827	2242	500
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			92			62	77	70	87	62	97
cM capacity (veh/h)	688			629			34	37	478	25	37	516

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	23	730	383	49	661	339	165	35
Volume Left	23	0	0	49	0	0	13	3
Volume Right	0	0	23	0	0	9	143	17
cSH	688	1700	1700	629	1700	1700	180	64
Volume to Capacity	0.03	0.42	0.23	0.08	0.39	0.20	0.92	0.54
Queue Length 95th (ft)	3	0	0	6	0	0	175	56
Control Delay (s)	10.4	0.0	0.0	11.2	0.0	0.0	99.0	114.7
Lane LOS	B			B			F	F
Approach Delay (s)	0.2			0.5			99.0	114.7
Approach LOS							F	F

Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	53.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Volume (veh/h)	14	24	66	107	18	20	65	231	191	55	513	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	26	72	116	20	22	71	251	208	60	558	15
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	1109	1285	565	1186	1189	355	573			459		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1109	1285	565	1186	1189	355	573			459		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	82	86	0	88	97	93			95		
cM capacity (veh/h)	150	145	524	112	165	689	1000			1102		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	113	158	71	459	60	573
Volume Left	15	116	71	0	60	0
Volume Right	72	22	0	208	0	15
cSH	270	133	1000	1700	1102	1700
Volume to Capacity	0.42	1.19	0.07	0.27	0.05	0.34
Queue Length 95th (ft)	49	235	6	0	4	0
Control Delay (s)	27.6	202.4	8.9	0.0	8.5	0.0
Lane LOS	D	F	A		A	
Approach Delay (s)	27.6	202.4	1.2		0.8	
Approach LOS	D	F				

Intersection Summary				
Average Delay	25.2			
Intersection Capacity Utilization	56.2%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑		↰	↑	
Volume (veh/h)	26	18	71	175	27	39	96	782	132	15	240	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	20	77	190	29	42	104	850	143	16	261	41
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	1430	1516	282	1434	1465	922	302			993		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1430	1516	282	1434	1465	922	302			993		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	61	82	90	0	74	87	92			98		
cM capacity (veh/h)	72	107	757	79	115	328	1259			696		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	125	262	104	993	16	302
Volume Left	28	190	104	0	16	0
Volume Right	77	42	0	143	0	41
cSH	185	94	1259	1700	696	1700
Volume to Capacity	0.67	2.78	0.08	0.58	0.02	0.18
Queue Length 95th (ft)	101	623	7	0	2	0
Control Delay (s)	57.4	899.3	8.1	0.0	10.3	0.0
Lane LOS	F	F	A		B	
Approach Delay (s)	57.4	899.3	0.8		0.5	
Approach LOS	F	F				

Intersection Summary				
Average Delay	135.2			
Intersection Capacity Utilization	82.7%	ICU Level of Service		E
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	153	90	77	69	34	39	178	43	118	469	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.95		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1759		1770	1770		1770	1808		1770	1859	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1759		1770	1770		1770	1808		1770	1859	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	166	98	84	75	37	42	193	47	128	510	7
RTOR Reduction (vph)	0	22	0	0	16	0	0	10	0	0	1	0
Lane Group Flow (vph)	10	242	0	84	96	0	42	230	0	128	516	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	1.1	16.3		6.9	22.1		4.1	20.6		8.2	24.7	
Effective Green, g (s)	1.1	16.3		6.9	22.1		4.1	20.6		8.2	24.7	
Actuated g/C Ratio	0.02	0.24		0.10	0.32		0.06	0.30		0.12	0.36	
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)	29	422		180	575		107	548		213	675	
v/s Ratio Prot	0.01	c0.14		c0.05	0.05		0.02	0.13		c0.07	c0.28	
v/s Ratio Perm												
v/c Ratio	0.34	0.57		0.47	0.17		0.39	0.42		0.60	0.76	
Uniform Delay, d1	33.1	22.8		28.8	16.4		30.8	18.9		28.3	19.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.0	1.9		1.9	0.1		2.4	0.5		4.7	5.2	
Delay (s)	40.1	24.7		30.7	16.5		33.1	19.5		33.1	24.3	
Level of Service	D	C		C	B		C	B		C	C	
Approach Delay (s)		25.2			22.6			21.5			26.0	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	24.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	59.5%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	73	37	67	164	119	113	706	52	43	212	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1769		1770	1745		1770	1843		1770	1846	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1769		1770	1745		1770	1843		1770	1846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	79	40	73	178	129	123	767	57	47	230	15
RTOR Reduction (vph)	0	16	0	0	21	0	0	2	0	0	2	0
Lane Group Flow (vph)	13	103	0	73	286	0	123	822	0	47	243	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	1.3	15.2		7.6	21.5		11.2	47.0		5.0	40.8	
Effective Green, g (s)	1.3	15.2		7.6	21.5		11.2	47.0		5.0	40.8	
Actuated g/C Ratio	0.01	0.17		0.08	0.24		0.12	0.52		0.06	0.45	
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)	25	296		148	413		218	954		97	829	
v/s Ratio Prot	0.01	0.06		c0.04	c0.16		c0.07	c0.45		0.03	0.13	
v/s Ratio Perm												
v/c Ratio	0.52	0.35		0.49	0.69		0.56	0.86		0.48	0.29	
Uniform Delay, d1	44.4	33.4		39.8	31.6		37.5	19.1		41.6	15.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.1	0.7		2.6	4.9		3.3	8.1		3.8	0.2	
Delay (s)	62.6	34.1		42.3	36.6		40.8	27.1		45.4	16.1	
Level of Service	E	C		D	D		D	C		D	B	
Approach Delay (s)		36.9			37.7			28.9			20.8	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	30.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	69.5%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HANFORD WEST FUTURE PLUS PROJECT CONDITIONS

HCM Unsignalized Intersection Capacity Analysis
1: Hanford Armona Rd & 14th Avenue

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	28	147	17	69	75	55	17	98	65	57	147	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	160	18	75	82	60	18	107	71	62	160	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	141			178			609	521	169	615	501	111
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	141			178			609	521	169	615	501	111
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 %	98			95			93	75	92	78	63	96
cM capacity (veh/h)	1442			1398			265	426	875	283	438	942

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	209	216	196	260
Volume Left	30	75	18	62
Volume Right	18	60	71	38
cSH	1442	1398	488	416
Volume to Capacity	0.02	0.05	0.40	0.62
Queue Length 95th (ft)	2	4	48	103
Control Delay (s)	1.3	3.0	17.2	27.0
Lane LOS	A	A	C	D
Approach Delay (s)	1.3	3.0	17.2	27.0
Approach LOS			C	D

Intersection Summary			
Average Delay	12.8		
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Hanford Armona Rd & 14th Avenue

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	16	188	29	61	198	73	32	182	35	107	112	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	204	32	66	215	79	35	198	38	116	122	21
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	295			236			724	682	220	779	658	255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	295			236			724	682	220	779	658	255
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 %	99			95			85	43	95	26	66	97
cM capacity (veh/h)	1267			1331			234	349	820	157	360	784

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	253	361	271	259
Volume Left	17	66	35	116
Volume Right	32	79	38	21
cSH	1267	1331	355	234
Volume to Capacity	0.01	0.05	0.76	1.10
Queue Length 95th (ft)	1	4	152	287
Control Delay (s)	0.7	1.8	41.3	134.4
Lane LOS	A	A	E	F
Approach Delay (s)	0.7	1.8	41.3	134.4
Approach LOS			E	F

Intersection Summary				
Average Delay	40.9			
Intersection Capacity Utilization	70.6%	ICU Level of Service	C	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
2: SR 198 WB On-ramp & 14 th Avenue

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	58	1	37	26	174	0	0	161	64
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	63	1	40	28	189	0	0	175	70
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	476	455	210	455	490	189	245			189		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	476	455	210	455	490	189	245			189		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	88	100	95	98			100		
cM capacity (veh/h)	467	490	830	507	469	853	1322			1385		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	104	217	245
Volume Left	63	28	0
Volume Right	40	0	70
cSH	823	1322	1700
Volume to Capacity	0.13	0.02	0.14
Queue Length 95th (ft)	11	2	0
Control Delay (s)	11.7	1.2	0.0
Lane LOS	B	A	
Approach Delay (s)	11.7	1.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	89	2	80	26	226	0	0	176	76
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	97	2	87	28	246	0	0	191	83
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	579	535	233	535	576	246	274			246		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	579	535	233	535	576	246	274			246		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	78	99	89	98			100		
cM capacity (veh/h)	372	442	807	449	419	793	1289			1320		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	186	274	274
Volume Left	97	28	0
Volume Right	87	0	83
cSH	842	1289	1700
Volume to Capacity	0.22	0.02	0.16
Queue Length 95th (ft)	21	2	0
Control Delay (s)	12.9	1.0	0.0
Lane LOS	B	A	
Approach Delay (s)	12.9	1.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	77	0	20	0	0	0	0	119	98	73	138	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	84	0	22	0	0	0	0	129	107	79	150	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			3									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	491	545	150	502	491	183	150			236		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	491	545	150	502	491	183	150			236		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	82	100	98	100	100	100	100			94		
cM capacity (veh/h)	465	419	896	447	450	860	1431			1331		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	105	236	229
Volume Left	84	0	79
Volume Right	22	107	0
cSH	586	1700	1331
Volume to Capacity	0.18	0.14	0.06
Queue Length 95th (ft)	16	0	5
Control Delay (s)	13.3	0.0	3.1
Lane LOS	B		A
Approach Delay (s)	13.3	0.0	3.1
Approach LOS	B		

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	99	0	39	0	0	0	0	174	88	65	233	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	0	42	0	0	0	0	189	96	71	253	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			3									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	632	679	253	653	632	237	253			285		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	632	679	253	653	632	237	253			285		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	100	95	100	100	100	100			94		
cM capacity (veh/h)	377	353	785	345	376	802	1312			1277		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	150	285	324
Volume Left	108	0	71
Volume Right	42	96	0
cSH	525	1700	1277
Volume to Capacity	0.29	0.17	0.06
Queue Length 95th (ft)	29	0	4
Control Delay (s)	15.9	0.0	2.1
Lane LOS	C		A
Approach Delay (s)	15.9	0.0	2.1
Approach LOS	C		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	249	16	63	91	47	12	189	62	51	190	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	271	17	68	99	51	13	205	67	55	207	11

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	324	218	286	273
Volume Left (vph)	36	68	13	55
Volume Right (vph)	17	51	67	11
Hadj (s)	0.02	-0.04	-0.10	0.05
Departure Headway (s)	6.2	6.4	6.2	6.3
Degree Utilization, x	0.56	0.39	0.49	0.48
Capacity (veh/h)	528	494	531	509
Control Delay (s)	16.8	13.4	15.0	15.1
Approach Delay (s)	16.8	13.4	15.0	15.1
Approach LOS	C	B	B	C

Intersection Summary			
Delay	15.2		
HCM Level of Service	C		
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	15	205	18	87	314	43	21	314	116	29	160	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	223	20	95	341	47	23	341	126	32	174	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	259	483	490	222
Volume Left (vph)	16	95	23	32
Volume Right (vph)	20	47	126	16
Hadj (s)	0.00	0.02	-0.11	0.02
Departure Headway (s)	8.4	7.6	7.5	8.6
Degree Utilization, x	0.60	1.02	1.02	0.53
Capacity (veh/h)	420	466	490	402
Control Delay (s)	23.1	73.9	73.0	20.7
Approach Delay (s)	23.1	73.9	73.0	20.7
Approach LOS	C	F	F	C

Intersection Summary				
Delay		56.4		
HCM Level of Service		F		
Intersection Capacity Utilization		73.7%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	64	24	22	375	409	37
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	26	24	408	445	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1082		
pX, platoon unblocked						
vC, conflicting volume	920	465	485			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	920	465	485			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	76	96	98			
cM capacity (veh/h)	294	598	1078			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	96	432	485
Volume Left	70	24	0
Volume Right	26	0	40
cSH	341	1078	1700
Volume to Capacity	0.28	0.02	0.29
Queue Length 95th (ft)	28	2	0
Control Delay (s)	19.6	0.7	0.0
Lane LOS	C	A	
Approach Delay (s)	19.6	0.7	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	64	23	70	629	412	47
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	25	76	684	448	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1082		
pX, platoon unblocked	0.90					
vC, conflicting volume	1309	473	499			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1287	473	499			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	54	96	93			
cM capacity (veh/h)	151	591	1065			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	95	760	499
Volume Left	70	76	0
Volume Right	25	0	51
cSH	188	1065	1700
Volume to Capacity	0.50	0.07	0.29
Queue Length 95th (ft)	63	6	0
Control Delay (s)	42.2	1.8	0.0
Lane LOS	E	A	
Approach Delay (s)	42.2	1.8	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	19	18	380	15	18	393
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	20	413	16	20	427
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			390			
pX, platoon unblocked	0.99	0.99			0.99	
vC, conflicting volume	888	421			429	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	881	409			418	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	97			98	
cM capacity (veh/h)	308	635			1129	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	40	429	447
Volume Left	21	0	20
Volume Right	20	16	0
cSH	411	1700	1129
Volume to Capacity	0.10	0.25	0.02
Queue Length 95th (ft)	8	0	1
Control Delay (s)	14.7	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	14.7	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	76	98	577	53	33	427
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	107	627	58	36	464
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			390			
pX, platoon unblocked	0.82	0.82			0.82	
vC, conflicting volume	1192	656			685	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1126	475			510	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	54	78			96	
cM capacity (veh/h)	179	485			869	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	189	685	500
Volume Left	83	0	36
Volume Right	107	58	0
cSH	278	1700	869
Volume to Capacity	0.68	0.40	0.04
Queue Length 95th (ft)	114	0	3
Control Delay (s)	41.7	0.0	1.2
Lane LOS	E		A
Approach Delay (s)	41.7	0.0	1.2
Approach LOS	E		

Intersection Summary			
Average Delay		6.2	
Intersection Capacity Utilization		66.6%	ICU Level of Service C
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL2	NBL	NBT	SBT	SBR
Lane Configurations												
Volume (vph)	83	0	163	8	33	33	162	186	17	156	116	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00				1.00		0.95		0.95	1.00	
Frt		0.91				0.90		1.00		1.00	0.90	
Flt Protected		0.98				0.99		0.95		0.99	1.00	
Satd. Flow (prot)		1666				1672		1681		1754	1677	
Flt Permitted		0.98				0.99		0.95		0.53	1.00	
Satd. Flow (perm)		1666				1672		1681		941	1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	0	177	9	36	36	176	202	18	170	126	278
RTOR Reduction (vph)	0	2	0	0	0	118	0	0	0	0	8	0
Lane Group Flow (vph)	0	274	0	0	0	130	0	182	0	208	475	0
Turn Type	Split				Split			Prot	Perm			
Protected Phases	4	4			3	3		5		2	6	
Permitted Phases									2			
Actuated Green, G (s)		15.0				10.5		10.0		36.1	22.1	
Effective Green, g (s)		15.0				10.5		10.0		36.1	22.1	
Actuated g/C Ratio		0.20				0.14		0.14		0.49	0.30	
Clearance Time (s)		4.0				4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0				3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		340				239		228		462	504	
v/s Ratio Prot		c0.16				c0.08		c0.11			c0.28	
v/s Ratio Perm										0.22		
v/c Ratio		0.81				0.54		0.80		0.45	0.94	
Uniform Delay, d1		27.9				29.3		30.8		12.3	25.1	
Progression Factor		1.00				1.00		1.00		1.00	1.00	
Incremental Delay, d2		13.1				2.5		17.4		0.7	26.1	
Delay (s)		41.0				31.8		48.3		13.0	51.2	
Level of Service		D				C		D		B	D	
Approach Delay (s)		41.0				31.8				29.4	51.2	
Approach LOS		D				C				C	D	

Intersection Summary

HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	73.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Volume (vph)	73
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	79
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL2	NBL	NBT	SBT	SBR
Lane Configurations												
Volume (vph)	58	0	207	24	53	53	141	150	146	434	197	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00				1.00		0.95		0.95	1.00	
Frt		0.89				0.92		1.00		1.00	0.92	
Flt Protected		0.99				0.99		0.95		0.99	1.00	
Satd. Flow (prot)		1645				1701		1681		1746	1719	
Flt Permitted		0.99				0.99		0.95		0.40	1.00	
Satd. Flow (perm)		1645				1701		1681		709	1719	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	0	225	26	58	58	153	163	159	472	214	166
RTOR Reduction (vph)	0	3	0	0	0	31	0	0	0	0	7	0
Lane Group Flow (vph)	0	311	0	0	0	238	0	147	0	647	494	0
Turn Type	Split				Split			Prot	Perm			
Protected Phases	4	4			3	3		5		2	6	
Permitted Phases									2			
Actuated Green, G (s)		24.0				16.0		17.7		98.0	76.3	
Effective Green, g (s)		24.0				16.0		17.7		98.0	76.3	
Actuated g/C Ratio		0.16				0.11		0.12		0.65	0.51	
Clearance Time (s)		4.0				4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0				3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		263				181		198		463	874	
v/s Ratio Prot		c0.19				c0.14		0.09			0.29	
v/s Ratio Perm										c0.91		
v/c Ratio		1.18				1.31		0.74		1.40	0.56	
Uniform Delay, d1		63.0				67.0		63.9		26.0	25.4	
Progression Factor		1.00				1.00		1.00		1.00	1.00	
Incremental Delay, d2		114.7				174.7		13.9		191.6	0.8	
Delay (s)		177.7				241.7		77.9		217.6	26.2	
Level of Service		F				F		E		F	C	
Approach Delay (s)		177.7				241.7				191.7	26.2	
Approach LOS		F				F				F	C	

Intersection Summary			
HCM Average Control Delay	152.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Volume (vph)	111
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	121
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL2	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	112	36	15	92	0	221	10	44	9	21	181	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frt		0.99			0.90			0.94			1.00	
Flt Protected		0.97			0.99			1.00			0.95	
Satd. Flow (prot)		1779			1659			1760			1681	
Flt Permitted		0.97			0.99			1.00			0.95	
Satd. Flow (perm)		1779			1659			1760			1681	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	39	16	100	0	240	11	48	10	23	197	112
RTOR Reduction (vph)	0	6	0	0	1	0	0	19	0	0	0	0
Lane Group Flow (vph)	0	171	0	0	350	0	0	62	0	0	171	0
Turn Type	Split			Split							Prot	Perm
Protected Phases	3	3		4	4			2			1	
Permitted Phases												6
Actuated Green, G (s)		10.7			15.7			8.8			6.1	
Effective Green, g (s)		10.7			15.7			8.8			6.1	
Actuated g/C Ratio		0.19			0.27			0.15			0.11	
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)		332			455			270			179	
v/s Ratio Prot		c0.10			c0.21			0.03			0.10	
v/s Ratio Perm												
v/c Ratio		0.52			0.77			0.23			0.96	
Uniform Delay, d1		21.0			19.1			21.3			25.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.4			7.6			0.4			53.8	
Delay (s)		22.3			26.8			21.7			79.3	
Level of Service		C			C			C			E	
Approach Delay (s)		22.3			26.8			21.7				
Approach LOS		C			C			C				

Intersection Summary

HCM Average Control Delay	36.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT
Lane Configurations	↱
Volume (vph)	28
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	0.95
Frt	1.00
Flt Protected	0.96
Satd. Flow (prot)	1700
Flt Permitted	0.36
Satd. Flow (perm)	641
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	30
RTOR Reduction (vph)	0
Lane Group Flow (vph)	168
Turn Type	
Protected Phases	6
Permitted Phases	
Actuated Green, G (s)	18.9
Effective Green, g (s)	18.9
Actuated g/C Ratio	0.33
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	211
v/s Ratio Prot	
v/s Ratio Perm	c0.26
v/c Ratio	0.80
Uniform Delay, d1	17.4
Progression Factor	1.00
Incremental Delay, d2	18.5
Delay (s)	35.9
Level of Service	D
Approach Delay (s)	57.8
Approach LOS	E

Intersection Summary

Movement	EBL2	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	379	135	20	15	0	219	12	153	10	17	261	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frt		0.99			0.87			0.98			1.00	
Flt Protected		0.97			1.00			1.00			0.95	
Satd. Flow (prot)		1790			1621			1825			1681	
Flt Permitted		0.97			1.00			1.00			0.95	
Satd. Flow (perm)		1790			1621			1825			1681	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	412	147	22	16	0	238	13	166	11	18	284	175
RTOR Reduction (vph)	0	1	0	0	2	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	580	0	0	265	0	0	192	0	0	256	0
Turn Type	Split			Split							Prot	Perm
Protected Phases	3	3		4	4			2			1	
Permitted Phases												6
Actuated Green, G (s)		36.0			19.0			30.0			19.0	
Effective Green, g (s)		36.0			19.0			30.0			19.0	
Actuated g/C Ratio		0.30			0.16			0.25			0.16	
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)		537			257			456			266	
v/s Ratio Prot		c0.32			c0.16			0.11			0.15	
v/s Ratio Perm												
v/c Ratio		1.08			1.03			0.42			0.96	
Uniform Delay, d1		42.0			50.5			37.7			50.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		62.0			64.8			0.6			44.6	
Delay (s)		104.0			115.3			38.4			94.7	
Level of Service		F			F			D			F	
Approach Delay (s)		104.0			115.3			38.4				
Approach LOS		F			F			D				

Intersection Summary

HCM Average Control Delay	100.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT
Lane Configurations	↰
Volume (vph)	35
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	0.95
Frt	1.00
Flt Protected	0.96
Satd. Flow (prot)	1698
Flt Permitted	0.28
Satd. Flow (perm)	487
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	38
RTOR Reduction (vph)	0
Lane Group Flow (vph)	241
Turn Type	
Protected Phases	6
Permitted Phases	
Actuated Green, G (s)	53.0
Effective Green, g (s)	53.0
Actuated g/C Ratio	0.44
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	215
v/s Ratio Prot	
v/s Ratio Perm	c0.49
v/c Ratio	1.12
Uniform Delay, d1	33.5
Progression Factor	1.00
Incremental Delay, d2	97.7
Delay (s)	131.2
Level of Service	F
Approach Delay (s)	112.4
Approach LOS	F

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	336	55	127	134	47	94	188	121	195	680	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	365	60	138	146	51	102	204	132	212	739	74
RTOR Reduction (vph)	0	0	45	0	0	35	0	0	96	0	0	52
Lane Group Flow (vph)	36	365	15	138	146	16	102	204	36	212	739	22
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	1.8	13.5	13.5	5.1	16.8	16.8	3.8	15.1	15.1	5.1	16.4	16.4
Effective Green, g (s)	1.8	13.5	13.5	5.1	16.8	16.8	3.8	15.1	15.1	5.1	16.4	16.4
Actuated g/C Ratio	0.03	0.25	0.25	0.09	0.31	0.31	0.07	0.28	0.28	0.09	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	58	872	390	165	1559	485	123	975	436	165	1059	474
v/s Ratio Prot	0.02	c0.10		c0.08	c0.03		0.06	0.06		c0.12	c0.21	
v/s Ratio Perm			0.01			0.01			0.02			0.01
v/c Ratio	0.62	0.42	0.04	0.84	0.09	0.03	0.83	0.21	0.08	1.28	0.70	0.05
Uniform Delay, d1	26.2	17.4	15.7	24.4	13.6	13.3	25.2	15.3	14.7	24.8	17.0	13.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.8	0.3	0.0	29.1	0.0	0.0	34.8	0.1	0.1	166.1	2.0	0.0
Delay (s)	45.0	17.7	15.7	53.5	13.6	13.3	60.0	15.4	14.8	191.0	19.0	13.7
Level of Service	D	B	B	D	B	B	E	B	B	F	B	B
Approach Delay (s)		19.6			30.0			25.6			54.2	
Approach LOS		B			C			C			D	

Intersection Summary

HCM Average Control Delay	38.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.7%	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)	157	206	152	288	448	302	158	983	137	127	400	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	171	224	165	313	487	328	172	1068	149	138	435	47
RTOR Reduction (vph)	0	0	127	0	0	169	0	0	77	0	0	33
Lane Group Flow (vph)	171	224	38	313	487	159	172	1068	72	138	435	14
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.0	12.7	12.7	5.0	12.7	12.7	5.0	17.1	17.1	5.0	17.1	17.1
Effective Green, g (s)	5.0	12.7	12.7	5.0	12.7	12.7	5.0	17.1	17.1	5.0	17.1	17.1
Actuated g/C Ratio	0.09	0.23	0.23	0.09	0.23	0.23	0.09	0.31	0.31	0.09	0.31	0.31
Clearance Time (s)	4.0	4.0	4.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	159	805	360	159	1157	360	159	1085	485	159	1085	485
v/s Ratio Prot	0.10	0.06		c0.18	0.10		c0.10	c0.30		0.08	0.12	
v/s Ratio Perm			0.02			c0.10			0.05			0.01
v/c Ratio	1.08	0.28	0.10	1.97	0.42	0.44	1.08	0.98	0.15	0.87	0.40	0.03
Uniform Delay, d1	25.4	17.8	17.1	25.4	18.4	18.5	25.4	19.2	14.1	25.1	15.3	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	92.9	0.2	0.1	457.8	0.2	0.9	94.9	23.4	0.1	36.0	0.2	0.0
Delay (s)	118.3	18.0	17.2	483.2	18.7	19.4	120.3	42.6	14.2	61.0	15.5	13.6
Level of Service	F	B	B	F	B	B	F	D	B	E	B	B
Approach Delay (s)		48.4			147.8			49.2			25.5	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM Average Control Delay	75.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	397	86	93	254	81	41	146	189	10	36	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	160	432	93	101	276	88	45	159	205	11	39	39
RTOR Reduction (vph)	0	0	65	0	0	64	0	0	158	0	0	31
Lane Group Flow (vph)	160	432	28	101	276	24	45	159	47	11	39	8
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.3	13.4	13.4	3.9	12.0	12.0	1.6	10.2	10.2	0.7	9.3	9.3
Effective Green, g (s)	5.3	13.4	13.4	3.9	12.0	12.0	1.6	10.2	10.2	0.7	9.3	9.3
Actuated g/C Ratio	0.12	0.30	0.30	0.09	0.27	0.27	0.04	0.23	0.23	0.02	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	212	1073	480	156	961	430	64	430	365	28	392	333
v/s Ratio Prot	c0.09	c0.12		0.06	0.08		c0.03	c0.09		0.01	0.02	
v/s Ratio Perm			0.02			0.02			0.03			0.01
v/c Ratio	0.75	0.40	0.06	0.65	0.29	0.06	0.70	0.37	0.13	0.39	0.10	0.02
Uniform Delay, d1	18.8	12.2	10.9	19.5	12.7	11.9	21.1	14.3	13.5	21.5	14.1	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.1	0.2	0.1	8.9	0.2	0.1	29.5	0.5	0.2	8.9	0.1	0.0
Delay (s)	32.9	12.5	11.0	28.4	12.9	12.0	50.5	14.8	13.6	30.4	14.2	13.9
Level of Service	C	B	B	C	B	B	D	B	B	C	B	B
Approach Delay (s)		17.1			16.1			18.2			16.1	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.0%	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)	28	347	85	227	603	19	155	34	225	68	121	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	377	92	247	655	21	168	37	245	74	132	226
RTOR Reduction (vph)	0	0	66	0	0	14	0	0	182	0	0	178
Lane Group Flow (vph)	30	377	26	247	655	7	168	37	63	74	132	48
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	1.7	14.3	14.3	5.1	17.7	17.7	5.1	13.1	13.1	2.8	10.8	10.8
Effective Green, g (s)	1.7	14.3	14.3	5.1	17.7	17.7	5.1	13.1	13.1	2.8	10.8	10.8
Actuated g/C Ratio	0.03	0.28	0.28	0.10	0.35	0.35	0.10	0.26	0.26	0.05	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	59	987	441	176	1221	546	176	476	404	97	392	333
v/s Ratio Prot	0.02	0.11		c0.14	c0.19		c0.09	0.02		0.04	c0.07	
v/s Ratio Perm			0.02			0.00			0.04			0.03
v/c Ratio	0.51	0.38	0.06	1.40	0.54	0.01	0.95	0.08	0.15	0.76	0.34	0.14
Uniform Delay, d1	24.4	14.9	13.6	23.1	13.5	11.1	23.0	14.5	14.8	23.9	17.2	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	0.2	0.1	212.0	0.5	0.0	54.2	0.1	0.2	29.2	0.5	0.2
Delay (s)	31.1	15.2	13.6	235.1	14.0	11.1	77.1	14.6	15.0	53.2	17.7	16.7
Level of Service	C	B	B	F	B	B	E	B	B	D	B	B
Approach Delay (s)		15.9			73.1			38.2			23.2	
Approach LOS		B			E			D			C	

Intersection Summary

HCM Average Control Delay	44.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.5%	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 (vph)	54	115	23	27	182	179	47	194	16	99	113	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	125	25	29	198	195	51	211	17	108	123	61
RTOR Reduction (vph)	0	0	18	0	0	151	0	0	13	0	0	44
Lane Group Flow (vph)	59	125	7	29	198	44	51	211	4	108	123	17
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.4	10.9	10.9	0.7	9.2	9.2	1.5	9.6	9.6	3.6	11.7	11.7
Effective Green, g (s)	2.4	10.9	10.9	0.7	9.2	9.2	1.5	9.6	9.6	3.6	11.7	11.7
Actuated g/C Ratio	0.06	0.27	0.27	0.02	0.23	0.23	0.04	0.24	0.24	0.09	0.29	0.29
Clearance Time (s)	4.0	4.0	4.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	104	498	423	30	420	357	65	438	372	156	534	454
v/s Ratio Prot	c0.03	0.07		0.02	c0.11		0.03	c0.11		c0.06	0.07	
v/s Ratio Perm			0.00			0.03			0.00			0.01
v/c Ratio	0.57	0.25	0.02	0.97	0.47	0.12	0.78	0.48	0.01	0.69	0.23	0.04
Uniform Delay, d1	18.7	11.7	11.0	20.0	13.7	12.6	19.5	13.5	12.0	18.1	11.1	10.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.9	0.3	0.0	149.0	0.8	0.2	44.9	0.8	0.0	12.5	0.2	0.0
Delay (s)	25.6	12.0	11.0	169.0	14.5	12.7	64.4	14.3	12.0	30.5	11.3	10.5
Level of Service	C	B	B	F	B	B	E	B	B	C	B	B
Approach Delay (s)		15.7			24.3			23.3			18.3	
Approach LOS		B			C			C			B	

Intersection Summary

HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	40.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	41.9%	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)	72	209	50	51	135	162	49	220	32	230	227	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	227	54	55	147	176	53	239	35	250	247	48
RTOR Reduction (vph)	0	0	44	0	0	143	0	0	27	0	0	30
Lane Group Flow (vph)	78	227	10	55	147	33	53	239	8	250	247	18
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.3	8.4	8.4	2.3	8.4	8.4	1.5	10.4	10.4	7.7	16.6	16.6
Effective Green, g (s)	2.3	8.4	8.4	2.3	8.4	8.4	1.5	10.4	10.4	7.7	16.6	16.6
Actuated g/C Ratio	0.05	0.19	0.19	0.05	0.19	0.19	0.03	0.23	0.23	0.17	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	91	349	297	91	349	297	59	432	367	304	690	587
v/s Ratio Prot	c0.04	c0.12		0.03	0.08		0.03	c0.13		c0.14	0.13	
v/s Ratio Perm			0.01			0.02			0.01			0.01
v/c Ratio	0.86	0.65	0.03	0.60	0.42	0.11	0.90	0.55	0.02	0.82	0.36	0.03
Uniform Delay, d1	21.1	16.8	14.9	20.8	16.1	15.1	21.6	15.2	13.3	17.9	10.2	9.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	50.5	4.3	0.0	10.8	0.8	0.2	80.5	1.5	0.0	16.2	0.3	0.0
Delay (s)	71.6	21.1	14.9	31.6	16.9	15.3	102.1	16.7	13.3	34.1	10.6	9.0
Level of Service	E	C	B	C	B	B	F	B	B	C	B	A
Approach Delay (s)		31.2			18.3			30.2			21.2	
Approach LOS		C			B			C			C	

Intersection Summary

HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	44.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.0%	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)	76	121	103	55	175	17	183	351	43	57	483	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3493		3433	3481		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3493		3433	3481		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	132	112	60	190	18	199	382	47	62	525	187
RTOR Reduction (vph)	0	0	98	0	15	0	0	14	0	0	0	118
Lane Group Flow (vph)	83	132	14	60	193	0	199	415	0	62	525	69
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	2.4	5.4	5.4	2.9	5.9		3.5	16.1		3.6	16.2	16.2
Effective Green, g (s)	2.4	5.4	5.4	2.9	5.9		3.5	16.1		3.6	16.2	16.2
Actuated g/C Ratio	0.05	0.12	0.12	0.07	0.13		0.08	0.37		0.08	0.37	0.37
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	187	434	194	117	468		273	1274		145	1303	583
v/s Ratio Prot	0.02	c0.04		0.03	c0.06		c0.06	0.12		0.04	c0.15	
v/s Ratio Perm			0.01									0.04
v/c Ratio	0.44	0.30	0.07	0.51	0.41		0.73	0.33		0.43	0.40	0.12
Uniform Delay, d1	20.2	17.6	17.1	19.9	17.5		19.8	10.0		19.2	10.3	9.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.7	0.4	0.2	3.8	0.6		9.4	0.2		2.0	0.2	0.1
Delay (s)	21.8	18.0	17.2	23.6	18.1		29.1	10.2		21.2	10.5	9.3
Level of Service	C	B	B	C	B		C	B		C	B	A
Approach Delay (s)		18.7			19.3			16.2			11.1	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	44.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.6%	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)	225	282	172	86	290	92	311	833	56	114	501	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		3433	3506		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		3433	3506		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	307	187	93	315	100	338	905	61	124	545	113
RTOR Reduction (vph)	0	0	145	0	56	0	0	8	0	0	0	78
Lane Group Flow (vph)	245	307	42	93	359	0	338	958	0	124	545	35
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	5.0	12.4	12.4	4.4	11.8		5.0	17.0		5.0	17.0	17.0
Effective Green, g (s)	5.0	12.4	12.4	4.4	11.8		5.0	17.0		5.0	17.0	17.0
Actuated g/C Ratio	0.09	0.23	0.23	0.08	0.22		0.09	0.31		0.09	0.31	0.31
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	313	801	358	142	734		313	1088		161	1098	491
v/s Ratio Prot	c0.07	0.09		0.05	c0.11		0.10	c0.27		c0.07	0.15	
v/s Ratio Perm			0.03									0.02
v/c Ratio	0.78	0.38	0.12	0.65	0.49		1.08	0.88		0.77	0.50	0.07
Uniform Delay, d1	24.4	18.0	16.9	24.5	18.9		24.9	17.9		24.3	15.4	13.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.0	0.3	0.1	10.4	0.5		73.8	8.5		20.0	0.4	0.1
Delay (s)	36.4	18.3	17.0	34.8	19.4		98.7	26.5		44.4	15.8	13.4
Level of Service	D	B	B	C	B		F	C		D	B	B
Approach Delay (s)		24.0			22.2			45.2			20.0	
Approach LOS		C			C			D			B	

Intersection Summary

HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.8%	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)	0	0	0	147	25	176	48	662	0	0	486	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	3539			3539	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	160	27	191	52	720	0	0	528	380
RTOR Reduction (vph)	0	0	0	0	0	141	0	0	0	0	0	223
Lane Group Flow (vph)	0	0	0	160	27	50	52	720	0	0	528	157
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)				7.0	7.0	7.0	1.1	19.3			14.2	14.2
Effective Green, g (s)				7.0	7.0	7.0	1.1	19.3			14.2	14.2
Actuated g/C Ratio				0.20	0.20	0.20	0.03	0.56			0.41	0.41
Clearance Time (s)				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
Lane Grp Cap (vph)				361	380	323	57	1991			1465	655
v/s Ratio Prot				c0.09	0.01		0.03	c0.20			0.15	
v/s Ratio Perm						0.03						0.10
v/c Ratio				0.44	0.07	0.16	0.91	0.36			0.36	0.24
Uniform Delay, d1				11.9	11.0	11.2	16.6	4.1			6.9	6.5
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.9	0.1	0.2	87.4	0.1			0.2	0.2
Delay (s)				12.8	11.1	11.4	104.0	4.2			7.1	6.7
Level of Service				B	B	B	F	A			A	A
Approach Delay (s)		0.0			12.0			11.0			6.9	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.7%	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)	0	0	0	182	39	111	40	929	0	0	812	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	0.95			0.95	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	3539			3539	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	198	42	121	43	1010	0	0	883	247
RTOR Reduction (vph)	0	0	0	0	0	65	0	0	0	0	0	136
Lane Group Flow (vph)	0	0	0	198	42	56	43	1010	0	0	883	111
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)				7.8	7.8	7.8	1.2	22.4			17.2	17.2
Effective Green, g (s)				7.8	7.8	7.8	1.2	22.4			17.2	17.2
Actuated g/C Ratio				0.20	0.20	0.20	0.03	0.59			0.45	0.45
Clearance Time (s)				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
Lane Grp Cap (vph)				361	380	323	56	2075			1593	713
v/s Ratio Prot				c0.11	0.02		0.02	c0.29			c0.25	
v/s Ratio Perm						0.04						0.07
v/c Ratio				0.55	0.11	0.17	0.77	0.49			0.55	0.16
Uniform Delay, d1				13.6	12.4	12.5	18.4	4.6			7.7	6.2
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				1.7	0.1	0.3	46.0	0.2			0.4	0.1
Delay (s)				15.3	12.5	12.8	64.4	4.8			8.1	6.3
Level of Service				B	B	B	E	A			A	A
Approach Delay (s)		0.0			14.1			7.2			7.7	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	38.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	28	53	0	0	0	0	569	112	90	541	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0		4.0	4.0	
Lane Util. Factor		1.00						0.95		1.00	0.95	
Frt		0.97						0.98		1.00	1.00	
Flt Protected		0.97						1.00		0.95	1.00	
Satd. Flow (prot)		1749						3452		1770	3539	
Flt Permitted		0.97						1.00		0.95	1.00	
Satd. Flow (perm)		1749						3452		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	30	58	0	0	0	0	618	122	98	588	0
RTOR Reduction (vph)	0	24	0	0	0	0	0	30	0	0	0	0
Lane Group Flow (vph)	0	236	0	0	0	0	0	710	0	98	588	0
Turn Type	Split									Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases												
Actuated Green, G (s)		8.2						15.6		2.8	22.4	
Effective Green, g (s)		8.2						15.6		2.8	22.4	
Actuated g/C Ratio		0.21						0.40		0.07	0.58	
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)		372						1395		128	2054	
v/s Ratio Prot		c0.14						c0.21		c0.06	0.17	
v/s Ratio Perm												
v/c Ratio		0.64						0.51		0.77	0.29	
Uniform Delay, d1		13.8						8.6		17.6	4.1	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		3.5						0.3		23.5	0.1	
Delay (s)		17.4						8.9		41.0	4.2	
Level of Service		B						A		D	A	
Approach Delay (s)		17.4			0.0			8.9			9.4	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	38.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.7%	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)	597	41	62	0	0	0	0	562	106	269	798	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0		4.0	4.0	
Lane Util. Factor		1.00						0.95		1.00	0.95	
Frt		0.99						0.98		1.00	1.00	
Flt Protected		0.96						1.00		0.95	1.00	
Satd. Flow (prot)		1765						3455		1770	3539	
Flt Permitted		0.96						1.00		0.95	1.00	
Satd. Flow (perm)		1765						3455		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	649	45	67	0	0	0	0	611	115	292	867	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	33	0	0	0	0
Lane Group Flow (vph)	0	754	0	0	0	0	0	693	0	292	867	0
Turn Type	Split									Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases												
Actuated Green, G (s)		16.1						14.9		4.0	22.9	
Effective Green, g (s)		16.1						14.9		4.0	22.9	
Actuated g/C Ratio		0.34						0.32		0.09	0.49	
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)		605						1095		151	1724	
v/s Ratio Prot		c0.43						c0.20		c0.17	0.24	
v/s Ratio Perm												
v/c Ratio		1.25						0.63		1.93	0.50	
Uniform Delay, d1		15.4						13.7		21.5	8.2	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		124.5						1.2		443.6	0.2	
Delay (s)		140.0						14.9		465.1	8.4	
Level of Service		F						B		F	A	
Approach Delay (s)		140.0			0.0			14.9			123.5	
Approach LOS		F			A			B			F	

Intersection Summary

HCM Average Control Delay	98.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	116	47	63	131	86	38	310	72	73	239	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	126	51	68	142	93	41	337	78	79	260	117
RTOR Reduction (vph)	0	0	38	0	0	76	0	0	58	0	0	85
Lane Group Flow (vph)	124	126	13	68	142	17	41	337	20	79	260	32
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.9	11.3	11.3	2.5	7.9	7.9	1.6	11.0	11.0	2.5	11.9	11.9
Effective Green, g (s)	5.9	11.3	11.3	2.5	7.9	7.9	1.6	11.0	11.0	2.5	11.9	11.9
Actuated g/C Ratio	0.14	0.26	0.26	0.06	0.18	0.18	0.04	0.25	0.25	0.06	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	241	486	413	102	340	289	65	899	402	102	973	435
v/s Ratio Prot	c0.07	c0.07		0.04	c0.08		0.02	c0.10		c0.04	0.07	
v/s Ratio Perm			0.01			0.01			0.01			0.02
v/c Ratio	0.51	0.26	0.03	0.67	0.42	0.06	0.63	0.37	0.05	0.77	0.27	0.07
Uniform Delay, d1	17.4	12.7	11.9	20.0	15.7	14.6	20.6	13.3	12.2	20.1	12.3	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.3	0.0	15.2	0.8	0.1	18.2	0.3	0.1	29.9	0.1	0.1
Delay (s)	19.2	13.0	12.0	35.2	16.5	14.7	38.8	13.6	12.3	50.0	12.4	11.7
Level of Service	B	B	B	D	B	B	D	B	B	D	B	B
Approach Delay (s)		15.4			20.2			15.6			18.8	
Approach LOS		B			C			B			B	

Intersection Summary

HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	39.2%	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)	137	192	54	68	169	91	79	294	77	114	310	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	209	59	74	184	99	86	320	84	124	337	166
RTOR Reduction (vph)	0	0	44	0	0	80	0	0	62	0	0	115
Lane Group Flow (vph)	149	209	15	74	184	19	86	320	22	124	337	51
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.7	12.4	12.4	2.7	9.4	9.4	2.7	12.6	12.6	5.3	15.2	15.2
Effective Green, g (s)	5.7	12.4	12.4	2.7	9.4	9.4	2.7	12.6	12.6	5.3	15.2	15.2
Actuated g/C Ratio	0.12	0.25	0.25	0.06	0.19	0.19	0.06	0.26	0.26	0.11	0.31	0.31
Clearance Time (s)	4.0	4.0	4.0	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	3.0	3.0	3.0
Lane Grp Cap (vph)	206	471	401	98	357	304	98	910	407	191	1098	491
v/s Ratio Prot	c0.08	c0.11		0.04	0.10		0.05	0.09		c0.07	c0.10	
v/s Ratio Perm			0.01			0.01			0.01			0.03
v/c Ratio	0.72	0.44	0.04	0.76	0.52	0.06	0.88	0.35	0.05	0.65	0.31	0.10
Uniform Delay, d1	20.9	15.4	13.8	22.8	17.8	16.2	23.0	14.9	13.7	21.0	12.9	12.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.8	0.7	0.0	27.6	1.3	0.1	53.1	0.2	0.1	7.4	0.2	0.1
Delay (s)	32.7	16.1	13.8	50.4	19.0	16.3	76.1	15.1	13.8	28.4	13.0	12.1
Level of Service	C	B	B	D	B	B	E	B	B	C	B	B
Approach Delay (s)		21.7			24.8			25.6			15.8	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	49.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	44.3%	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 (veh/h)	0	0	0	595	134	10	179	109	0	0	59	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	647	146	11	195	118	0	0	64	35
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	157			0			1433	1450	0	1504	1445	78
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	157			0			1433	1450	0	1504	1445	78
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			60			0	0	100	0	18	96
cM capacity (veh/h)	1421			1622			22	78	1084	0	79	967

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	720	84	313	99
Volume Left	647	0	195	0
Volume Right	0	11	0	35
cSH	1622	1700	30	116
Volume to Capacity	0.40	0.05	10.56	0.85
Queue Length 95th (ft)	49	0	Err	128
Control Delay (s)	8.2	0.0	Err	116.6
Lane LOS	A		F	F
Approach Delay (s)	7.3		Err	116.6
Approach LOS			F	F

Intersection Summary			
Average Delay	2590.1		
Intersection Capacity Utilization	61.9%	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)	0	0	0	381	152	12	115	86	0	0	167	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	414	165	13	125	93	0	0	182	67
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	178			0			1069	1007	0	1047	1000	89
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	178			0			1069	1007	0	1047	1000	89
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			74			0	48	100	100	0	93
cM capacity (veh/h)	1395			1622			0	178	1084	88	180	951

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	497	96	218	249
Volume Left	414	0	125	0
Volume Right	0	13	0	67
cSH	1622	1700	0	231
Volume to Capacity	0.26	0.06	Err	1.08
Queue Length 95th (ft)	26	0	Err	272
Control Delay (s)	7.0	0.0	Err	127.4
Lane LOS	A		F	F
Approach Delay (s)	5.9		Err	127.4
Approach LOS			F	F

Intersection Summary				
Average Delay			Err	
Intersection Capacity Utilization			54.6%	ICU Level of Service
Analysis Period (min)			15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	182	9	0	0	0	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	198	10	0	0	0	32
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			208		203	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			208		203	104
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			1361		767	931

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	132	76	32
Volume Left	0	0	0
Volume Right	0	10	32
cSH	1700	1700	931
Volume to Capacity	0.08	0.04	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.0	9.0
Lane LOS			A
Approach Delay (s)	0.0		9.0
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	15.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	336	24	0	0	0	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	365	26	0	0	0	23
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			391		378	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			391		378	196
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			1164		596	813

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	243	148	23
Volume Left	0	0	0
Volume Right	0	26	23
cSH	1700	1700	813
Volume to Capacity	0.14	0.09	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	9.6
Lane LOS			A
Approach Delay (s)	0.0		9.6
Approach LOS			A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	91	24	137	106	48	34	335	93	62	763	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3429		1770	3374		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3429		1770	3374		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	99	26	149	115	52	37	364	101	67	829	109
RTOR Reduction (vph)	0	22	0	0	41	0	0	0	68	0	0	68
Lane Group Flow (vph)	67	103	0	149	126	0	37	364	33	67	829	41
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	2.6	6.2		5.6	9.2		1.6	14.9	14.9	2.6	15.9	15.9
Effective Green, g (s)	2.6	6.2		5.6	9.2		1.6	14.9	14.9	2.6	15.9	15.9
Actuated g/C Ratio	0.06	0.14		0.12	0.20		0.04	0.33	0.33	0.06	0.35	0.35
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	102	469		219	685		63	1164	521	102	1242	556
v/s Ratio Prot	0.04	0.03		c0.08	c0.04		0.02	0.10		c0.04	c0.23	
v/s Ratio Perm									0.02			0.03
v/c Ratio	0.66	0.22		0.68	0.18		0.59	0.31	0.06	0.66	0.67	0.07
Uniform Delay, d1	20.9	17.4		19.0	14.9		21.5	11.4	10.4	20.9	12.5	9.8
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	14.2	0.2		8.4	0.1		13.2	0.2	0.1	14.2	1.4	0.1
Delay (s)	35.1	17.6		27.4	15.1		34.7	11.5	10.5	35.1	13.8	9.8
Level of Service	D	B		C	B		C	B	B	D	B	A
Approach Delay (s)		23.7			20.9			13.0			14.8	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	45.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.7%	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)	176	141	43	125	129	103	48	947	290	58	345	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3414		1770	3303		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3414		1770	3303		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	191	153	47	136	140	112	52	1029	315	63	375	116
RTOR Reduction (vph)	0	41	0	0	93	0	0	0	199	0	0	72
Lane Group Flow (vph)	191	159	0	136	159	0	52	1029	116	63	375	44
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	5.1	6.3		7.3	8.5		1.8	18.1	18.1	2.7	19.0	19.0
Effective Green, g (s)	5.1	6.3		7.3	8.5		1.8	18.1	18.1	2.7	19.0	19.0
Actuated g/C Ratio	0.10	0.12		0.14	0.17		0.04	0.36	0.36	0.05	0.38	0.38
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	179	427		256	557		63	1271	568	95	1334	597
v/s Ratio Prot	c0.11	0.05		0.08	c0.05		0.03	c0.29		c0.04	0.11	
v/s Ratio Perm									0.07			0.03
v/c Ratio	1.07	0.37		0.53	0.29		0.83	0.81	0.20	0.66	0.28	0.07
Uniform Delay, d1	22.6	20.2		20.0	18.3		24.1	14.6	11.2	23.4	10.9	10.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	86.2	0.5		2.1	0.3		56.1	3.9	0.2	16.1	0.1	0.1
Delay (s)	108.8	20.8		22.1	18.6		80.2	18.5	11.3	39.5	11.1	10.1
Level of Service	F	C		C	B		F	B	B	D	B	B
Approach Delay (s)		63.8			19.8			19.2			14.1	
Approach LOS		E			B			B			B	

Intersection Summary

HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	50.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	35	23	90	41	474	0	0	401	554
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0			4.0	4.0
Lane Util. Factor					1.00		1.00	0.95			0.95	1.00
Frt					0.92		1.00	1.00			1.00	0.85
Flt Protected					0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)					1690		1770	3539			3539	1583
Flt Permitted					0.99		0.95	1.00			1.00	1.00
Satd. Flow (perm)					1690		1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	38	25	98	45	515	0	0	436	602
RTOR Reduction (vph)	0	0	0	0	86	0	0	0	0	0	0	322
Lane Group Flow (vph)	0	0	0	0	75	0	45	515	0	0	436	280
Turn Type				Split			Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases												6
Actuated Green, G (s)					3.8		1.0	19.6			14.6	14.6
Effective Green, g (s)					3.8		1.0	19.6			14.6	14.6
Actuated g/C Ratio					0.12		0.03	0.62			0.46	0.46
Clearance Time (s)					4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)					3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					205		56	2209			1646	736
v/s Ratio Prot					c0.04		0.03	c0.15			0.12	
v/s Ratio Perm												c0.18
v/c Ratio					0.37		0.80	0.23			0.26	0.38
Uniform Delay, d1					12.7		15.1	2.6			5.1	5.5
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					1.1		55.1	0.1			0.1	0.3
Delay (s)					13.8		70.2	2.6			5.2	5.8
Level of Service					B		E	A			A	A
Approach Delay (s)		0.0			13.8			8.1			5.5	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	31.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	26	19	145	57	1118	0	0	388	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0			4.0	4.0
Lane Util. Factor					1.00		1.00	0.95			0.95	1.00
Frt					0.90		1.00	1.00			1.00	0.85
Flt Protected					0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)					1660		1770	3539			3539	1583
Flt Permitted					0.99		0.95	1.00			1.00	1.00
Satd. Flow (perm)					1660		1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	28	21	158	62	1215	0	0	422	252
RTOR Reduction (vph)	0	0	0	0	38	0	0	0	0	0	0	135
Lane Group Flow (vph)	0	0	0	0	169	0	62	1215	0	0	422	117
Turn Type				Split			Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases												6
Actuated Green, G (s)					7.3		1.9	24.3			18.4	18.4
Effective Green, g (s)					7.3		1.9	24.3			18.4	18.4
Actuated g/C Ratio					0.18		0.05	0.61			0.46	0.46
Clearance Time (s)					4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)					3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					306		85	2172			1644	736
v/s Ratio Prot					c0.10		0.04	c0.34			0.12	
v/s Ratio Perm												0.07
v/c Ratio					0.55		0.73	0.56			0.26	0.16
Uniform Delay, d1					14.7		18.6	4.5			6.4	6.1
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					2.1		26.6	0.3			0.1	0.1
Delay (s)					16.8		45.2	4.8			6.5	6.2
Level of Service					B		D	A			A	A
Approach Delay (s)		0.0			16.8			6.8			6.4	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	39.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.9%	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)	161	15	19	10	0	74	0	274	45	127	327	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770		1583		1863	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00	0.75		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1392		1583		1863	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	175	16	21	11	0	80	0	298	49	138	355	0
RTOR Reduction (vph)	0	0	17	0	0	63	0	0	36	0	0	0
Lane Group Flow (vph)	175	16	4	11	0	17	0	298	13	138	355	0
Turn Type	Perm		Perm	custom		custom			Perm	Prot		
Protected Phases		4						2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)	6.9	6.9	6.9	6.9		6.9		8.6	8.6	5.7	18.3	
Effective Green, g (s)	6.9	6.9	6.9	6.9		6.9		8.6	8.6	5.7	18.3	
Actuated g/C Ratio	0.21	0.21	0.21	0.21		0.21		0.26	0.26	0.17	0.55	
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)	368	387	329	289		329		483	410	304	1951	
v/s Ratio Prot		0.01						c0.16		c0.08	0.10	
v/s Ratio Perm	c0.10		0.00	0.01		0.01			0.01			
v/c Ratio	0.48	0.04	0.01	0.04		0.05		0.62	0.03	0.45	0.18	
Uniform Delay, d1	11.6	10.5	10.4	10.5		10.5		10.8	9.2	12.4	3.7	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.0	0.0	0.1		0.1		2.3	0.0	1.1	0.0	
Delay (s)	12.5	10.6	10.5	10.6		10.6		13.2	9.2	13.4	3.8	
Level of Service	B	B	B	B		B		B	A	B	A	
Approach Delay (s)		12.2			10.6			12.6			6.5	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	33.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.5%	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 (vph)	767	18	18	12	0	87	0	359	34	118	298	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770		1583		1863	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00	0.74		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1386		1583		1863	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	834	20	20	13	0	95	0	390	37	128	324	0
RTOR Reduction (vph)	0	0	13	0	0	62	0	0	26	0	0	0
Lane Group Flow (vph)	834	20	7	13	0	33	0	390	11	128	324	0
Turn Type	Perm		Perm	custom		custom			Perm	Prot		
Protected Phases		4						2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)	16.1	16.1	16.1	16.1		16.1		14.2	14.2	4.0	22.2	
Effective Green, g (s)	16.1	16.1	16.1	16.1		16.1		14.2	14.2	4.0	22.2	
Actuated g/C Ratio	0.35	0.35	0.35	0.35		0.35		0.31	0.31	0.09	0.48	
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)	615	648	550	482		550		571	485	153	1697	
v/s Ratio Prot		0.01						c0.21		c0.07	0.09	
v/s Ratio Perm	c0.47		0.00	0.01		0.02			0.01			
v/c Ratio	1.36	0.03	0.01	0.03		0.06		0.68	0.02	0.84	0.19	
Uniform Delay, d1	15.1	10.0	9.9	9.9		10.1		14.1	11.2	20.8	6.9	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	170.7	0.0	0.0	0.0		0.0		3.4	0.0	30.9	0.1	
Delay (s)	185.8	10.0	9.9	10.0		10.1		17.4	11.2	51.7	7.0	
Level of Service	F	A	A	A		B		B	B	D	A	
Approach Delay (s)		177.8			10.1			16.9			19.6	
Approach LOS		F			B			B			B	

Intersection Summary			
HCM Average Control Delay	92.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	46.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	7	66	44	11	20	65	240	43	55	535	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	8	72	48	12	22	71	261	47	60	582	15
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	1139	1158	589	1130	1142	284	597			308		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1139	1158	589	1130	1142	284	597			308		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	96	86	65	93	97	93			95		
cM capacity (veh/h)	150	173	508	137	177	755	980			1253		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	95	82	71	308	60	597
Volume Left	15	48	71	0	60	0
Volume Right	72	22	0	47	0	15
cSH	330	183	980	1700	1253	1700
Volume to Capacity	0.29	0.45	0.07	0.18	0.05	0.35
Queue Length 95th (ft)	29	52	6	0	4	0
Control Delay (s)	20.2	39.7	9.0	0.0	8.0	0.0
Lane LOS	C	E	A		A	
Approach Delay (s)	20.2	39.7	1.7		0.7	
Approach LOS	C	E				

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	53.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
23: E Lacey Blvd & 8 th Avenue

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	11	71	27	10	39	96	804	69	15	249	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	12	77	29	11	42	104	874	75	16	271	41
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	1454	1482	291	1429	1465	911	312			949		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1454	1482	291	1429	1465	911	312			949		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	65	89	90	66	91	87	92			98		
cM capacity (veh/h)	81	112	748	85	115	332	1248			724		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	117	83	104	949	16	312
Volume Left	28	29	104	0	16	0
Volume Right	77	42	0	75	0	41
cSH	209	146	1248	1700	724	1700
Volume to Capacity	0.56	0.57	0.08	0.56	0.02	0.18
Queue Length 95th (ft)	76	72	7	0	2	0
Control Delay (s)	42.1	57.8	8.1	0.0	10.1	0.0
Lane LOS	E	F	A		B	
Approach Delay (s)	42.1	57.8	0.8		0.5	
Approach LOS	E	F				

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	67.3%	ICU Level of Service	C	
Analysis Period (min)	15			

BAKERSFIELD FUTURE PLUS PROJECT CONDITIONS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1255	419	0	2223	1340	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.2		4.9	4.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	0.97	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		5085	4921	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	4921	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1364	455	0	2416	1457	400
RTOR Reduction (vph)	0	2	0	0	33	0
Lane Group Flow (vph)	1364	453	0	2416	1824	0
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	85.8	85.8		55.1	55.1	
Effective Green, g (s)	85.8	85.8		55.1	55.1	
Actuated g/C Ratio	0.57	0.57		0.37	0.37	
Clearance Time (s)	4.2	4.2		4.9	4.9	
Vehicle Extension (s)	3.0	3.0		4.0	4.0	
Lane Grp Cap (vph)	1012	905		1868	1808	
v/s Ratio Prot	c0.77			c0.48	0.37	
v/s Ratio Perm		0.29				
v/c Ratio	1.35	0.50		1.29	1.01	
Uniform Delay, d1	32.1	19.3		47.5	47.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	163.1	0.4		136.1	23.4	
Delay (s)	195.2	19.7		183.6	70.8	
Level of Service	F	B		F	E	
Approach Delay (s)	151.3			183.6	70.8	
Approach LOS	F			F	E	

Intersection Summary

HCM Average Control Delay	139.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	120.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: SR-58 EB Off Ramp & S Union Ave

5/24/2011

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	623	651	0	1436	1133	453
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.2		4.9	4.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	0.96	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		5085	4868	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	4868	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	677	708	0	1561	1232	492
RTOR Reduction (vph)	0	9	0	0	111	0
Lane Group Flow (vph)	677	699	0	1561	1613	0
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	29.7	29.7		26.1	26.1	
Effective Green, g (s)	29.7	29.7		26.1	26.1	
Actuated g/C Ratio	0.46	0.46		0.40	0.40	
Clearance Time (s)	4.2	4.2		4.9	4.9	
Vehicle Extension (s)	3.0	3.0		4.0	4.0	
Lane Grp Cap (vph)	810	724		2045	1958	
v/s Ratio Prot	0.38			0.31	c0.33	
v/s Ratio Perm		c0.44				
v/c Ratio	0.84	0.97		0.76	0.82	
Uniform Delay, d1	15.5	17.1		16.7	17.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.5	24.9		1.9	3.1	
Delay (s)	22.9	42.0		18.6	20.4	
Level of Service	C	D		B	C	
Approach Delay (s)	32.7			18.6	20.4	
Approach LOS	C			B	C	

Intersection Summary

HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	64.9	Sum of lost time (s)	9.1
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	547	2	433	0	0	0	0	270	50	135	361	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6						5.3	5.3	3.7	5.3	
Lane Util. Factor	0.95	0.95						0.95	1.00	1.00	0.95	
Frt	1.00	0.87						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1526						3539	1583	1770	3539	
Flt Permitted	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1526						3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	595	2	471	0	0	0	0	293	54	147	392	0
RTOR Reduction (vph)	0	237	0	0	0	0	0	0	42	0	0	0
Lane Group Flow (vph)	535	296	0	0	0	0	0	293	12	147	392	0
Turn Type	Split								Perm	Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	21.7	21.7						12.2	12.2	6.1	22.0	
Effective Green, g (s)	21.7	21.7						12.2	12.2	6.1	22.0	
Actuated g/C Ratio	0.40	0.40						0.23	0.23	0.11	0.41	
Clearance Time (s)	4.6	4.6						5.3	5.3	3.7	5.3	
Vehicle Extension (s)	3.8	3.8						4.5	4.5	2.0	4.5	
Lane Grp Cap (vph)	681	618						806	360	201	1453	
v/s Ratio Prot	c0.32	0.19						c0.08		c0.08	0.11	
v/s Ratio Perm									0.01			
v/c Ratio	0.79	0.48						0.36	0.03	0.73	0.27	
Uniform Delay, d1	13.9	11.8						17.4	16.1	23.0	10.5	
Progression Factor	1.00	1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.2	0.8						0.5	0.1	11.2	0.2	
Delay (s)	20.1	12.5						17.9	16.2	34.1	10.6	
Level of Service	C	B						B	B	C	B	
Approach Delay (s)		16.3			0.0			17.6			17.0	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	13.6
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1057	7	175	0	0	0	0	281	68	246	115	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6						5.3	5.3	3.7	5.3	
Lane Util. Factor	0.95	0.95						0.95	1.00	1.00	0.95	
Frt	1.00	0.96						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1636						3539	1583	1770	3539	
Flt Permitted	0.95	0.97						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1636						3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1149	8	190	0	0	0	0	305	74	267	125	0
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	61	0	0	0
Lane Group Flow (vph)	689	643	0	0	0	0	0	305	13	267	125	0
Turn Type	Split								Perm	Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	38.5	38.5						14.4	14.4	14.6	32.7	
Effective Green, g (s)	38.5	38.5						14.4	14.4	14.6	32.7	
Actuated g/C Ratio	0.47	0.47						0.18	0.18	0.18	0.40	
Clearance Time (s)	4.6	4.6						5.3	5.3	3.7	5.3	
Vehicle Extension (s)	3.8	3.8						4.5	4.5	2.0	4.5	
Lane Grp Cap (vph)	798	777						628	281	319	1427	
v/s Ratio Prot	c0.41	0.39						c0.09		c0.15	0.04	
v/s Ratio Perm									0.01			
v/c Ratio	0.86	0.83						0.49	0.05	0.84	0.09	
Uniform Delay, d1	19.0	18.4						30.0	27.7	32.1	15.0	
Progression Factor	1.00	1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.8	7.5						1.0	0.1	16.4	0.0	
Delay (s)	28.8	25.9						31.0	27.8	48.5	15.0	
Level of Service	C	C						C	C	D	B	
Approach Delay (s)		27.4			0.0			30.4			37.8	
Approach LOS		C			A			C			D	

Intersection Summary

HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	13.6
Intersection Capacity Utilization	68.3%	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)	213	236	171	105	185	65	374	412	173	36	213	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3401		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3401		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	257	186	114	201	71	407	448	188	39	232	286
RTOR Reduction (vph)	0	0	149	0	49	0	0	0	126	0	0	246
Lane Group Flow (vph)	232	257	38	114	223	0	407	448	62	39	232	40
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			8
Actuated Green, G (s)	11.0	12.5	12.5	8.3	9.8		14.5	20.3	20.3	2.9	8.7	8.7
Effective Green, g (s)	11.0	12.5	12.5	8.3	9.8		14.5	20.3	20.3	2.9	8.7	8.7
Actuated g/C Ratio	0.18	0.20	0.20	0.13	0.16		0.23	0.33	0.33	0.05	0.14	0.14
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	1.5	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	314	714	319	237	538		414	1159	518	83	497	222
v/s Ratio Prot	c0.13	0.07		0.06	c0.07		c0.23	c0.13		0.02	0.07	
v/s Ratio Perm			0.02						0.04			0.03
v/c Ratio	0.74	0.36	0.12	0.48	0.41		0.98	0.39	0.12	0.47	0.47	0.18
Uniform Delay, d1	24.1	21.3	20.2	24.9	23.5		23.6	16.1	14.6	28.8	24.5	23.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.6	0.1	0.1	0.6	0.2		39.4	0.1	0.0	1.5	0.3	0.1
Delay (s)	31.8	21.4	20.3	25.4	23.7		63.1	16.1	14.6	30.3	24.8	23.6
Level of Service	C	C	C	C	C		E	B	B	C	C	C
Approach Delay (s)		24.7			24.2			34.2			24.6	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	60.6%	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)	367	473	673	216	281	102	460	443	181	89	773	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3398		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3398		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	399	514	732	235	305	111	500	482	197	97	840	565
RTOR Reduction (vph)	0	0	349	0	26	0	0	0	162	0	0	323
Lane Group Flow (vph)	399	514	383	235	390	0	500	482	35	97	840	242
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			8
Actuated Green, G (s)	31.0	35.7	35.7	19.0	23.7		39.0	25.4	25.4	45.6	32.0	32.0
Effective Green, g (s)	31.0	35.7	35.7	19.0	23.7		39.0	25.4	25.4	45.6	32.0	32.0
Actuated g/C Ratio	0.22	0.25	0.25	0.13	0.16		0.27	0.18	0.18	0.32	0.22	0.22
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	1.5	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	382	879	393	234	560		480	626	280	562	788	353
v/s Ratio Prot	c0.23	0.15		c0.13	0.11		c0.28	0.14		0.05	c0.24	
v/s Ratio Perm			c0.24						0.02			0.15
v/c Ratio	1.04	0.58	0.97	1.00	0.70		1.04	0.77	0.12	0.17	1.07	0.69
Uniform Delay, d1	56.3	47.5	53.5	62.3	56.6		52.3	56.4	49.8	35.4	55.8	51.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	58.1	0.6	38.0	59.9	3.0		52.3	5.1	0.1	0.1	51.1	4.4
Delay (s)	114.5	48.1	91.5	122.3	59.7		104.7	61.5	49.9	35.5	107.0	55.6
Level of Service	F	D	F	F	E		F	E	D	D	F	E
Approach Delay (s)		83.5			82.3			77.9			83.0	
Approach LOS		F			F			E			F	

Intersection Summary

HCM Average Control Delay	81.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	143.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	312	91	123	247	26	84	677	309	44	485	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.4	4.4	3.5	4.4		3.5	4.4		3.5	4.4	4.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3489		1770	3373		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3489		1770	3373		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	339	99	134	268	28	91	736	336	48	527	79
RTOR Reduction (vph)	0	0	78	0	11	0	0	60	0	0	0	52
Lane Group Flow (vph)	165	339	21	134	285	0	91	1012	0	48	527	27
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	8.9	13.4	13.4	6.1	10.6		5.7	23.4		3.4	21.1	21.1
Effective Green, g (s)	8.9	13.4	13.4	6.1	10.6		5.7	23.4		3.4	21.1	21.1
Actuated g/C Ratio	0.14	0.22	0.22	0.10	0.17		0.09	0.38		0.05	0.34	0.34
Clearance Time (s)	3.5	4.4	4.4	3.5	4.4		3.5	4.4		3.5	4.4	4.4
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	254	764	342	174	596		162	1271		97	1202	538
v/s Ratio Prot	0.09	c0.10		c0.08	0.08		c0.05	c0.30		0.03	0.15	
v/s Ratio Perm			0.01									0.02
v/c Ratio	0.65	0.44	0.06	0.77	0.48		0.56	0.80		0.49	0.44	0.05
Uniform Delay, d1	25.1	21.1	19.4	27.3	23.3		27.0	17.2		28.5	15.9	13.8
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	4.2	0.2	0.0	17.2	0.2		2.6	3.3		1.4	0.1	0.0
Delay (s)	29.4	21.3	19.4	44.5	23.5		29.6	20.5		30.0	16.0	13.8
Level of Service	C	C	B	D	C		C	C		C	B	B
Approach Delay (s)		23.2			30.0			21.2			16.8	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	21.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	11.4
Intersection Capacity Utilization	63.7%	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)	135	317	152	263	381	52	79	609	255	68	914	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.4	4.4	3.5	4.4		3.5	4.4		3.5	4.4	4.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3475		1770	3383		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3475		1770	3383		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	345	165	286	414	57	86	662	277	74	993	187
RTOR Reduction (vph)	0	0	137	0	12	0	0	48	0	0	0	123
Lane Group Flow (vph)	147	345	28	286	459	0	86	891	0	74	993	65
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	9.9	12.7	12.7	15.0	17.8		5.5	25.9		5.4	25.8	25.8
Effective Green, g (s)	9.9	12.7	12.7	15.0	17.8		5.5	25.9		5.4	25.8	25.8
Actuated g/C Ratio	0.13	0.17	0.17	0.20	0.24		0.07	0.35		0.07	0.34	0.34
Clearance Time (s)	3.5	4.4	4.4	3.5	4.4		3.5	4.4		3.5	4.4	4.4
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	234	601	269	355	827		130	1171		128	1221	546
v/s Ratio Prot	0.08	0.10		c0.16	c0.13		c0.05	0.26		0.04	c0.28	
v/s Ratio Perm			0.02									0.04
v/c Ratio	0.63	0.57	0.10	0.81	0.55		0.66	0.76		0.58	0.81	0.12
Uniform Delay, d1	30.7	28.6	26.2	28.5	25.0		33.7	21.7		33.6	22.3	16.7
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	3.8	0.8	0.1	11.8	0.5		9.4	2.7		3.9	4.0	0.0
Delay (s)	34.5	29.4	26.3	40.4	25.5		43.1	24.4		37.5	26.3	16.8
Level of Service	C	C	C	D	C		D	C		D	C	B
Approach Delay (s)		29.8			31.1			25.9			25.6	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	74.8	Sum of lost time (s)	11.4
Intersection Capacity Utilization	67.6%	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)	285	220	30	44	234	39	39	179	56	33	72	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3475		1770	3464		1770	1863	1583	1770	1685	
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00	1.00	0.64	1.00	
Satd. Flow (perm)	1770	3475		1770	3464		1152	1863	1583	1183	1685	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	310	239	33	48	254	42	42	195	61	36	78	136
RTOR Reduction (vph)	0	12	0	0	20	0	0	0	50	0	101	0
Lane Group Flow (vph)	310	260	0	48	276	0	42	195	11	36	113	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	13.1	21.4		2.2	10.5		8.3	8.3	8.3	8.3	8.3	
Effective Green, g (s)	13.1	21.4		2.2	10.5		8.3	8.3	8.3	8.3	8.3	
Actuated g/C Ratio	0.29	0.47		0.05	0.23		0.18	0.18	0.18	0.18	0.18	
Clearance Time (s)	4.0	5.0		4.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	1.0	1.0	1.0	1.0	
Lane Grp Cap (vph)	505	1620		85	792		208	337	286	214	305	
v/s Ratio Prot	c0.18	0.07		0.03	c0.08			c0.10			0.07	
v/s Ratio Perm							0.04		0.01	0.03		
v/c Ratio	0.61	0.16		0.56	0.35		0.20	0.58	0.04	0.17	0.37	
Uniform Delay, d1	14.2	7.1		21.4	14.8		16.0	17.2	15.5	15.9	16.5	
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	0.0		5.0	0.1		0.2	1.5	0.0	0.1	0.3	
Delay (s)	15.8	7.1		26.4	14.9		16.2	18.7	15.5	16.0	16.8	
Level of Service	B	A		C	B		B	B	B	B	B	
Approach Delay (s)		11.7			16.5			17.7			16.7	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.8%	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)	175	405	66	77	408	43	54	226	71	51	283	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3465		1770	3488		1770	1863	1583	1770	1719	
Flt Permitted	0.95	1.00		0.95	1.00		0.16	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	1770	3465		1770	3488		296	1863	1583	1082	1719	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	440	72	84	443	47	59	246	77	55	308	326
RTOR Reduction (vph)	0	17	0	0	11	0	0	0	46	0	47	0
Lane Group Flow (vph)	190	495	0	84	479	0	59	246	31	55	587	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	9.7	19.0		5.3	14.6		25.2	25.2	25.2	25.2	25.2	
Effective Green, g (s)	9.7	19.0		5.3	14.6		25.2	25.2	25.2	25.2	25.2	
Actuated g/C Ratio	0.15	0.30		0.08	0.23		0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	4.0	5.0		4.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	1.0	1.0	1.0	1.0	
Lane Grp Cap (vph)	270	1037		148	802		117	739	628	429	682	
v/s Ratio Prot	c0.11	0.14		0.05	c0.14			0.13			c0.34	
v/s Ratio Perm							0.20		0.02	0.05		
v/c Ratio	0.70	0.48		0.57	0.60		0.50	0.33	0.05	0.13	0.86	
Uniform Delay, d1	25.5	18.2		28.0	21.8		14.4	13.3	11.8	12.2	17.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.6	0.1		3.0	0.8		1.2	0.1	0.0	0.0	10.5	
Delay (s)	32.2	18.3		31.0	22.6		15.7	13.4	11.8	12.2	28.0	
Level of Service	C	B		C	C		B	B	B	B	C	
Approach Delay (s)		22.1			23.8			13.4			26.7	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	63.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	76.4%	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	109	65	298	223	400	98	1524	193	95	1483	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.9	3.7	4.9	4.9	3.7	4.9		3.7	4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4999		1770	5056	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4999		1770	5056	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	118	71	324	242	435	107	1657	210	103	1612	64
RTOR Reduction (vph)	0	0	59	0	0	147	0	15	0	0	4	0
Lane Group Flow (vph)	122	118	12	324	242	288	107	1852	0	103	1672	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	9.4	17.1	17.1	18.4	26.1	26.1	8.0	38.5		7.9	38.4	
Effective Green, g (s)	9.4	17.1	17.1	18.4	26.1	26.1	8.0	38.5		7.9	38.4	
Actuated g/C Ratio	0.09	0.17	0.17	0.19	0.26	0.26	0.08	0.39		0.08	0.39	
Clearance Time (s)	3.7	4.9	4.9	3.7	4.9	4.9	3.7	4.9		3.7	4.9	
Vehicle Extension (s)	2.0	5.4	5.4	2.0	5.3	5.3	2.0	4.5		2.0	5.2	
Lane Grp Cap (vph)	168	611	273	329	932	417	143	1942		141	1959	
v/s Ratio Prot	0.07	0.03		c0.18	0.07		c0.06	c0.37		0.06	0.33	
v/s Ratio Perm			0.01			c0.18						
v/c Ratio	0.73	0.19	0.04	0.98	0.26	0.69	0.75	0.95		0.73	0.85	
Uniform Delay, d1	43.6	35.1	34.2	40.2	28.9	32.9	44.6	29.4		44.6	27.8	
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	12.4	0.4	0.2	45.0	0.3	6.4	16.9	11.6		15.4	4.3	
Delay (s)	56.0	35.5	34.4	85.3	29.2	39.2	61.5	41.0		59.9	32.0	
Level of Service	E	D	C	F	C	D	E	D		E	C	
Approach Delay (s)		43.3			51.7			42.1			33.7	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	99.1	Sum of lost time (s)	7.4
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	208	195	197	283	282	350	111	1458	267	103	2238	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.9	3.7	4.9	4.9	3.7	4.9		3.7	4.9	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4967		1770	5061	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4967		1770	5061	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	212	214	308	307	380	121	1585	290	112	2433	79
RTOR Reduction (vph)	0	0	109	0	0	117	0	19	0	0	3	0
Lane Group Flow (vph)	226	212	105	308	307	263	121	1856	0	112	2509	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	18.1	22.0	22.0	21.3	25.2	25.2	9.3	62.9		10.7	64.3	
Effective Green, g (s)	18.1	22.0	22.0	21.3	25.2	25.2	9.3	62.9		10.7	64.3	
Actuated g/C Ratio	0.13	0.16	0.16	0.16	0.19	0.19	0.07	0.47		0.08	0.48	
Clearance Time (s)	3.7	4.9	4.9	3.7	4.9	4.9	3.7	4.9		3.7	4.9	
Vehicle Extension (s)	2.0	5.4	5.4	2.0	5.3	5.3	2.0	4.5		2.0	5.2	
Lane Grp Cap (vph)	239	581	260	281	665	297	123	2330		141	2427	
v/s Ratio Prot	0.13	0.06		c0.17	0.09		c0.07	0.37		0.06	c0.50	
v/s Ratio Perm			0.07			c0.17						
v/c Ratio	0.95	0.36	0.41	1.10	0.46	0.89	0.98	0.80		0.79	1.03	
Uniform Delay, d1	57.5	49.8	50.2	56.4	48.4	53.0	62.3	30.2		60.6	34.9	
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	42.6	0.9	2.4	81.8	1.2	27.3	75.5	2.2		24.2	27.7	
Delay (s)	100.1	50.8	52.6	138.2	49.6	80.3	137.8	32.4		84.8	62.6	
Level of Service	F	D	D	F	D	F	F	C		F	E	
Approach Delay (s)		68.5			88.8			38.8			63.6	
Approach LOS		E			F			D			E	

Intersection Summary

HCM Average Control Delay	60.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	134.1	Sum of lost time (s)	12.3
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	342	39	381	277	4	659	58	56	2	88	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	5.9		4.2	4.2			4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.93			0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3532		1770	1725			1794	
Flt Permitted	0.55	1.00	1.00	0.50	1.00		0.95	1.00			1.00	
Satd. Flow (perm)	1026	3539	1583	929	3532		1770	1725			1794	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	372	42	414	301	4	716	63	61	2	96	36
RTOR Reduction (vph)	0	0	24	0	1	0	0	22	0	0	10	0
Lane Group Flow (vph)	21	372	18	414	304	0	716	102	0	0	124	0
Turn Type	Perm		Perm	Perm			Split			Split		
Protected Phases		2			6		8	8		7	7	
Permitted Phases	2		2	6								
Actuated Green, G (s)	54.9	54.9	54.9	54.9	54.9		47.8	47.8			13.3	
Effective Green, g (s)	54.9	54.9	54.9	54.9	54.9		47.8	47.8			13.3	
Actuated g/C Ratio	0.42	0.42	0.42	0.42	0.42		0.37	0.37			0.10	
Clearance Time (s)	5.9	5.9	5.9	5.9	5.9		4.2	4.2			4.2	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			2.0	
Lane Grp Cap (vph)	432	1491	667	391	1488		649	633			183	
v/s Ratio Prot		0.11			0.09		c0.40	0.06			c0.07	
v/s Ratio Perm	0.02		0.01	c0.45								
v/c Ratio	0.05	0.25	0.03	1.06	0.20		1.10	0.16			0.68	
Uniform Delay, d1	22.3	24.4	22.1	37.7	23.9		41.3	27.8			56.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.1	0.1	0.0	61.9	0.1		67.0	0.2			7.6	
Delay (s)	22.3	24.5	22.1	99.6	24.0		108.3	27.9			64.0	
Level of Service	C	C	C	F	C		F	C			E	
Approach Delay (s)		24.2			67.5			96.4			64.0	
Approach LOS		C			E			F			E	

Intersection Summary

HCM Average Control Delay	69.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.3	Sum of lost time (s)	14.3
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	462	53	312	403	4	479	84	104	3	107	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	5.9		4.2	4.2			4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3534		1770	1708			1774	
Flt Permitted	0.46	1.00	1.00	0.42	1.00		0.95	1.00			1.00	
Satd. Flow (perm)	857	3539	1583	785	3534		1770	1708			1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	502	58	339	438	4	521	91	113	3	116	63
RTOR Reduction (vph)	0	0	28	0	1	0	0	28	0	0	14	0
Lane Group Flow (vph)	64	502	30	339	441	0	521	176	0	0	168	0
Turn Type	Perm		Perm	Perm			Split			Split		
Protected Phases		2			6		8	8		7	7	
Permitted Phases	2		2	6								
Actuated Green, G (s)	63.4	63.4	63.4	63.4	63.4		39.5	39.5			16.9	
Effective Green, g (s)	63.4	63.4	63.4	63.4	63.4		39.5	39.5			16.9	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47		0.29	0.29			0.13	
Clearance Time (s)	5.9	5.9	5.9	5.9	5.9		4.2	4.2			4.2	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			2.0	
Lane Grp Cap (vph)	405	1673	748	371	1671		521	503			224	
v/s Ratio Prot		0.14			0.12		c0.29	0.10			c0.09	
v/s Ratio Perm	0.07		0.02	c0.43								
v/c Ratio	0.16	0.30	0.04	0.91	0.26		1.00	0.35			0.75	
Uniform Delay, d1	20.1	21.7	19.0	32.8	21.3		47.3	37.2			56.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	0.1	0.0	26.6	0.1		39.4	0.6			11.8	
Delay (s)	20.4	21.9	19.0	59.5	21.4		86.7	37.8			68.3	
Level of Service	C	C	B	E	C		F	D			E	
Approach Delay (s)		21.4			37.9			73.0			68.3	
Approach LOS		C			D			E			E	

Intersection Summary

HCM Average Control Delay	46.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	134.1	Sum of lost time (s)	14.3
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	95	69	195	138	46	60	733	147	46	697	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3		4.0	5.3		4.0	5.3		4.0	5.3	5.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.94		1.00	0.96		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1745		1770	1793		1770	3450		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1745		1770	1793		1770	3450		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	103	75	212	150	50	65	797	160	50	758	96
RTOR Reduction (vph)	0	35	0	0	15	0	0	19	0	0	0	64
Lane Group Flow (vph)	78	143	0	212	185	0	65	938	0	50	758	32
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	5.1	10.9		11.1	16.9		3.7	22.4		3.4	22.1	22.1
Effective Green, g (s)	5.1	10.9		11.1	16.9		3.7	22.4		3.4	22.1	22.1
Actuated g/C Ratio	0.08	0.16		0.17	0.25		0.06	0.34		0.05	0.33	0.33
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.5	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	136	286		296	456		99	1164		91	1178	527
v/s Ratio Prot	0.04	c0.08		c0.12	0.10		c0.04	c0.27		0.03	0.21	
v/s Ratio Perm												0.02
v/c Ratio	0.57	0.50		0.72	0.41		0.66	0.81		0.55	0.64	0.06
Uniform Delay, d1	29.6	25.3		26.2	20.6		30.7	20.0		30.8	18.8	15.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.6	0.5		6.7	0.2		11.3	3.9		3.6	0.9	0.0
Delay (s)	33.2	25.8		32.9	20.8		42.1	24.0		34.4	19.7	15.1
Level of Service	C	C		C	C		D	C		C	B	B
Approach Delay (s)		28.0			27.0			25.1			20.0	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	13.3
Intersection Capacity Utilization	63.8%	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)	138	208	70	153	175	39	77	954	431	59	852	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3		4.0	5.3		4.0	5.3		4.0	5.3	5.3
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.97		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1792		1770	1812		1770	3374		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1792		1770	1812		1770	3374		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	226	76	166	190	42	84	1037	468	64	926	189
RTOR Reduction (vph)	0	12	0	0	8	0	0	47	0	0	0	93
Lane Group Flow (vph)	150	290	0	166	224	0	84	1458	0	64	926	96
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	9.1	19.2		10.1	20.2		6.2	44.8		5.5	44.1	44.1
Effective Green, g (s)	9.1	19.2		10.1	20.2		6.2	44.8		5.5	44.1	44.1
Actuated g/C Ratio	0.09	0.20		0.10	0.21		0.06	0.46		0.06	0.45	0.45
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.5	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	164	350		182	373		112	1539		99	1589	711
v/s Ratio Prot	0.08	c0.16		c0.09	0.12		c0.05	c0.43		0.04	0.26	
v/s Ratio Perm												0.06
v/c Ratio	0.91	0.83		0.91	0.60		0.75	0.95		0.65	0.58	0.14
Uniform Delay, d1	44.2	37.9		43.6	35.3		45.2	25.6		45.4	20.2	15.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	45.2	14.2		41.8	1.9		21.8	12.4		10.4	0.4	0.0
Delay (s)	89.4	52.1		85.4	37.2		67.0	37.9		55.8	20.5	15.9
Level of Service	F	D		F	D		E	D		E	C	B
Approach Delay (s)		64.5			57.3			39.5			21.7	
Approach LOS		E			E			D			C	

Intersection Summary

HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	98.2	Sum of lost time (s)	13.3
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	110	43	100	84	35	87	610	69	27	335	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1784		1770	1780		1770	3485		1770	3505	
Flt Permitted	0.67	1.00		0.65	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1256	1784		1214	1780		1770	3485		1770	3505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	120	47	109	91	38	95	663	75	29	364	25
RTOR Reduction (vph)	0	27	0	0	29	0	0	11	0	0	7	0
Lane Group Flow (vph)	60	140	0	109	100	0	95	727	0	29	382	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	6.6	6.6		6.6	6.6		3.4	17.2		0.8	14.6	
Effective Green, g (s)	6.6	6.6		6.6	6.6		3.4	17.2		0.8	14.6	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.09	0.45		0.02	0.38	
Clearance Time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	2.0		1.0	2.0	
Lane Grp Cap (vph)	217	308		210	308		158	1569		37	1340	
v/s Ratio Prot		0.08			0.06		c0.05	c0.21		0.02	0.11	
v/s Ratio Perm	0.05			c0.09								
v/c Ratio	0.28	0.45		0.52	0.32		0.60	0.46		0.78	0.29	
Uniform Delay, d1	13.7	14.2		14.4	13.8		16.7	7.3		18.6	8.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.4		0.9	0.2		4.4	0.1		63.9	0.0	
Delay (s)	14.0	14.6		15.3	14.1		21.1	7.4		82.5	8.2	
Level of Service	B	B		B	B		C	A		F	A	
Approach Delay (s)		14.4			14.6			8.9			13.4	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	38.2	Sum of lost time (s)	13.6
Intersection Capacity Utilization	51.5%	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 (vph)	30	140	168	134	98	34	114	503	98	30	789	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1710		1770	1791		1770	3452		1770	3512	
Flt Permitted	0.67	1.00		0.39	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1239	1710		731	1791		1770	3452		1770	3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	152	183	146	107	37	124	547	107	33	858	46
RTOR Reduction (vph)	0	75	0	0	21	0	0	21	0	0	6	0
Lane Group Flow (vph)	33	260	0	146	123	0	124	633	0	33	898	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	13.9	13.9		13.9	13.9		5.2	22.7		1.9	19.4	
Effective Green, g (s)	13.9	13.9		13.9	13.9		5.2	22.7		1.9	19.4	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.10	0.44		0.04	0.37	
Clearance Time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	2.0		1.0	2.0	
Lane Grp Cap (vph)	331	456		195	478		177	1504		65	1308	
v/s Ratio Prot		0.15			0.07		c0.07	c0.18		0.02	c0.26	
v/s Ratio Perm	0.03			c0.20								
v/c Ratio	0.10	0.57		0.75	0.26		0.70	0.42		0.51	0.69	
Uniform Delay, d1	14.4	16.5		17.5	15.0		22.7	10.2		24.6	13.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.1		12.8	0.1		9.8	0.1		2.3	1.2	
Delay (s)	14.4	17.6		30.3	15.1		32.5	10.2		26.9	15.0	
Level of Service	B	B		C	B		C	B		C	B	
Approach Delay (s)		17.3			22.8			13.8			15.4	
Approach LOS		B			C			B			B	

Intersection Summary

HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	52.1	Sum of lost time (s)	18.6
Intersection Capacity Utilization	69.7%	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)	31	58	38	32	65	28	39	359	22	25	232	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.9	4.9		4.9	4.9	
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	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1847		1770	1838	
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	0.59	1.00		0.52	1.00	
Satd. Flow (perm)	1863	1863	1583	1863	1863	1583	1098	1847		968	1838	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	63	41	35	71	30	42	390	24	27	252	25
RTOR Reduction (vph)	0	0	35	0	0	26	0	5	0	0	7	0
Lane Group Flow (vph)	34	63	6	35	71	4	42	409	0	27	270	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	2.9	2.9	2.9	2.9	2.9	2.9	7.7	7.7		7.7	7.7	
Effective Green, g (s)	2.9	2.9	2.9	2.9	2.9	2.9	7.7	7.7		7.7	7.7	
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.9	4.9		4.9	4.9	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	270	270	230	270	270	230	423	711		373	708	
v/s Ratio Prot		0.03			c0.04			c0.22			0.15	
v/s Ratio Perm	0.02		0.00	0.02		0.00	0.04			0.03		
v/c Ratio	0.13	0.23	0.03	0.13	0.26	0.02	0.10	0.58		0.07	0.38	
Uniform Delay, d1	7.4	7.6	7.3	7.5	7.6	7.3	3.9	4.9		3.9	4.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2	0.0	0.1	0.2	0.0	0.0	0.7		0.0	0.1	
Delay (s)	7.5	7.7	7.4	7.5	7.8	7.3	4.0	5.6		3.9	4.6	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		7.6			7.6			5.4			4.5	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	20.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	43.9%	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)	61	104	52	34	125	20	35	357	40	32	524	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.9	4.9		4.9	4.9	
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	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1835		1770	1837	
Flt Permitted	0.71	1.00	1.00	0.71	1.00	1.00	0.34	1.00		0.51	1.00	
Satd. Flow (perm)	1331	1863	1583	1331	1863	1583	640	1835		953	1837	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	113	57	37	136	22	38	388	43	35	570	58
RTOR Reduction (vph)	0	0	47	0	0	18	0	6	0	0	6	0
Lane Group Flow (vph)	66	113	10	37	136	4	38	425	0	35	622	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	5.6	5.6	5.6	5.6	5.6	5.6	16.1	16.1		16.1	16.1	
Effective Green, g (s)	5.6	5.6	5.6	5.6	5.6	5.6	16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.18	0.52	0.52		0.52	0.52	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.9	4.9		4.9	4.9	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	240	335	285	240	335	285	331	950		493	951	
v/s Ratio Prot		0.06			c0.07			0.23			c0.34	
v/s Ratio Perm	0.05		0.01	0.03		0.00	0.06			0.04		
v/c Ratio	0.28	0.34	0.04	0.15	0.41	0.01	0.11	0.45		0.07	0.65	
Uniform Delay, d1	11.0	11.1	10.5	10.8	11.3	10.5	3.8	4.7		3.8	5.5	
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	0.2	0.0	0.1	0.3	0.0	0.1	0.1		0.0	1.2	
Delay (s)	11.2	11.3	10.5	10.9	11.6	10.5	3.9	4.8		3.8	6.7	
Level of Service	B	B	B	B	B	B	A	A		A	A	
Approach Delay (s)		11.1			11.3			4.8			6.6	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	31.1	Sum of lost time (s)	9.4
Intersection Capacity Utilization	52.3%	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)	55	69	54	91	76	56	66	1901	39	47	1537	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.2		3.7	4.9		3.7	4.9	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.93			0.97		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1740			1764		1770	5070		1770	5039	
Flt Permitted	0.53	1.00			0.81		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	984	1740			1453		1770	5070		1770	5039	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	75	59	99	83	61	72	2066	42	51	1671	108
RTOR Reduction (vph)	0	42	0	0	17	0	0	2	0	0	6	0
Lane Group Flow (vph)	60	92	0	0	226	0	72	2106	0	51	1773	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	12.7	12.7			13.0		4.2	33.7		3.9	33.4	
Effective Green, g (s)	12.7	12.7			13.0		4.2	33.7		3.9	33.4	
Actuated g/C Ratio	0.20	0.20			0.21		0.07	0.53		0.06	0.53	
Clearance Time (s)	4.5	4.5			4.2		3.7	4.9		3.7	4.9	
Vehicle Extension (s)	0.2	0.2			0.2		2.0	5.7		2.0	5.7	
Lane Grp Cap (vph)	197	349			298		117	2695		109	2655	
v/s Ratio Prot		0.05					c0.04	c0.42		0.03	0.35	
v/s Ratio Perm	0.06				c0.16							
v/c Ratio	0.30	0.26			0.76		0.62	0.78		0.47	0.67	
Uniform Delay, d1	21.6	21.4			23.7		28.8	11.9		28.7	11.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.1			9.3		6.6	1.9		1.2	1.0	
Delay (s)	21.9	21.6			33.1		35.4	13.8		29.9	11.9	
Level of Service	C	C			C		D	B		C	B	
Approach Delay (s)		21.7			33.1			14.5			12.4	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	7.9
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	106	36	104	54	68	74	1798	67	169	2248	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.2		3.7	4.9		3.7	4.9	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.96			0.96		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1792			1747		1770	5058		1770	5062	
Flt Permitted	0.52	1.00			0.70		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	970	1792			1248		1770	5058		1770	5062	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	115	39	113	59	74	80	1954	73	184	2443	76
RTOR Reduction (vph)	0	15	0	0	19	0	0	3	0	0	3	0
Lane Group Flow (vph)	84	139	0	0	227	0	80	2024	0	184	2516	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	15.1	15.1			15.4		6.1	41.7		10.3	45.9	
Effective Green, g (s)	15.1	15.1			15.4		6.1	41.7		10.3	45.9	
Actuated g/C Ratio	0.19	0.19			0.19		0.08	0.52		0.13	0.57	
Clearance Time (s)	4.5	4.5			4.2		3.7	4.9		3.7	4.9	
Vehicle Extension (s)	0.2	0.2			0.2		2.0	5.7		2.0	5.7	
Lane Grp Cap (vph)	183	337			240		135	2630		227	2897	
v/s Ratio Prot		0.08					0.05	0.40		c0.10	c0.50	
v/s Ratio Perm	0.09				c0.18							
v/c Ratio	0.46	0.41			0.94		0.59	0.77		0.81	0.87	
Uniform Delay, d1	28.9	28.6			32.0		35.8	15.4		34.0	14.6	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.3			42.2		4.6	1.8		18.4	3.4	
Delay (s)	29.6	28.9			74.2		40.4	17.2		52.4	18.0	
Level of Service	C	C			E		D	B		D	B	
Approach Delay (s)		29.2			74.2			18.1			20.3	
Approach LOS		C			E			B			C	

Intersection Summary

HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	80.2	Sum of lost time (s)	7.9
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	26	5	21	26	69	2	707	28	48	339	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1820		1770	1659		1770	3519		1770	3511	
Flt Permitted	1.00	1.00		1.00	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1863	1820		1863	1659		1770	3519		1770	3511	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	28	5	23	28	75	2	768	30	52	368	21
RTOR Reduction (vph)	0	5	0	0	68	0	0	4	0	0	5	0
Lane Group Flow (vph)	25	28	0	23	35	0	2	794	0	52	384	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	3.0	3.0		3.0	3.0		1.5	15.9		1.7	16.1	
Effective Green, g (s)	3.0	3.0		3.0	3.0		1.5	15.9		1.7	16.1	
Actuated g/C Ratio	0.09	0.09		0.09	0.09		0.04	0.46		0.05	0.47	
Clearance Time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		1.0	2.0		1.0	2.0	
Lane Grp Cap (vph)	163	160		163	146		78	1636		88	1653	
v/s Ratio Prot		0.02			c0.02		0.00	c0.23		c0.03	0.11	
v/s Ratio Perm	0.01			0.01								
v/c Ratio	0.15	0.18		0.14	0.24		0.03	0.49		0.59	0.23	
Uniform Delay, d1	14.4	14.5		14.4	14.5		15.7	6.3		15.9	5.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.2		0.1	0.3		0.0	0.1		6.9	0.0	
Delay (s)	14.6	14.7		14.6	14.8		15.7	6.4		22.8	5.4	
Level of Service	B	B		B	B		B	A		C	A	
Approach Delay (s)		14.6			14.8			6.4			7.5	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	34.2	Sum of lost time (s)	13.6
Intersection Capacity Utilization	44.7%	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)	40	38	18	59	27	91	15	608	27	84	727	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.88		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1771		1770	1647		1770	3517		1770	3502	
Flt Permitted	0.80	1.00		0.80	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1490	1771		1490	1647		1770	3517		1770	3502	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	41	20	64	29	99	16	661	29	91	790	59
RTOR Reduction (vph)	0	17	0	0	86	0	0	4	0	0	7	0
Lane Group Flow (vph)	43	44	0	64	42	0	16	686	0	91	842	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	5.0	5.0		5.0	5.0		1.1	15.8		3.3	18.0	
Effective Green, g (s)	5.0	5.0		5.0	5.0		1.1	15.8		3.3	18.0	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.03	0.42		0.09	0.48	
Clearance Time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		1.0	2.0		1.0	2.0	
Lane Grp Cap (vph)	198	235		198	218		52	1474		155	1672	
v/s Ratio Prot		0.02			0.03		0.01	c0.20		0.05	c0.24	
v/s Ratio Perm	0.03			c0.04								
v/c Ratio	0.22	0.19		0.32	0.19		0.31	0.47		0.59	0.50	
Uniform Delay, d1	14.6	14.5		14.8	14.6		17.9	7.9		16.5	6.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.1		0.3	0.2		1.2	0.1		3.6	0.1	
Delay (s)	14.8	14.7		15.2	14.7		19.2	8.0		20.2	6.9	
Level of Service	B	B		B	B		B	A		C	A	
Approach Delay (s)		14.7			14.9			8.2			8.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	37.7	Sum of lost time (s)	9.6
Intersection Capacity Utilization	48.1%	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												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	49	35	3	9	46	43	13	398	11	35	201	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	38	3	10	50	47	14	433	12	38	218	14

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	95	107	14	445	38	233
Volume Left (vph)	53	10	14	0	38	0
Volume Right (vph)	3	47	0	12	0	14
Hadj (s)	0.13	-0.21	0.53	0.02	0.53	-0.01
Departure Headway (s)	6.1	5.8	6.0	5.5	6.2	5.6
Degree Utilization, x	0.16	0.17	0.02	0.68	0.07	0.36
Capacity (veh/h)	517	547	580	636	553	610
Control Delay (s)	10.3	9.9	7.9	17.9	8.4	10.7
Approach Delay (s)	10.3	9.9	17.6		10.3	
Approach LOS	B	A	C		B	

Intersection Summary			
Delay	13.9		
HCM Level of Service	B		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	42	58	21	32	65	56	17	415	22	71	584	67
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	63	23	35	71	61	18	451	24	77	635	73

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	132	166	18	475	77	708
Volume Left (vph)	46	35	18	0	77	0
Volume Right (vph)	23	61	0	24	0	73
Hadj (s)	0.00	-0.14	0.53	0.00	0.53	-0.04
Departure Headway (s)	7.5	7.2	7.1	6.6	7.0	6.5
Degree Utilization, x	0.28	0.33	0.04	0.87	0.15	1.27
Capacity (veh/h)	446	463	492	537	498	563
Control Delay (s)	13.4	13.9	9.2	38.2	10.1	155.1
Approach Delay (s)	13.4	13.9	37.1		140.8	
Approach LOS	B	B	E		F	

Intersection Summary			
Delay	84.3		
HCM Level of Service	F		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	1140	91	116	924	245	134	75	344	347	343	1007
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.3		3.7	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	0.88	1.00	0.95	0.95
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5029		1770	5085	1583	1770	1863	2787	1770	1633	1504
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5029		1770	5085	1583	1770	1863	2787	1770	1633	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	1239	99	126	1004	266	146	82	374	377	373	1095
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	340	0	32	170
Lane Group Flow (vph)	124	1330	0	126	1004	266	146	82	34	377	736	531
Turn Type	Prot			Prot		Free	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						Free			3			4
Actuated Green, G (s)	10.6	33.7		8.3	31.4	120.0	11.0	11.0	11.0	50.0	50.0	50.0
Effective Green, g (s)	10.6	33.7		8.3	31.4	120.0	11.0	11.0	11.0	50.0	50.0	50.0
Actuated g/C Ratio	0.09	0.28		0.07	0.26	1.00	0.09	0.09	0.09	0.42	0.42	0.42
Clearance Time (s)	3.7	5.3		3.7	5.3		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	4.1		2.0	4.5		4.5	4.5	4.5	7.1	7.1	7.1
Lane Grp Cap (vph)	156	1412		122	1331	1583	162	171	255	738	680	627
v/s Ratio Prot	0.07	c0.26		c0.07	0.20		c0.08	0.04		0.21	c0.45	
v/s Ratio Perm						0.17			0.01			0.35
v/c Ratio	0.79	0.94		1.03	0.75	0.17	0.90	0.48	0.13	0.51	1.08	0.85
Uniform Delay, d1	53.6	42.2		55.9	40.8	0.0	54.0	51.8	50.1	25.9	35.0	31.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.3	12.8		90.5	2.8	0.2	44.6	3.6	0.4	2.0	58.7	12.3
Delay (s)	76.0	55.0		146.4	43.5	0.2	98.5	55.4	50.5	28.0	93.7	43.8
Level of Service	E	D		F	D	A	F	E	D	C	F	D
Approach Delay (s)		56.7			44.6			62.8			61.3	
Approach LOS		E			D			E			E	

Intersection Summary

HCM Average Control Delay	55.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	90.9%	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)	500	1485	243	188	1155	690	146	125	291	326	546	1193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.3		3.7	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	0.88	1.00	0.95	0.95
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4978		1770	5085	1583	1770	1863	2787	1770	1662	1504
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	4978		1770	5085	1583	1770	1863	2787	1770	1662	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	543	1614	264	204	1255	750	159	136	316	354	593	1297
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	291	0	17	298
Lane Group Flow (vph)	543	1862	0	204	1255	750	159	136	25	354	978	597
Turn Type	Prot			Prot		Free	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						Free			3			4
Actuated Green, G (s)	27.3	41.7		14.3	28.7	140.0	11.0	11.0	11.0	56.0	56.0	56.0
Effective Green, g (s)	27.3	41.7		14.3	28.7	140.0	11.0	11.0	11.0	56.0	56.0	56.0
Actuated g/C Ratio	0.20	0.30		0.10	0.20	1.00	0.08	0.08	0.08	0.40	0.40	0.40
Clearance Time (s)	3.7	5.3		3.7	5.3		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	4.1		2.0	4.5		4.5	4.5	4.5	7.1	7.1	7.1
Lane Grp Cap (vph)	345	1483		181	1042	1583	139	146	219	708	665	602
v/s Ratio Prot	c0.31	c0.37		0.12	c0.25		c0.09	0.07		0.20	c0.59	
v/s Ratio Perm						0.47			0.01			0.40
v/c Ratio	1.57	1.26		1.13	1.20	0.47	1.14	0.93	0.11	0.50	1.47	0.99
Uniform Delay, d1	56.4	49.1		62.9	55.6	0.0	64.5	64.1	60.0	31.5	42.0	41.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	271.9	120.6		105.2	101.2	1.0	120.2	55.1	0.4	2.0	219.7	34.8
Delay (s)	328.2	169.8		168.0	156.9	1.0	184.7	119.2	60.4	33.5	261.7	76.6
Level of Service	F	F		F	F	A	F	F	E	C	F	E
Approach Delay (s)		205.3			105.0			105.8			151.9	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	151.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	125.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1308	1003	0	1249	23	479	16	705	31	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.0		5.3	5.3	4.6	4.6	4.6	3.7		3.7
Lane Util. Factor	1.00	0.91	1.00		0.91	1.00	0.95	0.95	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1583		5085	1583	1681	1690	1583	1770		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.63		1.00
Satd. Flow (perm)	1770	5085	1583		5085	1583	1681	1690	1583	1183		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1422	1090	0	1358	25	521	17	766	34	0	37
RTOR Reduction (vph)	0	0	0	0	0	10	0	0	86	0	0	35
Lane Group Flow (vph)	11	1422	1090	0	1358	15	271	267	680	34	0	2
Turn Type	Prot		Free			Prot	Split		Perm	custom		custom
Protected Phases	5	2			6	6	3	3				
Permitted Phases			Free						3	4		4
Actuated Green, G (s)	1.2	39.8	95.8		34.5	34.5	36.5	36.5	36.5	6.3		6.3
Effective Green, g (s)	1.2	39.8	95.8		34.5	34.5	36.5	36.5	36.5	6.3		6.3
Actuated g/C Ratio	0.01	0.42	1.00		0.36	0.36	0.38	0.38	0.38	0.07		0.07
Clearance Time (s)	3.7	4.9			5.3	5.3	4.6	4.6	4.6	3.7		3.7
Vehicle Extension (s)	2.0	5.1			4.2	4.2	5.0	5.0	5.0	1.5		1.5
Lane Grp Cap (vph)	22	2113	1583		1831	570	640	644	603	78		104
v/s Ratio Prot	0.01	0.28			0.27	0.01	0.16	0.16				
v/s Ratio Perm			c0.69						c0.43	0.03		0.00
v/c Ratio	0.50	0.67	0.69		0.74	0.03	0.42	0.41	1.13	0.44		0.02
Uniform Delay, d1	47.0	22.7	0.0		26.8	19.8	21.9	21.8	29.6	43.0		41.9
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	6.4	1.1	2.5		1.8	0.0	0.9	0.9	77.1	1.4		0.0
Delay (s)	53.4	23.9	2.5		28.6	19.8	22.8	22.7	106.7	44.5		41.9
Level of Service	D	C	A		C	B	C	C	F	D		D
Approach Delay (s)		14.7			28.4			72.1			43.1	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	95.8	Sum of lost time (s)	4.6
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	1168	1202	0	2243	68	301	9	586	55	0	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.0		5.3	5.3	4.6	4.6	4.6	3.7		3.7
Lane Util. Factor	1.00	0.91	1.00		0.91	1.00	0.95	0.95	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1583		5085	1583	1681	1690	1583	1770		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.64		1.00
Satd. Flow (perm)	1770	5085	1583		5085	1583	1681	1690	1583	1200		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	1270	1307	0	2438	74	327	10	637	60	0	80
RTOR Reduction (vph)	0	0	0	0	0	13	0	0	46	0	0	75
Lane Group Flow (vph)	75	1270	1307	0	2438	61	167	170	591	60	0	5
Turn Type	Prot		Free			Prot	Split		Perm	custom		custom
Protected Phases	5	2			6	6	3	3				
Permitted Phases			Free						3	4		4
Actuated Green, G (s)	8.0	76.8	144.6		64.7	64.7	46.4	46.4	46.4	8.2		8.2
Effective Green, g (s)	8.0	76.8	144.6		64.7	64.7	46.4	46.4	46.4	8.2		8.2
Actuated g/C Ratio	0.06	0.53	1.00		0.45	0.45	0.32	0.32	0.32	0.06		0.06
Clearance Time (s)	3.7	4.9			5.3	5.3	4.6	4.6	4.6	3.7		3.7
Vehicle Extension (s)	2.0	5.1			4.2	4.2	5.0	5.0	5.0	1.5		1.5
Lane Grp Cap (vph)	98	2701	1583		2275	708	539	542	508	68		90
v/s Ratio Prot	0.04	0.25			c0.48	0.04	0.10	0.10				
v/s Ratio Perm			c0.83						c0.37	0.05		0.00
v/c Ratio	0.77	0.47	0.83		1.07	0.09	0.31	0.31	1.16	0.88		0.05
Uniform Delay, d1	67.4	21.2	0.0		39.9	23.0	37.0	37.1	49.1	67.7		64.5
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	26.8	0.3	5.1		41.4	0.1	0.7	0.7	93.3	68.1		0.1
Delay (s)	94.1	21.5	5.1		81.4	23.0	37.7	37.8	142.4	135.8		64.6
Level of Service	F	C	A		F	C	D	D	F	F		E
Approach Delay (s)		15.4			79.7			106.2			95.1	
Approach LOS		B			E			F			F	

Intersection Summary			
HCM Average Control Delay	57.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	144.6	Sum of lost time (s)	9.9
Intersection Capacity Utilization	75.2%	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)	765	1124	116	52	585	118	229	485	82	90	210	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.9	4.9	4.6	4.9	4.9	5.3	5.3		5.3	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91		1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.94	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	3433	4975		1770	3203	1441
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	3433	4975		1770	3203	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	832	1222	126	57	636	128	249	527	89	98	228	296
RTOR Reduction (vph)	0	0	56	0	0	86	0	20	0	0	64	140
Lane Group Flow (vph)	832	1222	70	57	636	42	249	596	0	98	297	23
Turn Type	Prot		Perm	Prot		Perm	Split			Split		Perm
Protected Phases	3	8		7	4		6	6		2	2	
Permitted Phases			8			4						2
Actuated Green, G (s)	30.0	45.4	45.4	5.1	20.5	20.5	18.7	18.7		14.7	14.7	14.7
Effective Green, g (s)	30.0	45.4	45.4	5.1	20.5	20.5	18.7	18.7		14.7	14.7	14.7
Actuated g/C Ratio	0.29	0.44	0.44	0.05	0.20	0.20	0.18	0.18		0.14	0.14	0.14
Clearance Time (s)	4.6	4.9	4.9	4.6	4.9	4.9	5.3	5.3		5.3	5.3	5.3
Vehicle Extension (s)	1.0	2.0	2.0	0.5	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	990	1545	691	168	1002	312	617	895		250	453	204
v/s Ratio Prot	0.24	c0.35		0.02	c0.13		0.07	c0.12		0.06	c0.09	
v/s Ratio Perm			0.04			0.03						0.02
v/c Ratio	0.84	0.79	0.10	0.34	0.63	0.13	0.40	0.67		0.39	0.66	0.11
Uniform Delay, d1	34.8	25.2	17.3	47.8	38.3	34.4	37.7	39.7		40.6	42.3	39.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.3	2.7	0.0	0.4	1.0	0.1	0.2	1.5		0.4	2.6	0.1
Delay (s)	41.0	27.9	17.3	48.3	39.3	34.5	37.9	41.2		41.0	44.9	39.1
Level of Service	D	C	B	D	D	C	D	D		D	D	D
Approach Delay (s)		32.3			39.2			40.2			42.7	
Approach LOS		C			D			D			D	

Intersection Summary

HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	70.7%	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)	503	823	206	177	1070	104	278	527	59	134	746	685
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.9	4.9	4.6	4.9	4.9	5.3	5.3		5.3	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91		1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	3433	5009		1770	3264	1441
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	3433	5009		1770	3264	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	547	895	224	192	1163	113	302	573	64	146	811	745
RTOR Reduction (vph)	0	0	142	0	0	38	0	10	0	0	22	255
Lane Group Flow (vph)	547	895	82	192	1163	75	302	627	0	146	1057	222
Turn Type	Prot		Perm	Prot		Perm	Split			Split		Perm
Protected Phases	3	8		7	4		6	6		2	2	
Permitted Phases			8			4						2
Actuated Green, G (s)	20.4	37.5	37.5	12.4	29.5	29.5	22.1	22.1		39.5	39.5	39.5
Effective Green, g (s)	20.4	37.5	37.5	12.4	29.5	29.5	22.1	22.1		39.5	39.5	39.5
Actuated g/C Ratio	0.16	0.28	0.28	0.09	0.22	0.22	0.17	0.17		0.30	0.30	0.30
Clearance Time (s)	4.6	4.9	4.9	4.6	4.9	4.9	5.3	5.3		5.3	5.3	5.3
Vehicle Extension (s)	1.0	2.0	2.0	0.5	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	532	1008	451	323	1140	355	577	841		531	980	433
v/s Ratio Prot	c0.16	0.25		0.06	c0.23		0.09	c0.13		0.08	c0.32	
v/s Ratio Perm			0.05			0.05						0.15
v/c Ratio	1.03	0.89	0.18	0.59	1.02	0.21	0.52	0.75		0.27	1.08	0.51
Uniform Delay, d1	55.6	45.0	35.5	57.2	51.0	41.6	49.9	52.1		35.1	46.0	38.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	46.4	9.4	0.1	2.0	31.8	0.1	0.4	3.2		0.1	52.5	0.4
Delay (s)	102.0	54.4	35.5	59.1	82.9	41.7	50.3	55.2		35.2	98.5	38.5
Level of Service	F	D	D	E	F	D	D	E		D	F	D
Approach Delay (s)		67.5			76.6			53.7			76.3	
Approach LOS		E			E			D			E	

Intersection Summary

HCM Average Control Delay	70.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	131.6	Sum of lost time (s)	20.1
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	284	1007	49	50	548	135	55	69	95	30	40	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3		4.0	5.3		4.0	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.91		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3515		1770	4934		1770	1701		1770	1632	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3515		1770	4934		1770	1701		1770	1632	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	309	1095	53	54	596	147	60	75	103	33	43	204
RTOR Reduction (vph)	0	3	0	0	49	0	0	73	0	0	178	0
Lane Group Flow (vph)	309	1145	0	54	694	0	60	105	0	33	69	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	14.2	26.3		3.5	15.6		4.8	9.9		2.1	7.7	
Effective Green, g (s)	14.2	26.3		3.5	15.6		4.8	9.9		2.1	7.7	
Actuated g/C Ratio	0.24	0.44		0.06	0.26		0.08	0.16		0.03	0.13	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	4.5		4.5	4.5	
Vehicle Extension (s)	1.5	2.0		1.0	2.0		1.5	1.5		1.0	1.5	
Lane Grp Cap (vph)	418	1538		103	1281		141	280		62	209	
v/s Ratio Prot	c0.17	c0.33		0.03	0.14		0.03	c0.06		0.02	c0.04	
v/s Ratio Perm												
v/c Ratio	0.74	0.74		0.52	0.54		0.43	0.38		0.53	0.33	
Uniform Delay, d1	21.2	14.1		27.5	19.2		26.3	22.4		28.5	23.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.8	1.7		2.2	0.3		0.8	0.3		4.3	0.3	
Delay (s)	27.1	15.8		29.7	19.4		27.1	22.7		32.9	24.2	
Level of Service	C	B		C	B		C	C		C	C	
Approach Delay (s)		18.2			20.1			23.8			25.2	
Approach LOS		B			C			C			C	

Intersection Summary

HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.1	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.9%	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)	76	819	63	85	1255	10	61	12	57	3	25	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3		4.0	5.3		4.0	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.88		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3502		1770	5079		1770	1632		1770	1660	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3502		1770	5079		1770	1632		1770	1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	890	68	92	1364	11	66	13	62	3	27	71
RTOR Reduction (vph)	0	6	0	0	1	0	0	53	0	0	65	0
Lane Group Flow (vph)	83	952	0	92	1374	0	66	22	0	3	33	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	4.9	23.0		4.9	23.0		5.2	8.4		0.9	4.6	
Effective Green, g (s)	4.9	23.0		4.9	23.0		5.2	8.4		0.9	4.6	
Actuated g/C Ratio	0.09	0.41		0.09	0.41		0.09	0.15		0.02	0.08	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	4.5		4.5	4.5	
Vehicle Extension (s)	1.5	2.0		1.0	2.0		1.5	1.5		1.0	1.5	
Lane Grp Cap (vph)	156	1451		156	2105		166	247		29	138	
v/s Ratio Prot	0.05	c0.27		c0.05	0.27		c0.04	c0.01		0.00	c0.02	
v/s Ratio Perm												
v/c Ratio	0.53	0.66		0.59	0.65		0.40	0.09		0.10	0.24	
Uniform Delay, d1	24.2	13.1		24.3	13.0		23.7	20.3		26.9	23.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.8		3.6	0.6		0.6	0.1		0.6	0.3	
Delay (s)	25.9	13.9		28.0	13.6		24.2	20.3		27.5	24.1	
Level of Service	C	B		C	B		C	C		C	C	
Approach Delay (s)		14.9			14.5			22.2			24.2	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	22.3
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1169	19	98	554	45	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	5.0	4.0	
Lane Util. Factor	0.91		1.00	0.91	1.00	
Frt	1.00		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	5073		1770	5085	1676	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	5073		1770	5085	1676	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1271	21	107	602	49	78
RTOR Reduction (vph)	2	0	0	0	68	0
Lane Group Flow (vph)	1290	0	107	602	59	0
Turn Type			Prot			
Protected Phases	2		1	6	4	
Permitted Phases						
Actuated Green, G (s)	18.3		3.5	25.8	4.9	
Effective Green, g (s)	18.3		3.5	25.8	4.9	
Actuated g/C Ratio	0.46		0.09	0.65	0.12	
Clearance Time (s)	5.0		4.0	5.0	4.0	
Vehicle Extension (s)	4.0		1.0	4.0	1.5	
Lane Grp Cap (vph)	2338		156	3305	207	
v/s Ratio Prot	c0.25		c0.06	0.12	c0.03	
v/s Ratio Perm						
v/c Ratio	0.55		0.69	0.18	0.28	
Uniform Delay, d1	7.7		17.6	2.8	15.8	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.4		9.5	0.0	0.3	
Delay (s)	8.1		27.1	2.8	16.1	
Level of Service	A		C	A	B	
Approach Delay (s)	8.1			6.5	16.1	
Approach LOS	A			A	B	

Intersection Summary

HCM Average Control Delay	8.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	39.7	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	820	68	107	1258	35	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	5.0	4.0	
Lane Util. Factor	0.91		1.00	0.91	1.00	
Frt	0.99		1.00	1.00	0.90	
Flt Protected	1.00		0.95	1.00	0.99	
Satd. Flow (prot)	5027		1770	5085	1661	
Flt Permitted	1.00		0.95	1.00	0.99	
Satd. Flow (perm)	5027		1770	5085	1661	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	891	74	116	1367	38	92
RTOR Reduction (vph)	11	0	0	0	81	0
Lane Group Flow (vph)	954	0	116	1367	49	0
Turn Type			Prot			
Protected Phases	2		1	6	4	
Permitted Phases						
Actuated Green, G (s)	18.3		4.8	27.1	4.7	
Effective Green, g (s)	18.3		4.8	27.1	4.7	
Actuated g/C Ratio	0.45		0.12	0.66	0.12	
Clearance Time (s)	5.0		4.0	5.0	4.0	
Vehicle Extension (s)	4.0		1.0	4.0	1.5	
Lane Grp Cap (vph)	2255		208	3378	191	
v/s Ratio Prot	0.19		c0.07	c0.27	c0.03	
v/s Ratio Perm						
v/c Ratio	0.42		0.56	0.40	0.25	
Uniform Delay, d1	7.7		17.0	3.1	16.5	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.2		1.8	0.1	0.3	
Delay (s)	7.8		18.8	3.3	16.7	
Level of Service	A		B	A	B	
Approach Delay (s)	7.8			4.5	16.7	
Approach LOS	A			A	B	

Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	40.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.3%	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)	109	1001	60	155	528	61	90	468	136	83	220	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9		4.0	4.9	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.97		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)	1770	5042		1770	5007		1770	3420		1770	3366	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5042		1770	5007		1770	3420		1770	3366	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	1088	65	168	574	66	98	509	148	90	239	116
RTOR Reduction (vph)	0	7	0	0	15	0	0	33	0	0	76	0
Lane Group Flow (vph)	118	1146	0	168	625	0	98	624	0	90	279	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	11.5	21.8		10.2	20.5		11.3	20.2		6.5	15.4	
Effective Green, g (s)	11.5	21.8		10.2	20.5		11.3	20.2		6.5	15.4	
Actuated g/C Ratio	0.15	0.28		0.13	0.27		0.15	0.26		0.08	0.20	
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9		4.0	4.9	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lane Grp Cap (vph)	266	1437		236	1342		261	903		150	678	
v/s Ratio Prot	0.07	c0.23		c0.09	0.12		0.06	c0.18		c0.05	0.08	
v/s Ratio Perm												
v/c Ratio	0.44	0.80		0.71	0.47		0.38	0.69		0.60	0.41	
Uniform Delay, d1	29.6	25.3		31.7	23.4		29.4	25.3		33.7	26.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	3.0		8.2	0.1		0.3	1.9		4.3	0.1	
Delay (s)	30.0	28.3		39.9	23.5		29.7	27.2		38.0	26.8	
Level of Service	C	C		D	C		C	C		D	C	
Approach Delay (s)		28.4			26.9			27.5			29.0	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	27.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	17.8
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)	154	932	81	279	1047	69	77	491	353	119	709	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.9		4.0	4.9	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.94		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5024		1770	5038		1770	3317		1770	3467	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5024		1770	5038		1770	3317		1770	3467	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	1013	88	303	1138	75	84	534	384	129	771	122
RTOR Reduction (vph)	0	11	0	0	8	0	0	149	0	0	14	0
Lane Group Flow (vph)	167	1090	0	303	1205	0	84	769	0	129	879	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	10.2	18.3		14.1	22.2		9.3	28.2		8.7	27.6	
Effective Green, g (s)	10.2	18.3		14.1	22.2		9.3	28.2		8.7	27.6	
Actuated g/C Ratio	0.12	0.21		0.16	0.25		0.11	0.32		0.10	0.32	
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.9		4.0	4.9	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lane Grp Cap (vph)	207	1056		287	1284		189	1074		177	1099	
v/s Ratio Prot	0.09	c0.22		c0.17	0.24		0.05	c0.23		0.07	c0.25	
v/s Ratio Perm												
v/c Ratio	0.81	1.03		1.06	0.94		0.44	0.72		0.73	0.80	
Uniform Delay, d1	37.5	34.4		36.5	31.8		36.5	25.9		38.1	27.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.1	36.3		68.6	12.8		0.6	1.9		11.9	4.0	
Delay (s)	56.5	70.7		105.1	44.5		37.1	27.8		50.0	31.2	
Level of Service	E	E		F	D		D	C		D	C	
Approach Delay (s)		68.8			56.6			28.6			33.6	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM Average Control Delay	49.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	13.8
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	354	773	45	63	425	60	102	492	149	77	305	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95		0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3510		3433	4991		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3510		3433	4991		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	385	840	49	68	462	65	111	535	162	84	332	138
RTOR Reduction (vph)	0	4	0	0	24	0	0	0	124	0	0	113
Lane Group Flow (vph)	385	885	0	68	503	0	111	535	38	84	332	25
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases									4			8
Actuated Green, G (s)	15.4	24.3		2.9	11.8		8.8	15.5	15.5	5.1	11.8	11.8
Effective Green, g (s)	15.4	24.3		2.9	11.8		8.8	15.5	15.5	5.1	11.8	11.8
Actuated g/C Ratio	0.24	0.37		0.04	0.18		0.13	0.24	0.24	0.08	0.18	0.18
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	810	1306		152	902		239	840	376	138	640	286
v/s Ratio Prot	0.11	c0.25		0.02	c0.10		c0.06	c0.15		0.05	0.09	
v/s Ratio Perm									0.02			0.02
v/c Ratio	0.48	0.68		0.45	0.56		0.46	0.64	0.10	0.61	0.52	0.09
Uniform Delay, d1	21.5	17.2		30.4	24.4		26.1	22.4	19.5	29.1	24.2	22.3
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	1.1		0.8	0.4		0.5	1.2	0.0	5.1	0.3	0.0
Delay (s)	21.6	18.3		31.2	24.8		26.6	23.5	19.5	34.3	24.5	22.3
Level of Service	C	B		C	C		C	C	B	C	C	C
Approach Delay (s)		19.3			25.5			23.2			25.4	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	18.1
Intersection Capacity Utilization	58.6%	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)	283	804	97	211	1031	92	104	449	136	101	688	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.0	4.9	4.9	4.0	4.9	4.9
Lane Util. Factor	0.97	0.95		0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3482		3433	5023		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3482		3433	5023		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	308	874	105	229	1121	100	113	488	148	110	748	286
RTOR Reduction (vph)	0	11	0	0	12	0	0	0	115	0	0	206
Lane Group Flow (vph)	308	968	0	229	1209	0	113	488	33	110	748	80
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases									4			8
Actuated Green, G (s)	9.1	25.2		7.5	23.6		5.8	17.4	17.4	10.3	21.9	21.9
Effective Green, g (s)	9.1	25.2		7.5	23.6		5.8	17.4	17.4	10.3	21.9	21.9
Actuated g/C Ratio	0.12	0.32		0.10	0.30		0.07	0.22	0.22	0.13	0.28	0.28
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	4.9	4.9	4.0	4.9	4.9
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	401	1126		331	1522		132	790	354	234	995	445
v/s Ratio Prot	0.09	c0.28		0.07	c0.24		c0.06	0.14		c0.06	c0.21	
v/s Ratio Perm									0.02			0.05
v/c Ratio	0.77	0.86		0.69	0.79		0.86	0.62	0.09	0.47	0.75	0.18
Uniform Delay, d1	33.4	24.7		34.1	24.9		35.6	27.3	24.0	31.3	25.5	21.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	6.5		5.0	2.8		37.5	1.0	0.0	0.5	2.9	0.1
Delay (s)	41.1	31.2		39.1	27.7		73.1	28.3	24.0	31.8	28.4	21.3
Level of Service	D	C		D	C		E	C	C	C	C	C
Approach Delay (s)		33.6			29.5			34.2			27.0	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	30.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	22.1
Intersection Capacity Utilization	70.7%	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)	35	807	5	17	532	17	4	3	1	6	6	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	0.95	0.95
Frt	1.00	1.00		1.00	1.00		1.00	0.96		1.00	0.93	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5081		1770	5062		1770	1793		1770	1647	1504
Flt Permitted	0.95	1.00		0.95	1.00		1.00	1.00		1.00	1.00	1.00
Satd. Flow (perm)	1770	5081		1770	5062		1863	1793		1863	1647	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	877	5	18	578	18	4	3	1	7	7	18
RTOR Reduction (vph)	0	1	0	0	3	0	0	1	0	0	6	12
Lane Group Flow (vph)	38	881	0	18	593	0	4	3	0	7	7	0
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	0.6	12.5		0.5	12.4		0.5	0.5		0.5	0.5	0.5
Effective Green, g (s)	0.6	12.5		0.5	12.4		0.5	0.5		0.5	0.5	0.5
Actuated g/C Ratio	0.02	0.47		0.02	0.47		0.02	0.02		0.02	0.02	0.02
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.5	1.5		1.5	1.5	1.5
Lane Grp Cap (vph)	40	2406		34	2378		35	34		35	31	28
v/s Ratio Prot	c0.02	c0.17		0.01	0.12			0.00			c0.00	
v/s Ratio Perm							0.00			0.00		0.00
v/c Ratio	0.95	0.37		0.53	0.25		0.11	0.09		0.20	0.23	0.01
Uniform Delay, d1	12.9	4.4		12.8	4.2		12.7	12.7		12.8	12.8	12.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	120.2	0.0		6.7	0.0		0.5	0.4		1.0	1.4	0.0
Delay (s)	133.1	4.5		19.5	4.2		13.3	13.1		13.8	14.1	12.7
Level of Service	F	A		B	A		B	B		B	B	B
Approach Delay (s)		9.8			4.7			13.2			13.5	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	26.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	979	10	12	997	16	1	34	14	15	24	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	0.95	0.95
Frt	1.00	1.00		1.00	1.00		1.00	0.96		1.00	0.98	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5077		1770	5074		1770	1782		1770	1742	1504
Flt Permitted	0.95	1.00		0.95	1.00		1.00	1.00		1.00	1.00	1.00
Satd. Flow (perm)	1770	5077		1770	5074		1863	1782		1863	1742	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	1064	11	13	1084	17	1	37	15	16	26	25
RTOR Reduction (vph)	0	1	0	0	2	0	0	14	0	0	3	20
Lane Group Flow (vph)	55	1074	0	13	1099	0	1	38	0	16	26	2
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	1.6	17.4		0.6	16.4		2.6	2.6		2.6	2.6	2.6
Effective Green, g (s)	1.6	17.4		0.6	16.4		2.6	2.6		2.6	2.6	2.6
Actuated g/C Ratio	0.05	0.52		0.02	0.49		0.08	0.08		0.08	0.08	0.08
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.5	1.5		1.5	1.5	1.5
Lane Grp Cap (vph)	85	2637		32	2484		145	138		145	135	117
v/s Ratio Prot	c0.03	0.21		0.01	c0.22			c0.02			0.02	
v/s Ratio Perm							0.00			0.01		0.00
v/c Ratio	0.65	0.41		0.41	0.44		0.01	0.28		0.11	0.19	0.01
Uniform Delay, d1	15.7	4.9		16.3	5.6		14.3	14.6		14.4	14.5	14.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.0	0.0		3.0	0.0		0.0	0.4		0.1	0.3	0.0
Delay (s)	27.7	4.9		19.3	5.6		14.3	15.0		14.5	14.7	14.3
Level of Service	C	A		B	A		B	B		B	B	B
Approach Delay (s)		6.0			5.8			14.9			14.5	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	33.5	Sum of lost time (s)	12.9
Intersection Capacity Utilization	41.2%	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)	176	608	25	129	493	134	31	334	153	36	116	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	4.6		4.0	4.6	4.6
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5055		1770	4922		1770	1775		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5055		1770	4922		1770	1775		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	191	661	27	140	536	146	34	363	166	39	126	60
RTOR Reduction (vph)	0	5	0	0	59	0	0	19	0	0	0	38
Lane Group Flow (vph)	191	683	0	140	623	0	34	510	0	39	126	22
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	6.9	15.0		8.1	16.2		2.1	23.8		3.2	24.9	24.9
Effective Green, g (s)	6.9	15.0		8.1	16.2		2.1	23.8		3.2	24.9	24.9
Actuated g/C Ratio	0.10	0.22		0.12	0.24		0.03	0.35		0.05	0.37	0.37
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	4.6		4.0	4.6	4.6
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	350	1120		212	1178		55	624		84	685	582
v/s Ratio Prot	0.06	c0.14		c0.08	0.13		0.02	c0.29		c0.02	0.07	
v/s Ratio Perm												0.01
v/c Ratio	0.55	0.61		0.66	0.53		0.62	0.82		0.46	0.18	0.04
Uniform Delay, d1	28.9	23.7		28.5	22.4		32.4	20.0		31.4	14.5	13.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.6		5.9	0.2		13.6	7.7		1.5	0.0	0.0
Delay (s)	29.8	24.4		34.3	22.6		46.1	27.7		32.9	14.6	13.7
Level of Service	C	C		C	C		D	C		C	B	B
Approach Delay (s)		25.6			24.6			28.8			17.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	17.6
Intersection Capacity Utilization	60.7%	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)	237	920	35	252	814	84	27	203	264	145	435	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	4.6		4.0	4.6	4.6
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5057		1770	5014		1770	1705		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5057		1770	5014		1770	1705		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	258	1000	38	274	885	91	29	221	287	158	473	212
RTOR Reduction (vph)	0	5	0	0	14	0	0	56	0	0	0	129
Lane Group Flow (vph)	258	1033	0	274	962	0	29	452	0	158	473	83
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	8.2	18.7		11.1	21.6		2.4	26.4		8.1	32.1	32.1
Effective Green, g (s)	8.2	18.7		11.1	21.6		2.4	26.4		8.1	32.1	32.1
Actuated g/C Ratio	0.10	0.23		0.14	0.26		0.03	0.32		0.10	0.39	0.39
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	4.6		4.0	4.6	4.6
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	344	1155		240	1322		52	550		175	730	620
v/s Ratio Prot	0.08	c0.20		c0.15	c0.19		0.02	c0.26		c0.09	0.25	
v/s Ratio Perm												0.05
v/c Ratio	0.75	0.89		1.14	0.73		0.56	0.82		0.90	0.65	0.13
Uniform Delay, d1	35.9	30.6		35.4	27.5		39.2	25.6		36.5	20.3	16.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.9	8.9		101.7	1.7		7.2	9.1		40.6	1.5	0.0
Delay (s)	43.8	39.6		137.1	29.2		46.4	34.7		77.1	21.8	16.0
Level of Service	D	D		F	C		D	C		E	C	B
Approach Delay (s)		40.4			52.8			35.3			30.7	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	41.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	22.6
Intersection Capacity Utilization	82.1%	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)	195	284	113	295	344	181	199	1747	178	180	1361	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4868		3433	4822		1770	5015		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4868		3433	4822		1770	5015		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	309	123	321	374	197	216	1899	193	196	1479	264
RTOR Reduction (vph)	0	82	0	0	109	0	0	13	0	0	0	131
Lane Group Flow (vph)	212	350	0	321	462	0	216	2079	0	196	1479	133
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	6.8	14.9		8.8	16.9		13.1	37.2		9.4	33.5	33.5
Effective Green, g (s)	6.8	14.9		8.8	16.9		13.1	37.2		9.4	33.5	33.5
Actuated g/C Ratio	0.08	0.17		0.10	0.19		0.15	0.42		0.11	0.38	0.38
Clearance Time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Vehicle Extension (s)	2.0	5.2		2.0	5.2		2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	265	824		343	926		263	2120		189	1936	603
v/s Ratio Prot	0.06	0.07		c0.09	c0.10		0.12	c0.41		c0.11	0.29	
v/s Ratio Perm												0.08
v/c Ratio	0.80	0.42		0.94	0.50		0.82	0.98		1.04	0.76	0.22
Uniform Delay, d1	39.9	32.7		39.3	31.8		36.3	25.0		39.3	23.8	18.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.9	0.8		31.8	0.9		17.5	15.3		75.5	2.2	0.4
Delay (s)	54.8	33.5		71.1	32.7		53.8	40.3		114.8	26.0	18.8
Level of Service	D	C		E	C		D	D		F	C	B
Approach Delay (s)		40.5			46.5			41.6			34.0	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	374	649	329	479	421	165	161	1654	257	290	1870	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.95		1.00	0.96		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4828		3433	4871		1770	4983		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4828		3433	4871		1770	4983		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	705	358	521	458	179	175	1798	279	315	2033	332
RTOR Reduction (vph)	0	76	0	0	59	0	0	17	0	0	0	94
Lane Group Flow (vph)	407	987	0	521	578	0	175	2060	0	315	2033	238
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	16.3	21.6		14.8	20.1		12.3	47.6		18.3	53.6	53.6
Effective Green, g (s)	16.3	21.6		14.8	20.1		12.3	47.6		18.3	53.6	53.6
Actuated g/C Ratio	0.14	0.18		0.12	0.17		0.10	0.40		0.15	0.45	0.45
Clearance Time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Vehicle Extension (s)	2.0	5.2		2.0	5.2		2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	466	869		423	816		181	1977		270	2271	707
v/s Ratio Prot	0.12	c0.20		c0.15	0.12		0.10	c0.41		c0.18	0.40	
v/s Ratio Perm												0.15
v/c Ratio	0.87	1.14		1.23	0.71		0.97	1.04		1.17	0.90	0.34
Uniform Delay, d1	50.8	49.2		52.6	47.2		53.6	36.2		50.9	30.6	21.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	15.9	75.1		123.4	3.7		56.3	32.1		107.5	5.4	0.6
Delay (s)	66.8	124.3		176.0	50.8		110.0	68.3		158.4	36.0	22.3
Level of Service	E	F		F	D		F	E		F	D	C
Approach Delay (s)		108.4			107.1			71.5			48.7	
Approach LOS		F			F			E			D	

Intersection Summary

HCM Average Control Delay	76.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	338	39	86	601	16	105	38	61	24	21	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.6	4.9			4.6	4.6		4.6	4.6
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	0.98		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (prot)	1770	5007		1770	5066			1797	1583		1815	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	5007		1770	5066			1797	1583		1815	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	367	42	93	653	17	114	41	66	26	23	38
RTOR Reduction (vph)	0	16	0	0	3	0	0	0	56	0	0	36
Lane Group Flow (vph)	42	393	0	93	667	0	0	155	10	0	49	2
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	1.8	14.4		3.3	16.5			6.9	6.9		2.8	2.8
Effective Green, g (s)	1.8	14.4		3.3	16.5			6.9	6.9		2.8	2.8
Actuated g/C Ratio	0.04	0.31		0.07	0.36			0.15	0.15		0.06	0.06
Clearance Time (s)	4.0	4.9		4.6	4.9			4.6	4.6		4.6	4.6
Vehicle Extension (s)	1.0	2.0		1.0	2.0			1.5	1.5		1.5	1.5
Lane Grp Cap (vph)	69	1564		127	1813			269	237		110	96
v/s Ratio Prot	0.02	0.08		c0.05	c0.13			c0.09			c0.03	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.61	0.25		0.73	0.37			0.58	0.04		0.45	0.02
Uniform Delay, d1	21.8	11.8		21.0	10.9			18.2	16.8		20.9	20.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	10.0	0.0		17.0	0.0			1.9	0.0		1.0	0.0
Delay (s)	31.8	11.9		38.0	11.0			20.1	16.8		21.9	20.4
Level of Service	C	B		D	B			C	B		C	C
Approach Delay (s)		13.7			14.3			19.1			21.3	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	46.1	Sum of lost time (s)	13.8
Intersection Capacity Utilization	41.0%	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)	32	806	91	129	493	6	69	13	102	6	6	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.6	4.9			4.6	4.6		4.6	4.6
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	0.98		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	5008		1770	5075			1787	1583		1817	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	5008		1770	5075			1787	1583		1817	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	876	99	140	536	7	75	14	111	7	7	26
RTOR Reduction (vph)	0	14	0	0	1	0	0	0	100	0	0	25
Lane Group Flow (vph)	35	961	0	140	542	0	0	89	11	0	14	1
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	1.7	19.2		5.6	23.7			5.2	5.2		1.5	1.5
Effective Green, g (s)	1.7	19.2		5.6	23.7			5.2	5.2		1.5	1.5
Actuated g/C Ratio	0.03	0.38		0.11	0.47			0.10	0.10		0.03	0.03
Clearance Time (s)	4.0	4.9		4.6	4.9			4.6	4.6		4.6	4.6
Vehicle Extension (s)	1.0	2.0		1.0	2.0			1.5	1.5		1.5	1.5
Lane Grp Cap (vph)	60	1915		197	2396			185	164		54	47
v/s Ratio Prot	0.02	c0.19		c0.08	c0.11			c0.05			c0.01	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.58	0.50		0.71	0.23			0.48	0.07		0.26	0.02
Uniform Delay, d1	23.9	11.8		21.5	7.8			21.2	20.3		23.8	23.6
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	9.0	0.1		9.6	0.0			0.7	0.1		0.9	0.1
Delay (s)	32.9	11.9		31.1	7.8			21.9	20.4		24.7	23.7
Level of Service	C	B		C	A			C	C		C	C
Approach Delay (s)		12.6			12.6			21.1			24.1	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	23.6
Intersection Capacity Utilization	47.7%	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)	20	289	71	12	541	0	67	26	2	3	41	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00			1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			1.00	1.00
Satd. Flow (prot)	1770	4935		1770	5085			1794			1857	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.97			1.00	1.00
Satd. Flow (perm)	1770	4935		1770	5085			1794			1857	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	314	77	13	588	0	73	28	2	3	45	62
RTOR Reduction (vph)	0	41	0	0	0	0	0	1	0	0	0	57
Lane Group Flow (vph)	22	350	0	13	588	0	0	102	0	0	48	5
Turn Type	Prot			Prot			Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases												4
Actuated Green, G (s)	0.7	13.7		0.7	13.7			3.3			2.9	2.9
Effective Green, g (s)	0.7	13.7		0.7	13.7			3.3			2.9	2.9
Actuated g/C Ratio	0.02	0.36		0.02	0.36			0.09			0.08	0.08
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0			4.0	4.0
Vehicle Extension (s)	1.5	2.0		1.0	2.0			1.0			1.5	1.5
Lane Grp Cap (vph)	33	1798		33	1853			157			143	122
v/s Ratio Prot	c0.01	0.07		0.01	c0.12			c0.06			c0.03	
v/s Ratio Perm												0.00
v/c Ratio	0.67	0.19		0.39	0.32			0.65			0.34	0.04
Uniform Delay, d1	18.3	8.2		18.2	8.6			16.6			16.4	16.1
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	32.9	0.0		2.8	0.0			7.1			0.5	0.0
Delay (s)	51.3	8.2		21.0	8.6			23.7			16.9	16.1
Level of Service	D	A		C	A			C			B	B
Approach Delay (s)		10.5			8.9			23.7			16.5	
Approach LOS		B			A			C			B	

Intersection Summary

HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	37.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	36.0%	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)	60	697	140	25	423	9	95	29	30	6	28	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00			0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	1.00
Satd. Flow (prot)	1770	4958		1770	5069			1759			1845	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.99	1.00
Satd. Flow (perm)	1770	4958		1770	5069			1759			1845	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	758	152	27	460	10	103	32	33	7	30	64
RTOR Reduction (vph)	0	30	0	0	2	0	0	10	0	0	0	60
Lane Group Flow (vph)	65	880	0	27	468	0	0	158	0	0	37	4
Turn Type	Prot			Prot			Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases												4
Actuated Green, G (s)	3.4	16.1		0.9	13.6			8.2			3.0	3.0
Effective Green, g (s)	3.4	16.1		0.9	13.6			8.2			3.0	3.0
Actuated g/C Ratio	0.08	0.36		0.02	0.30			0.18			0.07	0.07
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0			4.0	4.0
Vehicle Extension (s)	1.5	2.0		1.0	2.0			1.0			1.5	1.5
Lane Grp Cap (vph)	133	1766		35	1525			319			122	105
v/s Ratio Prot	c0.04	c0.18		0.02	0.09			c0.09			c0.02	
v/s Ratio Perm												0.00
v/c Ratio	0.49	0.50		0.77	0.31			0.50			0.30	0.04
Uniform Delay, d1	20.1	11.4		22.0	12.2			16.6			20.1	19.8
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.0	0.1		62.6	0.0			0.4			0.5	0.1
Delay (s)	21.1	11.5		84.6	12.2			17.1			20.6	19.8
Level of Service	C	B		F	B			B			C	B
Approach Delay (s)		12.1			16.1			17.1			20.1	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.7%	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)	35	263	61	60	404	43	67	246	78	38	183	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.6	4.6	4.6	4.6	4.6	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4942		1770	5012		1770	1863	1583	1770	1804	
Flt Permitted	0.95	1.00		0.95	1.00		0.60	1.00	1.00	0.59	1.00	
Satd. Flow (perm)	1770	4942		1770	5012		1123	1863	1583	1099	1804	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	286	66	65	439	47	73	267	85	41	199	53
RTOR Reduction (vph)	0	46	0	0	17	0	0	0	61	0	17	0
Lane Group Flow (vph)	38	306	0	65	469	0	73	267	24	41	235	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	0.9	11.3		2.0	12.4		10.3	10.3	10.3	10.3	10.3	
Effective Green, g (s)	0.9	11.3		2.0	12.4		10.3	10.3	10.3	10.3	10.3	
Actuated g/C Ratio	0.02	0.30		0.05	0.33		0.28	0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.6	4.6	4.6	4.6	4.6	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	43	1501		95	1671		311	516	438	304	499	
v/s Ratio Prot	0.02	0.06		c0.04	c0.09			c0.14			0.13	
v/s Ratio Perm							0.07		0.01	0.04		
v/c Ratio	0.88	0.20		0.68	0.28		0.23	0.52	0.05	0.13	0.47	
Uniform Delay, d1	18.1	9.6		17.3	9.1		10.4	11.4	9.9	10.1	11.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	91.0	0.0		15.0	0.0		0.1	0.4	0.0	0.1	0.3	
Delay (s)	109.1	9.6		32.3	9.2		10.5	11.7	9.9	10.2	11.4	
Level of Service	F	A		C	A		B	B	A	B	B	
Approach Delay (s)		19.3			11.9			11.2			11.3	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	37.2	Sum of lost time (s)	8.6
Intersection Capacity Utilization	46.9%	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)	59	577	57	56	425	54	70	333	99	47	300	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.6	4.6	4.6	4.6	4.6	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5017		1770	4999		1770	1863	1583	1770	1822	
Flt Permitted	0.95	1.00		0.95	1.00		0.41	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	1770	5017		1770	4999		754	1863	1583	805	1822	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	627	62	61	462	59	76	362	108	51	326	55
RTOR Reduction (vph)	0	16	0	0	23	0	0	0	74	0	10	0
Lane Group Flow (vph)	64	673	0	61	498	0	76	362	34	51	371	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	3.1	12.7		3.1	12.7		13.5	13.5	13.5	13.5	13.5	
Effective Green, g (s)	3.1	12.7		3.1	12.7		13.5	13.5	13.5	13.5	13.5	
Actuated g/C Ratio	0.07	0.30		0.07	0.30		0.31	0.31	0.31	0.31	0.31	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.6	4.6	4.6	4.6	4.6	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	128	1485		128	1480		237	586	498	253	573	
v/s Ratio Prot	c0.04	c0.13		0.03	0.10			0.19			c0.20	
v/s Ratio Perm							0.10		0.02	0.06		
v/c Ratio	0.50	0.45		0.48	0.34		0.32	0.62	0.07	0.20	0.65	
Uniform Delay, d1	19.2	12.3		19.1	11.8		11.2	12.5	10.3	10.8	12.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.1		1.0	0.0		0.3	1.4	0.0	0.1	1.9	
Delay (s)	20.3	12.4		20.1	11.9		11.5	13.9	10.3	10.9	14.5	
Level of Service	C	B		C	B		B	B	B	B	B	
Approach Delay (s)		13.0			12.7			12.8			14.1	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	13.6
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	179	68	57	57	125	151	97	705	29	96	645	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	16	12	12
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.3		4.0	6.3	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.95		0.97	0.95	
Frt	1.00	0.93		1.00	0.92		1.00	0.99		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)	3433	3297		3433	3249		3433	3518		3891	3379	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3297		3433	3249		3433	3518		3891	3379	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	195	74	62	62	136	164	105	766	32	104	701	304
RTOR Reduction (vph)	0	48	0	0	135	0	0	3	0	0	51	0
Lane Group Flow (vph)	195	88	0	62	165	0	105	795	0	104	954	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.5	16.3		3.6	12.4		5.2	24.8		5.0	24.6	
Effective Green, g (s)	7.5	16.3		3.6	12.4		5.2	24.8		5.0	24.6	
Actuated g/C Ratio	0.11	0.23		0.05	0.18		0.07	0.35		0.07	0.35	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	368	768		177	576		255	1246		278	1187	
v/s Ratio Prot	c0.06	c0.03		0.02	c0.05		c0.03	0.23		0.03	c0.28	
v/s Ratio Perm												
v/c Ratio	0.53	0.12		0.35	0.29		0.41	0.64		0.37	0.80	
Uniform Delay, d1	29.6	21.2		32.1	25.0		30.9	18.9		31.0	20.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.0		0.4	0.1		0.4	0.8		0.3	3.8	
Delay (s)	30.2	21.2		32.5	25.1		31.3	19.6		31.3	24.3	
Level of Service	C	C		C	C		C	B		C	C	
Approach Delay (s)		26.5			26.3			21.0			25.0	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	26.3
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	360	209	134	67	79	132	132	868	57	219	803	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	16	12	12
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.3		4.0	6.3	
Lane Util. Factor	0.97	0.95		0.97	0.95		0.97	0.95		0.97	0.95	
Frt	1.00	0.94		1.00	0.91		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3331		3433	3208		3433	3506		3891	3380	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3331		3433	3208		3433	3506		3891	3380	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	227	146	73	86	143	143	943	62	238	873	373
RTOR Reduction (vph)	0	117	0	0	124	0	0	4	0	0	43	0
Lane Group Flow (vph)	391	256	0	73	105	0	143	1001	0	238	1203	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	16.7		5.3	11.0		7.3	34.2		7.8	34.7	
Effective Green, g (s)	11.0	16.7		5.3	11.0		7.3	34.2		7.8	34.7	
Actuated g/C Ratio	0.13	0.20		0.06	0.13		0.09	0.41		0.09	0.41	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	448	660		216	419		297	1422		360	1391	
v/s Ratio Prot	c0.11	c0.08		0.02	0.03		0.04	0.29		c0.06	c0.36	
v/s Ratio Perm												
v/c Ratio	0.87	0.39		0.34	0.25		0.48	0.70		0.66	0.86	
Uniform Delay, d1	36.0	29.4		37.8	32.9		36.7	20.8		37.0	22.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.4	0.1		0.3	0.1		0.4	1.3		3.5	5.7	
Delay (s)	52.4	29.5		38.2	33.1		37.1	22.1		40.5	28.3	
Level of Service	D	C		D	C		D	C		D	C	
Approach Delay (s)		41.2			34.3			24.0			30.3	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	2	1	2	525	185	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.6	4.6	4.6
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	1	2	571	201	22
RTOR Reduction (vph)	0	1	0	0	0	12
Lane Group Flow (vph)	2	0	2	571	201	10
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	0.5	0.5	0.5	15.4	10.9	10.9
Effective Green, g (s)	0.5	0.5	0.5	15.4	10.9	10.9
Actuated g/C Ratio	0.02	0.02	0.02	0.63	0.44	0.44
Clearance Time (s)	4.0	4.0	4.0	4.6	4.6	4.6
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0	2.0
Lane Grp Cap (vph)	36	32	36	2225	1574	704
v/s Ratio Prot	c0.00		0.00	c0.16	0.06	
v/s Ratio Perm		0.00				0.01
v/c Ratio	0.06	0.00	0.06	0.26	0.13	0.01
Uniform Delay, d1	11.8	11.8	11.8	2.0	4.0	3.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.2	0.0	0.0	0.0
Delay (s)	12.0	11.8	12.0	2.0	4.0	3.8
Level of Service	B	B	B	A	A	A
Approach Delay (s)	11.9			2.1	4.0	
Approach LOS	B			A	A	

Intersection Summary

HCM Average Control Delay	2.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	24.5	Sum of lost time (s)	8.6
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	33	9	18	455	637	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.6	4.6	4.6
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	10	20	495	692	26
RTOR Reduction (vph)	0	10	0	0	0	10
Lane Group Flow (vph)	36	0	20	495	692	16
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	0.6	0.6	0.5	17.2	12.7	12.7
Effective Green, g (s)	0.6	0.6	0.5	17.2	12.7	12.7
Actuated g/C Ratio	0.02	0.02	0.02	0.65	0.48	0.48
Clearance Time (s)	4.0	4.0	4.0	4.6	4.6	4.6
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0	2.0
Lane Grp Cap (vph)	40	36	34	2306	1702	762
v/s Ratio Prot	c0.02		0.01	c0.14	c0.20	
v/s Ratio Perm		0.00				0.01
v/c Ratio	0.90	0.01	0.59	0.21	0.41	0.02
Uniform Delay, d1	12.9	12.6	12.8	1.9	4.4	3.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	101.8	0.0	15.6	0.0	0.1	0.0
Delay (s)	114.7	12.6	28.5	1.9	4.5	3.6
Level of Service	F	B	C	A	A	A
Approach Delay (s)	92.5			2.9	4.4	
Approach LOS	F			A	A	

Intersection Summary

HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	26.4	Sum of lost time (s)	13.2
Intersection Capacity Utilization	28.1%	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)	58	0	12	141	0	53	96	1883	104	284	1628	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.85		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1794		1681	1905	1583	1770	5045		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1794		1681	1905	1583	1770	5045		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	0	13	153	0	58	104	2047	113	309	1770	153
RTOR Reduction (vph)	0	12	0	0	0	52	0	4	0	0	0	25
Lane Group Flow (vph)	63	1	0	76	77	6	104	2156	0	309	1770	128
Turn Type	Split			Split		Perm	Prot			Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	10.0	10.0		13.3	13.3	13.3	11.2	56.5		22.5	67.8	67.8
Effective Green, g (s)	10.0	10.0		13.3	13.3	13.3	11.2	56.5		22.5	67.8	67.8
Actuated g/C Ratio	0.08	0.08		0.11	0.11	0.11	0.09	0.48		0.19	0.57	0.57
Clearance Time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Vehicle Extension (s)	5.5	5.5		5.5	5.5	5.5	2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	149	151		188	213	177	167	2399		335	2902	903
v/s Ratio Prot	c0.04	0.00		c0.05	0.04		0.06	c0.43		c0.17	0.35	
v/s Ratio Perm						0.00						0.08
v/c Ratio	0.42	0.01		0.40	0.36	0.04	0.62	0.90		0.92	0.61	0.14
Uniform Delay, d1	51.7	49.9		49.1	48.8	47.0	51.8	28.5		47.3	16.8	11.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0		3.5	2.6	0.2	5.1	5.3		29.6	0.6	0.2
Delay (s)	56.4	49.9		52.5	51.4	47.2	56.9	33.9		76.9	17.4	12.1
Level of Service	E	D		D	D	D	E	C		E	B	B
Approach Delay (s)		55.2			50.7			34.9			25.2	
Approach LOS		E			D			C			C	

Intersection Summary

HCM Average Control Delay	31.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	118.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	7	53	225	11	241	89	2072	10	93	2293	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1833		1681	1918	1583	1770	5082		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1833		1681	1918	1583	1770	5082		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	8	58	245	12	262	97	2252	11	101	2492	115
RTOR Reduction (vph)	0	49	0	0	0	129	0	0	0	0	0	17
Lane Group Flow (vph)	190	17	0	127	130	133	97	2263	0	101	2492	98
Turn Type	Split			Split		Perm	Prot			Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	17.7	17.7		17.5	17.5	17.5	8.1	60.4		8.3	60.6	60.6
Effective Green, g (s)	17.7	17.7		17.5	17.5	17.5	8.1	60.4		8.3	60.6	60.6
Actuated g/C Ratio	0.15	0.15		0.15	0.15	0.15	0.07	0.50		0.07	0.50	0.50
Clearance Time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Vehicle Extension (s)	5.5	5.5		5.5	5.5	5.5	2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	260	269		244	279	230	119	2549		122	2559	797
v/s Ratio Prot	c0.11	0.01		0.08	0.07		0.05	0.45		c0.06	c0.49	
v/s Ratio Perm						c0.08						0.06
v/c Ratio	0.73	0.06		0.52	0.47	0.58	0.82	0.89		0.83	0.97	0.12
Uniform Delay, d1	49.1	44.2		47.6	47.2	48.0	55.4	27.0		55.3	29.1	15.8
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	12.9	0.2		4.4	3.0	6.2	31.8	4.5		33.5	12.4	0.2
Delay (s)	61.9	44.4		51.9	50.2	54.2	87.2	31.5		88.8	41.5	16.0
Level of Service	E	D		D	D	D	F	C		F	D	B
Approach Delay (s)		57.4			52.6			33.8			42.2	
Approach LOS		E			D			C			D	

Intersection Summary

HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.4	Sum of lost time (s)	11.6
Intersection Capacity Utilization	76.4%	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)	1343	1042	135	133	534	58	401	624	420	107	263	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1460	1133	147	145	580	63	436	678	457	116	286	450
RTOR Reduction (vph)	0	0	54	0	0	52	0	0	142	0	0	385
Lane Group Flow (vph)	1460	1133	93	145	580	11	436	678	315	116	286	65
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	62.1	58.2	58.2	29.2	25.3	25.3	19.0	32.9	32.9	7.3	21.2	21.2
Effective Green, g (s)	62.1	58.2	58.2	29.2	25.3	25.3	19.0	32.9	32.9	7.3	21.2	21.2
Actuated g/C Ratio	0.43	0.40	0.40	0.20	0.17	0.17	0.13	0.23	0.23	0.05	0.15	0.15
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	0.5	2.0	2.0	0.5	2.0	2.0	0.5	2.0	2.0	0.5	2.0	2.0
Lane Grp Cap (vph)	1462	1413	632	688	614	275	447	799	357	172	515	230
v/s Ratio Prot	c0.43	0.32		0.04	c0.16		c0.13	0.19		c0.03	0.08	
v/s Ratio Perm			0.06			0.01			c0.20			0.04
v/c Ratio	1.00	0.80	0.15	0.21	0.94	0.04	0.98	0.85	0.88	0.67	0.56	0.28
Uniform Delay, d1	41.8	38.7	28.0	48.7	59.6	50.1	63.2	54.1	54.6	68.1	57.9	55.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	23.0	3.2	0.0	0.1	23.1	0.0	35.7	8.0	21.0	7.9	0.7	0.2
Delay (s)	64.8	41.9	28.0	48.7	82.7	50.2	98.9	62.1	75.6	76.0	58.7	55.8
Level of Service	E	D	C	D	F	D	F	E	E	E	E	E
Approach Delay (s)		53.4			73.8			76.2			59.5	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM Average Control Delay	63.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	145.8	Sum of lost time (s)	16.9
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1001	1367	335	447	1221	88	283	603	299	113	822	949
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1088	1486	364	486	1327	96	308	655	325	123	893	1032
RTOR Reduction (vph)	0	0	83	0	0	39	0	0	162	0	0	227
Lane Group Flow (vph)	1088	1486	281	486	1327	57	308	655	163	123	893	805
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	29.0	60.1	60.1	14.0	45.1	45.1	11.0	34.7	34.7	23.0	46.7	46.7
Effective Green, g (s)	29.0	60.1	60.1	14.0	45.1	45.1	11.0	34.7	34.7	23.0	46.7	46.7
Actuated g/C Ratio	0.19	0.40	0.40	0.09	0.30	0.30	0.07	0.23	0.23	0.15	0.31	0.31
Clearance Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	0.5	2.0	2.0	0.5	2.0	2.0	0.5	2.0	2.0	0.5	2.0	2.0
Lane Grp Cap (vph)	664	1418	634	320	1064	476	252	819	366	526	1102	493
v/s Ratio Prot	c0.32	0.42		0.14	c0.37		c0.09	0.19		0.04	0.25	
v/s Ratio Perm			0.18			0.04			0.10			c0.51
v/c Ratio	1.64	1.05	0.44	1.52	1.25	0.12	1.22	0.80	0.44	0.23	0.81	1.63
Uniform Delay, d1	60.5	45.0	32.8	68.0	52.5	38.0	69.5	54.4	49.4	55.8	47.6	51.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	294.1	37.5	0.2	248.9	119.2	0.0	130.2	5.1	0.3	0.1	4.4	293.7
Delay (s)	354.6	82.5	32.9	316.9	171.6	38.1	199.7	59.5	49.7	55.8	51.9	345.3
Level of Service	F	F	C	F	F	D	F	E	D	E	D	F
Approach Delay (s)		177.1			201.9			90.6			200.0	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	175.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	112.4%	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)	95	1225	7	13	782	47	16	34	1	83	77	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3536		1770	3509		1770	1855		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3536		1770	3509		1770	1855		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	1332	8	14	850	51	17	37	1	90	84	71
RTOR Reduction (vph)	0	0	0	0	4	0	0	1	0	0	0	62
Lane Group Flow (vph)	103	1340	0	14	897	0	17	37	0	90	84	9
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	5.2	32.1		0.8	27.7		0.8	4.2		4.0	7.4	7.4
Effective Green, g (s)	5.2	32.1		0.8	27.7		0.8	4.2		4.0	7.4	7.4
Actuated g/C Ratio	0.09	0.56		0.01	0.48		0.01	0.07		0.07	0.13	0.13
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	161	1981		25	1696		25	136		124	241	204
v/s Ratio Prot	c0.06	c0.38		0.01	0.26		0.01	0.02		c0.05	c0.05	
v/s Ratio Perm												0.01
v/c Ratio	0.64	0.68		0.56	0.53		0.68	0.27		0.73	0.35	0.04
Uniform Delay, d1	25.1	8.9		28.1	10.3		28.1	25.1		26.1	22.8	21.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.0	0.7		15.9	0.1		46.7	0.4		16.3	0.3	0.0
Delay (s)	31.2	9.6		44.0	10.4		74.8	25.5		42.4	23.1	21.9
Level of Service	C	A		D	B		E	C		D	C	C
Approach Delay (s)		11.2			10.9			40.7			29.8	
Approach LOS		B			B			D			C	

Intersection Summary

HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.8%	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)	97	1811	18	37	1497	62	79	94	10	182	64	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3534		1770	3518		1770	1836		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3534		1770	3518		1770	1836		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	1968	20	40	1627	67	86	102	11	198	70	107
RTOR Reduction (vph)	0	0	0	0	2	0	0	3	0	0	0	90
Lane Group Flow (vph)	105	1988	0	40	1692	0	86	110	0	198	70	17
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	9.5	72.7		5.1	68.3		7.7	12.4		14.1	18.8	18.8
Effective Green, g (s)	9.5	72.7		5.1	68.3		7.7	12.4		14.1	18.8	18.8
Actuated g/C Ratio	0.08	0.60		0.04	0.57		0.06	0.10		0.12	0.16	0.16
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	140	2132		75	1994		113	189		207	291	247
v/s Ratio Prot	c0.06	c0.56		0.02	0.48		0.05	c0.06		c0.11	0.04	
v/s Ratio Perm												0.01
v/c Ratio	0.75	0.93		0.53	0.85		0.76	0.58		0.96	0.24	0.07
Uniform Delay, d1	54.3	21.7		56.5	21.8		55.5	51.6		52.9	44.6	43.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.0	8.0		3.6	3.4		23.3	2.9		49.4	0.2	0.0
Delay (s)	72.3	29.7		60.1	25.2		78.8	54.5		102.3	44.7	43.4
Level of Service	E	C		E	C		E	D		F	D	D
Approach Delay (s)		31.8			26.0			65.0			74.7	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	1116	106	73	670	22	112	414	94	20	258	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	3.5		3.2	3.5		3.2	4.4		3.2	4.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	1.00		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3493		1770	3522		1770	3441		1770	3462	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3493		1770	3522		1770	3441		1770	3462	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	1213	115	79	728	24	122	450	102	22	280	48
RTOR Reduction (vph)	0	7	0	0	2	0	0	21	0	0	16	0
Lane Group Flow (vph)	103	1321	0	79	750	0	122	531	0	22	312	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	6.2	33.1		5.1	32.0		7.5	20.5		2.7	15.7	
Effective Green, g (s)	6.2	33.1		5.1	32.0		7.5	20.5		2.7	15.7	
Actuated g/C Ratio	0.08	0.44		0.07	0.42		0.10	0.27		0.04	0.21	
Clearance Time (s)	3.2	3.5		3.2	3.5		3.2	4.4		3.2	4.4	
Vehicle Extension (s)	0.5	2.0		0.5	2.0		0.5	2.0		0.5	2.0	
Lane Grp Cap (vph)	145	1527		119	1489		175	932		63	718	
v/s Ratio Prot	c0.06	c0.38		0.04	0.21		c0.07	c0.15		0.01	0.09	
v/s Ratio Perm												
v/c Ratio	0.71	0.86		0.66	0.50		0.70	0.57		0.35	0.43	
Uniform Delay, d1	33.9	19.3		34.5	16.0		33.0	23.8		35.6	26.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.8	5.2		10.3	0.1		9.4	0.5		1.2	0.2	
Delay (s)	46.6	24.5		44.8	16.1		42.4	24.3		36.9	26.3	
Level of Service	D	C		D	B		D	C		D	C	
Approach Delay (s)		26.1			18.8			27.5			27.0	
Approach LOS		C			B			C			C	

Intersection Summary

HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	75.7	Sum of lost time (s)	6.4
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	1678	92	56	1257	15	189	322	9	33	656	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	3.5		3.2	3.5		3.2	4.4		3.2	4.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	1.00		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3512		1770	3533		1770	3524		1770	3484	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3512		1770	3533		1770	3524		1770	3484	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	1824	100	61	1366	16	205	350	10	36	713	82
RTOR Reduction (vph)	0	3	0	0	1	0	0	1	0	0	7	0
Lane Group Flow (vph)	147	1921	0	61	1381	0	205	359	0	36	788	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	12.2	66.0		6.0	59.8		13.8	37.6		4.8	28.6	
Effective Green, g (s)	12.2	66.0		6.0	59.8		13.8	37.6		4.8	28.6	
Actuated g/C Ratio	0.09	0.51		0.05	0.46		0.11	0.29		0.04	0.22	
Clearance Time (s)	3.2	3.5		3.2	3.5		3.2	4.4		3.2	4.4	
Vehicle Extension (s)	0.5	2.0		0.5	2.0		0.5	2.0		0.5	2.0	
Lane Grp Cap (vph)	168	1801		83	1642		190	1030		66	774	
v/s Ratio Prot	c0.08	c0.55		0.03	0.39		c0.12	0.10		0.02	c0.23	
v/s Ratio Perm												
v/c Ratio	0.88	1.07		0.73	0.84		1.08	0.35		0.55	1.02	
Uniform Delay, d1	57.5	31.3		60.6	30.3		57.4	35.9		60.9	50.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.3	41.5		24.9	3.9		87.9	0.1		4.9	37.0	
Delay (s)	92.8	72.9		85.4	34.2		145.3	36.0		65.7	87.0	
Level of Service	F	E		F	C		F	D		E	F	
Approach Delay (s)		74.3			36.4			75.6			86.1	
Approach LOS		E			D			E			F	

Intersection Summary

HCM Average Control Delay	65.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	128.7	Sum of lost time (s)	10.8
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	805	65	152	601	68	108	570	262	127	304	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.4	4.4	4.0	4.4	4.4	4.0	3.5	3.5	4.0	3.5	3.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	875	71	165	653	74	117	620	285	138	330	146
RTOR Reduction (vph)	0	0	38	0	0	51	0	0	206	0	0	115
Lane Group Flow (vph)	125	875	33	165	653	23	117	620	79	138	330	31
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	5.8	18.5	18.5	7.9	20.6	20.6	10.4	17.2	17.2	7.3	14.1	14.1
Effective Green, g (s)	5.8	18.5	18.5	7.9	20.6	20.6	10.4	17.2	17.2	7.3	14.1	14.1
Actuated g/C Ratio	0.09	0.28	0.28	0.12	0.31	0.31	0.16	0.26	0.26	0.11	0.21	0.21
Clearance Time (s)	4.0	4.4	4.4	4.0	4.4	4.4	4.0	3.5	3.5	4.0	3.5	3.5
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.5	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	154	1408	438	209	1091	488	276	911	408	193	747	334
v/s Ratio Prot	0.07	0.17		c0.09	c0.18		0.07	c0.18		c0.08	0.09	
v/s Ratio Perm			0.02			0.01			0.05			0.02
v/c Ratio	0.81	0.62	0.08	0.79	0.60	0.05	0.42	0.68	0.19	0.72	0.44	0.09
Uniform Delay, d1	30.0	21.1	17.8	28.6	19.6	16.2	25.5	22.3	19.4	28.7	22.9	21.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.5	0.6	0.0	16.5	0.6	0.0	0.4	1.7	0.1	10.0	0.2	0.0
Delay (s)	55.4	21.7	17.9	45.1	20.2	16.2	25.9	24.0	19.5	38.7	23.1	21.2
Level of Service	E	C	B	D	C	B	C	C	B	D	C	C
Approach Delay (s)		25.4			24.5			23.0			26.2	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	11.5
Intersection Capacity Utilization	60.4%	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)	247	1350	118	189	924	113	76	470	101	131	738	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.4	4.4	4.0	4.4	4.4	4.0	3.5	3.5	4.0	3.5	3.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	1467	128	205	1004	123	83	511	110	142	802	304
RTOR Reduction (vph)	0	0	33	0	0	84	0	0	85	0	0	108
Lane Group Flow (vph)	268	1467	95	205	1004	39	83	511	25	142	802	196
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	14.3	29.8	29.8	11.4	26.9	26.9	5.8	19.3	19.3	8.9	22.4	22.4
Effective Green, g (s)	14.3	29.8	29.8	11.4	26.9	26.9	5.8	19.3	19.3	8.9	22.4	22.4
Actuated g/C Ratio	0.17	0.35	0.35	0.13	0.32	0.32	0.07	0.23	0.23	0.10	0.26	0.26
Clearance Time (s)	4.0	4.4	4.4	4.0	4.4	4.4	4.0	3.5	3.5	4.0	3.5	3.5
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.5	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	297	1776	553	237	1116	499	120	801	358	185	929	416
v/s Ratio Prot	c0.15	c0.29		0.12	0.28		0.05	c0.14		0.08	c0.23	
v/s Ratio Perm			0.06			0.02			0.02			0.12
v/c Ratio	0.90	0.83	0.17	0.86	0.90	0.08	0.69	0.64	0.07	0.77	0.86	0.47
Uniform Delay, d1	34.8	25.4	19.2	36.2	27.9	20.5	38.9	29.8	25.9	37.2	30.0	26.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.0	3.1	0.1	25.6	9.6	0.0	13.0	1.2	0.0	15.7	8.1	0.3
Delay (s)	62.9	28.5	19.3	61.8	37.5	20.5	51.9	31.1	26.0	52.8	38.1	26.8
Level of Service	E	C	B	E	D	C	D	C	C	D	D	C
Approach Delay (s)		32.8			39.7			32.7			37.0	
Approach LOS		C			D			C			D	

Intersection Summary

HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	11.9
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	191	553	452	317	548	26	46	41	72	34	384	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4742		1770	5051		1770	1863	1583	1770	1837	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4742		1770	5051		1770	1863	1583	1770	1837	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	208	601	491	345	596	28	50	45	78	37	417	43
RTOR Reduction (vph)	0	162	0	0	7	0	0	0	56	0	4	0
Lane Group Flow (vph)	208	930	0	345	617	0	50	45	22	37	456	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	22.8	19.9		17.9	15.0		3.7	22.9	22.9	3.4	22.6	
Effective Green, g (s)	22.8	19.9		17.9	15.0		3.7	22.9	22.9	3.4	22.6	
Actuated g/C Ratio	0.28	0.25		0.22	0.19		0.05	0.28	0.28	0.04	0.28	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	1.5	1.5	1.0	1.5	
Lane Grp Cap (vph)	500	1169		393	939		81	529	449	75	514	
v/s Ratio Prot	0.12	c0.20		c0.19	0.12		c0.03	0.02		0.02	c0.25	
v/s Ratio Perm									0.01			
v/c Ratio	0.42	0.88dr		0.88	0.66		0.62	0.09	0.05	0.49	0.89	
Uniform Delay, d1	23.5	28.5		30.3	30.5		37.8	21.2	21.0	37.8	27.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	3.6		18.8	1.3		9.4	0.0	0.0	1.9	16.3	
Delay (s)	23.7	32.1		49.1	31.7		47.3	21.2	21.0	39.7	44.1	
Level of Service	C	C		D	C		D	C	C	D	D	
Approach Delay (s)		30.7			37.9			28.7			43.8	
Approach LOS		C			D			C			D	

Intersection Summary

HCM Average Control Delay	35.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	16.6
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	1321	52	67	940	84	184	321	183	171	138	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		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	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5056		1770	5023		1770	1863	1583	1770	1694	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5056		1770	5023		1770	1863	1583	1770	1694	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	1436	57	73	1022	91	200	349	199	186	150	230
RTOR Reduction (vph)	0	4	0	0	12	0	0	0	153	0	65	0
Lane Group Flow (vph)	222	1489	0	73	1101	0	200	349	46	186	315	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	13.1	30.6		5.3	22.8		11.2	18.8	18.8	10.7	18.3	
Effective Green, g (s)	13.1	30.6		5.3	22.8		11.2	18.8	18.8	10.7	18.3	
Actuated g/C Ratio	0.16	0.37		0.06	0.28		0.14	0.23	0.23	0.13	0.22	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	1.5	1.5	1.0	1.5	
Lane Grp Cap (vph)	283	1887		114	1397		242	427	363	231	378	
v/s Ratio Prot	0.13	c0.29		0.04	c0.22		0.11	c0.19		0.11	c0.19	
v/s Ratio Perm									0.03			
v/c Ratio	0.78	0.79		0.64	0.79		0.83	0.82	0.13	0.81	0.83	
Uniform Delay, d1	33.1	22.8		37.4	27.4		34.5	30.0	25.1	34.6	30.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.3	2.1		8.8	2.8		19.2	11.0	0.1	17.2	13.9	
Delay (s)	45.4	24.9		46.3	30.2		53.7	40.9	25.1	51.9	44.3	
Level of Service	D	C		D	C		D	D	C	D	D	
Approach Delay (s)		27.6			31.2			40.1			46.8	
Approach LOS		C			C			D			D	

Intersection Summary

HCM Average Control Delay	33.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	8.6
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	489	66	77	820	19	23	62	56	43	52	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5068		1770	1863	1583	1770	1785	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5068		1770	1863	1583	1770	1785	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	532	72	84	891	21	25	67	61	47	57	22
RTOR Reduction (vph)	0	0	47	0	3	0	0	0	54	0	19	0
Lane Group Flow (vph)	134	532	25	84	909	0	25	67	7	47	60	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	5.3	16.5	16.5	6.2	17.4		0.8	5.0	5.0	1.8	6.0	
Effective Green, g (s)	5.3	16.5	16.5	6.2	17.4		0.8	5.0	5.0	1.8	6.0	
Actuated g/C Ratio	0.11	0.35	0.35	0.13	0.37		0.02	0.11	0.11	0.04	0.13	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6		4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0		1.0	1.5	1.5	1.0	1.5	
Lane Grp Cap (vph)	201	1800	561	235	1892		30	200	170	68	230	
v/s Ratio Prot	c0.08	0.10		0.05	c0.18		0.01	c0.04		c0.03	0.03	
v/s Ratio Perm			0.02						0.00			
v/c Ratio	0.67	0.30	0.05	0.36	0.48		0.83	0.34	0.04	0.69	0.26	
Uniform Delay, d1	19.8	10.9	9.9	18.4	11.1		22.8	19.3	18.6	22.1	18.3	
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	6.3	0.0	0.0	0.3	0.1		93.0	0.4	0.0	21.6	0.2	
Delay (s)	26.1	10.9	9.9	18.7	11.2		115.8	19.6	18.7	43.8	18.5	
Level of Service	C	B	A	B	B		F	B	B	D	B	
Approach Delay (s)		13.6			11.9			35.0			27.9	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	46.6	Sum of lost time (s)	17.1
Intersection Capacity Utilization	43.0%	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)	96	1466	45	25	974	23	46	37	84	39	20	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5068		1770	1863	1583	1770	1684	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5068		1770	1863	1583	1770	1684	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	1593	49	27	1059	25	50	40	91	42	22	39
RTOR Reduction (vph)	0	0	13	0	2	0	0	0	81	0	36	0
Lane Group Flow (vph)	104	1593	36	27	1082	0	50	40	10	42	25	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	5.1	27.8	27.8	1.2	23.9		3.0	5.8	5.8	1.9	4.7	
Effective Green, g (s)	5.1	27.8	27.8	1.2	23.9		3.0	5.8	5.8	1.9	4.7	
Actuated g/C Ratio	0.09	0.52	0.52	0.02	0.44		0.06	0.11	0.11	0.04	0.09	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6		4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0		1.0	1.5	1.5	1.0	1.5	
Lane Grp Cap (vph)	168	2628	818	39	2251		99	201	171	63	147	
v/s Ratio Prot	0.06	c0.31		0.02	c0.21		c0.03	c0.02		0.02	0.02	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.62	0.61	0.04	0.69	0.48		0.51	0.20	0.06	0.67	0.17	
Uniform Delay, d1	23.4	9.1	6.4	26.1	10.6		24.7	21.9	21.5	25.6	22.7	
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	4.7	0.3	0.0	35.0	0.1		1.5	0.2	0.1	18.7	0.2	
Delay (s)	28.1	9.4	6.4	61.1	10.6		26.2	22.1	21.6	44.3	23.0	
Level of Service	C	A	A	E	B		C	C	C	D	C	
Approach Delay (s)		10.5			11.8			23.0			31.7	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	53.8	Sum of lost time (s)	8.6
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	344	83	302	843	50	64	195	118	42	285	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.6	4.6	4.0	4.6	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4937		1770	5043		1770	1863	1583	1770	1827	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4937		1770	5043		1770	1863	1583	1770	1827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	374	90	328	916	54	70	212	128	46	310	46
RTOR Reduction (vph)	0	49	0	0	7	0	0	0	94	0	7	0
Lane Group Flow (vph)	107	415	0	328	963	0	70	212	34	46	349	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	5.6	16.8		10.9	22.1		3.7	17.8	17.8	3.3	17.4	
Effective Green, g (s)	5.6	16.8		10.9	22.1		3.7	17.8	17.8	3.3	17.4	
Actuated g/C Ratio	0.08	0.25		0.16	0.33		0.06	0.27	0.27	0.05	0.26	
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.6	4.6	4.0	4.6	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)	150	1251		291	1681		99	500	425	88	479	
v/s Ratio Prot	c0.06	0.08		c0.19	c0.19		c0.04	0.11		0.03	c0.19	
v/s Ratio Perm									0.02			
v/c Ratio	0.71	0.33		1.13	0.57		0.71	0.42	0.08	0.52	0.73	
Uniform Delay, d1	29.6	20.2		27.7	18.2		30.8	20.0	18.1	30.7	22.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.5	0.1		91.5	0.3		17.1	0.2	0.0	2.6	4.7	
Delay (s)	42.1	20.2		119.2	18.5		47.9	20.2	18.2	33.3	27.0	
Level of Service	D	C		F	B		D	C	B	C	C	
Approach Delay (s)		24.3			44.0			24.3			27.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	66.3	Sum of lost time (s)	16.6
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	294	1107	75	127	583	105	57	551	235	118	342	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.0	4.9		4.0	4.6	4.6	4.0	4.6	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5037		1770	4969		1770	1863	1583	1770	1816	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5037		1770	4969		1770	1863	1583	1770	1816	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	320	1203	82	138	634	114	62	599	255	128	372	74
RTOR Reduction (vph)	0	8	0	0	28	0	0	0	171	0	7	0
Lane Group Flow (vph)	320	1277	0	138	720	0	62	599	84	128	439	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	18.7	28.1		9.0	18.4		5.5	30.9	30.9	7.8	33.2	
Effective Green, g (s)	18.7	28.1		9.0	18.4		5.5	30.9	30.9	7.8	33.2	
Actuated g/C Ratio	0.20	0.30		0.10	0.20		0.06	0.33	0.33	0.08	0.36	
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.6	4.6	4.0	4.6	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)	355	1517		171	980		104	617	524	148	646	
v/s Ratio Prot	0.18	c0.25		0.08	c0.14		0.04	c0.32		c0.07	0.24	
v/s Ratio Perm									0.05			
v/c Ratio	0.90	0.84		0.81	0.73		0.60	0.97	0.16	0.86	0.68	
Uniform Delay, d1	36.4	30.5		41.3	35.2		42.8	30.8	22.0	42.2	25.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	24.5	4.2		22.4	2.5		6.0	28.8	0.1	36.4	2.2	
Delay (s)	60.9	34.8		63.7	37.6		48.8	59.5	22.1	78.6	27.8	
Level of Service	E	C		E	D		D	E	C	E	C	
Approach Delay (s)		40.0			41.7			48.4			39.1	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	42.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	93.3	Sum of lost time (s)	18.4
Intersection Capacity Utilization	80.2%	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)	0	287	124	283	807	76	180	69	0	21	60	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.9	4.0	4.9	4.9	5.3	5.3		5.3	5.3	
Lane Util. Factor		0.95	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3539	1583	1770	5085	1583	1770	3539		1770	3481	
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)		3539	1583	1770	5085	1583	1317	3539		1314	3481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	312	135	308	877	83	196	75	0	23	65	8
RTOR Reduction (vph)	0	0	102	0	0	36	0	0	0	0	6	0
Lane Group Flow (vph)	0	312	33	308	877	47	196	75	0	23	67	0
Turn Type			Prot	Prot		Perm	Perm			Perm		
Protected Phases		2	2	1	6			8			4	
Permitted Phases						6	8			4		
Actuated Green, G (s)		10.7	10.7	10.4	25.1	25.1	9.1	9.1		9.1	9.1	
Effective Green, g (s)		10.7	10.7	10.4	25.1	25.1	9.1	9.1		9.1	9.1	
Actuated g/C Ratio		0.24	0.24	0.23	0.57	0.57	0.20	0.20		0.20	0.20	
Clearance Time (s)		4.9	4.9	4.0	4.9	4.9	5.3	5.3		5.3	5.3	
Vehicle Extension (s)		2.0	2.0	1.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		853	381	415	2875	895	270	725		269	713	
v/s Ratio Prot		0.09	0.02	c0.17	c0.17			0.02			0.02	
v/s Ratio Perm						0.03	c0.15			0.02		
v/c Ratio		0.37	0.09	0.74	0.31	0.05	0.73	0.10		0.09	0.09	
Uniform Delay, d1		14.0	13.1	15.8	5.1	4.3	16.5	14.3		14.3	14.3	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1	0.0	6.2	0.0	0.0	8.0	0.0		0.1	0.0	
Delay (s)		14.1	13.1	21.9	5.1	4.3	24.4	14.4		14.3	14.3	
Level of Service		B	B	C	A	A	C	B		B	B	
Approach Delay (s)		13.8			9.1			21.7			14.3	
Approach LOS		B			A			C			B	

Intersection Summary

HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	44.4	Sum of lost time (s)	9.3
Intersection Capacity Utilization	52.5%	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 (vph)	0	726	357	200	462	46	83	70	0	39	133	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9	4.9	4.0	4.9	4.9	5.3	5.3		5.3	5.3	
Lane Util. Factor		0.95	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3539	1583	1770	5085	1583	1770	3539		1770	3539	
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.66	1.00		0.70	1.00	
Satd. Flow (perm)		3539	1583	1770	5085	1583	1229	3539		1313	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	789	388	217	502	50	90	76	0	42	145	0
RTOR Reduction (vph)	0	0	247	0	0	17	0	0	0	0	0	0
Lane Group Flow (vph)	0	789	141	217	502	33	90	76	0	42	145	0
Turn Type			Prot	Prot		Perm	Perm			Perm		
Protected Phases		2	2	1	6			8			4	
Permitted Phases						6	8			4		
Actuated Green, G (s)		17.6	17.6	10.0	31.6	31.6	6.6	6.6		6.6	6.6	
Effective Green, g (s)		17.6	17.6	10.0	31.6	31.6	6.6	6.6		6.6	6.6	
Actuated g/C Ratio		0.36	0.36	0.21	0.65	0.65	0.14	0.14		0.14	0.14	
Clearance Time (s)		4.9	4.9	4.0	4.9	4.9	5.3	5.3		5.3	5.3	
Vehicle Extension (s)		2.0	2.0	1.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		1287	576	366	3320	1034	168	483		179	483	
v/s Ratio Prot		c0.22	0.09	c0.12	0.10			0.02			0.04	
v/s Ratio Perm						0.02	c0.07			0.03		
v/c Ratio		0.61	0.24	0.59	0.15	0.03	0.54	0.16		0.23	0.30	
Uniform Delay, d1		12.6	10.8	17.4	3.2	3.0	19.5	18.4		18.6	18.8	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.1	1.7	0.0	0.0	1.6	0.1		0.2	0.1	
Delay (s)		13.2	10.8	19.1	3.2	3.0	21.1	18.5		18.9	18.9	
Level of Service		B	B	B	A	A	C	B		B	B	
Approach Delay (s)		12.4			7.7			19.9			18.9	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	14.2
Intersection Capacity Utilization	55.7%	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)	5	50	15	17	64	14	9	234	21	26	408	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.6	4.6		4.6	4.6	4.6
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.97			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		1.00			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1803			1810		1770	1840		1770	1863	1583
Flt Permitted		0.98			0.95		0.43	1.00		0.59	1.00	1.00
Satd. Flow (perm)		1777			1733		793	1840		1098	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	54	16	18	70	15	10	254	23	28	443	16
RTOR Reduction (vph)	0	11	0	0	10	0	0	6	0	0	0	10
Lane Group Flow (vph)	0	64	0	0	93	0	10	271	0	28	443	6
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		6
Actuated Green, G (s)		11.5			11.5		13.6	13.6		13.6	13.6	13.6
Effective Green, g (s)		11.5			11.5		13.6	13.6		13.6	13.6	13.6
Actuated g/C Ratio		0.34			0.34		0.40	0.40		0.40	0.40	0.40
Clearance Time (s)		4.6			4.6		4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)		596			581		314	730		435	739	628
v/s Ratio Prot								0.15			c0.24	
v/s Ratio Perm		0.04			c0.05		0.01			0.03		0.00
v/c Ratio		0.11			0.16		0.03	0.37		0.06	0.60	0.01
Uniform Delay, d1		7.9			8.0		6.3	7.3		6.4	8.2	6.3
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			0.3		0.1	0.7		0.1	2.0	0.0
Delay (s)		8.0			8.3		6.4	8.0		6.5	10.2	6.3
Level of Service		A			A		A	A		A	B	A
Approach Delay (s)		8.0			8.3			7.9			9.8	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	9.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	9.2
Intersection Capacity Utilization	54.0%	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)	20	137	49	39	143	63	20	968	58	30	510	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.6	4.6		4.6	4.6	4.6
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.97			0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected		1.00			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1794			1784		1770	1847		1770	1863	1583
Flt Permitted		0.95			0.91		0.39	1.00		0.07	1.00	1.00
Satd. Flow (perm)		1719			1627		721	1847		134	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	149	53	42	155	68	22	1052	63	33	554	24
RTOR Reduction (vph)	0	13	0	0	14	0	0	2	0	0	0	8
Lane Group Flow (vph)	0	211	0	0	251	0	22	1113	0	33	554	16
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		6
Actuated Green, G (s)		20.3			20.3		55.6	55.6		55.6	55.6	55.6
Effective Green, g (s)		20.3			20.3		55.6	55.6		55.6	55.6	55.6
Actuated g/C Ratio		0.24			0.24		0.65	0.65		0.65	0.65	0.65
Clearance Time (s)		4.6			4.6		4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)		410			388		471	1207		88	1217	1034
v/s Ratio Prot								c0.60			0.30	
v/s Ratio Perm		0.12			c0.15		0.03			0.25		0.01
v/c Ratio		0.51			0.65		0.05	0.92		0.38	0.46	0.02
Uniform Delay, d1		28.1			29.2		5.3	12.9		6.8	7.3	5.2
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.2			5.0		0.1	12.0		5.5	0.6	0.0
Delay (s)		30.3			34.2		5.4	24.9		12.3	7.8	5.2
Level of Service		C			C		A	C		B	A	A
Approach Delay (s)		30.3			34.2			24.5			8.0	
Approach LOS		C			C			C			A	

Intersection Summary

HCM Average Control Delay	21.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	85.1	Sum of lost time (s)	9.2
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	183	22	11	96	23	6	233	14	43	453	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.6	4.6	4.6			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			0.95			0.95	
Frt	1.00	1.00	0.85	1.00	0.97			0.99			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1809			3506			3459	
Flt Permitted	0.67	1.00	1.00	0.63	1.00			0.93			0.91	
Satd. Flow (perm)	1256	1863	1583	1179	1809			3278			3158	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	199	24	12	104	25	7	253	15	47	492	78
RTOR Reduction (vph)	0	0	14	0	15	0	0	11	0	0	31	0
Lane Group Flow (vph)	83	199	10	12	114	0	0	264	0	0	586	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	11.7	11.7	11.7	11.7	11.7			8.6			8.6	
Effective Green, g (s)	11.7	11.7	11.7	11.7	11.7			8.6			8.6	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40			0.30			0.30	
Clearance Time (s)	4.6	4.6	4.6	4.6	4.6			4.0			4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	508	754	641	477	732			975			940	
v/s Ratio Prot		c0.11			0.06							
v/s Ratio Perm	0.07		0.01	0.01				0.08			c0.19	
v/c Ratio	0.16	0.26	0.02	0.03	0.16			0.27			0.62	
Uniform Delay, d1	5.5	5.7	5.1	5.2	5.5			7.8			8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.0	0.0			0.1			0.9	
Delay (s)	5.5	5.8	5.2	5.2	5.5			7.8			9.7	
Level of Service	A	A	A	A	A			A			A	
Approach Delay (s)		5.7			5.5			7.8			9.7	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	28.9	Sum of lost time (s)	8.6
Intersection Capacity Utilization	55.4%	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)	69	216	25	19	166	41	18	412	25	39	380	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.6	4.6	4.6			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			0.95			0.95	
Frt	1.00	1.00	0.85	1.00	0.97			0.99			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1807			3503			3458	
Flt Permitted	0.62	1.00	1.00	0.61	1.00			0.93			0.89	
Satd. Flow (perm)	1151	1863	1583	1141	1807			3252			3097	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	235	27	21	180	45	20	448	27	42	413	66
RTOR Reduction (vph)	0	0	17	0	21	0	0	10	0	0	28	0
Lane Group Flow (vph)	75	235	10	21	204	0	0	485	0	0	493	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	11.8	11.8	11.8	11.8	11.8			11.8			11.8	
Effective Green, g (s)	11.8	11.8	11.8	11.8	11.8			11.8			11.8	
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37			0.37			0.37	
Clearance Time (s)	4.6	4.6	4.6	4.6	4.6			4.0			4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	422	683	580	418	662			1192			1135	
v/s Ratio Prot		c0.13			0.11							
v/s Ratio Perm	0.07		0.01	0.02				0.15			c0.16	
v/c Ratio	0.18	0.34	0.02	0.05	0.31			0.41			0.43	
Uniform Delay, d1	6.9	7.4	6.5	6.6	7.3			7.6			7.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.0	0.1			0.1			0.1	
Delay (s)	7.0	7.5	6.5	6.6	7.4			7.7			7.8	
Level of Service	A	A	A	A	A			A			A	
Approach Delay (s)		7.3			7.3			7.7			7.8	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	32.2	Sum of lost time (s)	8.6
Intersection Capacity Utilization	69.0%	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)	13	64	11	13	133	14	13	249	11	32	434	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822		1770	1837		1770	1851		1770	1856	
Flt Permitted	0.66	1.00		0.70	1.00		0.37	1.00		0.59	1.00	
Satd. Flow (perm)	1221	1822		1311	1837		684	1851		1092	1856	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	70	12	14	145	15	14	271	12	35	472	12
RTOR Reduction (vph)	0	8	0	0	8	0	0	4	0	0	2	0
Lane Group Flow (vph)	14	74	0	14	152	0	14	279	0	35	482	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	11.5	11.5		11.5	11.5		12.2	12.2		12.2	12.2	
Effective Green, g (s)	11.5	11.5		11.5	11.5		12.2	12.2		12.2	12.2	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.37	0.37		0.37	0.37	
Clearance Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	427	637		458	642		254	686		405	688	
v/s Ratio Prot		0.04			c0.08			0.15			c0.26	
v/s Ratio Perm	0.01			0.01			0.02			0.03		
v/c Ratio	0.03	0.12		0.03	0.24		0.06	0.41		0.09	0.70	
Uniform Delay, d1	7.0	7.3		7.0	7.6		6.6	7.7		6.7	8.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.1		0.0	0.1		0.1	0.5		0.1	3.5	
Delay (s)	7.1	7.3		7.1	7.7		6.8	8.2		6.9	12.3	
Level of Service	A	A		A	A		A	A		A	B	
Approach Delay (s)		7.3			7.7			8.1			11.9	
Approach LOS		A			A			A			B	

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	32.9	Sum of lost time (s)	9.2
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	114	10	20	79	42	13	1038	10	22	540	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.95		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1840		1770	1765		1770	1860		1770	1859	
Flt Permitted	0.67	1.00		0.66	1.00		0.37	1.00		0.08	1.00	
Satd. Flow (perm)	1241	1840		1229	1765		685	1860		146	1859	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	124	11	22	86	46	14	1128	11	24	587	7
RTOR Reduction (vph)	0	4	0	0	24	0	0	0	0	0	1	0
Lane Group Flow (vph)	32	131	0	22	108	0	14	1139	0	24	593	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	17.1	17.1		17.1	17.1		50.9	50.9		50.9	50.9	
Effective Green, g (s)	17.1	17.1		17.1	17.1		50.9	50.9		50.9	50.9	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.66	0.66		0.66	0.66	
Clearance Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	275	408		272	391		452	1226		96	1226	
v/s Ratio Prot		c0.07			0.06			c0.61			0.32	
v/s Ratio Perm	0.03			0.02			0.02			0.16		
v/c Ratio	0.12	0.32		0.08	0.28		0.03	0.93		0.25	0.48	
Uniform Delay, d1	24.0	25.2		23.8	24.9		4.6	11.6		5.4	6.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.1	0.3		0.0	12.3		1.9	0.4	
Delay (s)	24.2	25.5		23.9	25.2		4.6	23.8		7.2	7.0	
Level of Service	C	C		C	C		A	C		A	A	
Approach Delay (s)		25.3			25.0			23.6			7.0	
Approach LOS		C			C			C			A	

Intersection Summary

HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	77.2	Sum of lost time (s)	9.2
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Volume (vph)	3	18	15	30	13	29	9	39	76	494	1206	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	5.1		5.1	5.1			4.7	5.1	4.7	
Lane Util. Factor		1.00	1.00		1.00	1.00			1.00	0.91	0.88	
Frt		1.00	0.90		1.00	0.91			1.00	1.00	0.85	
Flt Protected		0.95	1.00		0.95	1.00			0.95	1.00	1.00	
Satd. Flow (prot)		1770	1675		1770	1690			1770	5085	2787	
Flt Permitted		0.68	1.00		0.73	1.00			0.95	1.00	1.00	
Satd. Flow (perm)		1269	1675		1351	1690			1770	5085	2787	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	20	16	33	14	32	10	42	83	537	1311	41
RTOR Reduction (vph)	0	0	31	0	0	31	0	0	0	0	2	0
Lane Group Flow (vph)	0	23	18	0	14	53	0	0	83	537	1350	0
Turn Type	Perm	Perm			Perm				Prot		Over	
Protected Phases			8			8			5	2	7	
Permitted Phases	8	8			8							
Actuated Green, G (s)		8.6	8.6		8.6	8.6			7.9	21.3	58.3	
Effective Green, g (s)		8.6	8.6		8.6	8.6			7.9	21.3	58.3	
Actuated g/C Ratio		0.07	0.07		0.07	0.07			0.07	0.18	0.49	
Clearance Time (s)		5.1	5.1		5.1	5.1			4.7	5.1	4.7	
Vehicle Extension (s)		0.2	0.2		0.2	0.2			2.0	6.8	8.0	
Lane Grp Cap (vph)		92	122		98	123			118	917	1376	
v/s Ratio Prot			0.01			c0.03			0.05	0.11	c0.48	
v/s Ratio Perm		0.02			0.01							
v/c Ratio		0.25	0.15		0.14	0.43			0.70	0.59	0.98	
Uniform Delay, d1		51.7	51.3		51.3	52.4			54.0	44.4	29.4	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		0.5	0.2		0.2	0.9			14.4	2.1	20.2	
Delay (s)		52.2	51.5		51.5	53.3			68.3	46.5	49.6	
Level of Service		D	D		D	D			E	D	D	
Approach Delay (s)			51.8			53.1				49.5		
Approach LOS			D			D				D		

Intersection Summary

HCM Average Control Delay	42.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	118.1	Sum of lost time (s)	14.5
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Volume (vph)	8	71	23	32	24	14	7	62	96	738	1812	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	5.1		5.1	5.1			4.7	5.1	4.7	
Lane Util. Factor		1.00	1.00		1.00	1.00			1.00	0.91	0.88	
Frt		1.00	0.91		1.00	0.88			1.00	1.00	0.85	
Flt Protected		0.95	1.00		0.95	1.00			0.95	1.00	1.00	
Satd. Flow (prot)		1770	1700		1770	1630			1770	5085	2787	
Flt Permitted		0.61	1.00		0.72	1.00			0.95	1.00	1.00	
Satd. Flow (perm)		1130	1700		1337	1630			1770	5085	2787	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	77	25	35	26	15	8	67	104	802	1970	39
RTOR Reduction (vph)	0	0	32	0	0	61	0	0	0	0	1	0
Lane Group Flow (vph)	0	86	28	0	26	29	0	0	104	802	2008	0
Turn Type	Perm	Perm			Perm				Prot		Over	
Protected Phases			8			8			5	2	7	
Permitted Phases	8	8			8							
Actuated Green, G (s)		13.3	13.3		13.3	13.3			7.3	25.8	74.4	
Effective Green, g (s)		13.3	13.3		13.3	13.3			7.3	25.8	74.4	
Actuated g/C Ratio		0.09	0.09		0.09	0.09			0.05	0.18	0.52	
Clearance Time (s)		5.1	5.1		5.1	5.1			4.7	5.1	4.7	
Vehicle Extension (s)		0.2	0.2		0.2	0.2			2.0	6.8	8.0	
Lane Grp Cap (vph)		105	158		124	151			90	915	1446	
v/s Ratio Prot			0.02			0.02			0.06	0.16	c0.72	
v/s Ratio Perm		c0.08			0.02							
v/c Ratio		0.82	0.18		0.21	0.19			1.16	0.88	1.39	
Uniform Delay, d1		63.9	60.0		60.2	60.1			68.0	57.2	34.5	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		35.5	0.2		0.3	0.2			142.8	10.9	179.2	
Delay (s)		99.4	60.2		60.5	60.3			210.9	68.2	213.7	
Level of Service		F	E		E	E			F	E	F	
Approach Delay (s)			83.3			60.4				173.6		
Approach LOS			F			E				F		

Intersection Summary

HCM Average Control Delay	122.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	143.4	Sum of lost time (s)	19.6
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations							
Volume (vph)	23	116	622	15	1388	157	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	5.1		4.7		
Lane Util. Factor		1.00	0.91		0.94		
Frt		1.00	1.00		0.98		
Flt Protected		0.95	1.00		0.96		
Satd. Flow (prot)		1770	5068		4921		
Flt Permitted		0.95	1.00		0.96		
Satd. Flow (perm)		1770	5068		4921		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	126	676	16	1509	171	115
RTOR Reduction (vph)	0	0	2	0	6	0	0
Lane Group Flow (vph)	0	151	690	0	1789	0	0
Turn Type	Prot	Prot					
Protected Phases	1	1	6		7		
Permitted Phases							
Actuated Green, G (s)		10.3	23.7		58.3		
Effective Green, g (s)		10.3	23.7		58.3		
Actuated g/C Ratio		0.09	0.20		0.49		
Clearance Time (s)		4.7	5.1		4.7		
Vehicle Extension (s)		2.0	6.8		8.0		
Lane Grp Cap (vph)		154	1017		2429		
v/s Ratio Prot		c0.09	c0.14		0.36		
v/s Ratio Perm							
v/c Ratio		0.98	0.68		0.74		
Uniform Delay, d1		53.8	43.7		23.8		
Progression Factor		1.00	1.00		1.00		
Incremental Delay, d2		66.3	3.1		2.0		
Delay (s)		120.1	46.8		25.8		
Level of Service		F	D		C		
Approach Delay (s)			59.9		25.8		
Approach LOS			E		C		

Intersection Summary

Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Volume (vph)	115	14	1068	18	1	1556	59	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	5.1			4.7		
Lane Util. Factor		1.00	0.91			0.94		
Frt		1.00	1.00			0.99		
Flt Protected		0.95	1.00			0.95		
Satd. Flow (prot)		1770	5072			4976		
Flt Permitted		0.95	1.00			0.89		
Satd. Flow (perm)		1770	5072			4644		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	15	1161	20	1	1691	64	29
RTOR Reduction (vph)	0	0	1	0	0	1	0	0
Lane Group Flow (vph)	0	140	1180	0	0	1784	0	0
Turn Type	Prot	Prot			Perm			
Protected Phases	1	1	6			7		
Permitted Phases					7			
Actuated Green, G (s)		10.3	28.8			74.4		
Effective Green, g (s)		10.3	28.8			74.4		
Actuated g/C Ratio		0.07	0.20			0.52		
Clearance Time (s)		4.7	5.1			4.7		
Vehicle Extension (s)		2.0	6.8			8.0		
Lane Grp Cap (vph)		127	1019			2409		
v/s Ratio Prot		c0.08	c0.23					
v/s Ratio Perm						0.38		
v/c Ratio		1.10	1.16			0.74		
Uniform Delay, d1		66.5	57.3			27.0		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		110.0	82.4			2.1		
Delay (s)		176.5	139.7			29.0		
Level of Service		F	F			C		
Approach Delay (s)			143.6			29.0		
Approach LOS			F			C		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	3142	25	0	0	0	0	231	87	404	525	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6						5.6		4.2	5.6	
Lane Util. Factor		0.91						0.95		1.00	0.95	
Frt		1.00						0.96		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5064						3393		1770	3539	
Flt Permitted		1.00						1.00		0.95	1.00	
Satd. Flow (perm)		5064						3393		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	3415	27	0	0	0	0	251	95	439	571	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	3674	0	0	0	0	0	336	0	439	571	0
Turn Type	Split									Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases												
Actuated Green, G (s)		84.4						19.2		28.2	51.6	
Effective Green, g (s)		84.4						19.2		28.2	51.6	
Actuated g/C Ratio		0.57						0.13		0.19	0.35	
Clearance Time (s)		5.6						5.6		4.2	5.6	
Vehicle Extension (s)		4.1						3.2		2.0	4.3	
Lane Grp Cap (vph)		2904						443		339	1241	
v/s Ratio Prot		c0.73						c0.10		c0.25	0.16	
v/s Ratio Perm												
v/c Ratio		1.27						0.76		1.29	0.46	
Uniform Delay, d1		31.4						61.8		59.5	37.0	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		122.1						7.3		153.0	0.4	
Delay (s)		153.5						69.1		212.5	37.4	
Level of Service		F						E		F	D	
Approach Delay (s)		153.5			0.0			69.1			113.5	
Approach LOS		F			A			E			F	

Intersection Summary

HCM Average Control Delay	139.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	147.2	Sum of lost time (s)	15.4
Intersection Capacity Utilization	110.0%	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)	446	3189	45	0	0	0	0	383	140	349	440	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6						5.6		4.2	5.6	
Lane Util. Factor		0.91						0.95		1.00	0.95	
Frt		1.00						0.96		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		5045						3397		1770	3539	
Flt Permitted		0.99						1.00		0.95	1.00	
Satd. Flow (perm)		5045						3397		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	485	3466	49	0	0	0	0	416	152	379	478	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	3999	0	0	0	0	0	559	0	379	478	0
Turn Type	Split									Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases												
Actuated Green, G (s)		88.4						22.4		23.8	50.4	
Effective Green, g (s)		88.4						22.4		23.8	50.4	
Actuated g/C Ratio		0.59						0.15		0.16	0.34	
Clearance Time (s)		5.6						5.6		4.2	5.6	
Vehicle Extension (s)		4.1						3.2		2.0	4.3	
Lane Grp Cap (vph)		2973						507		281	1189	
v/s Ratio Prot		c0.79						c0.16		c0.21	0.14	
v/s Ratio Perm												
v/c Ratio		1.35						1.10		1.35	0.40	
Uniform Delay, d1		30.8						63.8		63.1	38.2	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		157.6						71.3		178.7	0.4	
Delay (s)		188.4						135.1		241.8	38.6	
Level of Service		F						F		F	D	
Approach Delay (s)		188.4			0.0			135.1			128.5	
Approach LOS		F			A			F			F	

Intersection Summary

HCM Average Control Delay	173.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.4
Intersection Capacity Utilization	119.3%	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)	353	2567	153	0	0	0	0	359	132	112	507	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6						5.6	5.6	4.2	5.6	
Lane Util. Factor		0.91						0.95	1.00	1.00	0.95	
Frt		0.99						1.00	0.85	1.00	1.00	
Flt Protected		0.99						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		5019						3539	1583	1770	3539	
Flt Permitted		0.99						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		5019						3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	384	2790	166	0	0	0	0	390	143	122	551	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	0	3336	0	0	0	0	0	390	133	122	551	0
Turn Type	Split								Perm	Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases									8			
Actuated Green, G (s)		83.4						20.9	20.9	8.8	33.9	
Effective Green, g (s)		83.4						20.9	20.9	8.8	33.9	
Actuated g/C Ratio		0.65						0.16	0.16	0.07	0.26	
Clearance Time (s)		5.6						5.6	5.6	4.2	5.6	
Vehicle Extension (s)		4.2						5.3	5.3	2.0	3.9	
Lane Grp Cap (vph)		3257						576	257	121	934	
v/s Ratio Prot		c0.66						c0.11		c0.07	0.16	
v/s Ratio Perm									0.08			
v/c Ratio		1.02						0.68	0.52	1.01	0.59	
Uniform Delay, d1		22.5						50.6	49.2	59.9	41.2	
Progression Factor		1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2		22.3						4.3	3.8	84.0	1.1	
Delay (s)		44.9						55.0	53.0	143.9	42.4	
Level of Service		D						D	D	F	D	
Approach Delay (s)		44.9			0.0			54.4			60.8	
Approach LOS		D			A			D			E	

Intersection Summary

HCM Average Control Delay	48.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	128.5	Sum of lost time (s)	15.4
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	310	3087	132	0	0	0	0	628	220	170	683	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6						5.6	5.6	4.2	5.6	
Lane Util. Factor		0.91						0.95	1.00	1.00	0.95	
Frt		0.99						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		5035						3539	1583	1770	3539	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		5035						3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	337	3355	143	0	0	0	0	683	239	185	742	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	0	3832	0	0	0	0	0	683	232	185	742	0
Turn Type	Split								Perm	Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases									8			
Actuated Green, G (s)		95.4						26.4	26.4	12.8	43.4	
Effective Green, g (s)		95.4						26.4	26.4	12.8	43.4	
Actuated g/C Ratio		0.64						0.18	0.18	0.09	0.29	
Clearance Time (s)		5.6						5.6	5.6	4.2	5.6	
Vehicle Extension (s)		4.2						5.3	5.3	2.0	3.9	
Lane Grp Cap (vph)		3202						623	279	151	1024	
v/s Ratio Prot		c0.76						c0.19		c0.10	0.21	
v/s Ratio Perm									0.15			
v/c Ratio		1.20						1.10	0.83	1.23	0.72	
Uniform Delay, d1		27.3						61.8	59.7	68.6	47.9	
Progression Factor		1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2		91.9						65.2	20.9	146.3	2.7	
Delay (s)		119.2						127.0	80.5	214.9	50.7	
Level of Service		F						F	F	F	D	
Approach Delay (s)		119.2			0.0			115.0			83.4	
Approach LOS		F			A			F			F	

Intersection Summary

HCM Average Control Delay	112.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.4
Intersection Capacity Utilization	116.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	100	59	87	14	30	19	18	233	4	13	422	68
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	109	64	95	15	33	21	20	253	4	14	459	74
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								722			817	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	855	821	496	945	855	255	533			258		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	827	791	452	921	827	255	490			258		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	55	79	84	91	89	97	98			99		
cM capacity (veh/h)	242	299	582	165	285	783	1028			1307		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	267	68	277	547
Volume Left	109	15	20	14
Volume Right	95	21	4	74
cSH	324	294	1028	1307
Volume to Capacity	0.83	0.23	0.02	0.01
Queue Length 95th (ft)	177	22	1	1
Control Delay (s)	52.3	20.9	0.8	0.3
Lane LOS	F	C	A	A
Approach Delay (s)	52.3	20.9	0.8	0.3
Approach LOS	F	C		

Intersection Summary			
Average Delay	13.6		
Intersection Capacity Utilization	57.1%	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)	122	0	142	8	63	7	421	667	59	108	468	385
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	133	0	154	9	68	8	458	725	64	117	509	418
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								722			817	
pX, platoon unblocked	0.46	0.46	0.85	0.46	0.46	0.38	0.85			0.38		
vC, conflicting volume	2667	2657	718	2779	2834	757	927			789		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3277	3256	575	3521	3640	0	823			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	65	0	0	98	33			81		
cM capacity (veh/h)	0	1	438	0	1	416	682			623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	287	85	1247	1045
Volume Left	133	9	458	117
Volume Right	154	8	64	418
cSH	0	1	682	623
Volume to Capacity	Err	130.56	0.67	0.19
Queue Length 95th (ft)	Err	Err	129	17
Control Delay (s)	Err	Err	20.3	5.8
Lane LOS	F	F	C	A
Approach Delay (s)	Err	Err	20.3	5.8
Approach LOS	F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	148.2%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1414	933	0	1803	611	0	0	0	171	0	717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	4.4		4.4					4.1	4.1	
Lane Util. Factor		0.86	0.86		0.91					0.95	0.95	
Frt		0.97	0.85		0.96					1.00	0.85	
Flt Protected		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (prot)		4647	1362		4892					1681	1509	
Flt Permitted		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (perm)		4647	1362		4892					1681	1509	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1537	1014	0	1960	664	0	0	0	186	0	779
RTOR Reduction (vph)	0	48	309	0	61	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	1925	269	0	2563	0	0	0	0	167	796	0
Turn Type			Perm							Split		
Protected Phases		2			6					4	4	
Permitted Phases			2									
Actuated Green, G (s)		46.6	46.6		46.6					44.9	44.9	
Effective Green, g (s)		46.6	46.6		46.6					44.9	44.9	
Actuated g/C Ratio		0.47	0.47		0.47					0.45	0.45	
Clearance Time (s)		4.4	4.4		4.4					4.1	4.1	
Vehicle Extension (s)		4.5	4.5		4.5					4.1	4.1	
Lane Grp Cap (vph)		2166	635		2280					755	678	
v/s Ratio Prot		0.41			c0.52					0.10	c0.53	
v/s Ratio Perm			0.20									
v/c Ratio		0.89	0.42		1.12					0.22	1.17	
Uniform Delay, d1		24.3	17.8		26.7					16.9	27.6	
Progression Factor		1.00	1.00		1.00					1.00	1.00	
Incremental Delay, d2		5.2	0.8		62.3					0.2	93.5	
Delay (s)		29.5	18.6		89.0					17.1	121.1	
Level of Service		C	B		F					B	F	
Approach Delay (s)		27.0			89.0			0.0			103.1	
Approach LOS		C			F			A			F	

Intersection Summary

HCM Average Control Delay	65.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	82.4%	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)	0	1816	1211	0	2252	615	0	0	0	323	0	472
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	4.4		4.4					4.1	4.1	
Lane Util. Factor		0.86	0.86		0.91					0.95	0.95	
Frt		0.97	0.85		0.97					1.00	0.86	
Flt Protected		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (prot)		4645	1362		4922					1681	1516	
Flt Permitted		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (perm)		4645	1362		4922					1681	1516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1974	1316	0	2448	668	0	0	0	351	0	513
RTOR Reduction (vph)	0	44	310	0	45	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	2496	440	0	3071	0	0	0	0	316	546	0
Turn Type			Perm							Split		
Protected Phases		2			6					4	4	
Permitted Phases			2									
Actuated Green, G (s)		64.6	64.6		64.6					36.9	36.9	
Effective Green, g (s)		64.6	64.6		64.6					36.9	36.9	
Actuated g/C Ratio		0.59	0.59		0.59					0.34	0.34	
Clearance Time (s)		4.4	4.4		4.4					4.1	4.1	
Vehicle Extension (s)		4.5	4.5		4.5					4.1	4.1	
Lane Grp Cap (vph)		2728	800		2891					564	509	
v/s Ratio Prot		0.54			c0.62					0.19	c0.36	
v/s Ratio Perm			0.32									
v/c Ratio		0.91	0.55		1.06					0.56	1.07	
Uniform Delay, d1		20.2	13.8		22.7					29.9	36.5	
Progression Factor		1.00	1.00		1.00					1.00	1.00	
Incremental Delay, d2		5.5	1.2		36.3					1.6	60.8	
Delay (s)		25.8	15.1		59.0					31.5	97.3	
Level of Service		C	B		E					C	F	
Approach Delay (s)		23.3			59.0			0.0			73.3	
Approach LOS		C			E			A			E	

Intersection Summary

HCM Average Control Delay	44.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	302	1418	0	0	2345	730	1304	0	0	198	0	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.9			4.9	5.9	5.9			5.9		5.2
Lane Util. Factor	0.97	0.91			0.91	1.00	0.97			0.97		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)	3433	5085			5085	1583	3433			3433		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95			0.95		1.00
Satd. Flow (perm)	3433	5085			5085	1583	3433			3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	328	1541	0	0	2549	793	1417	0	0	215	0	292
RTOR Reduction (vph)	0	0	0	0	0	258	0	0	0	0	0	1
Lane Group Flow (vph)	328	1541	0	0	2549	535	1417	0	0	215	0	291
Turn Type	Prot					Over	Prot			Prot		Over
Protected Phases	5	2			6	4	8			4		5
Permitted Phases												
Actuated Green, G (s)	16.8	78.1			56.1	41.1	41.1			41.1		16.8
Effective Green, g (s)	16.8	78.1			56.1	41.1	41.1			41.1		16.8
Actuated g/C Ratio	0.13	0.60			0.43	0.32	0.32			0.32		0.13
Clearance Time (s)	5.2	4.9			4.9	5.9	5.9			5.9		5.2
Vehicle Extension (s)	2.0	4.5			4.5	4.5	3.3			4.5		2.0
Lane Grp Cap (vph)	444	3055			2194	500	1085			1085		205
v/s Ratio Prot	0.10	0.30			c0.50	0.34	c0.41			0.06		c0.18
v/s Ratio Perm												
v/c Ratio	0.74	0.50			1.16	1.07	1.31			0.20		1.42
Uniform Delay, d1	54.5	14.9			37.0	44.5	44.5			32.4		56.6
Progression Factor	1.00	1.00			1.00	1.00	1.00			1.00		1.00
Incremental Delay, d2	5.5	0.2			78.3	59.9	144.4			0.2		215.1
Delay (s)	60.0	15.1			115.2	104.4	188.9			32.6		271.7
Level of Service	E	B			F	F	F			C		F
Approach Delay (s)		23.0			112.7			188.9			170.3	
Approach LOS		C			F			F			F	

Intersection Summary			
HCM Average Control Delay	108.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	110.9%	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)	493	1905	0	0	2668	488	1367	0	0	831	0	655
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.9			4.9	5.9	5.9			5.9		5.2
Lane Util. Factor	0.97	0.91			0.91	1.00	0.97			0.97		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)	3433	5085			5085	1583	3433			3433		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95			0.95		1.00
Satd. Flow (perm)	3433	5085			5085	1583	3433			3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	536	2071	0	0	2900	530	1486	0	0	903	0	712
RTOR Reduction (vph)	0	0	0	0	0	141	0	0	0	0	0	0
Lane Group Flow (vph)	536	2071	0	0	2900	389	1486	0	0	903	0	712
Turn Type	Prot					Over	Prot			Prot		Over
Protected Phases	5	2			6	4	8			4		5
Permitted Phases												
Actuated Green, G (s)	35.8	94.1			53.1	35.1	35.1			35.1		35.8
Effective Green, g (s)	35.8	94.1			53.1	35.1	35.1			35.1		35.8
Actuated g/C Ratio	0.26	0.67			0.38	0.25	0.25			0.25		0.26
Clearance Time (s)	5.2	4.9			4.9	5.9	5.9			5.9		5.2
Vehicle Extension (s)	2.0	4.5			4.5	4.5	3.3			4.5		2.0
Lane Grp Cap (vph)	878	3418			1929	397	861			861		405
v/s Ratio Prot	0.16	0.41			c0.57	0.25	c0.43			0.26		c0.45
v/s Ratio Perm												
v/c Ratio	0.61	0.61			1.50	0.98	1.73			1.05		1.76
Uniform Delay, d1	46.0	12.7			43.4	52.1	52.4			52.4		52.1
Progression Factor	1.00	1.00			1.00	1.00	1.00			1.00		1.00
Incremental Delay, d2	0.9	0.4			229.3	39.9	331.6			44.2		351.1
Delay (s)	46.8	13.1			272.7	92.1	384.0			96.7		403.2
Level of Service	D	B			F	F	F			F		F
Approach Delay (s)		20.0			244.8			384.0			231.8	
Approach LOS		C			F			F			F	

Intersection Summary

HCM Average Control Delay	201.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	142.9%	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)	26	2335	440	602	2790	14	306	11	1147	37	16	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.9	5.9	5.2	4.9		5.9	5.9	5.2		4.4	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.97	
Satd. Flow (prot)	1770	3539	1583	3433	3537		1681	1691	1583		1759	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.97	
Satd. Flow (perm)	1770	3539	1583	3433	3537		1681	1691	1583		1759	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	2538	478	654	3033	15	333	12	1247	40	17	16
RTOR Reduction (vph)	0	0	86	0	0	0	0	0	358	0	7	0
Lane Group Flow (vph)	28	2538	392	654	3048	0	173	172	889	0	66	0
Turn Type	Prot		Perm	Prot			Split		Over	Split		
Protected Phases	5	2		1	6		8	8	1	7	7	
Permitted Phases			2									
Actuated Green, G (s)	4.5	62.0	62.0	23.9	83.4		22.3	22.3	23.9		7.3	
Effective Green, g (s)	4.5	62.0	62.0	23.9	83.4		22.3	22.3	23.9		7.3	
Actuated g/C Ratio	0.03	0.45	0.45	0.17	0.61		0.16	0.16	0.17		0.05	
Clearance Time (s)	4.2	5.9	5.9	5.2	4.9		5.9	5.9	5.2		4.4	
Vehicle Extension (s)	2.0	5.7	5.7	2.0	5.7		5.6	5.6	2.0		1.0	
Lane Grp Cap (vph)	58	1603	717	599	2155		274	275	276		94	
v/s Ratio Prot	0.02	c0.72		0.19	0.86		c0.10	0.10	c0.56		c0.04	
v/s Ratio Perm			0.25									
v/c Ratio	0.48	1.58	0.55	1.09	1.41		0.63	0.63	3.22		0.71	
Uniform Delay, d1	65.1	37.5	27.2	56.5	26.8		53.5	53.4	56.5		63.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.3	265.5	1.8	64.3	189.3		7.2	6.9	1008.4		17.8	
Delay (s)	67.4	302.9	29.0	120.8	216.0		60.7	60.3	1064.9		81.6	
Level of Service	E	F	C	F	F		E	E	F		F	
Approach Delay (s)		257.8			199.2			847.3			81.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	342.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	136.9	Sum of lost time (s)	21.4
Intersection Capacity Utilization	153.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	2797	428	1349	2797	42	576	11	1265	52	20	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.9	5.9	5.2	4.9		5.9	5.9	5.2		4.4	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.97	
Satd. Flow (prot)	1770	3539	1583	3433	3531		1681	1688	1583		1764	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.97	
Satd. Flow (perm)	1770	3539	1583	3433	3531		1681	1688	1583		1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	3040	465	1466	3040	46	626	12	1375	57	22	18
RTOR Reduction (vph)	0	0	75	0	0	0	0	0	358	0	6	0
Lane Group Flow (vph)	39	3040	390	1466	3086	0	319	319	1017	0	91	0
Turn Type	Prot		Perm	Prot			Split		Over	Split		
Protected Phases	5	2		1	6		8	8	1	7	7	
Permitted Phases			2									
Actuated Green, G (s)	6.3	58.8	58.8	25.8	80.3		34.0	34.0	25.8		8.0	
Effective Green, g (s)	6.3	58.8	58.8	25.8	80.3		34.0	34.0	25.8		8.0	
Actuated g/C Ratio	0.04	0.40	0.40	0.17	0.54		0.23	0.23	0.17		0.05	
Clearance Time (s)	4.2	5.9	5.9	5.2	4.9		5.9	5.9	5.2		4.4	
Vehicle Extension (s)	2.0	5.7	5.7	2.0	5.7		5.6	5.6	2.0		1.0	
Lane Grp Cap (vph)	75	1406	629	598	1916		386	388	276		95	
v/s Ratio Prot	0.02	c0.86		0.43	0.87		c0.19	0.19	c0.64		c0.05	
v/s Ratio Perm			0.25									
v/c Ratio	0.52	2.16	0.62	2.45	1.61		0.83	0.82	3.68		0.96	
Uniform Delay, d1	69.4	44.6	35.7	61.1	33.9		54.2	54.1	61.1		69.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	3.0	525.3	3.0	658.2	277.1		15.4	15.0	1216.5		78.9	
Delay (s)	72.3	569.9	38.7	719.3	311.0		69.6	69.1	1277.6		148.8	
Level of Service	E	F	D	F	F		E	E	F		F	
Approach Delay (s)		494.8			442.5			894.6			148.8	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	547.0	HCM Level of Service	F
HCM Volume to Capacity ratio	2.04		
Actuated Cycle Length (s)	148.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	175.2%	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)	0	0	0	273	2737	119	77	367	0	0	434	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6		3.7	4.6			4.6	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					0.99		1.00	1.00			0.92	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					5034		1770	3539			3253	
Flt Permitted					1.00		0.95	1.00			1.00	
Satd. Flow (perm)					5034		1770	3539			3253	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	297	2975	129	84	399	0	0	472	554
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	0	0	0	3398	0	84	399	0	0	1017	0
Turn Type				Split			Prot					
Protected Phases				6	6		3	8			4	
Permitted Phases												
Actuated Green, G (s)					88.4		8.3	52.4			40.4	
Effective Green, g (s)					88.4		8.3	52.4			40.4	
Actuated g/C Ratio					0.59		0.06	0.35			0.27	
Clearance Time (s)					4.6		3.7	4.6			4.6	
Vehicle Extension (s)					4.8		2.0	2.9			5.1	
Lane Grp Cap (vph)					2967		98	1236			876	
v/s Ratio Prot					c0.67		c0.05	0.11			c0.31	
v/s Ratio Perm												
v/c Ratio					1.15		0.86	0.32			1.25dr	
Uniform Delay, d1					30.8		70.3	35.8			54.8	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					69.9		46.6	0.1			84.8	
Delay (s)					100.7		116.9	35.9			139.6	
Level of Service					F		F	D			F	
Approach Delay (s)		0.0			100.7			50.0			139.6	
Approach LOS		A			F			D			F	

Intersection Summary			
HCM Average Control Delay	103.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	210	3359	357	118	356	0	0	377	444
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6		3.7	4.6			4.6	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					0.99		1.00	1.00			0.92	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					5003		1770	3539			3252	
Flt Permitted					1.00		0.95	1.00			1.00	
Satd. Flow (perm)					5003		1770	3539			3252	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	228	3651	388	128	387	0	0	410	483
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	4259	0	128	387	0	0	890	0
Turn Type				Split			Prot					
Protected Phases				6	6		3	8			4	
Permitted Phases												
Actuated Green, G (s)					95.4		8.3	45.4			33.4	
Effective Green, g (s)					95.4		8.3	45.4			33.4	
Actuated g/C Ratio					0.64		0.06	0.30			0.22	
Clearance Time (s)					4.6		3.7	4.6			4.6	
Vehicle Extension (s)					4.8		2.0	2.9			5.1	
Lane Grp Cap (vph)					3182		98	1071			724	
v/s Ratio Prot					c0.85		c0.07	0.11			c0.27	
v/s Ratio Perm												
v/c Ratio					1.34		1.31	0.36			1.33dr	
Uniform Delay, d1					27.3		70.8	40.9			58.3	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					154.5		193.5	0.2			115.1	
Delay (s)					181.8		264.4	41.1			173.4	
Level of Service					F		F	D			F	
Approach Delay (s)		0.0			181.8			96.6			173.4	
Approach LOS		A			F			F			F	

Intersection Summary

HCM Average Control Delay	172.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	119.3%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	252	2739	314	98	525	0	0	498	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6		4.2	4.6			4.6	4.6
Lane Util. Factor					0.91		1.00	0.95			0.95	1.00
Frt					0.99		1.00	1.00			1.00	0.85
Flt Protected					1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)					4994		1770	3539			3539	1583
Flt Permitted					1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)					4994		1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	274	2977	341	107	571	0	0	541	137
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	0	8
Lane Group Flow (vph)	0	0	0	0	3584	0	107	571	0	0	541	129
Turn Type				Split			Prot					Prot
Protected Phases				6	6		3	8			4	4
Permitted Phases												
Actuated Green, G (s)					104.0		8.8	36.8			23.8	23.8
Effective Green, g (s)					104.0		8.8	36.8			23.8	23.8
Actuated g/C Ratio					0.69		0.06	0.25			0.16	0.16
Clearance Time (s)					4.6		4.2	4.6			4.6	4.6
Vehicle Extension (s)					4.9		2.0	3.1			5.2	5.2
Lane Grp Cap (vph)					3463		104	868			562	251
v/s Ratio Prot					c0.72		c0.06	0.16			c0.15	0.08
v/s Ratio Perm												
v/c Ratio					1.03		1.03	0.66			0.96	0.51
Uniform Delay, d1					23.0		70.6	50.9			62.7	57.8
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					25.3		96.2	1.8			29.1	3.7
Delay (s)					48.3		166.8	52.8			91.8	61.5
Level of Service					D		F	D			F	E
Approach Delay (s)		0.0			48.3			70.8			85.6	
Approach LOS		A			D			E			F	

Intersection Summary

HCM Average Control Delay	56.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	325	3236	329	183	700	0	0	677	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6		4.2	4.6			4.6	4.6
Lane Util. Factor					0.91		1.00	0.95			0.95	1.00
Frt					0.99		1.00	1.00			1.00	0.85
Flt Protected					1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)					5000		1770	3539			3539	1583
Flt Permitted					1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)					5000		1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	353	3517	358	199	761	0	0	736	175
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	0	7
Lane Group Flow (vph)	0	0	0	0	4221	0	199	761	0	0	736	168
Turn Type				Split			Prot					Prot
Protected Phases				6	6		3	8			4	4
Permitted Phases												
Actuated Green, G (s)					96.4		13.8	44.4			26.4	26.4
Effective Green, g (s)					96.4		13.8	44.4			26.4	26.4
Actuated g/C Ratio					0.64		0.09	0.30			0.18	0.18
Clearance Time (s)					4.6		4.2	4.6			4.6	4.6
Vehicle Extension (s)					4.9		2.0	3.1			5.2	5.2
Lane Grp Cap (vph)					3213		163	1048			623	279
v/s Ratio Prot					c0.84		c0.11	0.22			c0.21	0.11
v/s Ratio Perm												
v/c Ratio					1.31		1.22	0.73			1.18	0.60
Uniform Delay, d1					26.8		68.1	47.3			61.8	57.0
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					143.5		142.1	2.6			97.4	5.6
Delay (s)					170.3		210.2	49.9			159.2	62.5
Level of Service					F		F	D			F	E
Approach Delay (s)		0.0			170.3			83.1			140.6	
Approach LOS		A			F			F			F	

Intersection Summary

HCM Average Control Delay	152.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	116.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NBT	NBR	SBL2	SBT	SBR	NWR2
Lane Configurations										
Volume (vph)	21	151	35	2	332	139	61	1138	33	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9	4.9	4.0	4.9		4.9
Lane Util. Factor		0.91			0.91	0.91	1.00	0.95		1.00
Frt		0.97			0.99	0.85	1.00	1.00		0.86
Flt Protected		0.99			1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)		4926			3370	1441	1770	3524		1611
Flt Permitted		0.99			1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)		4926			3370	1441	1770	3524		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	164	38	2	361	151	66	1237	36	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	12
Lane Group Flow (vph)	0	227	0	0	376	136	66	1273	0	5
Turn Type	Perm					Perm	Prot			custom
Protected Phases		4			2		1	6		
Permitted Phases	4					2				8
Actuated Green, G (s)		19.6			29.0	29.0	4.3	29.8		19.6
Effective Green, g (s)		19.6			29.0	29.0	4.3	29.8		19.6
Actuated g/C Ratio		0.29			0.43	0.43	0.06	0.45		0.29
Clearance Time (s)		4.9			4.9	4.9	4.0	4.9		4.9
Vehicle Extension (s)		2.0			2.0	2.0	3.0	2.0		2.0
Lane Grp Cap (vph)		1448			1465	627	114	1574		473
v/s Ratio Prot					c0.11		0.04	c0.36		
v/s Ratio Perm		0.05				0.09				0.00
v/c Ratio		0.16			0.26	0.22	0.58	0.81		0.01
Uniform Delay, d1		17.4			12.0	11.8	30.3	16.0		16.7
Progression Factor		1.00			1.00	1.00	1.33	0.55		1.00
Incremental Delay, d2		0.0			0.0	0.1	5.7	2.5		0.0
Delay (s)		17.5			12.0	11.8	46.2	11.2		16.7
Level of Service		B			B	B	D	B		B
Approach Delay (s)		17.5			12.0			12.9		
Approach LOS		B			B			B		

Intersection Summary

HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	9.8
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NBT	NBR	SBL2	SBT	SBR	NWR2
Lane Configurations										
Volume (vph)	104	483	66	15	706	242	56	726	21	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9			4.9	4.9	4.0	4.9		4.9
Lane Util. Factor		0.91			0.91	0.91	1.00	0.95		1.00
Frt		0.98			1.00	0.85	1.00	1.00		0.86
Flt Protected		0.99			1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)		4954			3374	1441	1770	3524		1611
Flt Permitted		0.99			1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)		4954			3374	1441	1770	3524		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	525	72	16	767	263	61	789	23	26
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	19
Lane Group Flow (vph)	0	726	0	0	793	237	61	812	0	7
Turn Type	Perm					Perm	Prot			custom
Protected Phases		4			2		1	6		
Permitted Phases	4					2				8
Actuated Green, G (s)		14.6			19.2	19.2	3.3	19.1		14.6
Effective Green, g (s)		14.6			19.2	19.2	3.3	19.1		14.6
Actuated g/C Ratio		0.29			0.38	0.38	0.06	0.38		0.29
Clearance Time (s)		4.9			4.9	4.9	4.0	4.9		4.9
Vehicle Extension (s)		2.0			2.0	2.0	1.0	2.0		2.0
Lane Grp Cap (vph)		1421			1273	544	115	1322		462
v/s Ratio Prot					c0.24		0.03	c0.23		
v/s Ratio Perm		0.15				0.16				0.00
v/c Ratio		0.51			0.62	0.44	0.53	0.61		0.02
Uniform Delay, d1		15.2			12.9	11.8	23.0	12.9		13.0
Progression Factor		1.00			1.00	1.00	1.31	0.61		1.00
Incremental Delay, d2		0.1			0.7	0.2	2.2	0.6		0.0
Delay (s)		15.3			13.6	12.0	32.3	8.5		13.0
Level of Service		B			B	B	C	A		B
Approach Delay (s)		15.3			13.2			10.1		
Approach LOS		B			B			B		

Intersection Summary

HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	50.9	Sum of lost time (s)	14.7
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)	223	1650	336	0	608	66	74	176	34	86	181	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91			0.91		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97			0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4956			5010		1770	3453		1770	1863	1583
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4956			5010		1770	3453		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	242	1793	365	0	661	72	80	191	37	93	197	55
RTOR Reduction (vph)	0	30	0	0	14	0	0	17	0	0	0	45
Lane Group Flow (vph)	242	2128	0	0	719	0	80	211	0	93	197	10
Turn Type	Prot						Split			Split		Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases												8
Actuated Green, G (s)	13.6	39.0			21.7		10.0	10.0		13.7	13.7	13.7
Effective Green, g (s)	13.6	39.0			21.7		10.0	10.0		13.7	13.7	13.7
Actuated g/C Ratio	0.18	0.51			0.28		0.13	0.13		0.18	0.18	0.18
Clearance Time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	1.5	4.5			4.5		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	313	2517			1416		230	450		316	332	282
v/s Ratio Prot	0.14	c0.43			0.14		0.05	c0.06		0.05	c0.11	
v/s Ratio Perm												0.01
v/c Ratio	0.77	0.85			0.51		0.35	0.47		0.29	0.59	0.03
Uniform Delay, d1	30.1	16.3			23.1		30.4	30.9		27.4	29.0	26.1
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.3	3.0			0.5		0.9	0.8		0.5	2.8	0.1
Delay (s)	40.5	19.3			23.6		31.3	31.7		27.9	31.8	26.1
Level of Service	D	B			C		C	C		C	C	C
Approach Delay (s)		21.5			23.6			31.6			29.9	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	76.8	Sum of lost time (s)	14.1
Intersection Capacity Utilization	69.0%	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)	1030	2489	681	0	742	82	351	381	75	80	279	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91			0.91		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97			0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	4921			5010		1770	3451		1770	1863	1583
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	4921			5010		1770	3451		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1120	2705	740	0	807	89	382	414	82	87	303	189
RTOR Reduction (vph)	0	32	0	0	9	0	0	11	0	0	0	156
Lane Group Flow (vph)	1120	3413	0	0	887	0	382	485	0	87	303	33
Turn Type	Prot						Split			Split		Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases												8
Actuated Green, G (s)	60.3	85.5			21.5		23.4	23.4		26.1	26.1	26.1
Effective Green, g (s)	60.3	85.5			21.5		23.4	23.4		26.1	26.1	26.1
Actuated g/C Ratio	0.40	0.57			0.14		0.16	0.16		0.18	0.18	0.18
Clearance Time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	1.5	4.5			4.5		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	716	2822			722		278	542		310	326	277
v/s Ratio Prot	c0.63	c0.69			0.18		c0.22	0.14		0.05	c0.16	
v/s Ratio Perm												0.02
v/c Ratio	1.56	1.21			1.23		1.37	0.89		0.28	0.93	0.12
Uniform Delay, d1	44.4	31.8			63.8		62.8	61.6		53.4	60.6	51.8
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	260.7	97.7			115.1		189.5	17.1		0.5	31.7	0.2
Delay (s)	305.1	129.5			178.9		252.3	78.8		53.9	92.3	52.0
Level of Service	F	F			F		F	E		D	F	D
Approach Delay (s)		172.6			178.9			154.3			73.4	
Approach LOS		F			F			F			E	

Intersection Summary

HCM Average Control Delay	162.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	149.1	Sum of lost time (s)	12.9
Intersection Capacity Utilization	122.4%	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)	238	199	51	0	0	0	0	925	564	154	1655	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.1	4.1						4.4		3.7	4.4	
Lane Util. Factor	1.00	0.91						0.91		1.00	0.91	
Frt	1.00	0.97						0.94		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	4930						4796		1770	5085	
Flt Permitted	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (perm)	1770	4930						4796		1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	259	216	55	0	0	0	0	1005	613	167	1799	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	163	0	0	0	0
Lane Group Flow (vph)	259	263	0	0	0	0	0	1455	0	167	1799	0
Turn Type	Split									Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.5	13.5						22.8		6.4	32.9	
Effective Green, g (s)	13.5	13.5						22.8		6.4	32.9	
Actuated g/C Ratio	0.25	0.25						0.42		0.12	0.60	
Clearance Time (s)	4.1	4.1						4.4		3.7	4.4	
Vehicle Extension (s)	3.0	3.0						4.0		2.0	4.0	
Lane Grp Cap (vph)	435	1212						1992		206	3047	
v/s Ratio Prot	c0.15	0.05						c0.30		c0.09	0.35	
v/s Ratio Perm												
v/c Ratio	0.60	0.22						0.73		0.81	0.59	
Uniform Delay, d1	18.3	16.5						13.5		23.7	6.8	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.1						1.5		19.9	0.4	
Delay (s)	20.5	16.6						15.0		43.6	7.2	
Level of Service	C	B						B		D	A	
Approach Delay (s)		18.5			0.0			15.0			10.3	
Approach LOS		B			A			B			B	

Intersection Summary

HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	12.2
Intersection Capacity Utilization	62.6%	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)	220	920	219	0	0	0	0	925	1476	330	1587	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.1	4.1						4.4		3.7	4.4	
Lane Util. Factor	1.00	0.91						0.91		1.00	0.91	
Frt	1.00	0.97						0.91		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	4939						4616		1770	5085	
Flt Permitted	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (perm)	1770	4939						4616		1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	1000	238	0	0	0	0	1005	1604	359	1725	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	239	1208	0	0	0	0	0	2592	0	359	1725	0
Turn Type	Split									Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases												
Actuated Green, G (s)	28.9	28.9						65.6		23.3	92.6	
Effective Green, g (s)	28.9	28.9						65.6		23.3	92.6	
Actuated g/C Ratio	0.22	0.22						0.50		0.18	0.71	
Clearance Time (s)	4.1	4.1						4.4		3.7	4.4	
Vehicle Extension (s)	3.0	3.0						4.0		2.0	4.0	
Lane Grp Cap (vph)	393	1098						2329		317	3622	
v/s Ratio Prot	0.14	c0.24						c0.56		c0.20	0.34	
v/s Ratio Perm												
v/c Ratio	0.61	1.10						1.93dr		1.13	0.48	
Uniform Delay, d1	45.5	50.5						32.2		53.4	8.1	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.7	58.8						57.5		91.3	0.1	
Delay (s)	48.1	109.3						89.7		144.7	8.3	
Level of Service	D	F						F		F	A	
Approach Delay (s)		99.4			0.0			89.7			31.8	
Approach LOS		F			A			F			C	

Intersection Summary

HCM Average Control Delay	72.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	316	617	57	44	307	0	0	861	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.9	4.9		4.0	4.9			4.9	
Lane Util. Factor				0.91	0.91		1.00	0.95			0.95	
Frt				1.00	0.99		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1610	3342		1770	3539			3492	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				1610	3342		1770	3539			3492	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	343	671	62	48	334	0	0	936	92
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	0	0	309	759	0	48	334	0	0	1019	0
Turn Type				Perm			Prot					
Protected Phases					8		5	2			6	
Permitted Phases				8								
Actuated Green, G (s)				19.6	19.6		3.5	29.0			29.8	
Effective Green, g (s)				19.6	19.6		3.5	29.0			29.8	
Actuated g/C Ratio				0.29	0.29		0.05	0.43			0.45	
Clearance Time (s)				4.9	4.9		4.0	4.9			4.9	
Vehicle Extension (s)				2.0	2.0		1.0	2.0			2.0	
Lane Grp Cap (vph)				473	982		93	1539			1560	
v/s Ratio Prot							c0.03	0.09			c0.29	
v/s Ratio Perm				0.19	0.23							
v/c Ratio				0.65	0.77		0.52	0.22			0.65	
Uniform Delay, d1				20.6	21.5		30.8	11.8			14.4	
Progression Factor				1.00	1.00		0.58	0.44			1.00	
Incremental Delay, d2				2.5	3.5		2.0	0.0			0.8	
Delay (s)				23.1	25.0		19.9	5.3			15.2	
Level of Service				C	C		B	A			B	
Approach Delay (s)		0.0			24.4			7.1			15.2	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	13.8
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)	0	0	0	254	429	93	67	766	0	0	517	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.9	4.9		4.0	4.9			4.9	
Lane Util. Factor				0.91	0.91		1.00	0.95			0.95	
Frt				1.00	0.97		1.00	1.00			0.98	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1610	3296		1770	3539			3472	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				1610	3296		1770	3539			3472	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	276	466	101	73	833	0	0	562	82
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	248	568	0	73	833	0	0	628	0
Turn Type				Perm			Prot					
Protected Phases					8		5	2			6	
Permitted Phases				8								
Actuated Green, G (s)				14.6	14.6		3.4	19.2			19.1	
Effective Green, g (s)				14.6	14.6		3.4	19.2			19.1	
Actuated g/C Ratio				0.29	0.29		0.07	0.38			0.38	
Clearance Time (s)				4.9	4.9		4.0	4.9			4.9	
Vehicle Extension (s)				2.0	2.0		1.0	2.0			2.0	
Lane Grp Cap (vph)				462	945		118	1335			1303	
v/s Ratio Prot							0.04	c0.24			c0.18	
v/s Ratio Perm				0.15	0.17							
v/c Ratio				0.54	0.60		0.62	0.62			0.48	
Uniform Delay, d1				15.3	15.6		23.1	12.9			12.1	
Progression Factor				1.00	1.00		0.77	0.78			1.00	
Incremental Delay, d2				0.6	0.7		5.7	0.6			0.1	
Delay (s)				15.9	16.4		23.5	10.7			12.2	
Level of Service				B	B		C	B			B	
Approach Delay (s)		0.0			16.2			11.7			12.2	
Approach LOS		A			B			B			B	

Intersection Summary

HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	50.9	Sum of lost time (s)	14.7
Intersection Capacity Utilization	46.7%	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)	0	260	1	0	693	11	0	0	56	0	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	283	1	0	753	12	0	0	61	0	0	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		471										
pX, platoon unblocked												
vC, conflicting volume	765			284			660	1048	142	901	1043	383
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	765			284			660	1048	142	901	1043	383
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	93	100	100	97
cM capacity (veh/h)	844			1276			339	226	880	217	228	615

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	188	95	502	263	61	17
Volume Left	0	0	0	0	0	0
Volume Right	0	1	0	12	61	17
cSH	1700	1700	1700	1700	880	615
Volume to Capacity	0.11	0.06	0.30	0.15	0.07	0.03
Queue Length 95th (ft)	0	0	0	0	6	2
Control Delay (s)	0.0	0.0	0.0	0.0	9.4	11.0
Lane LOS					A	B
Approach Delay (s)	0.0		0.0		9.4	11.0
Approach LOS					A	B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	29.5%	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)	0	767	31	0	643	54	0	0	51	0	0	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	834	34	0	699	59	0	0	55	0	0	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		471										
pX, platoon unblocked												
vC, conflicting volume	758			867			1200	1608	434	1145	1596	379
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	758			867			1200	1608	434	1145	1596	379
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	90	100	100	95
cM capacity (veh/h)	849			772			134	104	570	139	106	619

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	556	312	466	292	55	28
Volume Left	0	0	0	0	0	0
Volume Right	0	34	0	59	55	28
cSH	1700	1700	1700	1700	570	619
Volume to Capacity	0.33	0.18	0.27	0.17	0.10	0.05
Queue Length 95th (ft)	0	0	0	0	8	4
Control Delay (s)	0.0	0.0	0.0	0.0	12.0	11.1
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		12.0	11.1
Approach LOS					B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	32.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	191	97	250	516	90	136	680	55	201	444	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Total Lost time (s)	3.1	6.0		3.1	6.0		3.1	6.0		3.1	6.0	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.97	0.95		0.97	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3361		3433	3460		3433	3966		3433	3947	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3361		3433	3460		3433	3966		3433	3947	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	208	105	272	561	98	148	739	60	218	483	58
RTOR Reduction (vph)	0	76	0	0	16	0	0	7	0	0	10	0
Lane Group Flow (vph)	65	237	0	272	643	0	148	792	0	218	531	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.0	15.7		10.0	21.7		7.0	17.5		7.7	18.2	
Effective Green, g (s)	4.0	15.7		10.0	21.7		7.0	17.5		7.7	18.2	
Actuated g/C Ratio	0.06	0.23		0.14	0.31		0.10	0.25		0.11	0.26	
Clearance Time (s)	3.1	6.0		3.1	6.0		3.1	6.0		3.1	6.0	
Vehicle Extension (s)	1.0	2.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	102	764		497	1087		348	1004		383	1040	
v/s Ratio Prot	c0.04	0.07		c0.08	c0.19		0.04	c0.20		c0.06	0.13	
v/s Ratio Perm												
v/c Ratio	0.64	0.31		0.55	0.59		0.43	0.79		0.57	0.51	
Uniform Delay, d1	31.8	22.2		27.4	20.0		29.2	24.1		29.1	21.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.2	0.1		0.7	0.6		0.3	3.9		1.2	0.2	
Delay (s)	41.1	22.3		28.1	20.5		29.5	27.9		30.3	21.8	
Level of Service	D	C		C	C		C	C		C	C	
Approach Delay (s)		25.5			22.8			28.2			24.3	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	69.1	Sum of lost time (s)	12.2
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	635	130	263	433	114	216	731	81	388	691	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	16	12
Total Lost time (s)	3.1	6.0		3.1	6.0		3.1	6.0		3.1	6.0	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.97	0.95		0.97	0.95	
Frt	1.00	0.97		1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3449		3433	3429		3433	3951		3433	3975	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3449		3433	3429		3433	3951		3433	3975	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	690	141	286	471	124	235	795	88	422	751	48
RTOR Reduction (vph)	0	19	0	0	25	0	0	10	0	0	5	0
Lane Group Flow (vph)	92	812	0	286	570	0	235	873	0	422	794	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.1	24.2		9.4	27.5		8.9	21.6		11.0	23.7	
Effective Green, g (s)	6.1	24.2		9.4	27.5		8.9	21.6		11.0	23.7	
Actuated g/C Ratio	0.07	0.29		0.11	0.33		0.11	0.26		0.13	0.28	
Clearance Time (s)	3.1	6.0		3.1	6.0		3.1	6.0		3.1	6.0	
Vehicle Extension (s)	1.0	2.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	128	989		382	1117		362	1011		447	1116	
v/s Ratio Prot	0.05	c0.24		c0.08	0.17		0.07	c0.22		c0.12	0.20	
v/s Ratio Perm												
v/c Ratio	0.72	0.82		0.75	0.51		0.65	0.86		0.94	0.71	
Uniform Delay, d1	38.3	28.1		36.4	23.0		36.3	30.0		36.4	27.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.8	5.3		6.9	0.2		3.0	7.5		28.5	1.8	
Delay (s)	53.1	33.4		43.2	23.2		39.2	37.5		64.9	29.1	
Level of Service	D	C		D	C		D	D		E	C	
Approach Delay (s)		35.3			29.7			37.9			41.4	
Approach LOS		D			C			D			D	

Intersection Summary

HCM Average Control Delay	36.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	84.4	Sum of lost time (s)	18.2
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations												
Volume (vph)	14	24	37	3	22	212	139	146	11	64	20	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	16	12	12	16	12	12
Total Lost time (s)		5.2	5.2				5.2			5.2		
Lane Util. Factor		1.00	1.00				1.00			1.00		
Frt		1.00	0.85				0.96			0.95		
Flt Protected		0.95	1.00				0.98			1.00		
Satd. Flow (prot)		1770	1583				1986			1993		
Flt Permitted		0.95	1.00				0.74			0.94		
Satd. Flow (perm)		1770	1583				1503			1888		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	26	40	3	24	230	151	159	12	70	22	29
RTOR Reduction (vph)	0	0	2	0	0	0	9	0	0	6	0	0
Lane Group Flow (vph)	0	41	41	0	0	0	555	0	0	127	0	0
Turn Type	Split		Perm		Perm	Perm			Perm			
Protected Phases	3	3					4			4		
Permitted Phases			3		4	4			4			
Actuated Green, G (s)		5.4	5.4				42.8			42.8		
Effective Green, g (s)		5.4	5.4				42.8			42.8		
Actuated g/C Ratio		0.04	0.04				0.29			0.29		
Clearance Time (s)		5.2	5.2				5.2			5.2		
Vehicle Extension (s)		2.0	2.0				4.5			4.5		
Lane Grp Cap (vph)		64	57				433			543		
v/s Ratio Prot		0.02										
v/s Ratio Perm			c0.03				c0.37			0.07		
v/c Ratio		0.64	0.72				1.28			0.23		
Uniform Delay, d1		70.7	70.9				52.9			40.4		
Progression Factor		1.00	1.00				1.00			1.00		
Incremental Delay, d2		15.2	31.3				143.3			0.4		
Delay (s)		85.9	102.2				196.2			40.8		
Level of Service		F	F				F			D		
Approach Delay (s)		94.2					196.2			40.8		
Approach LOS		F					F			D		

Intersection Summary

HCM Average Control Delay	200.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	148.7	Sum of lost time (s)	21.5
Intersection Capacity Utilization	126.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations								
Volume (vph)	55	2438	226	37	69	105	3215	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12
Total Lost time (s)	5.2	5.9				5.2	5.9	
Lane Util. Factor	1.00	0.91				1.00	0.91	
Frt	1.00	0.99				1.00	1.00	
Flt Protected	0.95	1.00				0.95	1.00	
Satd. Flow (prot)	1770	5011				1770	5081	
Flt Permitted	0.95	1.00				0.95	1.00	
Satd. Flow (perm)	1770	5011				1770	5081	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	2650	246	40	75	114	3495	22
RTOR Reduction (vph)	0	1	0	0	0	0	1	0
Lane Group Flow (vph)	60	2935	0	0	0	189	3516	0
Turn Type	Prot				Prot	Prot		
Protected Phases	1	6			5	5	2	
Permitted Phases								
Actuated Green, G (s)	6.7	68.2				10.8	72.3	
Effective Green, g (s)	6.7	68.2				10.8	72.3	
Actuated g/C Ratio	0.05	0.46				0.07	0.49	
Clearance Time (s)	5.2	5.9				5.2	5.9	
Vehicle Extension (s)	2.0	3.6				2.0	4.3	
Lane Grp Cap (vph)	80	2298				129	2470	
v/s Ratio Prot	0.03	0.59				c0.11	c0.69	
v/s Ratio Perm								
v/c Ratio	0.75	1.28				1.47	1.42	
Uniform Delay, d1	70.2	40.2				68.9	38.2	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	29.0	128.2				246.6	193.1	
Delay (s)	99.2	168.5				315.6	231.3	
Level of Service	F	F				F	F	
Approach Delay (s)		167.1					235.6	
Approach LOS		F					F	

Intersection Summary

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR2	SEL	SET
Lane Configurations												
Volume (vph)	28	7	29	304	40	48	17	67	4	12	65	4400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	16	12	12	16	12	12	12	12
Total Lost time (s)		5.2	5.2		5.2			5.2			5.2	5.9
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	0.91
Frt		1.00	0.85		0.98			0.98			1.00	1.00
Flt Protected		0.95	1.00		0.96			0.99			0.95	1.00
Satd. Flow (prot)		1770	1583		1999			2049			1770	5066
Flt Permitted		0.95	1.00		0.65			0.95			0.95	1.00
Satd. Flow (perm)		1770	1583		1358			1957			1770	5066
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	8	32	330	43	52	18	73	4	13	71	4783
RTOR Reduction (vph)	0	0	0	0	3	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	38	32	0	422	0	0	105	0	0	71	4909
Turn Type	Split		Perm	Perm			Perm				Prot	
Protected Phases	3	3			4			4			1	6
Permitted Phases			3	4			4					
Actuated Green, G (s)		5.3	5.3		34.8			34.8			6.8	77.2
Effective Green, g (s)		5.3	5.3		34.8			34.8			6.8	77.2
Actuated g/C Ratio		0.04	0.04		0.23			0.23			0.05	0.52
Clearance Time (s)		5.2	5.2		5.2			5.2			5.2	5.9
Vehicle Extension (s)		2.0	2.0		4.5			4.5			2.0	3.6
Lane Grp Cap (vph)		63	56		318			458			81	2632
v/s Ratio Prot		c0.02									0.04	c0.97
v/s Ratio Perm			0.02		c0.31			0.05				
v/c Ratio		0.60	0.57		1.33			0.23			0.88	1.86
Uniform Delay, d1		70.6	70.5		56.9			46.0			70.5	35.7
Progression Factor		1.00	1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2		10.7	8.5		167.3			0.4			58.7	390.7
Delay (s)		81.3	79.0		224.2			46.5			129.2	426.4
Level of Service		F	E		F			D			F	F
Approach Delay (s)		80.2			224.2			46.5				422.2
Approach LOS		F			F			D				F

Intersection Summary

HCM Average Control Delay	325.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.72		
Actuated Cycle Length (s)	148.6	Sum of lost time (s)	27.4
Intersection Capacity Utilization	148.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations						
Volume (vph)	96	20	112	50	3523	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)				5.2	5.9	
Lane Util. Factor				1.00	0.91	
Frt				1.00	1.00	
Flt Protected				0.95	1.00	
Satd. Flow (prot)				1770	5075	
Flt Permitted				0.95	1.00	
Satd. Flow (perm)				1770	5075	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	22	122	54	3829	51
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	0	0	176	3879	0
Turn Type			Prot	Prot		
Protected Phases			5	5	2	
Permitted Phases						
Actuated Green, G (s)				9.8	80.2	
Effective Green, g (s)				9.8	80.2	
Actuated g/C Ratio				0.07	0.54	
Clearance Time (s)				5.2	5.9	
Vehicle Extension (s)				2.0	4.3	
Lane Grp Cap (vph)				117	2739	
v/s Ratio Prot				c0.10	c0.76	
v/s Ratio Perm						
v/c Ratio				1.50	1.42	
Uniform Delay, d1				69.4	34.2	
Progression Factor				1.00	1.00	
Incremental Delay, d2				266.1	189.5	
Delay (s)				335.5	223.7	
Level of Service				F	F	
Approach Delay (s)					228.6	
Approach LOS					F	

Intersection Summary

Movement	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations								
Volume (vph)	74	865	1309	128	232	774	905	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	12	12	12	12
Total Lost time (s)		4.1	4.1		3.7	4.4	4.4	
Lane Util. Factor		0.86	0.86		1.00	0.91	0.91	
Frt		1.00	0.99		1.00	1.00	0.97	
Flt Protected		0.95	0.99		0.95	1.00	1.00	
Satd. Flow (prot)		1725	4708		1770	5085	4921	
Flt Permitted		0.95	0.99		0.95	1.00	1.00	
Satd. Flow (perm)		1725	4708		1770	5085	4921	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	940	1423	139	252	841	984	271
RTOR Reduction (vph)	0	8	12	0	0	0	27	0
Lane Group Flow (vph)	0	627	1935	0	252	841	1228	0
Turn Type	Split	Split			Prot			
Protected Phases	8	8	8		5	2	6	
Permitted Phases								
Actuated Green, G (s)		28.9	28.9		10.3	32.2	18.2	
Effective Green, g (s)		28.9	28.9		10.3	32.2	18.2	
Actuated g/C Ratio		0.42	0.42		0.15	0.46	0.26	
Clearance Time (s)		4.1	4.1		3.7	4.4	4.4	
Vehicle Extension (s)		3.0	3.0		2.0	0.2	0.2	
Lane Grp Cap (vph)		716	1955		262	2353	1287	
v/s Ratio Prot		0.36	c0.41		c0.14	0.17	c0.25	
v/s Ratio Perm								
v/c Ratio		0.88	0.99		0.96	0.36	0.95	
Uniform Delay, d1		18.7	20.2		29.5	12.0	25.3	
Progression Factor		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		11.7	17.8		44.6	0.0	15.2	
Delay (s)		30.4	38.0		74.1	12.1	40.5	
Level of Service		C	D		E	B	D	
Approach Delay (s)			36.1			26.4	40.5	
Approach LOS			D			C	D	

Intersection Summary			
HCM Average Control Delay	35.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	12.2
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations								
Volume (vph)	51	630	1038	242	331	854	1231	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	12	12	12	12
Total Lost time (s)		4.1	4.1		3.7	4.4	4.4	
Lane Util. Factor		0.86	0.86		1.00	0.91	0.91	
Frt		1.00	0.98		1.00	1.00	0.97	
Flt Protected		0.95	0.99		0.95	1.00	1.00	
Satd. Flow (prot)		1725	4657		1770	5085	4944	
Flt Permitted		0.95	0.99		0.95	1.00	1.00	
Satd. Flow (perm)		1725	4657		1770	5085	4944	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	685	1128	263	360	928	1338	304
RTOR Reduction (vph)	0	5	30	0	0	0	31	0
Lane Group Flow (vph)	0	523	1573	0	360	928	1611	0
Turn Type	Split	Split			Prot			
Protected Phases	8	8	8		5	2	6	
Permitted Phases								
Actuated Green, G (s)		29.6	29.6		18.3	51.9	29.9	
Effective Green, g (s)		29.6	29.6		18.3	51.9	29.9	
Actuated g/C Ratio		0.33	0.33		0.20	0.58	0.33	
Clearance Time (s)		4.1	4.1		3.7	4.4	4.4	
Vehicle Extension (s)		3.0	3.0		2.0	0.2	0.2	
Lane Grp Cap (vph)		567	1532		360	2932	1643	
v/s Ratio Prot		0.30	c0.34		c0.20	0.18	c0.33	
v/s Ratio Perm								
v/c Ratio		0.92	1.03		1.00	0.32	0.98	
Uniform Delay, d1		29.1	30.2		35.9	9.9	29.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		20.7	30.2		47.4	0.0	17.7	
Delay (s)		49.8	60.4		83.3	9.9	47.4	
Level of Service		D	E		F	A	D	
Approach Delay (s)			57.8			30.4	47.4	
Approach LOS			E			C	D	

Intersection Summary			
HCM Average Control Delay	47.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	89	19	122	78	144	36	181	62	373	598	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1		4.0	4.6		4.0	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.90		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1813		1770	1681		1770	3404		1770	3482	
Flt Permitted	0.52	1.00		0.68	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	965	1813		1269	1681		1770	3404		1770	3482	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	97	21	133	85	157	39	197	67	405	650	79
RTOR Reduction (vph)	0	12	0	0	105	0	0	49	0	0	12	0
Lane Group Flow (vph)	34	106	0	133	137	0	39	215	0	405	717	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)	10.0	10.0		10.0	10.0		3.0	13.3		15.4	25.7	
Effective Green, g (s)	10.0	10.0		10.0	10.0		3.0	13.3		15.4	25.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.06	0.25		0.29	0.49	
Clearance Time (s)	5.1	5.1		5.1	5.1		4.0	4.6		4.0	4.6	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		1.0	2.0		1.0	2.0	
Lane Grp Cap (vph)	184	346		242	321		101	864		520	1708	
v/s Ratio Prot		0.06			0.08		0.02	c0.06		c0.23	c0.21	
v/s Ratio Perm	0.04			c0.10								
v/c Ratio	0.18	0.31		0.55	0.43		0.39	0.25		0.78	0.42	
Uniform Delay, d1	17.8	18.2		19.2	18.7		23.8	15.6		16.9	8.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.2		1.4	0.3		0.9	0.1		6.6	0.1	
Delay (s)	18.0	18.4		20.5	19.0		24.7	15.6		23.6	8.6	
Level of Service	B	B		C	B		C	B		C	A	
Approach Delay (s)		18.3			19.5			16.8			14.0	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	9.1
Intersection Capacity Utilization	62.6%	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)	123	140	52	164	109	363	42	543	98	293	400	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1		4.0	4.6		4.0	4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.88		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1787		1770	1648		1770	3458		1770	3464	
Flt Permitted	0.21	1.00		0.60	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	393	1787		1121	1648		1770	3458		1770	3464	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	152	57	178	118	395	46	590	107	318	435	72
RTOR Reduction (vph)	0	19	0	0	172	0	0	21	0	0	18	0
Lane Group Flow (vph)	134	190	0	178	341	0	46	676	0	318	489	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)	23.9	23.9		23.9	23.9		5.6	19.4		13.0	26.8	
Effective Green, g (s)	23.9	23.9		23.9	23.9		5.6	19.4		13.0	26.8	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.08	0.28		0.19	0.38	
Clearance Time (s)	5.1	5.1		5.1	5.1		4.0	4.6		4.0	4.6	
Vehicle Extension (s)	1.5	1.5		1.5	1.5		1.0	2.0		1.0	2.0	
Lane Grp Cap (vph)	134	610		383	563		142	958		329	1326	
v/s Ratio Prot		0.11			0.21		0.03	c0.20		c0.18	0.14	
v/s Ratio Perm	c0.34			0.16								
v/c Ratio	1.00	0.31		0.46	0.61		0.32	0.71		0.97	0.37	
Uniform Delay, d1	23.1	17.0		18.0	19.1		30.4	22.7		28.3	15.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	77.7	0.1		0.3	1.3		0.5	2.0		40.1	0.1	
Delay (s)	100.8	17.1		18.4	20.4		30.9	24.7		68.4	15.6	
Level of Service	F	B		B	C		C	C		E	B	
Approach Delay (s)		49.8			19.9			25.1			35.9	
Approach LOS		D			B			C			D	

Intersection Summary

HCM Average Control Delay	30.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	84.9%	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)	7	128	49	89	121	232	31	197	129	126	854	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.90		1.00	0.94		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1786		1770	1679		1770	3329		1770	3454	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1786		1770	1679		1770	3329		1770	3454	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	139	53	97	132	252	34	214	140	137	928	178
RTOR Reduction (vph)	0	19	0	0	83	0	0	95	0	0	17	0
Lane Group Flow (vph)	8	173	0	97	301	0	34	259	0	137	1089	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.0	14.6		5.8	19.4		2.5	20.7		7.6	25.8	
Effective Green, g (s)	1.0	14.6		5.8	19.4		2.5	20.7		7.6	25.8	
Actuated g/C Ratio	0.02	0.23		0.09	0.30		0.04	0.32		0.12	0.40	
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)	27	403		159	503		68	1065		208	1377	
v/s Ratio Prot	0.00	0.10		c0.05	c0.18		0.02	0.08		c0.08	c0.32	
v/s Ratio Perm												
v/c Ratio	0.30	0.43		0.61	0.60		0.50	0.24		0.66	0.79	
Uniform Delay, d1	31.5	21.5		28.4	19.3		30.5	16.2		27.3	17.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.1	0.7		6.8	1.9		5.7	0.1		7.3	3.2	
Delay (s)	37.6	22.2		35.1	21.3		36.2	16.3		34.6	20.3	
Level of Service	D	C		D	C		D	B		C	C	
Approach Delay (s)		22.8			24.1			18.1			21.8	
Approach LOS		C			C			B			C	

Intersection Summary

HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.4%	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)	14	289	33	138	148	286	51	349	464	189	477	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.90		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1834		1770	1679		1770	3236		1770	3473	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1834		1770	1679		1770	3236		1770	3473	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	314	36	150	161	311	55	379	504	205	518	74
RTOR Reduction (vph)	0	6	0	0	82	0	0	319	0	0	14	0
Lane Group Flow (vph)	15	344	0	150	390	0	55	564	0	205	578	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.3	20.5		8.1	27.3		4.4	17.9		10.6	24.1	
Effective Green, g (s)	1.3	20.5		8.1	27.3		4.4	17.9		10.6	24.1	
Actuated g/C Ratio	0.02	0.28		0.11	0.37		0.06	0.24		0.15	0.33	
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)	31	514		196	627		107	792		257	1145	
v/s Ratio Prot	0.01	0.19		c0.08	c0.23		0.03	c0.17		c0.12	0.17	
v/s Ratio Perm												
v/c Ratio	0.48	0.67		0.77	0.62		0.51	0.71		0.80	0.50	
Uniform Delay, d1	35.6	23.3		31.6	18.7		33.3	25.2		30.2	19.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.4	3.3		16.2	1.9		4.1	3.0		15.7	0.4	
Delay (s)	47.0	26.6		47.8	20.6		37.4	28.3		45.9	20.1	
Level of Service	D	C		D	C		D	C		D	C	
Approach Delay (s)		27.4			27.2			28.8			26.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	162	11	66	43	14	34	33	2574	575	147	3416	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.6		3.7	5.3	5.3	3.7	5.3	5.3
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1696	1583		1728		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	0.96	1.00		0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1696	1583		1728		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	12	72	47	15	37	36	2798	625	160	3713	32
RTOR Reduction (vph)	0	0	68	0	16	0	0	0	100	0	0	2
Lane Group Flow (vph)	93	95	4	0	83	0	36	2798	525	160	3713	30
Turn Type	Split		Perm	Split			Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		1	6		5	2	
Permitted Phases			7						6			2
Actuated Green, G (s)	8.0	8.0	8.0		12.2		5.9	90.4	90.4	10.3	94.8	94.8
Effective Green, g (s)	8.0	8.0	8.0		12.2		5.9	90.4	90.4	10.3	94.8	94.8
Actuated g/C Ratio	0.06	0.06	0.06		0.09		0.04	0.64	0.64	0.07	0.67	0.67
Clearance Time (s)	5.5	5.5	5.5		5.6		3.7	5.3	5.3	3.7	5.3	5.3
Vehicle Extension (s)	4.5	4.5	4.5		3.0		2.0	4.9	4.9	2.0	4.9	4.9
Lane Grp Cap (vph)	95	96	90		150		74	2269	1015	129	2379	1064
v/s Ratio Prot	0.06	c0.06			c0.05		0.02	0.79		c0.09	c1.05	
v/s Ratio Perm			0.00						0.33			0.02
v/c Ratio	0.98	0.99	0.05		0.56		0.49	1.23	0.52	1.24	1.56	0.03
Uniform Delay, d1	66.4	66.5	62.9		61.8		66.1	25.3	13.6	65.3	23.1	7.7
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	85.1	88.0	0.4		4.4		1.8	109.0	0.9	157.6	254.4	0.0
Delay (s)	151.5	154.4	63.2		66.2		67.9	134.3	14.4	222.9	277.5	7.7
Level of Service	F	F	E		E		E	F	B	F	F	A
Approach Delay (s)		128.1			66.2			111.9			273.1	
Approach LOS		F			E			F			F	

Intersection Summary

HCM Average Control Delay	193.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	141.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	123.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	515	20	136	87	23	31	17	3916	310	321	3954	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		5.6		3.7	5.3	5.3	3.7	5.3	5.3
Lane Util. Factor	0.95	0.95	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1691	1583		1753		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	0.96	1.00		0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1691	1583		1753		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	560	22	148	95	25	34	18	4257	337	349	4298	12
RTOR Reduction (vph)	0	0	132	0	7	0	0	0	38	0	0	0
Lane Group Flow (vph)	291	291	16	0	147	0	18	4257	299	349	4298	12
Turn Type	Split		Perm	Split			Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		1	6		5	2	
Permitted Phases			7						6			2
Actuated Green, G (s)	15.5	15.5	15.5		16.9		4.1	77.7	77.7	16.3	89.9	89.9
Effective Green, g (s)	15.5	15.5	15.5		16.9		4.1	77.7	77.7	16.3	89.9	89.9
Actuated g/C Ratio	0.11	0.11	0.11		0.12		0.03	0.53	0.53	0.11	0.61	0.61
Clearance Time (s)	5.5	5.5	5.5		5.6		3.7	5.3	5.3	3.7	5.3	5.3
Vehicle Extension (s)	4.5	4.5	4.5		3.0		2.0	4.9	4.9	2.0	4.9	4.9
Lane Grp Cap (vph)	178	179	167		202		50	1877	840	197	2172	971
v/s Ratio Prot	c0.17	0.17			c0.08		0.01	c1.20		c0.20	1.21	
v/s Ratio Perm			0.01						0.19			0.01
v/c Ratio	1.63	1.63	0.09		0.73		0.36	2.27	0.36	1.77	1.98	0.01
Uniform Delay, d1	65.5	65.5	59.2		62.6		69.9	34.4	19.9	65.1	28.3	11.0
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	309.7	305.6	0.4		12.3		1.6	572.3	0.5	367.1	442.1	0.0
Delay (s)	375.2	371.1	59.6		74.8		71.5	606.7	20.4	432.2	470.4	11.0
Level of Service	F	F	E		E		E	F	C	F	F	B
Approach Delay (s)		309.6			74.8			561.8			466.4	
Approach LOS		F			E			F			F	

Intersection Summary

HCM Average Control Delay	492.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.92		
Actuated Cycle Length (s)	146.5	Sum of lost time (s)	20.1
Intersection Capacity Utilization	159.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	215	0	142	0	273	0	0	472	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	234	0	154	0	297	0	0	513	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								857				
pX, platoon unblocked												
vC, conflicting volume	816	810	257	553	810	148	513			297		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	816	810	257	553	810	148	513			297		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	44	100	82	100			100		
cM capacity (veh/h)	221	312	743	416	312	872	1049			1261		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	156	232	148	148	342	171
Volume Left	156	78	0	0	0	0
Volume Right	0	154	0	0	0	0
cSH	416	637	1700	1700	1700	1700
Volume to Capacity	0.37	0.36	0.09	0.09	0.20	0.10
Queue Length 95th (ft)	43	42	0	0	0	0
Control Delay (s)	18.8	13.9	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	15.8		0.0		0.0	
Approach LOS	C					

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	30.0%	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)	0	0	0	122	19	42	0	516	0	0	524	41
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	133	21	46	0	561	0	0	570	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								857				
pX, platoon unblocked												
vC, conflicting volume	928	1153	307	846	1175	280	614			561		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	928	1153	307	846	1175	280	614			561		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	48	89	94	100			100		
cM capacity (veh/h)	191	196	689	256	190	717	961			1006		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	88	111	280	280	380	234
Volume Left	88	44	0	0	0	0
Volume Right	0	46	0	0	0	45
cSH	256	320	1700	1700	1700	1700
Volume to Capacity	0.35	0.35	0.16	0.16	0.22	0.14
Queue Length 95th (ft)	37	37	0	0	0	0
Control Delay (s)	26.3	22.1	0.0	0.0	0.0	0.0
Lane LOS	D	C				
Approach Delay (s)	24.0		0.0		0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1	9	304	1	39	31	515	481	100	737	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		4.5	4.5	4.5	4.0	5.0	5.0	4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.88		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1634		1681	1686	1583	1770	3539	1583	1770	3538	
Flt Permitted		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1634		1681	1686	1583	1770	3539	1583	1770	3538	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	10	330	1	42	34	560	523	109	801	2
RTOR Reduction (vph)	0	10	0	0	0	34	0	0	354	0	0	0
Lane Group Flow (vph)	0	1	0	165	166	8	34	560	169	109	803	0
Turn Type	Split			Split		Perm	Prot		Perm	Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases						3			2			
Actuated Green, G (s)		0.8		9.6	9.6	9.6	1.8	16.3	16.3	5.2	19.7	
Effective Green, g (s)		0.8		9.6	9.6	9.6	1.8	16.3	16.3	5.2	19.7	
Actuated g/C Ratio		0.02		0.19	0.19	0.19	0.04	0.32	0.32	0.10	0.39	
Clearance Time (s)		5.0		4.5	4.5	4.5	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)		2.0		1.5	1.5	1.5	1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)		26		320	321	302	63	1145	512	183	1383	
v/s Ratio Prot		c0.00		0.10	c0.10		0.02	0.16		c0.06	c0.23	
v/s Ratio Perm						0.01			0.11			
v/c Ratio		0.04		0.52	0.52	0.03	0.54	0.49	0.33	0.60	0.58	
Uniform Delay, d1		24.4		18.3	18.3	16.6	23.9	13.7	12.9	21.6	12.1	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3		0.6	0.6	0.0	4.4	0.1	0.1	3.4	0.4	
Delay (s)		24.7		18.9	18.9	16.6	28.3	13.8	13.1	25.0	12.5	
Level of Service		C		B	B	B	C	B	B	C	B	
Approach Delay (s)		24.7			18.6			13.9			14.0	
Approach LOS		C			B			B			B	

Intersection Summary

HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	50.4	Sum of lost time (s)	18.5
Intersection Capacity Utilization	50.3%	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)	6	8	26	528	4	69	21	927	234	65	796	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		4.5	4.5	4.5	4.0	5.0	5.0	4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1689		1681	1686	1583	1770	3539	1583	1770	3537	
Flt Permitted		0.99		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1689		1681	1686	1583	1770	3539	1583	1770	3537	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	9	28	574	4	75	23	1008	254	71	865	4
RTOR Reduction (vph)	0	27	0	0	0	63	0	0	132	0	1	0
Lane Group Flow (vph)	0	17	0	287	291	12	23	1008	122	71	868	0
Turn Type	Split			Split		Perm	Prot		Perm	Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases						3			2			
Actuated Green, G (s)		3.1		9.9	9.9	9.9	1.0	25.5	25.5	3.6	28.1	
Effective Green, g (s)		3.1		9.9	9.9	9.9	1.0	25.5	25.5	3.6	28.1	
Actuated g/C Ratio		0.05		0.16	0.16	0.16	0.02	0.42	0.42	0.06	0.46	
Clearance Time (s)		5.0		4.5	4.5	4.5	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)		2.0		1.5	1.5	1.5	1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)		86		275	275	259	29	1489	666	105	1640	
v/s Ratio Prot		c0.01		0.17	c0.17		0.01	c0.28		c0.04	c0.25	
v/s Ratio Perm						0.01			0.08			
v/c Ratio		0.20		1.04	1.06	0.05	0.79	0.68	0.18	0.68	0.53	
Uniform Delay, d1		27.6		25.4	25.4	21.4	29.7	14.2	11.0	27.9	11.6	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.4		66.1	70.4	0.0	79.5	1.0	0.0	12.7	0.1	
Delay (s)		28.0		91.5	95.8	21.4	109.2	15.2	11.1	40.6	11.7	
Level of Service		C		F	F	C	F	B	B	D	B	
Approach Delay (s)		28.0			85.3			16.1			13.9	
Approach LOS		C			F			B			B	

Intersection Summary

HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	23.5
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	109	108	270	155	183	355	674	101	166	759	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.0	4.0	4.0	4.6		4.0	4.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4986		1770	5036	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4986		1770	5036	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	118	117	293	168	199	386	733	110	180	825	57
RTOR Reduction (vph)	0	0	92	0	0	137	0	21	0	0	8	0
Lane Group Flow (vph)	40	118	25	293	168	62	386	822	0	180	874	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	4.3	18.6	18.6	12.0	26.9	26.9	16.0	27.2		11.2	22.4	
Effective Green, g (s)	4.3	18.6	18.6	12.0	26.9	26.9	16.0	27.2		11.2	22.4	
Actuated g/C Ratio	0.05	0.22	0.22	0.14	0.31	0.31	0.19	0.32		0.13	0.26	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.0	4.0	4.0	4.6		4.0	4.6	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	2.5	2.5	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	88	764	342	246	1104	494	329	1573		230	1309	
v/s Ratio Prot	0.02	0.03		c0.17	c0.05		c0.22	0.16		0.10	c0.17	
v/s Ratio Perm			0.02			0.04						
v/c Ratio	0.45	0.15	0.07	1.19	0.15	0.13	1.17	0.52		0.78	0.67	
Uniform Delay, d1	39.8	27.4	26.9	37.1	21.4	21.2	35.1	24.2		36.3	28.6	
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	1.4	0.2	0.2	118.9	0.0	0.1	105.4	0.6		14.7	1.7	
Delay (s)	41.2	27.6	27.1	156.0	21.5	21.3	140.5	24.8		51.0	30.3	
Level of Service	D	C	C	F	C	C	F	C		D	C	
Approach Delay (s)		29.4			81.2			61.1			33.8	
Approach LOS		C			F			E			C	

Intersection Summary

HCM Average Control Delay	53.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	86.2	Sum of lost time (s)	12.6
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)	89	239	257	295	125	162	149	718	223	312	889	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.0	4.0	4.0	4.6		4.0	4.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4905		1770	5061	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4905		1770	5061	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	260	279	321	136	176	162	780	242	339	966	32
RTOR Reduction (vph)	0	0	218	0	0	124	0	61	0	0	3	0
Lane Group Flow (vph)	97	260	61	321	136	52	162	961	0	339	995	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	7.2	19.0	19.0	13.0	25.4	25.4	10.3	23.6		14.0	27.3	
Effective Green, g (s)	7.2	19.0	19.0	13.0	25.4	25.4	10.3	23.6		14.0	27.3	
Actuated g/C Ratio	0.08	0.22	0.22	0.15	0.29	0.29	0.12	0.27		0.16	0.31	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.0	4.0	4.0	4.6		4.0	4.6	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	2.5	2.5	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	147	775	347	265	1036	463	210	1334		285	1592	
v/s Ratio Prot	0.05	c0.07		c0.18	0.04		0.09	c0.20		c0.19	c0.20	
v/s Ratio Perm			0.04			0.03						
v/c Ratio	0.66	0.34	0.18	1.21	0.13	0.11	0.77	0.72		1.19	0.62	
Uniform Delay, d1	38.6	28.6	27.5	36.9	22.6	22.4	37.1	28.6		36.4	25.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.9	0.5	0.5	124.8	0.0	0.1	14.7	2.4		114.7	1.1	
Delay (s)	46.5	29.1	28.0	161.7	22.6	22.5	51.8	31.0		151.1	26.5	
Level of Service	D	C	C	F	C	C	D	C		F	C	
Approach Delay (s)		31.3			93.1			33.8			58.1	
Approach LOS		C			F			C			E	

Intersection Summary

HCM Average Control Delay	51.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	86.8	Sum of lost time (s)	21.8
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	242	310	0	275	146	321	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97	0.91		0.95		1.00	0.95
Frt	0.95	0.85		0.95		1.00	1.00
Flt Protected	0.97	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3313	1441		3355		1770	3539
Flt Permitted	0.97	1.00		1.00		0.49	1.00
Satd. Flow (perm)	3313	1441		3355		909	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	263	337	0	299	159	349	635
RTOR Reduction (vph)	113	145	0	69	0	0	0
Lane Group Flow (vph)	298	44	0	389	0	349	635
Turn Type		Perm	Perm			Perm	
Protected Phases	8			2			6
Permitted Phases		8	2			6	
Actuated Green, G (s)	9.4	9.4		22.7		22.7	22.7
Effective Green, g (s)	9.4	9.4		22.7		22.7	22.7
Actuated g/C Ratio	0.23	0.23		0.57		0.57	0.57
Clearance Time (s)	4.0	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	777	338		1899		515	2003
v/s Ratio Prot	c0.09			0.12			0.18
v/s Ratio Perm		0.03				c0.38	
v/c Ratio	0.38	0.13		0.20		0.68	0.32
Uniform Delay, d1	12.9	12.1		4.3		6.1	4.6
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.3	0.2		0.1		3.5	0.1
Delay (s)	13.2	12.3		4.3		9.7	4.7
Level of Service	B	B		A		A	A
Approach Delay (s)	12.9			4.3			6.5
Approach LOS	B			A			A

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	40.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	146	350	0	749	180	539	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97	0.91		0.95		1.00	0.95
Frt	0.92	0.85		0.97		1.00	1.00
Flt Protected	0.98	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3245	1441		3436		1770	3539
Flt Permitted	0.98	1.00		1.00		0.27	1.00
Satd. Flow (perm)	3245	1441		3436		506	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	159	380	0	814	196	586	640
RTOR Reduction (vph)	155	172	0	11	0	0	0
Lane Group Flow (vph)	194	18	0	999	0	586	640
Turn Type		Perm	Perm			Perm	
Protected Phases	8			2			6
Permitted Phases		8	2			6	
Actuated Green, G (s)	13.6	13.6		120.1		120.1	120.1
Effective Green, g (s)	13.6	13.6		120.1		120.1	120.1
Actuated g/C Ratio	0.10	0.10		0.85		0.85	0.85
Clearance Time (s)	4.0	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	311	138		2912		429	3000
v/s Ratio Prot	c0.06			0.29			0.18
v/s Ratio Perm		0.01				c1.16	
v/c Ratio	0.62	0.13		0.34		1.37	0.21
Uniform Delay, d1	61.6	58.6		2.3		10.8	2.0
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	3.8	0.4		0.1		179.1	0.0
Delay (s)	65.4	59.1		2.4		189.9	2.0
Level of Service	E	E		A		F	A
Approach Delay (s)	63.2			2.4			91.8
Approach LOS	E			A			F

Intersection Summary

HCM Average Control Delay	53.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	141.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.2%	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)	137	158	66	281	322	240	103	503	129	259	561	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	0.94		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3383		1770	3312		1770	4930		1770	4947	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3383		1770	3312		1770	4930		1770	4947	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	172	72	305	350	261	112	547	140	282	610	135
RTOR Reduction (vph)	0	51	0	0	142	0	0	47	0	0	33	0
Lane Group Flow (vph)	149	193	0	305	469	0	112	640	0	282	712	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.9	14.1		14.3	17.5		8.4	17.8		14.3	23.7	
Effective Green, g (s)	10.9	14.1		14.3	17.5		8.4	17.8		14.3	23.7	
Actuated g/C Ratio	0.14	0.18		0.19	0.23		0.11	0.23		0.19	0.31	
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)	252	624		331	758		194	1147		331	1533	
v/s Ratio Prot	0.08	0.06		c0.17	c0.14		0.06	c0.13		c0.16	0.14	
v/s Ratio Perm												
v/c Ratio	0.59	0.31		0.92	0.62		0.58	0.56		0.85	0.46	
Uniform Delay, d1	30.7	27.0		30.5	26.5		32.4	25.9		30.1	21.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	0.3		30.1	1.5		4.1	0.6		18.6	0.2	
Delay (s)	34.4	27.3		60.6	28.0		36.5	26.5		48.7	21.5	
Level of Service	C	C		E	C		D	C		D	C	
Approach Delay (s)		30.0			38.9			27.9			29.0	
Approach LOS		C			D			C			C	

Intersection Summary

HCM Average Control Delay	31.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.5%	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)	145	469	115	241	271	252	121	680	229	649	724	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	0.93		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3435		1770	3284		1770	4893		1770	5009	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3435		1770	3284		1770	4893		1770	5009	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	510	125	262	295	274	132	739	249	705	787	87
RTOR Reduction (vph)	0	15	0	0	115	0	0	42	0	0	9	0
Lane Group Flow (vph)	158	620	0	262	454	0	132	946	0	705	865	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.3	29.0		18.0	31.7		15.1	30.7		50.0	65.6	
Effective Green, g (s)	15.3	29.0		18.0	31.7		15.1	30.7		50.0	65.6	
Actuated g/C Ratio	0.11	0.20		0.13	0.22		0.11	0.21		0.35	0.46	
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)	188	693		222	724		186	1045		616	2287	
v/s Ratio Prot	0.09	c0.18		c0.15	c0.14		0.07	c0.19		c0.40	0.17	
v/s Ratio Perm												
v/c Ratio	0.84	0.89		1.18	0.63		0.71	0.91		1.14	0.38	
Uniform Delay, d1	63.0	55.9		62.8	50.6		62.2	55.1		46.8	25.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	27.2	14.0		117.7	1.7		11.7	11.0		83.1	0.1	
Delay (s)	90.2	69.9		180.5	52.3		73.9	66.1		130.0	25.8	
Level of Service	F	E		F	D		E	E		F	C	
Approach Delay (s)		73.9			92.8			67.0			72.3	
Approach LOS		E			F			E			E	

Intersection Summary

HCM Average Control Delay	75.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	143.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	WBR2	NBL2	NBL
Right Turn Channelized												
Volume (veh/h)	18	97	90	42	23	46	21	78	58	86	46	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	105	98	46	25	50	23	85	63	93	50	61
Approach Volume (veh/h)			293					314				
Crossing Volume (veh/h)			1114					1041				
High Capacity (veh/h)			567					602				
High v/c (veh/h)			0.52					0.52				
Low Capacity (veh/h)			435					465				
Low v/c (veh/h)			0.67					0.68				

Intersection Summary

Maximum v/c High	1.01				
Maximum v/c Low	1.23				
Intersection Capacity Utilization	123.7%	ICU Level of Service		H	

Movement	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	SEL2	SEL	SET	SER
Right Turn Channelized												
Volume (veh/h)	441	67	7	11	55	434	266	209	300	47	8	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	479	73	8	12	60	472	289	227	326	51	9	112
Approach Volume (veh/h)	671					1060					502	
Crossing Volume (veh/h)	776					351					1040	
High Capacity (veh/h)	747					1051					602	
High v/c (veh/h)	0.90					1.01					0.83	
Low Capacity (veh/h)	591					859					465	
Low v/c (veh/h)	1.14					1.23					1.08	

Intersection Summary

Movement	SER2
Right Turn Channelized	
Volume (veh/h)	4
Peak Hour Factor	0.92
Hourly flow rate (vph)	4
Approach Volume (veh/h)	
Crossing Volume (veh/h)	
High Capacity (veh/h)	
High v/c (veh/h)	
Low Capacity (veh/h)	
Low v/c (veh/h)	

Intersection Summary

Movement	EBL2	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	WBR2	NBL2	NBL
Right Turn Channelized												
Volume (veh/h)	83	248	112	84	45	53	39	115	57	119	100	162
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	270	122	91	49	58	42	125	62	129	109	176
Approach Volume (veh/h)			622					416				
Crossing Volume (veh/h)			1213#					1593#				
High Capacity (veh/h)			522					380				
High v/c (veh/h)			1.19					1.10				
Low Capacity (veh/h)			397					279				
Low v/c (veh/h)			1.57					1.49				

Intersection Summary				
Maximum v/c High	1.70			
Maximum v/c Low	2.18			
Intersection Capacity Utilization	Err%	ICU Level of Service	H	

Crossing flow exceeds 1200, method is not applicable

Movement	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	SEL2	SEL	SET	SER
Right Turn Channelized												
Volume (veh/h)	656	60	15	10	63	559	253	311	217	22	3	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	713	65	16	11	68	608	275	338	236	24	3	163
Approach Volume (veh/h)	1079					1300					601	
Crossing Volume (veh/h)	973					662					1296#	
High Capacity (veh/h)	637					820					487	
High v/c (veh/h)	1.70					1.59					1.23	
Low Capacity (veh/h)	495					654					368	
Low v/c (veh/h)	2.18					1.99					1.63	

Intersection Summary

Movement	SER2
Right Turn Channelized	
Volume (veh/h)	161
Peak Hour Factor	0.92
Hourly flow rate (vph)	175
Approach Volume (veh/h)	
Crossing Volume (veh/h)	
High Capacity (veh/h)	
High v/c (veh/h)	
Low Capacity (veh/h)	
Low v/c (veh/h)	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	939	11	19	526	23	7	8	3	20	15	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.96		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5076		1770	5053		1770	1793		1770	1701	
Flt Permitted	0.42	1.00		0.28	1.00		1.00	1.00		1.00	1.00	
Satd. Flow (perm)	774	5076		528	5053		1863	1793		1863	1701	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	1021	12	21	572	25	8	9	3	22	16	22
RTOR Reduction (vph)	0	2	0	0	7	0	0	3	0	0	20	0
Lane Group Flow (vph)	36	1031	0	21	590	0	8	9	0	22	18	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.1	14.1		14.1	14.1		1.8	1.8		1.8	1.8	
Effective Green, g (s)	14.1	14.1		14.1	14.1		1.8	1.8		1.8	1.8	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.08	0.08		0.08	0.08	
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)	457	2995		311	2981		140	135		140	128	
v/s Ratio Prot		c0.20			0.12			0.01			0.01	
v/s Ratio Perm	0.05			0.04			0.00			c0.01		
v/c Ratio	0.08	0.34		0.07	0.20		0.06	0.07		0.16	0.14	
Uniform Delay, d1	2.1	2.5		2.1	2.3		10.3	10.3		10.3	10.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.1	0.0		0.2	0.2		0.5	0.5	
Delay (s)	2.2	2.6		2.2	2.3		10.4	10.5		10.9	10.8	
Level of Service	A	A		A	A		B	B		B	B	
Approach Delay (s)		2.6			2.3			10.5			10.8	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	2.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	23.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.5%	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 (vph)	62	915	239	200	1236	24	99	619	211	15	550	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4927		1770	5071		1770	1792		1770	1848	
Flt Permitted	0.22	1.00		0.22	1.00		0.21	1.00		0.21	1.00	
Satd. Flow (perm)	414	4927		414	5071		392	1792		392	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	995	260	217	1343	26	108	673	229	16	598	33
RTOR Reduction (vph)	0	102	0	0	4	0	0	22	0	0	5	0
Lane Group Flow (vph)	67	1153	0	217	1365	0	108	880	0	16	626	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		19.0	19.0		19.0	19.0	
Effective Green, g (s)	18.0	18.0		18.0	18.0		19.0	19.0		19.0	19.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.42	0.42		0.42	0.42	
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)	166	1971		166	2028		166	757		166	780	
v/s Ratio Prot		0.23			0.27			c0.49			0.34	
v/s Ratio Perm	0.16			c0.52			0.28			0.04		
v/c Ratio	0.40	0.58		1.31	0.67		0.65	1.16		0.10	0.80	
Uniform Delay, d1	9.7	10.6		13.5	11.1		10.4	13.0		7.8	11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.4		174.8	0.9		8.8	87.4		0.3	6.0	
Delay (s)	11.3	11.0		188.3	12.0		19.2	100.4		8.1	17.4	
Level of Service	B	B		F	B		B	F		A	B	
Approach Delay (s)		11.0			36.1			91.7			17.1	
Approach LOS		B			D			F			B	

Intersection Summary

HCM Average Control Delay	38.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
29: Hayden Ct & Union Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	0	2	141	0	53	11	1883	104	284	1628	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.85		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1794		1681	1905	1583	1770	5045		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1794		1681	1905	1583	1770	5045		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	0	2	153	0	58	12	2047	113	309	1770	82
RTOR Reduction (vph)	0	2	0	0	0	52	0	4	0	0	0	10
Lane Group Flow (vph)	32	0	0	76	77	6	12	2156	0	309	1770	72
Turn Type	Split			Split		Perm	Prot			Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	6.3	6.3		13.1	13.1	13.1	1.2	59.6		22.5	80.9	80.9
Effective Green, g (s)	6.3	6.3		13.1	13.1	13.1	1.2	59.6		22.5	80.9	80.9
Actuated g/C Ratio	0.05	0.05		0.11	0.11	0.11	0.01	0.51		0.19	0.69	0.69
Clearance Time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Vehicle Extension (s)	5.5	5.5		5.5	5.5	5.5	2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	95	96		187	211	176	18	2548		338	3486	1085
v/s Ratio Prot	c0.02	0.00		c0.05	0.04		0.01	c0.43		c0.17	0.35	
v/s Ratio Perm						0.00						0.05
v/c Ratio	0.34	0.00		0.41	0.36	0.04	0.67	0.85		0.91	0.51	0.07
Uniform Delay, d1	53.8	52.9		48.8	48.6	46.8	58.2	25.2		46.8	8.9	6.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.1	0.0		3.5	2.6	0.2	54.1	3.1		27.7	0.3	0.1
Delay (s)	58.9	52.9		52.3	51.2	47.0	112.3	28.3		74.5	9.2	6.2
Level of Service	E	D		D	D	D	F	C		E	A	A
Approach Delay (s)		58.6			50.5			28.8			18.4	
Approach LOS		E			D			C			B	

Intersection Summary

HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
29: Hayden Ct & Union Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	7	29	225	11	241	52	2072	10	93	2293	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.88		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1858		1681	1918	1583	1770	5082		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1858		1681	1918	1583	1770	5082		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	8	32	245	12	262	57	2252	11	101	2492	84
RTOR Reduction (vph)	0	28	0	0	0	164	0	0	0	0	0	12
Lane Group Flow (vph)	118	12	0	127	130	98	57	2263	0	101	2492	72
Turn Type	Split			Split		Perm	Prot			Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	15.1	15.1		17.3	17.3	17.3	6.2	61.3		8.3	63.4	63.4
Effective Green, g (s)	15.1	15.1		17.3	17.3	17.3	6.2	61.3		8.3	63.4	63.4
Actuated g/C Ratio	0.13	0.13		0.15	0.15	0.15	0.05	0.52		0.07	0.54	0.54
Clearance Time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Vehicle Extension (s)	5.5	5.5		5.5	5.5	5.5	2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	226	237		245	280	231	93	2629		124	2721	847
v/s Ratio Prot	c0.07	0.01		c0.08	0.07		0.03	0.45		c0.06	c0.49	
v/s Ratio Perm						0.06						0.05
v/c Ratio	0.52	0.05		0.52	0.46	0.42	0.61	0.86		0.81	0.92	0.08
Uniform Delay, d1	48.3	45.4		46.8	46.4	46.1	55.0	24.9		54.3	25.1	13.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	0.2		4.2	3.0	3.1	8.1	3.4		30.7	5.7	0.1
Delay (s)	53.1	45.6		51.0	49.3	49.1	63.1	28.3		85.0	30.9	13.5
Level of Service	D	D		D	D	D	E	C		F	C	B
Approach Delay (s)		51.2			49.6			29.2			32.4	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	33.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	11.6
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

BAKERSFIELD HYBRID ALTERNATIVE FUTURE PLUS PROJECT CONDITIONS

HCM Signalized Intersection Capacity Analysis
23: California Ave & Union Ave

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	280	61	295	344	181	130	1816	178	184	1413	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4949		3433	4822		1770	5017		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4949		3433	4822		1770	5017		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	304	66	321	374	197	141	1974	193	200	1536	264
RTOR Reduction (vph)	0	38	0	0	109	0	0	12	0	0	0	127
Lane Group Flow (vph)	212	332	0	321	462	0	141	2155	0	200	1536	137
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	6.8	14.9		8.8	16.9		9.5	36.2		10.3	37.0	37.0
Effective Green, g (s)	6.8	14.9		8.8	16.9		9.5	36.2		10.3	37.0	37.0
Actuated g/C Ratio	0.08	0.17		0.10	0.19		0.11	0.41		0.12	0.42	0.42
Clearance Time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Vehicle Extension (s)	2.0	5.2		2.0	5.2		2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	266	839		344	927		191	2066		207	2140	666
v/s Ratio Prot	0.06	0.07		c0.09	c0.10		0.08	c0.43		c0.11	0.30	
v/s Ratio Perm												0.09
v/c Ratio	0.80	0.40		0.93	0.50		0.74	1.04		0.97	0.72	0.21
Uniform Delay, d1	39.9	32.5		39.3	31.7		38.0	25.9		38.6	21.1	16.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.2	0.7		31.3	0.9		12.1	32.1		52.1	1.5	0.3
Delay (s)	54.1	33.2		70.5	32.7		50.0	57.9		90.7	22.6	16.5
Level of Service	D	C		E	C		D	E		F	C	B
Approach Delay (s)		40.8			46.3			57.4			28.6	
Approach LOS		D			D			E			C	

Intersection Summary

HCM Average Control Delay	44.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	87.9	Sum of lost time (s)	13.3
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
23: California Ave & Union Ave

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	374	640	208	479	421	165	131	1684	257	300	1991	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4898		3433	4871		1770	4984		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4898		3433	4871		1770	4984		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	696	226	521	458	179	142	1830	279	326	2164	332
RTOR Reduction (vph)	0	48	0	0	59	0	0	17	0	0	0	88
Lane Group Flow (vph)	407	874	0	521	578	0	142	2092	0	326	2164	244
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	16.3	19.8		16.8	20.3		11.0	46.4		19.3	54.7	54.7
Effective Green, g (s)	16.3	19.8		16.8	20.3		11.0	46.4		19.3	54.7	54.7
Actuated g/C Ratio	0.14	0.17		0.14	0.17		0.09	0.39		0.16	0.46	0.46
Clearance Time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Vehicle Extension (s)	2.0	5.2		2.0	5.2		2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	466	808		481	824		162	1927		285	2318	722
v/s Ratio Prot	0.12	c0.18		c0.15	0.12		0.08	c0.42		c0.18	0.43	
v/s Ratio Perm												0.15
v/c Ratio	0.87	1.08		1.08	0.70		0.88	1.09		1.14	0.93	0.34
Uniform Delay, d1	50.8	50.1		51.6	47.0		53.8	36.8		50.4	30.9	21.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	15.9	55.9		65.3	3.5		36.5	48.0		97.9	8.0	0.6
Delay (s)	66.8	106.0		116.9	50.5		90.3	84.8		148.3	39.0	21.6
Level of Service	E	F		F	D		F	F		F	D	C
Approach Delay (s)		94.0			80.4			85.1			49.6	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM Average Control Delay	72.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.7
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	0	9	200	0	87	26	1883	244	362	1628	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.85		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1794		1681	1905	1583	1770	4998		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1794		1681	1905	1583	1770	4998		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	0	10	217	0	95	28	2047	265	393	1770	16
RTOR Reduction (vph)	0	10	0	0	0	83	0	10	0	0	0	2
Lane Group Flow (vph)	4	0	0	108	109	12	28	2302	0	393	1770	14
Turn Type	Split			Split		Perm	Prot			Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	3.2	3.2		15.1	15.1	15.1	4.1	58.2		22.5	76.6	76.6
Effective Green, g (s)	3.2	3.2		15.1	15.1	15.1	4.1	58.2		22.5	76.6	76.6
Actuated g/C Ratio	0.03	0.03		0.13	0.13	0.13	0.04	0.50		0.19	0.66	0.66
Clearance Time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Vehicle Extension (s)	5.5	5.5		5.5	5.5	5.5	2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	49	50		220	249	207	63	2518		345	3372	1050
v/s Ratio Prot	c0.00	0.00		c0.06	0.06		0.02	c0.46		c0.22	0.35	
v/s Ratio Perm						0.01						0.01
v/c Ratio	0.08	0.01		0.49	0.44	0.06	0.44	0.91		1.14	0.52	0.01
Uniform Delay, d1	54.7	54.6		46.6	46.3	44.0	54.6	26.3		46.5	10.0	6.6
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	1.8	0.1		4.2	3.0	0.3	1.8	6.0		91.8	0.3	0.0
Delay (s)	56.5	54.7		50.8	49.3	44.3	56.4	32.4		138.3	10.3	6.6
Level of Service	E	D		D	D	D	E	C		F	B	A
Approach Delay (s)		55.2			48.3			32.7			33.4	
Approach LOS		E			D			C			C	

Intersection Summary

HCM Average Control Delay	34.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	115.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	7	44	365	11	319	59	2072	69	127	2293	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1840		1681	1915	1583	1770	5061		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1840		1681	1915	1583	1770	5061		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	8	48	397	12	347	64	2252	75	138	2492	57
RTOR Reduction (vph)	0	44	0	0	0	212	0	2	0	0	0	8
Lane Group Flow (vph)	53	12	0	202	207	135	64	2325	0	138	2492	49
Turn Type	Split			Split		Perm	Prot			Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	9.4	9.4		19.9	19.9	19.9	6.2	61.4		8.4	63.6	63.6
Effective Green, g (s)	9.4	9.4		19.9	19.9	19.9	6.2	61.4		8.4	63.6	63.6
Actuated g/C Ratio	0.08	0.08		0.17	0.17	0.17	0.05	0.53		0.07	0.55	0.55
Clearance Time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Vehicle Extension (s)	5.5	5.5		5.5	5.5	5.5	2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	144	150		289	330	273	95	2688		129	2798	871
v/s Ratio Prot	c0.03	0.01		c0.12	0.11		0.04	0.46		c0.08	c0.49	
v/s Ratio Perm						0.09						0.03
v/c Ratio	0.37	0.08		0.70	0.63	0.49	0.67	0.86		1.07	0.89	0.06
Uniform Delay, d1	50.3	49.1		45.0	44.4	43.3	53.7	23.5		53.6	22.9	12.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.9	0.6		9.8	5.7	3.4	13.8	3.5		99.1	4.3	0.1
Delay (s)	54.2	49.7		54.8	50.1	46.7	67.5	27.0		152.7	27.2	12.1
Level of Service	D	D		D	D	D	E	C		F	C	B
Approach Delay (s)		51.8			49.8			28.1			33.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	115.6	Sum of lost time (s)	11.6
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	16	30	53	34	39	54	1736	54	86	1981	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		3.7	4.9		3.7	4.9	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frt		0.95			0.96		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1733			1749		1770	5062		1770	5068	
Flt Permitted		0.78			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1388			1532		1770	5062		1770	5068	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	17	33	58	37	42	59	1887	59	93	2153	49
RTOR Reduction (vph)	0	28	0	0	24	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	64	0	0	113	0	59	1943	0	93	2200	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		9.8			9.8		3.8	40.5		6.3	43.0	
Effective Green, g (s)		9.8			9.8		3.8	40.5		6.3	43.0	
Actuated g/C Ratio		0.14			0.14		0.05	0.58		0.09	0.62	
Clearance Time (s)		4.6			4.6		3.7	4.9		3.7	4.9	
Vehicle Extension (s)		1.8			1.8		2.0	3.8		2.0	3.7	
Lane Grp Cap (vph)		195			215		96	2937		160	3122	
v/s Ratio Prot							0.03	0.38		c0.05	c0.43	
v/s Ratio Perm		0.05			c0.07							
v/c Ratio		0.33			0.53		0.61	0.66		0.58	0.70	
Uniform Delay, d1		27.0			27.8		32.3	10.0		30.5	9.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			1.1		7.9	0.6		3.4	0.8	
Delay (s)		27.4			28.9		40.2	10.6		33.9	9.9	
Level of Service		C			C		D	B		C	A	
Approach Delay (s)		27.4			28.9			11.5			10.8	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	8.3
Intersection Capacity Utilization	64.3%	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)	78	53	79	96	38	71	71	2511	64	111	2206	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		3.7	4.9		3.7	4.9	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frt		0.95			0.95		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1736			1735		1770	5066		1770	5063	
Flt Permitted		0.74			0.65		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1316			1149		1770	5066		1770	5063	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	58	86	104	41	77	77	2729	70	121	2398	71
RTOR Reduction (vph)	0	20	0	0	18	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	209	0	0	204	0	77	2797	0	121	2467	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		21.7			21.7		6.7	65.0		9.6	67.9	
Effective Green, g (s)		21.7			21.7		6.7	65.0		9.6	67.9	
Actuated g/C Ratio		0.20			0.20		0.06	0.59		0.09	0.62	
Clearance Time (s)		4.6			4.6		3.7	4.9		3.7	4.9	
Vehicle Extension (s)		1.8			1.8		2.0	3.8		2.0	3.7	
Lane Grp Cap (vph)		261			228		108	3007		155	3140	
v/s Ratio Prot							0.04	c0.55		c0.07	c0.49	
v/s Ratio Perm		0.16			c0.18							
v/c Ratio		0.80			0.90		0.71	0.93		0.78	0.79	
Uniform Delay, d1		41.8			42.8		50.5	20.2		48.9	15.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		15.2			32.3		16.8	6.0		20.5	1.4	
Delay (s)		57.0			75.1		67.3	26.2		69.4	16.8	
Level of Service		E			E		E	C		E	B	
Approach Delay (s)		57.0			75.1			27.3			19.3	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	18.1
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	13	14	66	15	42	35	1768	55	94	1943	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		3.7	4.9		3.7	4.9	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frt		0.96			0.95		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1730		1770	5062		1770	5071	
Flt Permitted		0.84			0.80		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1509			1427		1770	5062		1770	5071	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	14	15	72	16	46	38	1922	60	102	2112	41
RTOR Reduction (vph)	0	13	0	0	28	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	40	0	0	106	0	38	1980	0	102	2152	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		10.1			10.1		2.5	43.2		6.7	47.4	
Effective Green, g (s)		10.1			10.1		2.5	43.2		6.7	47.4	
Actuated g/C Ratio		0.14			0.14		0.03	0.59		0.09	0.65	
Clearance Time (s)		4.6			4.6		3.7	4.9		3.7	4.9	
Vehicle Extension (s)		1.8			2.2		2.0	3.4		2.0	4.2	
Lane Grp Cap (vph)		208			197		60	2987		162	3284	
v/s Ratio Prot							0.02	0.39		c0.06	c0.42	
v/s Ratio Perm		0.03			c0.07							
v/c Ratio		0.19			0.54		0.63	0.66		0.63	0.66	
Uniform Delay, d1		27.9			29.4		34.9	10.1		32.1	7.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			1.9		14.9	0.6		5.4	0.6	
Delay (s)		28.1			31.3		49.8	10.7		37.5	8.4	
Level of Service		C			C		D	B		D	A	
Approach Delay (s)		28.1			31.3			11.4			9.8	
Approach LOS		C			C			B			A	

Intersection Summary

HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	8.3
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	28	32	53	9	30	51	2540	31	51	2328	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		3.7	4.9		3.7	4.9	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frt		0.97			0.96		1.00	1.00		1.00	1.00	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1756			1731		1770	5076		1770	5073	
Flt Permitted		0.77			0.74		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1392			1310		1770	5076		1770	5073	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	30	35	58	10	33	55	2761	34	55	2530	42
RTOR Reduction (vph)	0	11	0	0	19	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	151	0	0	82	0	55	2794	0	55	2571	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		13.9			13.9		4.9	60.2		4.9	60.2	
Effective Green, g (s)		13.9			13.9		4.9	60.2		4.9	60.2	
Actuated g/C Ratio		0.15			0.15		0.05	0.65		0.05	0.65	
Clearance Time (s)		4.6			4.6		3.7	4.9		3.7	4.9	
Vehicle Extension (s)		1.8			2.2		2.0	3.4		2.0	4.2	
Lane Grp Cap (vph)		210			197		94	3314		94	3312	
v/s Ratio Prot							c0.03	c0.55		0.03	0.51	
v/s Ratio Perm		c0.11			0.06							
v/c Ratio		0.72			0.42		0.59	0.84		0.59	0.78	
Uniform Delay, d1		37.3			35.5		42.7	12.4		42.7	11.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.4			0.7		5.9	2.2		5.9	1.3	
Delay (s)		46.7			36.2		48.5	14.5		48.5	12.6	
Level of Service		D			D		D	B		D	B	
Approach Delay (s)		46.7			36.2			15.2			13.3	
Approach LOS		D			D			B			B	

Intersection Summary

HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	13.2
Intersection Capacity Utilization	67.9%	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 (veh/h)	64	361	48	79	912	18	0	0	34	0	0	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	392	52	86	991	20	0	0	37	0	0	39
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	1011			445			1264	1740	222	1545	1757	505
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1011			445			1264	1740	222	1545	1757	505
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			92			100	100	95	100	100	92
cM capacity (veh/h)	681			1112			101	71	781	64	70	512

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	70	262	183	86	661	350	37	39
Volume Left	70	0	0	86	0	0	0	0
Volume Right	0	0	52	0	0	20	37	39
cSH	681	1700	1700	1112	1700	1700	781	512
Volume to Capacity	0.10	0.15	0.11	0.08	0.39	0.21	0.05	0.08
Queue Length 95th (ft)	8	0	0	6	0	0	4	6
Control Delay (s)	10.9	0.0	0.0	8.5	0.0	0.0	9.8	12.6
Lane LOS	B			A			A	B
Approach Delay (s)	1.5			0.7			9.8	12.6
Approach LOS							A	B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	36.0%	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)	112	897	162	73	742	11	0	0	128	0	0	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	122	975	176	79	807	12	0	0	139	0	0	26
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	818			1151			1895	2284	576	1841	2366	409
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	818			1151			1895	2284	576	1841	2366	409
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			87			100	100	70	100	100	96
cM capacity (veh/h)	806			603			32	29	461	26	26	591

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	122	650	501	79	538	281	139	26
Volume Left	122	0	0	79	0	0	0	0
Volume Right	0	0	176	0	0	12	139	26
cSH	806	1700	1700	603	1700	1700	461	591
Volume to Capacity	0.15	0.38	0.29	0.13	0.32	0.17	0.30	0.04
Queue Length 95th (ft)	13	0	0	11	0	0	31	3
Control Delay (s)	10.3	0.0	0.0	11.9	0.0	0.0	16.2	11.4
Lane LOS	B			B			C	B
Approach Delay (s)	1.0			1.0			16.2	11.4
Approach LOS							C	B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	433	35	51	1207	9	16	1	6	10	9	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	471	38	55	1312	10	17	1	7	11	10	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1007							
pX, platoon unblocked	0.73						0.73	0.73		0.73	0.73	0.73
vC, conflicting volume	1322			509			1474	2085	176	1755	2099	661
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	714			509			922	1754	176	1304	1773	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	87			95			85	98	99	85	80	94
cM capacity (veh/h)	648			1053			115	51	837	73	50	796

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	82	188	188	132	55	875	447	25	71
Volume Left	82	0	0	0	55	0	0	17	11
Volume Right	0	0	0	38	0	0	10	7	50
cSH	648	1700	1700	1700	1053	1700	1700	138	174
Volume to Capacity	0.13	0.11	0.11	0.08	0.05	0.51	0.26	0.18	0.41
Queue Length 95th (ft)	11	0	0	0	4	0	0	16	45
Control Delay (s)	11.4	0.0	0.0	0.0	8.6	0.0	0.0	36.7	39.3
Lane LOS	B				A			E	E
Approach Delay (s)	1.6				0.3			36.7	39.3
Approach LOS								E	E

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	910	8	55	505	25	28	7	140	26	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	989	9	60	549	27	30	8	152	28	7	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					994							
pX, platoon unblocked												
vC, conflicting volume	576			998			1428	1720	334	1198	1710	288
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	576			998			1428	1720	334	1198	1710	288
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			91			63	90	77	70	92	99
cM capacity (veh/h)	993			689			82	80	662	93	81	709

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	15	396	396	207	60	366	210	190	41
Volume Left	15	0	0	0	60	0	0	30	28
Volume Right	0	0	0	9	0	0	27	152	7
cSH	993	1700	1700	1700	689	1700	1700	273	105
Volume to Capacity	0.02	0.23	0.23	0.12	0.09	0.22	0.12	0.70	0.39
Queue Length 95th (ft)	1	0	0	0	7	0	0	118	40
Control Delay (s)	8.7	0.0	0.0	0.0	10.7	0.0	0.0	43.7	60.0
Lane LOS	A				B			E	F
Approach Delay (s)	0.1				1.0			43.7	60.0
Approach LOS								E	F

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	4	97	292	27	89	1095	56	8	29	3	170	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.9		4.0	4.9	4.9			4.0	4.6	
Lane Util. Factor		1.00	0.91		1.00	0.95	1.00			1.00	1.00	
Frt		1.00	0.99		1.00	1.00	0.85			1.00	0.98	
Flt Protected		0.95	1.00		0.95	1.00	1.00			0.95	1.00	
Satd. Flow (prot)		1770	5021		1770	3539	1583			1770	1832	
Flt Permitted		0.95	1.00		0.95	1.00	1.00			0.95	1.00	
Satd. Flow (perm)		1770	5021		1770	3539	1583			1770	1832	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	105	317	29	97	1190	61	9	32	3	185	23
RTOR Reduction (vph)	0	0	9	0	0	0	5	0	0	0	6	0
Lane Group Flow (vph)	0	109	337	0	97	1190	65	0	0	35	202	0
Turn Type	Prot	Prot			Prot		Perm		Prot	Prot		
Protected Phases	5	5	2		1	6			3	3	8	
Permitted Phases							6					
Actuated Green, G (s)		6.1	29.4		5.9	29.2	29.2			2.1	13.3	
Effective Green, g (s)		6.1	29.4		5.9	29.2	29.2			2.1	13.3	
Actuated g/C Ratio		0.09	0.44		0.09	0.43	0.43			0.03	0.20	
Clearance Time (s)		4.0	4.9		4.0	4.9	4.9			4.0	4.6	
Vehicle Extension (s)		1.0	2.0		1.0	2.0	2.0			1.0	2.0	
Lane Grp Cap (vph)		160	2190		155	1533	686			55	362	
v/s Ratio Prot		c0.06	0.07		0.05	c0.34				c0.02	c0.11	
v/s Ratio Perm							0.04					
v/c Ratio		0.68	0.15		0.63	0.78	0.09			0.64	0.56	
Uniform Delay, d1		29.7	11.5		29.7	16.3	11.3			32.3	24.4	
Progression Factor		1.00	1.00		1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2		9.1	0.0		5.6	2.3	0.0			16.3	1.1	
Delay (s)		38.8	11.5		35.2	18.6	11.3			48.6	25.4	
Level of Service		D	B		D	B	B			D	C	
Approach Delay (s)			18.0			19.4					28.8	
Approach LOS			B			B					C	

Intersection Summary

HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	67.4	Sum of lost time (s)	12.9
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	10	184	128	8
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.6	
Lane Util. Factor	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1863	1583	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1863	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	200	139	9
RTOR Reduction (vph)	0	0	3	0
Lane Group Flow (vph)	11	200	145	0
Turn Type	Prot		Perm	
Protected Phases	7	4		
Permitted Phases			4	
Actuated Green, G (s)	0.7	12.5	12.5	
Effective Green, g (s)	0.7	12.5	12.5	
Actuated g/C Ratio	0.01	0.19	0.19	
Clearance Time (s)	4.6	4.6	4.6	
Vehicle Extension (s)	2.0	2.0	2.0	
Lane Grp Cap (vph)	18	346	294	
v/s Ratio Prot	0.01	0.11		
v/s Ratio Perm			0.09	
v/c Ratio	0.61	0.58	0.49	
Uniform Delay, d1	33.2	25.0	24.6	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	36.2	1.5	0.5	
Delay (s)	69.4	26.5	25.1	
Level of Service	E	C	C	
Approach Delay (s)		27.2		
Approach LOS		C		

Intersection Summary

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	12	213	948	32	142	536	54	4	25	11	295	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.9		4.0	4.9	4.9			4.0	4.6	
Lane Util. Factor		1.00	0.91		1.00	0.95	1.00			1.00	1.00	
Frt		1.00	1.00		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	
Satd. Flow (prot)		1770	5060		1770	3539	1583			1770	1792	
Flt Permitted		0.95	1.00		0.95	1.00	1.00			0.95	1.00	
Satd. Flow (perm)		1770	5060		1770	3539	1583			1770	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	232	1030	35	154	583	59	4	27	12	321	109
RTOR Reduction (vph)	0	0	4	0	0	0	3	0	0	0	17	0
Lane Group Flow (vph)	0	245	1061	0	154	583	60	0	0	39	413	0
Turn Type	Prot	Prot			Prot		Perm		Prot	Prot		
Protected Phases	5	5	2		1	6			3	3	8	
Permitted Phases							6					
Actuated Green, G (s)		8.3	20.2		7.2	19.1	19.1			3.2	21.4	
Effective Green, g (s)		8.3	20.2		7.2	19.1	19.1			3.2	21.4	
Actuated g/C Ratio		0.12	0.30		0.11	0.28	0.28			0.05	0.31	
Clearance Time (s)		4.0	4.9		4.0	4.9	4.9			4.0	4.6	
Vehicle Extension (s)		1.0	2.0		1.0	2.0	2.0			1.0	2.0	
Lane Grp Cap (vph)		215	1497		187	990	443			83	561	
v/s Ratio Prot		c0.14	c0.21		0.09	0.16				c0.02	c0.23	
v/s Ratio Perm							0.04					
v/c Ratio		1.14	0.71		0.82	0.59	0.14			0.47	0.74	
Uniform Delay, d1		30.0	21.4		29.9	21.2	18.4			31.7	20.9	
Progression Factor		1.00	1.00		1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2		104.1	1.3		23.4	0.6	0.1			1.5	4.3	
Delay (s)		134.1	22.7		53.4	21.8	18.5			33.3	25.2	
Level of Service		F	C		D	C	B			C	C	
Approach Delay (s)			43.5			27.6					25.9	
Approach LOS			D			C					C	

Intersection Summary

HCM Average Control Delay	35.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	34	377	114	2
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.6	
Lane Util. Factor	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1863	1583	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1863	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	410	124	2
RTOR Reduction (vph)	0	0	1	0
Lane Group Flow (vph)	37	410	125	0
Turn Type	Prot		Perm	
Protected Phases	7	4		
Permitted Phases			4	
Actuated Green, G (s)	1.4	20.2	20.2	
Effective Green, g (s)	1.4	20.2	20.2	
Actuated g/C Ratio	0.02	0.30	0.30	
Clearance Time (s)	4.6	4.6	4.6	
Vehicle Extension (s)	2.0	2.0	2.0	
Lane Grp Cap (vph)	36	551	468	
v/s Ratio Prot	0.02	0.22		
v/s Ratio Perm			0.08	
v/c Ratio	1.03	0.74	0.27	
Uniform Delay, d1	33.4	21.7	18.4	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	158.4	4.7	0.1	
Delay (s)	191.9	26.5	18.5	
Level of Service	F	C	B	
Approach Delay (s)		35.4		
Approach LOS		D		

Intersection Summary

FRESNO HEAVY MAINTENANCE
FUTURE PLUS PROJECT CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	123	13	66	227	46	31	160	29	33	182	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	134	14	72	247	50	34	174	32	36	198	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	148	368	239	234
Volume Left (vph)	0	72	34	36
Volume Right (vph)	14	50	32	0
Hadj (s)	-0.02	-0.01	-0.02	0.06
Departure Headway (s)	6.0	5.6	5.9	6.0
Degree Utilization, x	0.25	0.57	0.39	0.39
Capacity (veh/h)	525	606	554	549
Control Delay (s)	11.0	15.8	12.6	12.7
Approach Delay (s)	11.0	15.8	12.6	12.7
Approach LOS	B	C	B	B

Intersection Summary			
Delay	13.6		
HCM Level of Service	B		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	92	235	56	106	370	93	25	222	39	36	268	95
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	255	61	115	402	101	27	241	42	39	291	103

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	416	618	311	434
Volume Left (vph)	100	115	27	39
Volume Right (vph)	61	101	42	103
Hadj (s)	-0.01	-0.03	-0.03	-0.09
Departure Headway (s)	9.1	9.1	9.5	9.0
Degree Utilization, x	1.05	1.56	0.82	1.09
Capacity (veh/h)	401	400	373	394
Control Delay (s)	90.8	287.5	44.3	100.7
Approach Delay (s)	90.8	287.5	44.3	100.7
Approach LOS	F	F	E	F

Intersection Summary			
Delay	153.5		
HCM Level of Service	F		
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Volume (veh/h)	0	454	389	0	432	178
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	493	423	0	470	193
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	423				916	423
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	423				916	423
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				0	69
cM capacity (veh/h)	1136				302	631

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	493	423	663
Volume Left	0	0	470
Volume Right	0	0	193
cSH	1700	1700	356
Volume to Capacity	0.29	0.25	1.86
Queue Length 95th (ft)	0	0	1099
Control Delay (s)	0.0	0.0	422.9
Lane LOS			F
Approach Delay (s)	0.0	0.0	422.9
Approach LOS			F

Intersection Summary			
Average Delay	177.6		
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Volume (veh/h)	0	534	443	0	317	177
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	580	482	0	345	192
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	482				1062	482
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	482				1062	482
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				0	67
cM capacity (veh/h)	1081				247	585

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	580	482	537
Volume Left	0	0	345
Volume Right	0	0	192
cSH	1700	1700	312
Volume to Capacity	0.34	0.28	1.72
Queue Length 95th (ft)	0	0	851
Control Delay (s)	0.0	0.0	366.6
Lane LOS			F
Approach Delay (s)	0.0	0.0	366.6
Approach LOS			F

Intersection Summary			
Average Delay	123.1		
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	75	730	385	309	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	793	418	336	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	418				1543	586
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	418				1543	586
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				100	100
cM capacity (veh/h)	1141				117	510

Direction, Lane #	EB 1	WB 1
Volume Total	875	754
Volume Left	82	0
Volume Right	0	336
cSH	1141	1700
Volume to Capacity	0.07	0.44
Queue Length 95th (ft)	6	0
Control Delay (s)	1.8	0.0
Lane LOS	A	
Approach Delay (s)	1.8	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	180	633	384	618	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	688	417	672	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	417				1833	753
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	417				1833	753
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	83				100	100
cM capacity (veh/h)	1142				69	410

Direction, Lane #	EB 1	WB 1
Volume Total	884	1089
Volume Left	196	0
Volume Right	0	672
cSH	1142	1700
Volume to Capacity	0.17	0.64
Queue Length 95th (ft)	15	0
Control Delay (s)	3.9	0.0
Lane LOS	A	
Approach Delay (s)	3.9	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	108.0%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	330	0	0	755	156	628
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	359	0	0	821	170	683
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			359		1179	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			359		1179	359
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		19	0
cM capacity (veh/h)			1200		210	686

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	359	821	852
Volume Left	0	0	170
Volume Right	0	0	683
cSH	1700	1700	473
Volume to Capacity	0.21	0.48	1.80
Queue Length 95th (ft)	0	0	1334
Control Delay (s)	0.0	0.0	389.6
Lane LOS			F
Approach Delay (s)	0.0	0.0	389.6
Approach LOS			F

Intersection Summary			
Average Delay	163.4		
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑	↰	
Volume (veh/h)	516	0	0	924	32	497
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	561	0	0	1004	35	540
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			561		1565	561
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			561		1565	561
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		72	0
cM capacity (veh/h)			1010		123	527

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	561	1004	575
Volume Left	0	0	35
Volume Right	0	0	540
cSH	1700	1700	439
Volume to Capacity	0.33	0.59	1.31
Queue Length 95th (ft)	0	0	636
Control Delay (s)	0.0	0.0	180.8
Lane LOS			F
Approach Delay (s)	0.0	0.0	180.8
Approach LOS			F

Intersection Summary			
Average Delay	48.6		
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	345	27	361	340
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	375	29	392	370
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	1544	390			404	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1544	390			404	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			66	
cM capacity (veh/h)	83	659			1154	

Direction, Lane #	NB 1	SB 1
Volume Total	404	762
Volume Left	0	392
Volume Right	29	0
cSH	1700	1154
Volume to Capacity	0.24	0.34
Queue Length 95th (ft)	0	38
Control Delay (s)	0.0	7.1
Lane LOS		A
Approach Delay (s)	0.0	7.1
Approach LOS		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	492	65	577	299
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	535	71	627	325
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	2149	570			605	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2149	570			605	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			36	
cM capacity (veh/h)	19	521			973	

Direction, Lane #	NB 1	SB 1
Volume Total	605	952
Volume Left	0	627
Volume Right	71	0
cSH	1700	973
Volume to Capacity	0.36	0.64
Queue Length 95th (ft)	0	122
Control Delay (s)	0.0	14.1
Lane LOS		B
Approach Delay (s)	0.0	14.1
Approach LOS		

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Volume (veh/h)	0	331	464	0	108	198
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	360	504	0	117	215
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	504				864	504
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	504				864	504
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				64	62
cM capacity (veh/h)	1060				325	568

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	360	504	117	215
Volume Left	0	0	117	0
Volume Right	0	0	0	215
cSH	1700	1700	325	568
Volume to Capacity	0.21	0.30	0.36	0.38
Queue Length 95th (ft)	0	0	40	44
Control Delay (s)	0.0	0.0	22.2	15.2
Lane LOS			C	C
Approach Delay (s)	0.0	0.0	17.7	
Approach LOS			C	

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Volume (veh/h)	0	572	552	0	325	77
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	622	600	0	353	84
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	600				1222	600
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	600				1222	600
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				0	83
cM capacity (veh/h)	977				198	501

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	622	600	353	84
Volume Left	0	0	353	0
Volume Right	0	0	0	84
cSH	1700	1700	198	501
Volume to Capacity	0.37	0.35	1.78	0.17
Queue Length 95th (ft)	0	0	618	15
Control Delay (s)	0.0	0.0	411.8	13.6
Lane LOS			F	B
Approach Delay (s)	0.0	0.0	335.5	
Approach LOS			F	

Intersection Summary			
Average Delay	88.4		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	79	361	465	140	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	86	392	505	152	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	505				1146	582
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	505				1146	582
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	100
cM capacity (veh/h)	1059				203	513

Direction, Lane #	EB 1	WB 1
Volume Total	478	658
Volume Left	86	0
Volume Right	0	152
cSH	1059	1700
Volume to Capacity	0.08	0.39
Queue Length 95th (ft)	7	0
Control Delay (s)	2.3	0.0
Lane LOS	A	
Approach Delay (s)	2.3	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	165	819	548	105	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	179	890	596	114	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	596				1902	653
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	596				1902	653
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				100	100
cM capacity (veh/h)	981				62	467

Direction, Lane #	EB 1	WB 1
Volume Total	1070	710
Volume Left	179	0
Volume Right	0	114
cSH	981	1700
Volume to Capacity	0.18	0.42
Queue Length 95th (ft)	17	0
Control Delay (s)	4.6	0.0
Lane LOS	A	
Approach Delay (s)	4.6	0.0
Approach LOS		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	16	100	4	13	148	22	7	63	10	8	54	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	109	4	14	161	24	8	68	11	9	59	25

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	130	199	87	92
Volume Left (vph)	17	14	8	9
Volume Right (vph)	4	24	11	25
Hadj (s)	0.04	-0.02	-0.02	-0.11
Departure Headway (s)	4.6	4.5	4.8	4.7
Degree Utilization, x	0.17	0.25	0.12	0.12
Capacity (veh/h)	742	763	698	707
Control Delay (s)	8.5	8.9	8.4	8.3
Approach Delay (s)	8.5	8.9	8.4	8.3
Approach LOS	A	A	A	A

Intersection Summary				
Delay		8.6		
HCM Level of Service		A		
Intersection Capacity Utilization		24.4%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	29	324	18	9	229	7	10	68	22	12	72	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	352	20	10	249	8	11	74	24	13	78	93

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	403	266	109	185
Volume Left (vph)	32	10	11	13
Volume Right (vph)	20	8	24	93
Hadj (s)	0.02	0.02	-0.08	-0.26
Departure Headway (s)	5.2	5.4	6.0	5.7
Degree Utilization, x	0.58	0.40	0.18	0.29
Capacity (veh/h)	658	620	513	564
Control Delay (s)	15.3	12.0	10.3	10.9
Approach Delay (s)	15.3	12.0	10.3	10.9
Approach LOS	C	B	B	B

Intersection Summary				
Delay	13.0			
HCM Level of Service	B			
Intersection Capacity Utilization	48.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	84	98	0	23	6
Sign Control	Free			Stop	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	91	107	0	25	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0		12	0	0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		12	0	0	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	100		89	100	97	99
cM capacity (veh/h)	1623		977	896	896	1085

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	91	107	32
Volume Left	0	107	0
Volume Right	91	0	7
cSH	1700	977	929
Volume to Capacity	0.05	0.11	0.03
Queue Length 95th (ft)	0	9	3
Control Delay (s)	0.0	9.1	9.0
Lane LOS		A	A
Approach Delay (s)	0.0	9.1	9.0
Approach LOS		A	A

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	15.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	199	120	0	178	20
Sign Control	Free			Stop	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	216	130	0	193	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0		97	0	0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		97	0	0	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	100		82	100	78	98
cM capacity (veh/h)	1623		724	896	896	1085

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	216	130	215
Volume Left	0	130	0
Volume Right	216	0	22
cSH	1700	724	912
Volume to Capacity	0.13	0.18	0.24
Queue Length 95th (ft)	0	16	23
Control Delay (s)	0.0	11.1	10.2
Lane LOS		B	B
Approach Delay (s)	0.0	11.1	10.2
Approach LOS		B	B

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations										
Volume (veh/h)	0	0	79	75	0	0	899	18	84	789
Sign Control	Stop			Free			Free		Stop	
Grade	0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	86	82	0	0	977	20	91	858
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	1245	1240	997			82			1250	41
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	1245	1240	997			82			1250	41
tC, single (s)	7.5	6.5	4.1			4.1			6.5	6.9
tC, 2 stage (s)										
tF (s)	3.5	4.0	2.2			2.2			4.0	3.3
p0 queue free %	100	100	88			100			39	16
cM capacity (veh/h)	10	152	690			1514			150	1021

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NW 1	NW 2
Volume Total	86	41	41	651	345	91	858
Volume Left	86	0	0	0	0	0	0
Volume Right	0	0	0	0	20	0	858
cSH	690	1700	1700	1700	1700	150	1021
Volume to Capacity	0.12	0.02	0.02	0.38	0.20	0.61	0.84
Queue Length 95th (ft)	11	0	0	0	0	81	260
Control Delay (s)	11.0	0.0	0.0	0.0	0.0	60.5	23.8
Lane LOS	B					F	C
Approach Delay (s)	5.6			0.0		27.3	
Approach LOS						D	

Intersection Summary			
Average Delay	12.7		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations										
Volume (veh/h)	0	0	44	246	0	0	836	12	81	600
Sign Control	Stop			Free			Free		Stop	
Grade	0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	48	267	0	0	909	13	88	652
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	1189	1278	922			267			1285	134
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	1189	1278	922			267			1285	134
tC, single (s)	7.5	6.5	4.1			4.1			6.5	6.9
tC, 2 stage (s)										
tF (s)	3.5	4.0	2.2			2.2			4.0	3.3
p0 queue free %	100	100	94			100			42	27
cM capacity (veh/h)	20	154	737			1293			153	891

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NW 1	NW 2
Volume Total	48	134	134	606	316	88	652
Volume Left	48	0	0	0	0	0	0
Volume Right	0	0	0	0	13	0	652
cSH	737	1700	1700	1700	1700	153	891
Volume to Capacity	0.06	0.08	0.08	0.36	0.19	0.58	0.73
Queue Length 95th (ft)	5	0	0	0	0	75	167
Control Delay (s)	10.2	0.0	0.0	0.0	0.0	56.5	19.2
Lane LOS	B					F	C
Approach Delay (s)	1.6			0.0		23.7	
Approach LOS						C	

Intersection Summary			
Average Delay	9.1		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
11: SR 99 SB onramp & S Clovis Ave

4/28/2011

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations											
Volume (veh/h)	0	0	7	136	45	819	79	91	19	61	24
Sign Control	Stop			Free			Free			Stop	
Grade	0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	8	148	49	890	86	99	21	66	26
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											4
Median type				None			None				
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	2044	2153	185			148			2005	2079	92
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	2044	2153	185			148			2005	2079	92
tC, single (s)	7.5	6.5	4.1			4.1			7.5	6.5	6.9
tC, 2 stage (s)											
tF (s)	3.5	4.0	2.2			2.2			3.5	4.0	3.3
p0 queue free %	0	100	99			38			0	0	97
cM capacity (veh/h)	0	18	1387			1431			18	20	947

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SE 1
Volume Total	8	99	98	890	57	128	113
Volume Left	8	0	0	890	0	0	21
Volume Right	0	0	49	0	0	99	26
cSH	1387	1700	1700	1431	1700	1700	25
Volume to Capacity	0.01	0.06	0.06	0.62	0.03	0.08	4.54
Queue Length 95th (ft)	0	0	0	115	0	0	Err
Control Delay (s)	7.6	0.0	0.0	11.6	0.0	0.0	Err
Lane LOS	A			B			F
Approach Delay (s)	0.3			9.6			Err
Approach LOS							F

Intersection Summary			
Average Delay	819.2		
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations											
Volume (veh/h)	0	0	38	219	34	626	197	82	41	112	224
Sign Control	Stop			Free			Free			Stop	
Grade	0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	41	238	37	680	214	89	45	122	243
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											4
Median type				None			None				
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	1868	2003	303			238			1821	1940	152
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1868	2003	303			238			1821	1940	152
tC, single (s)	7.5	6.5	4.1			4.1			7.5	6.5	6.9
tC, 2 stage (s)											
tF (s)	3.5	4.0	2.2			2.2			3.5	4.0	3.3
p0 queue free %	0	100	97			49			0	0	72
cM capacity (veh/h)	0	28	1254			1326			28	30	867

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SE 1
Volume Total	41	159	116	680	143	161	410
Volume Left	41	0	0	680	0	0	45
Volume Right	0	0	37	0	0	89	243
cSH	1254	1700	1700	1326	1700	1700	70
Volume to Capacity	0.03	0.09	0.07	0.51	0.08	0.09	5.86
Queue Length 95th (ft)	3	0	0	76	0	0	Err
Control Delay (s)	8.0	0.0	0.0	10.5	0.0	0.0	Err
Lane LOS	A			B			F
Approach Delay (s)	1.0			7.3			Err
Approach LOS							F

Intersection Summary				
Average Delay	2400.8			
Intersection Capacity Utilization	60.3%	ICU Level of Service		B
Analysis Period (min)	15			

HANFORD HEAVY MAINTENANCE
FUTURE PLUS PROJECT CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	50	104	11	60	77	49	287	9	79	734	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	1.00		1.00	1.00	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1712			1725		1770	1854		1770	1854	
Flt Permitted		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1712			1725		1770	1854		1770	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	54	113	12	65	84	53	312	10	86	798	25
RTOR Reduction (vph)	0	45	0	0	46	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	171	0	0	115	0	53	321	0	86	822	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		12.1			10.3		4.2	32.7		6.5	35.0	
Effective Green, g (s)		12.1			10.3		4.2	32.7		6.5	35.0	
Actuated g/C Ratio		0.16			0.13		0.05	0.42		0.08	0.45	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		267			229		96	781		148	836	
v/s Ratio Prot		c0.10			c0.07		0.03	0.17		c0.05	c0.44	
v/s Ratio Perm												
v/c Ratio		0.64			0.50		0.55	0.41		0.58	0.98	
Uniform Delay, d1		30.7			31.3		35.8	15.7		34.2	21.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.2			1.7		6.7	0.4		5.7	26.8	
Delay (s)		35.9			33.0		42.5	16.1		39.9	47.8	
Level of Service		D			C		D	B		D	D	
Approach Delay (s)		35.9			33.0			19.8			47.1	
Approach LOS		D			C			B			D	

Intersection Summary

HCM Average Control Delay	38.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.7%	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)	25	50	177	8	78	106	153	815	29	94	406	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.93		1.00	0.99		1.00	0.99	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1678			1721		1770	1853		1770	1846	
Flt Permitted		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1678			1721		1770	1853		1770	1846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	54	192	9	85	115	166	886	32	102	441	28
RTOR Reduction (vph)	0	98	0	0	51	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	175	0	0	158	0	166	917	0	102	466	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		12.3			11.9		10.5	34.8		6.0	30.3	
Effective Green, g (s)		12.3			11.9		10.5	34.8		6.0	30.3	
Actuated g/C Ratio		0.15			0.15		0.13	0.43		0.07	0.37	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		255			253		229	796		131	691	
v/s Ratio Prot		c0.10			c0.09		c0.09	c0.49		0.06	0.25	
v/s Ratio Perm												
v/c Ratio		0.69			0.62		0.72	1.15		0.78	0.68	
Uniform Delay, d1		32.5			32.4		33.9	23.1		36.8	21.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.5			4.7		10.8	82.5		24.7	2.6	
Delay (s)		40.0			37.2		44.7	105.6		61.6	23.8	
Level of Service		D			D		D	F		E	C	
Approach Delay (s)		40.0			37.2			96.3			30.6	
Approach LOS		D			D			F			C	

Intersection Summary

HCM Average Control Delay	65.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Houston Ave & 7Th Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	7	116	0	9	143	1	11	6	1	2	93	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	126	0	10	155	1	12	7	1	2	101	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	215	137	101	199	136	7	101			8		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	215	137	101	199	136	7	101			8		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	83	100	99	79	100	99			100		
cM capacity (veh/h)	618	747	954	656	747	1075	1491			1613		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	134	166	20	103
Volume Left	8	10	12	2
Volume Right	0	1	1	0
cSH	738	743	1491	1613
Volume to Capacity	0.18	0.22	0.01	0.00
Queue Length 95th (ft)	16	21	1	0
Control Delay (s)	11.0	11.2	4.6	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	11.0	11.2	4.6	0.2
Approach LOS	B	B		

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: Houston Ave & 7Th Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	4	158	72	33	172	1	10	345	4	54	0	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	172	78	36	187	1	11	375	4	59	0	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	630	538	19	699	554	377	38			379		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	630	538	19	699	554	377	38			379		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	60	93	83	55	100	99			95		
cM capacity (veh/h)	245	425	1059	216	415	669	1572			1179		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	254	224	390	97
Volume Left	4	36	11	59
Volume Right	78	1	4	38
cSH	513	362	1572	1179
Volume to Capacity	0.50	0.62	0.01	0.05
Queue Length 95th (ft)	68	99	1	4
Control Delay (s)	18.7	29.7	0.3	5.1
Lane LOS	C	D	A	A
Approach Delay (s)	18.7	29.7	0.3	5.1
Approach LOS	C	D		

Intersection Summary				
Average Delay	12.5			
Intersection Capacity Utilization	61.3%	ICU Level of Service	B	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3: Idaho Ave & Central Valley Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	3	11	5	11	15	11	6	354	16	9	816	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	12	5	12	16	12	7	385	17	10	887	9
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	1338	1326	891	1329	1322	393	896			402		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1338	1326	891	1329	1322	393	896			402		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	92	98	90	89	98	99			99		
cM capacity (veh/h)	116	153	341	121	154	655	758			1156		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	40	409	905
Volume Left	3	12	7	10
Volume Right	5	12	17	9
cSH	169	180	758	1156
Volume to Capacity	0.12	0.22	0.01	0.01
Queue Length 95th (ft)	10	21	1	1
Control Delay (s)	29.3	30.7	0.3	0.2
Lane LOS	D	D	A	A
Approach Delay (s)	29.3	30.7	0.3	0.2
Approach LOS	D	D		

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3: Idaho Ave & Central Valley Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	5	13	5	18	9	14	7	966	10	7	602	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	14	5	20	10	15	8	1050	11	8	654	3
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	1762	1747	656	1754	1743	1055	658			1061		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1762	1747	656	1754	1743	1055	658			1061		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	83	99	65	88	94	99			99		
cM capacity (veh/h)	56	84	465	57	85	274	930			657		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	25	45	1068	665
Volume Left	5	20	8	8
Volume Right	5	15	11	3
cSH	90	86	930	657
Volume to Capacity	0.28	0.52	0.01	0.01
Queue Length 95th (ft)	25	56	1	1
Control Delay (s)	59.4	84.8	0.3	0.3
Lane LOS	F	F	A	A
Approach Delay (s)	59.4	84.8	0.3	0.3
Approach LOS	F	F		

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	66.6%	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 (veh/h)	0	21	1	0	28	3	0	22	0	0	105	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	23	1	0	30	3	0	24	0	0	114	1
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	34			24			114	57	23	67	56	32
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	34			24			114	57	23	67	56	32
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	97	100	100	86	100
cM capacity (veh/h)	1578			1591			772	834	1053	905	835	1042

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	34	24	115
Volume Left	0	0	0	0
Volume Right	1	3	0	1
cSH	1578	1591	834	837
Volume to Capacity	0.00	0.00	0.03	0.14
Queue Length 95th (ft)	0	0	2	12
Control Delay (s)	0.0	0.0	9.4	10.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	9.4	10.0
Approach LOS			A	A

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	15.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Idaho Ave & 7Th Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	0	20	6	1	24	3	6	362	0	3	98	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	22	7	1	26	3	7	393	0	3	107	1
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	29			28			109	57	25	252	58	28
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	29			28			109	57	25	252	58	28
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	53	100	99	87	100
cM capacity (veh/h)	1584			1585			783	834	1051	442	832	1048

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	30	400	111
Volume Left	0	1	7	3
Volume Right	7	3	0	1
cSH	1584	1585	833	813
Volume to Capacity	0.00	0.00	0.48	0.14
Queue Length 95th (ft)	0	0	66	12
Control Delay (s)	0.0	0.3	13.2	10.1
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.3	13.2	10.1
Approach LOS			B	B

Intersection Summary			
Average Delay	11.3		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

WASCO HEAVY MAINTENANCE
FUTURE PLUS PROJECT CONDITIONS

HCM Unsignalized Intersection Capacity Analysis
1: Paso Robles Hwy & Wasco Pond Rd

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	271	401	105	18	376	21	149	261	58	30	170	180
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	295	436	114	20	409	23	162	284	63	33	185	196
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	432			550			1818	1553	493	1689	1598	420
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	432			550			1818	1553	493	1689	1598	420
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 %	74			98			0	0	89	0	0	69
cM capacity (veh/h)	1128			1020			0	82	576	0	77	633

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	295	550	20	432	509	413
Volume Left	295	0	20	0	162	33
Volume Right	0	114	0	23	63	196
cSH	1128	1700	1020	1700	0	0
Volume to Capacity	0.26	0.32	0.02	0.25	Err	Err
Queue Length 95th (ft)	26	0	1	0	Err	Err
Control Delay (s)	9.3	0.0	8.6	0.0	Err	Err
Lane LOS	A		A		F	F
Approach Delay (s)	3.2		0.4		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Paso Robles Hwy & Wasco Pond Rd

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	299	423	153	60	512	20	134	243	42	20	271	296
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	325	460	166	65	557	22	146	264	46	22	295	322
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	578			626			2349	1902	543	1985	1974	567
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	578			626			2349	1902	543	1985	1974	567
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 %	67			93			0	0	92	0	0	38
cM capacity (veh/h)	995			956			0	43	540	0	39	523

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	325	626	65	578	455	638
Volume Left	325	0	65	0	146	22
Volume Right	0	166	0	22	46	322
cSH	995	1700	956	1700	0	0
Volume to Capacity	0.33	0.37	0.07	0.34	Err	Err
Queue Length 95th (ft)	36	0	5	0	Err	Err
Control Delay (s)	10.4	0.0	9.0	0.0	Err	Err
Lane LOS	B		A		F	F
Approach Delay (s)	3.5		0.9		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	114.3%	ICU Level of Service	H
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: 6th Street & Wasco Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	52	0	5	0	1	0	7	390	3	0	156	39
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	57	0	5	0	1	0	8	424	3	0	170	42
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	630	633	191	637	653	426	212			427		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	630	633	191	637	653	426	212			427		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	99	100	100	100	99			100		
cM capacity (veh/h)	391	395	851	386	385	629	1358			1132		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	62	1	8	427	212
Volume Left	57	0	8	0	0
Volume Right	5	0	0	3	42
cSH	411	385	1358	1700	1132
Volume to Capacity	0.15	0.00	0.01	0.25	0.00
Queue Length 95th (ft)	13	0	0	0	0
Control Delay (s)	15.3	14.4	7.7	0.0	0.0
Lane LOS	C	B	A		
Approach Delay (s)	15.3	14.4	0.1		0.0
Approach LOS	C	B			

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: 6th Street & Wasco Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	0	6	0	0	0	9	300	0	0	381	69
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	0	7	0	0	0	10	326	0	0	414	75
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	797	797	452	804	835	326	489			326		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	797	797	452	804	835	326	489			326		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	78	100	99	100	100	100	99			100		
cM capacity (veh/h)	302	316	608	296	301	715	1074			1234		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	72	0	10	326	489
Volume Left	65	0	10	0	0
Volume Right	7	0	0	0	75
cSH	317	1700	1074	1700	1234
Volume to Capacity	0.23	0.00	0.01	0.19	0.00
Queue Length 95th (ft)	21	0	1	0	0
Control Delay (s)	19.7	0.0	8.4	0.0	0.0
Lane LOS	C	A	A		
Approach Delay (s)	19.7	0.0	0.2		0.0
Approach LOS	C	A			

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	34.6%	ICU Level of Service	A	
Analysis Period (min)	15			

SHAFTER HEAVY MAINTENANCE
FUTURE PLUS PROJECT CONDITIONS

HCM Unsignalized Intersection Capacity Analysis
1: Burbank Street & Santa Fe Way

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	38	16	5	11	8	57	859	2	92	1027	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	41	17	5	12	9	62	934	2	100	1116	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2390	2375	935	2413	2376	1116	1116			936		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2390	2375	935	2413	2376	1116	1116			936		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	0	95	0	56	97	90			86		
cM capacity (veh/h)	12	27	322	0	27	252	626			732		

Direction, Lane #	EB 1	WB 1	SE 1	NW 1
Volume Total	60	26	998	1216
Volume Left	1	5	62	100
Volume Right	17	9	2	0
cSH	36	0	626	732
Volume to Capacity	1.68	Err	0.10	0.14
Queue Length 95th (ft)	162	Err	8	12
Control Delay (s)	572.6	Err	3.1	4.8
Lane LOS	F	F	A	A
Approach Delay (s)	572.6	Err	3.1	4.8
Approach LOS	F	F		

Intersection Summary

Average Delay	Err		
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Burbank Street & Santa Fe Way

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	14	30	0	21	63	19	1204	1	35	1012	39
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	15	33	0	23	68	21	1309	1	38	1100	42
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	2628	2569	1309	2588	2548	1121	1142			1310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2628	2569	1309	2588	2548	1121	1142			1310		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	33	35	83	100	5	73	97			93		
cM capacity (veh/h)	2	23	195	6	24	251	612			528		

Direction, Lane #	EB 1	WB 1	SE 1	NW 1
Volume Total	49	91	1330	1180
Volume Left	1	0	21	38
Volume Right	33	68	1	42
cSH	33	75	612	528
Volume to Capacity	1.50	1.22	0.03	0.07
Queue Length 95th (ft)	135	175	3	6
Control Delay (s)	520.9	274.1	1.8	3.0
Lane LOS	F	F	A	A
Approach Delay (s)	520.9	274.1	1.8	3.0
Approach LOS	F	F		

Intersection Summary				
Average Delay	21.3			
Intersection Capacity Utilization	86.9%	ICU Level of Service	E	
Analysis Period (min)	15			

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (vph)	197	12	594	216	45	1094
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	13	646	235	49	1189
RTOR Reduction (vph)	0	11	0	92	0	0
Lane Group Flow (vph)	214	2	646	143	49	1189
Turn Type		Prot		Perm	Prot	
Protected Phases	3	3	6		5	2
Permitted Phases				6		
Actuated Green, G (s)	9.7	9.7	36.4	36.4	4.7	45.1
Effective Green, g (s)	9.7	9.7	36.4	36.4	4.7	45.1
Actuated g/C Ratio	0.15	0.15	0.58	0.58	0.07	0.72
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	245	1080	918	132	1338
v/s Ratio Prot	c0.12	0.00	0.35		0.03	c0.64
v/s Ratio Perm				0.09		
v/c Ratio	0.78	0.01	0.60	0.16	0.37	0.89
Uniform Delay, d1	25.5	22.5	8.5	6.1	27.6	6.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.7	0.0	0.9	0.1	1.8	7.5
Delay (s)	39.2	22.5	9.4	6.2	29.4	14.4
Level of Service	D	C	A	A	C	B
Approach Delay (s)	38.3		8.5			15.0
Approach LOS	D		A			B

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (vph)	244	21	1098	58	9	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	265	23	1193	63	10	893
RTOR Reduction (vph)	0	19	0	9	0	0
Lane Group Flow (vph)	265	4	1193	54	10	893
Turn Type		Prot		Perm	Prot	
Protected Phases	3	3	6		5	2
Permitted Phases				6		
Actuated Green, G (s)	14.9	14.9	57.7	57.7	1.3	63.0
Effective Green, g (s)	14.9	14.9	57.7	57.7	1.3	63.0
Actuated g/C Ratio	0.17	0.17	0.67	0.67	0.02	0.73
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	307	275	1251	1063	27	1366
v/s Ratio Prot	c0.15	0.00	c0.64		0.01	c0.48
v/s Ratio Perm				0.03		
v/c Ratio	0.86	0.01	0.95	0.05	0.37	0.65
Uniform Delay, d1	34.5	29.4	12.9	4.8	41.9	5.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.3	0.0	15.6	0.0	8.4	1.1
Delay (s)	55.8	29.4	28.5	4.8	50.3	7.0
Level of Service	E	C	C	A	D	A
Approach Delay (s)	53.7		27.3			7.5
Approach LOS	D		C			A

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	85.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

CORCORAN FUTURE PLUS PROJECT CONDITIONS

HCM Unsignalized Intersection Capacity Analysis
1: Brokaw Ave & Chittenden Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	5	0	0	0	324	37
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	7	0	0	0	5	0	0	0	352	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											284	
pX, platoon unblocked												
vC, conflicting volume	383	383	196	193	403	0	392			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	383	383	196	193	403	0	392			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	548	546	812	740	532	1084	1163			1622		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	7	0	5	0	235	158
Volume Left	0	0	5	0	0	0
Volume Right	7	0	0	0	0	40
cSH	812	1700	1163	1700	1700	1700
Volume to Capacity	0.01	0.00	0.00	0.00	0.14	0.09
Queue Length 95th (ft)	1	0	0	0	0	0
Control Delay (s)	9.5	0.0	8.1	0.0	0.0	0.0
Lane LOS	A	A	A			
Approach Delay (s)	9.5	0.0	8.1		0.0	
Approach LOS	A	A				

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	20.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Brokaw Ave & Chittenden Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	0	16	0	0	0	124	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	7	0	0	0	17	0	0	0	135	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)											284	
pX, platoon unblocked												
vC, conflicting volume	189	189	86	109	208	0	173			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	189	189	86	109	208	0	173			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	99			100		
cM capacity (veh/h)	747	696	955	845	680	1084	1401			1622		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	7	0	17	0	90	83
Volume Left	0	0	17	0	0	0
Volume Right	7	0	0	0	0	38
cSH	955	1700	1401	1700	1700	1700
Volume to Capacity	0.01	0.00	0.01	0.00	0.05	0.05
Queue Length 95th (ft)	1	0	1	0	0	0
Control Delay (s)	8.8	0.0	7.6	0.0	0.0	0.0
Lane LOS	A	A	A			
Approach Delay (s)	8.8	0.0	7.6		0.0	
Approach LOS	A	A				

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	21.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	20	424	10	5	96	12	6	14	31	9	21	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	461	11	5	104	13	7	15	34	10	23	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	117			472			676	638	466	673	637	111
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	117			472			676	638	466	673	637	111
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 %	99			100			98	96	94	97	94	97
cM capacity (veh/h)	1471			1090			334	387	596	333	387	942

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	493	123	55	65
Volume Left	22	5	7	10
Volume Right	11	13	34	33
cSH	1471	1090	480	530
Volume to Capacity	0.01	0.00	0.12	0.12
Queue Length 95th (ft)	1	0	10	10
Control Delay (s)	0.5	0.4	13.5	12.7
Lane LOS	A	A	B	B
Approach Delay (s)	0.5	0.4	13.5	12.7
Approach LOS			B	B

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	41	216	20	12	351	18	11	21	49	5	30	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	235	22	13	382	20	12	23	53	5	33	51
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	401			257			820	762	246	817	763	391
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	401			257			820	762	246	817	763	391
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 %	96			99			95	93	93	98	90	92
cM capacity (veh/h)	1158			1308			241	319	793	251	318	657

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	301	414	88	89
Volume Left	45	13	12	5
Volume Right	22	20	53	51
cSH	1158	1308	467	441
Volume to Capacity	0.04	0.01	0.19	0.20
Queue Length 95th (ft)	3	1	17	19
Control Delay (s)	1.5	0.3	14.5	15.2
Lane LOS	A	A	B	C
Approach Delay (s)	1.5	0.3	14.5	15.2
Approach LOS			B	C

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	468	9	14	67	6	4	11	13	3	240	55
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	509	10	15	73	7	4	12	14	3	261	60
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	79			518			910	762	259	520	764	40
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	79			518			910	762	259	520	764	40
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			99			93	96	98	99	16	94
cM capacity (veh/h)	1517			1044			62	313	740	399	312	1023

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	324	264	52	43	30	324
Volume Left	70	0	15	0	4	3
Volume Right	0	10	0	7	14	60
cSH	1517	1700	1044	1700	239	359
Volume to Capacity	0.05	0.16	0.01	0.03	0.13	0.90
Queue Length 95th (ft)	4	0	1	0	11	226
Control Delay (s)	1.9	0.0	2.6	0.0	22.2	60.4
Lane LOS	A		A		C	F
Approach Delay (s)	1.1		1.4		22.2	60.4
Approach LOS					C	F

Intersection Summary			
Average Delay	20.3		
Intersection Capacity Utilization	41.5%	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)	123	148	6	88	630	145	11	254	26	4	28	51
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	134	161	7	96	685	158	12	276	28	4	30	55
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	842			167			1036	1465	84	1469	1390	421
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	842			167			1036	1465	84	1469	1390	421
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			93			89	0	97	0	72	90
cM capacity (veh/h)	789			1408			110	98	959	0	109	581

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	214	87	438	500	316	90
Volume Left	134	0	96	0	12	4
Volume Right	0	7	0	158	28	55
cSH	789	1700	1408	1700	107	0
Volume to Capacity	0.17	0.05	0.07	0.29	2.95	Err
Queue Length 95th (ft)	15	0	5	0	751	Err
Control Delay (s)	7.3	0.0	2.2	0.0	962.0	Err
Lane LOS	A		A		F	F
Approach Delay (s)	5.2		1.0		962.0	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	61.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	0	0	0	0	0	11	0	0	0	5	0	0
Sign Control		Yield			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	12	0	0	0	5	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	23	11	0	11	11	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	23	11	0	11	11	0	0			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	100			100		
cM capacity (veh/h)	976	881	1085	1004	881	1085	1623			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	12	0	5
Volume Left	0	0	0	5
Volume Right	0	12	0	0
cSH	1700	1085	1700	1623
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (ft)	0	1	0	0
Control Delay (s)	0.0	8.4	0.0	7.2
Lane LOS	A	A		A
Approach Delay (s)	0.0	8.4	0.0	7.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	0	0	0	0	0	7	0	0	0	1	0	0
Sign Control		Yield			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	8	0	0	0	1	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	10	2	0	2	2	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	10	2	0	2	2	0	0			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	100			100		
cM capacity (veh/h)	1001	893	1085	1019	893	1085	1623			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	8	0	1
Volume Left	0	0	0	1
Volume Right	0	8	0	0
cSH	1700	1085	1700	1623
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (ft)	0	1	0	0
Control Delay (s)	0.0	8.3	0.0	7.2
Lane LOS	A	A		A
Approach Delay (s)	0.0	8.3	0.0	7.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	8.2			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			