Appendix B
Existing Synchro Output

FRESNO EXISTING CONDITIONS
SYNCHRO OUTPUT

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	58	0	0	92	0	0	0	0	0	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.40
Hourly flow rate (vph)	0	79	0	0	112	0	0	0	0	0	0	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	112			79			192	192	79	192	192	112
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	112			79			192	192	79	192	192	112
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	98
cM capacity (veh/h)	1477			1519			752	703	981	768	703	941

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total	79	112	0	0	20
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	20
cSH	1477	1519	1700	1700	941
Volume to Capacity	0.00	0.00	0.00	0.00	0.02
Queue Length 95th (ft)	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	8.9
Lane LOS			A	A	A
Approach Delay (s)	0.0	0.0	0.0	8.9	
Approach LOS			A	A	

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	42	0	0	201	0	0	0	0	0	0	76
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.72	0.72	0.72	0.81	0.81	0.81	0.92	0.92	0.92	0.92	0.92	0.66
Hourly flow rate (vph)	0	58	0	0	248	0	0	0	0	0	0	115
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	248			58			306	306	58	306	306	248
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	248			58			306	306	58	306	306	248
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	85
cM capacity (veh/h)	1318			1546			552	607	1008	646	607	791

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total	58	248	0	0	115
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	115
cSH	1318	1546	1700	1700	791
Volume to Capacity	0.00	0.00	0.00	0.00	0.15
Queue Length 95th (ft)	0	0	0	0	13
Control Delay (s)	0.0	0.0	0.0	0.0	10.3
Lane LOS			A	A	B
Approach Delay (s)	0.0	0.0	0.0	10.3	
Approach LOS			A	B	

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	22.0%	ICU Level of Service	A	
Analysis Period (min)	15			

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	19	267	0	0	194	47	111	82	62	0	0	0
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.92	0.92	0.92
Hourly flow rate (vph)	22	314	0	0	216	52	131	96	73	0	0	0

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	127	209	144	124	179	121
Volume Left (vph)	22	0	0	0	131	0
Volume Right (vph)	0	0	0	52	0	73
Hadj (s)	0.12	0.03	0.03	-0.26	0.40	-0.39
Departure Headway (s)	5.9	5.8	5.9	5.6	6.4	5.6
Degree Utilization, x	0.21	0.34	0.23	0.19	0.32	0.19
Capacity (veh/h)	584	598	585	614	532	601
Control Delay (s)	9.2	10.5	9.5	8.7	11.2	8.7
Approach Delay (s)	10.0		9.1		10.2	
Approach LOS	B		A		B	

Intersection Summary			
Delay	9.8		
HCM Level of Service	A		
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	78	172	0	0	213	52	117	30	41	0	0	0
Peak Hour Factor	0.83	0.83	0.83	0.82	0.82	0.82	0.80	0.80	0.80	0.92	0.92	0.92
Hourly flow rate (vph)	94	207	0	0	260	63	146	38	51	0	0	0

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	163	138	173	150	165	70
Volume Left (vph)	94	0	0	0	146	0
Volume Right (vph)	0	0	0	63	0	51
Hadj (s)	0.32	0.03	0.03	-0.26	0.48	-0.48
Departure Headway (s)	6.0	5.7	5.7	5.4	6.5	5.6
Degree Utilization, x	0.27	0.22	0.27	0.22	0.30	0.11
Capacity (veh/h)	580	609	612	644	522	605
Control Delay (s)	9.9	9.0	9.6	8.7	11.0	8.0
Approach Delay (s)	9.5		9.2		10.1	
Approach LOS	A		A		B	

Intersection Summary			
Delay	9.6		
HCM Level of Service	A		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	0	126	59	0	6	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.78	0.78	0.60	0.60
Hourly flow rate (vph)	0	156	76	0	10	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)		1131				
pX, platoon unblocked						
vC, conflicting volume	76				231	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76				231	76
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				99	99
cM capacity (veh/h)	1523				757	986

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	156	76	10	10
Volume Left	0	0	10	0
Volume Right	0	0	0	10
cSH	1700	1700	757	986
Volume to Capacity	0.09	0.04	0.01	0.01
Queue Length 95th (ft)	0	0	1	1
Control Delay (s)	0.0	0.0	9.8	8.7
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	9.3	
Approach LOS			A	

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	0	256	98	0	16	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.74	0.74	0.82	0.82	0.75	0.75
Hourly flow rate (vph)	0	346	120	0	21	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)		1132				
pX, platoon unblocked						
vC, conflicting volume	120				465	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	120				465	120
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				96	99
cM capacity (veh/h)	1468				555	932

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	346	120	21	11
Volume Left	0	0	21	0
Volume Right	0	0	0	11
cSH	1700	1700	555	932
Volume to Capacity	0.20	0.07	0.04	0.01
Queue Length 95th (ft)	0	0	3	1
Control Delay (s)	0.0	0.0	11.7	8.9
Lane LOS			B	A
Approach Delay (s)	0.0	0.0	10.8	
Approach LOS			B	

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	117	2	3	300	0	0	0	0	170	13	410
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.76	0.76	0.76	0.84	0.84	0.84	0.92	0.92	0.92	0.71	0.71	0.71
Hourly flow rate (vph)	0	154	3	4	357	0	0	0	0	239	18	577
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												
vC, conflicting volume	357			157			350	520	155	520	521	179
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	357			157			350	520	155	520	521	179
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	100	45	96	31
cM capacity (veh/h)	1198			1421			172	458	863	439	457	834

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	157	123	238	450	385
Volume Left	0	4	0	239	0
Volume Right	3	0	0	192	385
cSH	1700	1421	1700	551	834
Volume to Capacity	0.09	0.00	0.14	0.82	0.46
Queue Length 95th (ft)	0	0	0	203	62
Control Delay (s)	0.0	0.2	0.0	34.4	13.0
Lane LOS		A		D	B
Approach Delay (s)	0.0	0.1		24.5	
Approach LOS				C	

Intersection Summary				
Average Delay	15.2			
Intersection Capacity Utilization	35.5%	ICU Level of Service	A	
Analysis Period (min)	15			

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	195	17	11	318	0	0	0	0	58	10	182
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.86	0.86	0.86	0.92	0.92	0.92	0.81	0.81	0.81
Hourly flow rate (vph)	0	247	22	13	370	0	0	0	0	72	12	225
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												
vC, conflicting volume	370			268			474	653	258	653	664	185
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	370			268			474	653	258	653	664	185
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			99			100	100	100	80	97	73
cM capacity (veh/h)	1185			1292			333	381	741	350	376	826

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	268	136	247	159	150
Volume Left	0	13	0	72	0
Volume Right	22	0	0	75	150
cSH	1700	1292	1700	484	826
Volume to Capacity	0.16	0.01	0.15	0.33	0.18
Queue Length 95th (ft)	0	1	0	35	16
Control Delay (s)	0.0	0.8	0.0	16.0	10.3
Lane LOS		A		C	B
Approach Delay (s)	0.0	0.3		13.3	
Approach LOS				B	

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	294	0	317	0	0	0	0	578	56	44	304	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						0.99		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583						3492		1770	3539	
Flt Permitted	0.95	1.00						1.00		0.29	1.00	
Satd. Flow (perm)	1770	1583						3492		541	3539	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.72	0.72	0.72	0.78	0.78	0.78
Adj. Flow (vph)	354	0	382	0	0	0	0	803	78	56	390	0
RTOR Reduction (vph)	0	278	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	354	104	0	0	0	0	0	865	0	56	390	0
Turn Type	Split									Perm		
Protected Phases	4	4						2			2	
Permitted Phases										2		
Actuated Green, G (s)	12.2	12.2						23.0		23.0	23.0	
Effective Green, g (s)	12.2	12.2						23.0		23.0	23.0	
Actuated g/C Ratio	0.27	0.27						0.52		0.52	0.52	
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)	484	433						1801		279	1825	
v/s Ratio Prot	c0.20	0.07						c0.25			0.11	
v/s Ratio Perm										0.10		
v/c Ratio	0.73	0.24						0.48		0.20	0.21	
Uniform Delay, d1	14.7	12.6						7.0		5.8	5.9	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	7.0	0.6						0.1		0.1	0.0	
Delay (s)	21.7	13.2						7.0		6.0	5.9	
Level of Service	C	B						A		A	A	
Approach Delay (s)		17.3			0.0			7.0			5.9	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	9.4
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	149	2	198	0	0	0	0	557	33	114	373	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						0.99		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1586						3509		1770	3539	
Flt Permitted	0.95	1.00						1.00		0.41	1.00	
Satd. Flow (perm)	1770	1586						3509		761	3539	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	159	2	211	0	0	0	0	605	36	121	397	0
RTOR Reduction (vph)	0	168	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	159	45	0	0	0	0	0	632	0	121	397	0
Turn Type	Split									Perm		
Protected Phases	4	4						2			2	
Permitted Phases										2		
Actuated Green, G (s)	8.6	8.6						23.8		23.8	23.8	
Effective Green, g (s)	8.6	8.6						23.8		23.8	23.8	
Actuated g/C Ratio	0.21	0.21						0.57		0.57	0.57	
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)	364	326						1998		433	2015	
v/s Ratio Prot	c0.09	0.03						c0.18			0.11	
v/s Ratio Perm										0.16		
v/c Ratio	0.44	0.14						0.32		0.28	0.20	
Uniform Delay, d1	14.5	13.6						4.7		4.6	4.4	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.9	0.4						0.0		0.1	0.0	
Delay (s)	16.4	14.0						4.8		4.7	4.4	
Level of Service	B	B						A		A	A	
Approach Delay (s)		15.0			0.0			4.8			4.5	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	41.8	Sum of lost time (s)	9.4
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	31	7	83	326	541	0	0	314	105
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.70	0.70	0.70	0.76	0.76	0.76	0.86	0.86	0.86
Hourly flow rate (vph)	0	0	0	44	10	119	429	712	0	0	365	122
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	1764	1996	244	1752	2057	356	487			712		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1764	1996	244	1752	2057	356	487			712		
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	0	69	81	60			100		
cM capacity (veh/h)	23	36	757	37	33	640	1072			884		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	49	124	429	356	356	243	244
Volume Left	44	0	429	0	0	0	0
Volume Right	0	119	0	0	0	0	122
cSH	37	366	1072	1700	1700	1700	1700
Volume to Capacity	1.33	0.34	0.40	0.21	0.21	0.14	0.14
Queue Length 95th (ft)	129	37	49	0	0	0	0
Control Delay (s)	431.4	19.8	10.6	0.0	0.0	0.0	0.0
Lane LOS	F	C	B				
Approach Delay (s)	137.2		4.0			0.0	
Approach LOS	F						

Intersection Summary			
Average Delay	15.7		
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	23	2	69	275	427	0	0	465	408
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.59	0.59	0.59	0.94	0.94	0.94	0.89	0.89	0.89
Hourly flow rate (vph)	0	0	0	39	3	117	293	454	0	0	522	458
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	1683	1791	490	1301	2020	227	981			454		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1683	1791	490	1301	2020	227	981			454		
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	51	90	85	58			100		
cM capacity (veh/h)	33	47	524	80	33	776	700			1103		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	41	119	293	227	227	348	633
Volume Left	39	0	293	0	0	0	0
Volume Right	0	117	0	0	0	0	458
cSH	75	589	700	1700	1700	1700	1700
Volume to Capacity	0.54	0.20	0.42	0.13	0.13	0.20	0.37
Queue Length 95th (ft)	57	19	52	0	0	0	0
Control Delay (s)	98.4	12.6	13.8	0.0	0.0	0.0	0.0
Lane LOS	F	B	B				
Approach Delay (s)	34.5		5.4			0.0	
Approach LOS	D						

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	21	4	27	14	10	13	41	592	3	1	373	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.93	0.93	0.93	0.71	0.71	0.71	0.84	0.84	0.84
Hourly flow rate (vph)	26	5	33	15	11	14	58	834	4	1	444	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)								595			806	
pX, platoon unblocked												
vC, conflicting volume	1013	1415	237	1212	1428	419	474			838		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1013	1415	237	1212	1428	419	474			838		
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 %	85	96	96	88	92	98	95			100		
cM capacity (veh/h)	169	129	765	123	127	583	1084			792		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	64	40	475	421	223	252
Volume Left	26	15	58	0	1	0
Volume Right	33	14	0	4	0	30
cSH	273	172	1084	1700	792	1700
Volume to Capacity	0.24	0.23	0.05	0.25	0.00	0.15
Queue Length 95th (ft)	22	21	4	0	0	0
Control Delay (s)	22.2	32.1	1.6	0.0	0.1	0.0
Lane LOS	C	D	A		A	
Approach Delay (s)	22.2	32.1	0.8		0.0	
Approach LOS	C	D				

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	42.8%	ICU Level of Service		A
Analysis Period (min)	15			

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	33	2	80	9	9	18	56	431	5	2	787	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.68	0.68	0.68	0.75	0.75	0.75	0.89	0.89	0.89	0.88	0.88	0.88
Hourly flow rate (vph)	49	3	118	12	12	24	63	484	6	2	894	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)								595			806	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91		0.91					
vC, conflicting volume	1314	1532	464	1184	1546	245	928			490		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1150	1389	217	1007	1404	245	727			490		
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 %	58	98	84	91	90	97	92			100		
cM capacity (veh/h)	117	118	717	137	116	755	795			1070		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	169	48	305	248	449	481
Volume Left	49	12	63	0	2	0
Volume Right	118	24	0	6	0	34
cSH	280	215	795	1700	1070	1700
Volume to Capacity	0.60	0.22	0.08	0.15	0.00	0.28
Queue Length 95th (ft)	91	21	6	0	0	0
Control Delay (s)	35.7	26.5	2.8	0.0	0.1	0.0
Lane LOS	E	D	A		A	
Approach Delay (s)	35.7	26.5	1.5		0.0	
Approach LOS	E	D				

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
8: G St & Ventura Ave

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	24	74	10	36	107	72	29	535	32	38	343	36
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	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		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	1830		1770	1750		1770	3509		1770	3488	
Flt Permitted	0.63	1.00		0.68	1.00		0.51	1.00		0.34	1.00	
Satd. Flow (perm)	1173	1830		1276	1750		946	3509		640	3488	
Peak-hour factor, PHF	0.75	0.75	0.75	0.88	0.88	0.88	0.81	0.81	0.81	0.91	0.91	0.91
Adj. Flow (vph)	32	99	13	41	122	82	36	660	40	42	377	40
RTOR Reduction (vph)	0	8	0	0	40	0	0	7	0	0	12	0
Lane Group Flow (vph)	32	104	0	41	164	0	36	693	0	42	405	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	18.6	18.6		18.6	18.6		26.0	26.0		26.0	26.0	
Effective Green, g (s)	18.6	18.6		18.6	18.6		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.49	0.49		0.49	0.49	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	409	639		445	611		461	1712		312	1701	
v/s Ratio Prot		0.06			c0.09			c0.20			0.12	
v/s Ratio Perm	0.03			0.03			0.04			0.07		
v/c Ratio	0.08	0.16		0.09	0.27		0.08	0.40		0.13	0.24	
Uniform Delay, d1	11.6	12.0		11.7	12.5		7.3	8.7		7.5	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.3		0.2	0.5		0.2	0.3		0.4	0.2	
Delay (s)	11.8	12.2		11.9	13.0		7.4	9.0		7.9	8.1	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		12.1			12.8			9.0			8.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	8.7
Intersection Capacity Utilization	58.8%	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)	69	86	60	69	139	88	22	438	27	55	709	38
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	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		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	1748		1770	1754		1770	3508		1770	3512	
Flt Permitted	0.57	1.00		0.66	1.00		0.26	1.00		0.46	1.00	
Satd. Flow (perm)	1064	1748		1220	1754		479	3508		858	3512	
Peak-hour factor, PHF	0.91	0.91	0.91	0.93	0.93	0.93	0.94	0.94	0.94	0.85	0.85	0.85
Adj. Flow (vph)	76	95	66	74	149	95	23	466	29	65	834	45
RTOR Reduction (vph)	0	41	0	0	38	0	0	7	0	0	6	0
Lane Group Flow (vph)	76	120	0	74	206	0	23	488	0	65	873	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	19.7	19.7		19.7	19.7		27.5	27.5		27.5	27.5	
Effective Green, g (s)	19.7	19.7		19.7	19.7		27.5	27.5		27.5	27.5	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.49	0.49		0.49	0.49	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.2	4.2		4.2	4.2	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	375	616		430	618		236	1726		422	1728	
v/s Ratio Prot		0.07			c0.12			0.14			c0.25	
v/s Ratio Perm	0.07			0.06			0.05			0.08		
v/c Ratio	0.20	0.20		0.17	0.33		0.10	0.28		0.15	0.51	
Uniform Delay, d1	12.6	12.6		12.5	13.3		7.6	8.4		7.8	9.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3		0.4	0.7		0.4	0.2		0.4	0.5	
Delay (s)	13.2	12.9		12.9	14.0		8.0	8.6		8.2	10.1	
Level of Service	B	B		B	B		A	A		A	B	
Approach Delay (s)		13.0			13.7			8.5			10.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	8.7
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	17	17	4	60	38	5	7	449	107	14	417	13
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	0.97		1.00	0.98		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	3441		1770	1828		1770	3437		1770	3523	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3441		1770	1828		1770	3437		1770	3523	
Peak-hour factor, PHF	0.79	0.79	0.79	0.76	0.76	0.76	0.79	0.79	0.79	0.95	0.95	0.95
Adj. Flow (vph)	22	22	5	79	50	7	9	568	135	15	439	14
RTOR Reduction (vph)	0	4	0	0	4	0	0	14	0	0	1	0
Lane Group Flow (vph)	22	23	0	79	53	0	9	689	0	15	452	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.6	5.6		8.9	8.9		1.0	20.9		1.0	20.9	
Effective Green, g (s)	5.6	5.6		8.9	8.9		1.0	20.9		1.0	20.9	
Actuated g/C Ratio	0.10	0.10		0.16	0.16		0.02	0.37		0.02	0.37	
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)	178	345		282	292		32	1287		32	1320	
v/s Ratio Prot	c0.01	0.01		c0.04	0.03		0.01	c0.20		c0.01	0.13	
v/s Ratio Perm												
v/c Ratio	0.12	0.07		0.28	0.18		0.28	0.54		0.47	0.34	
Uniform Delay, d1	22.9	22.7		20.6	20.3		27.0	13.6		27.1	12.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0		0.2	0.1		1.8	0.2		3.9	0.1	
Delay (s)	23.0	22.8		20.8	20.4		28.8	13.9		31.0	12.6	
Level of Service	C	C		C	C		C	B		C	B	
Approach Delay (s)		22.9			20.7			14.1			13.2	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	19.4
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	28	89	15	69	18	11	19	410	140	54	719	17
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	0.94		1.00	0.96		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	3463		1770	1756		1770	3404		1770	3527	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3463		1770	1756		1770	3404		1770	3527	
Peak-hour factor, PHF	0.62	0.62	0.62	0.84	0.84	0.84	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	45	144	24	82	21	13	21	451	154	57	765	18
RTOR Reduction (vph)	0	11	0	0	11	0	0	25	0	0	1	0
Lane Group Flow (vph)	45	157	0	82	23	0	21	580	0	57	782	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.1	13.1		8.8	8.8		2.6	20.9		4.3	22.6	
Effective Green, g (s)	13.1	13.1		8.8	8.8		2.6	20.9		4.3	22.6	
Actuated g/C Ratio	0.20	0.20		0.13	0.13		0.04	0.31		0.06	0.34	
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)	349	682		234	232		69	1070		114	1199	
v/s Ratio Prot	0.03	c0.05		c0.05	0.01		0.01	0.17		c0.03	c0.22	
v/s Ratio Perm												
v/c Ratio	0.13	0.23		0.35	0.10		0.30	0.54		0.50	0.65	
Uniform Delay, d1	22.0	22.5		26.2	25.4		31.1	18.8		30.1	18.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.3	0.1		0.9	0.3		1.3	1.0	
Delay (s)	22.1	22.5		26.6	25.4		32.0	19.1		31.3	19.6	
Level of Service	C	C		C	C		C	B		C	B	
Approach Delay (s)		22.4			26.2			19.6			20.4	
Approach LOS		C			C			B			C	

Intersection Summary

HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	66.5	Sum of lost time (s)	15.2
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	17	50	33	199	465	137	55	377	42	38	246	71
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	4.0	4.2		4.0	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	0.94		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1752		1770	1863	1583	1770	3486		1770	3420	
Flt Permitted	0.29	1.00		0.69	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	548	1752		1283	1863	1583	1770	3486		1770	3420	
Peak-hour factor, PHF	0.78	0.78	0.78	0.87	0.87	0.87	0.80	0.80	0.80	0.83	0.83	0.83
Adj. Flow (vph)	22	64	42	229	534	157	69	471	52	46	296	86
RTOR Reduction (vph)	0	23	0	0	0	35	0	8	0	0	27	0
Lane Group Flow (vph)	22	83	0	229	534	122	69	515	0	46	355	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)	32.7	32.7		32.7	32.7	32.7	9.0	22.2		3.9	17.1	
Effective Green, g (s)	32.7	32.7		32.7	32.7	32.7	9.0	22.2		3.9	17.1	
Actuated g/C Ratio	0.46	0.46		0.46	0.46	0.46	0.13	0.31		0.05	0.24	
Clearance Time (s)	4.2	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	4.8	2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	252	805		589	856	727	224	1087		97	821	
v/s Ratio Prot		0.05			c0.29		0.04	c0.15		0.03	c0.10	
v/s Ratio Perm	0.04			0.18		0.08						
v/c Ratio	0.09	0.10		0.39	0.62	0.17	0.31	0.47		0.47	0.43	
Uniform Delay, d1	10.8	10.9		12.7	14.6	11.3	28.3	19.8		32.7	22.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.1		0.8	1.9	0.2	0.3	0.6		1.3	0.7	
Delay (s)	11.1	11.0		13.5	16.5	11.5	28.6	20.4		34.0	23.7	
Level of Service	B	B		B	B	B	C	C		C	C	
Approach Delay (s)		11.1			14.9			21.4			24.8	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	12.6
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	118	59	198	257	62	38	371	40	34	532	84
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	4.0	4.2		4.0	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	0.95		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1770		1770	1863	1583	1770	3488		1770	3467	
Flt Permitted	0.49	1.00		0.61	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	912	1770		1135	1863	1583	1770	3488		1770	3467	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.93	0.93	0.93	0.81	0.81	0.81
Adj. Flow (vph)	84	134	67	228	295	71	41	399	43	42	657	104
RTOR Reduction (vph)	0	21	0	0	0	33	0	7	0	0	11	0
Lane Group Flow (vph)	84	180	0	228	295	38	41	435	0	42	750	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)	23.3	23.3		23.3	23.3	23.3	3.5	24.0		3.5	24.0	
Effective Green, g (s)	23.3	23.3		23.3	23.3	23.3	3.5	24.0		3.5	24.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37	0.37	0.06	0.38		0.06	0.38	
Clearance Time (s)	4.2	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	4.8	2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	336	653		418	687	584	98	1325		98	1317	
v/s Ratio Prot		0.10			0.16		0.02	c0.12		0.02	c0.22	
v/s Ratio Perm	0.09			c0.20		0.02						
v/c Ratio	0.25	0.28		0.55	0.43	0.06	0.42	0.33		0.43	0.57	
Uniform Delay, d1	13.9	14.0		15.8	15.0	12.9	28.9	13.9		28.9	15.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.4		2.4	0.8	0.1	1.1	0.3		1.1	0.9	
Delay (s)	14.6	14.5		18.2	15.8	13.0	29.9	14.2		30.0	16.4	
Level of Service	B	B		B	B	B	C	B		C	B	
Approach Delay (s)		14.5			16.4			15.5			17.1	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	63.2	Sum of lost time (s)	8.4
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	36	183	19	0	0	0	0	387	20	24	405	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		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5044	1583					3513		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.45	1.00	
Satd. Flow (perm)		5044	1583					3513		846	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.81	0.81	0.81	0.84	0.84	0.84
Adj. Flow (vph)	40	203	21	0	0	0	0	478	25	29	482	0
RTOR Reduction (vph)	0	0	13	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	243	8	0	0	0	0	498	0	29	482	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					25.0		25.0	25.0	
Effective Green, g (s)		20.0	20.0					25.0		25.0	25.0	
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)		1889	593					1645		396	1657	
v/s Ratio Prot		c0.05						c0.14			0.14	
v/s Ratio Perm			0.00							0.03		
v/c Ratio		0.13	0.01					0.30		0.07	0.29	
Uniform Delay, d1		11.0	10.5					8.8		7.8	8.7	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.0		0.0	0.0	
Delay (s)		11.0	10.5					8.8		7.8	8.8	
Level of Service		B	B					A		A	A	
Approach Delay (s)		10.9			0.0			8.8			8.7	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	44.5%	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)	57	486	11	0	0	0	0	546	17	67	715	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					1.00		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5059	1583					3523		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.39	1.00	
Satd. Flow (perm)		5059	1583					3523		735	3539	
Peak-hour factor, PHF	0.81	0.81	0.81	0.92	0.92	0.92	0.94	0.94	0.94	0.81	0.81	0.81
Adj. Flow (vph)	70	600	14	0	0	0	0	581	18	83	883	0
RTOR Reduction (vph)	0	0	9	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	670	5	0	0	0	0	596	0	83	883	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					25.0		25.0	25.0	
Effective Green, g (s)		20.0	20.0					25.0		25.0	25.0	
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)		1895	593					1649		344	1657	
v/s Ratio Prot		c0.13						0.17			c0.25	
v/s Ratio Perm			0.00							0.11		
v/c Ratio		0.35	0.01					0.36		0.24	0.53	
Uniform Delay, d1		12.0	10.5					9.1		8.5	10.1	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.0		0.1	0.2	
Delay (s)		12.1	10.5					9.1		8.6	10.2	
Level of Service		B	B					A		A	B	
Approach Delay (s)		12.0			0.0			9.1			10.1	
Approach LOS		B			A			A			B	

Intersection Summary

HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	24	12	16	77	313	6	85	339	2	8	340	35
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	0.95	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	1863	1583	1681	1767	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	1681	1767	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.65	0.65	0.65	0.86	0.86	0.86	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	37	18	25	90	364	7	104	413	2	10	415	43
RTOR Reduction (vph)	0	0	23	0	0	3	0	0	1	0	0	32
Lane Group Flow (vph)	37	18	2	81	373	4	104	413	1	10	415	11
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)	7.4	7.4	7.4	35.6	35.6	35.6	10.0	31.4	31.4	1.1	22.5	22.5
Effective Green, g (s)	7.4	7.4	7.4	35.6	35.6	35.6	10.0	31.4	31.4	1.1	22.5	22.5
Actuated g/C Ratio	0.08	0.08	0.08	0.39	0.39	0.39	0.11	0.34	0.34	0.01	0.24	0.24
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)	142	150	127	650	683	612	192	1207	540	21	865	387
v/s Ratio Prot	c0.02	0.01		0.05	c0.21		c0.06	0.12		0.01	c0.12	
v/s Ratio Perm			0.00			0.00			0.00			0.01
v/c Ratio	0.26	0.12	0.02	0.12	0.55	0.01	0.54	0.34	0.00	0.48	0.48	0.03
Uniform Delay, d1	39.8	39.3	39.0	18.2	22.0	17.4	38.9	22.6	20.0	45.2	29.8	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	2.0	0.7	0.1	0.2	1.5	0.0	1.7	0.3	0.0	6.1	0.8	0.1
Delay (s)	41.8	40.1	39.1	18.4	23.5	17.4	40.6	23.0	20.0	51.3	30.6	26.5
Level of Service	D	D	D	B	C	B	D	C	C	D	C	C
Approach Delay (s)		40.5			22.5			26.5			30.7	
Approach LOS		D			C			C			C	

Intersection Summary

HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	92.1	Sum of lost time (s)	16.6
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	34	162	55	93	11	43	554	8	5	566	22
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	0.95	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	1863	1583	1681	1765	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	1681	1765	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.70	0.70	0.70	0.86	0.86	0.86	0.92	0.92	0.92	0.89	0.89	0.89
Adj. Flow (vph)	121	49	231	64	108	13	47	602	9	6	636	25
RTOR Reduction (vph)	0	0	187	0	0	11	0	0	5	0	0	12
Lane Group Flow (vph)	121	49	44	58	114	2	47	602	4	6	636	13
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)	14.7	14.7	14.7	13.6	13.6	13.6	4.2	30.6	30.6	0.9	27.3	27.3
Effective Green, g (s)	14.7	14.7	14.7	13.6	13.6	13.6	4.2	30.6	30.6	0.9	27.3	27.3
Actuated g/C Ratio	0.19	0.19	0.19	0.18	0.18	0.18	0.05	0.40	0.40	0.01	0.36	0.36
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)	341	358	305	299	314	282	97	1417	634	21	1265	566
v/s Ratio Prot	c0.07	0.03		0.03	c0.06		c0.03	c0.17		0.00	c0.18	
v/s Ratio Perm			0.03			0.00			0.00			0.01
v/c Ratio	0.35	0.14	0.15	0.19	0.36	0.01	0.48	0.42	0.01	0.29	0.50	0.02
Uniform Delay, d1	26.7	25.6	25.6	26.7	27.6	25.8	35.0	16.5	13.8	37.4	19.2	15.9
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	1.3	0.4	0.4	0.6	1.4	0.0	1.4	0.4	0.0	2.7	0.6	0.0
Delay (s)	28.0	25.9	26.1	27.4	29.0	25.9	36.4	17.0	13.8	40.2	19.9	15.9
Level of Service	C	C	C	C	C	C	D	B	B	D	B	B
Approach Delay (s)		26.6			28.3			18.3			19.9	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	20.8
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
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	89	112	0	0	40	338	0	0	368	111
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	
Lane Util. Factor		0.97	1.00			1.00	0.95			0.95	
Frt		1.00	0.85			1.00	1.00			0.97	
Flt Protected		0.95	1.00			0.95	1.00			1.00	
Satd. Flow (prot)		3433	1583			1770	3539			3416	
Flt Permitted		0.95	1.00			0.45	1.00			1.00	
Satd. Flow (perm)		3433	1583			831	3539			3416	
Peak-hour factor, PHF	0.69	0.69	0.69	0.92	0.92	0.81	0.81	0.81	0.87	0.87	0.87
Adj. Flow (vph)	51	129	162	0	0	49	417	0	0	423	128
RTOR Reduction (vph)	0	0	126	0	0	0	0	0	0	34	0
Lane Group Flow (vph)	0	180	36	0	0	49	417	0	0	517	0
Turn Type	Split		Perm			Perm					
Protected Phases	8	8					2			6	
Permitted Phases			8			2					
Actuated Green, G (s)		8.0	8.0			20.0	20.0			20.0	
Effective Green, g (s)		8.0	8.0			20.0	20.0			20.0	
Actuated g/C Ratio		0.22	0.22			0.55	0.55			0.55	
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)		755	348			457	1945			1877	
v/s Ratio Prot		c0.05					0.12			c0.15	
v/s Ratio Perm			0.02			0.06					
v/c Ratio		0.24	0.10			0.11	0.21			0.28	
Uniform Delay, d1		11.7	11.3			3.9	4.2			4.4	
Progression Factor		1.00	1.00			1.00	1.00			1.00	
Incremental Delay, d2		0.1	0.0			0.0	0.0			0.0	
Delay (s)		11.8	11.4			4.0	4.2			4.4	
Level of Service		B	B			A	A			A	
Approach Delay (s)		11.6		0.0			4.2			4.4	
Approach LOS		B		A			A			A	

Intersection Summary

HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	36.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
13: P St & Ventura Ave

4/25/2011

Movement	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	31	50	119	0	0	74	576	0	0	562	78
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	
Lane Util. Factor		0.97	1.00			1.00	0.95			0.95	
Frt		1.00	0.85			1.00	1.00			0.98	
Flt Protected		0.95	1.00			0.95	1.00			1.00	
Satd. Flow (prot)		3433	1583			1770	3539			3474	
Flt Permitted		0.95	1.00			0.37	1.00			1.00	
Satd. Flow (perm)		3433	1583			693	3539			3474	
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	38	61	145	0	0	81	633	0	0	646	90
RTOR Reduction (vph)	0	0	120	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	99	25	0	0	81	633	0	0	724	0
Turn Type	Split		Perm			Perm					
Protected Phases	8	8					2			6	
Permitted Phases			8			2					
Actuated Green, G (s)		6.0	6.0			20.5	20.5			20.5	
Effective Green, g (s)		6.0	6.0			20.5	20.5			20.5	
Actuated g/C Ratio		0.17	0.17			0.59	0.59			0.59	
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)		590	272			407	2079			2041	
v/s Ratio Prot		c0.03					0.18			c0.21	
v/s Ratio Perm			0.02			0.12					
v/c Ratio		0.17	0.09			0.20	0.30			0.35	
Uniform Delay, d1		12.3	12.2			3.4	3.6			3.8	
Progression Factor		1.00	1.00			1.00	1.00			1.00	
Incremental Delay, d2		0.0	0.1			0.1	0.0			0.0	
Delay (s)		12.4	12.2			3.5	3.6			3.8	
Level of Service		B	B			A	A			A	
Approach Delay (s)		12.3		0.0			3.6			3.8	
Approach LOS		B		A			A			A	

Intersection Summary

HCM Average Control Delay	4.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	34.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	293	4	12	389	153	6	142	5	130	103	64
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	0.95		1.00	0.95	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	3533		1770	3539	1583	1770	3520		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.67	1.00		0.63	1.00	1.00
Satd. Flow (perm)	1770	3533		1770	3539	1583	1255	3520		1171	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.75	0.75	0.75	0.79	0.79	0.79
Adj. Flow (vph)	73	318	4	15	480	189	8	189	7	165	130	81
RTOR Reduction (vph)	0	0	0	0	0	92	0	3	0	0	0	63
Lane Group Flow (vph)	73	322	0	15	480	97	8	193	0	165	130	18
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)	4.4	30.8		1.0	27.4	27.4	12.9	12.9		12.9	12.9	12.9
Effective Green, g (s)	4.4	30.8		1.0	27.4	27.4	12.9	12.9		12.9	12.9	12.9
Actuated g/C Ratio	0.08	0.53		0.02	0.47	0.47	0.22	0.22		0.22	0.22	0.22
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)	135	1879		31	1675	749	280	784		261	415	353
v/s Ratio Prot	c0.04	c0.09		0.01	c0.14			0.05			0.07	
v/s Ratio Perm						0.06	0.01			c0.14		0.01
v/c Ratio	0.54	0.17		0.48	0.29	0.13	0.03	0.25		0.63	0.31	0.05
Uniform Delay, d1	25.8	7.0		28.2	9.3	8.6	17.6	18.5		20.4	18.8	17.7
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	2.4	0.0		4.3	0.0	0.0	0.0	0.1		3.6	0.2	0.0
Delay (s)	28.1	7.0		32.5	9.3	8.6	17.6	18.6		24.0	19.0	17.7
Level of Service	C	A		C	A	A	B	B		C	B	B
Approach Delay (s)		10.9			9.6			18.5			20.9	
Approach LOS		B			A			B			C	

Intersection Summary

HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	17.8
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	510	7	21	392	255	10	217	16	188	165	102
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	0.95		1.00	0.95	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	3532		1770	3539	1583	1770	3502		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.61	1.00		0.59	1.00	1.00
Satd. Flow (perm)	1770	3532		1770	3539	1583	1127	3502		1105	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.77	0.77	0.77	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	127	543	7	27	509	331	11	238	18	211	185	115
RTOR Reduction (vph)	0	1	0	0	0	168	0	6	0	0	0	84
Lane Group Flow (vph)	127	549	0	27	509	163	11	250	0	211	185	31
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)	7.8	33.4		2.3	27.9	27.9	17.9	17.9		17.9	17.9	17.9
Effective Green, g (s)	7.8	33.4		2.3	27.9	27.9	17.9	17.9		17.9	17.9	17.9
Actuated g/C Ratio	0.12	0.50		0.03	0.42	0.42	0.27	0.27		0.27	0.27	0.27
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)	207	1766		61	1478	661	302	938		296	499	424
v/s Ratio Prot	c0.07	0.16		0.02	c0.14			0.07			0.10	
v/s Ratio Perm						0.10	0.01			c0.19		0.02
v/c Ratio	0.61	0.31		0.44	0.34	0.25	0.04	0.27		0.71	0.37	0.07
Uniform Delay, d1	28.1	9.9		31.6	13.2	12.6	18.1	19.3		22.1	19.9	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	3.8	0.0		1.9	0.1	0.1	0.0	0.1		6.6	0.2	0.0
Delay (s)	31.8	9.9		33.5	13.3	12.7	18.1	19.3		28.7	20.0	18.3
Level of Service	C	A		C	B	B	B	B		C	C	B
Approach Delay (s)		14.0			13.7			19.3			23.2	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	13.2
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	112	0	7	171	5	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.89	0.89	0.56	0.56
Hourly flow rate (vph)	124	0	8	192	9	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)	484			1037		
pX, platoon unblocked						
vC, conflicting volume			124		332	124
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			124		332	124
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		99	99
cM capacity (veh/h)			1462		659	926

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	124	200	16
Volume Left	0	8	9
Volume Right	0	0	7
cSH	1700	1462	756
Volume to Capacity	0.07	0.01	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.3	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.3	9.9
Approach LOS			A

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	148	0	4	166	4	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.89	0.89	0.40	0.40
Hourly flow rate (vph)	164	0	4	187	10	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)	484			1039		
pX, platoon unblocked						
vC, conflicting volume			164		360	164
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			164		360	164
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	99
cM capacity (veh/h)			1414		637	880

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	164	191	20
Volume Left	0	4	10
Volume Right	0	0	10
cSH	1700	1414	739
Volume to Capacity	0.10	0.00	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.2	10.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	10.0
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	84	102	174	14	5	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	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
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.59	0.59
Adj. Flow (vph)	105	128	218	18	8	247
RTOR Reduction (vph)	0	0	0	13	0	203
Lane Group Flow (vph)	105	128	218	5	8	44
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	4.3	17.3	9.0	9.0	5.5	5.5
Effective Green, g (s)	4.3	17.3	9.0	9.0	5.5	5.5
Actuated g/C Ratio	0.14	0.55	0.29	0.29	0.18	0.18
Clearance Time (s)	4.0	4.2	4.2	4.2	4.2	4.2
Vehicle Extension (s)	3.0	4.8	4.8	4.8	2.0	2.0
Lane Grp Cap (vph)	244	1033	537	457	312	279
v/s Ratio Prot	c0.06	0.07	c0.12		0.00	
v/s Ratio Perm				0.00		c0.03
v/c Ratio	0.43	0.12	0.41	0.01	0.03	0.16
Uniform Delay, d1	12.3	3.3	8.9	7.9	10.6	10.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.1	1.0	0.0	0.0	0.1
Delay (s)	13.5	3.4	9.9	7.9	10.6	11.0
Level of Service	B	A	A	A	B	B
Approach Delay (s)		8.0	9.8		11.0	
Approach LOS		A	A		B	

Intersection Summary

HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	31.2	Sum of lost time (s)	12.4
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	65	164	75	5	10	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	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
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.88	0.88	0.83	0.83	0.57	0.57
Adj. Flow (vph)	74	186	90	6	18	198
RTOR Reduction (vph)	0	0	0	5	0	150
Lane Group Flow (vph)	74	186	90	1	18	48
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	2.3	11.1	4.8	4.8	6.2	6.2
Effective Green, g (s)	2.3	11.1	4.8	4.8	6.2	6.2
Actuated g/C Ratio	0.09	0.43	0.19	0.19	0.24	0.24
Clearance Time (s)	4.0	4.2	4.2	4.2	4.2	4.2
Vehicle Extension (s)	3.0	4.8	4.8	4.8	2.0	2.0
Lane Grp Cap (vph)	158	805	348	296	427	382
v/s Ratio Prot	c0.04	c0.10	0.05		0.01	
v/s Ratio Perm				0.00		c0.03
v/c Ratio	0.47	0.23	0.26	0.00	0.04	0.13
Uniform Delay, d1	11.1	4.6	8.9	8.5	7.5	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.3	0.8	0.0	0.0	0.1
Delay (s)	13.3	4.9	9.7	8.5	7.5	7.7
Level of Service	B	A	A	A	A	A
Approach Delay (s)		7.3	9.6		7.7	
Approach LOS		A	A		A	

Intersection Summary

HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	25.7	Sum of lost time (s)	12.4
Intersection Capacity Utilization	23.1%	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)	5	102	13	31	455	54	21	53	5	6	28	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	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.95	
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	1833		1770	1838		1770	1762	
Flt Permitted	0.38	1.00	1.00	0.67	1.00		0.72	1.00		0.70	1.00	
Satd. Flow (perm)	700	1863	1583	1253	1833		1332	1838		1313	1762	
Peak-hour factor, PHF	0.77	0.77	0.77	0.89	0.89	0.89	0.73	0.73	0.73	0.69	0.69	0.69
Adj. Flow (vph)	6	132	17	35	511	61	29	73	7	9	41	23
RTOR Reduction (vph)	0	0	7	0	5	0	0	5	0	0	18	0
Lane Group Flow (vph)	6	132	10	35	567	0	29	75	0	9	46	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	28.8	28.8	28.8	28.8	28.8		10.7	10.7		10.7	10.7	
Effective Green, g (s)	28.8	28.8	28.8	28.8	28.8		10.7	10.7		10.7	10.7	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60		0.22	0.22		0.22	0.22	
Clearance Time (s)	4.2	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	0.2	
Lane Grp Cap (vph)	421	1120	952	753	1102		298	411		293	394	
v/s Ratio Prot		0.07			c0.31			c0.04			0.03	
v/s Ratio Perm	0.01		0.01	0.03			0.02			0.01		
v/c Ratio	0.01	0.12	0.01	0.05	0.51		0.10	0.18		0.03	0.12	
Uniform Delay, d1	3.8	4.1	3.8	3.9	5.5		14.8	15.1		14.5	14.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0	0.0	0.0	0.2		0.1	0.1		0.0	0.0	
Delay (s)	3.8	4.1	3.8	3.9	5.7		14.8	15.1		14.6	14.9	
Level of Service	A	A	A	A	A		B	B		B	B	
Approach Delay (s)		4.1			5.6			15.0			14.8	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	9	197	38	40	300	22	47	39	32	20	60	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	4.2		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	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	0.94	
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	1843		1770	1736		1770	1756	
Flt Permitted	0.48	1.00	1.00	0.62	1.00		0.67	1.00		0.70	1.00	
Satd. Flow (perm)	895	1863	1583	1161	1843		1252	1736		1308	1756	
Peak-hour factor, PHF	0.91	0.91	0.91	0.86	0.86	0.86	0.84	0.84	0.84	0.73	0.73	0.73
Adj. Flow (vph)	10	216	42	47	349	26	56	46	38	27	82	51
RTOR Reduction (vph)	0	0	23	0	5	0	0	24	0	0	32	0
Lane Group Flow (vph)	10	216	19	47	370	0	56	60	0	27	101	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	17.4	17.4	17.4	17.4	17.4		14.7	14.7		14.7	14.7	
Effective Green, g (s)	17.4	17.4	17.4	17.4	17.4		14.7	14.7		14.7	14.7	
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.43		0.36	0.36		0.36	0.36	
Clearance Time (s)	4.2	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	0.2	
Lane Grp Cap (vph)	385	800	680	499	792		454	630		475	637	
v/s Ratio Prot		0.12			c0.20			0.03			c0.06	
v/s Ratio Perm	0.01		0.01	0.04			0.04			0.02		
v/c Ratio	0.03	0.27	0.03	0.09	0.47		0.12	0.09		0.06	0.16	
Uniform Delay, d1	6.7	7.5	6.7	6.9	8.2		8.6	8.5		8.4	8.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.1	0.0	0.0	0.2		0.0	0.0		0.0	0.0	
Delay (s)	6.7	7.5	6.7	6.9	8.4		8.6	8.5		8.4	8.8	
Level of Service	A	A	A	A	A		A	A		A	A	
Approach Delay (s)		7.4			8.2			8.6			8.7	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	40.5	Sum of lost time (s)	8.4
Intersection Capacity Utilization	72.2%	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)	36	155	46	0	0	0	0	50	18	6	37	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		0.97						0.96		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4899						1797		1770	1863	
Flt Permitted		0.99						1.00		0.70	1.00	
Satd. Flow (perm)		4899						1797		1295	1863	
Peak-hour factor, PHF	0.77	0.77	0.77	0.92	0.92	0.92	0.71	0.71	0.71	0.90	0.90	0.90
Adj. Flow (vph)	47	201	60	0	0	0	0	70	25	7	41	0
RTOR Reduction (vph)	0	40	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	268	0	0	0	0	0	79	0	7	41	0
Turn Type	Split									Perm		
Protected Phases	2	2						8			4	
Permitted Phases										4		
Actuated Green, G (s)		9.7						9.7		9.7	9.7	
Effective Green, g (s)		9.7						9.7		9.7	9.7	
Actuated g/C Ratio		0.34						0.34		0.34	0.34	
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)		1673						614		442	636	
v/s Ratio Prot		c0.05						c0.04			0.02	
v/s Ratio Perm										0.01		
v/c Ratio		0.16						0.13		0.02	0.06	
Uniform Delay, d1		6.5						6.4		6.2	6.3	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.0						0.0		0.0	0.0	
Delay (s)		6.5						6.5		6.2	6.3	
Level of Service		A						A		A	A	
Approach Delay (s)		6.5			0.0			6.5			6.3	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	28.4	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)	18	385	23	0	0	0	0	53	92	38	59	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		0.99						0.91		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5034						1704		1770	1863	
Flt Permitted		1.00						1.00		0.63	1.00	
Satd. Flow (perm)		5034						1704		1182	1863	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.74	0.74	0.74	0.71	0.71	0.71
Adj. Flow (vph)	21	458	27	0	0	0	0	72	124	54	83	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	76	0	0	0	0
Lane Group Flow (vph)	0	494	0	0	0	0	0	120	0	54	83	0
Turn Type	Split									Perm		
Protected Phases	2	2						8			4	
Permitted Phases										4		
Actuated Green, G (s)		15.4						15.4		15.4	15.4	
Effective Green, g (s)		15.4						15.4		15.4	15.4	
Actuated g/C Ratio		0.39						0.39		0.39	0.39	
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)		1948						659		457	721	
v/s Ratio Prot		c0.10						c0.07			0.04	
v/s Ratio Perm										0.05		
v/c Ratio		0.25						0.18		0.12	0.12	
Uniform Delay, d1		8.3						8.0		7.8	7.8	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.0						0.0		0.0	0.0	
Delay (s)		8.3						8.1		7.9	7.9	
Level of Service		A						A		A	A	
Approach Delay (s)		8.3			0.0			8.1			7.9	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	39.8	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 Unsignalized Intersection Capacity Analysis
19: P St & Inyo St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	26	205	7	14	8	0	0	8	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.79	0.79	0.79	0.42	0.42	0.42
Hourly flow rate (vph)	0	0	0	32	250	9	18	10	0	0	19	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)		1000			1010							
pX, platoon unblocked												
vC, conflicting volume	259			0			215	322	0	323	318	129
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	259			0			215	322	0	323	318	129
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			98			97	98	100	100	97	98
cM capacity (veh/h)	1303			1622			682	582	1084	590	586	897

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	SW 1
Volume Total	157	134	18	10	36
Volume Left	32	0	18	0	0
Volume Right	0	9	0	0	17
cSH	1622	1700	682	582	699
Volume to Capacity	0.02	0.08	0.03	0.02	0.05
Queue Length 95th (ft)	1	0	2	1	4
Control Delay (s)	1.6	0.0	10.4	11.3	10.4
Lane LOS	A		B	B	B
Approach Delay (s)	0.9		10.7		10.4
Approach LOS			B		B

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	27	201	17	63	19	0	0	5	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.78	0.78	0.78	0.76	0.76	0.76	0.45	0.45	0.45
Hourly flow rate (vph)	0	0	0	35	258	22	83	25	0	0	11	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)		1000			1010							
pX, platoon unblocked												
vC, conflicting volume	279			0			213	349	0	350	338	140
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	279			0			213	349	0	350	338	140
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			98			88	96	100	100	98	99
cM capacity (veh/h)	1280			1622			696	562	1084	551	570	883

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	SW 1
Volume Total	163	151	83	25	20
Volume Left	35	0	83	0	0
Volume Right	0	22	0	0	9
cSH	1622	1700	696	562	676
Volume to Capacity	0.02	0.09	0.12	0.04	0.03
Queue Length 95th (ft)	2	0	10	3	2
Control Delay (s)	1.7	0.0	10.9	11.7	10.5
Lane LOS	A		B	B	B
Approach Delay (s)	0.9		11.1		10.5
Approach LOS			B		B

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
20: G St & Kern St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	19	98	8	12	145	22	2	16	10	4	7	3
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)		4.8			4.8			4.8			4.8	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			0.98			0.95			0.97	
Flt Protected		0.99			1.00			1.00			0.99	
Satd. Flow (prot)		3480			3463			1768			1786	
Flt Permitted		0.89			0.93			1.00			1.00	
Satd. Flow (perm)		3125			3216			1774			1812	
Peak-hour factor, PHF	0.78	0.78	0.78	0.84	0.84	0.84	0.88	0.88	0.88	0.70	0.70	0.70
Adj. Flow (vph)	24	126	10	14	173	26	2	18	11	6	10	4
RTOR Reduction (vph)	0	8	0	0	20	0	0	10	0	0	4	0
Lane Group Flow (vph)	0	152	0	0	193	0	0	21	0	0	16	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		2.8			2.8			0.6			0.6	
Effective Green, g (s)		2.8			2.8			0.6			0.6	
Actuated g/C Ratio		0.22			0.22			0.05			0.05	
Clearance Time (s)		4.8			4.8			4.8			4.8	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		673			693			82			84	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.06			c0.01			0.01	
v/c Ratio		0.23			0.28			0.25			0.19	
Uniform Delay, d1		4.2			4.3			6.0			6.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			0.6			0.4	
Delay (s)		4.3			4.3			6.6			6.4	
Level of Service		A			A			A			A	
Approach Delay (s)		4.3			4.3			6.6			6.4	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	4.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	13.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	23.9%	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)	4	117	15	17	153	3	23	18	22	9	29	11
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)		4.8			4.8			4.8			4.8	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.98			1.00			0.95			0.97	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		3476			3512			1742			1791	
Flt Permitted		0.94			0.91			1.00			1.00	
Satd. Flow (perm)		3262			3211			1774			1808	
Peak-hour factor, PHF	0.87	0.87	0.87	0.85	0.85	0.85	0.72	0.72	0.72	0.77	0.77	0.77
Adj. Flow (vph)	5	134	17	20	180	4	32	25	31	12	38	14
RTOR Reduction (vph)	0	13	0	0	3	0	0	28	0	0	13	0
Lane Group Flow (vph)	0	143	0	0	201	0	0	60	0	0	51	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		3.9			3.9			1.4			1.4	
Effective Green, g (s)		3.9			3.9			1.4			1.4	
Actuated g/C Ratio		0.26			0.26			0.09			0.09	
Clearance Time (s)		4.8			4.8			4.8			4.8	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		854			840			167			170	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.06			c0.03			0.03	
v/c Ratio		0.17			0.24			0.36			0.30	
Uniform Delay, d1		4.2			4.3			6.3			6.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.1			0.5			0.4	
Delay (s)		4.3			4.4			6.8			6.7	
Level of Service		A			A			A			A	
Approach Delay (s)		4.3			4.4			6.8			6.7	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	5.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	14.9	Sum of lost time (s)	9.6
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	171	67	158	162	11	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.86	0.86	0.70	0.70
Hourly flow rate (vph)	216	85	184	188	16	24
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		0.96	0.96
vC, conflicting volume			301		815	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			247		784	203
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		95	97
cM capacity (veh/h)			1262		296	802

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	301	372	40
Volume Left	0	184	16
Volume Right	85	0	24
cSH	1700	1262	480
Volume to Capacity	0.18	0.15	0.08
Queue Length 95th (ft)	0	13	7
Control Delay (s)	0.0	4.8	13.2
Lane LOS		A	B
Approach Delay (s)	0.0	4.8	13.2
Approach LOS			B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	177	16	22	166	38	54
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.75	0.75	0.74	0.74
Hourly flow rate (vph)	201	18	29	221	51	73
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			219		490	210
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			219		490	210
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		90	91
cM capacity (veh/h)			1350		526	830

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	219	251	124
Volume Left	0	29	51
Volume Right	18	0	73
cSH	1700	1350	670
Volume to Capacity	0.13	0.02	0.19
Queue Length 95th (ft)	0	2	17
Control Delay (s)	0.0	1.1	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	1.1	11.6
Approach LOS			B

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	19	44	4	3	38	6	7	76	4	3	61	21
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			0.98		1.00	0.99		1.00	0.96	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1823			1826		1770	1848		1770	1790	
Flt Permitted		0.92			0.99		0.69	1.00		0.70	1.00	
Satd. Flow (perm)		1708			1806		1290	1848		1295	1790	
Peak-hour factor, PHF	0.93	0.93	0.93	0.73	0.73	0.73	0.84	0.84	0.84	0.82	0.82	0.82
Adj. Flow (vph)	20	47	4	4	52	8	8	90	5	4	74	26
RTOR Reduction (vph)	0	3	0	0	6	0	0	2	0	0	11	0
Lane Group Flow (vph)	0	68	0	0	58	0	8	93	0	4	89	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		11.7			11.7		21.4	21.4		21.4	21.4	
Effective Green, g (s)		11.7			11.7		21.4	21.4		21.4	21.4	
Actuated g/C Ratio		0.28			0.28		0.52	0.52		0.52	0.52	
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)		482			509		665	953		668	923	
v/s Ratio Prot								c0.05			0.05	
v/s Ratio Perm		c0.04			0.03		0.01			0.00		
v/c Ratio		0.14			0.11		0.01	0.10		0.01	0.10	
Uniform Delay, d1		11.1			11.1		4.9	5.1		4.9	5.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			0.0		0.0	0.0		0.0	0.0	
Delay (s)		11.2			11.1		4.9	5.1		4.9	5.1	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		11.2			11.1			5.1			5.1	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	41.5	Sum of lost time (s)	8.4
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	21	74	17	8	63	10	13	71	14	25	140	27
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			0.98		1.00	0.98		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1808			1822		1770	1817		1770	1817	
Flt Permitted		0.94			0.97		0.63	1.00		0.69	1.00	
Satd. Flow (perm)		1714			1776		1175	1817		1285	1817	
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.82	0.82	0.82	0.83	0.83	0.83
Adj. Flow (vph)	23	80	18	10	75	12	16	87	17	30	169	33
RTOR Reduction (vph)	0	10	0	0	8	0	0	6	0	0	6	0
Lane Group Flow (vph)	0	111	0	0	89	0	16	98	0	30	196	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		11.7			11.7		21.3	21.3		21.3	21.3	
Effective Green, g (s)		11.7			11.7		21.3	21.3		21.3	21.3	
Actuated g/C Ratio		0.28			0.28		0.51	0.51		0.51	0.51	
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)		484			502		605	935		661	935	
v/s Ratio Prot								0.05			c0.11	
v/s Ratio Perm		c0.06			0.05		0.01			0.02		
v/c Ratio		0.23			0.18		0.03	0.10		0.05	0.21	
Uniform Delay, d1		11.4			11.2		4.9	5.2		5.0	5.5	
Progression Factor		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	0.0	
Delay (s)		11.5			11.3		5.0	5.2		5.0	5.5	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		11.5			11.3			5.1			5.4	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	41.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	7	29	2	2	13	9	3	90	8	11	84	18
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			0.95		1.00	0.99		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834			1760		1770	1840		1770	1813	
Flt Permitted		0.95			0.97		0.68	1.00		0.68	1.00	
Satd. Flow (perm)		1751			1721		1263	1840		1276	1813	
Peak-hour factor, PHF	0.59	0.59	0.59	0.75	0.75	0.75	0.87	0.87	0.87	0.83	0.83	0.83
Adj. Flow (vph)	12	49	3	3	17	12	3	103	9	13	101	22
RTOR Reduction (vph)	0	2	0	0	9	0	0	5	0	0	12	0
Lane Group Flow (vph)	0	62	0	0	23	0	3	107	0	13	111	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		7.6			7.6		14.0	14.0		14.0	14.0	
Effective Green, g (s)		7.6			7.6		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.25			0.25		0.47	0.47		0.47	0.47	
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)		444			436		589	859		595	846	
v/s Ratio Prot								0.06			c0.06	
v/s Ratio Perm		c0.04			0.01		0.00			0.01		
v/c Ratio		0.14			0.05		0.01	0.12		0.02	0.13	
Uniform Delay, d1		8.7			8.5		4.3	4.5		4.3	4.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.0		0.0	0.0		0.0	0.0	
Delay (s)		8.7			8.5		4.3	4.6		4.3	4.6	
Level of Service		A			A		A	A		A	A	
Approach Delay (s)		8.7			8.5			4.5			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	0.13		
Actuated Cycle Length (s)	30.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	11	46	16	4	41	17	4	72	12	17	151	29
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		0.97			0.96		1.00	0.98		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1794			1787		1770	1823		1770	1818	
Flt Permitted		0.96			0.99		0.63	1.00		0.69	1.00	
Satd. Flow (perm)		1736			1768		1167	1823		1291	1818	
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.85	0.85	0.85	0.86	0.86	0.86
Adj. Flow (vph)	14	58	20	4	45	19	5	85	14	20	176	34
RTOR Reduction (vph)	0	14	0	0	14	0	0	7	0	0	12	0
Lane Group Flow (vph)	0	78	0	0	54	0	5	92	0	20	198	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		12.4			12.4		22.7	22.7		22.7	22.7	
Effective Green, g (s)		12.4			12.4		22.7	22.7		22.7	22.7	
Actuated g/C Ratio		0.29			0.29		0.52	0.52		0.52	0.52	
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)		495			504		609	951		674	949	
v/s Ratio Prot								0.05			c0.11	
v/s Ratio Perm		c0.04			0.03		0.00			0.02		
v/c Ratio		0.16			0.11		0.01	0.10		0.03	0.21	
Uniform Delay, d1		11.6			11.5		5.0	5.2		5.1	5.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.0		0.0	0.0		0.0	0.0	
Delay (s)		11.7			11.5		5.0	5.3		5.1	5.6	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		11.7			11.5			5.2			5.6	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	43.5	Sum of lost time (s)	8.4
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
24: G St & Tulare St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	17	100	7	6	114	36	13	85	12	17	91	22
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			0.95		1.00	1.00		1.00	1.00	
Frt		0.99			0.97		1.00	0.98		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3485			3411		1770	1828		1770	1808	
Flt Permitted		0.92			0.95		0.68	1.00		0.68	1.00	
Satd. Flow (perm)		3214			3238		1269	1828		1275	1808	
Peak-hour factor, PHF	0.78	0.78	0.78	0.83	0.83	0.83	0.86	0.86	0.86	0.96	0.96	0.96
Adj. Flow (vph)	22	128	9	7	137	43	15	99	14	18	95	23
RTOR Reduction (vph)	0	5	0	0	22	0	0	8	0	0	14	0
Lane Group Flow (vph)	0	154	0	0	165	0	15	105	0	18	104	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		20.7			20.7		13.1	13.1		13.1	13.1	
Effective Green, g (s)		20.7			20.7		13.1	13.1		13.1	13.1	
Actuated g/C Ratio		0.49			0.49		0.31	0.31		0.31	0.31	
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)		1577			1588		394	567		396	561	
v/s Ratio Prot								0.06			c0.06	
v/s Ratio Perm		0.05			c0.05		0.01			0.01		
v/c Ratio		0.10			0.10		0.04	0.18		0.05	0.19	
Uniform Delay, d1		5.8			5.8		10.2	10.6		10.2	10.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			0.0		0.0	0.1		0.0	0.1	
Delay (s)		5.8			5.8		10.2	10.7		10.2	10.7	
Level of Service		A			A		B	B		B	B	
Approach Delay (s)		5.8			5.8			10.6			10.6	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	42.2	Sum of lost time (s)	8.4
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
24: G St & Tulare St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	18	83	6	18	149	18	8	83	21	32	184	41
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			0.95		1.00	1.00		1.00	1.00	
Frt		0.99			0.99		1.00	0.97		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3479			3470		1770	1805		1770	1812	
Flt Permitted		0.91			0.93		0.49	1.00		0.68	1.00	
Satd. Flow (perm)		3177			3244		906	1805		1276	1812	
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.93	0.93	0.93	0.78	0.78	0.78
Adj. Flow (vph)	23	105	8	20	164	20	9	89	23	41	236	53
RTOR Reduction (vph)	0	4	0	0	10	0	0	14	0	0	12	0
Lane Group Flow (vph)	0	132	0	0	194	0	9	98	0	41	277	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		30.0			30.0		19.0	19.0		19.0	19.0	
Effective Green, g (s)		30.0			30.0		19.0	19.0		19.0	19.0	
Actuated g/C Ratio		0.52			0.52		0.33	0.33		0.33	0.33	
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)		1660			1695		300	597		422	600	
v/s Ratio Prot								0.05			c0.15	
v/s Ratio Perm		0.04			c0.06		0.01			0.03		
v/c Ratio		0.08			0.11		0.03	0.16		0.10	0.46	
Uniform Delay, d1		6.8			7.0		13.0	13.6		13.3	15.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			0.0		0.0	0.0		0.0	0.2	
Delay (s)		6.8			7.0		13.0	13.6		13.3	15.4	
Level of Service		A			A		B	B		B	B	
Approach Delay (s)		6.8			7.0			13.6			15.1	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	200	194	17	15	134	24	31	98	12	39	110	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	4.5		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	0.98		1.00	0.98		1.00	0.94	
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	1820		1770	3480		1770	3324	
Flt Permitted	0.64	1.00	1.00	0.57	1.00		0.61	1.00		0.67	1.00	
Satd. Flow (perm)	1197	1863	1583	1053	1820		1144	3480		1241	3324	
Peak-hour factor, PHF	0.74	0.74	0.74	0.87	0.87	0.87	0.82	0.82	0.82	0.84	0.84	0.84
Adj. Flow (vph)	270	262	23	17	154	28	38	120	15	46	131	89
RTOR Reduction (vph)	0	0	14	0	11	0	0	8	0	0	50	0
Lane Group Flow (vph)	270	262	9	17	171	0	38	127	0	46	170	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	23.0	23.0	23.0	23.0	23.0		25.0	25.0		25.0	25.0	
Effective Green, g (s)	23.0	23.0	23.0	23.0	23.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio	0.41	0.41	0.41	0.41	0.41		0.44	0.44		0.44	0.44	
Clearance Time (s)	4.5	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	0.2	
Lane Grp Cap (vph)	486	756	642	427	738		504	1534		547	1466	
v/s Ratio Prot		0.14			0.09			0.04			c0.05	
v/s Ratio Perm	c0.23		0.01	0.02			0.03			0.04		
v/c Ratio	0.56	0.35	0.01	0.04	0.23		0.08	0.08		0.08	0.12	
Uniform Delay, d1	12.9	11.7	10.1	10.2	11.1		9.2	9.2		9.2	9.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.1	0.0	0.0	0.1		0.0	0.0		0.0	0.0	
Delay (s)	13.7	11.8	10.1	10.2	11.1		9.2	9.2		9.2	9.4	
Level of Service	B	B	B	B	B		A	A		A	A	
Approach Delay (s)		12.6			11.0			9.2			9.3	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	8.7
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	99	160	41	22	149	43	16	90	11	37	191	102
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		4.2	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	0.97		1.00	0.98		1.00	0.95	
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	1800		1770	3481		1770	3354	
Flt Permitted	0.58	1.00	1.00	0.64	1.00		0.55	1.00		0.68	1.00	
Satd. Flow (perm)	1073	1863	1583	1193	1800		1029	3481		1262	3354	
Peak-hour factor, PHF	0.86	0.86	0.86	0.76	0.76	0.76	0.86	0.86	0.86	0.89	0.89	0.89
Adj. Flow (vph)	115	186	48	29	196	57	19	105	13	42	215	115
RTOR Reduction (vph)	0	0	29	0	17	0	0	7	0	0	64	0
Lane Group Flow (vph)	115	186	19	29	236	0	19	111	0	42	266	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	23.0	23.0	23.0	23.0	23.0		25.0	25.0		25.0	25.0	
Effective Green, g (s)	23.0	23.0	23.0	23.0	23.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio	0.41	0.41	0.41	0.41	0.41		0.44	0.44		0.44	0.44	
Clearance Time (s)	4.5	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	0.2	
Lane Grp Cap (vph)	435	756	642	484	730		454	1535		556	1479	
v/s Ratio Prot		0.10			c0.13			0.03			c0.08	
v/s Ratio Perm	0.11		0.01	0.02			0.02			0.03		
v/c Ratio	0.26	0.25	0.03	0.06	0.32		0.04	0.07		0.08	0.18	
Uniform Delay, d1	11.2	11.1	10.1	10.3	11.5		9.0	9.2		9.2	9.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.0	0.1		0.0	0.0		0.0	0.0	
Delay (s)	11.3	11.2	10.1	10.3	11.6		9.0	9.2		9.2	9.6	
Level of Service	B	B	B	B	B		A	A		A	A	
Approach Delay (s)		11.1			11.5			9.1			9.6	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	8.7
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	108	52	49	377	54	71	215	21	37	164	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	0.95		1.00	0.98		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1772		1770	3472		1770	3493		1770	3281	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1772		1770	3472		1770	3493		1770	3281	
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	89	112	54	55	424	61	96	291	28	50	222	211
RTOR Reduction (vph)	0	19	0	0	13	0	0	8	0	0	160	0
Lane Group Flow (vph)	89	147	0	55	472	0	96	311	0	50	273	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	21.0		3.9	18.7		6.3	17.6		3.8	15.1	
Effective Green, g (s)	6.2	21.0		3.9	18.7		6.3	17.6		3.8	15.1	
Actuated g/C Ratio	0.10	0.33		0.06	0.30		0.10	0.28		0.06	0.24	
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)	175	593		110	1036		178	980		107	790	
v/s Ratio Prot	c0.05	0.08		0.03	c0.14		c0.05	c0.09		0.03	0.08	
v/s Ratio Perm												
v/c Ratio	0.51	0.25		0.50	0.46		0.54	0.32		0.47	0.35	
Uniform Delay, d1	26.8	15.1		28.5	17.9		26.8	17.8		28.5	19.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.5		1.3	0.7		1.6	0.4		1.2	0.6	
Delay (s)	27.7	15.6		29.8	18.5		28.4	18.2		29.6	20.3	
Level of Service	C	B		C	B		C	B		C	C	
Approach Delay (s)		19.8			19.7			20.6			21.2	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	12.2
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	82	178	48	58	345	45	47	187	21	38	208	159
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	0.97		1.00	0.98		1.00	0.99		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	1803		1770	3478		1770	3486		1770	3309	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1803		1770	3478		1770	3486		1770	3309	
Peak-hour factor, PHF	0.94	0.94	0.94	0.87	0.87	0.87	0.86	0.86	0.86	0.78	0.78	0.78
Adj. Flow (vph)	87	189	51	67	397	52	55	217	24	49	267	204
RTOR Reduction (vph)	0	11	0	0	12	0	0	10	0	0	150	0
Lane Group Flow (vph)	87	229	0	67	437	0	55	231	0	49	321	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	4.3	17.2		3.9	16.8		3.6	14.9		3.5	14.8	
Effective Green, g (s)	4.3	17.2		3.9	16.8		3.6	14.9		3.5	14.8	
Actuated g/C Ratio	0.08	0.31		0.07	0.30		0.06	0.27		0.06	0.26	
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)	136	555		123	1045		114	929		111	876	
v/s Ratio Prot	c0.05	c0.13		0.04	0.13		c0.03	0.07		0.03	c0.10	
v/s Ratio Perm												
v/c Ratio	0.64	0.41		0.54	0.42		0.48	0.25		0.44	0.37	
Uniform Delay, d1	25.0	15.3		25.1	15.6		25.3	16.1		25.3	16.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	1.0		2.6	0.6		1.2	0.3		1.0	0.5	
Delay (s)	32.1	16.4		27.8	16.2		26.4	16.4		26.3	17.3	
Level of Service	C	B		C	B		C	B		C	B	
Approach Delay (s)		20.6			17.7			18.3			18.1	
Approach LOS		C			B			B			B	

Intersection Summary

HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	12.2
Intersection Capacity Utilization	43.5%	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)	129	183	180	0	0	0	0	281	56	77	552	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					0.98		1.00	1.00	
Flt Protected		0.98	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		4982	1583					3451		1770	3539	
Flt Permitted		0.98	1.00					1.00		0.52	1.00	
Satd. Flow (perm)		4982	1583					3451		969	3539	
Peak-hour factor, PHF	0.85	0.85	0.85	0.92	0.92	0.92	0.86	0.86	0.86	0.91	0.91	0.91
Adj. Flow (vph)	152	215	212	0	0	0	0	327	65	85	607	0
RTOR Reduction (vph)	0	0	136	0	0	0	0	30	0	0	0	0
Lane Group Flow (vph)	0	367	76	0	0	0	0	362	0	85	607	0
Turn Type	Split		Perm							Perm		
Protected Phases	2	2						4			4	
Permitted Phases			2							4		
Actuated Green, G (s)		19.0	19.0					26.0		26.0	26.0	
Effective Green, g (s)		19.0	19.0					26.0		26.0	26.0	
Actuated g/C Ratio		0.35	0.35					0.48		0.48	0.48	
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)		1753	557					1662		467	1704	
v/s Ratio Prot		c0.07						0.10			c0.17	
v/s Ratio Perm			0.05							0.09		
v/c Ratio		0.21	0.14					0.22		0.18	0.36	
Uniform Delay, d1		12.2	11.9					8.1		8.0	8.8	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.0		0.1	0.0	
Delay (s)		12.3	12.0					8.1		8.0	8.8	
Level of Service		B	B					A		A	A	
Approach Delay (s)		12.2			0.0			8.1			8.7	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	54.0	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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	154	265	104	0	0	0	0	444	36	66	392	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					0.99		1.00	1.00	
Flt Protected		0.98	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		4994	1583					3499		1770	3539	
Flt Permitted		0.98	1.00					1.00		0.43	1.00	
Satd. Flow (perm)		4994	1583					3499		795	3539	
Peak-hour factor, PHF	0.59	0.59	0.59	0.92	0.92	0.92	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	261	449	176	0	0	0	0	516	42	69	413	0
RTOR Reduction (vph)	0	0	114	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	710	62	0	0	0	0	547	0	69	413	0
Turn Type	Split		Perm							Perm		
Protected Phases	2	2						4			4	
Permitted Phases			2							4		
Actuated Green, G (s)		19.0	19.0					26.0		26.0	26.0	
Effective Green, g (s)		19.0	19.0					26.0		26.0	26.0	
Actuated g/C Ratio		0.35	0.35					0.48		0.48	0.48	
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)		1757	557					1685		383	1704	
v/s Ratio Prot		c0.14						c0.16			0.12	
v/s Ratio Perm			0.04							0.09		
v/c Ratio		0.40	0.11					0.32		0.18	0.24	
Uniform Delay, d1		13.2	11.8					8.6		7.9	8.2	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.1	0.0					0.0		0.1	0.0	
Delay (s)		13.3	11.8					8.6		8.0	8.2	
Level of Service		B	B					A		A	A	
Approach Delay (s)		13.0			0.0			8.6			8.2	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	54.0	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
28: P St & Tulare St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	31	148	43	41	214	0	0	962	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	362	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.82	0.82	0.82	0.83	0.83	0.83	0.80	0.80	0.80
Adj. Flow (vph)	0	0	0	38	180	52	49	258	0	0	1202	129
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	55
Lane Group Flow (vph)	0	0	0	38	180	10	49	258	0	0	1202	74
Turn Type				Split		Perm	Perm					Perm
Protected Phases				6	6			8			4	
Permitted Phases						6	8					4
Actuated Green, G (s)				7.1	7.1	7.1	20.6	20.6			20.6	20.6
Effective Green, g (s)				7.1	7.1	7.1	20.6	20.6			20.6	20.6
Actuated g/C Ratio				0.20	0.20	0.20	0.57	0.57			0.57	0.57
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)				348	366	311	207	2019			2019	903
v/s Ratio Prot				0.02	c0.10			0.07			c0.34	
v/s Ratio Perm						0.01	0.14					0.05
v/c Ratio				0.11	0.49	0.03	0.24	0.13			0.60	0.08
Uniform Delay, d1				11.9	12.9	11.7	3.8	3.6			5.0	3.5
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.1	1.0	0.0	1.2	0.1			0.7	0.1
Delay (s)				12.0	13.9	11.8	5.1	3.6			5.8	3.6
Level of Service				B	B	B	A	A			A	A
Approach Delay (s)		0.0			13.3			3.9			5.5	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	36.1	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

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	38	125	95	14	938	0	0	406	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				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	0.47	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	866	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.83	0.83	0.83	0.77	0.77	0.77	0.80	0.80	0.80
Adj. Flow (vph)	0	0	0	46	151	114	18	1218	0	0	508	38
RTOR Reduction (vph)	0	0	0	0	0	32	0	0	0	0	0	16
Lane Group Flow (vph)	0	0	0	46	151	82	18	1218	0	0	508	22
Turn Type				Split		Perm	Perm					Perm
Protected Phases				6	6			8			4	
Permitted Phases						6	8					4
Actuated Green, G (s)				6.7	6.7	6.7	20.6	20.6			20.6	20.6
Effective Green, g (s)				6.7	6.7	6.7	20.6	20.6			20.6	20.6
Actuated g/C Ratio				0.19	0.19	0.19	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)				332	350	297	500	2042			2042	913
v/s Ratio Prot				0.03	c0.08			c0.34			0.14	
v/s Ratio Perm						0.05	0.02					0.01
v/c Ratio				0.14	0.43	0.27	0.04	0.60			0.25	0.02
Uniform Delay, d1				12.1	12.8	12.4	3.3	4.9			3.7	3.2
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.2	0.9	0.5	0.1	0.7			0.1	0.0
Delay (s)				12.3	13.7	12.9	3.3	5.6			3.9	3.3
Level of Service				B	B	B	A	A			A	A
Approach Delay (s)		0.0			13.2			5.6			3.8	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	35.7	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

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	156	43	63	210	81	31	199	20	90	984	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	3491		1770	3487	
Flt Permitted	0.53	1.00	1.00	0.62	1.00	1.00	0.13	1.00		0.60	1.00	
Satd. Flow (perm)	993	1863	1583	1147	1863	1583	247	3491		1121	3487	
Peak-hour factor, PHF	0.76	0.76	0.76	0.80	0.80	0.80	0.91	0.91	0.91	0.82	0.82	0.82
Adj. Flow (vph)	49	205	57	79	262	101	34	219	22	110	1200	130
RTOR Reduction (vph)	0	0	32	0	0	68	0	11	0	0	13	0
Lane Group Flow (vph)	49	205	25	79	262	33	34	230	0	110	1317	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	30.2	30.2		30.2	30.2	
Effective Green, g (s)	19.0	19.0	19.0	19.0	19.0	19.0	30.2	30.2		30.2	30.2	
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)	325	610	519	376	610	519	129	1818		584	1816	
v/s Ratio Prot		0.11			c0.14			0.07			c0.38	
v/s Ratio Perm	0.05		0.02	0.07		0.02	0.14			0.10		
v/c Ratio	0.15	0.34	0.05	0.21	0.43	0.06	0.26	0.13		0.19	0.72	
Uniform Delay, d1	13.8	14.7	13.3	14.1	15.3	13.4	7.7	7.1		7.4	10.7	
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	0.1	0.1	0.0	0.1	0.2	0.0	0.4	0.0		0.1	1.2	
Delay (s)	13.9	14.9	13.3	14.2	15.4	13.4	8.1	7.1		7.4	11.9	
Level of Service	B	B	B	B	B	B	A	A		A	B	
Approach Delay (s)		14.4			14.7			7.3			11.6	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	113	225	33	47	193	103	32	892	63	60	331	46
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	0.98	
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	3504		1770	3474	
Flt Permitted	0.50	1.00	1.00	0.51	1.00	1.00	0.49	1.00		0.14	1.00	
Satd. Flow (perm)	925	1863	1583	951	1863	1583	917	3504		267	3474	
Peak-hour factor, PHF	0.81	0.81	0.81	0.67	0.67	0.67	0.78	0.78	0.78	0.84	0.84	0.84
Adj. Flow (vph)	140	278	41	70	288	154	41	1144	81	71	394	55
RTOR Reduction (vph)	0	0	28	0	0	37	0	9	0	0	18	0
Lane Group Flow (vph)	140	278	13	70	288	117	41	1216	0	71	431	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	30.2	30.2		30.2	30.2	
Effective Green, g (s)	19.0	19.0	19.0	19.0	19.0	19.0	30.2	30.2		30.2	30.2	
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)	303	610	519	312	610	519	477	1824		139	1809	
v/s Ratio Prot		0.15			c0.15			c0.35			0.12	
v/s Ratio Perm	0.15		0.01	0.07		0.07	0.04			0.27		
v/c Ratio	0.46	0.46	0.03	0.22	0.47	0.23	0.09	0.67		0.51	0.24	
Uniform Delay, d1	15.5	15.4	13.2	14.2	15.5	14.2	7.0	10.2		9.1	7.6	
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	0.4	0.2	0.0	0.1	0.2	0.1	0.0	0.7		1.3	0.0	
Delay (s)	15.9	15.6	13.2	14.3	15.7	14.2	7.0	10.9		10.4	7.6	
Level of Service	B	B	B	B	B	B	A	B		B	A	
Approach Delay (s)		15.5			15.1			10.8			8.0	
Approach LOS		B			B			B			A	

Intersection Summary

HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	92.7%	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)	30	79	38	0	0	0	21	285	42	169	1147	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	0.98		1.00	0.98	
Flt Protected		0.99	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1837	1583				1770	3471		1770	3474	
Flt Permitted		0.99	1.00				0.13	1.00		0.54	1.00	
Satd. Flow (perm)		1837	1583				251	3471		1012	3474	
Peak-hour factor, PHF	0.74	0.74	0.74	0.92	0.92	0.92	0.94	0.94	0.94	0.87	0.87	0.87
Adj. Flow (vph)	41	107	51	0	0	0	22	303	45	194	1318	184
RTOR Reduction (vph)	0	0	21	0	0	0	0	12	0	0	11	0
Lane Group Flow (vph)	0	148	30	0	0	0	22	336	0	194	1491	0
Turn Type	Split		Perm				Perm			Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)		6.2	6.2				29.7	29.7		29.7	29.7	
Effective Green, g (s)		6.2	6.2				29.7	29.7		29.7	29.7	
Actuated g/C Ratio		0.14	0.14				0.66	0.66		0.66	0.66	
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)		253	218				165	2286		666	2288	
v/s Ratio Prot		c0.08						0.10			c0.43	
v/s Ratio Perm			0.02				0.09			0.19		
v/c Ratio		0.58	0.14				0.13	0.15		0.29	0.65	
Uniform Delay, d1		18.2	17.1				2.9	2.9		3.3	4.6	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.2	0.1				0.5	0.0		0.4	0.8	
Delay (s)		20.5	17.2				3.4	3.0		3.6	5.4	
Level of Service		C	B				A	A		A	A	
Approach Delay (s)		19.6			0.0			3.0			5.2	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	45.1	Sum of lost time (s)	9.2
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	75	136	20	0	0	0	23	915	83	140	534	66
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)		1830	1583				1770	3495		1770	3481	
Flt Permitted		0.98	1.00				0.41	1.00		0.13	1.00	
Satd. Flow (perm)		1830	1583				766	3495		250	3481	
Peak-hour factor, PHF	0.70	0.70	0.70	0.92	0.92	0.92	0.72	0.72	0.72	0.95	0.95	0.95
Adj. Flow (vph)	107	194	29	0	0	0	32	1271	115	147	562	69
RTOR Reduction (vph)	0	0	20	0	0	0	0	8	0	0	11	0
Lane Group Flow (vph)	0	301	9	0	0	0	32	1378	0	147	620	0
Turn Type	Split		Perm				Perm			Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)		11.5	11.5				30.5	30.5		30.5	30.5	
Effective Green, g (s)		11.5	11.5				30.5	30.5		30.5	30.5	
Actuated g/C Ratio		0.22	0.22				0.60	0.60		0.60	0.60	
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)		411	356				456	2082		149	2074	
v/s Ratio Prot		c0.16						0.39			0.18	
v/s Ratio Perm			0.01				0.04			c0.59		
v/c Ratio		0.73	0.02				0.07	0.66		0.99	0.30	
Uniform Delay, d1		18.4	15.5				4.4	6.9		10.1	5.1	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.7	0.0				0.1	0.9		69.3	0.1	
Delay (s)		24.1	15.5				4.5	7.8		79.4	5.2	
Level of Service		C	B				A	A		E	A	
Approach Delay (s)		23.4			0.0			7.7			19.2	
Approach LOS		C			A			A			B	

Intersection Summary

HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	51.2	Sum of lost time (s)	9.2
Intersection Capacity Utilization	59.1%	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	839	0	315	617	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	0.85	0.85	0.89	0.89	0.77	0.77
Adj. Flow (vph)	0	987	0	354	801	0
RTOR Reduction (vph)	0	511	0	0	0	0
Lane Group Flow (vph)	0	476	0	354	801	0
Turn Type		custom				
Protected Phases				6	4	
Permitted Phases		7				
Actuated Green, G (s)		17.8		10.9	17.3	
Effective Green, g (s)		17.8		10.9	17.3	
Actuated g/C Ratio		0.48		0.30	0.47	
Clearance Time (s)		4.1		4.1	4.6	
Vehicle Extension (s)		1.2		3.0	4.0	
Lane Grp Cap (vph)		1344		1045	1659	
v/s Ratio Prot				c0.10	c0.23	
v/s Ratio Perm		0.17				
v/c Ratio		0.35		0.34	0.48	
Uniform Delay, d1		6.0		10.2	6.7	
Progression Factor		1.00		1.00	1.00	
Incremental Delay, d2		0.1		0.2	0.3	
Delay (s)		6.0		10.4	7.0	
Level of Service		A		B	A	
Approach Delay (s)	6.0			10.4	7.0	
Approach LOS	A			B	A	

Intersection Summary

HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	36.9	Sum of lost time (s)	8.7
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	0	286	0	991	465	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	0.91	0.91	0.72	0.72	0.92	0.92
Adj. Flow (vph)	0	314	0	1376	505	0
RTOR Reduction (vph)	0	213	0	0	0	0
Lane Group Flow (vph)	0	101	0	1376	505	0
Turn Type		custom				
Protected Phases				6	4	
Permitted Phases		7				
Actuated Green, G (s)		13.8		21.0	13.3	
Effective Green, g (s)		13.8		21.0	13.3	
Actuated g/C Ratio		0.32		0.49	0.31	
Clearance Time (s)		4.1		4.1	4.6	
Vehicle Extension (s)		1.2		3.0	4.0	
Lane Grp Cap (vph)		894		1728	1095	
v/s Ratio Prot				c0.39	c0.14	
v/s Ratio Perm		0.04				
v/c Ratio		0.11		0.80	0.46	
Uniform Delay, d1		10.3		9.2	12.0	
Progression Factor		1.00		1.00	1.00	
Incremental Delay, d2		0.0		2.6	0.4	
Delay (s)		10.3		11.8	12.4	
Level of Service		B		B	B	
Approach Delay (s)	10.3			11.8	12.4	
Approach LOS	B			B	B	

Intersection Summary

HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	43.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	489	5	0	283	0	0	0	0	434	856	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)		3534			3539					1610	3382	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3534			3539					1610	3382	1583
Peak-hour factor, PHF	0.86	0.86	0.86	0.72	0.72	0.72	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	569	6	0	393	0	0	0	0	477	941	900
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	167
Lane Group Flow (vph)	0	573	0	0	393	0	0	0	0	429	989	733
Turn Type										Perm		Perm
Protected Phases		4			8						2	
Permitted Phases										2		2
Actuated Green, G (s)		11.6			11.6					16.1	16.1	16.1
Effective Green, g (s)		11.6			11.6					16.1	16.1	16.1
Actuated g/C Ratio		0.32			0.32					0.45	0.45	0.45
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)		1148			1150					726	1525	714
v/s Ratio Prot		c0.16			0.11							
v/s Ratio Perm										0.27	0.29	c0.46
v/c Ratio		0.50			0.34					0.59	0.65	1.03
Uniform Delay, d1		9.7			9.2					7.3	7.6	9.8
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.3			0.2					1.3	1.0	40.5
Delay (s)		10.1			9.3					8.6	8.6	50.3
Level of Service		B			A					A	A	D
Approach Delay (s)		10.1			9.3			0.0			24.8	
Approach LOS		B			A			A			C	

Intersection Summary

HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	35.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	979	9	0	252	0	0	0	0	543	281	309
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	0.98	1.00
Satd. Flow (prot)		3534			3539					1610	3309	1583
Flt Permitted		1.00			1.00					0.95	0.98	1.00
Satd. Flow (perm)		3534			3539					1610	3309	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.97	0.97	0.97	0.92	0.92	0.92	0.97	0.97	0.97
Adj. Flow (vph)	0	1100	10	0	260	0	0	0	0	560	290	319
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	202
Lane Group Flow (vph)	0	1108	0	0	260	0	0	0	0	280	570	117
Turn Type										Perm		Perm
Protected Phases		4			8						2	
Permitted Phases										2		2
Actuated Green, G (s)		15.4			15.4					13.5	13.5	13.5
Effective Green, g (s)		15.4			15.4					13.5	13.5	13.5
Actuated g/C Ratio		0.42			0.42					0.37	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)		1475			1477					589	1211	579
v/s Ratio Prot		c0.31			0.07							
v/s Ratio Perm										c0.17	0.17	0.07
v/c Ratio		0.75			0.18					0.48	0.47	0.20
Uniform Delay, d1		9.1			6.8					9.0	9.0	8.0
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		2.2			0.1					0.6	0.3	0.2
Delay (s)		11.3			6.8					9.6	9.3	8.2
Level of Service		B			A					A	A	A
Approach Delay (s)		11.3			6.8			0.0			9.0	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	36.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	131	167	0	407	212	169
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	0.83	0.83	0.75	0.75	0.82	0.82
Adj. Flow (vph)	158	201	0	543	259	206
RTOR Reduction (vph)	0	133	0	0	0	99
Lane Group Flow (vph)	158	68	0	543	259	107
Turn Type		Perm				Perm
Protected Phases	6			6	8	
Permitted Phases		6				8
Actuated Green, G (s)	20.0	20.0		20.0	30.7	30.7
Effective Green, g (s)	20.0	20.0		20.0	30.7	30.7
Actuated g/C Ratio	0.34	0.34		0.34	0.52	0.52
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)	1202	538		1202	923	825
v/s Ratio Prot	0.04			c0.15	c0.15	
v/s Ratio Perm		0.04				0.07
v/c Ratio	0.13	0.13		0.45	0.28	0.13
Uniform Delay, d1	13.4	13.4		15.2	7.9	7.2
Progression Factor	1.00	1.00		0.63	1.00	1.00
Incremental Delay, d2	0.0	0.1		0.2	0.1	0.0
Delay (s)	13.5	13.5		9.7	8.0	7.3
Level of Service	B	B		A	A	A
Approach Delay (s)	13.5			9.7	7.7	
Approach LOS	B			A	A	

Intersection Summary

HCM Average Control Delay	10.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	8.2
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	368	685	0	339	125	279
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	0.73	0.73	0.92	0.92	0.95	0.95
Adj. Flow (vph)	504	938	0	368	132	294
RTOR Reduction (vph)	0	584	0	0	0	61
Lane Group Flow (vph)	504	354	0	368	132	233
Turn Type		Perm				Perm
Protected Phases	6			6	8	
Permitted Phases		6				8
Actuated Green, G (s)	21.2	21.2		21.2	26.7	26.7
Effective Green, g (s)	21.2	21.2		21.2	26.7	26.7
Actuated g/C Ratio	0.38	0.38		0.38	0.48	0.48
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)	1337	598		1337	842	753
v/s Ratio Prot	0.14			0.10	0.07	
v/s Ratio Perm		c0.22				c0.15
v/c Ratio	0.38	0.59		0.28	0.16	0.31
Uniform Delay, d1	12.7	14.0		12.1	8.3	9.0
Progression Factor	1.00	1.00		0.59	1.00	1.00
Incremental Delay, d2	0.2	1.6		0.1	0.0	0.1
Delay (s)	12.8	15.6		7.2	8.4	9.1
Level of Service	B	B		A	A	A
Approach Delay (s)	14.6			7.2	8.9	
Approach LOS	B			A	A	

Intersection Summary

HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	8.2
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	386	520	326	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	1.00	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)	1947	3893	3893	1742		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	1947	3893	3893	1742		
Peak-hour factor, PHF	0.84	0.84	0.79	0.79	0.92	0.92
Adj. Flow (vph)	460	619	413	672	0	0
RTOR Reduction (vph)	0	0	0	437	0	0
Lane Group Flow (vph)	460	619	413	235	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	6.4	30.7	20.6	20.6		
Effective Green, g (s)	6.4	30.7	20.6	20.6		
Actuated g/C Ratio	0.11	0.52	0.35	0.35		
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)	212	2029	1362	609		
v/s Ratio Prot	c0.24	0.16	0.11			
v/s Ratio Perm				c0.13		
v/c Ratio	2.17	0.31	0.30	0.39		
Uniform Delay, d1	26.2	8.0	13.9	14.4		
Progression Factor	1.00	1.00	1.20	3.25		
Incremental Delay, d2	541.7	0.0	0.2	0.5		
Delay (s)	568.0	8.1	16.8	47.3		
Level of Service	F	A	B	D		
Approach Delay (s)		246.8	35.7		0.0	
Approach LOS		F	D		A	

Intersection Summary

HCM Average Control Delay	140.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	31.9
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	671	751	261	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	1.00	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)	1947	3893	3893	1742		
Flt Permitted	0.95	1.00	1.00	1.00		
Satd. Flow (perm)	1947	3893	3893	1742		
Peak-hour factor, PHF	0.86	0.86	0.89	0.89	0.92	0.92
Adj. Flow (vph)	780	873	293	584	0	0
RTOR Reduction (vph)	0	0	0	411	0	0
Lane Group Flow (vph)	780	873	293	173	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	6.4	26.7	16.6	16.6		
Effective Green, g (s)	6.4	26.7	16.6	16.6		
Actuated g/C Ratio	0.11	0.48	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)	222	1853	1152	515		
v/s Ratio Prot	c0.40	c0.22	0.08			
v/s Ratio Perm				0.10		
v/c Ratio	3.51	0.47	0.25	0.34		
Uniform Delay, d1	24.9	9.9	15.0	15.4		
Progression Factor	1.00	1.00	1.17	2.82		
Incremental Delay, d2	1142.3	0.1	0.2	0.5		
Delay (s)	1167.2	10.0	17.8	44.0		
Level of Service	F	A	B	D		
Approach Delay (s)		556.0	35.2		0.0	
Approach LOS		F	D		A	

Intersection Summary

HCM Average Control Delay	375.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	29.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	591	88	93	701	52	388	274	27	186	283	165
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	0.99		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	3502		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	3502		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.85	0.85	0.85	0.69	0.69	0.69
Adj. Flow (vph)	112	635	95	101	762	57	456	322	32	270	410	239
RTOR Reduction (vph)	0	0	61	0	8	0	0	0	26	0	0	214
Lane Group Flow (vph)	112	635	34	101	811	0	456	322	6	270	410	25
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)	5.2	22.9	22.9	5.1	22.5		11.1	11.8	11.8	6.1	6.5	6.5
Effective Green, g (s)	5.2	22.9	22.9	5.1	22.5		11.1	11.8	11.8	6.1	6.5	6.5
Actuated g/C Ratio	0.08	0.36	0.36	0.08	0.36		0.18	0.19	0.19	0.10	0.10	0.10
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)	283	1284	574	277	1249		604	662	296	332	365	163
v/s Ratio Prot	c0.03	0.18		0.03	c0.23		c0.13	0.09		0.08	c0.12	
v/s Ratio Perm			0.02						0.00			0.02
v/c Ratio	0.40	0.49	0.06	0.36	0.65		0.75	0.49	0.02	0.81	1.12	0.15
Uniform Delay, d1	27.5	15.6	13.1	27.5	17.0		24.7	22.9	20.9	27.9	28.3	25.8
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	0.3	0.6	0.1	0.3	1.7		4.8	1.2	0.1	13.4	84.9	1.0
Delay (s)	27.8	16.2	13.2	27.8	18.7		29.5	24.1	21.0	41.3	113.2	26.8
Level of Service	C	B	B	C	B		C	C	C	D	F	C
Approach Delay (s)		17.4			19.7			27.0			69.6	
Approach LOS		B			B			C			E	

Intersection Summary

HCM Average Control Delay	34.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	63.1	Sum of lost time (s)	17.8
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	363	842	174	101	573	84	347	413	48	237	325	81
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	0.98		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	3472		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	3472		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.86	0.86	0.86	0.91	0.91	0.91	0.84	0.84	0.84	0.86	0.86	0.86
Adj. Flow (vph)	422	979	202	111	630	92	413	492	57	276	378	94
RTOR Reduction (vph)	0	0	92	0	17	0	0	0	46	0	0	84
Lane Group Flow (vph)	422	979	110	111	705	0	413	492	11	276	378	10
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)	8.0	25.8	25.8	5.4	22.9		10.9	12.4	12.4	6.0	7.2	7.2
Effective Green, g (s)	8.0	25.8	25.8	5.4	22.9		10.9	12.4	12.4	6.0	7.2	7.2
Actuated g/C Ratio	0.12	0.39	0.39	0.08	0.34		0.16	0.19	0.19	0.09	0.11	0.11
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)	411	1367	611	278	1190		560	657	294	308	381	171
v/s Ratio Prot	c0.12	c0.28		0.03	0.20		c0.12	c0.14		0.08	0.11	
v/s Ratio Perm			0.07						0.01			0.01
v/c Ratio	1.03	0.72	0.18	0.40	0.59		0.74	0.75	0.04	0.90	0.99	0.06
Uniform Delay, d1	29.4	17.4	13.5	29.2	18.1		26.6	25.7	22.3	30.1	29.8	26.8
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	51.4	2.3	0.3	0.3	1.3		4.4	5.6	0.1	26.0	44.0	0.3
Delay (s)	80.8	19.6	13.8	29.5	19.4		30.9	31.3	22.4	56.1	73.7	27.1
Level of Service	F	B	B	C	B		C	C	C	E	E	C
Approach Delay (s)		35.0			20.7			30.6			61.4	
Approach LOS		D			C			C			E	

Intersection Summary

HCM Average Control Delay	35.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	12.6
Intersection Capacity Utilization	62.6%	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	249	4	26	83	23	6	28	9	83	11	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)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frt		1.00			0.98			0.97			0.95	
Flt Protected		1.00			0.99			0.99			0.97	
Satd. Flow (prot)		3532			1801			1796			1726	
Flt Permitted		1.00			0.92			0.96			0.80	
Satd. Flow (perm)		3532			1674			1732			1413	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.77	0.77	0.77	0.78	0.78	0.78
Adj. Flow (vph)	0	277	4	28	90	25	8	36	12	106	14	63
RTOR Reduction (vph)	0	1	0	0	10	0	0	9	0	0	30	0
Lane Group Flow (vph)	0	280	0	0	133	0	0	47	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)		29.8			29.8			15.7			15.7	
Effective Green, g (s)		29.8			29.8			15.7			15.7	
Actuated g/C Ratio		0.55			0.55			0.29			0.29	
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)		1931			915			499			407	
v/s Ratio Prot		0.08										
v/s Ratio Perm					c0.08			0.03			c0.11	
v/c Ratio		0.14			0.15			0.10			0.38	
Uniform Delay, d1		6.1			6.1			14.2			15.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.0			0.0			0.2	
Delay (s)		6.1			6.1			14.2			15.7	
Level of Service		A			A			B			B	
Approach Delay (s)		6.1			6.1			14.2			15.7	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	29	249	8	21	182	129	50	75	22	28	5	51
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	0.95			1.00			1.00			1.00	
Frt	1.00	1.00			0.95			0.98			0.92	
Flt Protected	0.95	1.00			1.00			0.98			0.98	
Satd. Flow (prot)	1770	3523			1760			1794			1682	
Flt Permitted	0.54	1.00			0.97			0.87			0.87	
Satd. Flow (perm)	1001	3523			1712			1593			1490	
Peak-hour factor, PHF	0.85	0.85	0.85	0.86	0.86	0.86	0.85	0.85	0.85	0.78	0.78	0.78
Adj. Flow (vph)	34	293	9	24	212	150	59	88	26	36	6	65
RTOR Reduction (vph)	0	3	0	0	36	0	0	9	0	0	43	0
Lane Group Flow (vph)	34	299	0	0	350	0	0	164	0	0	64	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	19.3	19.3			19.3			14.0			14.0	
Effective Green, g (s)	19.3	19.3			19.3			14.0			14.0	
Actuated g/C Ratio	0.46	0.46			0.46			0.33			0.33	
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)	457	1607			781			527			493	
v/s Ratio Prot		0.08										
v/s Ratio Perm	0.03				c0.20			c0.10			0.04	
v/c Ratio	0.07	0.19			0.45			0.31			0.13	
Uniform Delay, d1	6.5	6.8			7.9			10.6			9.9	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.0	0.0			0.1			0.1			0.0	
Delay (s)	6.5	6.9			8.0			10.7			9.9	
Level of Service	A	A			A			B			A	
Approach Delay (s)		6.8			8.0			10.7			9.9	
Approach LOS		A			A			B			A	

Intersection Summary

HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	42.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
36: C Street & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	55	21	10	40	25	39	11	390	31	93	437	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	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	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	1694		1770	3500		1770	3482	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.44	1.00		0.44	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1694		821	3500		816	3482	
Peak-hour factor, PHF	0.83	0.83	0.83	0.84	0.84	0.84	0.74	0.74	0.74	0.87	0.87	0.87
Adj. Flow (vph)	66	25	12	48	30	46	15	527	42	107	502	61
RTOR Reduction (vph)	0	0	10	0	41	0	0	10	0	0	16	0
Lane Group Flow (vph)	66	25	2	48	35	0	15	559	0	107	547	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)	3.0	4.9	4.9	1.9	3.8		14.9	14.9		14.9	14.9	
Effective Green, g (s)	3.0	4.9	4.9	1.9	3.8		14.9	14.9		14.9	14.9	
Actuated g/C Ratio	0.09	0.14	0.14	0.06	0.11		0.44	0.44		0.44	0.44	
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)	156	268	227	99	189		359	1529		357	1521	
v/s Ratio Prot	c0.04	0.01		0.03	c0.02			c0.16			0.16	
v/s Ratio Perm			0.00				0.02			0.13		
v/c Ratio	0.42	0.09	0.01	0.48	0.19		0.04	0.37		0.30	0.36	
Uniform Delay, d1	14.7	12.7	12.5	15.6	13.7		5.5	6.4		6.2	6.4	
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	0.1	0.0	1.4	0.2		0.1	0.4		1.3	0.4	
Delay (s)	15.4	12.7	12.5	17.0	13.9		5.6	6.9		7.6	6.8	
Level of Service	B	B	B	B	B		A	A		A	A	
Approach Delay (s)		14.4			15.1			6.8			6.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	34.1	Sum of lost time (s)	12.4
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
36: C Street & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	141	99	25	98	90	77	14	435	50	104	409	109
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	0.93		1.00	0.98		1.00	0.97	
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	1733		1770	3484		1770	3427	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.42	1.00		0.40	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1733		785	3484		737	3427	
Peak-hour factor, PHF	0.72	0.72	0.72	0.87	0.87	0.87	0.82	0.82	0.82	0.94	0.94	0.94
Adj. Flow (vph)	196	138	35	113	103	89	17	530	61	111	435	116
RTOR Reduction (vph)	0	0	28	0	57	0	0	15	0	0	42	0
Lane Group Flow (vph)	196	138	7	113	135	0	17	576	0	111	509	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)	8.3	9.7	9.7	5.4	6.8		19.8	19.8		19.8	19.8	
Effective Green, g (s)	8.3	9.7	9.7	5.4	6.8		19.8	19.8		19.8	19.8	
Actuated g/C Ratio	0.18	0.21	0.21	0.11	0.14		0.42	0.42		0.42	0.42	
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)	311	382	325	202	249		329	1458		309	1435	
v/s Ratio Prot	c0.11	c0.07		0.06	c0.08			c0.17			0.15	
v/s Ratio Perm			0.00				0.02			0.15		
v/c Ratio	0.63	0.36	0.02	0.56	0.54		0.05	0.39		0.36	0.35	
Uniform Delay, d1	18.1	16.1	15.0	19.8	18.8		8.2	9.6		9.4	9.4	
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	0.2	0.0	1.9	1.3		0.2	0.5		2.0	0.4	
Delay (s)	21.1	16.4	15.0	21.7	20.1		8.4	10.1		11.4	9.8	
Level of Service	C	B	B	C	C		A	B		B	A	
Approach Delay (s)		18.8			20.7			10.0			10.1	
Approach LOS		B			C			B			B	

Intersection Summary

HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	47.3	Sum of lost time (s)	16.6
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	467	118	291	0	0	0	0	415	64	37	289	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					0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3469		1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3469		1770	3539	
Peak-hour factor, PHF	0.76	0.76	0.76	0.92	0.92	0.92	0.74	0.74	0.74	0.87	0.87	0.87
Adj. Flow (vph)	614	155	383	0	0	0	0	561	86	43	332	0
RTOR Reduction (vph)	0	0	210	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	614	155	173	0	0	0	0	629	0	43	332	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	29.2	29.2	29.2					17.2		3.3	25.7	
Effective Green, g (s)	29.2	29.2	29.2					17.2		3.3	25.7	
Actuated g/C Ratio	0.45	0.45	0.45					0.27		0.05	0.40	
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)	798	840	713					921		90	1404	
v/s Ratio Prot	c0.35	0.08						c0.18		c0.02	0.09	
v/s Ratio Perm			0.11									
v/c Ratio	0.77	0.18	0.24					0.68		0.48	0.24	
Uniform Delay, d1	15.0	10.7	11.0					21.4		29.9	13.0	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	5.9	0.3	0.5					1.7		1.5	0.0	
Delay (s)	20.9	11.0	11.5					23.0		31.4	13.0	
Level of Service	C	B	B					C		C	B	
Approach Delay (s)		16.4			0.0			23.0			15.1	
Approach LOS		B			A			C			B	

Intersection Summary

HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	15.1
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	140	180	200	0	0	0	0	550	101	189	419	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					0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3457		1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3457		1770	3539	
Peak-hour factor, PHF	0.89	0.89	0.89	0.92	0.92	0.92	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	157	202	225	0	0	0	0	604	111	201	446	0
RTOR Reduction (vph)	0	0	153	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	157	202	72	0	0	0	0	695	0	201	446	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	18.3	18.3	18.3					17.5		6.2	28.9	
Effective Green, g (s)	18.3	18.3	18.3					17.5		6.2	28.9	
Actuated g/C Ratio	0.32	0.32	0.32					0.31		0.11	0.51	
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)	567	597	507					1060		192	1791	
v/s Ratio Prot	0.09	c0.11						c0.20		c0.11	0.13	
v/s Ratio Perm			0.05									
v/c Ratio	0.28	0.34	0.14					0.66		1.05	0.25	
Uniform Delay, d1	14.5	14.8	13.8					17.2		25.4	8.0	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.8	1.0	0.4					1.1		77.8	0.0	
Delay (s)	15.3	15.8	14.2					18.3		103.3	8.0	
Level of Service	B	B	B					B		F	A	
Approach Delay (s)		15.0			0.0			18.3			37.6	
Approach LOS		B			A			B			D	

Intersection Summary

HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	15.1
Intersection Capacity Utilization	66.8%	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)	0	0	0	91	156	385	178	701	0	0	255	120
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)					3475	1583	1770	3539			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3475	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	100	171	423	187	738	0	0	277	130
RTOR Reduction (vph)	0	0	0	0	0	88	0	0	0	0	0	96
Lane Group Flow (vph)	0	0	0	0	271	335	187	738	0	0	277	34
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					21.9	21.9	10.2	30.2			16.3	16.3
Effective Green, g (s)					21.9	21.9	10.2	30.2			16.3	16.3
Actuated g/C Ratio					0.35	0.35	0.16	0.48			0.26	0.26
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)					1214	553	288	1705			920	412
v/s Ratio Prot					0.08		c0.11	c0.21			0.08	
v/s Ratio Perm						c0.21						0.02
v/c Ratio					0.22	0.60	0.65	0.43			0.30	0.08
Uniform Delay, d1					14.4	16.8	24.6	10.6			18.6	17.5
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	2.7	3.8	0.1			0.1	0.0
Delay (s)					14.6	19.6	28.3	10.7			18.7	17.6
Level of Service					B	B	C	B			B	B
Approach Delay (s)		0.0			17.6			14.3			18.3	
Approach LOS		A			B			B			B	

Intersection Summary

HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	14.3
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	95	108	167	306	356	0	0	524	501
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)					3459	1583	1770	3539			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3459	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.82	0.82	0.82	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	110	126	194	373	434	0	0	609	583
RTOR Reduction (vph)	0	0	0	0	0	150	0	0	0	0	0	394
Lane Group Flow (vph)	0	0	0	0	236	44	373	434	0	0	609	189
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					12.2	12.2	11.4	31.6			16.5	16.5
Effective Green, g (s)					12.2	12.2	11.4	31.6			16.5	16.5
Actuated g/C Ratio					0.22	0.22	0.21	0.58			0.30	0.30
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)					776	355	371	2056			1073	480
v/s Ratio Prot					c0.07		c0.21	0.12			c0.17	
v/s Ratio Perm						0.03						0.12
v/c Ratio					0.30	0.12	1.01	0.21			0.57	0.39
Uniform Delay, d1					17.6	16.8	21.5	5.4			15.9	15.0
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.5	0.3	48.1	0.0			0.4	0.2
Delay (s)					18.0	17.2	69.6	5.5			16.4	15.2
Level of Service					B	B	E	A			B	B
Approach Delay (s)		0.0			17.6			35.1			15.8	
Approach LOS		A			B			D			B	

Intersection Summary

HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	14.3
Intersection Capacity Utilization	66.8%	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)	33	97	45	17	95	29	0	822	24	0	259	22
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
Lane Util. Factor	1.00	0.95	1.00		0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85		0.97			1.00			1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99			1.00			1.00	1.00
Satd. Flow (prot)	1770	3539	1583		3408			3524			3539	1583
Flt Permitted	0.64	1.00	1.00		0.90			1.00			1.00	1.00
Satd. Flow (perm)	1186	3539	1583		3102			3524			3539	1583
Peak-hour factor, PHF	0.75	0.75	0.75	0.77	0.77	0.77	0.78	0.78	0.78	0.90	0.90	0.90
Adj. Flow (vph)	44	129	60	22	123	38	0	1054	31	0	288	24
RTOR Reduction (vph)	0	0	50	0	32	0	0	2	0	0	0	8
Lane Group Flow (vph)	44	129	10	0	151	0	0	1083	0	0	288	16
Turn Type	Perm		Perm	Perm								Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4								2
Actuated Green, G (s)	7.8	7.8	7.8		7.8			30.7			30.7	30.7
Effective Green, g (s)	7.8	7.8	7.8		7.8			30.7			30.7	30.7
Actuated g/C Ratio	0.17	0.17	0.17		0.17			0.65			0.65	0.65
Clearance Time (s)	4.5	4.5	4.5		4.5			4.2			4.2	4.2
Vehicle Extension (s)	2.0	2.0	2.0		2.0			5.0			5.0	5.0
Lane Grp Cap (vph)	196	585	262		513			2292			2302	1030
v/s Ratio Prot		0.04						c0.31			0.08	
v/s Ratio Perm	0.04		0.01		c0.05							0.01
v/c Ratio	0.22	0.22	0.04		0.29			0.47			0.13	0.02
Uniform Delay, d1	17.1	17.1	16.5		17.3			4.2			3.1	2.9
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	0.1	0.0		0.1			0.3			0.1	0.0
Delay (s)	17.3	17.1	16.6		17.4			4.5			3.2	2.9
Level of Service	B	B	B		B			A			A	A
Approach Delay (s)		17.0			17.4			4.5			3.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	47.2	Sum of lost time (s)	8.7
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
39: G St & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	21	71	52	33	148	30	0	365	18	0	718	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)	4.5	4.5	4.5		4.5			4.2			4.2	4.2
Lane Util. Factor	1.00	0.95	1.00		0.95			0.95			0.95	1.00
Frt	1.00	1.00	0.85		0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99			1.00			1.00	1.00
Satd. Flow (prot)	1770	3539	1583		3437			3514			3539	1583
Flt Permitted	0.60	1.00	1.00		0.89			1.00			1.00	1.00
Satd. Flow (perm)	1114	3539	1583		3095			3514			3539	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.85	0.85	0.85	0.90	0.90	0.90	0.79	0.79	0.79
Adj. Flow (vph)	24	81	59	39	174	35	0	406	20	0	909	54
RTOR Reduction (vph)	0	0	49	0	26	0	0	4	0	0	0	19
Lane Group Flow (vph)	24	81	10	0	222	0	0	422	0	0	909	35
Turn Type	Perm		Perm	Perm								Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4								2
Actuated Green, G (s)	8.3	8.3	8.3		8.3			30.3			30.3	30.3
Effective Green, g (s)	8.3	8.3	8.3		8.3			30.3			30.3	30.3
Actuated g/C Ratio	0.18	0.18	0.18		0.18			0.64			0.64	0.64
Clearance Time (s)	4.5	4.5	4.5		4.5			4.2			4.2	4.2
Vehicle Extension (s)	2.0	2.0	2.0		2.0			5.0			5.0	5.0
Lane Grp Cap (vph)	195	621	278		543			2251			2267	1014
v/s Ratio Prot		0.02						0.12			c0.26	
v/s Ratio Perm	0.02		0.01		c0.07							0.02
v/c Ratio	0.12	0.13	0.04		0.41			0.19			0.40	0.03
Uniform Delay, d1	16.4	16.5	16.2		17.3			3.5			4.1	3.1
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.1	0.0	0.0		0.2			0.1			0.2	0.0
Delay (s)	16.5	16.5	16.2		17.5			3.6			4.4	3.2
Level of Service	B	B	B		B			A			A	A
Approach Delay (s)		16.4			17.5			3.6			4.3	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	47.3	Sum of lost time (s)	8.7
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	56	23	19	12	1	3	28	72	390	79	44	188
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	0.87			0.98		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.99		0.95	1.00
Satd. Flow (prot)	1770	1737			1947	1612			3439		1770	1863
Flt Permitted	1.00	1.00			1.00	1.00			0.88		0.60	1.00
Satd. Flow (perm)	1863	1737			2049	1612			3030		1112	1863
Peak-hour factor, PHF	0.82	0.82	0.82	0.79	0.79	0.79	0.79	0.96	0.96	0.96	0.77	0.77
Adj. Flow (vph)	68	28	23	15	1	4	35	75	406	82	57	244
RTOR Reduction (vph)	0	0	0	0	0	31	0	0	26	0	0	0
Lane Group Flow (vph)	68	51	0	0	16	8	0	0	537	0	57	244
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases		4				4			2			2
Permitted Phases	4			4	4			2			2	
Actuated Green, G (s)	2.3	2.3			2.3	2.3			6.7		6.7	6.7
Effective Green, g (s)	2.3	2.3			2.3	2.3			6.7		6.7	6.7
Actuated g/C Ratio	0.12	0.12			0.12	0.12			0.36		0.36	0.36
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)	230	215			253	199			1091		401	671
v/s Ratio Prot		0.03				0.01						0.13
v/s Ratio Perm	c0.04				0.01				c0.18		0.05	
v/c Ratio	0.30	0.24			0.06	0.04			0.49		0.14	0.36
Uniform Delay, d1	7.4	7.4			7.2	7.2			4.6		4.0	4.4
Progression Factor	1.00	1.00			1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.3	0.2			0.0	0.0			0.1		0.1	0.1
Delay (s)	7.7	7.6			7.2	7.2			4.8		4.1	4.5
Level of Service	A	A			A	A			A		A	A
Approach Delay (s)		7.6				7.2			4.8			4.3
Approach LOS		A				A			A			A

Intersection Summary

HCM Average Control Delay	5.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	18.6	Sum of lost time (s)	9.6
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
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	0.77	0.77
Adj. Flow (vph)	6	61
RTOR Reduction (vph)	39	0
Lane Group Flow (vph)	28	0
Turn Type	Perm	
Protected Phases		
Permitted Phases	2	
Actuated Green, G (s)	6.7	
Effective Green, g (s)	6.7	
Actuated g/C Ratio	0.36	
Clearance Time (s)	4.8	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	627	
v/s Ratio Prot		
v/s Ratio Perm	0.02	
v/c Ratio	0.04	
Uniform Delay, d1	3.9	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	3.9	
Level of Service	A	
Approach Delay (s)		
Approach LOS		

Intersection Summary

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

4/25/2011

Movement	SEL	SET	SER	NWL2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	69	8	63	86	3	14	105	11	334	20	65	514
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	0.87			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	1615			1947	1616			3505		1770	1863
Flt Permitted	0.83	1.00			0.83	1.00			0.94		0.52	1.00
Satd. Flow (perm)	1552	1615			1708	1616			3283		961	1863
Peak-hour factor, PHF	0.57	0.57	0.57	0.78	0.78	0.78	0.78	0.91	0.91	0.91	0.92	0.92
Adj. Flow (vph)	121	14	111	110	4	18	135	12	367	22	71	559
RTOR Reduction (vph)	0	0	0	0	0	112	0	0	6	0	0	0
Lane Group Flow (vph)	121	125	0	0	114	41	0	0	395	0	71	559
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases		4				4			2			2
Permitted Phases	4			4	4			2			2	
Actuated Green, G (s)	4.8	4.8			4.8	4.8			13.5		13.5	13.5
Effective Green, g (s)	4.8	4.8			4.8	4.8			13.5		13.5	13.5
Actuated g/C Ratio	0.17	0.17			0.17	0.17			0.48		0.48	0.48
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)	267	278			294	278			1589		465	901
v/s Ratio Prot		0.08				0.03						c0.30
v/s Ratio Perm	c0.08				0.07				0.12		0.07	
v/c Ratio	0.45	0.45			0.39	0.15			0.25		0.15	0.62
Uniform Delay, d1	10.4	10.4			10.2	9.8			4.2		4.0	5.3
Progression Factor	1.00	1.00			1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.4	0.4			0.3	0.1			0.0		0.1	1.0
Delay (s)	10.8	10.8			10.6	9.9			4.3		4.1	6.3
Level of Service	B	B			B	A			A		A	A
Approach Delay (s)		10.8				10.2			4.3			5.8
Approach LOS		B				B			A			A

Intersection Summary

HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	27.9	Sum of lost time (s)	9.6
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Volume (vph)	4	50
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)	4	54
RTOR Reduction (vph)	28	0
Lane Group Flow (vph)	30	0
Turn Type	Perm	
Protected Phases		
Permitted Phases	2	
Actuated Green, G (s)	13.5	
Effective Green, g (s)	13.5	
Actuated g/C Ratio	0.48	
Clearance Time (s)	4.8	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	843	
v/s Ratio Prot		
v/s Ratio Perm	0.02	
v/c Ratio	0.04	
Uniform Delay, d1	3.8	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	3.8	
Level of Service	A	
Approach Delay (s)		
Approach LOS		

Intersection Summary

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	69	152	57	99	254	183	122	406	92	63	205	58
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	0.96		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	1786		1770	3317		1770	3441		1770	3423	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1786		1770	3317		1770	3441		1770	3423	
Peak-hour factor, PHF	0.84	0.84	0.84	0.85	0.85	0.85	0.96	0.96	0.96	0.80	0.80	0.80
Adj. Flow (vph)	82	181	68	116	299	215	127	423	96	79	256	72
RTOR Reduction (vph)	0	13	0	0	136	0	0	20	0	0	27	0
Lane Group Flow (vph)	82	236	0	116	378	0	127	499	0	79	301	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	6.8	17.4		8.1	18.7		8.4	19.7		6.9	18.2	
Effective Green, g (s)	6.8	17.4		8.1	18.7		8.4	19.7		6.9	18.2	
Actuated g/C Ratio	0.10	0.25		0.12	0.27		0.12	0.29		0.10	0.26	
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)	175	452		209	903		216	987		178	907	
v/s Ratio Prot	0.05	c0.13		c0.07	0.11		c0.07	c0.15		0.04	0.09	
v/s Ratio Perm												
v/c Ratio	0.47	0.52		0.56	0.42		0.59	0.51		0.44	0.33	
Uniform Delay, d1	29.2	22.1		28.6	20.5		28.5	20.4		29.1	20.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	2.1		3.2	0.7		4.0	0.9		1.8	0.5	
Delay (s)	31.2	24.1		31.8	21.2		32.6	21.3		30.9	20.8	
Level of Service	C	C		C	C		C	C		C	C	
Approach Delay (s)		25.9			23.1			23.5			22.8	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	12.4
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	62	176	110	126	359	90	120	276	64	61	317	48
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	0.97		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	1755		1770	3433		1770	3439		1770	3469	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1755		1770	3433		1770	3439		1770	3469	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.99	0.99	0.99	0.83	0.83	0.83
Adj. Flow (vph)	71	202	126	137	390	98	121	279	65	73	382	58
RTOR Reduction (vph)	0	22	0	0	22	0	0	21	0	0	13	0
Lane Group Flow (vph)	71	306	0	137	466	0	121	323	0	73	427	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	6.6	20.2		8.8	22.4		8.4	20.5		6.8	18.9	
Effective Green, g (s)	6.6	20.2		8.8	22.4		8.4	20.5		6.8	18.9	
Actuated g/C Ratio	0.09	0.28		0.12	0.31		0.12	0.28		0.09	0.26	
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)	160	486		214	1055		204	967		165	899	
v/s Ratio Prot	0.04	c0.17		c0.08	0.14		c0.07	0.09		0.04	c0.12	
v/s Ratio Perm												
v/c Ratio	0.44	0.63		0.64	0.44		0.59	0.33		0.44	0.48	
Uniform Delay, d1	31.4	23.1		30.5	20.2		30.6	20.8		31.3	22.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	3.7		6.4	0.6		4.6	0.4		1.9	0.8	
Delay (s)	33.4	26.8		36.9	20.9		35.2	21.2		33.1	23.6	
Level of Service	C	C		D	C		D	C		C	C	
Approach Delay (s)		27.9			24.4			24.9			25.0	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	72.9	Sum of lost time (s)	16.6
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: M St & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	247	41	0	0	0	0	371	182	113	392	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)		5051	1583					3365		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.34	1.00	
Satd. Flow (perm)		5051	1583					3365		629	3539	
Peak-hour factor, PHF	0.80	0.80	0.80	0.92	0.92	0.92	0.77	0.77	0.77	0.94	0.94	0.94
Adj. Flow (vph)	49	309	51	0	0	0	0	482	236	120	417	0
RTOR Reduction (vph)	0	0	34	0	0	0	0	101	0	0	0	0
Lane Group Flow (vph)	0	358	17	0	0	0	0	617	0	120	417	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			2	
Permitted Phases			4							2		
Actuated Green, G (s)		20.0	20.0					31.0		31.0	31.0	
Effective Green, g (s)		20.0	20.0					31.0		31.0	31.0	
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)		1701	533					1756		328	1847	
v/s Ratio Prot		c0.07						0.18			0.12	
v/s Ratio Perm			0.01							c0.19		
v/c Ratio		0.21	0.03					0.35		0.37	0.23	
Uniform Delay, d1		14.1	13.2					8.3		8.4	7.7	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.0		0.3	0.0	
Delay (s)		14.1	13.2					8.4		8.6	7.7	
Level of Service		B	B					A		A	A	
Approach Delay (s)		14.0			0.0			8.4			7.9	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: M St & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	195	37	0	0	0	0	400	125	49	408	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					0.96		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5037	1583					3413		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.37	1.00	
Satd. Flow (perm)		5037	1583					3413		696	3539	
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.92	0.81	0.81	0.81	0.91	0.91	0.91
Adj. Flow (vph)	57	238	45	0	0	0	0	494	154	54	448	0
RTOR Reduction (vph)	0	0	30	0	0	0	0	50	0	0	0	0
Lane Group Flow (vph)	0	295	15	0	0	0	0	598	0	54	448	0
Turn Type	Split		Perm							Perm		
Protected Phases	4	4						2			2	
Permitted Phases			4							2		
Actuated Green, G (s)		20.0	20.0					31.0		31.0	31.0	
Effective Green, g (s)		20.0	20.0					31.0		31.0	31.0	
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	533					1781		363	1847	
v/s Ratio Prot		c0.06						c0.18			0.13	
v/s Ratio Perm			0.01							0.08		
v/c Ratio		0.17	0.03					0.34		0.15	0.24	
Uniform Delay, d1		13.9	13.2					8.2		7.4	7.8	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.0		0.1	0.0	
Delay (s)		13.9	13.2					8.3		7.4	7.8	
Level of Service		B	B					A		A	A	
Approach Delay (s)		13.8			0.0			8.3			7.8	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: P St & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	46	136	33	36	285	0	0	550	96
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			0.95	
Frt					0.98		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3763		1770	3539			3460	
Flt Permitted					0.99		0.32	1.00			1.00	
Satd. Flow (perm)					3763		592	3539			3460	
Peak-hour factor, PHF	0.92	0.92	0.92	0.75	0.75	0.75	0.97	0.97	0.97	0.88	0.88	0.88
Adj. Flow (vph)	0	0	0	61	181	44	37	294	0	0	625	109
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	0	0	27	0
Lane Group Flow (vph)	0	0	0	0	259	0	37	294	0	0	707	0
Turn Type				Split			Perm					
Protected Phases				2	2			4			4	
Permitted Phases							4					
Actuated Green, G (s)					19.8		23.8	23.8			23.8	
Effective Green, g (s)					19.8		23.8	23.8			23.8	
Actuated g/C Ratio					0.38		0.46	0.46			0.46	
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)					1433		271	1620			1584	
v/s Ratio Prot					c0.07			0.08			c0.20	
v/s Ratio Perm							0.06					
v/c Ratio					0.18		0.14	0.18			0.45	
Uniform Delay, d1					10.7		8.2	8.3			9.6	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					0.0		0.1	0.0			0.1	
Delay (s)					10.7		8.2	8.4			9.7	
Level of Service					B		A	A			A	
Approach Delay (s)		0.0			10.7			8.3			9.7	
Approach LOS		A			B			A			A	

Intersection Summary

HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: P St & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	44	305	94	42	521	0	0	356	74
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			0.95	
Frt					0.97		1.00	1.00			0.97	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					3750		1770	3539			3448	
Flt Permitted					1.00		0.49	1.00			1.00	
Satd. Flow (perm)					3750		910	3539			3448	
Peak-hour factor, PHF	0.92	0.92	0.92	0.80	0.80	0.80	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	55	381	118	46	566	0	0	375	78
RTOR Reduction (vph)	0	0	0	0	47	0	0	0	0	0	34	0
Lane Group Flow (vph)	0	0	0	0	507	0	46	566	0	0	419	0
Turn Type				Split			Perm					
Protected Phases				2	2			4			4	
Permitted Phases							4					
Actuated Green, G (s)					19.8		23.8	23.8			23.8	
Effective Green, g (s)					19.8		23.8	23.8			23.8	
Actuated g/C Ratio					0.38		0.46	0.46			0.46	
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)					1428		417	1620			1578	
v/s Ratio Prot					c0.14			c0.16			0.12	
v/s Ratio Perm							0.05					
v/c Ratio					0.35		0.11	0.35			0.27	
Uniform Delay, d1					11.5		8.1	9.1			8.7	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					0.1		0.0	0.0			0.0	
Delay (s)					11.6		8.1	9.1			8.7	
Level of Service					B		A	A			A	
Approach Delay (s)		0.0			11.6			9.1			8.7	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: R Street & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	104	183	25	83	180	53	24	187	32	68	441	148
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	4.5
Lane Util. Factor	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	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)	1770	1863	1583	1770	1799		1770	3539	1583	1770	3539	1583
Flt Permitted	0.58	1.00	1.00	0.62	1.00		0.44	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	1084	1863	1583	1150	1799		812	3539	1583	1132	3539	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.95	0.95	0.95	0.81	0.81	0.81	0.86	0.86	0.86
Adj. Flow (vph)	122	215	29	87	189	56	30	231	40	79	513	172
RTOR Reduction (vph)	0	0	17	0	15	0	0	0	23	0	0	97
Lane Group Flow (vph)	122	215	12	87	230	0	30	231	17	79	513	75
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2	2	2	2			4		4	4		4
Actuated Green, G (s)	25.0	25.0	25.0	25.0	25.0		26.0	26.0	26.0	26.0	26.0	26.0
Effective Green, g (s)	25.0	25.0	25.0	25.0	25.0		26.0	26.0	26.0	26.0	26.0	26.0
Actuated g/C Ratio	0.42	0.42	0.42	0.42	0.42		0.43	0.43	0.43	0.43	0.43	0.43
Clearance Time (s)	4.5	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	0.2
Lane Grp Cap (vph)	452	776	660	479	750		352	1534	686	491	1534	686
v/s Ratio Prot		0.12			c0.13			0.07			c0.14	
v/s Ratio Perm	0.11		0.01	0.08			0.04		0.01	0.07		0.05
v/c Ratio	0.27	0.28	0.02	0.18	0.31		0.09	0.15	0.03	0.16	0.33	0.11
Uniform Delay, d1	11.5	11.5	10.3	11.0	11.7		10.0	10.3	9.7	10.4	11.3	10.1
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	0.1	0.1	0.0	0.1	0.1		0.0	0.0	0.0	0.1	0.0	0.0
Delay (s)	11.6	11.6	10.3	11.1	11.8		10.0	10.3	9.7	10.4	11.3	10.1
Level of Service	B	B	B	B	B		B	B	A	B	B	B
Approach Delay (s)		11.5			11.6			10.2			11.0	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: R Street & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	150	229	39	78	215	94	43	524	81	56	297	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)	4.5	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	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.95		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	1863	1583	1770	1778		1770	3539	1583	1770	3539	1583
Flt Permitted	0.40	1.00	1.00	0.58	1.00		0.55	1.00	1.00	0.39	1.00	1.00
Satd. Flow (perm)	744	1863	1583	1083	1778		1025	3539	1583	719	3539	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.75	0.75	0.75	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	161	246	42	104	287	125	48	589	91	63	334	116
RTOR Reduction (vph)	0	0	24	0	21	0	0	0	52	0	0	66
Lane Group Flow (vph)	161	246	18	104	391	0	48	589	39	63	334	50
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2	2	2	2			4		4	4		4
Actuated Green, G (s)	25.3	25.3	25.3	25.3	25.3		26.0	26.0	26.0	26.0	26.0	26.0
Effective Green, g (s)	25.3	25.3	25.3	25.3	25.3		26.0	26.0	26.0	26.0	26.0	26.0
Actuated g/C Ratio	0.42	0.42	0.42	0.42	0.42		0.43	0.43	0.43	0.43	0.43	0.43
Clearance Time (s)	4.5	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	0.2
Lane Grp Cap (vph)	312	782	664	454	746		442	1526	683	310	1526	683
v/s Ratio Prot		0.13			c0.22			c0.17			0.09	
v/s Ratio Perm	0.22		0.01	0.10			0.05		0.02	0.09		0.03
v/c Ratio	0.52	0.31	0.03	0.23	0.52		0.11	0.39	0.06	0.20	0.22	0.07
Uniform Delay, d1	13.0	11.7	10.3	11.2	13.0		10.2	11.7	10.0	10.7	10.8	10.1
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	0.6	0.1	0.0	0.1	0.3		0.0	0.1	0.0	0.1	0.0	0.0
Delay (s)	13.6	11.8	10.3	11.3	13.3		10.3	11.8	10.0	10.8	10.8	10.1
Level of Service	B	B	B	B	B		B	B	B	B	B	B
Approach Delay (s)		12.3			12.9			11.4			10.6	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	8	69	6	453	106	367	234	261	17	31	144	197
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	1841		1681	1716	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.41	1.00		0.68	0.73	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	769	1841		1196	1300	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.59	0.59	0.59	0.87	0.87	0.87	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	14	117	10	521	122	422	266	297	19	35	162	221
RTOR Reduction (vph)	0	4	0	0	0	285	0	0	11	0	0	174
Lane Group Flow (vph)	14	123	0	313	330	137	266	297	8	35	162	47
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)	18.6	18.6		18.6	18.6	18.6	13.4	24.6	24.6	1.1	12.3	12.3
Effective Green, g (s)	18.6	18.6		18.6	18.6	18.6	13.4	24.6	24.6	1.1	12.3	12.3
Actuated g/C Ratio	0.32	0.32		0.32	0.32	0.32	0.23	0.43	0.43	0.02	0.21	0.21
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)	249	596		387	421	512	412	1192	677	34	734	339
v/s Ratio Prot		0.07					c0.15	c0.11		0.02	0.05	
v/s Ratio Perm	0.02			c0.26	0.25	0.09			0.01			0.03
v/c Ratio	0.06	0.21		0.81	0.78	0.27	0.65	0.25	0.01	1.03	0.22	0.14
Uniform Delay, d1	13.4	14.1		17.8	17.6	14.4	19.9	10.5	9.5	28.2	18.6	18.3
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	0.1	0.2		12.1	9.5	0.3	3.5	0.2	0.0	163.4	0.3	0.4
Delay (s)	13.5	14.3		29.9	27.1	14.7	23.4	10.7	9.5	191.6	18.9	18.7
Level of Service	B	B		C	C	B	C	B	A	F	B	B
Approach Delay (s)		14.2			23.0		16.5				33.3	
Approach LOS		B			C		B				C	

Intersection Summary

HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	57.5	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	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	4	117	10	264	23	196	323	232	8	8	304	478
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	0.96	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1841		1681	1698	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.60	1.00		0.66	0.66	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1121	1841		1170	1166	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.84	0.84	0.84	0.85	0.85	0.85	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	5	139	12	311	27	231	351	252	9	10	366	576
RTOR Reduction (vph)	0	5	0	0	0	179	0	0	4	0	0	274
Lane Group Flow (vph)	5	146	0	165	173	52	351	252	5	10	366	302
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)	14.2	14.2		14.2	14.2	14.2	16.1	35.4	35.4	0.3	19.6	19.6
Effective Green, g (s)	14.2	14.2		14.2	14.2	14.2	16.1	35.4	35.4	0.3	19.6	19.6
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.23	0.26	0.56	0.56	0.00	0.31	0.31
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	414		263	262	356	452	1564	888	8	1066	492
v/s Ratio Prot		0.08					c0.20	0.09		0.01	0.11	
v/s Ratio Perm	0.00			0.14	c0.15	0.03			0.00			c0.19
v/c Ratio	0.02	0.35		0.63	0.66	0.15	0.78	0.16	0.01	1.25	0.34	0.61
Uniform Delay, d1	19.0	20.6		22.1	22.3	19.6	21.8	6.7	6.1	31.4	16.8	18.5
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	0.0	0.5		4.8	6.4	0.2	8.2	0.1	0.0	416.4	0.4	3.1
Delay (s)	19.1	21.1		26.9	28.6	19.8	30.0	6.8	6.1	447.8	17.2	21.6
Level of Service	B	C		C	C	B	C	A	A	F	B	C
Approach Delay (s)		21.0			24.5		20.1				24.4	
Approach LOS		C			C		C				C	

Intersection Summary

HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	63.1	Sum of lost time (s)	13.2
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations											
Volume (vph)	7	4	64	0	0	83	270	29	0	80	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	15	15	12	12	15	15	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	1.00			1.00	1.00
Frt		1.00	0.85			1.00	0.99			1.00	0.85
Flt Protected		0.95	1.00			0.95	1.00			1.00	1.00
Satd. Flow (prot)		1947	1583			1770	1835			1863	1583
Flt Permitted		0.67	1.00			0.69	1.00			1.00	1.00
Satd. Flow (perm)		1383	1583			1280	1835			1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.65	0.65	0.65	0.74	0.74	0.74
Adj. Flow (vph)	7	4	68	0	0	128	415	45	0	108	20
RTOR Reduction (vph)	0	0	52	0	0	0	4	0	0	0	8
Lane Group Flow (vph)	0	11	16	0	0	128	456	0	0	108	12
Turn Type	custom		custom			Perm					Perm
Protected Phases			4				2			6	
Permitted Phases	4	4				2					6
Actuated Green, G (s)		13.5	13.5			33.7	33.7			33.7	33.7
Effective Green, g (s)		13.5	13.5			33.7	33.7			33.7	33.7
Actuated g/C Ratio		0.24	0.24			0.60	0.60			0.60	0.60
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)		332	380			768	1100			1117	949
v/s Ratio Prot			c0.01				c0.25			0.06	
v/s Ratio Perm		0.01				0.10					0.01
v/c Ratio		0.03	0.04			0.17	0.41			0.10	0.01
Uniform Delay, d1		16.4	16.4			5.0	6.0			4.8	4.5
Progression Factor		1.00	1.00			1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0	0.0			0.0	0.1			0.0	0.0
Delay (s)		16.4	16.4			5.0	6.1			4.8	4.5
Level of Service		B	B			A	A			A	A
Approach Delay (s)		16.4		0.0			5.9			4.8	
Approach LOS		B		A			A			A	

Intersection Summary

HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	56.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
47: Broadway St & Fresno St

4/25/2011

Movement	WBL2	WBL	WBR	NBL	NBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations											
Volume (vph)	9	1	78	0	0	33	86	97	0	268	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	15	15	12	12	15	15	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	1.00			1.00	1.00
Frt		1.00	0.85			1.00	0.92			1.00	0.85
Flt Protected		0.95	1.00			0.95	1.00			1.00	1.00
Satd. Flow (prot)		1947	1583			1770	1714			1863	1583
Flt Permitted		0.73	1.00			0.52	1.00			1.00	1.00
Satd. Flow (perm)		1494	1583			960	1714			1863	1583
Peak-hour factor, PHF	0.61	0.61	0.61	0.92	0.92	0.76	0.76	0.76	0.78	0.78	0.78
Adj. Flow (vph)	15	2	128	0	0	43	113	128	0	344	28
RTOR Reduction (vph)	0	0	86	0	0	0	58	0	0	0	13
Lane Group Flow (vph)	0	17	42	0	0	43	183	0	0	344	15
Turn Type	custom		custom			Perm					Perm
Protected Phases			4				2			6	
Permitted Phases	4	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)		489	518			497	888			965	820
v/s Ratio Prot			c0.03				0.11			c0.18	
v/s Ratio Perm		0.01				0.04					0.01
v/c Ratio		0.03	0.08			0.09	0.21			0.36	0.02
Uniform Delay, d1		13.3	13.5			7.1	7.6			8.3	6.8
Progression Factor		1.00	1.00			1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0	0.0			0.0	0.0			0.1	0.0
Delay (s)		13.3	13.5			7.1	7.6			8.4	6.8
Level of Service		B	B			A	A			A	A
Approach Delay (s)		13.5		0.0			7.5			8.2	
Approach LOS		B		A			A			A	

Intersection Summary

HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
48: E St & Tuolumne St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	31	100	0	0	115	57	180	589	34	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			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		3498			3363			4997				
Flt Permitted		0.85			1.00			0.99				
Satd. Flow (perm)		3018			3363			4997				
Peak-hour factor, PHF	0.78	0.78	0.78	0.88	0.88	0.88	0.82	0.82	0.82	0.92	0.92	0.92
Adj. Flow (vph)	40	128	0	0	131	65	220	718	41	0	0	0
RTOR Reduction (vph)	0	0	0	0	47	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	168	0	0	149	0	0	971	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		8			4		2	2				
Permitted Phases	8											
Actuated Green, G (s)		13.8			13.8			26.4				
Effective Green, g (s)		13.8			13.8			26.4				
Actuated g/C Ratio		0.27			0.27			0.53				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		830			924			2628				
v/s Ratio Prot					0.04			c0.19				
v/s Ratio Perm		c0.06										
v/c Ratio		0.20			0.16			0.37				
Uniform Delay, d1		14.0			13.8			7.0				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.0			0.0			0.0				
Delay (s)		14.0			13.8			7.0				
Level of Service		B			B			A				
Approach Delay (s)		14.0			13.8			7.0			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
48: E St & Tuolumne St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	32	156	0	0	114	22	99	303	20	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			0.98			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		3509			3452			4991				
Flt Permitted		0.89			1.00			0.99				
Satd. Flow (perm)		3138			3452			4991				
Peak-hour factor, PHF	0.85	0.85	0.85	0.77	0.77	0.77	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	38	184	0	0	148	29	111	340	22	0	0	0
RTOR Reduction (vph)	0	0	0	0	19	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	222	0	0	158	0	0	463	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)		1104			1215			2311				
v/s Ratio Prot					0.05			c0.09				
v/s Ratio Perm		c0.07										
v/c Ratio		0.20			0.13			0.20				
Uniform Delay, d1		12.2			11.9			8.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.0			0.0			0.0				
Delay (s)		12.2			11.9			8.6				
Level of Service		B			B			A				
Approach Delay (s)		12.2			11.9			8.6			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	55.9%	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)	108	97	0	0	13	8	52	493	51	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	4.2			
Lane Util. Factor	0.95	0.95			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	0.99			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1681	1760			1863	1583		5061	1583			
Flt Permitted	0.95	0.99			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1681	1760			1863	1583		5061	1583			
Peak-hour factor, PHF	0.80	0.80	0.80	0.75	0.75	0.75	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	135	121	0	0	17	11	54	514	53	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	10	0	0	28	0	0	0
Lane Group Flow (vph)	121	135	0	0	17	1	0	568	25	0	0	0
Turn Type	Split					Perm	Split		Perm			
Protected Phases	2	2			1		8	8				
Permitted Phases						1			8			
Actuated Green, G (s)	7.5	7.5			2.2	2.2		20.6	20.6			
Effective Green, g (s)	7.5	7.5			2.2	2.2		20.6	20.6			
Actuated g/C Ratio	0.17	0.17			0.05	0.05		0.48	0.48			
Clearance Time (s)	4.6	4.6			4.2	4.2		4.2	4.2			
Vehicle Extension (s)	3.8	3.8			2.0	2.0		2.0	2.0			
Lane Grp Cap (vph)	291	305			95	80		2408	753			
v/s Ratio Prot	0.07	c0.08			c0.01			c0.11				
v/s Ratio Perm						0.00			0.02			
v/c Ratio	0.42	0.44			0.18	0.01		0.24	0.03			
Uniform Delay, d1	15.9	16.0			19.7	19.5		6.7	6.0			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	1.2	1.3			0.3	0.0		0.0	0.0			
Delay (s)	17.2	17.4			20.0	19.5		6.7	6.1			
Level of Service	B	B			C	B		A	A			
Approach Delay (s)		17.3			19.8			6.7			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.7%	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)	63	29	0	0	62	37	29	237	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)	4.6	4.6			4.2	4.2		4.2	4.2			
Lane Util. Factor	0.95	0.95			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	0.98			1.00	1.00		0.99	1.00			
Satd. Flow (prot)	1681	1736			1863	1583		5057	1583			
Flt Permitted	0.95	0.98			1.00	1.00		0.99	1.00			
Satd. Flow (perm)	1681	1736			1863	1583		5057	1583			
Peak-hour factor, PHF	0.85	0.85	0.85	0.52	0.52	0.52	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	74	34	0	0	119	71	31	249	31	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	19	0	0	0
Lane Group Flow (vph)	53	55	0	0	119	11	0	280	12	0	0	0
Turn Type	Split					Perm	Split		Perm			
Protected Phases	2	2			1		8	8				
Permitted Phases						1			8			
Actuated Green, G (s)	4.2	4.2			5.9	5.9		13.7	13.7			
Effective Green, g (s)	4.2	4.2			5.9	5.9		13.7	13.7			
Actuated g/C Ratio	0.11	0.11			0.16	0.16		0.37	0.37			
Clearance Time (s)	4.6	4.6			4.2	4.2		4.2	4.2			
Vehicle Extension (s)	3.8	3.8			2.0	2.0		2.0	2.0			
Lane Grp Cap (vph)	192	198			299	254		1883	589			
v/s Ratio Prot	0.03	c0.03			c0.06			c0.06				
v/s Ratio Perm						0.01			0.01			
v/c Ratio	0.28	0.28			0.40	0.04		0.15	0.02			
Uniform Delay, d1	14.9	14.9			13.9	13.1		7.7	7.3			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	1.0	1.0			0.3	0.0		0.0	0.0			
Delay (s)	15.9	15.9			14.2	13.1		7.7	7.3			
Level of Service	B	B			B	B		A	A			
Approach Delay (s)		15.9			13.8			7.7			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	36.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
50: Van Ness Ave & Tuolumne St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	18	195	0	0	273	44	42	426	100	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				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frt	1.00	1.00			0.98			0.97				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1770	1863			1828			4932				
Flt Permitted	0.49	1.00			1.00			1.00				
Satd. Flow (perm)	911	1863			1828			4932				
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	21	224	0	0	300	48	49	501	118	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	47	0	0	0	0
Lane Group Flow (vph)	21	224	0	0	339	0	0	621	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			6		8	8				
Permitted Phases	2											
Actuated Green, G (s)	27.0	27.0			27.0			22.0				
Effective Green, g (s)	27.0	27.0			27.0			22.0				
Actuated g/C Ratio	0.47	0.47			0.47			0.38				
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)	429	876			860			1890				
v/s Ratio Prot		0.12			c0.19			c0.13				
v/s Ratio Perm	0.02											
v/c Ratio	0.05	0.26			0.39			0.33				
Uniform Delay, d1	8.2	9.2			9.9			12.5				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.0	0.1			0.1			0.0				
Delay (s)	8.3	9.2			10.0			12.5				
Level of Service	A	A			A			B				
Approach Delay (s)		9.1			10.0			12.5			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
50: Van Ness Ave & Tuolumne St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	9	102	0	0	491	42	44	263	78	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				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frt	1.00	1.00			0.99			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	1863			1843			4902				
Flt Permitted	0.25	1.00			1.00			0.99				
Satd. Flow (perm)	460	1863			1843			4902				
Peak-hour factor, PHF	0.87	0.87	0.87	0.86	0.86	0.86	0.76	0.76	0.76	0.92	0.92	0.92
Adj. Flow (vph)	10	117	0	0	571	49	58	346	103	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	63	0	0	0	0
Lane Group Flow (vph)	10	117	0	0	615	0	0	444	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			6		8	8				
Permitted Phases	2											
Actuated Green, G (s)	27.7	27.7			27.7			22.0				
Effective Green, g (s)	27.7	27.7			27.7			22.0				
Actuated g/C Ratio	0.48	0.48			0.48			0.38				
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)	219	888			879			1856				
v/s Ratio Prot		0.06			c0.33			c0.09				
v/s Ratio Perm	0.02											
v/c Ratio	0.05	0.13			0.70			0.24				
Uniform Delay, d1	8.1	8.5			11.9			12.3				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.0	0.0			2.0			0.0				
Delay (s)	8.2	8.5			13.9			12.4				
Level of Service	A	A			B			B				
Approach Delay (s)		8.5			13.9			12.4			0.0	
Approach LOS		A			B			B			A	

Intersection Summary

HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	8.4
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
51: O St & Tuolumne St

4/25/2011

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	42	246	92	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	0.91			
Frt		0.86	0.96			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		1611	4878			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		1611	4878			
Peak-hour factor, PHF	0.81	0.81	0.86	0.86	0.92	0.92
Adj. Flow (vph)	0	52	286	107	0	0
RTOR Reduction (vph)	0	43	57	0	0	0
Lane Group Flow (vph)	0	9	336	0	0	0
Turn Type		custom				
Protected Phases			8			
Permitted Phases		2				
Actuated Green, G (s)		4.0	11.0			
Effective Green, g (s)		4.0	11.0			
Actuated g/C Ratio		0.17	0.47			
Clearance Time (s)		4.2	4.2			
Vehicle Extension (s)		0.2	6.0			
Lane Grp Cap (vph)		275	2293			
v/s Ratio Prot			c0.07			
v/s Ratio Perm		c0.01				
v/c Ratio		0.03	0.15			
Uniform Delay, d1		8.1	3.5			
Progression Factor		1.00	1.00			
Incremental Delay, d2		0.0	0.1			
Delay (s)		8.1	3.6			
Level of Service		A	A			
Approach Delay (s)	8.1		3.6		0.0	
Approach LOS	A		A		A	

Intersection Summary

HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	23.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
51: O St & Tuolumne St

4/25/2011

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	112	387	49	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	0.91			
Frt		0.86	0.98			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		1611	5000			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		1611	5000			
Peak-hour factor, PHF	0.85	0.85	0.69	0.69	0.92	0.92
Adj. Flow (vph)	0	132	561	71	0	0
RTOR Reduction (vph)	0	117	23	0	0	0
Lane Group Flow (vph)	0	15	609	0	0	0
Turn Type		custom				
Protected Phases			8			
Permitted Phases		2				
Actuated Green, G (s)		3.1	15.0			
Effective Green, g (s)		3.1	15.0			
Actuated g/C Ratio		0.12	0.57			
Clearance Time (s)		4.2	4.2			
Vehicle Extension (s)		0.2	6.0			
Lane Grp Cap (vph)		188	2830			
v/s Ratio Prot			c0.12			
v/s Ratio Perm		c0.01				
v/c Ratio		0.08	0.22			
Uniform Delay, d1		10.4	2.8			
Progression Factor		1.00	1.00			
Incremental Delay, d2		0.1	0.1			
Delay (s)		10.5	2.9			
Level of Service		B	A			
Approach Delay (s)	10.5		2.9		0.0	
Approach LOS	B		A		A	

Intersection Summary

HCM Average Control Delay	4.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	26.5	Sum of lost time (s)	8.4
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
52: E St & Stanislaus St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	117	124	18	262	0	0	0	0	25	226	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						5.4	5.4
Lane Util. Factor		0.95			0.95						0.91	1.00
Frt		0.92			1.00						1.00	0.85
Flt Protected		1.00			1.00						1.00	1.00
Satd. Flow (prot)		3265			3528						5060	1583
Flt Permitted		1.00			0.91						1.00	1.00
Satd. Flow (perm)		3265			3232						5060	1583
Peak-hour factor, PHF	0.84	0.84	0.84	0.86	0.86	0.86	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	139	148	21	305	0	0	0	0	27	243	85
RTOR Reduction (vph)	0	117	0	0	0	0	0	0	0	0	0	70
Lane Group Flow (vph)	0	170	0	0	326	0	0	0	0	0	270	15
Turn Type				Perm						Split		Perm
Protected Phases		2			2					8	8	
Permitted Phases				2								8
Actuated Green, G (s)		3.7			3.7						3.1	3.1
Effective Green, g (s)		3.7			3.7						3.1	3.1
Actuated g/C Ratio		0.21			0.21						0.18	0.18
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)		686			679						891	279
v/s Ratio Prot		0.05									c0.05	
v/s Ratio Perm					c0.10							0.01
v/c Ratio		0.25			0.48						0.30	0.05
Uniform Delay, d1		5.8			6.1						6.3	6.0
Progression Factor		1.00			1.00						1.00	1.00
Incremental Delay, d2		0.1			0.2						0.1	0.0
Delay (s)		5.9			6.3						6.4	6.1
Level of Service		A			A						A	A
Approach Delay (s)		5.9			6.3			0.0			6.3	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	17.6	Sum of lost time (s)	10.8
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
52: E St & Stanislaus St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	141	337	42	159	0	0	0	0	39	722	84
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						0.91	1.00
Frt		0.89			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		3165			3503						5072	1583
Flt Permitted		1.00			0.75						1.00	1.00
Satd. Flow (perm)		3165			2640						5072	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.85	0.85	0.85	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	0	181	432	49	187	0	0	0	0	53	976	114
RTOR Reduction (vph)	0	70	0	0	0	0	0	0	0	0	0	76
Lane Group Flow (vph)	0	543	0	0	236	0	0	0	0	0	1029	38
Turn Type				Perm						Split		Perm
Protected Phases		2			2					8	8	
Permitted Phases				2								8
Actuated Green, G (s)		7.9			7.9						9.4	9.4
Effective Green, g (s)		7.9			7.9						9.4	9.4
Actuated g/C Ratio		0.28			0.28						0.33	0.33
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)		890			742						1697	530
v/s Ratio Prot		c0.17									c0.20	
v/s Ratio Perm					0.09							0.02
v/c Ratio		0.61			0.32						0.61	0.07
Uniform Delay, d1		8.8			8.0						7.8	6.4
Progression Factor		1.00			1.00						1.00	1.00
Incremental Delay, d2		0.8			0.1						0.4	0.0
Delay (s)		9.6			8.1						8.2	6.4
Level of Service		A			A						A	A
Approach Delay (s)		9.6			8.1			0.0			8.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	28.1	Sum of lost time (s)	10.8
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
53: Broadway St & Stanislaus St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	112	44	5	37	0	0	0	0	115	236	3
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					1.00	0.95	1.00
Frt		0.96		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3389		1770	1863					1770	3539	1583
Flt Permitted		1.00		0.64	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3389		1184	1863					1770	3539	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.58	0.58	0.58	0.92	0.92	0.92	0.96	0.96	0.96
Adj. Flow (vph)	0	132	52	9	64	0	0	0	0	120	246	3
RTOR Reduction (vph)	0	38	0	0	0	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	146	0	9	64	0	0	0	0	120	246	2
Turn Type				Perm						Split		Perm
Protected Phases		2			2					4	4	
Permitted Phases				2								4
Actuated Green, G (s)		14.5		14.5	14.5					31.4	31.4	31.4
Effective Green, g (s)		14.5		14.5	14.5					31.4	31.4	31.4
Actuated g/C Ratio		0.27		0.27	0.27					0.58	0.58	0.58
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)		905		316	497					1024	2046	915
v/s Ratio Prot		c0.04			0.03					0.07	c0.07	
v/s Ratio Perm				0.01								0.00
v/c Ratio		0.16		0.03	0.13					0.12	0.12	0.00
Uniform Delay, d1		15.2		14.7	15.1					5.2	5.2	4.8
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.0		0.0	0.0					0.0	0.0	0.0
Delay (s)		15.3		14.7	15.1					5.2	5.2	4.8
Level of Service		B		B	B					A	A	A
Approach Delay (s)		15.3			15.1			0.0			5.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	54.3	Sum of lost time (s)	8.4
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
53: Broadway St & Stanislaus St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	44	76	75	46	0	0	0	0	30	531	36
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					1.00	0.95	1.00
Frt		0.90		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3201		1770	1863					1770	3539	1583
Flt Permitted		1.00		0.67	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3201		1245	1863					1770	3539	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.69	0.69	0.69	0.92	0.92	0.92	0.78	0.78	0.78
Adj. Flow (vph)	0	48	84	109	67	0	0	0	0	38	681	46
RTOR Reduction (vph)	0	63	0	0	0	0	0	0	0	0	0	19
Lane Group Flow (vph)	0	69	0	109	67	0	0	0	0	38	681	27
Turn Type				Perm						Split		Perm
Protected Phases		2			2					4	4	
Permitted Phases				2								4
Actuated Green, G (s)		14.0		14.0	14.0					32.3	32.3	32.3
Effective Green, g (s)		14.0		14.0	14.0					32.3	32.3	32.3
Actuated g/C Ratio		0.26		0.26	0.26					0.59	0.59	0.59
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)		819		319	477					1045	2090	935
v/s Ratio Prot		0.02			0.04					0.02	c0.19	
v/s Ratio Perm				c0.09								0.02
v/c Ratio		0.08		0.34	0.14					0.04	0.33	0.03
Uniform Delay, d1		15.5		16.6	15.7					4.7	5.7	4.7
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.0		0.2	0.0					0.0	0.0	0.0
Delay (s)		15.5		16.8	15.8					4.7	5.7	4.7
Level of Service		B		B	B					A	A	A
Approach Delay (s)		15.5			16.4			0.0			5.6	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	54.7	Sum of lost time (s)	8.4
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
54: Van Ness Ave & Stanislaus St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	132	5	75	238	0	0	0	0	81	194	7
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	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frt		0.99		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1853		1770	1863						4994	
Flt Permitted		1.00		0.66	1.00						0.99	
Satd. Flow (perm)		1853		1222	1863						4994	
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.92	0.81	0.81	0.81
Adj. Flow (vph)	0	153	6	81	256	0	0	0	0	100	240	9
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	156	0	81	256	0	0	0	0	0	345	0
Turn Type				Perm						Split		
Protected Phases		2			6					4	4	
Permitted Phases				6								
Actuated Green, G (s)		29.6		29.6	29.6						22.0	
Effective Green, g (s)		29.6		29.6	29.6						22.0	
Actuated g/C Ratio		0.49		0.49	0.49						0.37	
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)		914		603	919						1831	
v/s Ratio Prot		0.08			c0.14						c0.07	
v/s Ratio Perm				0.07								
v/c Ratio		0.17		0.13	0.28						0.19	
Uniform Delay, d1		8.4		8.2	8.9						12.9	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.4		0.0	0.1						0.0	
Delay (s)		8.8		8.3	9.0						12.9	
Level of Service		A		A	A						B	
Approach Delay (s)		8.8			8.8			0.0			12.9	
Approach LOS		A			A			A			B	

Intersection Summary

HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
54: Van Ness Ave & Stanislaus St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	61	5	119	418	0	0	0	0	50	409	38
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	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frt		0.99		1.00	1.00						0.99	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1845		1770	1863						5001	
Flt Permitted		1.00		0.71	1.00						1.00	
Satd. Flow (perm)		1845		1324	1863						5001	
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.92	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	0	66	5	147	516	0	0	0	0	62	511	48
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	68	0	147	516	0	0	0	0	0	605	0
Turn Type				Perm						Split		
Protected Phases		2			6					4	4	
Permitted Phases				6								
Actuated Green, G (s)		29.6		29.6	29.6						22.0	
Effective Green, g (s)		29.6		29.6	29.6						22.0	
Actuated g/C Ratio		0.49		0.49	0.49						0.37	
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)		910		653	919						1834	
v/s Ratio Prot		0.04			c0.28						c0.12	
v/s Ratio Perm				0.11								
v/c Ratio		0.08		0.23	0.56						0.33	
Uniform Delay, d1		8.0		8.7	10.7						13.7	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.2		0.1	0.5						0.0	
Delay (s)		8.2		8.7	11.1						13.7	
Level of Service		A		A	B						B	
Approach Delay (s)		8.2			10.6			0.0			13.7	
Approach LOS		A			B			A			B	

Intersection Summary

HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SBR2	SER	NWL	NWT	SWL	SWT
Lane Configurations								
Volume (vph)	167	579	2	9	23	47	97	102
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)	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	0.95
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		1832	1770	3539
Flt Permitted	0.95	1.00		1.00		0.98	0.95	1.00
Satd. Flow (perm)	1770	2787		1611		1832	1770	3539
Peak-hour factor, PHF	0.73	0.73	0.73	0.45	0.63	0.63	0.65	0.65
Adj. Flow (vph)	229	793	3	20	37	75	149	157
RTOR Reduction (vph)	0	1	0	20	0	0	0	0
Lane Group Flow (vph)	229	795	0	0	0	112	149	157
Turn Type		Prot		custom	Split		Split	
Protected Phases	2	2		8	1	1	4	4
Permitted Phases								
Actuated Green, G (s)	19.7	19.7		1.0		6.1	10.7	10.7
Effective Green, g (s)	19.7	19.7		1.0		6.1	10.7	10.7
Actuated g/C Ratio	0.36	0.36		0.02		0.11	0.19	0.19
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)	632	995		29		202	343	686
v/s Ratio Prot	0.13	c0.29		c0.00		c0.06	c0.08	0.04
v/s Ratio Perm								
v/c Ratio	0.36	0.80		0.01		0.55	0.43	0.23
Uniform Delay, d1	13.1	16.0		26.6		23.3	19.6	18.8
Progression Factor	1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	4.8		0.1		1.9	1.2	0.2
Delay (s)	13.6	20.8		26.7		25.1	20.8	19.0
Level of Service	B	C		C		C	C	B
Approach Delay (s)	19.2					25.1		19.9
Approach LOS	B					C		B

Intersection Summary

HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	17.7
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SBR2	SER	NWL	NWT	SWL	SWT
Lane Configurations								
Volume (vph)	89	257	1	9	15	26	70	118
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)	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	0.95
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		1830	1770	3539
Flt Permitted	0.95	1.00		1.00		0.98	0.95	1.00
Satd. Flow (perm)	1770	2787		1611		1830	1770	3539
Peak-hour factor, PHF	0.86	0.86	0.86	0.63	0.51	0.51	0.64	0.64
Adj. Flow (vph)	103	299	1	14	29	51	109	184
RTOR Reduction (vph)	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	103	300	0	0	0	80	109	184
Turn Type		Prot		custom	Split		Split	
Protected Phases	2	2		8	1	1	4	4
Permitted Phases								
Actuated Green, G (s)	12.1	12.1		0.8		6.5	7.3	7.3
Effective Green, g (s)	12.1	12.1		0.8		6.5	7.3	7.3
Actuated g/C Ratio	0.27	0.27		0.02		0.15	0.16	0.16
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)	482	760		29		268	291	582
v/s Ratio Prot	0.06	c0.11		c0.00		c0.04	c0.06	0.05
v/s Ratio Perm								
v/c Ratio	0.21	0.39		0.01		0.30	0.37	0.32
Uniform Delay, d1	12.5	13.2		21.4		16.9	16.5	16.3
Progression Factor	1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.5		0.0		0.2	1.1	0.4
Delay (s)	12.8	13.6		21.5		17.1	17.6	16.8
Level of Service	B	B		C		B	B	B
Approach Delay (s)	13.4					17.1		17.1
Approach LOS	B					B		B

Intersection Summary

HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	44.4	Sum of lost time (s)	17.7
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
56: E Divisadero St & N Abby St

4/25/2011

Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NWL2	NWL	NWR	NWR2
Lane Configurations										
Volume (vph)	108	299	17	72	94	50	110	36	231	11
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)	5.2	5.2		5.2	5.2			5.2	5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	0.76	
Frt	1.00	0.99		1.00	0.95			1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1770	3511		1770	3355			1770	3610	
Flt Permitted	0.63	1.00		0.53	1.00			0.95	1.00	
Satd. Flow (perm)	1178	3511		988	3355			1770	3610	
Peak-hour factor, PHF	0.85	0.85	0.85	0.76	0.76	0.76	0.86	0.86	0.86	0.86
Adj. Flow (vph)	127	352	20	95	124	66	128	42	269	13
RTOR Reduction (vph)	0	7	0	0	39	0	0	0	7	0
Lane Group Flow (vph)	127	365	0	95	151	0	0	170	275	0
Turn Type	Perm			Perm			Split		Perm	
Protected Phases		4			4		2	2		
Permitted Phases	4			4					2	
Actuated Green, G (s)	23.0	23.0		23.0	23.0			23.0	23.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0			23.0	23.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.41	0.41	
Clearance Time (s)	5.2	5.2		5.2	5.2			5.2	5.2	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			0.2	0.2	
Lane Grp Cap (vph)	480	1432		403	1368			722	1472	
v/s Ratio Prot		0.10			0.04			c0.10		
v/s Ratio Perm	c0.11			0.10					0.08	
v/c Ratio	0.26	0.25		0.24	0.11			0.24	0.19	
Uniform Delay, d1	11.1	11.0		10.9	10.4			10.9	10.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.1	0.0		0.1	0.0			0.1	0.0	
Delay (s)	11.2	11.1		11.1	10.4			11.0	10.7	
Level of Service	B	B		B	B			B	B	
Approach Delay (s)		11.1			10.6			10.8		
Approach LOS		B			B			B		

Intersection Summary

HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	10.4
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
56: E Divisadero St & N Abby St

4/25/2011

Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NWL2	NWL	NWR	NWR2
Lane Configurations										
Volume (vph)	220	249	7	68	159	110	104	117	693	13
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)	5.2	5.2		5.2	5.2			5.2	5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	0.76	
Frt	1.00	1.00		1.00	0.94			1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1770	3524		1770	3322			1770	3610	
Flt Permitted	0.54	1.00		0.58	1.00			0.95	1.00	
Satd. Flow (perm)	1001	3524		1081	3322			1770	3610	
Peak-hour factor, PHF	0.92	0.92	0.92	0.75	0.75	0.75	0.67	0.67	0.67	0.67
Adj. Flow (vph)	239	271	8	91	212	147	155	175	1034	19
RTOR Reduction (vph)	0	4	0	0	22	0	0	54	2	0
Lane Group Flow (vph)	239	275	0	91	337	0	0	276	1051	0
Turn Type	Perm			Perm			Split		Perm	
Protected Phases		4			4		2	2		
Permitted Phases	4			4					2	
Actuated Green, G (s)	23.4	23.4		23.4	23.4			23.4	23.4	
Effective Green, g (s)	23.4	23.4		23.4	23.4			23.4	23.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.41	0.41	
Clearance Time (s)	5.2	5.2		5.2	5.2			5.2	5.2	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			0.2	0.2	
Lane Grp Cap (vph)	410	1442		442	1359			724	1477	
v/s Ratio Prot		0.08			0.10			0.16		
v/s Ratio Perm	c0.24			0.08					c0.29	
v/c Ratio	0.58	0.19		0.21	0.25			0.38	0.71	
Uniform Delay, d1	13.1	10.8		10.9	11.1			11.8	14.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d2	1.4	0.0		0.1	0.0			0.1	1.4	
Delay (s)	14.5	10.9		11.0	11.1			12.0	15.5	
Level of Service	B	B		B	B			B	B	
Approach Delay (s)		12.5			11.1			14.6		
Approach LOS		B			B			B		

Intersection Summary

HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	57.2	Sum of lost time (s)	10.4
Intersection Capacity Utilization	70.5%	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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	361	31	0	130	0	0	0	0	65	715	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)		4.5			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)		3497			3539					1770	3539	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3497			3539					1770	3539	1583
Peak-hour factor, PHF	0.84	0.84	0.84	0.86	0.86	0.86	0.92	0.92	0.92	0.77	0.77	0.77
Adj. Flow (vph)	0	430	37	0	151	0	0	0	0	84	929	144
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	0	75
Lane Group Flow (vph)	0	455	0	0	151	0	0	0	0	84	929	69
Turn Type										Split		Perm
Protected Phases		4			4					2	2	
Permitted Phases												2
Actuated Green, G (s)		25.5			25.5					20.1	20.1	20.1
Effective Green, g (s)		25.5			25.5					20.1	20.1	20.1
Actuated g/C Ratio		0.46			0.46					0.37	0.37	0.37
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)		1621			1641					647	1293	579
v/s Ratio Prot		c0.13			0.04					0.05	c0.26	
v/s Ratio Perm												0.04
v/c Ratio		0.28			0.09					0.13	0.72	0.12
Uniform Delay, d1		9.1			8.3					11.6	15.0	11.6
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2			0.1					0.2	2.4	0.2
Delay (s)		9.3			8.3					11.8	17.4	11.8
Level of Service		A			A					B	B	B
Approach Delay (s)		9.3			8.3			0.0			16.3	
Approach LOS		A			A			A			B	

Intersection Summary

HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
57: E Divisadero St & N Blackstone Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	379	16	0	276	0	0	0	0	92	323	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)		4.5			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)		3518			3539					1770	3539	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3518			3539					1770	3539	1583
Peak-hour factor, PHF	0.87	0.87	0.87	0.85	0.85	0.85	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	436	18	0	325	0	0	0	0	107	376	91
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	58
Lane Group Flow (vph)	0	449	0	0	325	0	0	0	0	107	376	33
Turn Type										Split		Perm
Protected Phases		4			4					2	2	
Permitted Phases												2
Actuated Green, G (s)		25.5			25.5					20.1	20.1	20.1
Effective Green, g (s)		25.5			25.5					20.1	20.1	20.1
Actuated g/C Ratio		0.46			0.46					0.37	0.37	0.37
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)		1631			1641					647	1293	579
v/s Ratio Prot		c0.13			0.09					0.06	c0.11	
v/s Ratio Perm												0.02
v/c Ratio		0.28			0.20					0.17	0.29	0.06
Uniform Delay, d1		9.1			8.7					11.8	12.4	11.3
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2			0.1					0.3	0.3	0.1
Delay (s)		9.3			8.8					12.0	12.7	11.4
Level of Service		A			A					B	B	B
Approach Delay (s)		9.3			8.8			0.0			12.3	
Approach LOS		A			A			A			B	

Intersection Summary

HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
58: H St & San Joaquin St

4/25/2011

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	435	60	3	5	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.64	0.64	0.75	0.75	0.50	0.50
Hourly flow rate (vph)	8	680	80	4	10	6
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	84				777	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84				777	82
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	99
cM capacity (veh/h)	1513				363	978

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	688	84	16
Volume Left	8	0	10
Volume Right	0	4	6
cSH	1513	1700	475
Volume to Capacity	0.01	0.05	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.1	0.0	12.8
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	12.8
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
58: H St & San Joaquin St

4/25/2011

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	3	123	348	4	2	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.71	0.71	0.33	0.33
Hourly flow rate (vph)	3	137	490	6	6	6
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	496				636	493
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	496				636	493
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				99	99
cM capacity (veh/h)	1068				440	576

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	140	496	12
Volume Left	3	0	6
Volume Right	0	6	6
cSH	1068	1700	499
Volume to Capacity	0.00	0.29	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.2	0.0	12.4
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	12.4
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
59: E Divisadero St & N San Pablo Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	294	128	7	168	15	2	11	14	13	58	13
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	0.97	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3534	1583		3492		1770	1704		1770	1812	
Flt Permitted		0.95	1.00		0.94		0.69	1.00		0.74	1.00	
Satd. Flow (perm)		3348	1583		3284		1285	1704		1374	1812	
Peak-hour factor, PHF	0.64	0.64	0.64	0.91	0.91	0.91	0.84	0.84	0.84	0.68	0.68	0.68
Adj. Flow (vph)	14	459	200	8	185	16	2	13	17	19	85	19
RTOR Reduction (vph)	0	0	87	0	7	0	0	13	0	0	14	0
Lane Group Flow (vph)	0	473	113	0	202	0	2	17	0	19	90	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)		31.9	31.9		31.9		13.7	13.7		13.7	13.7	
Effective Green, g (s)		31.9	31.9		31.9		13.7	13.7		13.7	13.7	
Actuated g/C Ratio		0.57	0.57		0.57		0.24	0.24		0.24	0.24	
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)		1894	895		1857		312	414		334	440	
v/s Ratio Prot								0.01			c0.05	
v/s Ratio Perm		c0.14	0.07		0.06		0.00			0.01		
v/c Ratio		0.25	0.13		0.11		0.01	0.04		0.06	0.20	
Uniform Delay, d1		6.2	5.7		5.7		16.2	16.3		16.4	17.0	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0		0.0		0.0	0.0		0.0	0.1	
Delay (s)		6.2	5.8		5.7		16.2	16.3		16.4	17.1	
Level of Service		A	A		A		B	B		B	B	
Approach Delay (s)		6.1			5.7			16.3			17.0	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	10.8
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
59: E Divisadero St & N San Pablo Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	231	33	5	339	30	18	20	22	15	20	15
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	0.94	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3529	1583		3494		1770	1717		1770	1742	
Flt Permitted		0.92	1.00		0.95		0.72	1.00		0.73	1.00	
Satd. Flow (perm)		3268	1583		3327		1348	1717		1357	1742	
Peak-hour factor, PHF	0.87	0.87	0.87	0.79	0.79	0.79	0.94	0.94	0.94	0.69	0.69	0.69
Adj. Flow (vph)	17	266	38	6	429	38	19	21	23	22	29	22
RTOR Reduction (vph)	0	0	15	0	8	0	0	19	0	0	18	0
Lane Group Flow (vph)	0	283	23	0	465	0	19	25	0	22	33	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)		32.6	32.6		32.6		9.4	9.4		9.4	9.4	
Effective Green, g (s)		32.6	32.6		32.6		9.4	9.4		9.4	9.4	
Actuated g/C Ratio		0.62	0.62		0.62		0.18	0.18		0.18	0.18	
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)		2018	977		2054		240	306		242	310	
v/s Ratio Prot								0.01			c0.02	
v/s Ratio Perm		0.09	0.01		c0.14		0.01			0.02		
v/c Ratio		0.14	0.02		0.23		0.08	0.08		0.09	0.11	
Uniform Delay, d1		4.2	3.9		4.5		18.1	18.1		18.1	18.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0		0.0		0.1	0.0		0.1	0.1	
Delay (s)		4.2	3.9		4.5		18.1	18.1		18.2	18.2	
Level of Service		A	A		A		B	B		B	B	
Approach Delay (s)		4.2			4.5			18.1			18.2	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	10.8
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
60: H St & Amador St

4/25/2011

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	415	58	3	28	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.64	0.64	0.76	0.76	0.65	0.65
Hourly flow rate (vph)	8	648	76	4	43	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	80				742	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	80				742	78
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				89	99
cM capacity (veh/h)	1518				381	982

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	656	80	52
Volume Left	8	0	43
Volume Right	0	4	9
cSH	1518	1700	427
Volume to Capacity	0.01	0.05	0.12
Queue Length 95th (ft)	0	0	10
Control Delay (s)	0.1	0.0	14.6
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	14.6
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
60: H St & Amador St

4/25/2011

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	119	346	15	7	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.71	0.71	0.72	0.72
Hourly flow rate (vph)	5	131	487	21	10	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	508				640	498
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	508				640	498
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	96
cM capacity (veh/h)	1057				438	572

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	136	508	32
Volume Left	5	0	10
Volume Right	0	21	22
cSH	1057	1700	523
Volume to Capacity	0.01	0.30	0.06
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.4	0.0	12.3
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	12.3
Approach LOS			B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
61: E Divisadero St & G St

4/25/2011

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	8	35	29	39	107	13	4	56	134	259	52	56
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		4.9	4.9		4.9	4.9	4.9	4.5	4.5	
Lane Util. Factor		0.97		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt		0.94		1.00	0.98		1.00	1.00	0.85	1.00	0.85	
Flt Protected		0.97		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3299		1770	3482		1770	1863	1583	1770	1583	
Flt Permitted		0.93		0.72	1.00		0.66	1.00	1.00	0.70	1.00	
Satd. Flow (perm)		3168		1336	3482		1237	1863	1583	1301	1583	
Peak-hour factor, PHF	0.82	0.82	0.82	0.86	0.86	0.86	0.92	0.92	0.92	0.79	0.79	0.79
Adj. Flow (vph)	10	43	35	45	124	15	4	61	146	328	66	71
RTOR Reduction (vph)	0	17	0	0	11	0	0	0	116	0	34	0
Lane Group Flow (vph)	0	71	0	45	128	0	4	61	30	328	103	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)		18.7		7.4	7.4		7.4	7.4	7.4	18.7	18.7	
Effective Green, g (s)		18.7		7.4	7.4		7.4	7.4	7.4	18.7	18.7	
Actuated g/C Ratio		0.53		0.21	0.21		0.21	0.21	0.21	0.53	0.53	
Clearance Time (s)		4.5		4.9	4.9		4.9	4.9	4.9	4.5	4.5	
Vehicle Extension (s)		5.0		4.0	4.0		4.0	4.0	4.0	5.0	5.0	
Lane Grp Cap (vph)		1669		278	726		258	388	330	685	834	
v/s Ratio Prot					c0.04			0.03			0.07	
v/s Ratio Perm		0.02		0.03			0.00		0.02	c0.25		
v/c Ratio		0.04		0.16	0.18		0.02	0.16	0.09	0.48	0.12	
Uniform Delay, d1		4.1		11.5	11.5		11.2	11.5	11.3	5.3	4.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		0.4	0.2		0.0	0.3	0.2	1.1	0.1	
Delay (s)		4.1		11.9	11.7		11.2	11.8	11.5	6.4	4.4	
Level of Service		A		B	B		B	B	B	A	A	
Approach Delay (s)		4.1			11.7			11.6		5.8		
Approach LOS		A			B			B		A		

Intersection Summary

HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	35.5	Sum of lost time (s)	9.4
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
61: E Divisadero St & G St

4/25/2011

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	5	57	15	40	57	9	16	67	326	209	45	50
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		4.9	4.9		4.9	4.9	4.9	4.5	4.5	
Lane Util. Factor		0.97		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt		0.97		1.00	0.98		1.00	1.00	0.85	1.00	0.85	
Flt Protected		0.96		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3373		1770	3468		1770	1863	1583	1770	1583	
Flt Permitted		0.94		0.71	1.00		0.71	1.00	1.00	0.69	1.00	
Satd. Flow (perm)		3312		1320	3468		1314	1863	1583	1287	1583	
Peak-hour factor, PHF	0.77	0.77	0.77	0.88	0.88	0.88	0.90	0.90	0.90	0.82	0.82	0.82
Adj. Flow (vph)	6	74	19	45	65	10	18	74	362	255	55	61
RTOR Reduction (vph)	0	10	0	0	7	0	0	0	257	0	33	0
Lane Group Flow (vph)	0	89	0	45	68	0	18	74	105	255	83	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)		17.2		10.8	10.8		10.8	10.8	10.8	17.2	17.2	
Effective Green, g (s)		17.2		10.8	10.8		10.8	10.8	10.8	17.2	17.2	
Actuated g/C Ratio		0.46		0.29	0.29		0.29	0.29	0.29	0.46	0.46	
Clearance Time (s)		4.5		4.9	4.9		4.9	4.9	4.9	4.5	4.5	
Vehicle Extension (s)		5.0		4.0	4.0		4.0	4.0	4.0	5.0	5.0	
Lane Grp Cap (vph)		1523		381	1001		379	538	457	592	728	
v/s Ratio Prot					0.02			0.04			0.05	
v/s Ratio Perm		0.03		0.03			0.01		c0.07	c0.20		
v/c Ratio		0.06		0.12	0.07		0.05	0.14	0.23	0.43	0.11	
Uniform Delay, d1		5.6		9.8	9.6		9.6	9.9	10.1	6.8	5.8	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		0.2	0.0		0.1	0.2	0.4	1.1	0.1	
Delay (s)		5.6		10.0	9.7		9.7	10.0	10.5	7.9	5.9	
Level of Service		A		A	A		A	B	B	A	A	
Approach Delay (s)		5.6			9.8			10.4		7.2		
Approach LOS		A			A			B		A		

Intersection Summary

HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	37.4	Sum of lost time (s)	9.4
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
62: E Divisadero St & N Roosevelt Ave.

4/25/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	116	2	134	75	1	276
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.74	0.74	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	157	3	149	83	1	300
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			387			273
pX, platoon unblocked						
vC, conflicting volume	451	149			232	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	451	149			232	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	100			100	
cM capacity (veh/h)	566	898			1335	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	159	149	83	301
Volume Left	157	0	0	1
Volume Right	3	0	83	0
cSH	569	1700	1700	1335
Volume to Capacity	0.28	0.09	0.05	0.00
Queue Length 95th (ft)	29	0	0	0
Control Delay (s)	13.8	0.0	0.0	0.0
Lane LOS	B			A
Approach Delay (s)	13.8	0.0		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
62: E Divisadero St & N Roosevelt Ave.

4/25/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	78	1	292	150	0	358
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.86	0.86	0.94	0.94	0.90	0.90
Hourly flow rate (vph)	91	1	311	160	0	398
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			393			280
pX, platoon unblocked						
vC, conflicting volume	708	311			470	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	708	311			470	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	100			100	
cM capacity (veh/h)	401	729			1091	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	92	311	160	398
Volume Left	91	0	0	0
Volume Right	1	0	160	0
cSH	403	1700	1700	1091
Volume to Capacity	0.23	0.18	0.09	0.00
Queue Length 95th (ft)	22	0	0	0
Control Delay (s)	16.5	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	16.5	0.0		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL
Lane Configurations												
Volume (vph)	73	11	3	109	142	1	9	61	0	9	3	444
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	0.98			0.97	0.85				1.00	0.85	0.86	0.93
Flt Protected	1.00			1.00	1.00				0.95	1.00	1.00	0.97
Satd. Flow (prot)	1830			1721	1504				3362	1583	1611	3274
Flt Permitted	1.00			1.00	1.00				0.95	1.00	1.00	0.46
Satd. Flow (perm)	1830			1715	1504				3362	1583	1611	1529
Peak-hour factor, PHF	0.84	0.84	0.83	0.83	0.83	0.83	0.86	0.86	0.86	0.86	0.75	0.71
Adj. Flow (vph)	87	13	4	131	171	1	10	71	0	10	4	625
RTOR Reduction (vph)	6	0	0	0	0	0	0	0	0	9	4	0
Lane Group Flow (vph)	94	0	0	164	143	0	0	0	81	1	0	1171
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)	20.2			20.2	20.2				6.4	6.4	6.8	18.2
Effective Green, g (s)	20.2			20.2	20.2				6.4	6.4	6.8	18.2
Actuated g/C Ratio	0.34			0.34	0.34				0.11	0.11	0.12	0.31
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)	631			591	518				367	173	187	1017
v/s Ratio Prot	0.05										0.00	c0.36
v/s Ratio Perm				c0.10	0.10				0.02	0.00		
v/c Ratio	0.15			0.28	0.28				0.22	0.01	0.00	1.15
Uniform Delay, d1	13.3			13.9	13.9				23.8	23.3	22.9	20.2
Progression Factor	1.00			1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2			0.5	0.6				0.4	0.0	0.0	79.7
Delay (s)	13.5			14.4	14.5				24.2	23.3	22.9	99.9
Level of Service	B			B	B				C	C	C	F
Approach Delay (s)	13.5			14.5					24.1			99.9
Approach LOS	B			B					C			F

Intersection Summary

HCM Average Control Delay	74.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	13.8
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER	SER2
Lane Configurations		
Volume (vph)	387	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	0.71	0.71
Adj. Flow (vph)	545	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

4/25/2011

Movement	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL2	SEL
Lane Configurations												
Volume (vph)	150	9	74	444	2	4	293	0	19	6	1	162
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	0.99		0.89	0.85				1.00	0.85	0.86		0.95
Flt Protected	1.00		1.00	1.00				0.95	1.00	1.00		0.97
Satd. Flow (prot)	1848		1578	1504				3362	1583	1611		3328
Flt Permitted	1.00		1.00	1.00				0.95	1.00	1.00		0.95
Satd. Flow (perm)	1848		1578	1504				3362	1583	1611		3287
Peak-hour factor, PHF	0.85	0.85	0.78	0.78	0.78	0.71	0.71	0.71	0.71	0.50	0.95	0.95
Adj. Flow (vph)	176	11	95	569	3	6	413	0	27	12	1	171
RTOR Reduction (vph)	3	0	0	1	0	0	0	0	23	10	0	1
Lane Group Flow (vph)	184	0	340	326	0	0	0	419	4	2	0	251
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)	21.6		21.6	33.9				12.0	12.0	12.4		30.3
Effective Green, g (s)	21.6		21.6	33.9				12.0	12.0	12.4		30.3
Actuated g/C Ratio	0.26		0.26	0.41				0.15	0.15	0.15		0.37
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)	485		414	620				490	231	243		1219
v/s Ratio Prot	0.10		c0.22	c0.08						0.00		c0.05
v/s Ratio Perm				0.14				0.12	0.00			0.03
v/c Ratio	0.38		0.82	0.53				1.62dl	0.02	0.01		0.21
Uniform Delay, d1	24.9		28.5	18.2				34.3	30.1	29.7		21.8
Progression Factor	1.00		1.00	1.00				1.00	1.00	1.00		1.00
Incremental Delay, d2	1.0		13.7	1.5				14.1	0.0	0.0		0.2
Delay (s)	25.9		42.3	19.7				48.4	30.1	29.7		22.0
Level of Service	C		D	B				D	C	C		C
Approach Delay (s)	25.9		31.2					47.3				22.0
Approach LOS	C		C					D				C

Intersection Summary

HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	18.4
Intersection Capacity Utilization	60.2%	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	SER	SER2
Lane Configurations		
Volume (vph)	75	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	0.95	0.95
Adj. Flow (vph)	79	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
64: E Divisadero St & Broadway St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	17	385	67	10	244	16	36	47	14	10	20	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	0.96		1.00	0.97	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3532	1583		3501		1770	1797		1770	1799	
Flt Permitted		0.94	1.00		0.94		0.73	1.00		0.71	1.00	
Satd. Flow (perm)		3321	1583		3290		1368	1797		1328	1799	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.96	0.96	0.90	0.90	0.90	0.75	0.75	0.75
Adj. Flow (vph)	18	418	73	10	254	17	40	52	16	13	27	8
RTOR Reduction (vph)	0	0	38	0	9	0	0	12	0	0	6	0
Lane Group Flow (vph)	0	436	35	0	272	0	40	56	0	13	29	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)		15.9	15.9		15.9		7.8	7.8		7.8	7.8	
Effective Green, g (s)		15.9	15.9		15.9		7.8	7.8		7.8	7.8	
Actuated g/C Ratio		0.48	0.48		0.48		0.24	0.24		0.24	0.24	
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)		1605	765		1590		324	426		315	427	
v/s Ratio Prot								c0.03			0.02	
v/s Ratio Perm		c0.13	0.02		0.08		0.03			0.01		
v/c Ratio		0.27	0.05		0.17		0.12	0.13		0.04	0.07	
Uniform Delay, d1		5.1	4.5		4.8		9.9	9.9		9.7	9.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0		0.0		0.1	0.1		0.0	0.0	
Delay (s)		5.1	4.5		4.8		9.9	9.9		9.7	9.8	
Level of Service		A	A		A		A	A		A	A	
Approach Delay (s)		5.0			4.8			9.9			9.7	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	32.9	Sum of lost time (s)	9.2
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
64: E Divisadero St & Broadway St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	22	225	29	5	401	54	26	18	19	81	82	7
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	0.92		1.00	0.99	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3524	1583		3475		1770	1720		1770	1840	
Flt Permitted		0.90	1.00		0.95		0.69	1.00		0.73	1.00	
Satd. Flow (perm)		3193	1583		3312		1277	1720		1356	1840	
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.83	0.83	0.83	0.80	0.80	0.80
Adj. Flow (vph)	25	259	33	5	441	59	31	22	23	101	102	9
RTOR Reduction (vph)	0	0	16	0	19	0	0	17	0	0	6	0
Lane Group Flow (vph)	0	284	17	0	486	0	31	28	0	101	105	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)		23.3	23.3		23.3		12.7	12.7		12.7	12.7	
Effective Green, g (s)		23.3	23.3		23.3		12.7	12.7		12.7	12.7	
Actuated g/C Ratio		0.52	0.52		0.52		0.28	0.28		0.28	0.28	
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)		1646	816		1707		359	483		381	517	
v/s Ratio Prot								0.02			0.06	
v/s Ratio Perm		0.09	0.01		c0.15		0.02			c0.07		
v/c Ratio		0.17	0.02		0.28		0.09	0.06		0.27	0.20	
Uniform Delay, d1		5.8	5.4		6.2		12.0	11.9		12.6	12.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0		0.0		0.0	0.0		0.1	0.1	
Delay (s)		5.8	5.4		6.3		12.0	11.9		12.8	12.5	
Level of Service		A	A		A		B	B		B	B	
Approach Delay (s)		5.8			6.3			11.9			12.6	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	45.2	Sum of lost time (s)	9.2
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
65: E Divisadero St & N Fulton St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	472	18	8	134	0	9	0	16	222	505	145
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		0.99			1.00		1.00		0.85	1.00	0.97	
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)		3519			3529		1770		1583	1770	3421	
Flt Permitted		1.00			0.92		0.31		1.00	0.95	1.00	
Satd. Flow (perm)		3519			3260		569		1583	1770	3421	
Peak-hour factor, PHF	0.70	0.70	0.70	0.87	0.87	0.87	0.78	0.78	0.78	0.90	0.90	0.90
Adj. Flow (vph)	0	674	26	9	154	0	12	0	21	247	561	161
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	12	0	45	0
Lane Group Flow (vph)	0	695	0	0	163	0	12	0	9	247	677	0
Turn Type				Perm			D.Pm		custom	Perm		
Protected Phases		4			4				2		2	
Permitted Phases				4			2		2	2		
Actuated Green, G (s)		25.0			25.0		24.2		24.2	24.2	24.2	
Effective Green, g (s)		25.0			25.0		24.2		24.2	24.2	24.2	
Actuated g/C Ratio		0.43			0.43		0.42		0.42	0.42	0.42	
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)		1512			1400		237		658	736	1422	
v/s Ratio Prot		c0.20							0.01		c0.20	
v/s Ratio Perm					0.05		0.02			0.14		
v/c Ratio		0.46			0.12		0.05		0.01	0.34	0.48	
Uniform Delay, d1		11.8			10.0		10.1		10.0	11.5	12.4	
Progression Factor		1.00			1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.1			0.0		0.0		0.0	0.1	0.1	
Delay (s)		11.9			10.0		10.2		10.0	11.6	12.5	
Level of Service		B			A		B		A	B	B	
Approach Delay (s)		11.9			10.0			10.1			12.3	
Approach LOS		B			A			B			B	

Intersection Summary

HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
65: E Divisadero St & N Fulton St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	237	22	7	360	0	12	0	30	108	221	77
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		0.99			1.00		1.00		0.85	1.00	0.96	
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)		3494			3536		1770		1583	1770	3402	
Flt Permitted		1.00			0.95		0.56		1.00	0.95	1.00	
Satd. Flow (perm)		3494			3359		1038		1583	1770	3402	
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91	0.88	0.88	0.88	0.93	0.93	0.93
Adj. Flow (vph)	0	249	23	8	396	0	14	0	34	116	238	83
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	20	0	49	0
Lane Group Flow (vph)	0	261	0	0	404	0	14	0	14	116	272	0
Turn Type				Perm			D.Pm		custom	Perm		
Protected Phases		4			4				2		2	
Permitted Phases				4			2		2	2		
Actuated Green, G (s)		25.0			25.0		24.0		24.0	24.0	24.0	
Effective Green, g (s)		25.0			25.0		24.0		24.0	24.0	24.0	
Actuated g/C Ratio		0.43			0.43		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)		1506			1448		430		655	732	1408	
v/s Ratio Prot		0.07							0.01		c0.08	
v/s Ratio Perm					c0.12		0.01			0.07		
v/c Ratio		0.17			0.28		0.03		0.02	0.16	0.19	
Uniform Delay, d1		10.1			10.7		10.1		10.1	10.7	10.8	
Progression Factor		1.00			1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.0			0.0		0.0		0.0	0.0	0.0	
Delay (s)		10.2			10.7		10.1		10.1	10.7	10.9	
Level of Service		B			B		B		B	B	B	
Approach Delay (s)		10.2			10.7			10.1			10.8	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
66: E Divisadero St & N Van Ness Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	465	147	6	116	43	31	123	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			0.96			0.99				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3409			3395			3460				
Flt Permitted		0.92			0.93			0.99				
Satd. Flow (perm)		3160			3158			3460				
Peak-hour factor, PHF	0.69	0.69	0.69	0.81	0.81	0.81	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	58	674	213	7	143	53	33	131	16	0	0	0
RTOR Reduction (vph)	0	37	0	0	25	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	908	0	0	178	0	0	169	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		8			4		6	6				
Permitted Phases	8			4								
Actuated Green, G (s)		27.2			27.2			16.0				
Effective Green, g (s)		27.2			27.2			16.0				
Actuated g/C Ratio		0.52			0.52			0.31				
Clearance Time (s)		4.5			4.5			4.2				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		1656			1655			1067				
v/s Ratio Prot								c0.05				
v/s Ratio Perm		c0.29			0.06							
v/c Ratio		0.55			0.11			0.16				
Uniform Delay, d1		8.2			6.2			13.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.2			0.0			0.0				
Delay (s)		8.4			6.2			13.1				
Level of Service		A			A			B				
Approach Delay (s)		8.4			6.2			13.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	8.7
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
66: E Divisadero St & N Van Ness Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	154	221	47	9	306	105	123	459	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			0.96			1.00				
Flt Protected		0.98			1.00			0.99				
Satd. Flow (prot)		3418			3403			3489				
Flt Permitted		0.62			0.94			0.99				
Satd. Flow (perm)		2167			3203			3489				
Peak-hour factor, PHF	0.70	0.70	0.70	0.70	0.70	0.70	0.62	0.62	0.62	0.92	0.92	0.92
Adj. Flow (vph)	220	316	67	13	437	150	198	740	27	0	0	0
RTOR Reduction (vph)	0	15	0	0	52	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	588	0	0	548	0	0	961	0	0	0	0
Turn Type	Perm			Perm			Split					
Protected Phases		8			4		6	6				
Permitted Phases	8			4								
Actuated Green, G (s)		25.5			25.5			22.5				
Effective Green, g (s)		25.5			25.5			22.5				
Actuated g/C Ratio		0.45			0.45			0.40				
Clearance Time (s)		4.5			4.5			4.2				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		975			1441			1385				
v/s Ratio Prot								c0.28				
v/s Ratio Perm		c0.27			0.17							
v/c Ratio		0.60			0.38			0.69				
Uniform Delay, d1		11.8			10.4			14.2				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.7			0.1			1.2				
Delay (s)		12.5			10.4			15.5				
Level of Service		B			B			B				
Approach Delay (s)		12.5			10.4			15.5			0.0	
Approach LOS		B			B			B			A	

Intersection Summary

HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	8.7
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
67: N Roosevelt Ave. & N H St

4/25/2011

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	132	0	3	1	0	0	1	833	242	24	177	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			1.00			1.00	0.85		1.00	
Flt Protected	0.95	1.00			0.95			1.00	1.00		0.99	
Satd. Flow (prot)	1770	1583			1770			3539	1583		3516	
Flt Permitted	0.76	1.00			0.76			0.95	1.00		0.83	
Satd. Flow (perm)	1407	1583			1407			3379	1583		2938	
Peak-hour factor, PHF	0.77	0.77	0.77	0.25	0.25	0.25	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	171	0	4	4	0	0	1	980	285	27	197	1
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	152	0	1	0
Lane Group Flow (vph)	171	2	0	0	4	0	0	981	133	0	224	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)	28.0	28.0			28.0			29.6	29.6		29.6	
Effective Green, g (s)	28.0	28.0			28.0			29.6	29.6		29.6	
Actuated g/C Ratio	0.42	0.42			0.42			0.45	0.45		0.45	
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)	593	668			593			1506	706		1310	
v/s Ratio Prot		0.00										
v/s Ratio Perm	c0.12				0.00			c0.29	0.08		0.08	
v/c Ratio	0.29	0.00			0.01			0.65	0.19		0.17	
Uniform Delay, d1	12.6	11.1			11.1			14.4	11.1		11.0	
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.6	0.0			0.0			1.1	0.2		0.1	
Delay (s)	13.2	11.1			11.1			15.5	11.3		11.1	
Level of Service	B	B			B			B	B		B	
Approach Delay (s)		13.2			11.1			14.6			11.1	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	8.8
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
67: N Roosevelt Ave. & N H St

4/25/2011

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	239	0	2	0	1	0	1	270	175	16	611	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			1.00			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			1863			3539	1583		3534	
Flt Permitted	0.76	1.00			1.00			0.95	1.00		0.94	
Satd. Flow (perm)	1407	1583			1863			3374	1583		3341	
Peak-hour factor, PHF	0.90	0.90	0.90	0.25	0.25	0.25	0.97	0.97	0.97	0.79	0.79	0.79
Adj. Flow (vph)	266	0	2	0	4	0	1	278	180	20	773	1
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	104	0	0	0
Lane Group Flow (vph)	266	1	0	0	4	0	0	279	76	0	794	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)	28.2	28.2			28.2			26.9	26.9		26.9	
Effective Green, g (s)	28.2	28.2			28.2			26.9	26.9		26.9	
Actuated g/C Ratio	0.44	0.44			0.44			0.42	0.42		0.42	
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)	621	699			822			1420	666		1406	
v/s Ratio Prot		0.00			0.00							
v/s Ratio Perm	c0.19							0.08	0.05		c0.24	
v/c Ratio	0.43	0.00			0.00			0.20	0.11		0.56	
Uniform Delay, d1	12.3	10.0			10.0			11.7	11.3		14.1	
Progression Factor	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		0.6	
Delay (s)	13.3	10.0			10.0			11.8	11.4		14.7	
Level of Service	B	A			A			B	B		B	
Approach Delay (s)		13.3			10.0			11.6			14.7	
Approach LOS		B			A			B			B	

Intersection Summary

HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	8.8
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: E McKenzie Ave. & N Blackstone Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	52	27	33	35	0	0	0	0	81	929	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						4.9	
Lane Util. Factor		1.00			1.00						0.91	
Frt		0.95			1.00						0.99	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1777			1818						5035	
Flt Permitted		1.00			0.80						1.00	
Satd. Flow (perm)		1777			1489						5035	
Peak-hour factor, PHF	0.86	0.86	0.86	0.89	0.89	0.89	0.92	0.92	0.92	0.79	0.79	0.79
Adj. Flow (vph)	0	60	31	37	39	0	0	0	0	103	1176	54
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	65	0	0	76	0	0	0	0	0	1326	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		6.6			6.6						22.9	
Effective Green, g (s)		6.6			6.6						22.9	
Actuated g/C Ratio		0.17			0.17						0.59	
Clearance Time (s)		4.2			4.2						4.9	
Vehicle Extension (s)		4.0			4.0						5.0	
Lane Grp Cap (vph)		304			255						2987	
v/s Ratio Prot		0.04									c0.26	
v/s Ratio Perm					c0.05							
v/c Ratio		0.21			0.30						0.44	
Uniform Delay, d1		13.8			14.0						4.3	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.5			0.9						0.2	
Delay (s)		14.3			14.9						4.6	
Level of Service		B			B						A	
Approach Delay (s)		14.3			14.9			0.0			4.6	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	38.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: E McKenzie Ave. & N Blackstone Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	64	38	39	59	0	0	0	0	48	550	51
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		0.95			1.00						0.99	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1769			1827						5007	
Flt Permitted		1.00			0.82						1.00	
Satd. Flow (perm)		1769			1518						5007	
Peak-hour factor, PHF	0.77	0.77	0.77	0.79	0.79	0.79	0.92	0.92	0.92	0.89	0.89	0.89
Adj. Flow (vph)	0	83	49	49	75	0	0	0	0	54	618	57
RTOR Reduction (vph)	0	39	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	93	0	0	124	0	0	0	0	0	713	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		7.5			7.5						20.5	
Effective Green, g (s)		7.5			7.5						20.5	
Actuated g/C Ratio		0.20			0.20						0.55	
Clearance Time (s)		4.2			4.2						4.9	
Vehicle Extension (s)		4.0			4.0						5.0	
Lane Grp Cap (vph)		358			307						2767	
v/s Ratio Prot		0.05									c0.14	
v/s Ratio Perm					c0.08							
v/c Ratio		0.26			0.40						0.26	
Uniform Delay, d1		12.5			12.9						4.3	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.5			1.2						0.1	
Delay (s)		13.0			14.0						4.4	
Level of Service		B			B						A	
Approach Delay (s)		13.0			14.0			0.0			4.4	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	6.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	37.1	Sum of lost time (s)	9.1
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: E McKenzie Ave. & N Abby St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	90	0	0	50	49	17	400	23	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			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1834			1738			5036				
Flt Permitted		0.85			1.00			1.00				
Satd. Flow (perm)		1587			1738			5036				
Peak-hour factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.84	0.84	0.84	0.92	0.92	0.92
Adj. Flow (vph)	53	115	0	0	62	61	20	476	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	46	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	168	0	0	77	0	0	512	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		7.3			7.3			13.0				
Effective Green, g (s)		7.3			7.3			13.0				
Actuated g/C Ratio		0.25			0.25			0.44				
Clearance Time (s)		4.2			4.2			4.9				
Vehicle Extension (s)		4.0			4.0			0.2				
Lane Grp Cap (vph)		394			432			2227				
v/s Ratio Prot					0.04			c0.10				
v/s Ratio Perm		c0.11										
v/c Ratio		0.43			0.18			0.23				
Uniform Delay, d1		9.3			8.7			5.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.0			0.3			0.0				
Delay (s)		10.3			9.0			5.1				
Level of Service		B			A			A				
Approach Delay (s)		10.3			9.0			5.1			0.0	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	6.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	29.4	Sum of lost time (s)	9.1
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: E McKenzie Ave. & N Abby St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	64	0	0	78	109	20	1001	24	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			0.92			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1822			1716			5063				
Flt Permitted		0.75			1.00			1.00				
Satd. Flow (perm)		1405			1716			5063				
Peak-hour factor, PHF	0.72	0.72	0.72	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	71	89	0	0	92	128	24	1178	28	0	0	0
RTOR Reduction (vph)	0	0	0	0	19	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	160	0	0	201	0	0	1226	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		8.4			8.4			19.8				
Effective Green, g (s)		8.4			8.4			19.8				
Actuated g/C Ratio		0.23			0.23			0.53				
Clearance Time (s)		4.2			4.2			4.9				
Vehicle Extension (s)		4.0			4.0			0.2				
Lane Grp Cap (vph)		316			386			2688				
v/s Ratio Prot					c0.12			c0.24				
v/s Ratio Perm		0.11										
v/c Ratio		0.51			0.52			0.46				
Uniform Delay, d1		12.6			12.7			5.4				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.7			1.6			0.0				
Delay (s)		14.4			14.3			5.5				
Level of Service		B			B			A				
Approach Delay (s)		14.4			14.3			5.5			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	37.3	Sum of lost time (s)	9.1
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
70: 180 EB Off-Ramp & N Fulton St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	195	131	0	0	0	0	0	0	343	834	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		0.94									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		3326									3488	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		3326									3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.80	0.80	0.80
Adj. Flow (vph)	0	212	142	0	0	0	0	0	0	429	1042	0
RTOR Reduction (vph)	0	40	0	0	0	0	0	0	0	0	56	0
Lane Group Flow (vph)	0	314	0	0	0	0	0	0	0	0	1415	0
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		14.3									30.5	
Effective Green, g (s)		14.3									30.5	
Actuated g/C Ratio		0.27									0.57	
Clearance Time (s)		4.2									4.6	
Vehicle Extension (s)		6.4									5.6	
Lane Grp Cap (vph)		887									1985	
v/s Ratio Prot		c0.09										
v/s Ratio Perm											0.41	
v/c Ratio		0.35									0.71	
Uniform Delay, d1		15.9									8.4	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.8									1.7	
Delay (s)		16.7									10.1	
Level of Service		B									B	
Approach Delay (s)		16.7			0.0			0.0			10.1	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	8.8
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
70: 180 EB Off-Ramp & N Fulton St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	219	108	0	0	0	0	0	0	355	315	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		0.95									1.00	
Flt Protected		1.00									0.97	
Satd. Flow (prot)		3364									3448	
Flt Permitted		1.00									0.97	
Satd. Flow (perm)		3364									3448	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	261	129	0	0	0	0	0	0	413	366	0
RTOR Reduction (vph)	0	86	0	0	0	0	0	0	0	0	224	0
Lane Group Flow (vph)	0	304	0	0	0	0	0	0	0	0	555	0
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		13.9									19.2	
Effective Green, g (s)		13.9									19.2	
Actuated g/C Ratio		0.33									0.46	
Clearance Time (s)		4.2									4.6	
Vehicle Extension (s)		6.4									5.6	
Lane Grp Cap (vph)		1116									1580	
v/s Ratio Prot		c0.09										
v/s Ratio Perm											0.16	
v/c Ratio		0.27									0.35	
Uniform Delay, d1		10.3									7.3	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.4									0.3	
Delay (s)		10.7									7.7	
Level of Service		B									A	
Approach Delay (s)		10.7			0.0			0.0			7.7	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	41.9	Sum of lost time (s)	8.8
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
71: 180 EB On-Ramp & N Van Ness Ave

4/25/2011

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	198	339	0	0	152	95	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	0.89	0.89	0.89	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	381	0	0	173	108	0	0	0	0	0
RTOR Reduction (vph)	138	0	0	0	0	78	0	0	0	0	0
Lane Group Flow (vph)	84	381	0	0	173	30	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	10.0	10.0			7.3	7.3					
Effective Green, g (s)	10.0	10.0			7.3	7.3					
Actuated g/C Ratio	0.38	0.38			0.28	0.28					
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)	668	668			975	436					
v/s Ratio Prot	0.05	c0.22			c0.05						
v/s Ratio Perm						0.02					
v/c Ratio	0.13	0.57			0.18	0.07					
Uniform Delay, d1	5.4	6.5			7.3	7.1					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.2	1.9			0.2	0.1					
Delay (s)	5.6	8.4			7.5	7.2					
Level of Service	A	A			A	A					
Approach Delay (s)		7.4			7.4			0.0		0.0	
Approach LOS		A			A			A		A	

Intersection Summary

HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	26.5	Sum of lost time (s)	9.2
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
71: 180 EB On-Ramp & N Van Ness Ave

4/25/2011

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	188	360	0	0	379	348	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	0.85	0.85	0.85	0.70	0.70	0.70	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	424	0	0	541	497	0	0	0	0	0
RTOR Reduction (vph)	143	0	0	0	0	124	0	0	0	0	0
Lane Group Flow (vph)	78	424	0	0	541	373	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	14.4	14.4			17.4	17.4					
Effective Green, g (s)	14.4	14.4			17.4	17.4					
Actuated g/C Ratio	0.35	0.35			0.42	0.42					
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)	622	622			1502	672					
v/s Ratio Prot	0.04	c0.24			0.15						
v/s Ratio Perm						c0.24					
v/c Ratio	0.12	0.68			0.36	0.55					
Uniform Delay, d1	9.0	11.3			8.0	8.9					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.2	4.0			0.3	1.5					
Delay (s)	9.2	15.3			8.3	10.3					
Level of Service	A	B			A	B					
Approach Delay (s)		13.2			9.3			0.0		0.0	
Approach LOS		B			A			A		A	

Intersection Summary

HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	41.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
72: 180 WB Ramps & N Fulton St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	277	563	4	26	0	0	0	0	0	649	130
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		1850						3451	
Flt Permitted		1.00	1.00		0.96						1.00	
Satd. Flow (perm)		1863	1583		1788						3451	
Peak-hour factor, PHF	0.82	0.82	0.82	0.50	0.50	0.50	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	0	338	687	8	52	0	0	0	0	0	746	149
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	0	0	28	0
Lane Group Flow (vph)	0	338	610	0	60	0	0	0	0	0	867	0
Turn Type			Perm	Perm								
Protected Phases		4			8						6	
Permitted Phases			4	8								
Actuated Green, G (s)		26.2	26.2		26.2						25.1	
Effective Green, g (s)		26.2	26.2		26.2						25.1	
Actuated g/C Ratio		0.44	0.44		0.44						0.42	
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)		826	702		793						1466	
v/s Ratio Prot		0.18									c0.25	
v/s Ratio Perm			c0.39		0.03							
v/c Ratio		0.41	0.87		0.08						0.59	
Uniform Delay, d1		11.2	14.9		9.5						13.1	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		0.7	12.1		0.1						0.9	
Delay (s)		11.9	26.9		9.6						13.9	
Level of Service		B	C		A						B	
Approach Delay (s)		22.0			9.6			0.0			13.9	
Approach LOS		C			A			A			B	

Intersection Summary

HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	7.8
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
72: 180 WB Ramps & N Fulton St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	327	175	7	46	0	0	0	0	0	499	120
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						0.97	
Flt Protected		1.00	1.00		0.99						1.00	
Satd. Flow (prot)		1863	1583		1851						3437	
Flt Permitted		1.00	1.00		0.95						1.00	
Satd. Flow (perm)		1863	1583		1774						3437	
Peak-hour factor, PHF	0.96	0.96	0.96	0.70	0.70	0.70	0.92	0.92	0.92	0.82	0.82	0.82
Adj. Flow (vph)	0	341	182	10	66	0	0	0	0	0	609	146
RTOR Reduction (vph)	0	0	113	0	0	0	0	0	0	0	34	0
Lane Group Flow (vph)	0	341	69	0	76	0	0	0	0	0	721	0
Turn Type			Perm	Perm								
Protected Phases		4			8						6	
Permitted Phases			4	8								
Actuated Green, G (s)		17.1	17.1		17.1						20.0	
Effective Green, g (s)		17.1	17.1		17.1						20.0	
Actuated g/C Ratio		0.38	0.38		0.38						0.45	
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)		710	603		676						1531	
v/s Ratio Prot		c0.18									c0.21	
v/s Ratio Perm			0.04		0.04							
v/c Ratio		0.48	0.11		0.11						0.47	
Uniform Delay, d1		10.5	9.0		9.0						8.7	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		1.1	0.2		0.1						0.4	
Delay (s)		11.6	9.2		9.1						9.2	
Level of Service		B	A		A						A	
Approach Delay (s)		10.8			9.1			0.0			9.2	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	44.9	Sum of lost time (s)	7.8
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
73: 180 WB Ramps & N Van Ness Ave

4/25/2011

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	288	0	42	343	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			3520		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	1770			3520		
Peak-hour factor, PHF	0.87	0.87	0.85	0.85	0.92	0.92
Adj. Flow (vph)	331	0	49	404	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	331	0	0	453	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	12.1			13.4		
Effective Green, g (s)	12.1			13.4		
Actuated g/C Ratio	0.35			0.39		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	617			1359		
v/s Ratio Prot	c0.19			c0.13		
v/s Ratio Perm						
v/c Ratio	0.54			0.33		
Uniform Delay, d1	9.1			7.5		
Progression Factor	1.00			1.00		
Incremental Delay, d2	1.0			0.3		
Delay (s)	10.0			7.8		
Level of Service	B			A		
Approach Delay (s)	10.0			7.8	0.0	
Approach LOS	B			A	A	

Intersection Summary

HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	34.7	Sum of lost time (s)	9.2
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
73: 180 WB Ramps & N Van Ness Ave

4/25/2011

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	325	0	53	562	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	0.96	0.96	0.72	0.72	0.92	0.92
Adj. Flow (vph)	339	0	74	781	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	339	0	0	855	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	15.0			22.8		
Effective Green, g (s)	15.0			22.8		
Actuated g/C Ratio	0.32			0.49		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	565			1710		
v/s Ratio Prot	c0.19			c0.24		
v/s Ratio Perm						
v/c Ratio	0.60			0.50		
Uniform Delay, d1	13.5			8.2		
Progression Factor	1.00			1.00		
Incremental Delay, d2	1.8			0.5		
Delay (s)	15.3			8.7		
Level of Service	B			A		
Approach Delay (s)	15.3			8.7	0.0	
Approach LOS	B			A	A	

Intersection Summary

HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
74: E Belmont Ave. & N Blackstone Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	283	48	89	180	0	0	0	0	149	934	118
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		0.98		1.00	1.00						0.99	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3463		1770	3539						4980	
Flt Permitted		1.00		0.95	1.00						0.99	
Satd. Flow (perm)		3463		1770	3539						4980	
Peak-hour factor, PHF	0.90	0.90	0.90	0.77	0.77	0.77	0.92	0.92	0.92	0.79	0.79	0.79
Adj. Flow (vph)	0	314	53	116	234	0	0	0	0	189	1182	149
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	352	0	116	234	0	0	0	0	0	1507	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		17.2		7.3	28.2						24.7	
Effective Green, g (s)		17.2		7.3	28.2						24.7	
Actuated g/C Ratio		0.28		0.12	0.45						0.40	
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)		961		208	1610						1984	
v/s Ratio Prot		c0.10		c0.07	0.07						c0.30	
v/s Ratio Perm												
v/c Ratio		0.37		0.56	0.15						0.76	
Uniform Delay, d1		18.0		25.8	9.9						16.1	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.8		1.8	0.1						1.5	
Delay (s)		18.8		27.7	10.0						17.6	
Level of Service		B		C	B						B	
Approach Delay (s)		18.8			15.9			0.0			17.6	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
74: E Belmont Ave. & N Blackstone Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	450	33	83	296	0	0	0	0	171	547	118
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)		3503		1770	3539						4927	
Flt Permitted		1.00		0.95	1.00						0.99	
Satd. Flow (perm)		3503		1770	3539						4927	
Peak-hour factor, PHF	0.97	0.97	0.97	0.83	0.83	0.83	0.92	0.92	0.92	0.89	0.89	0.89
Adj. Flow (vph)	0	464	34	100	357	0	0	0	0	192	615	133
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	493	0	100	357	0	0	0	0	0	915	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		19.5		6.6	29.8						19.8	
Effective Green, g (s)		19.5		6.6	29.8						19.8	
Actuated g/C Ratio		0.33		0.11	0.51						0.34	
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)		1164		199	1797						1662	
v/s Ratio Prot		c0.14		c0.06	0.10						c0.19	
v/s Ratio Perm												
v/c Ratio		0.42		0.50	0.20						0.55	
Uniform Delay, d1		15.2		24.5	7.9						15.8	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.8		0.7	0.2						0.2	
Delay (s)		16.1		25.2	8.1						16.1	
Level of Service		B		C	A						B	
Approach Delay (s)		16.1			11.8			0.0			16.1	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	12.8
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
75: E Belmont Ave. & N Abby St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	309	0	0	245	100	23	426	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		5072	1583			
Flt Permitted	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1770	3539			3539	1583		5072	1583			
Peak-hour factor, PHF	0.88	0.88	0.88	0.81	0.81	0.81	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	141	351	0	0	302	123	25	468	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	92	0	0	17	0	0	0
Lane Group Flow (vph)	141	351	0	0	302	31	0	493	10	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	7.3	24.2			13.2	13.2		19.6	19.6			
Effective Green, g (s)	7.3	24.2			13.2	13.2		19.6	19.6			
Actuated g/C Ratio	0.14	0.46			0.25	0.25		0.37	0.37			
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)	244	1619			883	395		1879	587			
v/s Ratio Prot	c0.08	0.10			c0.09			c0.10				
v/s Ratio Perm						0.02			0.01			
v/c Ratio	0.58	0.22			0.34	0.08		0.26	0.02			
Uniform Delay, d1	21.4	8.6			16.3	15.2		11.6	10.5			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	2.1	0.1			0.5	0.2		0.0	0.0			
Delay (s)	23.4	8.8			16.8	15.4		11.6	10.6			
Level of Service	C	A			B	B		B	B			
Approach Delay (s)		13.0			16.4			11.6			0.0	
Approach LOS		B			B			B			A	

Intersection Summary

HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	12.8
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
75: E Belmont Ave. & N Abby St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	490	0	0	341	92	33	1145	21	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		5078	1583			
Flt Permitted	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1770	3539			3539	1583		5078	1583			
Peak-hour factor, PHF	0.95	0.95	0.95	0.84	0.84	0.84	0.86	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	138	516	0	0	406	110	38	1331	24	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	15	0	0	0
Lane Group Flow (vph)	138	516	0	0	406	31	0	1369	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)	8.0	28.7			17.0	17.0		23.1	23.1			
Effective Green, g (s)	8.0	28.7			17.0	17.0		23.1	23.1			
Actuated g/C Ratio	0.13	0.47			0.28	0.28		0.38	0.38			
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)	233	1668			988	442		1926	600			
v/s Ratio Prot	c0.08	0.15			c0.11			c0.27				
v/s Ratio Perm						0.02			0.01			
v/c Ratio	0.59	0.31			0.41	0.07		0.71	0.02			
Uniform Delay, d1	24.9	10.0			17.9	16.1		16.1	11.8			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	2.7	0.2			0.6	0.1		1.0	0.0			
Delay (s)	27.6	10.2			18.5	16.3		17.1	11.8			
Level of Service	C	B			B	B		B	B			
Approach Delay (s)		13.9			18.0			17.0			0.0	
Approach LOS		B			B			B			A	

Intersection Summary

HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	12.8
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
76: Fresno St. &

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	206	34	97	295	38	31	183	23	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	0.98		1.00	0.98		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	3464		1770	3479		1770	3480		1770	3463	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3464		1770	3479		1770	3480		1770	3463	
Peak-hour factor, PHF	0.85	0.85	0.85	0.84	0.84	0.84	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	65	242	40	115	351	45	43	254	32	94	490	82
RTOR Reduction (vph)	0	15	0	0	10	0	0	10	0	0	12	0
Lane Group Flow (vph)	65	267	0	115	386	0	43	276	0	94	560	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	4.5	15.8		7.1	18.4		3.9	15.6		6.6	28.3	
Effective Green, g (s)	4.5	15.8		7.1	18.4		3.9	15.6		6.6	28.3	
Actuated g/C Ratio	0.06	0.22		0.10	0.25		0.05	0.22		0.09	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)	110	757		174	885		95	751		162	1356	
v/s Ratio Prot	0.04	0.08		c0.06	c0.11		0.02	0.08		c0.05	c0.16	
v/s Ratio Perm												
v/c Ratio	0.59	0.35		0.66	0.44		0.45	0.37		0.58	0.41	
Uniform Delay, d1	33.0	23.9		31.4	22.6		33.2	24.1		31.5	16.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	0.6		7.1	0.7		1.2	0.6		3.4	0.4	
Delay (s)	38.6	24.5		38.5	23.3		34.4	24.8		34.9	16.4	
Level of Service	D	C		D	C		C	C		C	B	
Approach Delay (s)		27.1			26.7			26.0			19.0	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	17.2
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
76: Fresno St. &

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	443	53	83	368	82	53	396	71	102	232	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)	4.0	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	0.98		1.00	0.97		1.00	0.98		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	3483		1770	3443		1770	3459		1770	3405	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3483		1770	3443		1770	3459		1770	3405	
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.77	0.77	0.77	0.88	0.88	0.88
Adj. Flow (vph)	76	471	56	98	433	96	69	514	92	116	264	89
RTOR Reduction (vph)	0	10	0	0	20	0	0	15	0	0	31	0
Lane Group Flow (vph)	76	517	0	98	509	0	69	591	0	116	322	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	6.6	20.7		7.2	21.3		6.3	19.0		7.6	30.3	
Effective Green, g (s)	6.6	20.7		7.2	21.3		6.3	19.0		7.6	30.3	
Actuated g/C Ratio	0.08	0.25		0.09	0.26		0.08	0.23		0.09	0.37	
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)	143	882		156	898		136	804		165	1263	
v/s Ratio Prot	0.04	c0.15		c0.06	0.15		0.04	c0.17		c0.07	0.09	
v/s Ratio Perm												
v/c Ratio	0.53	0.59		0.63	0.57		0.51	0.74		0.70	0.25	
Uniform Delay, d1	36.1	26.7		36.0	26.2		36.2	29.0		36.0	17.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	1.6		5.6	1.4		1.1	4.3		10.5	0.2	
Delay (s)	38.0	28.3		41.5	27.6		37.3	33.3		46.5	18.1	
Level of Service	D	C		D	C		D	C		D	B	
Approach Delay (s)		29.5			29.7			33.7			25.1	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	81.7	Sum of lost time (s)	27.2
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
77: Belmont Steet & First Street

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	217	74	92	284	91	115	336	39	79	388	73
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	0.96		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	3410		1770	3484		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	3410		1770	3484		1770	3539	1583
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.80	0.80	0.80	0.78	0.78	0.78
Adj. Flow (vph)	73	261	89	100	309	99	144	420	49	101	497	94
RTOR Reduction (vph)	0	0	69	0	39	0	0	10	0	0	0	69
Lane Group Flow (vph)	73	261	20	100	369	0	144	459	0	101	497	25
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)	5.7	14.2	14.2	6.5	15.0		7.4	17.8		6.5	16.9	16.9
Effective Green, g (s)	5.7	14.2	14.2	6.5	15.0		7.4	17.8		6.5	16.9	16.9
Actuated g/C Ratio	0.09	0.23	0.23	0.10	0.24		0.12	0.28		0.10	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)	161	800	358	183	814		209	988		183	952	426
v/s Ratio Prot	0.04	0.07		c0.06	c0.11		c0.08	0.13		0.06	c0.14	
v/s Ratio Perm			0.01									0.02
v/c Ratio	0.45	0.33	0.06	0.55	0.45		0.69	0.46		0.55	0.52	0.06
Uniform Delay, d1	27.1	20.3	19.0	26.7	20.4		26.6	18.6		26.8	19.5	17.0
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	0.7	0.4	0.1	1.8	0.7		7.3	0.7		2.0	1.0	0.1
Delay (s)	27.8	20.7	19.2	28.5	21.1		33.9	19.3		28.8	20.5	17.2
Level of Service	C	C	B	C	C		C	B		C	C	B
Approach Delay (s)		21.6			22.6			22.7			21.3	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	12.9
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
77: Belmont Steet & First Street

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	452	127	112	369	153	109	570	52	131	430	77
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	0.96		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)	1770	3539	1583	1770	3383		1770	3495		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	3383		1770	3495		1770	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.87	0.87	0.87	0.91	0.91	0.91	0.85	0.85	0.85
Adj. Flow (vph)	124	471	132	129	424	176	120	626	57	154	506	91
RTOR Reduction (vph)	0	0	96	0	55	0	0	8	0	0	0	66
Lane Group Flow (vph)	124	471	36	129	545	0	120	675	0	154	506	25
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)	7.4	19.3	19.3	7.5	19.4		7.3	19.0		7.9	19.6	19.6
Effective Green, g (s)	7.4	19.3	19.3	7.5	19.4		7.3	19.0		7.9	19.6	19.6
Actuated g/C Ratio	0.10	0.27	0.27	0.10	0.27		0.10	0.27		0.11	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)	183	955	427	186	918		181	929		196	970	434
v/s Ratio Prot	0.07	0.13		c0.07	c0.16		0.07	c0.19		c0.09	0.14	
v/s Ratio Perm			0.02									0.02
v/c Ratio	0.68	0.49	0.08	0.69	0.59		0.66	0.73		0.79	0.52	0.06
Uniform Delay, d1	30.9	22.0	19.5	30.9	22.6		30.9	23.9		31.0	22.0	19.1
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	7.6	0.7	0.1	8.7	1.4		6.9	3.5		17.2	1.0	0.1
Delay (s)	38.5	22.7	19.6	39.6	24.0		37.8	27.4		48.1	22.9	19.3
Level of Service	D	C	B	D	C		D	C		D	C	B
Approach Delay (s)		24.8			26.8			28.9			27.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	12.9
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
78: CA 180 EB & N Blackstone Ave

4/25/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	128	0	0	0	173	1080
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					5050
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1770					5050
Peak-hour factor, PHF	0.59	0.59	0.92	0.92	0.82	0.82
Adj. Flow (vph)	217	0	0	0	211	1317
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	217	0	0	0	0	1528
Turn Type					Split	
Protected Phases	8				6	6
Permitted Phases						
Actuated Green, G (s)	13.1					30.2
Effective Green, g (s)	13.1					30.2
Actuated g/C Ratio	0.25					0.58
Clearance Time (s)	4.2					4.9
Vehicle Extension (s)	4.8					5.4
Lane Grp Cap (vph)	443					2910
v/s Ratio Prot	c0.12					c0.30
v/s Ratio Perm						
v/c Ratio	0.49					0.53
Uniform Delay, d1	16.8					6.7
Progression Factor	1.00					1.00
Incremental Delay, d2	1.7					0.4
Delay (s)	18.5					7.1
Level of Service	B					A
Approach Delay (s)	18.5		0.0			7.1
Approach LOS	B		A			A

Intersection Summary

HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	9.1
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
78: CA 180 EB & N Blackstone Ave

4/25/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	99	0	0	0	246	745
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					5023
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1770					5023
Peak-hour factor, PHF	0.75	0.75	0.92	0.92	0.89	0.89
Adj. Flow (vph)	132	0	0	0	276	837
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	132	0	0	0	0	1113
Turn Type					Split	
Protected Phases	8				6	6
Permitted Phases						
Actuated Green, G (s)	8.1					27.0
Effective Green, g (s)	8.1					27.0
Actuated g/C Ratio	0.18					0.61
Clearance Time (s)	4.2					4.9
Vehicle Extension (s)	4.8					5.4
Lane Grp Cap (vph)	324					3068
v/s Ratio Prot	c0.07					c0.22
v/s Ratio Perm						
v/c Ratio	0.41					0.36
Uniform Delay, d1	15.9					4.3
Progression Factor	1.00					1.00
Incremental Delay, d2	1.6					0.2
Delay (s)	17.6					4.5
Level of Service	B					A
Approach Delay (s)	17.6		0.0			4.5
Approach LOS	B		A			A

Intersection Summary

HCM Average Control Delay	5.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	9.1
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
79: CA 180 EB & N Abby St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	170	0	0	128	217	2	403	247	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		5084	1583			
Flt Permitted	0.64	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1196	1863			1863	1583		5084	1583			
Peak-hour factor, PHF	0.79	0.79	0.79	0.70	0.70	0.70	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	215	0	0	183	310	2	438	268	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	184	0	0	166	0	0	0
Lane Group Flow (vph)	9	215	0	0	183	126	0	440	102	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	17.5	17.5			17.5	17.5		16.4	16.4			
Effective Green, g (s)	17.5	17.5			17.5	17.5		16.4	16.4			
Actuated g/C Ratio	0.41	0.41			0.41	0.41		0.38	0.38			
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)	487	758			758	644		1939	604			
v/s Ratio Prot		c0.12			0.10			c0.09				
v/s Ratio Perm	0.01					0.08			0.06			
v/c Ratio	0.02	0.28			0.24	0.20		0.23	0.17			
Uniform Delay, d1	7.6	8.5			8.4	8.2		9.0	8.8			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.0	0.5			0.4	0.4		0.1	0.3			
Delay (s)	7.7	9.1			8.8	8.6		9.1	9.1			
Level of Service	A	A			A	A		A	A			
Approach Delay (s)		9.0			8.7			9.1			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	9.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	43.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
79: CA 180 EB & N Abby St

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	233	0	0	98	192	0	825	549	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	0.68	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1266	1863			1863	1583		5085	1583			
Peak-hour factor, PHF	0.87	0.87	0.87	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92
Adj. Flow (vph)	20	268	0	0	120	234	0	938	624	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	224	0	0	0
Lane Group Flow (vph)	20	268	0	0	120	185	0	938	400	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	18.7	18.7			18.7	18.7		28.9	28.9			
Effective Green, g (s)	18.7	18.7			18.7	18.7		28.9	28.9			
Actuated g/C Ratio	0.33	0.33			0.33	0.33		0.51	0.51			
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)	418	614			614	522		2592	807			
v/s Ratio Prot		c0.14			0.06			0.18				
v/s Ratio Perm	0.02					0.12			c0.25			
v/c Ratio	0.05	0.44			0.20	0.35		0.36	0.50			
Uniform Delay, d1	12.9	14.9			13.6	14.4		8.4	9.1			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.1	1.3			0.4	1.1		0.2	1.1			
Delay (s)	13.1	16.2			14.0	15.5		8.6	10.2			
Level of Service	B	B			B	B		A	B			
Approach Delay (s)		16.0			15.0			9.2			0.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	9.1
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
80: CA 180 WB & N Blackstone Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	322	637	5	72	0	0	0	0	3	621	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		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)		1696		1770	1863						3538	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1696		1770	1863						3538	1583
Peak-hour factor, PHF	0.82	0.82	0.82	0.84	0.84	0.84	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	0	393	777	6	86	0	0	0	0	4	748	134
RTOR Reduction (vph)	0	66	0	0	0	0	0	0	0	0	0	83
Lane Group Flow (vph)	0	1104	0	6	86	0	0	0	0	0	752	51
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		26.2		1.0	30.9						24.9	24.9
Effective Green, g (s)		26.2		1.0	30.9						24.9	24.9
Actuated g/C Ratio		0.40		0.02	0.48						0.38	0.38
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)		685		27	887						1357	607
v/s Ratio Prot		c0.65		c0.00	0.05						c0.21	
v/s Ratio Perm												0.03
v/c Ratio		1.61		0.22	0.10						0.55	0.08
Uniform Delay, d1		19.4		31.6	9.3						15.7	12.7
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		281.9		1.5	0.1						0.9	0.1
Delay (s)		301.2		33.1	9.4						16.5	12.9
Level of Service		F		C	A						B	B
Approach Delay (s)		301.2			11.0			0.0			16.0	
Approach LOS		F			B			A			B	

Intersection Summary

HCM Average Control Delay	171.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	64.9	Sum of lost time (s)	12.8
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
80: CA 180 WB & N Blackstone Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	194	282	13	121	0	0	0	0	3	688	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)		4.2		3.7	4.2						4.9	4.9
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frt		0.92		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		1714		1770	1863						3539	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1714		1770	1863						3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.74	0.74	0.74	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	216	313	18	164	0	0	0	0	3	800	186
RTOR Reduction (vph)	0	50	0	0	0	0	0	0	0	0	0	111
Lane Group Flow (vph)	0	479	0	18	164	0	0	0	0	0	803	75
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		25.1		1.1	29.9						26.5	26.5
Effective Green, g (s)		25.1		1.1	29.9						26.5	26.5
Actuated g/C Ratio		0.38		0.02	0.46						0.40	0.40
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)		657		30	850						1432	640
v/s Ratio Prot		c0.28		c0.01	0.09						c0.23	
v/s Ratio Perm												0.05
v/c Ratio		0.73		0.60	0.19						0.56	0.12
Uniform Delay, d1		17.3		32.0	10.6						15.0	12.2
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		4.9		19.6	0.2						0.9	0.2
Delay (s)		22.2		51.6	10.8						15.9	12.4
Level of Service		C		D	B						B	B
Approach Delay (s)		22.2			14.8			0.0			15.2	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	12.8
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
81: Broadway St & Amador St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	7	125	8	2	17	6	1	14	1	9	24	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.78	0.78	0.78	0.67	0.67	0.67	0.75	0.75	0.75
Hourly flow rate (vph)	7	132	8	3	22	8	1	21	1	12	32	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)		1300										
pX, platoon unblocked												
vC, conflicting volume	29			140			201	185	70	123	186	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	29			140			201	185	70	123	186	26
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	97	100	99	95	100
cM capacity (veh/h)	1582			1441			707	704	978	814	703	1044

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	73	74	32	24	48
Volume Left	7	0	3	1	12
Volume Right	0	8	8	1	4
cSH	1582	1700	1441	716	749
Volume to Capacity	0.00	0.04	0.00	0.03	0.06
Queue Length 95th (ft)	0	0	0	3	5
Control Delay (s)	0.8	0.0	0.6	10.2	10.1
Lane LOS	A		A	B	B
Approach Delay (s)	0.4		0.6	10.2	10.1
Approach LOS				B	B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
81: Broadway St & Amador St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	3	60	12	5	94	0	5	18	1	10	6	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.63	0.63	0.63	0.67	0.67	0.67	0.58	0.58	0.58
Hourly flow rate (vph)	4	80	16	8	149	0	7	27	1	17	10	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)		1300										
pX, platoon unblocked												
vC, conflicting volume	149			96			275	261	48	228	269	149
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	149			96			275	261	48	228	269	149
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			99			99	96	100	97	98	99
cM capacity (veh/h)	1430			1496			637	637	1011	680	631	871

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	44	56	157	36	36
Volume Left	4	0	8	7	17
Volume Right	0	16	0	1	9
cSH	1430	1700	1496	647	701
Volume to Capacity	0.00	0.03	0.01	0.06	0.05
Queue Length 95th (ft)	0	0	0	4	4
Control Delay (s)	0.7	0.0	0.4	10.9	10.4
Lane LOS	A		A	B	B
Approach Delay (s)	0.3		0.4	10.9	10.4
Approach LOS				B	B

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
82: Broadway St & San Joaquin St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	4	124	7	3	22	5	0	6	5	8	7	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.55	0.55	0.55	0.47	0.47	0.47
Hourly flow rate (vph)	4	132	7	4	27	6	0	11	9	17	15	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)					1008							
pX, platoon unblocked												
vC, conflicting volume	33			139			193	184	70	126	185	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	33			139			193	184	70	126	185	30
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	98	99	98	98	100
cM capacity (veh/h)	1578			1442			732	706	979	814	705	1038

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	70	73	36	20	36
Volume Left	4	0	4	0	17
Volume Right	0	7	6	9	4
cSH	1578	1700	1442	808	784
Volume to Capacity	0.00	0.04	0.00	0.02	0.05
Queue Length 95th (ft)	0	0	0	2	4
Control Delay (s)	0.5	0.0	0.8	9.6	9.8
Lane LOS	A		A	A	A
Approach Delay (s)	0.2		0.8	9.6	9.8
Approach LOS				A	A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
82: Broadway St & San Joaquin St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	9	63	4	5	90	4	1	20	2	14	9	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.59	0.59	0.59	0.72	0.72	0.72	0.68	0.68	0.68
Hourly flow rate (vph)	13	90	6	8	153	7	1	28	3	21	13	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)					1008							
pX, platoon unblocked												
vC, conflicting volume	159			96			308	295	48	260	294	156
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	159			96			308	295	48	260	294	156
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			99			100	95	100	97	98	99
cM capacity (veh/h)	1418			1496			597	606	1011	639	607	862

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	58	51	168	32	44
Volume Left	13	0	8	1	21
Volume Right	0	6	7	3	10
cSH	1418	1700	1496	628	669
Volume to Capacity	0.01	0.03	0.01	0.05	0.07
Queue Length 95th (ft)	1	0	0	4	5
Control Delay (s)	1.7	0.0	0.4	11.0	10.8
Lane LOS	A		A	B	B
Approach Delay (s)	0.9		0.4	11.0	10.8
Approach LOS				B	B

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
83: F St & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	8	9	4	15	12	1	77	768	12	21	254	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		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	1.00		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)	1947	2049	1742	1947	2049	1742	1947	3884		1947	3879	
Flt Permitted	0.74	1.00	1.00	0.75	1.00	1.00	0.57	1.00		0.31	1.00	
Satd. Flow (perm)	1522	2049	1742	1536	2049	1742	1170	3884		626	3879	
Peak-hour factor, PHF	0.75	0.75	0.75	0.54	0.54	0.54	0.89	0.89	0.89	0.88	0.88	0.88
Adj. Flow (vph)	11	12	5	28	22	2	87	863	13	24	289	7
RTOR Reduction (vph)	0	0	4	0	0	2	0	2	0	0	4	0
Lane Group Flow (vph)	11	12	1	28	22	0	87	874	0	24	292	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)	6.1	6.1	6.1	6.1	6.1	6.1	13.1	13.1		13.1	13.1	
Effective Green, g (s)	6.1	6.1	6.1	6.1	6.1	6.1	13.1	13.1		13.1	13.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.22	0.48	0.48		0.48	0.48	
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)	341	460	391	344	460	391	563	1871		301	1868	
v/s Ratio Prot		0.01			0.01			c0.22			0.08	
v/s Ratio Perm	0.01		0.00	c0.02		0.00	0.07			0.04		
v/c Ratio	0.03	0.03	0.00	0.08	0.05	0.00	0.15	0.47		0.08	0.16	
Uniform Delay, d1	8.2	8.2	8.2	8.3	8.3	8.2	3.9	4.7		3.8	4.0	
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	0.0	0.0	0.1	0.0	0.0	0.1	0.2		0.1	0.0	
Delay (s)	8.3	8.3	8.2	8.4	8.3	8.2	4.1	4.9		3.9	4.0	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		8.3			8.4			4.8			4.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	4.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	27.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
83: F Street & Fresno

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	28	22	42	38	5	71	375	27	32	742	17
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	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)	1947	2049	1742	1947	2049	1742	1947	3854		1947	3880	
Flt Permitted	0.73	1.00	1.00	0.73	1.00	1.00	0.31	1.00		0.46	1.00	
Satd. Flow (perm)	1491	2049	1742	1505	2049	1742	626	3854		940	3880	
Peak-hour factor, PHF	0.81	0.81	0.81	0.85	0.85	0.85	0.77	0.77	0.77	0.86	0.86	0.86
Adj. Flow (vph)	19	35	27	49	45	6	92	487	35	37	863	20
RTOR Reduction (vph)	0	0	21	0	0	5	0	12	0	0	4	0
Lane Group Flow (vph)	19	35	6	49	45	1	92	510	0	37	879	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)	6.5	6.5	6.5	6.5	6.5	6.5	13.1	13.1		13.1	13.1	
Effective Green, g (s)	6.5	6.5	6.5	6.5	6.5	6.5	13.1	13.1		13.1	13.1	
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.24	0.24	0.47	0.47		0.47	0.47	
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)	351	483	410	354	483	410	297	1829		446	1842	
v/s Ratio Prot		0.02			0.02			0.13			c0.23	
v/s Ratio Perm	0.01		0.00	c0.03		0.00	0.15			0.04		
v/c Ratio	0.05	0.07	0.02	0.14	0.09	0.00	0.31	0.28		0.08	0.48	
Uniform Delay, d1	8.2	8.2	8.1	8.3	8.2	8.1	4.5	4.4		4.0	4.9	
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	0.1	0.1	0.0	0.2	0.1	0.0	0.6	0.1		0.1	0.2	
Delay (s)	8.2	8.3	8.1	8.5	8.3	8.1	5.1	4.5		4.0	5.1	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		8.2			8.4			4.6			5.1	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	5.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	27.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
84: G St & Mono St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	6	92	2	2	127	9	1	3	6	7	1	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.96	0.96	0.96	0.50	0.50	0.50	0.60	0.60	0.60
Hourly flow rate (vph)	7	114	2	2	132	9	2	6	12	12	2	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)		979			542							
pX, platoon unblocked												
vC, conflicting volume	142			116			278	275	115	286	272	137
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	142			116			278	275	115	286	272	137
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			100	99	99	98	100	99
cM capacity (veh/h)	1441			1473			664	628	938	650	631	912

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	123	144	20	20
Volume Left	7	2	2	12
Volume Right	2	9	12	7
cSH	1441	1473	788	717
Volume to Capacity	0.01	0.00	0.03	0.03
Queue Length 95th (ft)	0	0	2	2
Control Delay (s)	0.5	0.1	9.7	10.2
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	0.1	9.7	10.2
Approach LOS			A	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
84: G St & Mono Street

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	5	109	0	1	162	4	4	4	13	15	4	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.82	0.82	0.82	0.88	0.88	0.88	0.75	0.75	0.75
Hourly flow rate (vph)	6	127	0	1	198	5	5	5	15	20	5	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)		1023			500							
pX, platoon unblocked												
vC, conflicting volume	202			127			354	343	127	358	341	200
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	202			127			354	343	127	358	341	200
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	99	98	97	99	99
cM capacity (veh/h)	1369			1459			587	576	924	582	578	841

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	133	204	24	36
Volume Left	6	1	5	20
Volume Right	0	5	15	11
cSH	1369	1459	754	640
Volume to Capacity	0.00	0.00	0.03	0.06
Queue Length 95th (ft)	0	0	2	4
Control Delay (s)	0.4	0.1	9.9	11.0
Lane LOS	A	A	A	B
Approach Delay (s)	0.4	0.1	9.9	11.0
Approach LOS			A	B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
85: H St & Mono St

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	29	61	9	3	124	5	7	4	2	1	5	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.87	0.87	0.87	0.65	0.65	0.65	0.75	0.75	0.75
Hourly flow rate (vph)	35	73	11	3	143	6	11	6	3	1	7	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)		492										
pX, platoon unblocked												
vC, conflicting volume	148			84			336	304	79	307	307	145
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	148			84			336	304	79	307	307	145
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			100			98	99	100	100	99	96
cM capacity (veh/h)	1433			1512			578	593	982	625	591	902

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	119	152	20	40
Volume Left	35	3	11	1
Volume Right	11	6	3	32
cSH	1433	1512	622	818
Volume to Capacity	0.02	0.00	0.03	0.05
Queue Length 95th (ft)	2	0	2	4
Control Delay (s)	2.4	0.2	11.0	9.6
Lane LOS	A	A	B	A
Approach Delay (s)	2.4	0.2	11.0	9.6
Approach LOS			B	A

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
85: H St & Mono Street

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	71	104	8	2	46	7	4	9	2	1	14	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.54	0.54	0.54	0.82	0.82	0.82
Hourly flow rate (vph)	89	130	10	2	53	8	7	17	4	1	17	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)		535										
pX, platoon unblocked												
vC, conflicting volume	62			140			393	379	135	387	380	58
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62			140			393	379	135	387	380	58
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			100			99	97	100	100	97	99
cM capacity (veh/h)	1541			1443			522	521	914	531	520	1009

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	229	64	28	28
Volume Left	89	2	7	1
Volume Right	10	8	4	10
cSH	1541	1443	553	626
Volume to Capacity	0.06	0.00	0.05	0.04
Queue Length 95th (ft)	5	0	4	4
Control Delay (s)	3.2	0.3	11.9	11.0
Lane LOS	A	A	B	B
Approach Delay (s)	3.2	0.3	11.9	11.0
Approach LOS			B	B

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
86: H St & Ventura Ave

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	30	16	29	17	9	2	71	563	10	3	381	104
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.78	0.78	0.78	0.83	0.83	0.83	0.92	0.92	0.92
Hourly flow rate (vph)	34	18	33	22	12	3	86	678	12	3	414	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)								751			420	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	996	1339	264	1111	1389	345	527			690		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	880	1243	106	1002	1296	345	385			690		
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 %	83	88	96	86	92	100	92			100		
cM capacity (veh/h)	200	151	877	153	140	651	1107			900		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	84	36	86	452	238	3	276	251
Volume Left	34	22	86	0	0	3	0	0
Volume Right	33	3	0	0	12	0	0	113
cSH	259	157	1107	1700	1700	900	1700	1700
Volume to Capacity	0.33	0.23	0.08	0.27	0.14	0.00	0.16	0.15
Queue Length 95th (ft)	34	21	6	0	0	0	0	0
Control Delay (s)	25.4	34.7	8.5	0.0	0.0	9.0	0.0	0.0
Lane LOS	D	D	A			A		
Approach Delay (s)	25.4	34.7	0.9			0.1		
Approach LOS	D	D						

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
86: H St & Ventura Ave

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	68	8	71	14	8	10	42	477	14	2	577	43
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.73	0.73	0.73	0.91	0.91	0.91	0.77	0.77	0.77
Hourly flow rate (vph)	83	10	87	19	11	14	46	524	15	3	749	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								737			434	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	1156	1414	403	1096	1435	270	805			540		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	788	1098	0	715	1122	270	367			540		
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 %	61	94	90	91	93	98	95			100		
cM capacity (veh/h)	210	168	904	220	162	728	990			1025		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	179	44	46	349	190	3	500	306
Volume Left	83	19	46	0	0	3	0	0
Volume Right	87	14	0	0	15	0	0	56
cSH	327	253	990	1700	1700	1025	1700	1700
Volume to Capacity	0.55	0.17	0.05	0.21	0.11	0.00	0.29	0.18
Queue Length 95th (ft)	78	15	4	0	0	0	0	0
Control Delay (s)	28.6	22.2	8.8	0.0	0.0	8.5	0.0	0.0
Lane LOS	D	C	A			A		
Approach Delay (s)	28.6	22.2	0.7			0.0		
Approach LOS	D	C						

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
87: O Street & Santa Clara Street

4/25/2011

Movement	SBL	SBR	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Sign Control	Stop		Stop			Stop			Stop	
Volume (vph)	21	12	0	105	0	0	0	214	100	608
Peak Hour Factor	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	23	13	0	118	0	0	0	252	118	715

Direction, Lane #	SB 1	NW 1	NE 1	SW 1	SW 2
Volume Total (vph)	36	118	0	369	715
Volume Left (vph)	0	0	0	252	0
Volume Right (vph)	13	0	0	0	715
Hadj (s)	-0.18	0.03	0.00	0.17	-0.57
Departure Headway (s)	4.8	4.9	4.7	4.5	3.2
Degree Utilization, x	0.05	0.16	0.00	0.46	0.64
Capacity (veh/h)	685	687	733	782	1119
Control Delay (s)	8.0	8.8	7.7	11.2	11.6
Approach Delay (s)	8.0	8.8	0.0	11.5	
Approach LOS	A	A	A	B	

Intersection Summary			
Delay	11.1		
HCM Level of Service	B		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
87: O Street & Santa Clara Street

4/25/2011

Movement	SBL	SBR	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Sign Control	Stop		Stop			Stop			Stop	
Volume (vph)	109	24	0	222	0	0	6	211	17	135
Peak Hour Factor	0.76	0.76	0.78	0.78	0.50	0.50	0.50	0.88	0.88	0.88
Hourly flow rate (vph)	143	32	0	285	0	0	12	240	19	153

Direction, Lane #	SB 1	NW 1	NE 1	SW 1	SW 2
Volume Total (vph)	175	285	12	259	153
Volume Left (vph)	0	0	0	240	0
Volume Right (vph)	32	0	12	0	153
Hadj (s)	-0.07	0.03	-0.57	0.22	-0.57
Departure Headway (s)	5.0	4.9	4.9	5.3	3.2
Degree Utilization, x	0.24	0.39	0.02	0.38	0.14
Capacity (veh/h)	675	696	624	635	1121
Control Delay (s)	9.6	11.1	8.0	11.5	6.7
Approach Delay (s)	9.6	11.1	8.0	9.7	
Approach LOS	A	B	A	A	

Intersection Summary			
Delay	10.1		
HCM Level of Service	B		
Intersection Capacity Utilization	33.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
89: Int

5/23/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	71	94	0	0	0	171	0	108	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.86	0.86	0.86	0.85	0.85	0.85	0.92	0.92	0.92
Hourly flow rate (vph)	86	113	0	0	0	199	0	127	13	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			113			384	284	57	304	284	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			113			384	284	57	304	284	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 %	95			100			100	78	99	100	100	100
cM capacity (veh/h)	1622			1474			527	591	998	495	591	1084

Direction, Lane #	SE 1	SE 2	SE 3	NW 1	NE 1	NE 2
Volume Total	86	57	57	199	85	55
Volume Left	86	0	0	0	0	0
Volume Right	0	0	0	199	0	13
cSH	1622	1700	1700	1700	591	653
Volume to Capacity	0.05	0.03	0.03	0.12	0.14	0.08
Queue Length 95th (ft)	4	0	0	0	12	7
Control Delay (s)	7.3	0.0	0.0	0.0	12.1	11.0
Lane LOS	A				B	B
Approach Delay (s)	3.2			0.0	11.7	
Approach LOS					B	

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	27.9%	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)	553	100	0	0	0	251	0	146	31	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.83	0.83	0.83	0.83	0.83	0.83	0.92	0.92	0.92
Hourly flow rate (vph)	643	116	0	0	0	302	0	176	37	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			116			1554	1402	58	1469	1402	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			116			1554	1402	58	1469	1402	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 %	60			100			100	0	96	0	100	100
cM capacity (veh/h)	1622			1470			53	84	996	0	84	1084

Direction, Lane #	SE 1	SE 2	SE 3	NW 1	NE 1	NE 2
Volume Total	643	58	58	302	117	96
Volume Left	643	0	0	0	0	0
Volume Right	0	0	0	302	0	37
cSH	1622	1700	1700	1700	84	130
Volume to Capacity	0.40	0.03	0.03	0.18	1.40	0.74
Queue Length 95th (ft)	49	0	0	0	226	106
Control Delay (s)	8.7	0.0	0.0	0.0	325.8	86.2
Lane LOS	A				F	F
Approach Delay (s)	7.3			0.0	218.0	
Approach LOS					F	

Intersection Summary			
Average Delay	40.8		
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
90: Broadway St & Santa Clara St

5/23/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	78	242	3	4	62	35	3	5	12	36	5	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.66	0.66	0.66	0.71	0.71	0.71	0.66	0.66	0.66
Hourly flow rate (vph)	100	310	4	6	94	53	4	7	17	55	8	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)		498										
pX, platoon unblocked												
vC, conflicting volume	147			314			674	671	157	508	647	120
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	147			314			674	671	157	508	647	120
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			99	98	98	87	98	97
cM capacity (veh/h)	1432			1243			307	348	860	408	360	908

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	255	159	153	28	88
Volume Left	100	0	6	4	55
Volume Right	0	4	53	17	26
cSH	1432	1700	1243	525	480
Volume to Capacity	0.07	0.09	0.00	0.05	0.18
Queue Length 95th (ft)	6	0	0	4	17
Control Delay (s)	3.4	0.0	0.4	12.2	14.2
Lane LOS	A		A	B	B
Approach Delay (s)	2.1		0.4	12.2	14.2
Approach LOS				B	B

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
90: Broadway St & Santa Clara Street

5/23/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	15	131	0	2	37	21	1	3	4	16	27	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.83	0.83	0.83	0.67	0.67	0.67	0.83	0.83	0.83
Hourly flow rate (vph)	21	187	0	2	45	25	1	4	6	19	33	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		519										
pX, platoon unblocked												
vC, conflicting volume	70			187			344	305	94	207	292	57
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	70			187			344	305	94	207	292	57
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			100			100	99	99	97	95	96
cM capacity (veh/h)	1529			1385			535	598	945	715	608	997

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	115	94	72	12	88
Volume Left	21	0	2	1	19
Volume Right	0	0	25	6	36
cSH	1529	1700	1385	719	753
Volume to Capacity	0.01	0.06	0.00	0.02	0.12
Queue Length 95th (ft)	1	0	0	1	10
Control Delay (s)	1.5	0.0	0.3	10.1	10.4
Lane LOS	A		A	B	B
Approach Delay (s)	0.8		0.3	10.1	10.4
Approach LOS				B	B

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	21.0%	ICU Level of Service	A	
Analysis Period (min)	15			

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	2	4	6	0	21	4	96	8	44	171	9
Peak Hour Factor	0.40	0.40	0.40	0.84	0.84	0.84	0.79	0.79	0.79	0.84	0.84	0.84
Hourly flow rate (vph)	5	5	10	7	0	25	5	122	10	52	204	11

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	20	7	25	137	267
Volume Left (vph)	5	7	0	5	52
Volume Right (vph)	10	0	25	10	11
Hadj (s)	-0.22	0.23	-0.57	0.00	0.05
Departure Headway (s)	4.6	5.0	3.2	4.2	4.2
Degree Utilization, x	0.03	0.01	0.02	0.16	0.31
Capacity (veh/h)	715	651	1121	830	856
Control Delay (s)	7.7	8.1	6.3	8.0	9.0
Approach Delay (s)	7.7	6.7		8.0	9.0
Approach LOS	A	A		A	A

Intersection Summary			
Delay	8.5		
HCM Level of Service	A		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	12	3	1	18	1	59	5	130	16	32	136	10
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.88	0.88	0.88	0.84	0.84	0.84
Hourly flow rate (vph)	18	4	1	27	1	88	6	148	18	38	162	12

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	24	28	88	172	212
Volume Left (vph)	18	27	0	6	38
Volume Right (vph)	1	0	88	18	12
Hadj (s)	0.15	0.22	-0.57	-0.02	0.04
Departure Headway (s)	4.9	5.0	3.2	4.2	4.2
Degree Utilization, x	0.03	0.04	0.08	0.20	0.25
Capacity (veh/h)	667	658	1121	828	832
Control Delay (s)	8.1	8.2	6.5	8.3	8.7
Approach Delay (s)	8.1	6.9		8.3	8.7
Approach LOS	A	A		A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	2	3	4	8	4	100	8	25	140	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.50	0.50	0.94	0.94	0.94	0.82	0.82	0.82	0.86	0.86	0.86
Hourly flow rate (vph)	2	6	4	3	4	9	5	122	10	29	163	13
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	375	369	169	371	370	127	176			132		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	375	369	169	371	370	127	176			132		
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	99	100	99	99	99	100			98		
cM capacity (veh/h)	564	547	875	568	546	923	1401			1453		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	16	137	205
Volume Left	2	3	5	29
Volume Right	4	9	10	13
cSH	629	705	1401	1453
Volume to Capacity	0.02	0.02	0.00	0.02
Queue Length 95th (ft)	1	2	0	2
Control Delay (s)	10.8	10.2	0.3	1.2
Lane LOS	B	B	A	A
Approach Delay (s)	10.8	10.2	0.3	1.2
Approach LOS	B	B		

Intersection Summary				
Average Delay		1.6		
Intersection Capacity Utilization		26.1%	ICU Level of Service	A
Analysis Period (min)		15		

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	4	2	10	5	12	4	123	14	15	152	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.88	0.88	0.88	0.86	0.86	0.86
Hourly flow rate (vph)	16	5	3	13	7	16	5	140	16	17	177	5
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	390	379	179	376	373	148	181			156		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	390	379	179	376	373	148	181			156		
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	99	100	98	99	98	100			99		
cM capacity (veh/h)	547	545	864	568	549	899	1394			1424		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	36	160	199
Volume Left	16	13	5	17
Volume Right	3	16	16	5
cSH	570	674	1394	1424
Volume to Capacity	0.04	0.05	0.00	0.01
Queue Length 95th (ft)	3	4	0	1
Control Delay (s)	11.6	10.6	0.2	0.8
Lane LOS	B	B	A	A
Approach Delay (s)	11.6	10.6	0.2	0.8
Approach LOS	B	B		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
93: S Railroad Ave & E Lorena Ave

4/25/2011

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	62	1	2	57	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.68	0.68	0.78	0.78	0.92	0.92
Hourly flow rate (vph)	91	1	3	73	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			93		170	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			93		170	92
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		100	100
cM capacity (veh/h)			1502		819	965

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	93	76	0
Volume Left	0	3	0
Volume Right	1	0	0
cSH	1700	1502	1700
Volume to Capacity	0.05	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.3	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.3	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	8.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
93: S Railroad Ave & E Lorena Ave

4/25/2011

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	68	2	3	88	1	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.76	0.76	0.25	0.25
Hourly flow rate (vph)	77	2	4	116	4	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			80		202	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			80		202	78
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		99	100
cM capacity (veh/h)			1518		784	982

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	80	120	4
Volume Left	0	4	4
Volume Right	2	0	0
cSH	1700	1518	784
Volume to Capacity	0.05	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.3	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	0.3	9.6
Approach LOS			A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
94: Van Ness Ave & S Railroad Ave

4/25/2011

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	114	33	23	39	24	87
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.67	0.67	0.90	0.90
Hourly flow rate (vph)	139	40	34	58	27	97
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	202	75	123			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	75	123			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	82	96	98			
cM capacity (veh/h)	768	986	1464			

Direction, Lane #	WB 1	SE 1	NW 1
Volume Total	179	93	123
Volume Left	139	34	0
Volume Right	40	0	97
cSH	808	1464	1700
Volume to Capacity	0.22	0.02	0.07
Queue Length 95th (ft)	21	2	0
Control Delay (s)	10.7	2.9	0.0
Lane LOS	B	A	
Approach Delay (s)	10.7	2.9	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
94: Van Ness Ave & S Railroad Ave

4/25/2011

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Volume (veh/h)	123	52	37	31	35	104
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.89	0.89	0.83	0.83
Hourly flow rate (vph)	140	59	42	35	42	125
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	223	105	167			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	223	105	167			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	94	97			
cM capacity (veh/h)	743	950	1410			

Direction, Lane #	WB 1	SE 1	NW 1
Volume Total	199	76	167
Volume Left	140	42	0
Volume Right	59	0	125
cSH	794	1410	1700
Volume to Capacity	0.25	0.03	0.10
Queue Length 95th (ft)	25	2	0
Control Delay (s)	11.0	4.3	0.0
Lane LOS	B	A	
Approach Delay (s)	11.0	4.3	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
95: S Railroad Ave & E. Florence Ave

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	22	109	6	0	89	11	9	0	2	11	1	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.55	0.55	0.55	0.38	0.38	0.38
Hourly flow rate (vph)	24	121	7	0	103	13	16	0	4	29	3	47
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	116			128			332	290	124	287	287	110
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	116			128			332	290	124	287	287	110
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			100			97	100	100	96	100	95
cM capacity (veh/h)	1472			1458			581	610	926	654	613	944

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	152	116	20	79
Volume Left	24	0	16	29
Volume Right	7	13	4	47
cSH	1472	1458	623	800
Volume to Capacity	0.02	0.00	0.03	0.10
Queue Length 95th (ft)	1	0	2	8
Control Delay (s)	1.3	0.0	11.0	10.0
Lane LOS	A		B	A
Approach Delay (s)	1.3	0.0	11.0	10.0
Approach LOS			B	A

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
95: S Railroad Ave & E. Florence Ave

4/25/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	2	110	8	5	127	7	9	2	0	11	0	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.71	0.71	0.71	0.69	0.69	0.69	0.82	0.82	0.82
Hourly flow rate (vph)	2	125	9	7	179	10	13	3	0	13	0	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)												
pX, platoon unblocked												
vC, conflicting volume	189			134			362	337	130	333	337	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	189			134			362	337	130	333	337	184
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			98	100	100	98	100	96
cM capacity (veh/h)	1385			1450			569	580	920	615	580	859

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	136	196	16	44
Volume Left	2	7	13	13
Volume Right	9	10	0	30
cSH	1385	1450	571	766
Volume to Capacity	0.00	0.00	0.03	0.06
Queue Length 95th (ft)	0	0	2	5
Control Delay (s)	0.1	0.3	11.5	10.0
Lane LOS	A	A	B	A
Approach Delay (s)	0.1	0.3	11.5	10.0
Approach LOS			B	A

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	34	153	45	29	151	178	187	177	44	51	239	22
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	0.97		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)	1947	3893	1742	1947	2049	1742	1947	3777		1947	3844	
Flt Permitted	0.65	1.00	1.00	0.61	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1324	3893	1742	1241	2049	1742	1947	3777		1947	3844	
Peak-hour factor, PHF	0.65	0.65	0.65	0.86	0.86	0.86	0.76	0.76	0.76	0.91	0.91	0.91
Adj. Flow (vph)	52	235	69	34	176	207	246	233	58	56	263	24
RTOR Reduction (vph)	0	0	51	0	0	152	0	34	0	0	13	0
Lane Group Flow (vph)	52	235	18	34	176	55	246	257	0	56	274	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)	11.0	11.0	11.0	11.0	11.0	11.0	7.5	16.8		1.6	10.9	
Effective Green, g (s)	11.0	11.0	11.0	11.0	11.0	11.0	7.5	16.8		1.6	10.9	
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.27	0.18	0.41		0.04	0.26	
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)	352	1034	463	330	544	463	353	1533		75	1012	
v/s Ratio Prot		0.06			c0.09		c0.13	0.07		0.03	c0.07	
v/s Ratio Perm	0.04		0.01	0.03		0.03						
v/c Ratio	0.15	0.23	0.04	0.10	0.32	0.12	0.70	0.17		0.75	0.27	
Uniform Delay, d1	11.6	11.9	11.3	11.5	12.2	11.5	15.9	7.8		19.7	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	0.2	0.1	0.0	0.1	0.3	0.1	5.9	0.1		32.8	0.1	
Delay (s)	11.8	12.0	11.3	11.6	12.6	11.6	21.8	7.9		52.4	12.2	
Level of Service	B	B	B	B	B	B	C	A		D	B	
Approach Delay (s)		11.8			12.0			14.3			18.8	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	41.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	65	202	37	31	210	266	160	131	29	59	249	25
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	0.97		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)	1947	3893	1742	1947	2049	1742	1947	3787		1947	3840	
Flt Permitted	0.58	1.00	1.00	0.62	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1189	3893	1742	1267	2049	1742	1947	3787		1947	3840	
Peak-hour factor, PHF	0.95	0.95	0.95	0.82	0.82	0.82	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	68	213	39	38	256	324	176	144	32	79	332	33
RTOR Reduction (vph)	0	0	27	0	0	222	0	23	0	0	16	0
Lane Group Flow (vph)	68	213	12	38	256	102	176	153	0	79	349	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)	12.2	12.2	12.2	12.2	12.2	12.2	4.4	11.5		3.1	10.2	
Effective Green, g (s)	12.2	12.2	12.2	12.2	12.2	12.2	4.4	11.5		3.1	10.2	
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31	0.31	0.11	0.30		0.08	0.26	
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)	374	1224	548	398	644	548	221	1122		156	1009	
v/s Ratio Prot		0.05			c0.12		c0.09	0.04		0.04	c0.09	
v/s Ratio Perm	0.06		0.01	0.03		0.06						
v/c Ratio	0.18	0.17	0.02	0.10	0.40	0.19	0.80	0.14		0.51	0.35	
Uniform Delay, d1	9.7	9.6	9.2	9.4	10.4	9.7	16.8	10.0		17.1	11.6	
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	0.2	0.1	0.0	0.1	0.4	0.2	17.8	0.1		2.6	0.2	
Delay (s)	9.9	9.7	9.2	9.5	10.8	9.8	34.5	10.1		19.7	11.8	
Level of Service	A	A	A	A	B	A	C	B		B	B	
Approach Delay (s)		9.7			10.2			22.3			13.2	
Approach LOS		A			B			C			B	

Intersection Summary

HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	38.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
97: E Chruch Ave & S Railroad Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	29	304	35	24	295	3	14	71	30	7	38	24
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	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.96		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)	1947	3832		1947	3888		1947	1957		1947	1932	
Flt Permitted	0.55	1.00		0.51	1.00		0.71	1.00		0.68	1.00	
Satd. Flow (perm)	1123	3832		1044	3888		1460	1957		1388	1932	
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.82	0.82	0.82	0.91	0.91	0.91
Adj. Flow (vph)	35	371	43	27	335	3	17	87	37	8	42	26
RTOR Reduction (vph)	0	22	0	0	2	0	0	27	0	0	19	0
Lane Group Flow (vph)	35	392	0	27	336	0	17	97	0	8	49	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)	10.3	10.3		10.3	10.3		7.0	7.0		7.0	7.0	
Effective Green, g (s)	10.3	10.3		10.3	10.3		7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.28	0.28		0.28	0.28	
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	1560		425	1583		404	541		384	535	
v/s Ratio Prot		c0.10			0.09			c0.05			0.03	
v/s Ratio Perm	0.03			0.03			0.01			0.01		
v/c Ratio	0.08	0.25		0.06	0.21		0.04	0.18		0.02	0.09	
Uniform Delay, d1	4.6	5.0		4.6	4.9		6.7	7.0		6.7	6.8	
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	0.1		0.0	0.2		0.0	0.1	
Delay (s)	4.7	5.0		4.6	4.9		6.7	7.1		6.7	6.9	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		5.0			4.9			7.1			6.8	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	5.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	25.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
97: E Chruch Ave & S Railroad Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	17	421	5	26	389	11	24	66	32	60	76	39
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	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		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)	1947	3886		1947	3878		1947	1949		1947	1945	
Flt Permitted	0.49	1.00		0.47	1.00		0.67	1.00		0.67	1.00	
Satd. Flow (perm)	1004	3886		959	3878		1373	1949		1382	1945	
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.76	0.76	0.76	0.84	0.84	0.84
Adj. Flow (vph)	20	495	6	30	442	12	32	87	42	71	90	46
RTOR Reduction (vph)	0	2	0	0	5	0	0	30	0	0	33	0
Lane Group Flow (vph)	20	499	0	30	449	0	32	99	0	71	103	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)	11.9	11.9		11.9	11.9		7.7	7.7		7.7	7.7	
Effective Green, g (s)	11.9	11.9		11.9	11.9		7.7	7.7		7.7	7.7	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.28	0.28		0.28	0.28	
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)	433	1675		413	1672		383	544		386	543	
v/s Ratio Prot		c0.13			0.12			0.05			c0.05	
v/s Ratio Perm	0.02			0.03			0.02			0.05		
v/c Ratio	0.05	0.30		0.07	0.27		0.08	0.18		0.18	0.19	
Uniform Delay, d1	4.6	5.1		4.6	5.1		7.3	7.6		7.6	7.6	
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		0.1	0.1		0.1	0.2		0.2	0.2	
Delay (s)	4.6	5.2		4.7	5.1		7.4	7.7		7.8	7.7	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		5.2			5.1			7.7			7.8	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	27.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
98: E Chruch Ave & S East Ave

4/25/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	80	266	282	17	13	44
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.77	0.77	0.90	0.90	0.84	0.84
Hourly flow rate (vph)	104	345	313	19	15	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		446				
pX, platoon unblocked						
vC, conflicting volume	332				703	166
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	332				703	166
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				95	94
cM capacity (veh/h)	1224				340	849

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	104	173	173	209	123	68
Volume Left	104	0	0	0	0	15
Volume Right	0	0	0	0	19	52
cSH	1224	1700	1700	1700	1700	633
Volume to Capacity	0.08	0.10	0.10	0.12	0.07	0.11
Queue Length 95th (ft)	7	0	0	0	0	9
Control Delay (s)	8.2	0.0	0.0	0.0	0.0	11.4
Lane LOS	A					B
Approach Delay (s)	1.9			0.0		11.4
Approach LOS						B

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
98: E Chruch Ave & S East Ave

4/25/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	119	371	357	21	16	88
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.89	0.89	0.84	0.84
Hourly flow rate (vph)	142	442	401	24	19	105
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		446				
pX, platoon unblocked						
vC, conflicting volume	425				917	212
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	425				917	212
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	87				92	87
cM capacity (veh/h)	1131				237	793

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	142	221	221	267	157	124
Volume Left	142	0	0	0	0	19
Volume Right	0	0	0	0	24	105
cSH	1131	1700	1700	1700	1700	583
Volume to Capacity	0.13	0.13	0.13	0.16	0.09	0.21
Queue Length 95th (ft)	11	0	0	0	0	20
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	12.8
Lane LOS	A					B
Approach Delay (s)	2.1			0.0		12.8
Approach LOS						B

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
99: E Church Ave & S Sunland Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	254	20	10	279	1	16	1	2	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.74	0.74	0.74	0.84	0.84	0.84	0.68	0.68	0.68	0.25	0.25	0.25
Hourly flow rate (vph)	4	343	27	12	332	1	24	1	3	0	0	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		715										
pX, platoon unblocked												
vC, conflicting volume	333			370			571	722	185	540	735	167
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	333			370			571	722	185	540	735	167
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			99			94	100	100	100	100	98
cM capacity (veh/h)	1223			1185			392	347	825	418	341	848

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	176	199	178	167	28	16
Volume Left	4	0	12	0	24	0
Volume Right	0	27	0	1	3	16
cSH	1223	1700	1185	1700	412	848
Volume to Capacity	0.00	0.12	0.01	0.10	0.07	0.02
Queue Length 95th (ft)	0	0	1	0	5	1
Control Delay (s)	0.2	0.0	0.6	0.0	14.4	9.3
Lane LOS	A		A		B	A
Approach Delay (s)	0.1		0.3		14.4	9.3
Approach LOS					B	A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
99: E Church Ave & S Sunland Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	368	16	1	356	0	24	0	2	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.50	0.50	0.50	0.92	0.92	0.92
Hourly flow rate (vph)	0	433	19	1	405	0	48	0	4	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)		679										
pX, platoon unblocked												
vC, conflicting volume	405			452			647	849	226	627	859	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405			452			647	849	226	627	859	202
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			87	100	99	100	100	100
cM capacity (veh/h)	1151			1105			356	296	777	366	292	805

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	216	235	203	202	52	0
Volume Left	0	0	1	0	48	0
Volume Right	0	19	0	0	4	0
cSH	1151	1700	1105	1700	371	1700
Volume to Capacity	0.00	0.14	0.00	0.12	0.14	0.00
Queue Length 95th (ft)	0	0	0	0	12	0
Control Delay (s)	0.0	0.0	0.1	0.0	16.3	0.0
Lane LOS			A		C	A
Approach Delay (s)	0.0		0.0		16.3	0.0
Approach LOS					C	A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
100: S East Ave & Railroad Ave

4/25/2011

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	52	13	100	57	1	65
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.70	0.70	0.69	0.69
Hourly flow rate (vph)	80	20	143	81	1	94
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			674			
pX, platoon unblocked						
vC, conflicting volume	281	184			224	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	281	184			224	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			100	
cM capacity (veh/h)	709	859			1344	

Direction, Lane #	EB 1	SE 1	NW 1
Volume Total	100	224	96
Volume Left	80	0	1
Volume Right	20	81	0
cSH	734	1700	1344
Volume to Capacity	0.14	0.13	0.00
Queue Length 95th (ft)	12	0	0
Control Delay (s)	10.7	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	10.7	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
100: S East Ave &

4/25/2011

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (veh/h)	49	8	73	47	14	136
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.75	0.75	0.69	0.69
Hourly flow rate (vph)	58	10	97	63	20	197
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			674			
pX, platoon unblocked						
vC, conflicting volume	366	129			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	366	129			160	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	99			99	
cM capacity (veh/h)	624	921			1419	

Direction, Lane #	EB 1	SE 1	NW 1
Volume Total	68	160	217
Volume Left	58	0	20
Volume Right	10	63	0
cSH	654	1700	1419
Volume to Capacity	0.10	0.09	0.01
Queue Length 95th (ft)	9	0	1
Control Delay (s)	11.1	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	11.1	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	15	38	4	13	29	6	6	169	50	14	267	19
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	0.98		1.00	0.97		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	2018		1947	1994		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	2018		1947	1994		1947	3893	1742	1947	3893	1742
Peak-hour factor, PHF	0.71	0.71	0.71	0.63	0.63	0.63	0.82	0.82	0.82	0.91	0.91	0.91
Adj. Flow (vph)	21	54	6	21	46	10	7	206	61	15	293	21
RTOR Reduction (vph)	0	5	0	0	7	0	0	0	40	0	0	16
Lane Group Flow (vph)	21	55	0	21	49	0	7	206	21	15	293	5
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)	0.7	10.0		6.1	15.4		5.7	17.1	17.1	0.7	12.1	12.1
Effective Green, g (s)	0.7	10.0		6.1	15.4		5.7	17.1	17.1	0.7	12.1	12.1
Actuated g/C Ratio	0.01	0.20		0.12	0.31		0.11	0.34	0.34	0.01	0.24	0.24
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)	27	404		238	615		222	1334	597	27	944	422
v/s Ratio Prot	c0.01	c0.03		c0.01	0.02		0.00	c0.05		c0.01	c0.08	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.78	0.14		0.09	0.08		0.03	0.15	0.04	0.56	0.31	0.01
Uniform Delay, d1	24.5	16.4		19.4	12.2		19.6	11.4	10.9	24.4	15.5	14.4
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	81.9	0.2		0.2	0.1		0.1	0.1	0.0	22.5	0.2	0.0
Delay (s)	106.4	16.6		19.6	12.3		19.7	11.4	10.9	46.9	15.7	14.4
Level of Service	F	B		B	B		B	B	B	D	B	B
Approach Delay (s)		39.8			14.3			11.5			17.0	
Approach LOS		D			B			B			B	

Intersection Summary

HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	49.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	65	25	5	19	37	6	1	163	37	4	296	25
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	0.98		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	1996		1947	2006		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	1996		1947	2006		1947	3893	1742	1947	3893	1742
Peak-hour factor, PHF	0.85	0.85	0.85	0.60	0.60	0.60	0.81	0.81	0.81	0.99	0.99	0.99
Adj. Flow (vph)	76	29	6	32	62	10	1	201	46	4	299	25
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	37	0	0	20
Lane Group Flow (vph)	76	31	0	32	65	0	1	201	9	4	299	5
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)	1.7	11.4		0.5	10.2		0.5	6.5	6.5	0.5	6.5	6.5
Effective Green, g (s)	1.7	11.4		0.5	10.2		0.5	6.5	6.5	0.5	6.5	6.5
Actuated g/C Ratio	0.05	0.33		0.01	0.29		0.01	0.19	0.19	0.01	0.19	0.19
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)	95	652		28	586		28	725	324	28	725	324
v/s Ratio Prot	c0.04	0.02		0.02	c0.03		0.00	0.05		c0.00	c0.08	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.80	0.05		1.14	0.11		0.04	0.28	0.03	0.14	0.41	0.01
Uniform Delay, d1	16.4	8.0		17.2	9.0		17.0	12.2	11.6	17.0	12.5	11.6
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	36.6	0.0		216.8	0.1		0.5	0.2	0.0	2.3	0.4	0.0
Delay (s)	53.1	8.1		234.0	9.1		17.5	12.4	11.6	19.3	12.9	11.6
Level of Service	D	A		F	A		B	B	B	B	B	B
Approach Delay (s)		38.9			78.3			12.3			12.9	
Approach LOS		D			E			B			B	

Intersection Summary

HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	34.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	57	43	29	125	59	2	54	35	689	140	91	813
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	0.94		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	3660		3776	3875			3776	3795		3776	3783
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (perm)	3776	3660		3776	3875			3776	3795		3776	3783
Peak-hour factor, PHF	0.85	0.85	0.85	0.97	0.97	0.97	0.78	0.78	0.78	0.78	0.83	0.83
Adj. Flow (vph)	67	51	34	129	61	2	69	45	883	179	110	980
RTOR Reduction (vph)	0	31	0	0	2	0	0	0	18	0	0	24
Lane Group Flow (vph)	67	54	0	129	61	0	0	114	1044	0	110	1185
Turn Type	Prot			Prot			Prot	Prot			Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases												
Actuated Green, G (s)	2.1	5.6		2.9	6.4			3.6	25.3		7.3	29.0
Effective Green, g (s)	2.1	5.6		2.9	6.4			3.6	25.3		7.3	29.0
Actuated g/C Ratio	0.04	0.10		0.05	0.11			0.06	0.44		0.13	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)	139	359		192	434			238	1681		483	1921
v/s Ratio Prot	0.02	0.01		c0.03	c0.02			c0.03	0.28		0.03	c0.31
v/s Ratio Perm												
v/c Ratio	0.48	0.15		0.67	0.14			0.48	0.62		0.23	0.62
Uniform Delay, d1	27.0	23.6		26.6	22.9			25.8	12.2		22.4	10.1
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		8.9	0.1			1.5	0.7		0.2	0.6
Delay (s)	29.6	23.8		35.5	23.0			27.4	12.9		22.6	10.7
Level of Service	C	C		D	C			C	B		C	B
Approach Delay (s)		26.3			31.4				14.3			11.7
Approach LOS		C			C				B			B

Intersection Summary

HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	190
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	0.83
Adj. Flow (vph)	229
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	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	135	94	77	124	49	5	123	49	820	92	53	719
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	0.98		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)	3776	3630		3776	3841			3776	3834		3776	3797
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (perm)	3776	3630		3776	3841			3776	3834		3776	3797
Peak-hour factor, PHF	0.85	0.85	0.85	0.97	0.97	0.97	0.85	0.85	0.85	0.85	0.92	0.92
Adj. Flow (vph)	159	111	91	128	51	5	145	58	965	108	58	782
RTOR Reduction (vph)	0	80	0	0	5	0	0	0	11	0	0	24
Lane Group Flow (vph)	159	122	0	128	51	0	0	203	1062	0	58	913
Turn Type	Prot			Prot			Prot	Prot			Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases												
Actuated Green, G (s)	4.9	6.2		2.9	4.2			5.3	23.6		2.1	20.4
Effective Green, g (s)	4.9	6.2		2.9	4.2			5.3	23.6		2.1	20.4
Actuated g/C Ratio	0.10	0.12		0.06	0.08			0.10	0.46		0.04	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)	364	443		216	318			394	1781		156	1525
v/s Ratio Prot	c0.04	c0.03		0.03	0.01			c0.05	c0.28		0.02	0.24
v/s Ratio Perm												
v/c Ratio	0.44	0.28		0.59	0.16			0.52	0.60		0.37	0.60
Uniform Delay, d1	21.6	20.3		23.4	21.7			21.5	10.1		23.7	12.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.3		4.3	0.2			1.1	0.5		1.5	0.6
Delay (s)	22.5	20.6		27.7	21.9			22.7	10.6		25.2	12.6
Level of Service	C	C		C	C			C	B		C	B
Approach Delay (s)		21.4			25.9				12.5			13.3
Approach LOS		C			C				B			B

Intersection Summary

HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	143
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)	155
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
103: Railroad Ave & Orange Ave

4/25/2011

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	22	13	7	33	22	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.67	0.67	0.59	0.59	0.79	0.79
Hourly flow rate (vph)	33	19	12	56	28	24
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			52		122	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			52		122	43
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	98
cM capacity (veh/h)			1554		866	1028

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	52	68	52
Volume Left	0	12	28
Volume Right	19	0	24
cSH	1700	1554	934
Volume to Capacity	0.03	0.01	0.06
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	1.3	9.1
Lane LOS		A	A
Approach Delay (s)	0.0	1.3	9.1
Approach LOS			A

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
103: RailRoad Ave & Orange Ave

4/25/2011

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	47	39	13	61	25	13
Peak Hour Factor	0.83	0.83	0.77	0.77	0.79	0.79
Hourly flow rate (vph)	57	47	17	79	32	16

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total (vph)	104	96	48
Volume Left (vph)	57	17	0
Volume Right (vph)	0	79	16
Hadj (s)	0.14	-0.43	-0.17
Departure Headway (s)	4.3	3.8	4.0
Degree Utilization, x	0.12	0.10	0.05
Capacity (veh/h)	818	907	858
Control Delay (s)	7.9	7.2	7.3
Approach Delay (s)	7.9	7.2	7.3
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/25/2011

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	41	8	17	2	9	10	39	149	69	13	89	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.72	0.72	0.72	0.66	0.66	0.66	0.90	0.90	0.90	0.98	0.98	0.98
Hourly flow rate (vph)	57	11	24	3	14	15	43	166	77	13	91	8
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	369	416	121	296	450	49	99			242		
vC1, stage 1 conf vol	291	291		121	121							
vC2, stage 2 conf vol	79	126		175	329							
vCu, unblocked vol	369	416	121	296	450	49	99			242		
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 %	90	98	97	100	97	98	97			99		
cM capacity (veh/h)	572	543	907	626	524	1008	1492			1321		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	92	32	43	110	132	13	61	38
Volume Left	57	3	43	0	0	13	0	0
Volume Right	24	15	0	0	77	0	0	8
cSH	628	693	1492	1700	1700	1321	1700	1700
Volume to Capacity	0.15	0.05	0.03	0.06	0.08	0.01	0.04	0.02
Queue Length 95th (ft)	13	4	2	0	0	1	0	0
Control Delay (s)	11.7	10.4	7.5	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	B	A			A		
Approach Delay (s)	11.7	10.4	1.1			0.9		
Approach LOS	B	B						

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	27.9%	ICU Level of Service		A
Analysis Period (min)	15			

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

4/25/2011

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	115	21	32	2	14	47	29	124	49	17	174	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.90	0.90	0.90	0.79	0.79	0.79
Hourly flow rate (vph)	124	23	34	3	18	59	32	138	54	22	220	5
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	391	498	96	410	522	113	225			192		
vC1, stage 1 conf vol	229	229		266	266							
vC2, stage 2 conf vol	162	268		145	257							
vCu, unblocked vol	391	498	96	410	522	113	225			192		
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 %	77	96	96	100	96	94	98			98		
cM capacity (veh/h)	547	511	941	547	504	919	1340			1379		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2	NW 3
Volume Total	181	80	32	92	100	22	147	78
Volume Left	124	3	32	0	0	22	0	0
Volume Right	34	59	0	0	54	0	0	5
cSH	589	763	1340	1700	1700	1379	1700	1700
Volume to Capacity	0.31	0.10	0.02	0.05	0.06	0.02	0.09	0.05
Queue Length 95th (ft)	32	9	2	0	0	1	0	0
Control Delay (s)	13.8	10.3	7.8	0.0	0.0	7.7	0.0	0.0
Lane LOS	B	B	A			A		
Approach Delay (s)	13.8	10.3	1.1			0.7		
Approach LOS	B	B						

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	34.4%	ICU Level of Service		A
Analysis Period (min)	15			

HANFORD EXISTING CONDITIONS
SYNCHRO OUTPUT

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)	48	619	26	27	879	9	0	0	37	0	0	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.71	0.71	0.71	0.75	0.75	0.75
Hourly flow rate (vph)	55	703	30	31	999	10	0	0	52	0	0	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	1009			733			1472	1898	366	1578	1907	505
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1009			733			1472	1898	366	1578	1907	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 %	92			96			100	100	92	100	100	84
cM capacity (veh/h)	683			868			68	61	630	62	60	513

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	55	469	264	31	666	343	52	84
Volume Left	55	0	0	31	0	0	0	0
Volume Right	0	0	30	0	0	10	52	84
cSH	683	1700	1700	868	1700	1700	630	513
Volume to Capacity	0.08	0.28	0.16	0.04	0.39	0.20	0.08	0.16
Queue Length 95th (ft)	6	0	0	3	0	0	7	15
Control Delay (s)	10.7	0.0	0.0	9.3	0.0	0.0	11.2	13.4
Lane LOS	B			A			B	B
Approach Delay (s)	0.7			0.3			11.2	13.4
Approach LOS							B	B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
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)	105	960	28	34	639	8	0	0	41	0	0	72
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.83	0.83	0.83	0.73	0.73	0.73	0.69	0.69	0.69
Hourly flow rate (vph)	109	1000	29	41	770	10	0	0	56	0	0	104
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	780			1029			1805	2095	515	1632	2105	390
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	780			1029			1805	2095	515	1632	2105	390
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			94			100	100	89	100	100	83
cM capacity (veh/h)	833			671			35	42	505	51	41	609

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	109	667	362	41	513	266	56	104
Volume Left	109	0	0	41	0	0	0	0
Volume Right	0	0	29	0	0	10	56	104
cSH	833	1700	1700	671	1700	1700	505	609
Volume to Capacity	0.13	0.39	0.21	0.06	0.30	0.16	0.11	0.17
Queue Length 95th (ft)	11	0	0	5	0	0	9	15
Control Delay (s)	10.0	0.0	0.0	10.7	0.0	0.0	13.0	12.1
Lane LOS	A			B			B	B
Approach Delay (s)	1.0			0.5			13.0	12.1
Approach LOS							B	B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	37.4%	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)	40	0	83	0	191	0	0	356	74	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.68	0.68	0.68	0.75	0.75	0.75	0.86	0.86	0.86	0.92	0.92
Hourly flow rate (vph)	59	0	122	0	255	0	0	414	86	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	712	755	255	500			255			773	712
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	712	755	255	500			255			773	712
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 %	83	100	84	100			100			100	100
cM capacity (veh/h)	348	338	784	1064			1310			267	358

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	181	255	500
Volume Left	59	0	0
Volume Right	122	0	86
cSH	1069	1700	1700
Volume to Capacity	0.17	0.15	0.29
Queue Length 95th (ft)	15	0	0
Control Delay (s)	12.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	12.7	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: SR 198 WB off ramp & SR 198 WB on ramp

10/12/2010

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (veh/h)	21	0	142	0	414	0	0	251	67	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.90	0.90	0.90	0.91	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	25	0	171	0	460	0	0	276	74	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	773	809	460	349			460			858	773
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	773	809	460	349			460			858	773
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 %	92	100	72	100			100			100	100
cM capacity (veh/h)	316	314	601	1209			1101			198	330

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	196	460	349
Volume Left	25	0	0
Volume Right	171	0	74
cSH	690	1700	1700
Volume to Capacity	0.28	0.27	0.21
Queue Length 95th (ft)	29	0	0
Control Delay (s)	13.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.9	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	37.2%	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)	43	0	91	0	255	35	0	298	0	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.78	0.78	0.78	0.83	0.83	0.83	0.92	0.92
Hourly flow rate (vph)	51	0	108	0	327	45	0	359	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	708	731	359	359			372			763	708
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	708	731	359	359			372			763	708
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 %	85	100	84	100			100			100	100
cM capacity (veh/h)	349	349	685	1200			1187			270	359

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	160	372	359
Volume Left	51	0	0
Volume Right	108	45	0
cSH	1009	1700	1700
Volume to Capacity	0.16	0.22	0.21
Queue Length 95th (ft)	14	0	0
Control Delay (s)	13.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.1	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: SR 198 EB off ramp & SR 198 EB on ramp

10/12/2010

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (veh/h)	77	0	85	0	431	57	0	166	0	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	86	0	94	0	468	62	0	182	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	682	713	182	182			530			729	682
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	682	713	182	182			530			729	682
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 %	76	100	89	100			100			100	100
cM capacity (veh/h)	364	357	860	1393			1037			301	372

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	180	530	182
Volume Left	86	0	0
Volume Right	94	62	0
cSH	766	1700	1700
Volume to Capacity	0.24	0.31	0.11
Queue Length 95th (ft)	23	0	0
Control Delay (s)	13.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.6	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	37.2%	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)	95	545	6	8	771	11	4	12	8	9	10	96
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86	0.45	0.45	0.45
Hourly flow rate (vph)	109	626	7	9	886	13	5	14	9	20	22	213
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	899			633			1977	1766	630	1772	1763	893
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	899			633			1977	1766	630	1772	1763	893
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 %	86			99			60	80	98	58	69	37
cM capacity (veh/h)	756			950			12	71	482	48	71	341

Direction, Lane #	EB 1	EB 2	NB 1	WB 1	NB 1	SB 1
Volume Total	109	633	9	899	23	256
Volume Left	109	0	9	0	5	20
Volume Right	0	7	0	13	9	213
cSH	756	1700	950	1700	45	188
Volume to Capacity	0.14	0.37	0.01	0.53	0.61	1.36
Queue Length 95th (ft)	13	0	1	0	58	371
Control Delay (s)	10.6	0.0	8.8	0.0	169.1	239.0
Lane LOS	B		A		F	F
Approach Delay (s)	1.6		0.1		169.1	239.0
Approach LOS					F	F

Intersection Summary			
Average Delay	34.7		
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	932	11	5	762	1	6	3	2	4	3	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.46	0.46	0.46	0.65	0.65	0.65
Hourly flow rate (vph)	35	1013	12	6	896	1	13	7	4	6	5	29
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	898			1025			2028	1998	1019	1999	2003	897
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	898			1025			2028	1998	1019	1999	2003	897
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 %	95			99			63	89	98	84	92	91
cM capacity (veh/h)	756			677			35	57	288	39	56	338

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	35	1025	6	897	24	40
Volume Left	35	0	6	0	13	6
Volume Right	0	12	0	1	4	29
cSH	756	1700	677	1700	48	122
Volume to Capacity	0.05	0.60	0.01	0.53	0.50	0.33
Queue Length 95th (ft)	4	0	1	0	47	32
Control Delay (s)	10.0	0.0	10.4	0.0	141.0	48.3
Lane LOS	A		B		F	E
Approach Delay (s)	0.3		0.1		141.0	48.3
Approach LOS					F	E

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	26	26	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.93	0.93	0.72	0.72
Hourly flow rate (vph)	0	0	0	28	36	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	64	36	36			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64	36	36			
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	100			
cM capacity (veh/h)	942	1036	1575			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	28	36
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1575	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	13	20	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.65	0.65	0.71	0.71
Hourly flow rate (vph)	0	0	0	20	28	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	48	28	28			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48	28	28			
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	100			
cM capacity (veh/h)	961	1047	1585			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	20	28
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1585	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	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)	29	533	4	4	738	4	5	5	6	4	8	59
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.44	0.44	0.44	0.71	0.71	0.71
Hourly flow rate (vph)	34	627	5	4	811	4	11	11	14	6	11	83
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	815			632			1606	1522	629	1537	1522	813
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	815			632			1606	1522	629	1537	1522	813
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			100			81	90	97	93	90	78
cM capacity (veh/h)	812			951			59	113	482	82	113	378

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	34	632	4	815	36	100
Volume Left	34	0	4	0	11	6
Volume Right	0	5	0	4	14	83
cSH	812	1700	951	1700	113	258
Volume to Capacity	0.04	0.37	0.00	0.48	0.32	0.39
Queue Length 95th (ft)	3	0	0	0	31	44
Control Delay (s)	9.6	0.0	8.8	0.0	51.3	27.6
Lane LOS	A		A		F	D
Approach Delay (s)	0.5		0.0		51.3	27.6
Approach LOS					F	D

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	50.2%	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)	99	880	8	3	680	10	0	10	4	2	3	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.79	0.79	0.79	0.88	0.88	0.88	0.69	0.69	0.69
Hourly flow rate (vph)	102	907	8	4	861	13	0	11	5	3	4	72
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	873			915			2058	1996	911	1996	1994	867
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	873			915			2058	1996	911	1996	1994	867
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 %	87			99			100	78	99	91	92	79
cM capacity (veh/h)	772			745			27	52	332	33	52	352

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	102	915	4	873	16	80
Volume Left	102	0	4	0	0	3
Volume Right	0	8	0	13	5	72
cSH	772	1700	745	1700	68	212
Volume to Capacity	0.13	0.54	0.01	0.51	0.23	0.38
Queue Length 95th (ft)	11	0	0	0	20	41
Control Delay (s)	10.4	0.0	9.9	0.0	72.8	31.9
Lane LOS	B		A		F	D
Approach Delay (s)	1.0		0.0		72.8	31.9
Approach LOS					F	D

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	65.2%	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)	4	518	4	5	731	4	2	3	3	2	7	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.50	0.50	0.50	0.65	0.65	0.65
Hourly flow rate (vph)	5	589	5	5	803	4	4	6	6	3	11	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	808			593			1448	1419	591	1425	1419	805
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	808			593			1448	1419	591	1425	1419	805
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			99			96	96	99	97	92	93
cM capacity (veh/h)	817			983			95	135	507	107	135	382

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	593	813	16	40
Volume Left	5	5	4	3
Volume Right	5	4	6	26
cSH	817	983	162	226
Volume to Capacity	0.01	0.01	0.10	0.18
Queue Length 95th (ft)	0	0	8	16
Control Delay (s)	0.2	0.2	29.6	24.3
Lane LOS	A	A	D	C
Approach Delay (s)	0.2	0.2	29.6	24.3
Approach LOS			D	C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	52.0%	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)	20	839	6	2	669	8	1	7	2	3	6	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.79	0.79	0.79	0.63	0.63	0.63	0.57	0.57	0.57
Hourly flow rate (vph)	21	883	6	3	847	10	2	11	3	5	11	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)												
pX, platoon unblocked												
vC, conflicting volume	857			889			1819	1790	886	1794	1789	852
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	857			889			1819	1790	886	1794	1789	852
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			97	86	99	90	87	92
cM capacity (veh/h)	783			762			49	78	343	54	79	359

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	911	859	16	44
Volume Left	21	3	2	5
Volume Right	6	10	3	28
cSH	783	762	86	142
Volume to Capacity	0.03	0.00	0.18	0.31
Queue Length 95th (ft)	2	0	16	31
Control Delay (s)	0.8	0.1	55.8	41.4
Lane LOS	A	A	F	E
Approach Delay (s)	0.8	0.1	55.8	41.4
Approach LOS			F	E

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	7	66	44	11	20	65	231	41	18	471	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.89	0.89	0.89	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	17	9	81	49	12	22	75	266	47	21	541	16
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	1034	1053	549	1026	1037	289	557			313		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1034	1053	549	1026	1037	289	557			313		
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	85	70	94	97	93			98		
cM capacity (veh/h)	182	206	535	163	210	750	1013			1248		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	107	84	75	313	21	557
Volume Left	17	49	75	0	21	0
Volume Right	81	22	0	47	0	16
cSH	371	215	1013	1700	1248	1700
Volume to Capacity	0.29	0.39	0.07	0.18	0.02	0.33
Queue Length 95th (ft)	29	44	6	0	1	0
Control Delay (s)	18.6	32.1	8.8	0.0	7.9	0.0
Lane LOS	C	D	A		A	
Approach Delay (s)	18.6	32.1	1.7		0.3	
Approach LOS	C	D				

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	50.1%	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)	26	11	71	27	10	39	96	469	49	13	235	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.76	0.76	0.76	0.94	0.94	0.94	0.82	0.82	0.82
Hourly flow rate (vph)	32	13	87	36	13	51	102	499	52	16	287	46
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	1103	1097	310	1054	1094	525	333			551		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1103	1097	310	1054	1094	525	333			551		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	93	88	77	93	91	92			98		
cM capacity (veh/h)	150	192	730	157	193	552	1226			1019		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	132	100	102	551	16	333
Volume Left	32	36	102	0	16	0
Volume Right	87	51	0	52	0	46
cSH	330	259	1226	1700	1019	1700
Volume to Capacity	0.40	0.39	0.08	0.32	0.02	0.20
Queue Length 95th (ft)	46	43	7	0	1	0
Control Delay (s)	23.0	27.4	8.2	0.0	8.6	0.0
Lane LOS	C	D	A		A	
Approach Delay (s)	23.0	27.4	1.3		0.4	
Approach LOS	C	D				

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	48.5%	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 (vph)	5	153	58	77	69	27	39	178	43	102	316	4
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	0.96		1.00	0.96		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	1786		1770	1785		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	1786		1770	1785		1770	1808		1770	1859	
Peak-hour factor, PHF	0.68	0.68	0.68	0.77	0.77	0.77	0.90	0.90	0.90	0.75	0.75	0.75
Adj. Flow (vph)	7	225	85	100	90	35	43	198	48	136	421	5
RTOR Reduction (vph)	0	16	0	0	14	0	0	10	0	0	1	0
Lane Group Flow (vph)	7	294	0	100	111	0	43	236	0	136	425	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	16.9		7.2	23.0		4.2	16.9		8.3	21.0	
Effective Green, g (s)	1.1	16.9		7.2	23.0		4.2	16.9		8.3	21.0	
Actuated g/C Ratio	0.02	0.26		0.11	0.35		0.06	0.26		0.13	0.32	
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)	30	462		195	629		114	468		225	598	
v/s Ratio Prot	0.00	c0.16		c0.06	0.06		0.02	0.13		c0.08	c0.23	
v/s Ratio Perm												
v/c Ratio	0.23	0.64		0.51	0.18		0.38	0.50		0.60	0.71	
Uniform Delay, d1	31.7	21.5		27.4	14.6		29.3	20.6		26.9	19.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	2.9		2.3	0.1		2.1	0.9		4.5	4.0	
Delay (s)	35.7	24.4		29.7	14.7		31.4	21.5		31.5	23.5	
Level of Service	D	C		C	B		C	C		C	C	
Approach Delay (s)		24.6			21.4			23.0			25.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.4%	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)	4	73	37	67	86	30	109	377	52	36	183	4
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	0.96		1.00	0.98		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	1769		1770	1791		1770	1829		1770	1857	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1769		1770	1791		1770	1829		1770	1857	
Peak-hour factor, PHF	0.71	0.71	0.71	0.85	0.85	0.85	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	6	103	52	79	101	35	121	419	58	39	197	4
RTOR Reduction (vph)	0	23	0	0	15	0	0	5	0	0	1	0
Lane Group Flow (vph)	6	132	0	79	121	0	121	472	0	39	200	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.9	9.0		4.5	12.6		7.4	23.5		2.4	18.5	
Effective Green, g (s)	0.9	9.0		4.5	12.6		7.4	23.5		2.4	18.5	
Actuated g/C Ratio	0.02	0.16		0.08	0.23		0.13	0.42		0.04	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)	29	287		144	407		236	776		77	620	
v/s Ratio Prot	0.00	c0.07		c0.04	c0.07		c0.07	c0.26		0.02	0.11	
v/s Ratio Perm												
v/c Ratio	0.21	0.46		0.55	0.30		0.51	0.61		0.51	0.32	
Uniform Delay, d1	26.9	21.0		24.5	17.7		22.3	12.4		25.9	13.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	1.2		4.2	0.4		1.9	1.4		5.2	0.3	
Delay (s)	30.4	22.2		28.7	18.1		24.2	13.7		31.1	14.1	
Level of Service	C	C		C	B		C	B		C	B	
Approach Delay (s)		22.5			22.0			15.9			16.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

BAKERSFIELD EXISTING CONDITIONS SYNCHRO OUTPUT

HCM Signalized Intersection Capacity Analysis
1: SR-58 EB Off Ramp & S Union Ave

10/12/2010

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1168	348	0	2198	1336	351
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	4927	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	4927	
Peak-hour factor, PHF	0.83	0.83	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1407	419	0	2586	1572	413
RTOR Reduction (vph)	0	23	0	0	63	0
Lane Group Flow (vph)	1407	396	0	2586	1922	0
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	20.8	20.8		45.1	45.1	
Effective Green, g (s)	20.8	20.8		45.1	45.1	
Actuated g/C Ratio	0.28	0.28		0.60	0.60	
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)	491	439		3058	2963	
v/s Ratio Prot	c0.80			c0.51	0.39	
v/s Ratio Perm		0.25				
v/c Ratio	2.87	0.90		0.85	0.65	
Uniform Delay, d1	27.1	26.1		12.1	9.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	845.1	21.3		2.4	0.6	
Delay (s)	872.2	47.4		14.5	10.3	
Level of Service	F	D		B	B	
Approach Delay (s)	683.0			14.5	10.3	
Approach LOS	F			B	B	

Intersection Summary

HCM Average Control Delay	204.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	114.8%	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

10/12/2010

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	334	159	0	1106	1123	177
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	0.98	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		5085	4981	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	4981	
Peak-hour factor, PHF	0.81	0.81	0.83	0.83	0.75	0.75
Adj. Flow (vph)	412	196	0	1333	1497	236
RTOR Reduction (vph)	0	28	0	0	29	0
Lane Group Flow (vph)	412	168	0	1333	1704	0
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.2	19.2		42.0	42.0	
Effective Green, g (s)	19.2	19.2		42.0	42.0	
Actuated g/C Ratio	0.27	0.27		0.60	0.60	
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)	483	432		3038	2976	
v/s Ratio Prot	c0.23			0.26	c0.34	
v/s Ratio Perm		0.11				
v/c Ratio	0.85	0.39		0.44	0.57	
Uniform Delay, d1	24.2	20.8		7.7	8.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.6	0.6		0.1	0.3	
Delay (s)	37.8	21.4		7.9	9.0	
Level of Service	D	C		A	A	
Approach Delay (s)	32.5			7.9	9.0	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	9.1
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: SR-58 Off Ramp & MT Vernon Ave

10/12/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	546	2	432	0	0	0	0	268	50	131	360	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	0.84	0.84	0.84	0.25	0.25	0.25	0.78	0.78	0.78	0.85	0.85	0.85
Adj. Flow (vph)	650	2	514	0	0	0	0	344	64	154	424	0
RTOR Reduction (vph)	0	254	0	0	0	0	0	0	50	0	0	0
Lane Group Flow (vph)	585	327	0	0	0	0	0	344	14	154	424	0
Turn Type	Split								Perm	Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	25.7	25.7						13.9	13.9	9.9	27.5	
Effective Green, g (s)	25.7	25.7						13.9	13.9	9.9	27.5	
Actuated g/C Ratio	0.41	0.41						0.22	0.22	0.16	0.44	
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)	685	622						780	349	278	1542	
v/s Ratio Prot	c0.35	0.21						c0.10		c0.09	0.12	
v/s Ratio Perm									0.01			
v/c Ratio	0.85	0.53						0.44	0.04	0.55	0.27	
Uniform Delay, d1	17.0	14.1						21.2	19.4	24.6	11.4	
Progression Factor	1.00	1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.4	1.0						0.7	0.1	1.4	0.2	
Delay (s)	27.4	15.1						21.9	19.4	25.9	11.6	
Level of Service	C	B						C	B	C	B	
Approach Delay (s)		21.3			0.0			21.5			15.4	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	63.1	Sum of lost time (s)	13.6
Intersection Capacity Utilization	55.6%	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)	603	3	71	0	0	0	0	280	68	150	69	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	0.97						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1649						3539	1583	1770	3539	
Flt Permitted	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1649						3539	1583	1770	3539	
Peak-hour factor, PHF	0.84	0.84	0.84	0.25	0.25	0.25	0.73	0.73	0.73	0.90	0.90	0.90
Adj. Flow (vph)	718	4	85	0	0	0	0	384	93	167	77	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	70	0	0	0
Lane Group Flow (vph)	409	388	0	0	0	0	0	384	23	167	77	0
Turn Type	Split								Perm	Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	22.6	22.6						15.0	15.0	10.5	29.2	
Effective Green, g (s)	22.6	22.6						15.0	15.0	10.5	29.2	
Actuated g/C Ratio	0.37	0.37						0.24	0.24	0.17	0.47	
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)	616	604						860	385	301	1675	
v/s Ratio Prot	c0.24	0.24						c0.11		c0.09	0.02	
v/s Ratio Perm									0.01			
v/c Ratio	0.66	0.64						0.45	0.06	0.55	0.05	
Uniform Delay, d1	16.4	16.2						19.8	17.9	23.5	8.7	
Progression Factor	1.00	1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.9	2.6						0.6	0.1	1.3	0.0	
Delay (s)	19.3	18.8						20.5	18.0	24.7	8.8	
Level of Service	B	B						C	B	C	A	
Approach Delay (s)		19.0			0.0			20.0			19.7	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	13.6
Intersection Capacity Utilization	47.2%	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)	94	232	169	104	185	65	124	409	171	36	212	107
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	3402		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	3402		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	103	255	186	124	220	77	153	505	211	44	262	132
RTOR Reduction (vph)	0	0	154	0	26	0	0	0	146	0	0	110
Lane Group Flow (vph)	103	255	32	124	271	0	153	505	65	44	262	22
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)	6.9	10.2	10.2	9.7	13.0		11.9	18.3	18.3	3.4	9.8	9.8
Effective Green, g (s)	6.9	10.2	10.2	9.7	13.0		11.9	18.3	18.3	3.4	9.8	9.8
Actuated g/C Ratio	0.12	0.17	0.17	0.16	0.22		0.20	0.31	0.31	0.06	0.16	0.16
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)	205	606	271	288	742		353	1087	486	101	582	260
v/s Ratio Prot	0.06	c0.07		c0.07	c0.08		c0.09	c0.14		0.02	0.07	
v/s Ratio Perm			0.02						0.04			0.01
v/c Ratio	0.50	0.42	0.12	0.43	0.37		0.43	0.46	0.13	0.44	0.45	0.08
Uniform Delay, d1	24.7	22.1	20.9	22.5	19.8		20.9	16.7	14.9	27.2	22.5	21.1
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	0.7	0.2	0.1	0.4	0.1		0.3	0.1	0.0	1.1	0.2	0.1
Delay (s)	25.4	22.2	21.0	22.8	19.9		21.2	16.8	15.0	28.3	22.7	21.1
Level of Service	C	C	C	C	B		C	B	B	C	C	C
Approach Delay (s)		22.4			20.8			17.1			22.8	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	19.0
Intersection Capacity Utilization	42.1%	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)	145	307	316	214	281	102	149	399	180	89	615	125
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	0.88	0.88	0.88	0.86	0.86	0.86	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	165	349	359	249	327	119	164	438	198	101	699	142
RTOR Reduction (vph)	0	0	297	0	27	0	0	0	149	0	0	89
Lane Group Flow (vph)	165	349	62	249	419	0	164	438	49	101	699	53
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)	13.7	16.0	16.0	18.5	20.8		14.4	22.9	22.9	17.3	25.8	25.8
Effective Green, g (s)	13.7	16.0	16.0	18.5	20.8		14.4	22.9	22.9	17.3	25.8	25.8
Actuated g/C Ratio	0.15	0.17	0.17	0.20	0.22		0.16	0.25	0.25	0.19	0.28	0.28
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)	262	611	273	353	762		275	874	391	330	985	441
v/s Ratio Prot	0.09	c0.10		c0.14	c0.12		c0.09	0.12		c0.06	c0.20	
v/s Ratio Perm			0.04						0.03			0.03
v/c Ratio	0.63	0.57	0.23	0.71	0.55		0.60	0.50	0.13	0.31	0.71	0.12
Uniform Delay, d1	37.1	35.2	33.0	34.6	31.8		36.4	30.0	27.1	32.5	30.1	25.0
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	3.4	0.8	0.2	5.2	0.4		2.3	0.2	0.1	0.2	1.9	0.0
Delay (s)	40.5	36.0	33.2	39.7	32.2		38.8	30.2	27.2	32.7	32.0	25.0
Level of Service	D	D	C	D	C		D	C	C	C	C	C
Approach Delay (s)		35.7			34.9			31.2			31.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	33.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	27.0
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)	151	311	91	52	247	26	84	523	78	28	213	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	0.98		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	3489		1770	3470		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	3470		1770	3539	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.76	0.76	0.76	0.80	0.80	0.80	0.93	0.93	0.93
Adj. Flow (vph)	172	353	103	68	325	34	105	654	98	30	229	78
RTOR Reduction (vph)	0	0	46	0	6	0	0	7	0	0	0	57
Lane Group Flow (vph)	172	353	57	68	353	0	105	745	0	30	229	21
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)	11.8	20.3	20.3	5.9	14.4		7.2	22.2		3.2	18.2	18.2
Effective Green, g (s)	11.8	20.3	20.3	5.9	14.4		7.2	22.2		3.2	18.2	18.2
Actuated g/C Ratio	0.18	0.30	0.30	0.09	0.21		0.11	0.33		0.05	0.27	0.27
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)	310	1066	477	155	745		189	1143		84	956	427
v/s Ratio Prot	c0.10	0.10		0.04	c0.10		c0.06	c0.21		0.02	0.06	
v/s Ratio Perm			0.04									0.01
v/c Ratio	0.55	0.33	0.12	0.44	0.47		0.56	0.65		0.36	0.24	0.05
Uniform Delay, d1	25.4	18.3	17.1	29.2	23.2		28.6	19.3		31.1	19.2	18.2
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	1.2	0.1	0.0	0.7	0.2		2.0	1.0		0.9	0.0	0.0
Delay (s)	26.6	18.3	17.1	29.9	23.4		30.6	20.3		32.1	19.2	18.2
Level of Service	C	B	B	C	C		C	C		C	B	B
Approach Delay (s)		20.4			24.4			21.6			20.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	67.4	Sum of lost time (s)	11.4
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: E Brundage Lane & Chester Ave

10/12/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	292	87	90	380	52	79	367	57	68	618	171
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	0.98		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	3475		1770	3468		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	3468		1770	3539	1583
Peak-hour factor, PHF	0.85	0.85	0.85	0.93	0.93	0.93	0.85	0.85	0.85	0.89	0.89	0.89
Adj. Flow (vph)	159	344	102	97	409	56	93	432	67	76	694	192
RTOR Reduction (vph)	0	0	47	0	7	0	0	8	0	0	0	133
Lane Group Flow (vph)	159	344	55	97	458	0	93	491	0	76	694	59
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)	12.1	23.2	23.2	7.2	18.3		7.1	24.6		6.3	23.8	23.8
Effective Green, g (s)	12.1	23.2	23.2	7.2	18.3		7.1	24.6		6.3	23.8	23.8
Actuated g/C Ratio	0.16	0.30	0.30	0.09	0.24		0.09	0.32		0.08	0.31	0.31
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)	278	1065	476	165	825		163	1107		145	1092	489
v/s Ratio Prot	c0.09	0.10		0.05	c0.13		c0.05	0.14		0.04	c0.20	
v/s Ratio Perm			0.03									0.04
v/c Ratio	0.57	0.32	0.12	0.59	0.56		0.57	0.44		0.52	0.64	0.12
Uniform Delay, d1	30.1	20.9	19.5	33.5	25.8		33.5	20.8		34.0	22.9	19.1
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	1.8	0.1	0.0	3.4	0.5		3.0	0.1		1.6	0.9	0.0
Delay (s)	31.9	20.9	19.6	36.9	26.3		36.5	20.9		35.5	23.8	19.2
Level of Service	C	C	B	D	C		D	C		D	C	B
Approach Delay (s)		23.6			28.1			23.4			23.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	15.8
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)	61	220	30	44	234	39	39	126	56	33	71	40
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	0.95	
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	1763	
Flt Permitted	0.95	1.00		0.95	1.00		0.68	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	1770	3475		1770	3464		1263	1863	1583	1263	1763	
Peak-hour factor, PHF	0.80	0.80	0.80	0.86	0.86	0.86	0.67	0.67	0.67	0.88	0.88	0.88
Adj. Flow (vph)	76	275	38	51	272	45	58	188	84	38	81	45
RTOR Reduction (vph)	0	9	0	0	12	0	0	0	69	0	20	0
Lane Group Flow (vph)	76	304	0	51	305	0	58	188	15	38	106	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)	3.0	11.4		1.8	10.2		5.9	5.9	5.9	5.9	5.9	
Effective Green, g (s)	3.0	11.4		1.8	10.2		5.9	5.9	5.9	5.9	5.9	
Actuated g/C Ratio	0.09	0.34		0.05	0.31		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)	160	1197		96	1067		225	332	282	225	314	
v/s Ratio Prot	c0.04	0.09		0.03	c0.09			c0.10			0.06	
v/s Ratio Perm							0.05		0.01	0.03		
v/c Ratio	0.48	0.25		0.53	0.29		0.26	0.57	0.05	0.17	0.34	
Uniform Delay, d1	14.3	7.8		15.2	8.7		11.7	12.4	11.3	11.5	11.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.0		2.8	0.1		0.2	1.3	0.0	0.1	0.2	
Delay (s)	15.1	7.8		18.0	8.7		11.9	13.8	11.3	11.7	12.1	
Level of Service	B	A		B	A		B	B	B	B	B	
Approach Delay (s)		9.3			10.0			12.8			12.0	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	33.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	38.6%	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)	27	348	50	77	408	43	27	111	71	35	169	37
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	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3473		1770	3488		1770	1863	1583	1770	1812	
Flt Permitted	0.95	1.00		0.95	1.00		0.53	1.00	1.00	0.67	1.00	
Satd. Flow (perm)	1770	3473		1770	3488		986	1863	1583	1249	1812	
Peak-hour factor, PHF	0.89	0.89	0.89	0.77	0.77	0.77	0.82	0.82	0.82	0.73	0.73	0.73
Adj. Flow (vph)	30	391	56	100	530	56	33	135	87	48	232	51
RTOR Reduction (vph)	0	10	0	0	7	0	0	0	65	0	7	0
Lane Group Flow (vph)	30	437	0	100	579	0	33	135	22	48	276	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)	1.8	13.3		5.4	16.9		11.4	11.4	11.4	11.4	11.4	
Effective Green, g (s)	1.8	13.3		5.4	16.9		11.4	11.4	11.4	11.4	11.4	
Actuated g/C Ratio	0.04	0.30		0.12	0.38		0.26	0.26	0.26	0.26	0.26	
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)	72	1047		217	1337		255	482	409	323	468	
v/s Ratio Prot	0.02	0.13		c0.06	c0.17			0.07			c0.15	
v/s Ratio Perm							0.03		0.01	0.04		
v/c Ratio	0.42	0.42		0.46	0.43		0.13	0.28	0.05	0.15	0.59	
Uniform Delay, d1	20.6	12.3		18.0	10.1		12.5	13.1	12.3	12.6	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	1.4	0.1		0.6	0.1		0.1	0.1	0.0	0.1	1.3	
Delay (s)	22.1	12.4		18.6	10.1		12.6	13.2	12.3	12.7	15.6	
Level of Service	C	B		B	B		B	B	B	B	B	
Approach Delay (s)		13.0			11.4			12.8			15.2	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	44.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.0%	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)	109	109	65	256	223	276	98	1201	193	94	766	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	4980		1770	5031	
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	4980		1770	5031	
Peak-hour factor, PHF	0.86	0.86	0.86	0.89	0.89	0.89	0.81	0.81	0.81	0.88	0.88	0.88
Adj. Flow (vph)	127	127	76	288	251	310	121	1483	238	107	870	67
RTOR Reduction (vph)	0	0	67	0	0	243	0	14	0	0	6	0
Lane Group Flow (vph)	127	127	9	288	251	67	121	1707	0	107	931	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)	11.5	11.5	11.5	20.5	20.5	20.5	11.2	35.9		10.4	35.1	
Effective Green, g (s)	11.5	11.5	11.5	20.5	20.5	20.5	11.2	35.9		10.4	35.1	
Actuated g/C Ratio	0.12	0.12	0.12	0.21	0.21	0.21	0.12	0.38		0.11	0.37	
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)	213	426	191	380	760	340	208	1872		193	1849	
v/s Ratio Prot	0.07	0.04		c0.16	c0.07		c0.07	c0.34		0.06	0.19	
v/s Ratio Perm			0.01			0.04						
v/c Ratio	0.60	0.30	0.05	0.76	0.33	0.20	0.58	0.91		0.55	0.50	
Uniform Delay, d1	39.8	38.3	37.2	35.2	31.7	30.7	39.9	28.3		40.4	23.4	
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	3.0	0.9	0.2	7.5	0.6	0.7	2.7	7.5		2.0	0.5	
Delay (s)	42.8	39.3	37.4	42.7	32.3	31.4	42.6	35.8		42.3	23.9	
Level of Service	D	D	D	D	C	C	D	D		D	C	
Approach Delay (s)		40.2			35.5			36.2			25.8	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	95.5	Sum of lost time (s)	7.4
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	195	136	239	282	224	111	864	267	102	1118	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	0.96		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	4905		1770	5039	
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	5039	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.83	0.83	0.83	0.76	0.76	0.76
Adj. Flow (vph)	131	222	155	275	324	257	134	1041	322	134	1471	96
RTOR Reduction (vph)	0	0	132	0	0	197	0	36	0	0	5	0
Lane Group Flow (vph)	131	222	23	275	324	60	134	1327	0	134	1562	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)	12.1	15.2	15.2	20.2	23.3	23.3	12.3	35.6		12.3	35.6	
Effective Green, g (s)	12.1	15.2	15.2	20.2	23.3	23.3	12.3	35.6		12.3	35.6	
Actuated g/C Ratio	0.12	0.15	0.15	0.20	0.23	0.23	0.12	0.35		0.12	0.35	
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)	213	535	239	356	820	367	217	1737		217	1785	
v/s Ratio Prot	0.07	0.06		c0.16	c0.09		c0.08	0.27		0.08	c0.31	
v/s Ratio Perm			0.01			0.04						
v/c Ratio	0.62	0.41	0.10	0.77	0.40	0.16	0.62	0.76		0.62	0.88	
Uniform Delay, d1	42.0	38.6	36.7	38.0	32.6	30.8	41.9	28.7		41.9	30.4	
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	3.7	1.2	0.4	9.1	0.7	0.5	3.6	2.3		3.6	5.6	
Delay (s)	45.7	39.9	37.2	47.1	33.4	31.3	45.5	31.0		45.5	36.0	
Level of Service	D	D	D	D	C	C	D	C		D	D	
Approach Delay (s)		40.5			37.2			32.3			36.7	
Approach LOS		D			D			C			D	

Intersection Summary

HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.5	Sum of lost time (s)	12.3
Intersection Capacity Utilization	64.1%	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)	19	341	31	64	276	4	441	22	12	2	40	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	0.95			0.94	
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	3531		1770	1763			1750	
Flt Permitted	0.55	1.00	1.00	0.53	1.00		0.95	1.00			1.00	
Satd. Flow (perm)	1021	3539	1583	985	3531		1770	1763			1750	
Peak-hour factor, PHF	0.91	0.91	0.91	0.83	0.83	0.83	0.77	0.77	0.77	0.78	0.78	0.78
Adj. Flow (vph)	21	375	34	77	333	5	573	29	16	3	51	42
RTOR Reduction (vph)	0	0	26	0	2	0	0	9	0	0	36	0
Lane Group Flow (vph)	21	375	8	77	336	0	573	36	0	0	60	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)	15.1	15.1	15.1	15.1	15.1		27.5	27.5			5.7	
Effective Green, g (s)	15.1	15.1	15.1	15.1	15.1		27.5	27.5			5.7	
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.24		0.44	0.44			0.09	
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)	246	854	382	238	852		778	774			159	
v/s Ratio Prot		c0.11			0.10		c0.32	0.02			c0.03	
v/s Ratio Perm	0.02		0.01	0.08								
v/c Ratio	0.09	0.44	0.02	0.32	0.39		0.74	0.05			0.38	
Uniform Delay, d1	18.4	20.2	18.1	19.5	19.9		14.5	10.0			26.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.5	0.0	1.1	0.4		3.9	0.0			0.5	
Delay (s)	18.6	20.7	18.1	20.6	20.3		18.4	10.1			27.3	
Level of Service	B	C	B	C	C		B	B			C	
Approach Delay (s)		20.4			20.4			17.8			27.3	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	14.3
Intersection Capacity Utilization	64.4%	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)	59	461	41	78	402	4	281	29	21	3	54	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	0.94			0.93	
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	1746			1734	
Flt Permitted	0.40	1.00	1.00	0.40	1.00		0.95	1.00			1.00	
Satd. Flow (perm)	749	3539	1583	753	3534		1770	1746			1734	
Peak-hour factor, PHF	0.88	0.88	0.88	0.77	0.77	0.77	0.81	0.81	0.81	0.58	0.58	0.58
Adj. Flow (vph)	67	524	47	101	522	5	347	36	26	5	93	100
RTOR Reduction (vph)	0	0	33	0	1	0	0	18	0	0	44	0
Lane Group Flow (vph)	67	524	14	101	526	0	347	44	0	0	154	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)	18.3	18.3	18.3	18.3	18.3		19.5	19.5			10.6	
Effective Green, g (s)	18.3	18.3	18.3	18.3	18.3		19.5	19.5			10.6	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.31	0.31			0.17	
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)	219	1033	462	220	1031		550	543			293	
v/s Ratio Prot		0.15			c0.15		c0.20	0.03			c0.09	
v/s Ratio Perm	0.09		0.01	0.13								
v/c Ratio	0.31	0.51	0.03	0.46	0.51		0.63	0.08			0.53	
Uniform Delay, d1	17.3	18.5	15.9	18.2	18.5		18.5	15.3			23.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.1	0.5	0.0	2.1	0.6		2.7	0.1			0.8	
Delay (s)	18.3	19.0	15.9	20.2	19.0		21.2	15.4			24.5	
Level of Service	B	B	B	C	B		C	B			C	
Approach Delay (s)		18.7			19.2			20.3			24.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	14.3
Intersection Capacity Utilization	58.3%	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)	72	95	69	194	137	45	59	567	146	46	590	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	1794		1770	3430		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	1794		1770	3430		1770	3539	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.98	0.98	0.98	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	79	104	76	198	140	46	71	683	176	55	711	106
RTOR Reduction (vph)	0	29	0	0	12	0	0	22	0	0	0	72
Lane Group Flow (vph)	79	151	0	198	174	0	71	837	0	55	711	34
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	5.7	12.2		11.7	18.2		5.4	24.0		3.8	22.4	22.4
Effective Green, g (s)	5.7	12.2		11.7	18.2		5.4	24.0		3.8	22.4	22.4
Actuated g/C Ratio	0.08	0.17		0.17	0.26		0.08	0.34		0.05	0.32	0.32
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)	144	303		295	464		136	1171		96	1128	504
v/s Ratio Prot	0.04	c0.09		c0.11	0.10		c0.04	c0.24		0.03	0.20	
v/s Ratio Perm												0.02
v/c Ratio	0.55	0.50		0.67	0.38		0.52	0.72		0.57	0.63	0.07
Uniform Delay, d1	31.1	26.3		27.5	21.4		31.2	20.2		32.5	20.4	16.7
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	0.5		4.7	0.2		1.7	1.8		5.0	0.8	0.0
Delay (s)	33.3	26.8		32.2	21.6		32.9	21.9		37.5	21.3	16.7
Level of Service	C	C		C	C		C	C		D	C	B
Approach Delay (s)		28.8			27.0			22.8			21.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	13.3
Intersection Capacity Utilization	59.1%	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	207	69	105	175	39	77	644	126	56	594	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	0.98		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)	1770	1793		1770	1812		1770	3452		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	1793		1770	1812		1770	3452		1770	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.86	0.86	0.86	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	147	220	73	122	203	45	88	732	143	64	675	198
RTOR Reduction (vph)	0	12	0	0	8	0	0	16	0	0	0	136
Lane Group Flow (vph)	147	281	0	122	240	0	88	859	0	64	675	62
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	9.9	20.5		7.2	17.8		6.1	24.7		5.3	23.9	23.9
Effective Green, g (s)	9.9	20.5		7.2	17.8		6.1	24.7		5.3	23.9	23.9
Actuated g/C Ratio	0.13	0.27		0.09	0.23		0.08	0.32		0.07	0.31	0.31
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)	230	482		167	423		142	1117		123	1109	496
v/s Ratio Prot	c0.08	c0.16		0.07	0.13		c0.05	c0.25		0.04	0.19	
v/s Ratio Perm												0.04
v/c Ratio	0.64	0.58		0.73	0.57		0.62	0.77		0.52	0.61	0.13
Uniform Delay, d1	31.5	24.2		33.6	25.8		34.0	23.2		34.3	22.2	18.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.2	1.2		13.2	1.0		5.6	2.9		1.8	0.7	0.0
Delay (s)	35.7	25.4		46.8	26.9		39.5	26.2		36.1	22.9	18.8
Level of Service	D	C		D	C		D	C		D	C	B
Approach Delay (s)		28.8			33.4			27.4			22.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	13.3
Intersection Capacity Utilization	61.6%	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)	55	110	16	53	84	35	21	609	43	27	248	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	0.98		1.00	0.96		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	1827		1770	1780		1770	3504		1770	3494	
Flt Permitted	0.67	1.00		0.64	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1241	1827		1193	1780		1770	3504		1770	3494	
Peak-hour factor, PHF	0.68	0.68	0.68	0.84	0.84	0.84	0.69	0.69	0.69	0.92	0.92	0.92
Adj. Flow (vph)	81	162	24	63	100	42	30	883	62	29	270	25
RTOR Reduction (vph)	0	5	0	0	14	0	0	4	0	0	5	0
Lane Group Flow (vph)	81	181	0	63	128	0	30	941	0	29	290	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	10.9	10.9		10.9	10.9		1.7	19.5		1.7	19.5	
Effective Green, g (s)	10.9	10.9		10.9	10.9		1.7	19.5		1.7	19.5	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.04	0.43		0.04	0.43	
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)	296	436		285	425		66	1495		66	1491	
v/s Ratio Prot		c0.10			0.07		c0.02	c0.27		0.02	0.08	
v/s Ratio Perm	0.07			0.05								
v/c Ratio	0.27	0.42		0.22	0.30		0.45	0.63		0.44	0.19	
Uniform Delay, d1	14.2	14.7		14.0	14.3		21.5	10.3		21.5	8.2	
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	0.1		1.8	0.6		1.7	0.0	
Delay (s)	14.4	14.9		14.1	14.4		23.4	10.9		23.2	8.2	
Level of Service	B	B		B	B		C	B		C	A	
Approach Delay (s)		14.8			14.3			11.3			9.6	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	45.7	Sum of lost time (s)	13.6
Intersection Capacity Utilization	45.8%	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)	30	75	29	58	98	34	31	503	23	30	788	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	0.96		1.00	0.96		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	1785		1770	1791		1770	3516		1770	3513	
Flt Permitted	0.65	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1204	1785		1244	1791		1770	3516		1770	3513	
Peak-hour factor, PHF	0.74	0.74	0.74	0.75	0.75	0.75	0.88	0.88	0.88	0.80	0.80	0.80
Adj. Flow (vph)	41	101	39	77	131	45	35	572	26	38	985	52
RTOR Reduction (vph)	0	12	0	0	12	0	0	2	0	0	3	0
Lane Group Flow (vph)	41	128	0	77	164	0	35	596	0	38	1034	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	10.7	10.7		10.7	10.7		1.9	20.6		3.0	21.7	
Effective Green, g (s)	10.7	10.7		10.7	10.7		1.9	20.6		3.0	21.7	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.04	0.43		0.06	0.45	
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)	269	399		278	400		70	1512		111	1591	
v/s Ratio Prot		0.07			c0.09		0.02	0.17		c0.02	c0.29	
v/s Ratio Perm	0.03			0.06								
v/c Ratio	0.15	0.32		0.28	0.41		0.50	0.39		0.34	0.65	
Uniform Delay, d1	15.0	15.6		15.4	15.9		22.5	9.4		21.5	10.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.2	0.3		2.0	0.1		0.7	0.7	
Delay (s)	15.1	15.7		15.6	16.2		24.6	9.4		22.2	10.9	
Level of Service	B	B		B	B		C	A		C	B	
Approach Delay (s)		15.6			16.0			10.3			11.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	8.6
Intersection Capacity Utilization	49.8%	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)	20	58	21	32	65	28	17	210	22	25	231	22
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	1836		1770	1838	
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	0.61	1.00		0.61	1.00	
Satd. Flow (perm)	1863	1863	1583	1863	1863	1583	1129	1836		1129	1838	
Peak-hour factor, PHF	0.88	0.88	0.88	0.82	0.82	0.82	0.93	0.93	0.93	0.85	0.85	0.85
Adj. Flow (vph)	23	66	24	39	79	34	18	226	24	29	272	26
RTOR Reduction (vph)	0	0	20	0	0	29	0	6	0	0	5	0
Lane Group Flow (vph)	23	66	4	39	79	5	18	244	0	29	293	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	6.6	6.6		6.6	6.6	
Effective Green, g (s)	2.9	2.9	2.9	2.9	2.9	2.9	6.6	6.6		6.6	6.6	
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15	0.15	0.35	0.35		0.35	0.35	
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)	286	286	243	286	286	243	394	641		394	642	
v/s Ratio Prot		0.04			c0.04			0.13			c0.16	
v/s Ratio Perm	0.01		0.00	0.02		0.00	0.02			0.03		
v/c Ratio	0.08	0.23	0.02	0.14	0.28	0.02	0.05	0.38		0.07	0.46	
Uniform Delay, d1	6.9	7.0	6.8	6.9	7.1	6.8	4.1	4.6		4.1	4.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.2	0.0	0.1	0.2	0.0	0.0	0.1		0.0	0.2	
Delay (s)	6.9	7.2	6.8	7.0	7.3	6.8	4.1	4.8		4.1	4.9	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		7.0			7.1			4.7			4.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	18.9	Sum of lost time (s)	9.4
Intersection Capacity Utilization	37.0%	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)	22	104	18	34	125	20	19	87	40	32	149	33
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	0.95		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)	1770	1863	1583	1770	1863	1583	1770	1774		1770	1812	
Flt Permitted	0.80	1.00	1.00	0.80	1.00	1.00	0.66	1.00		0.66	1.00	
Satd. Flow (perm)	1490	1863	1583	1490	1863	1583	1221	1774		1221	1812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.83	0.83	0.83	0.79	0.79	0.79	0.70	0.70	0.70
Adj. Flow (vph)	24	113	20	41	151	24	24	110	51	46	213	47
RTOR Reduction (vph)	0	0	15	0	0	18	0	26	0	0	13	0
Lane Group Flow (vph)	24	113	5	41	151	6	24	135	0	46	247	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)	5.0	5.0	5.0	5.0	5.0	5.0	6.1	6.1		6.1	6.1	
Effective Green, g (s)	5.0	5.0	5.0	5.0	5.0	5.0	6.1	6.1		6.1	6.1	
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.24	0.24	0.30	0.30		0.30	0.30	
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)	363	454	386	363	454	386	363	528		363	539	
v/s Ratio Prot		0.06			c0.08			0.08			c0.14	
v/s Ratio Perm	0.02		0.00	0.03		0.00	0.02			0.04		
v/c Ratio	0.07	0.25	0.01	0.11	0.33	0.02	0.07	0.26		0.13	0.46	
Uniform Delay, d1	6.0	6.2	5.9	6.0	6.4	5.9	5.2	5.5		5.3	5.9	
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	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.1		0.1	0.2	
Delay (s)	6.0	6.3	5.9	6.1	6.5	5.9	5.2	5.6		5.3	6.1	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		6.2			6.4			5.5			6.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	20.5	Sum of lost time (s)	9.4
Intersection Capacity Utilization	38.8%	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)	55	69	54	33	57	21	66	1518	38	39	1022	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			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1740			1788		1770	5066		1770	5018	
Flt Permitted	0.79	1.00			0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1478	1740			1544		1770	5066		1770	5018	
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.80	0.80	0.80	0.74	0.74	0.74
Adj. Flow (vph)	62	78	61	34	59	22	82	1898	48	53	1381	134
RTOR Reduction (vph)	0	46	0	0	14	0	0	3	0	0	12	0
Lane Group Flow (vph)	62	93	0	0	101	0	82	1943	0	53	1503	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	6.2	6.2			6.5		4.2	27.2		3.6	26.6	
Effective Green, g (s)	6.2	6.2			6.5		4.2	27.2		3.6	26.6	
Actuated g/C Ratio	0.12	0.12			0.13		0.08	0.54		0.07	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)	183	215			200		148	2750		127	2664	
v/s Ratio Prot		0.05					c0.05	c0.38		0.03	0.30	
v/s Ratio Perm	0.04				c0.07							
v/c Ratio	0.34	0.43			0.51		0.55	0.71		0.42	0.56	
Uniform Delay, d1	20.1	20.3			20.3		22.1	8.5		22.2	7.9	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.5			0.7		2.5	1.2		0.8	0.5	
Delay (s)	20.5	20.8			21.0		24.6	9.7		23.1	8.4	
Level of Service	C	C			C		C	A		C	A	
Approach Delay (s)		20.7			21.0			10.3			8.9	
Approach LOS		C			C			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)	50.1	Sum of lost time (s)	7.9
Intersection Capacity Utilization	63.4%	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)	77	91	36	61	54	33	74	1105	37	86	1506	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			0.97		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	1784			1770		1770	5060		1770	5052	
Flt Permitted	0.63	1.00			0.80		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1169	1784			1438		1770	5060		1770	5052	
Peak-hour factor, PHF	0.81	0.81	0.81	0.90	0.90	0.90	0.96	0.96	0.96	0.82	0.82	0.82
Adj. Flow (vph)	95	112	44	68	60	37	77	1151	39	105	1837	85
RTOR Reduction (vph)	0	23	0	0	16	0	0	4	0	0	5	0
Lane Group Flow (vph)	95	133	0	0	149	0	77	1186	0	105	1917	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	7.1	7.1			7.4		4.4	27.6		6.2	29.4	
Effective Green, g (s)	7.1	7.1			7.4		4.4	27.6		6.2	29.4	
Actuated g/C Ratio	0.13	0.13			0.14		0.08	0.51		0.11	0.54	
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)	154	235			197		144	2586		203	2751	
v/s Ratio Prot		0.07					0.04	0.23		c0.06	c0.38	
v/s Ratio Perm	0.08				c0.10							
v/c Ratio	0.62	0.57			0.75		0.53	0.46		0.52	0.70	
Uniform Delay, d1	22.2	22.0			22.4		23.8	8.4		22.5	9.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	1.9			13.5		1.9	0.3		0.9	1.1	
Delay (s)	27.2	23.9			35.9		25.7	8.8		23.4	10.2	
Level of Service	C	C			D		C	A		C	B	
Approach Delay (s)		25.2			35.9			9.8			10.8	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	65.5%	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)	6	26	5	21	26	28	2	707	27	18	287	8
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	0.92		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	1818		1770	1719		1770	3519		1770	3525	
Flt Permitted	0.83	1.00		0.83	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1552	1818		1552	1719		1770	3519		1770	3525	
Peak-hour factor, PHF	0.62	0.62	0.62	0.75	0.75	0.75	0.70	0.70	0.70	0.87	0.87	0.87
Adj. Flow (vph)	10	42	8	28	35	37	3	1010	39	21	330	9
RTOR Reduction (vph)	0	7	0	0	32	0	0	2	0	0	2	0
Lane Group Flow (vph)	10	43	0	28	40	0	3	1047	0	21	337	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	4.8	4.8		4.8	4.8		2.4	18.1		0.7	16.4	
Effective Green, g (s)	4.8	4.8		4.8	4.8		2.4	18.1		0.7	16.4	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.06	0.49		0.02	0.44	
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)	200	235		200	222		114	1712		33	1554	
v/s Ratio Prot		c0.02			0.02		0.00	c0.30		0.01	c0.10	
v/s Ratio Perm	0.01			0.02								
v/c Ratio	0.05	0.18		0.14	0.18		0.03	0.61		0.64	0.22	
Uniform Delay, d1	14.2	14.5		14.4	14.4		16.3	7.0		18.1	6.4	
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		0.1	0.1		0.0	0.5		25.9	0.0	
Delay (s)	14.2	14.6		14.5	14.6		16.3	7.4		44.0	6.5	
Level of Service	B	B		B	B		B	A		D	A	
Approach Delay (s)		14.5			14.6			7.5			8.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	37.2	Sum of lost time (s)	14.6
Intersection Capacity Utilization	36.2%	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)	11	38	18	58	27	28	15	608	27	20	715	10
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	0.92		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	1772		1770	1721		1770	3517		1770	3532	
Flt Permitted	0.71	1.00		0.71	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1324	1772		1317	1721		1770	3517		1770	3532	
Peak-hour factor, PHF	0.73	0.73	0.73	0.78	0.78	0.78	0.84	0.84	0.84	0.79	0.79	0.79
Adj. Flow (vph)	15	52	25	74	35	36	18	724	32	25	905	13
RTOR Reduction (vph)	0	17	0	0	30	0	0	2	0	0	1	0
Lane Group Flow (vph)	15	60	0	74	41	0	18	754	0	25	917	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	5.9	5.9		5.9	5.9		0.7	17.2		0.7	17.2	
Effective Green, g (s)	5.9	5.9		5.9	5.9		0.7	17.2		0.7	17.2	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.02	0.46		0.02	0.46	
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)	209	280		208	271		33	1617		33	1624	
v/s Ratio Prot		0.03			0.02		c0.01	0.21		0.01	c0.26	
v/s Ratio Perm	0.01			c0.06								
v/c Ratio	0.07	0.21		0.36	0.15		0.55	0.47		0.76	0.56	
Uniform Delay, d1	13.4	13.7		14.1	13.6		18.2	6.9		18.3	7.4	
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		0.4	0.1		9.5	0.1		59.5	0.3	
Delay (s)	13.5	13.9		14.4	13.7		27.7	7.0		77.8	7.6	
Level of Service	B	B		B	B		C	A		E	A	
Approach Delay (s)		13.8			14.1			7.5			9.5	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	37.4	Sum of lost time (s)	13.6
Intersection Capacity Utilization	38.0%	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												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	16	35	3	9	46	14	13	175	11	13	174	2
Peak Hour Factor	0.75	0.75	0.75	0.82	0.82	0.82	0.71	0.71	0.71	0.76	0.76	0.76
Hourly flow rate (vph)	21	47	4	11	56	17	18	246	15	17	229	3

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	72	84	18	262	17	232
Volume Left (vph)	21	11	18	0	17	0
Volume Right (vph)	4	17	0	15	0	3
Hadj (s)	0.06	-0.06	0.53	-0.01	0.53	0.03
Departure Headway (s)	5.4	5.2	5.7	5.2	5.8	5.2
Degree Utilization, x	0.11	0.12	0.03	0.38	0.03	0.34
Capacity (veh/h)	599	615	605	672	599	663
Control Delay (s)	9.0	9.0	7.7	10.1	7.7	9.7
Approach Delay (s)	9.0	9.0	9.9		9.5	
Approach LOS	A	A	A		A	

Intersection Summary			
Delay	9.6		
HCM Level of Service	A		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	58	21	32	65	28	17	210	22	25	231	22
Peak Hour Factor	0.88	0.88	0.88	0.82	0.82	0.82	0.93	0.93	0.93	0.85	0.85	0.85
Hourly flow rate (vph)	23	66	24	39	79	34	18	226	24	29	272	26

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	112	152	18	249	29	298
Volume Left (vph)	23	39	18	0	29	0
Volume Right (vph)	24	34	0	24	0	26
Hadj (s)	-0.05	-0.05	0.53	-0.03	0.53	-0.03
Departure Headway (s)	5.7	5.6	6.2	5.7	6.2	5.6
Degree Utilization, x	0.18	0.24	0.03	0.39	0.05	0.46
Capacity (veh/h)	560	577	547	604	555	618
Control Delay (s)	9.9	10.4	8.3	11.1	8.3	12.2
Approach Delay (s)	9.9	10.4	10.9		11.8	
Approach LOS	A	B	B		B	

Intersection Summary			
Delay	11.0		
HCM Level of Service	B		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	1128	58	116	919	194	78	61	273	264	142	758
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	0.90	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	5048		1770	5085	1583	1770	1863	2787	1770	1586	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	5048		1770	5085	1583	1770	1863	2787	1770	1586	1504
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.90	0.90	0.90	0.85	0.85	0.85
Adj. Flow (vph)	139	1376	71	132	1044	220	87	68	303	311	167	892
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	259	0	84	382
Lane Group Flow (vph)	139	1441	0	132	1044	220	87	68	44	311	458	135
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)	10.0	25.8		10.0	25.8	84.0	12.1	12.1	12.1	19.1	19.1	19.1
Effective Green, g (s)	10.0	25.8		10.0	25.8	84.0	12.1	12.1	12.1	19.1	19.1	19.1
Actuated g/C Ratio	0.12	0.31		0.12	0.31	1.00	0.14	0.14	0.14	0.23	0.23	0.23
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)	211	1550		211	1562	1583	255	268	401	402	361	342
v/s Ratio Prot	0.08	c0.29		0.07	c0.21		c0.05	0.04		0.18	c0.29	
v/s Ratio Perm						0.14			0.02			0.09
v/c Ratio	0.66	0.93		0.63	0.67	0.14	0.34	0.25	0.11	0.77	1.27	0.39
Uniform Delay, d1	35.4	28.2		35.2	25.4	0.0	32.4	31.9	31.3	30.4	32.4	27.5
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	5.6	10.3		4.1	1.3	0.2	1.4	0.9	0.2	12.1	140.8	2.7
Delay (s)	40.9	38.6		39.3	26.7	0.2	33.7	32.8	31.5	42.5	173.3	30.2
Level of Service	D	D		D	C	A	C	C	C	D	F	C
Approach Delay (s)		38.8			23.7			32.1			89.6	
Approach LOS		D			C			C			F	

Intersection Summary			
HCM Average Control Delay	48.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	71.9%	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)	266	1434	108	188	1143	571	74	51	216	241	207	675
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	5032		1770	5085	1583	1770	1863	2787	1770	1624	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	5032		1770	5085	1583	1770	1863	2787	1770	1624	1504
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91	0.80	0.80	0.80	0.91	0.91	0.91
Adj. Flow (vph)	280	1509	114	207	1256	627	92	64	270	265	227	742
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	231	0	46	365
Lane Group Flow (vph)	280	1614	0	207	1256	627	92	64	39	265	456	102
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)	12.3	25.8		12.3	25.8	86.6	12.5	12.5	12.5	19.0	19.0	19.0
Effective Green, g (s)	12.3	25.8		12.3	25.8	86.6	12.5	12.5	12.5	19.0	19.0	19.0
Actuated g/C Ratio	0.14	0.30		0.14	0.30	1.00	0.14	0.14	0.14	0.22	0.22	0.22
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)	251	1499		251	1515	1583	255	269	402	388	356	330
v/s Ratio Prot	0.16	c0.32		0.12	c0.25		0.05	0.03		0.15	c0.28	
v/s Ratio Perm						c0.40			0.01			0.07
v/c Ratio	1.12	1.08		0.82	0.83	0.40	0.36	0.24	0.10	0.68	1.28	0.31
Uniform Delay, d1	37.2	30.4		36.1	28.3	0.0	33.4	32.8	32.2	31.0	33.8	28.3
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	91.4	46.9		18.5	4.3	0.7	1.5	0.8	0.2	8.6	146.3	1.9
Delay (s)	128.5	77.3		54.6	32.6	0.7	34.9	33.6	32.3	39.6	180.1	30.3
Level of Service	F	E		D	C	A	C	C	C	D	F	C
Approach Delay (s)		84.8			25.2			33.1			93.2	
Approach LOS		F			C			C			F	

Intersection Summary			
HCM Average Control Delay	60.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	86.6	Sum of lost time (s)	9.3
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1213	452	0	1004	12	479	16	653	17	0	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			5.3	5.3	4.6	4.6	4.6	3.7		3.7
Lane Util. Factor	1.00	0.91			0.91	1.00	0.95	0.95	1.00	1.00		1.00
Frt	1.00	0.96			1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	4878			5085	1583	1681	1691	1583	1770		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00	0.61		1.00
Satd. Flow (perm)	1770	4878			5085	1583	1681	1691	1583	1129		1583
Peak-hour factor, PHF	0.86	0.86	0.86	0.89	0.89	0.89	0.76	0.76	0.76	0.75	0.75	0.75
Adj. Flow (vph)	12	1410	526	0	1128	13	630	21	859	23	0	37
RTOR Reduction (vph)	0	45	0	0	0	4	0	0	253	0	0	35
Lane Group Flow (vph)	12	1891	0	0	1128	9	328	323	606	23	0	2
Turn Type	Prot					Prot	Split		Perm	custom		custom
Protected Phases	5	2			6	6	3	3				
Permitted Phases									3	4		4
Actuated Green, G (s)	1.3	58.3			52.9	52.9	25.5	25.5	25.5	6.6		6.6
Effective Green, g (s)	1.3	58.3			52.9	52.9	25.5	25.5	25.5	6.6		6.6
Actuated g/C Ratio	0.01	0.56			0.51	0.51	0.25	0.25	0.25	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)	22	2745			2596	808	414	416	390	72		101
v/s Ratio Prot	0.01	c0.39			0.22	0.01	0.20	0.19				
v/s Ratio Perm									c0.38	c0.02		0.00
v/c Ratio	0.55	0.69			0.43	0.01	0.79	0.78	1.55	0.32		0.02
Uniform Delay, d1	50.9	16.2			15.9	12.5	36.6	36.4	39.0	46.4		45.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	14.0	1.0			0.2	0.0	11.4	10.2	261.2	0.9		0.0
Delay (s)	64.8	17.1			16.1	12.5	48.0	46.6	300.3	47.3		45.5
Level of Service	E	B			B	B	D	D	F	D		D
Approach Delay (s)		17.4			16.1			191.2			46.2	
Approach LOS		B			B			F			D	

Intersection Summary			
HCM Average Control Delay	73.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	103.6	Sum of lost time (s)	13.2
Intersection Capacity Utilization	88.6%	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)	69	1127	686	0	1797	31	301	9	334	18	0	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			5.3	5.3	4.6	4.6	4.6	3.7		3.7
Lane Util. Factor	1.00	0.91			0.91	1.00	0.95	0.95	1.00	1.00		1.00
Frt	1.00	0.94			1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	4797			5085	1583	1681	1690	1583	1770		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00	0.66		1.00
Satd. Flow (perm)	1770	4797			5085	1583	1681	1690	1583	1221		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.86	0.86	0.86	0.91	0.91	0.91	0.93	0.93	0.93
Adj. Flow (vph)	73	1186	722	0	2090	36	331	10	367	19	0	65
RTOR Reduction (vph)	0	69	0	0	0	6	0	0	281	0	0	61
Lane Group Flow (vph)	73	1839	0	0	2090	30	169	172	86	19	0	4
Turn Type	Prot					Prot	Split		Perm	custom		custom
Protected Phases	5	2			6	6	3	3				
Permitted Phases									3	4		4
Actuated Green, G (s)	7.1	56.6			45.4	45.4	19.7	19.7	19.7	6.1		6.1
Effective Green, g (s)	7.1	56.6			45.4	45.4	19.7	19.7	19.7	6.1		6.1
Actuated g/C Ratio	0.07	0.59			0.47	0.47	0.21	0.21	0.21	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)	131	2840			2415	752	346	348	326	78		101
v/s Ratio Prot	0.04	c0.38			c0.41	0.02	0.10	c0.10				
v/s Ratio Perm									0.05	c0.02		0.00
v/c Ratio	0.56	0.65			0.87	0.04	0.49	0.49	0.26	0.24		0.04
Uniform Delay, d1	42.7	12.9			22.4	13.4	33.5	33.5	31.9	42.6		42.0
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	2.9	0.7			3.7	0.0	2.3	2.3	0.9	0.6		0.1
Delay (s)	45.6	13.6			26.1	13.5	35.8	35.8	32.8	43.1		42.1
Level of Service	D	B			C	B	D	D	C	D		D
Approach Delay (s)		14.8			25.8			34.2			42.3	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	95.6	Sum of lost time (s)	18.5
Intersection Capacity Utilization	72.4%	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)	765	977	116	49	522	118	229	485	74	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	4984		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	4984		1770	3203	1441
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90	0.75	0.75	0.75	0.88	0.88	0.88
Adj. Flow (vph)	823	1051	125	54	580	131	305	647	99	102	239	309
RTOR Reduction (vph)	0	0	53	0	0	85	0	15	0	0	58	144
Lane Group Flow (vph)	823	1051	72	54	580	46	305	731	0	102	320	26
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)	15.7	35.9	35.9	4.6	24.8	24.8	21.0	21.0		14.9	14.9	14.9
Effective Green, g (s)	15.7	35.9	35.9	4.6	24.8	24.8	21.0	21.0		14.9	14.9	14.9
Actuated g/C Ratio	0.16	0.37	0.37	0.05	0.26	0.26	0.22	0.22		0.15	0.15	0.15
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)	559	1317	589	164	1307	407	747	1085		273	495	222
v/s Ratio Prot	c0.24	c0.30		0.02	c0.11		0.09	c0.15		0.06	c0.10	
v/s Ratio Perm			0.05			0.03						0.02
v/c Ratio	1.47	0.80	0.12	0.33	0.44	0.11	0.41	0.67		0.37	0.65	0.12
Uniform Delay, d1	40.4	27.1	19.9	44.5	30.1	27.4	32.4	34.6		36.6	38.3	35.1
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	222.1	3.2	0.0	0.4	0.1	0.0	0.1	1.3		0.3	2.2	0.1
Delay (s)	262.5	30.3	20.0	44.9	30.2	27.5	32.5	35.9		36.9	40.5	35.2
Level of Service	F	C	B	D	C	C	C	D		D	D	D
Approach Delay (s)		125.3			30.7			34.9			38.6	
Approach LOS		F			C			C			D	

Intersection Summary			
HCM Average Control Delay	75.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	15.2
Intersection Capacity Utilization	66.4%	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)	494	760	206	169	923	104	268	381	56	134	592	618
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	4987		1770	3240	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	4987		1770	3240	1441
Peak-hour factor, PHF	0.93	0.93	0.93	0.79	0.79	0.79	0.88	0.88	0.88	0.85	0.85	0.85
Adj. Flow (vph)	531	817	222	214	1168	132	305	433	64	158	696	727
RTOR Reduction (vph)	0	0	142	0	0	41	0	16	0	0	28	217
Lane Group Flow (vph)	531	817	80	214	1168	91	305	481	0	158	959	219
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)	15.4	32.6	32.6	16.1	33.3	33.3	17.4	17.4		34.8	34.8	34.8
Effective Green, g (s)	15.4	32.6	32.6	16.1	33.3	33.3	17.4	17.4		34.8	34.8	34.8
Actuated g/C Ratio	0.13	0.27	0.27	0.13	0.28	0.28	0.14	0.14		0.29	0.29	0.29
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)	437	953	426	457	1399	436	494	717		509	932	414
v/s Ratio Prot	c0.15	c0.23		0.06	c0.23		0.09	c0.10		0.09	c0.30	
v/s Ratio Perm			0.05			0.06						0.15
v/c Ratio	1.22	0.86	0.19	0.47	0.83	0.21	0.62	0.67		0.31	1.03	0.53
Uniform Delay, d1	52.8	42.0	34.0	48.5	41.3	33.7	48.7	49.1		33.7	43.1	36.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	116.2	7.4	0.1	0.3	4.3	0.1	1.6	1.9		0.1	37.0	0.7
Delay (s)	169.0	49.4	34.1	48.8	45.5	33.8	50.3	51.0		33.8	80.1	36.9
Level of Service	F	D	C	D	D	C	D	D		C	F	D
Approach Delay (s)		87.7			45.0			50.7			63.5	
Approach LOS		F			D			D			E	

Intersection Summary

HCM Average Control Delay	63.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	284	853	49	50	482	45	55	66	95	13	40	155
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	0.99		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	3510		1770	5020		1770	1698		1770	1640	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3510		1770	5020		1770	1698		1770	1640	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.81	0.81	0.81	0.75	0.75	0.75
Adj. Flow (vph)	330	992	57	58	560	52	68	81	117	17	53	207
RTOR Reduction (vph)	0	3	0	0	12	0	0	50	0	0	154	0
Lane Group Flow (vph)	330	1046	0	58	600	0	68	148	0	17	106	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	16.9	32.2		3.9	19.2		8.7	16.5		0.9	9.2	
Effective Green, g (s)	16.9	32.2		3.9	19.2		8.7	16.5		0.9	9.2	
Actuated g/C Ratio	0.24	0.45		0.05	0.27		0.12	0.23		0.01	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)	417	1574		96	1342		214	390		22	210	
v/s Ratio Prot	c0.19	c0.30		0.03	0.12		0.04	c0.09		0.01	c0.06	
v/s Ratio Perm												
v/c Ratio	0.79	0.66		0.60	0.45		0.32	0.38		0.77	0.50	
Uniform Delay, d1	25.8	15.6		33.2	21.9		28.8	23.3		35.3	29.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.2	0.8		7.2	0.1		0.3	0.2		87.1	0.7	
Delay (s)	35.0	16.4		40.3	22.0		29.2	23.6		122.5	29.9	
Level of Service	D	B		D	C		C	C		F	C	
Approach Delay (s)		20.8			23.6			25.0			35.5	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	8.5
Intersection Capacity Utilization	61.6%	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)	71	753	34	85	1101	10	18	11	57	3	25	54
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	0.87		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3516		1770	5078		1770	1629		1770	1671	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3516		1770	5078		1770	1629		1770	1671	
Peak-hour factor, PHF	0.91	0.91	0.91	0.78	0.78	0.78	0.80	0.80	0.80	0.71	0.71	0.71
Adj. Flow (vph)	78	827	37	109	1412	13	22	14	71	4	35	76
RTOR Reduction (vph)	0	3	0	0	1	0	0	63	0	0	69	0
Lane Group Flow (vph)	78	861	0	109	1424	0	22	22	0	4	42	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	5.4	24.8		5.9	25.3		2.8	6.5		0.8	5.0	
Effective Green, g (s)	5.4	24.8		5.9	25.3		2.8	6.5		0.8	5.0	
Actuated g/C Ratio	0.10	0.44		0.10	0.45		0.05	0.12		0.01	0.09	
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)	170	1549		185	2282		88	188		25	148	
v/s Ratio Prot	0.04	0.24		c0.06	c0.28		c0.01	c0.01		0.00	c0.02	
v/s Ratio Perm												
v/c Ratio	0.46	0.56		0.59	0.62		0.25	0.12		0.16	0.28	
Uniform Delay, d1	24.1	11.7		24.0	11.9		25.7	22.3		27.4	24.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		3.1	0.4		0.5	0.1		1.1	0.4	
Delay (s)	24.8	11.9		27.1	12.2		26.3	22.4		28.5	24.4	
Level of Service	C	B		C	B		C	C		C	C	
Approach Delay (s)		13.0			13.3			23.2			24.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	17.0
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1015	19	98	488	45	60
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)	5071		1770	5085	1683	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	5071		1770	5085	1683	
Peak-hour factor, PHF	0.83	0.83	0.85	0.85	0.77	0.77
Adj. Flow (vph)	1223	23	115	574	58	78
RTOR Reduction (vph)	1	0	0	0	50	0
Lane Group Flow (vph)	1245	0	115	574	86	0
Turn Type			Prot			
Protected Phases	2		1	6	4	
Permitted Phases						
Actuated Green, G (s)	31.0		6.6	41.6	8.3	
Effective Green, g (s)	31.0		6.6	41.6	8.3	
Actuated g/C Ratio	0.53		0.11	0.71	0.14	
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)	2669		198	3591	237	
v/s Ratio Prot	c0.25		c0.06	0.11	c0.05	
v/s Ratio Perm						
v/c Ratio	0.47		0.58	0.16	0.36	
Uniform Delay, d1	8.8		24.8	2.9	22.9	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.2		2.8	0.0	0.3	
Delay (s)	8.9		27.6	2.9	23.3	
Level of Service	A		C	A	C	
Approach Delay (s)	8.9			7.0	23.3	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	13.0
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	754	68	69	1104	35	55
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	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	5022		1770	5085	1676	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	5022		1770	5085	1676	
Peak-hour factor, PHF	0.94	0.94	0.90	0.90	0.83	0.83
Adj. Flow (vph)	802	72	77	1227	42	66
RTOR Reduction (vph)	7	0	0	0	58	0
Lane Group Flow (vph)	867	0	77	1227	50	0
Turn Type			Prot			
Protected Phases	2		1	6	4	
Permitted Phases						
Actuated Green, G (s)	21.4		3.5	28.9	4.9	
Effective Green, g (s)	21.4		3.5	28.9	4.9	
Actuated g/C Ratio	0.50		0.08	0.68	0.11	
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)	2511		145	3434	192	
v/s Ratio Prot	0.17		c0.04	c0.24	c0.03	
v/s Ratio Perm						
v/c Ratio	0.35		0.53	0.36	0.26	
Uniform Delay, d1	6.5		18.9	3.0	17.3	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.1		1.9	0.1	0.3	
Delay (s)	6.6		20.7	3.1	17.6	
Level of Service	A		C	A	B	
Approach Delay (s)	6.6			4.1	17.6	
Approach LOS	A			A	B	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	42.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.1%	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)	109	847	60	44	462	31	90	468	114	80	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	0.99		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	5035		1770	5037		1770	3435		1770	3365	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5035		1770	5037		1770	3435		1770	3365	
Peak-hour factor, PHF	0.84	0.84	0.84	0.82	0.82	0.82	0.82	0.82	0.82	0.67	0.67	0.67
Adj. Flow (vph)	130	1008	71	54	563	38	110	571	139	119	328	160
RTOR Reduction (vph)	0	7	0	0	8	0	0	25	0	0	70	0
Lane Group Flow (vph)	130	1072	0	54	593	0	110	685	0	119	418	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	13.9	25.9		4.5	16.5		12.0	21.4		7.3	16.7	
Effective Green, g (s)	13.9	25.9		4.5	16.5		12.0	21.4		7.3	16.7	
Actuated g/C Ratio	0.18	0.34		0.06	0.21		0.16	0.28		0.09	0.22	
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)	320	1696		104	1081		276	956		168	731	
v/s Ratio Prot	0.07	c0.21		0.03	c0.12		0.06	c0.20		c0.07	0.12	
v/s Ratio Perm												
v/c Ratio	0.41	0.63		0.52	0.55		0.40	0.72		0.71	0.57	
Uniform Delay, d1	27.9	21.5		35.1	26.9		29.2	25.0		33.8	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		1.8	0.3		0.3	2.2		10.6	0.7	
Delay (s)	28.2	22.1		37.0	27.2		29.5	27.2		44.4	27.6	
Level of Service	C	C		D	C		C	C		D	C	
Approach Delay (s)		22.7			28.0			27.5			30.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	18.7
Intersection Capacity Utilization	62.4%	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)	154	866	81	143	893	66	77	491	114	87	578	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	0.97		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	5020		1770	5033		1770	3439		1770	3453	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5020		1770	5033		1770	3439		1770	3453	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90	0.98	0.98	0.98
Adj. Flow (vph)	166	931	87	155	971	72	86	546	127	89	590	114
RTOR Reduction (vph)	0	10	0	0	8	0	0	23	0	0	18	0
Lane Group Flow (vph)	166	1008	0	155	1035	0	86	650	0	89	686	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	11.4	21.5		10.6	20.7		9.0	23.8		6.9	21.7	
Effective Green, g (s)	11.4	21.5		10.6	20.7		9.0	23.8		6.9	21.7	
Actuated g/C Ratio	0.14	0.27		0.13	0.26		0.11	0.30		0.09	0.27	
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)	250	1339		233	1293		198	1015		152	930	
v/s Ratio Prot	0.09	c0.20		0.09	c0.21		0.05	c0.19		0.05	c0.20	
v/s Ratio Perm												
v/c Ratio	0.66	0.75		0.67	0.80		0.43	0.64		0.59	0.74	
Uniform Delay, d1	32.8	27.1		33.3	28.0		33.4	24.7		35.5	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	2.2		5.5	3.4		0.6	1.0		3.7	2.7	
Delay (s)	37.9	29.3		38.8	31.5		34.0	25.7		39.1	29.5	
Level of Service	D	C		D	C		C	C		D	C	
Approach Delay (s)		30.5			32.4			26.7			30.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	30.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	9.8
Intersection Capacity Utilization	71.6%	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)	354	616	45	63	358	58	79	490	149	72	194	73
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	3503		3433	4979		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	3503		3433	4979		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.75	0.75	0.75	0.94	0.94	0.94	0.66	0.66	0.66	0.92	0.92	0.92
Adj. Flow (vph)	472	821	60	67	381	62	120	742	226	78	211	79
RTOR Reduction (vph)	0	3	0	0	18	0	0	0	62	0	0	69
Lane Group Flow (vph)	472	878	0	67	425	0	120	742	164	78	211	10
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)	22.6	31.8		4.4	13.6		23.4	27.7	27.7	6.6	10.9	10.9
Effective Green, g (s)	22.6	31.8		4.4	13.6		23.4	27.7	27.7	6.6	10.9	10.9
Actuated g/C Ratio	0.26	0.36		0.05	0.15		0.27	0.31	0.31	0.08	0.12	0.12
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)	882	1266		172	769		471	1114	498	133	438	196
v/s Ratio Prot	0.14	c0.25		0.02	c0.09		0.07	c0.21		c0.04	0.06	
v/s Ratio Perm									0.10			0.01
v/c Ratio	0.54	0.69		0.39	0.55		0.25	0.67	0.33	0.59	0.48	0.05
Uniform Delay, d1	28.2	23.9		40.5	34.4		25.4	26.1	23.0	39.4	35.9	34.0
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	1.3		0.5	0.5		0.1	1.2	0.1	4.2	0.3	0.0
Delay (s)	28.5	25.3		41.0	34.9		25.5	27.3	23.2	43.6	36.2	34.0
Level of Service	C	C		D	C		C	C	C	D	D	C
Approach Delay (s)		26.4			35.7			26.3			37.3	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	53.9%	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)	283	682	77	211	874	87	74	449	136	65	386	103
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	3485		3433	5016		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	3485		3433	5016		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.87	0.87	0.87	0.73	0.73	0.73	0.82	0.82	0.82	0.80	0.80	0.80
Adj. Flow (vph)	325	784	89	289	1197	119	90	548	166	81	482	129
RTOR Reduction (vph)	0	5	0	0	7	0	0	0	68	0	0	103
Lane Group Flow (vph)	325	868	0	289	1309	0	90	548	98	81	482	26
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)	14.1	36.2		13.0	35.1		11.8	24.6	24.6	7.3	20.1	20.1
Effective Green, g (s)	14.1	36.2		13.0	35.1		11.8	24.6	24.6	7.3	20.1	20.1
Actuated g/C Ratio	0.14	0.37		0.13	0.36		0.12	0.25	0.25	0.07	0.20	0.20
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)	491	1279		453	1786		212	883	395	131	721	323
v/s Ratio Prot	0.09	c0.25		0.08	c0.26		c0.05	c0.15		c0.05	0.14	
v/s Ratio Perm									0.06			0.02
v/c Ratio	0.66	0.68		0.64	0.73		0.42	0.62	0.25	0.62	0.67	0.08
Uniform Delay, d1	40.0	26.3		40.6	27.7		40.3	32.9	29.6	44.3	36.2	31.8
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	2.6	1.1		2.2	1.4		0.5	1.0	0.1	6.0	1.8	0.0
Delay (s)	42.6	27.4		42.7	29.0		40.8	33.8	29.7	50.3	38.0	31.8
Level of Service	D	C		D	C		D	C	C	D	D	C
Approach Delay (s)		31.5			31.5			33.8			38.3	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	33.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	98.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	57.9%	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)	35	635	5	17	459	11	4	2	1	6	6	14
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	0.94	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	5079		1770	5067		1770	1783		1770	1658	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	5079		1770	5067		1863	1783		1863	1658	1504
Peak-hour factor, PHF	0.72	0.72	0.72	0.92	0.92	0.92	0.44	0.44	0.44	0.54	0.54	0.54
Adj. Flow (vph)	49	882	7	18	499	12	9	5	2	11	11	26
RTOR Reduction (vph)	0	1	0	0	2	0	0	2	0	0	8	17
Lane Group Flow (vph)	49	888	0	18	509	0	9	5	0	11	11	1
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	1.5	13.9		0.6	13.0		1.3	1.3		1.3	1.3	1.3
Effective Green, g (s)	1.5	13.9		0.6	13.0		1.3	1.3		1.3	1.3	1.3
Actuated g/C Ratio	0.05	0.48		0.02	0.45		0.05	0.05		0.05	0.05	0.05
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)	93	2460		37	2295		84	81		84	75	68
v/s Ratio Prot	c0.03	c0.17		0.01	0.10			0.00			c0.01	
v/s Ratio Perm							0.00			0.01		0.00
v/c Ratio	0.53	0.36		0.49	0.22		0.11	0.06		0.13	0.15	0.01
Uniform Delay, d1	13.3	4.6		13.9	4.8		13.1	13.1		13.2	13.2	13.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	0.0		3.6	0.0		0.2	0.1		0.3	0.3	0.0
Delay (s)	15.7	4.7		17.5	4.8		13.3	13.2		13.4	13.5	13.1
Level of Service	B	A		B	A		B	B		B	B	B
Approach Delay (s)		5.2			5.2			13.3			13.3	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	28.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.4%	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)	51	790	10	12	825	13	1	34	11	7	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	0.99	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	5076		1770	5073		1770	1795		1770	1747	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	5076		1770	5073		1863	1795		1863	1747	1504
Peak-hour factor, PHF	0.88	0.88	0.88	0.89	0.89	0.89	0.82	0.82	0.82	0.56	0.56	0.56
Adj. Flow (vph)	58	898	11	13	927	15	1	41	13	12	43	41
RTOR Reduction (vph)	0	1	0	0	1	0	0	12	0	0	4	34
Lane Group Flow (vph)	58	908	0	13	941	0	1	42	0	12	43	3
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	2.7	18.8		0.6	16.7		2.7	2.7		2.7	2.7	2.7
Effective Green, g (s)	2.7	18.8		0.6	16.7		2.7	2.7		2.7	2.7	2.7
Actuated g/C Ratio	0.08	0.54		0.02	0.48		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)	137	2727		30	2421		144	138		144	135	116
v/s Ratio Prot	c0.03	0.18		0.01	c0.19			0.02			c0.02	
v/s Ratio Perm							0.00			0.01		0.00
v/c Ratio	0.42	0.33		0.43	0.39		0.01	0.30		0.08	0.32	0.02
Uniform Delay, d1	15.4	4.6		17.0	5.9		14.9	15.3		15.0	15.3	14.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0		3.6	0.0		0.0	0.5		0.1	0.5	0.0
Delay (s)	16.2	4.6		20.7	5.9		14.9	15.7		15.1	15.8	15.0
Level of Service	B	A		C	A		B	B		B	B	B
Approach Delay (s)		5.3			6.1			15.7			15.4	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	35.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	36.1%	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)	176	436	25	34	407	41	31	147	40	20	90	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	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5044		1770	5016		1770	1803		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	5044		1770	5016		1770	1803		1770	1863	1583
Peak-hour factor, PHF	0.71	0.71	0.71	0.87	0.87	0.87	0.84	0.84	0.84	0.72	0.72	0.72
Adj. Flow (vph)	248	614	35	39	468	47	37	175	48	28	125	76
RTOR Reduction (vph)	0	4	0	0	8	0	0	7	0	0	0	60
Lane Group Flow (vph)	248	645	0	39	507	0	37	216	0	28	125	16
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	8.4	19.7		3.1	14.4		3.1	13.1		1.9	11.9	11.9
Effective Green, g (s)	8.4	19.7		3.1	14.4		3.1	13.1		1.9	11.9	11.9
Actuated g/C Ratio	0.15	0.36		0.06	0.26		0.06	0.24		0.03	0.21	0.21
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)	521	1794		99	1304		99	426		61	400	340
v/s Ratio Prot	c0.07	c0.13		0.02	0.10		c0.02	c0.12		0.02	0.07	
v/s Ratio Perm												0.01
v/c Ratio	0.48	0.36		0.39	0.39		0.37	0.51		0.46	0.31	0.05
Uniform Delay, d1	21.5	13.2		25.2	16.9		25.2	18.4		26.2	18.3	17.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.0		0.9	0.1		0.9	0.3		2.0	0.2	0.0
Delay (s)	21.7	13.2		26.2	16.9		26.1	18.7		28.2	18.5	17.3
Level of Service	C	B		C	B		C	B		C	B	B
Approach Delay (s)		15.6			17.6			19.7			19.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	237	526	28	47	642	84	27	168	33	40	150	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	0.98		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	5046		1770	4997		1770	1816		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	5046		1770	4997		1770	1816		1770	1863	1583
Peak-hour factor, PHF	0.86	0.86	0.86	0.88	0.88	0.88	0.88	0.88	0.88	0.93	0.93	0.93
Adj. Flow (vph)	276	612	33	53	730	95	31	191	38	43	161	210
RTOR Reduction (vph)	0	4	0	0	11	0	0	5	0	0	0	163
Lane Group Flow (vph)	276	641	0	53	814	0	31	224	0	43	161	47
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	10.2	27.5		3.7	21.0		3.0	14.4		3.4	14.8	14.8
Effective Green, g (s)	10.2	27.5		3.7	21.0		3.0	14.4		3.4	14.8	14.8
Actuated g/C Ratio	0.15	0.41		0.06	0.32		0.05	0.22		0.05	0.22	0.22
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)	526	2084		98	1576		80	393		90	414	352
v/s Ratio Prot	c0.08	0.13		0.03	c0.16		0.02	c0.12		c0.02	0.09	
v/s Ratio Perm												0.03
v/c Ratio	0.52	0.31		0.54	0.52		0.39	0.57		0.48	0.39	0.13
Uniform Delay, d1	26.0	13.1		30.6	18.6		30.9	23.3		30.7	22.0	20.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0		3.2	0.1		1.1	1.2		1.5	0.2	0.1
Delay (s)	26.4	13.2		33.9	18.8		32.0	24.6		32.2	22.3	20.8
Level of Service	C	B		C	B		C	C		C	C	C
Approach Delay (s)		17.1			19.7			25.5			22.6	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	17.6
Intersection Capacity Utilization	49.9%	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)	195	276	61	160	278	128	93	1118	143	158	695	192
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	0.98		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	4948		3433	4845		1770	4999		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	4948		3433	4845		1770	4999		1770	5085	1583
Peak-hour factor, PHF	0.81	0.81	0.81	0.90	0.90	0.90	0.80	0.80	0.80	0.76	0.76	0.76
Adj. Flow (vph)	241	341	75	178	309	142	116	1398	179	208	914	253
RTOR Reduction (vph)	0	28	0	0	66	0	0	10	0	0	0	111
Lane Group Flow (vph)	241	388	0	178	385	0	116	1567	0	208	914	142
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	11.6	18.5		9.8	16.7		11.1	36.1		16.2	41.2	41.2
Effective Green, g (s)	11.6	18.5		9.8	16.7		11.1	36.1		16.2	41.2	41.2
Actuated g/C Ratio	0.12	0.19		0.10	0.17		0.11	0.37		0.16	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)	405	931		342	823		200	1836		292	2131	663
v/s Ratio Prot	c0.07	0.08		0.05	c0.08		0.07	c0.31		c0.12	0.18	
v/s Ratio Perm												0.09
v/c Ratio	0.60	0.42		0.52	0.47		0.58	0.85		0.71	0.43	0.21
Uniform Delay, d1	41.1	35.2		42.0	36.8		41.4	28.7		38.8	20.2	18.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	0.7		0.7	0.9		2.5	4.5		6.7	0.3	0.4
Delay (s)	42.7	35.8		42.7	37.7		43.9	33.2		45.5	20.5	18.6
Level of Service	D	D		D	D		D	C		D	C	B
Approach Delay (s)		38.3			39.1			33.9			24.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	17.7
Intersection Capacity Utilization	62.3%	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)	239	333	106	311	417	129	114	879	115	181	1138	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	4901		3433	4905		1770	4997		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	4901		3433	4905		1770	4997		1770	5085	1583
Peak-hour factor, PHF	0.81	0.81	0.81	0.86	0.86	0.86	0.91	0.91	0.91	0.79	0.79	0.79
Adj. Flow (vph)	295	411	131	362	485	150	125	966	126	229	1441	386
RTOR Reduction (vph)	0	44	0	0	41	0	0	12	0	0	0	115
Lane Group Flow (vph)	295	498	0	362	594	0	125	1080	0	229	1441	271
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	14.2	22.0		16.3	24.1		12.5	34.6		19.3	41.4	41.4
Effective Green, g (s)	14.2	22.0		16.3	24.1		12.5	34.6		19.3	41.4	41.4
Actuated g/C Ratio	0.13	0.20		0.15	0.22		0.11	0.31		0.18	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)	444	981		509	1076		201	1573		311	1916	596
v/s Ratio Prot	0.09	0.10		c0.11	c0.12		0.07	c0.22		0.13	c0.28	
v/s Ratio Perm												0.17
v/c Ratio	0.66	0.51		0.71	0.55		0.62	0.69		0.74	0.75	0.45
Uniform Delay, d1	45.6	39.1		44.6	38.1		46.4	32.9		42.9	29.8	25.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.9	0.9		3.9	1.1		4.3	1.7		7.6	2.1	1.2
Delay (s)	48.5	40.1		48.4	39.2		50.7	34.6		50.5	31.9	27.0
Level of Service	D	D		D	D		D	C		D	C	C
Approach Delay (s)		43.0			42.6			36.3			33.0	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	37.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	109.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	62.3%	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)	32	327	39	68	442	9	105	38	61	24	18	29
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	5005		1770	5071			1797	1583		1811	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	5005		1770	5071			1797	1583		1811	1583
Peak-hour factor, PHF	0.84	0.84	0.84	0.87	0.87	0.87	0.82	0.82	0.82	0.74	0.74	0.74
Adj. Flow (vph)	38	389	46	78	508	10	128	46	74	32	24	39
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	60	0	0	35
Lane Group Flow (vph)	38	425	0	78	517	0	0	174	14	0	56	4
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)	2.0	13.1		5.0	16.7			10.0	10.0		4.7	4.7
Effective Green, g (s)	2.0	13.1		5.0	16.7			10.0	10.0		4.7	4.7
Actuated g/C Ratio	0.04	0.25		0.10	0.32			0.19	0.19		0.09	0.09
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	1273		172	1644			349	307		165	144
v/s Ratio Prot	0.02	0.08		c0.04	c0.10			c0.10			c0.03	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.55	0.33		0.45	0.31			0.50	0.05		0.34	0.02
Uniform Delay, d1	24.3	15.6		22.0	13.1			18.5	16.9		21.9	21.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	5.3	0.1		0.7	0.0			0.4	0.0		0.4	0.0
Delay (s)	29.6	15.7		22.7	13.1			18.9	16.9		22.4	21.3
Level of Service	C	B		C	B			B	B		C	C
Approach Delay (s)		16.8			14.4			18.3			22.0	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	51.5	Sum of lost time (s)	18.7
Intersection Capacity Utilization	38.3%	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)	32	539	40	55	482	6	69	13	74	5	3	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	0.99		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	5032		1770	5076			1788	1583		1808	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	5032		1770	5076			1788	1583		1808	1583
Peak-hour factor, PHF	0.76	0.76	0.76	0.95	0.95	0.95	0.81	0.81	0.81	0.80	0.80	0.80
Adj. Flow (vph)	42	709	53	58	507	6	85	16	91	6	4	30
RTOR Reduction (vph)	0	5	0	0	1	0	0	0	79	0	0	29
Lane Group Flow (vph)	42	757	0	58	512	0	0	101	12	0	10	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)	2.7	16.1		3.0	17.0			6.0	6.0		2.2	2.2
Effective Green, g (s)	2.7	16.1		3.0	17.0			6.0	6.0		2.2	2.2
Actuated g/C Ratio	0.06	0.35		0.07	0.37			0.13	0.13		0.05	0.05
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)	104	1761		115	1876			233	206		86	76
v/s Ratio Prot	0.02	c0.15		c0.03	0.10			c0.06			c0.01	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.40	0.43		0.50	0.27			0.43	0.06		0.12	0.02
Uniform Delay, d1	20.9	11.4		20.8	10.2			18.4	17.5		21.0	20.9
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.1		1.3	0.0			0.5	0.0		0.2	0.0
Delay (s)	21.8	11.5		22.0	10.2			18.9	17.6		21.2	20.9
Level of Service	C	B		C	B			B	B		C	C
Approach Delay (s)		12.0			11.4			18.3			21.0	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	37.6%	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)	8	278	30	12	437	0	31	26	2	3	41	7
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	0.99		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	5012		1770	5085			1807			1857	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.97			1.00	1.00
Satd. Flow (perm)	1770	5012		1770	5085			1807			1857	1583
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.64	0.64	0.64	0.58	0.58	0.58
Adj. Flow (vph)	9	320	34	13	480	0	48	41	3	5	71	12
RTOR Reduction (vph)	0	14	0	0	0	0	0	2	0	0	0	11
Lane Group Flow (vph)	9	340	0	13	480	0	0	90	0	0	76	1
Turn Type	Prot			Prot			Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases												4
Actuated Green, G (s)	0.5	12.7		0.7	12.9			3.1			3.0	3.0
Effective Green, g (s)	0.5	12.7		0.7	12.9			3.1			3.0	3.0
Actuated g/C Ratio	0.01	0.35		0.02	0.35			0.08			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)	24	1744		34	1797			153			153	130
v/s Ratio Prot	0.01	0.07		c0.01	c0.09			c0.05			c0.04	
v/s Ratio Perm												0.00
v/c Ratio	0.38	0.20		0.38	0.27			0.59			0.50	0.01
Uniform Delay, d1	17.8	8.3		17.7	8.4			16.1			16.0	15.4
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	3.6	0.0		2.6	0.0			3.7			0.9	0.0
Delay (s)	21.4	8.3		20.3	8.5			19.8			17.0	15.4
Level of Service	C	A		C	A			B			B	B
Approach Delay (s)		8.7			8.8			19.8			16.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	36.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	29.3%	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)	27	473	90	25	412	9	69	29	30	6	28	42
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	0.98		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	4964		1770	5069			1756			1846	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.99	1.00
Satd. Flow (perm)	1770	4964		1770	5069			1756			1846	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.92	0.92	0.92	0.67	0.67	0.67	0.79	0.79	0.79
Adj. Flow (vph)	35	606	115	27	448	10	103	43	45	8	35	53
RTOR Reduction (vph)	0	30	0	0	3	0	0	12	0	0	0	49
Lane Group Flow (vph)	35	691	0	27	455	0	0	179	0	0	43	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)	1.1	15.0		1.6	15.5			6.9			3.0	3.0
Effective Green, g (s)	1.1	15.0		1.6	15.5			6.9			3.0	3.0
Actuated g/C Ratio	0.03	0.34		0.04	0.36			0.16			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)	45	1712		65	1806			279			127	109
v/s Ratio Prot	c0.02	c0.14		0.02	0.09			c0.10			c0.02	
v/s Ratio Perm												0.00
v/c Ratio	0.78	0.40		0.42	0.25			0.64			0.34	0.03
Uniform Delay, d1	21.1	10.8		20.5	9.9			17.1			19.3	18.9
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	53.1	0.1		1.6	0.0			3.8			0.6	0.0
Delay (s)	74.1	10.9		22.1	9.9			20.9			19.9	18.9
Level of Service	E	B		C	A			C			B	B
Approach Delay (s)		13.8			10.6			20.9			19.4	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	43.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	40.8%	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)	22	252	61	33	254	7	67	65	67	9	45	15
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	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4936		1770	5065		1770	1863	1583	1770	1794	
Flt Permitted	0.95	1.00		0.95	1.00		0.71	1.00	1.00	0.71	1.00	
Satd. Flow (perm)	1770	4936		1770	5065		1326	1863	1583	1314	1794	
Peak-hour factor, PHF	0.96	0.96	0.96	0.77	0.77	0.77	0.82	0.82	0.82	0.86	0.86	0.86
Adj. Flow (vph)	23	262	64	43	330	9	82	79	82	10	52	17
RTOR Reduction (vph)	0	36	0	0	3	0	0	0	67	0	11	0
Lane Group Flow (vph)	23	290	0	43	336	0	82	79	15	10	58	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)	0.7	11.0		0.8	11.1		5.9	5.9	5.9	5.9	5.9	
Effective Green, g (s)	0.7	11.0		0.8	11.1		5.9	5.9	5.9	5.9	5.9	
Actuated g/C Ratio	0.02	0.35		0.03	0.35		0.19	0.19	0.19	0.19	0.19	
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)	40	1735		45	1796		250	351	298	248	338	
v/s Ratio Prot	0.01	0.06		c0.02	c0.07			0.04			0.03	
v/s Ratio Perm							c0.06		0.01	0.01		
v/c Ratio	0.57	0.17		0.96	0.19		0.33	0.23	0.05	0.04	0.17	
Uniform Delay, d1	15.2	7.0		15.2	7.0		11.0	10.8	10.4	10.4	10.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.8	0.0		115.5	0.0		0.3	0.1	0.0	0.0	0.1	
Delay (s)	27.0	7.0		130.7	7.0		11.3	10.9	10.4	10.4	10.7	
Level of Service	C	A		F	A		B	B	B	B	B	
Approach Delay (s)		8.3			20.9			10.9			10.7	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	31.3	Sum of lost time (s)	8.6
Intersection Capacity Utilization	33.5%	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)	15	394	55	56	414	17	70	84	71	7	59	12
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	0.98		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	4992		1770	5055		1770	1863	1583	1770	1816	
Flt Permitted	0.95	1.00		0.95	1.00		0.70	1.00	1.00	0.70	1.00	
Satd. Flow (perm)	1770	4992		1770	5055		1295	1863	1583	1300	1816	
Peak-hour factor, PHF	0.96	0.96	0.96	0.64	0.64	0.64	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	16	410	57	88	647	27	76	91	77	9	79	16
RTOR Reduction (vph)	0	15	0	0	3	0	0	0	64	0	7	0
Lane Group Flow (vph)	16	452	0	88	671	0	76	91	13	9	88	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)	0.7	13.0		3.2	15.5		6.0	6.0	6.0	6.0	6.0	
Effective Green, g (s)	0.7	13.0		3.2	15.5		6.0	6.0	6.0	6.0	6.0	
Actuated g/C Ratio	0.02	0.36		0.09	0.43		0.17	0.17	0.17	0.17	0.17	
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)	35	1813		158	2189		217	312	265	218	304	
v/s Ratio Prot	0.01	0.09		c0.05	c0.13			0.05			0.05	
v/s Ratio Perm							c0.06		0.01	0.01		
v/c Ratio	0.46	0.25		0.56	0.31		0.35	0.29	0.05	0.04	0.29	
Uniform Delay, d1	17.4	8.0		15.6	6.6		13.2	13.0	12.5	12.5	13.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.4	0.0		2.4	0.0		0.4	0.2	0.0	0.0	0.2	
Delay (s)	20.8	8.0		18.0	6.7		13.5	13.2	12.5	12.5	13.2	
Level of Service	C	A		B	A		B	B	B	B	B	
Approach Delay (s)		8.4			8.0			13.1			13.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	35.8	Sum of lost time (s)	8.6
Intersection Capacity Utilization	34.0%	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)	173	67	52	40	78	79	86	683	29	72	593	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	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	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3308		3433	3272		3433	3518		3891	3394	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3308		3433	3272		3433	3518		3891	3394	
Peak-hour factor, PHF	0.86	0.86	0.86	0.95	0.95	0.95	0.87	0.87	0.87	0.93	0.93	0.93
Adj. Flow (vph)	201	78	60	42	82	83	99	785	33	77	638	241
RTOR Reduction (vph)	0	46	0	0	69	0	0	2	0	0	27	0
Lane Group Flow (vph)	201	92	0	42	96	0	99	816	0	77	852	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.4	16.7		3.5	11.8		5.3	24.9		4.7	24.3	
Effective Green, g (s)	8.4	16.7		3.5	11.8		5.3	24.9		4.7	24.3	
Actuated g/C Ratio	0.12	0.24		0.05	0.17		0.08	0.36		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)	411	788		171	551		260	1250		261	1177	
v/s Ratio Prot	c0.06	0.03		0.01	c0.03		c0.03	0.23		0.02	c0.25	
v/s Ratio Perm												
v/c Ratio	0.49	0.12		0.25	0.17		0.38	0.65		0.30	0.72	
Uniform Delay, d1	28.8	20.9		32.0	25.0		30.8	19.0		31.1	20.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.0		0.3	0.1		0.3	0.9		0.2	1.9	
Delay (s)	29.2	20.9		32.3	25.0		31.2	19.9		31.4	21.9	
Level of Service	C	C		C	C		C	B		C	C	
Approach Delay (s)		25.8			26.5			21.1			22.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	70.1	Sum of lost time (s)	20.3
Intersection Capacity Utilization	57.1%	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)	347	144	123	51	78	87	127	732	31	116	754	337
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	3294		3433	3259		3433	3518		3891	3375	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3294		3433	3259		3433	3518		3891	3375	
Peak-hour factor, PHF	0.85	0.85	0.85	0.82	0.82	0.82	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	408	169	145	62	95	106	143	822	35	126	820	366
RTOR Reduction (vph)	0	109	0	0	91	0	0	2	0	0	36	0
Lane Group Flow (vph)	408	205	0	62	110	0	143	855	0	126	1150	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.3	19.2		5.1	11.0		7.7	24.8		7.0	24.1	
Effective Green, g (s)	13.3	19.2		5.1	11.0		7.7	24.8		7.0	24.1	
Actuated g/C Ratio	0.17	0.25		0.07	0.14		0.10	0.32		0.09	0.32	
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)	598	828		229	469		346	1142		357	1065	
v/s Ratio Prot	c0.12	c0.06		0.02	0.03		c0.04	0.24		0.03	c0.34	
v/s Ratio Perm												
v/c Ratio	0.68	0.25		0.27	0.24		0.41	0.75		0.35	1.08	
Uniform Delay, d1	29.6	22.8		33.9	29.0		32.2	23.0		32.6	26.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.1		0.2	0.1		0.3	2.4		0.2	51.7	
Delay (s)	32.1	22.9		34.1	29.1		32.5	25.4		32.8	77.8	
Level of Service	C	C		C	C		C	C		C	E	
Approach Delay (s)		28.1			30.3			26.4			73.5	
Approach LOS		C			C			C			E	

Intersection Summary			
HCM Average Control Delay	45.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	14.3
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1	1	2	357	177	4
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	0.25	0.25	0.72	0.72	0.74	0.74
Adj. Flow (vph)	4	4	3	496	239	5
RTOR Reduction (vph)	0	4	0	0	0	3
Lane Group Flow (vph)	4	0	3	496	239	2
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	c0.14	0.07	
v/s Ratio Perm		0.00				0.00
v/c Ratio	0.11	0.00	0.08	0.22	0.15	0.00
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	0.5	0.0	0.4	0.0	0.0	0.0
Delay (s)	12.3	11.8	12.1	2.0	4.1	3.8
Level of Service	B	B	B	A	A	A
Approach Delay (s)	12.0			2.0	4.1	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	2.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	24.5	Sum of lost time (s)	8.6
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	20	9	18	455	395	23
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	0.60	0.60	0.86	0.86	0.81	0.81
Adj. Flow (vph)	33	15	21	529	488	28
RTOR Reduction (vph)	0	14	0	0	0	9
Lane Group Flow (vph)	33	1	21	529	488	19
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	1.4	1.4	0.6	16.1	11.5	11.5
Effective Green, g (s)	1.4	1.4	0.6	16.1	11.5	11.5
Actuated g/C Ratio	0.05	0.05	0.02	0.62	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)	95	85	41	2183	1559	697
v/s Ratio Prot	c0.02		0.01	c0.15	c0.14	
v/s Ratio Perm		0.00				0.01
v/c Ratio	0.35	0.01	0.51	0.24	0.31	0.03
Uniform Delay, d1	11.9	11.7	12.6	2.3	4.7	4.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0	4.4	0.0	0.0	0.0
Delay (s)	12.7	11.7	17.0	2.3	4.8	4.1
Level of Service	B	B	B	A	A	A
Approach Delay (s)	12.4			2.8	4.7	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	26.1	Sum of lost time (s)	13.2
Intersection Capacity Utilization	25.5%	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	0	2	133	0	18	11	1320	104	154	896	3
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		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt		0.85		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1794		1681	1905	1583	1770	5030		1770	5085	1583
Flt Permitted		1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1794		1681	1905	1583	1770	5030		1770	5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.67	0.67	0.67	0.76	0.76	0.76	0.73	0.73	0.73
Adj. Flow (vph)	0	0	8	199	0	27	14	1737	137	211	1227	4
RTOR Reduction (vph)	0	8	0	0	0	23	0	6	0	0	0	1
Lane Group Flow (vph)	0	0	0	99	100	4	14	1868	0	211	1227	3
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)		1.2		12.4	12.4	12.4	1.0	34.0		13.0	46.0	46.0
Effective Green, g (s)		1.2		12.4	12.4	12.4	1.0	34.0		13.0	46.0	46.0
Actuated g/C Ratio		0.02		0.16	0.16	0.16	0.01	0.44		0.17	0.60	0.60
Clearance Time (s)		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	2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)		28		270	306	255	23	2218		298	3034	944
v/s Ratio Prot		c0.00		c0.06	0.05		0.01	c0.37		c0.12	0.24	
v/s Ratio Perm						0.00						0.00
v/c Ratio		0.00		0.37	0.33	0.02	0.61	0.84		0.71	0.40	0.00
Uniform Delay, d1		37.4		28.8	28.7	27.2	37.9	19.2		30.3	8.3	6.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2		2.1	1.5	0.1	27.4	3.5		6.2	0.2	0.0
Delay (s)		37.5		30.9	30.2	27.3	65.2	22.6		36.4	8.5	6.3
Level of Service		D		C	C	C	E	C		D	A	A
Approach Delay (s)		37.5			30.2			22.9			12.5	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	16.5
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)	18	7	29	225	7	104	43	1209	10	35	1357	9
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	1856		1681	1916	1583	1770	5079		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	1856		1681	1916	1583	1770	5079		1770	5085	1583
Peak-hour factor, PHF	0.79	0.79	0.79	0.81	0.81	0.81	0.97	0.97	0.97	0.83	0.83	0.83
Adj. Flow (vph)	23	9	37	278	9	128	44	1246	10	42	1635	11
RTOR Reduction (vph)	0	35	0	0	0	101	0	1	0	0	0	2
Lane Group Flow (vph)	23	11	0	145	142	27	44	1255	0	42	1635	9
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)	4.9	4.9		15.6	15.6	15.6	3.8	32.2		3.8	32.2	32.2
Effective Green, g (s)	4.9	4.9		15.6	15.6	15.6	3.8	32.2		3.8	32.2	32.2
Actuated g/C Ratio	0.07	0.07		0.21	0.21	0.21	0.05	0.44		0.05	0.44	0.44
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)	119	125		359	409	338	92	2240		92	2243	698
v/s Ratio Prot	c0.01	0.01		c0.09	0.07		c0.02	0.25		0.02	c0.32	
v/s Ratio Perm						0.02						0.01
v/c Ratio	0.19	0.09		0.40	0.35	0.08	0.48	0.56		0.46	0.73	0.01
Uniform Delay, d1	32.2	32.0		24.7	24.4	23.0	33.6	15.1		33.6	16.8	11.5
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	1.9	0.8		1.8	1.3	0.3	1.4	0.6		1.3	1.5	0.0
Delay (s)	34.1	32.7		26.5	25.6	23.2	35.1	15.7		34.9	18.3	11.5
Level of Service	C	C		C	C	C	D	B		C	B	B
Approach Delay (s)		33.2			25.2			16.4			18.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1087	1023	135	133	387	42	401	624	420	96	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	0.77	0.77	0.77	0.70	0.70	0.70	0.65	0.65	0.65	0.73	0.73	0.73
Adj. Flow (vph)	1412	1329	175	190	553	60	617	960	646	132	360	567
RTOR Reduction (vph)	0	0	49	0	0	48	0	0	176	0	0	269
Lane Group Flow (vph)	1412	1329	126	190	553	12	617	960	470	132	360	298
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)	34.6	49.2	49.2	9.5	24.1	24.1	16.0	34.8	34.8	10.5	29.3	29.3
Effective Green, g (s)	34.6	49.2	49.2	9.5	24.1	24.1	16.0	34.8	34.8	10.5	29.3	29.3
Actuated g/C Ratio	0.28	0.40	0.40	0.08	0.20	0.20	0.13	0.28	0.28	0.09	0.24	0.24
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)	972	1425	637	267	698	312	449	1008	451	295	849	380
v/s Ratio Prot	c0.41	c0.38		0.06	0.16		c0.18	0.27		0.04	0.10	
v/s Ratio Perm			0.08			0.01			c0.30			c0.19
v/c Ratio	1.45	0.93	0.20	0.71	0.79	0.04	1.37	0.95	1.04	0.45	0.42	0.78
Uniform Delay, d1	43.8	34.9	23.7	55.0	46.7	39.7	53.1	42.9	43.7	53.1	39.3	43.5
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	209.5	11.2	0.1	7.2	5.7	0.0	182.0	17.8	53.8	0.4	0.1	9.4
Delay (s)	253.3	46.1	23.7	62.3	52.4	39.7	235.1	60.7	97.5	53.5	39.4	52.9
Level of Service	F	D	C	E	D	D	F	E	F	D	D	D
Approach Delay (s)		145.1			53.8			119.8			48.4	
Approach LOS		F			D			F			D	

Intersection Summary			
HCM Average Control Delay	111.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	12.9
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)	689	662	331	447	1028	69	283	603	224	46	706	545
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	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88	0.87	0.87	0.87
Adj. Flow (vph)	766	736	368	486	1117	75	322	685	255	53	811	626
RTOR Reduction (vph)	0	0	229	0	0	41	0	0	187	0	0	228
Lane Group Flow (vph)	766	736	139	486	1117	34	322	685	68	53	811	398
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)	26.1	34.1	34.1	27.1	35.1	35.1	14.0	34.3	34.3	14.0	34.3	34.3
Effective Green, g (s)	26.1	34.1	34.1	27.1	35.1	35.1	14.0	34.3	34.3	14.0	34.3	34.3
Actuated g/C Ratio	0.20	0.27	0.27	0.21	0.27	0.27	0.11	0.27	0.27	0.11	0.27	0.27
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)	702	945	423	729	973	435	376	951	425	376	951	425
v/s Ratio Prot	c0.22	0.21		0.14	c0.32		c0.09	0.19		0.02	0.23	
v/s Ratio Perm			0.09			0.02			0.04			c0.25
v/c Ratio	1.09	0.78	0.33	0.67	1.15	0.08	0.86	0.72	0.16	0.14	0.85	0.94
Uniform Delay, d1	50.8	43.3	37.6	46.2	46.3	34.3	55.9	42.3	35.7	51.4	44.3	45.6
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	61.5	3.7	0.2	1.8	78.7	0.0	16.6	2.3	0.1	0.1	7.2	27.6
Delay (s)	112.3	47.1	37.8	48.0	125.0	34.3	72.4	44.6	35.8	51.5	51.5	73.3
Level of Service	F	D	D	D	F	C	E	D	D	D	D	E
Approach Delay (s)		72.0			98.7			49.9			60.7	
Approach LOS		E			F			D			E	

Intersection Summary			
HCM Average Control Delay	72.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	127.7	Sum of lost time (s)	18.2
Intersection Capacity Utilization	90.8%	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)	95	1195	7	11	454	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	3489		1770	1857		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	3489		1770	1857		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.76	0.76	0.76	0.71	0.71	0.71	0.85	0.85	0.85
Adj. Flow (vph)	106	1328	8	14	597	62	23	48	1	98	91	76
RTOR Reduction (vph)	0	0	0	0	8	0	0	1	0	0	0	63
Lane Group Flow (vph)	106	1336	0	14	651	0	23	48	0	98	91	13
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	5.5	29.6		0.7	24.8		0.8	4.7		5.6	9.5	9.5
Effective Green, g (s)	5.5	29.6		0.7	24.8		0.8	4.7		5.6	9.5	9.5
Actuated g/C Ratio	0.10	0.52		0.01	0.44		0.01	0.08		0.10	0.17	0.17
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)	171	1843		22	1523		25	154		175	312	265
v/s Ratio Prot	c0.06	c0.38		0.01	0.19		0.01	0.03		c0.06	c0.05	
v/s Ratio Perm												0.01
v/c Ratio	0.62	0.72		0.64	0.43		0.92	0.31		0.56	0.29	0.05
Uniform Delay, d1	24.6	10.5		27.9	11.1		28.0	24.5		24.4	20.7	19.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.6	1.2		36.7	0.1		142.7	0.4		2.4	0.2	0.0
Delay (s)	29.3	11.7		64.6	11.2		170.7	25.0		26.9	20.9	19.9
Level of Service	C	B		E	B		F	C		C	C	B
Approach Delay (s)		13.0			12.3			71.5			22.8	
Approach LOS		B			B			E			C	

Intersection Summary			
HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	56.8	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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	660	18	37	947	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	3525		1770	3506		1770	1835		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	3525		1770	3506		1770	1835		1770	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.74	0.74	0.74	0.81	0.81	0.81
Adj. Flow (vph)	108	733	20	46	1184	78	107	127	14	225	79	121
RTOR Reduction (vph)	0	2	0	0	5	0	0	4	0	0	0	96
Lane Group Flow (vph)	108	751	0	46	1257	0	107	137	0	225	79	25
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	6.6	35.9		3.7	33.0		6.6	11.5		11.5	16.4	16.4
Effective Green, g (s)	6.6	35.9		3.7	33.0		6.6	11.5		11.5	16.4	16.4
Actuated g/C Ratio	0.08	0.46		0.05	0.42		0.08	0.15		0.15	0.21	0.21
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)	148	1606		83	1468		148	268		258	388	329
v/s Ratio Prot	c0.06	c0.21		0.03	c0.36		0.06	c0.07		c0.13	0.04	
v/s Ratio Perm												0.02
v/c Ratio	0.73	0.47		0.55	0.86		0.72	0.51		0.87	0.20	0.08
Uniform Delay, d1	35.2	14.8		36.7	20.7		35.2	31.1		32.9	25.8	25.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.1	0.1		4.5	4.9		13.7	0.7		25.3	0.1	0.0
Delay (s)	49.4	14.9		41.2	25.7		48.9	31.7		58.2	25.9	25.1
Level of Service	D	B		D	C		D	C		E	C	C
Approach Delay (s)		19.2			26.2			39.2			42.8	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	20.4
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)	95	1089	103	67	375	22	111	414	94	19	202	22
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	0.99		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	3493		1770	3509		1770	3441		1770	3487	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3493		1770	3509		1770	3441		1770	3487	
Peak-hour factor, PHF	0.91	0.91	0.91	0.77	0.77	0.77	0.80	0.80	0.80	0.71	0.71	0.71
Adj. Flow (vph)	104	1197	113	87	487	29	139	518	118	27	285	31
RTOR Reduction (vph)	0	4	0	0	2	0	0	13	0	0	6	0
Lane Group Flow (vph)	104	1306	0	87	514	0	139	623	0	27	310	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	9.0	47.7		6.9	45.6		10.9	24.4		4.3	17.8	
Effective Green, g (s)	9.0	47.7		6.9	45.6		10.9	24.4		4.3	17.8	
Actuated g/C Ratio	0.09	0.49		0.07	0.47		0.11	0.25		0.04	0.18	
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)	163	1707		125	1639		198	860		78	636	
v/s Ratio Prot	c0.06	c0.37		0.05	0.15		c0.08	c0.18		0.02	0.09	
v/s Ratio Perm												
v/c Ratio	0.64	0.77		0.70	0.31		0.70	0.72		0.35	0.49	
Uniform Delay, d1	42.7	20.4		44.3	16.2		41.8	33.5		45.3	35.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	1.9		12.7	0.0		8.8	2.6		1.0	0.2	
Delay (s)	48.6	22.3		57.1	16.3		50.6	36.1		46.3	36.0	
Level of Service	D	C		E	B		D	D		D	D	
Approach Delay (s)		24.2			22.2			38.7			36.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	28.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	6.4
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	792	13	45	922	15	61	291	9	33	475	51
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	1.00		1.00	1.00		1.00	1.00		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	3531		1770	3530		1770	3524		1770	3488	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3531		1770	3530		1770	3524		1770	3488	
Peak-hour factor, PHF	0.88	0.88	0.88	0.81	0.81	0.81	0.79	0.79	0.79	0.78	0.78	0.78
Adj. Flow (vph)	57	900	15	56	1138	19	77	368	11	42	609	65
RTOR Reduction (vph)	0	1	0	0	1	0	0	1	0	0	5	0
Lane Group Flow (vph)	57	914	0	56	1156	0	77	378	0	42	669	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	5.4	47.9		5.4	47.9		6.5	26.8		4.4	24.7	
Effective Green, g (s)	5.4	47.9		5.4	47.9		6.5	26.8		4.4	24.7	
Actuated g/C Ratio	0.05	0.48		0.05	0.48		0.07	0.27		0.04	0.25	
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)	97	1712		97	1711		116	956		79	872	
v/s Ratio Prot	c0.03	0.26		0.03	c0.33		c0.04	0.11		0.02	c0.19	
v/s Ratio Perm												
v/c Ratio	0.59	0.53		0.58	0.68		0.66	0.39		0.53	0.77	
Uniform Delay, d1	45.6	17.7		45.6	19.5		45.1	29.4		46.2	34.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.7	0.2		5.1	0.8		10.5	0.1		3.4	3.7	
Delay (s)	51.4	17.9		50.7	20.3		55.6	29.5		49.6	38.1	
Level of Service	D	B		D	C		E	C		D	D	
Approach Delay (s)		19.8			21.7			33.9			38.7	
Approach LOS		B			C			C			D	

Intersection Summary

HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	98.8	Sum of lost time (s)	14.3
Intersection Capacity Utilization	61.1%	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)	115	783	60	96	429	52	106	570	262	126	233	118
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	0.83	0.83	0.83	0.90	0.90	0.90	0.79	0.79	0.79	0.95	0.95	0.95
Adj. Flow (vph)	139	943	72	107	477	58	134	722	332	133	245	124
RTOR Reduction (vph)	0	0	17	0	0	43	0	0	159	0	0	101
Lane Group Flow (vph)	139	943	55	107	477	15	134	722	173	133	245	23
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)	11.8	25.3	25.3	10.4	23.9	23.9	26.2	26.7	26.7	11.4	11.9	11.9
Effective Green, g (s)	11.8	25.3	25.3	10.4	23.9	23.9	26.2	26.7	26.7	11.4	11.9	11.9
Actuated g/C Ratio	0.13	0.28	0.28	0.12	0.27	0.27	0.29	0.30	0.30	0.13	0.13	0.13
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)	233	1434	446	205	943	422	517	1053	471	225	469	210
v/s Ratio Prot	c0.08	c0.19		0.06	0.13		0.08	c0.20		c0.08	0.07	
v/s Ratio Perm			0.03			0.01			0.11			0.01
v/c Ratio	0.60	0.66	0.12	0.52	0.51	0.04	0.26	0.69	0.37	0.59	0.52	0.11
Uniform Delay, d1	36.7	28.4	23.9	37.3	27.9	24.4	24.3	27.8	24.8	37.0	36.3	34.2
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	2.7	0.8	0.0	1.1	0.2	0.0	0.1	1.5	0.2	2.8	0.5	0.1
Delay (s)	39.4	29.2	24.0	38.4	28.0	24.4	24.4	29.3	25.0	39.7	36.7	34.3
Level of Service	D	C	C	D	C	C	C	C	C	D	D	C
Approach Delay (s)		30.1			29.4			27.5			36.9	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	89.7	Sum of lost time (s)	11.5
Intersection Capacity Utilization	57.4%	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)	120	557	73	189	804	104	68	464	86	61	518	146
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	0.96	0.96	0.96	0.91	0.91	0.91	0.86	0.86	0.86	0.91	0.91	0.91
Adj. Flow (vph)	125	580	76	208	884	114	79	540	100	67	569	160
RTOR Reduction (vph)	0	0	29	0	0	60	0	0	68	0	0	48
Lane Group Flow (vph)	125	580	47	208	884	54	79	540	32	67	569	112
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)	11.2	26.2	26.2	16.0	31.0	31.0	7.2	23.1	23.1	6.2	22.1	22.1
Effective Green, g (s)	11.2	26.2	26.2	16.0	31.0	31.0	7.2	23.1	23.1	6.2	22.1	22.1
Actuated g/C Ratio	0.13	0.30	0.30	0.18	0.35	0.35	0.08	0.26	0.26	0.07	0.25	0.25
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)	227	1524	475	324	1255	561	146	935	418	126	895	400
v/s Ratio Prot	0.07	0.11		c0.12	c0.25		0.04	c0.15		0.04	c0.16	
v/s Ratio Perm			0.03			0.03			0.02			0.07
v/c Ratio	0.55	0.38	0.10	0.64	0.70	0.10	0.54	0.58	0.08	0.53	0.64	0.28
Uniform Delay, d1	35.7	24.2	22.1	33.0	24.3	18.8	38.5	27.9	24.1	39.2	29.1	26.3
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	1.6	0.1	0.0	3.2	1.5	0.0	2.2	0.5	0.0	2.2	1.1	0.1
Delay (s)	37.4	24.2	22.1	36.3	25.7	18.9	40.7	28.5	24.2	41.4	30.2	26.4
Level of Service	D	C	C	D	C	B	D	C	C	D	C	C
Approach Delay (s)		26.1			26.9			29.2			30.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	87.4	Sum of lost time (s)	7.5
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)	191	540	442	139	412	17	35	29	39	24	235	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	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4742		1770	5055		1770	1863	1583	1770	1822	
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	5055		1770	1863	1583	1770	1822	
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72	0.78	0.78	0.78	0.67	0.67	0.67
Adj. Flow (vph)	265	750	614	193	572	24	45	37	50	36	351	60
RTOR Reduction (vph)	0	91	0	0	3	0	0	0	34	0	4	0
Lane Group Flow (vph)	265	1273	0	193	593	0	45	37	16	36	407	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)	35.3	38.1		16.2	19.0		6.2	33.7	33.7	3.8	31.3	
Effective Green, g (s)	35.3	38.1		16.2	19.0		6.2	33.7	33.7	3.8	31.3	
Actuated g/C Ratio	0.33	0.35		0.15	0.18		0.06	0.31	0.31	0.04	0.29	
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)	576	1667		265	886		101	579	492	62	526	
v/s Ratio Prot	0.15	c0.27		0.11	c0.12		c0.03	0.02		0.02	c0.22	
v/s Ratio Perm									0.01			
v/c Ratio	0.46	0.94dr		0.73	0.67		0.45	0.06	0.03	0.58	0.77	
Uniform Delay, d1	29.0	31.2		44.0	41.8		49.4	26.3	26.0	51.5	35.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	1.9		8.2	1.5		1.1	0.0	0.0	8.6	6.4	
Delay (s)	29.2	33.1		52.2	43.3		50.6	26.3	26.0	60.1	41.7	
Level of Service	C	C		D	D		D	C	C	E	D	
Approach Delay (s)		32.4			45.4			34.5			43.2	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM Average Control Delay	37.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	108.4	Sum of lost time (s)	17.2
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
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)	153	523	37	23	696	28	174	197	60	48	75	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	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5034		1770	5056		1770	1863	1583	1770	1656	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5034		1770	5056		1770	1863	1583	1770	1656	
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.68	0.68	0.68	0.94	0.94	0.94
Adj. Flow (vph)	159	545	39	25	757	30	256	290	88	51	80	226
RTOR Reduction (vph)	0	5	0	0	3	0	0	0	57	0	71	0
Lane Group Flow (vph)	159	579	0	25	784	0	256	290	31	51	235	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)	14.9	33.2		3.1	21.4		19.8	32.2	32.2	5.5	17.9	
Effective Green, g (s)	14.9	33.2		3.1	21.4		19.8	32.2	32.2	5.5	17.9	
Actuated g/C Ratio	0.16	0.37		0.03	0.24		0.22	0.36	0.36	0.06	0.20	
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)	291	1845		61	1194		387	662	563	107	327	
v/s Ratio Prot	c0.09	0.11		0.01	c0.16		c0.14	0.16		0.03	c0.14	
v/s Ratio Perm									0.02			
v/c Ratio	0.55	0.31		0.41	0.66		0.66	0.44	0.06	0.48	0.72	
Uniform Delay, d1	34.7	20.5		42.9	31.3		32.3	22.3	19.2	41.2	34.0	
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	0.0		1.6	1.0		3.3	0.2	0.0	1.2	6.1	
Delay (s)	35.9	20.6		44.5	32.3		35.6	22.5	19.2	42.4	40.1	
Level of Service	D	C		D	C		D	C	B	D	D	
Approach Delay (s)		23.9			32.7			27.3			40.4	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	16.6
Intersection Capacity Utilization	63.0%	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)	113	420	66	45	550	9	21	38	33	23	36	16
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	0.95	
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	5073		1770	1863	1583	1770	1778	
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	5073		1770	1863	1583	1770	1778	
Peak-hour factor, PHF	0.76	0.76	0.76	0.72	0.72	0.72	0.64	0.64	0.64	0.63	0.63	0.63
Adj. Flow (vph)	149	553	87	62	764	12	33	59	52	37	57	25
RTOR Reduction (vph)	0	0	45	0	1	0	0	0	47	0	13	0
Lane Group Flow (vph)	149	553	42	62	775	0	33	59	5	37	69	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)	9.3	20.6	20.6	7.0	18.3		1.8	5.3	5.3	1.9	5.4	
Effective Green, g (s)	9.3	20.6	20.6	7.0	18.3		1.8	5.3	5.3	1.9	5.4	
Actuated g/C Ratio	0.18	0.40	0.40	0.13	0.35		0.03	0.10	0.10	0.04	0.10	
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)	317	2018	628	239	1789		61	190	162	65	185	
v/s Ratio Prot	c0.08	0.11		0.04	c0.15		0.02	0.03		c0.02	c0.04	
v/s Ratio Perm			0.03						0.00			
v/c Ratio	0.47	0.27	0.07	0.26	0.43		0.54	0.31	0.03	0.57	0.38	
Uniform Delay, d1	19.1	10.6	9.7	20.1	12.8		24.6	21.6	21.0	24.6	21.7	
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	0.4	0.0	0.0	0.2	0.1		5.2	0.3	0.0	6.7	0.5	
Delay (s)	19.5	10.6	9.7	20.3	12.9		29.8	21.9	21.0	31.2	22.1	
Level of Service	B	B	A	C	B		C	C	C	C	C	
Approach Delay (s)		12.2			13.4			23.4			25.0	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	12.6
Intersection Capacity Utilization	35.9%	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	527	30	16	647	14	43	30	39	17	16	31
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	5069		1770	1863	1583	1770	1678	
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	5069		1770	1863	1583	1770	1678	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.72	0.72	0.72	0.76	0.76	0.76
Adj. Flow (vph)	65	561	32	17	688	15	60	42	54	22	21	41
RTOR Reduction (vph)	0	0	16	0	1	0	0	0	45	0	36	0
Lane Group Flow (vph)	65	561	16	17	702	0	60	42	9	22	26	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)	3.1	18.0	18.0	1.4	16.3		3.0	7.5	7.5	0.8	5.3	
Effective Green, g (s)	3.1	18.0	18.0	1.4	16.3		3.0	7.5	7.5	0.8	5.3	
Actuated g/C Ratio	0.07	0.40	0.40	0.03	0.36		0.07	0.17	0.17	0.02	0.12	
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)	122	2043	636	55	1844		119	312	265	32	199	
v/s Ratio Prot	c0.04	0.11		0.01	c0.14		c0.03	c0.02		0.01	0.02	
v/s Ratio Perm			0.01						0.01			
v/c Ratio	0.53	0.27	0.02	0.31	0.38		0.50	0.13	0.03	0.69	0.13	
Uniform Delay, d1	20.2	9.0	8.1	21.2	10.5		20.2	15.9	15.6	21.9	17.7	
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	2.2	0.0	0.0	1.2	0.0		1.2	0.1	0.0	39.1	0.1	
Delay (s)	22.4	9.0	8.1	22.4	10.6		21.4	16.0	15.6	61.0	17.8	
Level of Service	C	A	A	C	B		C	B	B	E	B	
Approach Delay (s)		10.3			10.8			17.9			29.1	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	44.8	Sum of lost time (s)	12.6
Intersection Capacity Utilization	36.2%	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)	98	331	83	67	491	15	64	195	118	16	127	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	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4932		1770	5063		1770	1863	1583	1770	1794	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4932		1770	5063		1770	1863	1583	1770	1794	
Peak-hour factor, PHF	0.86	0.86	0.86	0.78	0.78	0.78	0.70	0.70	0.70	0.80	0.80	0.80
Adj. Flow (vph)	114	385	97	86	629	19	91	279	169	20	159	52
RTOR Reduction (vph)	0	31	0	0	2	0	0	0	115	0	7	0
Lane Group Flow (vph)	114	451	0	86	646	0	91	279	54	20	204	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)	6.8	16.5		5.8	15.5		6.0	19.7	19.7	1.7	15.4	
Effective Green, g (s)	6.8	16.5		5.8	15.5		6.0	19.7	19.7	1.7	15.4	
Actuated g/C Ratio	0.11	0.27		0.09	0.25		0.10	0.32	0.32	0.03	0.25	
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)	197	1330		168	1282		174	600	510	49	451	
v/s Ratio Prot	c0.06	0.09		0.05	c0.13		c0.05	c0.15		0.01	0.11	
v/s Ratio Perm									0.03			
v/c Ratio	0.58	0.34		0.51	0.50		0.52	0.46	0.11	0.41	0.45	
Uniform Delay, d1	25.8	18.0		26.4	19.6		26.2	16.5	14.6	29.3	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.6	0.1		1.1	0.1		1.3	0.2	0.0	2.0	0.3	
Delay (s)	28.4	18.0		27.4	19.7		27.5	16.8	14.6	31.3	19.6	
Level of Service	C	B		C	B		C	B	B	C	B	
Approach Delay (s)		20.0			20.6			17.9			20.6	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	12.9
Intersection Capacity Utilization	43.4%	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)	91	551	55	103	447	36	39	162	112	44	185	36
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	0.99		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	5016		1770	5028		1770	1863	1583	1770	1817	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5016		1770	5028		1770	1863	1583	1770	1817	
Peak-hour factor, PHF	0.76	0.76	0.76	0.86	0.86	0.86	0.90	0.90	0.90	0.76	0.76	0.76
Adj. Flow (vph)	120	725	72	120	520	42	43	180	124	58	243	47
RTOR Reduction (vph)	0	8	0	0	7	0	0	0	94	0	4	0
Lane Group Flow (vph)	120	789	0	120	555	0	43	180	30	58	286	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)	11.3	20.1		9.4	18.2		3.5	16.6	16.6	5.2	18.3	
Effective Green, g (s)	11.3	20.1		9.4	18.2		3.5	16.6	16.6	5.2	18.3	
Actuated g/C Ratio	0.16	0.29		0.14	0.26		0.05	0.24	0.24	0.08	0.27	
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)	291	1465		242	1330		90	450	382	134	483	
v/s Ratio Prot	0.07	c0.16		c0.07	0.11		0.02	0.10		c0.03	c0.16	
v/s Ratio Perm									0.02			
v/c Ratio	0.41	0.54		0.50	0.42		0.48	0.40	0.08	0.43	0.59	
Uniform Delay, d1	25.8	20.5		27.5	20.9		31.8	21.9	20.2	30.4	22.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.2		0.6	0.1		1.5	0.2	0.0	0.8	1.3	
Delay (s)	26.1	20.6		28.1	21.0		33.2	22.1	20.2	31.2	23.3	
Level of Service	C	C		C	C		C	C	C	C	C	
Approach Delay (s)		21.4			22.2			22.8			24.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	68.8	Sum of lost time (s)	12.9
Intersection Capacity Utilization	47.4%	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)	0	273	123	131	358	35	178	69	0	16	45	5
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	3483	
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.70	1.00		0.70	1.00	
Satd. Flow (perm)		3539	1583	1770	5085	1583	1313	3539		1302	3483	
Peak-hour factor, PHF	0.79	0.79	0.79	0.76	0.76	0.76	0.81	0.81	0.81	0.66	0.66	0.66
Adj. Flow (vph)	0	346	156	172	471	46	220	85	0	24	68	8
RTOR Reduction (vph)	0	0	114	0	0	24	0	0	0	0	6	0
Lane Group Flow (vph)	0	346	42	172	471	22	220	85	0	24	70	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)		10.9	10.9	4.0	18.9	18.9	11.1	11.1		11.1	11.1	
Effective Green, g (s)		10.9	10.9	4.0	18.9	18.9	11.1	11.1		11.1	11.1	
Actuated g/C Ratio		0.27	0.27	0.10	0.47	0.47	0.28	0.28		0.28	0.28	
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)		960	429	176	2391	744	363	977		360	962	
v/s Ratio Prot		c0.10	0.03	c0.10	0.09			0.02			0.02	
v/s Ratio Perm						0.01	c0.17			0.02		
v/c Ratio		0.36	0.10	0.98	0.20	0.03	0.61	0.09		0.07	0.07	
Uniform Delay, d1		11.8	11.0	18.1	6.2	5.7	12.6	10.8		10.7	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		0.1	0.0	60.3	0.0	0.0	2.0	0.0		0.0	0.0	
Delay (s)		11.9	11.0	78.4	6.2	5.7	14.6	10.8		10.8	10.8	
Level of Service		B	B	E	A	A	B	B		B	B	
Approach Delay (s)		11.6			24.2			13.6			10.8	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	40.2	Sum of lost time (s)	14.2
Intersection Capacity Utilization	44.0%	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)	0	531	272	166	371	38	82	70	0	31	105	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		0.71	1.00	
Satd. Flow (perm)		3539	1583	1770	5085	1583	1233	3539		1314	3539	
Peak-hour factor, PHF	0.73	0.73	0.73	0.96	0.96	0.96	0.93	0.93	0.93	0.74	0.74	0.74
Adj. Flow (vph)	0	727	373	173	386	40	88	75	0	42	142	0
RTOR Reduction (vph)	0	0	226	0	0	16	0	0	0	0	0	0
Lane Group Flow (vph)	0	727	147	173	386	24	88	75	0	42	142	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)		16.2	16.2	4.3	24.5	24.5	6.3	6.3		6.3	6.3	
Effective Green, g (s)		16.2	16.2	4.3	24.5	24.5	6.3	6.3		6.3	6.3	
Actuated g/C Ratio		0.40	0.40	0.10	0.60	0.60	0.15	0.15		0.15	0.15	
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)		1398	625	186	3039	946	189	544		202	544	
v/s Ratio Prot		c0.21	0.09	c0.10	0.08			0.02			0.04	
v/s Ratio Perm						0.02	c0.07			0.03		
v/c Ratio		0.52	0.24	0.93	0.13	0.03	0.47	0.14		0.21	0.26	
Uniform Delay, d1		9.4	8.3	18.2	3.6	3.4	15.8	15.0		15.2	15.3	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.1	45.8	0.0	0.0	0.7	0.0		0.2	0.1	
Delay (s)		9.6	8.3	64.0	3.6	3.4	16.5	15.0		15.4	15.4	
Level of Service		A	A	E	A	A	B	B		B	B	
Approach Delay (s)		9.2			21.0			15.8			15.4	
Approach LOS		A			C			B			B	

Intersection Summary

HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	41.0	Sum of lost time (s)	14.2
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)	5	34	8	8	39	14	4	234	9	15	179	9
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		0.98			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)		1812			1794		1770	1852		1770	1863	1583
Flt Permitted		0.97			0.95		0.62	1.00		0.57	1.00	1.00
Satd. Flow (perm)		1758			1721		1161	1852		1059	1863	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.76	0.76	0.76	0.77	0.77	0.77	0.83	0.83	0.83
Adj. Flow (vph)	6	44	10	11	51	18	5	304	12	18	216	11
RTOR Reduction (vph)	0	7	0	0	13	0	0	2	0	0	0	6
Lane Group Flow (vph)	0	53	0	0	67	0	5	314	0	18	216	5
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		6
Actuated Green, G (s)		7.6			7.6		13.0	13.0		13.0	13.0	13.0
Effective Green, g (s)		7.6			7.6		13.0	13.0		13.0	13.0	13.0
Actuated g/C Ratio		0.26			0.26		0.44	0.44		0.44	0.44	0.44
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)		448			439		506	808		462	813	691
v/s Ratio Prot								c0.17			0.12	
v/s Ratio Perm		0.03			c0.04		0.00			0.02		0.00
v/c Ratio		0.12			0.15		0.01	0.39		0.04	0.27	0.01
Uniform Delay, d1		8.5			8.6		4.8	5.7		4.8	5.4	4.7
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			0.3		0.0	0.7		0.1	0.4	0.0
Delay (s)		8.8			8.9		4.8	6.4		4.9	5.7	4.8
Level of Service		A			A		A	A		A	A	A
Approach Delay (s)		8.8			8.9			6.3			5.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	29.8	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)	8	73	20	18	74	28	6	245	20	17	218	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
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)		1806			1790		1770	1842		1770	1863	1583
Flt Permitted		0.97			0.95		0.59	1.00		0.53	1.00	1.00
Satd. Flow (perm)		1766			1715		1103	1842		981	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.74	0.74	0.74	0.80	0.80	0.80
Adj. Flow (vph)	9	78	21	20	84	32	8	331	27	21	272	14
RTOR Reduction (vph)	0	11	0	0	14	0	0	4	0	0	0	7
Lane Group Flow (vph)	0	97	0	0	122	0	8	354	0	21	272	7
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		6
Actuated Green, G (s)		12.2			12.2		19.0	19.0		19.0	19.0	19.0
Effective Green, g (s)		12.2			12.2		19.0	19.0		19.0	19.0	19.0
Actuated g/C Ratio		0.30			0.30		0.47	0.47		0.47	0.47	0.47
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)		533			518		519	866		461	876	744
v/s Ratio Prot								c0.19			0.15	
v/s Ratio Perm		0.05			c0.07		0.01			0.02		0.00
v/c Ratio		0.18			0.24		0.02	0.41		0.05	0.31	0.01
Uniform Delay, d1		10.4			10.6		5.7	7.0		5.8	6.6	5.7
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.3			0.5		0.0	0.7		0.1	0.4	0.0
Delay (s)		10.8			11.1		5.7	7.7		5.9	7.1	5.7
Level of Service		B			B		A	A		A	A	A
Approach Delay (s)		10.8			11.1			7.6			6.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	40.4	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)	76	183	22	11	96	21	6	233	14	39	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	1812			3506*			3460	
Flt Permitted	0.67	1.00	1.00	0.61	1.00			0.94			0.92	
Satd. Flow (perm)	1240	1863	1583	1138	1812			3299			3179	
Peak-hour factor, PHF	0.77	0.77	0.77	0.82	0.82	0.82	0.81	0.81	0.81	0.79	0.79	0.79
Adj. Flow (vph)	99	238	29	13	117	26	7	288	17	49	573	91
RTOR Reduction (vph)	0	0	19	0	15	0	0	8	0	0	23	0
Lane Group Flow (vph)	99	238	10	13	128	0	0	304	0	0	690	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			15.1			15.1	
Effective Green, g (s)	11.8	11.8	11.8	11.8	11.8			15.1			15.1	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33			0.43			0.43	
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)	412	619	526	378	602			1403			1352	
v/s Ratio Prot		c0.13			0.07							
v/s Ratio Perm	0.08		0.01	0.01				0.09			c0.22	
v/c Ratio	0.24	0.38	0.02	0.03	0.21			0.22			0.51	
Uniform Delay, d1	8.6	9.1	8.0	8.0	8.5			6.5			7.5	
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			0.0			0.1	
Delay (s)	8.7	9.2	8.0	8.0	8.6			6.5			7.6	
Level of Service	A	A	A	A	A			A			A	
Approach Delay (s)		9.0			8.5			6.5			7.6	
Approach LOS		A			A			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)	35.5	Sum of lost time (s)	8.6
Intersection Capacity Utilization	55.3%	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)	69	216	25	19	166	37	18	412	25	37	380	56
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	1812			3503			3463	
Flt Permitted	0.62	1.00	1.00	0.59	1.00			0.92			0.88	
Satd. Flow (perm)	1161	1863	1583	1098	1812			3244			3061	
Peak-hour factor, PHF	0.78	0.78	0.78	0.94	0.94	0.94	0.80	0.80	0.80	0.89	0.89	0.89
Adj. Flow (vph)	88	277	32	20	177	39	22	515	31	42	427	63
RTOR Reduction (vph)	0	0	17	0	12	0	0	10	0	0	25	0
Lane Group Flow (vph)	88	277	15	20	204	0	0	558	0	0	507	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)	17.2	17.2	17.2	17.2	17.2			11.1			11.1	
Effective Green, g (s)	17.2	17.2	17.2	17.2	17.2			11.1			11.1	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47			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)	541	868	738	512	845			976			921	
v/s Ratio Prot		c0.15			0.11							
v/s Ratio Perm	0.08		0.01	0.02				c0.17			0.17	
v/c Ratio	0.16	0.32	0.02	0.04	0.24			0.57			0.55	
Uniform Delay, d1	5.7	6.2	5.3	5.4	5.9			10.9			10.8	
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	0.1			0.5			0.4	
Delay (s)	5.7	6.3	5.3	5.4	6.0			11.4			11.2	
Level of Service	A	A	A	A	A			B			B	
Approach Delay (s)		6.1			5.9			11.4			11.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	36.9	Sum of lost time (s)	8.6
Intersection Capacity Utilization	68.7%	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)	13	60	11	13	131	14	13	249	10	12	174	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	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1821		1770	1836		1770	1852		1770	1846	
Flt Permitted	0.63	1.00		0.70	1.00		0.62	1.00		0.53	1.00	
Satd. Flow (perm)	1167	1821		1313	1836		1158	1852		992	1846	
Peak-hour factor, PHF	0.88	0.88	0.88	0.69	0.69	0.69	0.81	0.81	0.81	0.85	0.85	0.85
Adj. Flow (vph)	15	68	12	19	190	20	16	307	12	14	205	13
RTOR Reduction (vph)	0	7	0	0	4	0	0	2	0	0	3	0
Lane Group Flow (vph)	15	73	0	19	206	0	16	317	0	14	215	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	17.0	17.0		17.0	17.0		17.1	17.1		17.1	17.1	
Effective Green, g (s)	17.0	17.0		17.0	17.0		17.1	17.1		17.1	17.1	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.39	0.39		0.39	0.39	
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)	458	715		515	721		457	731		392	729	
v/s Ratio Prot		0.04			c0.11			c0.17			0.12	
v/s Ratio Perm	0.01			0.01			0.01			0.01		
v/c Ratio	0.03	0.10		0.04	0.29		0.04	0.43		0.04	0.29	
Uniform Delay, d1	8.1	8.3		8.1	9.0		8.0	9.6		8.0	9.0	
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		0.0	0.2		0.0	0.6		0.1	0.3	
Delay (s)	8.1	8.4		8.1	9.2		8.1	10.1		8.1	9.3	
Level of Service	A	A		A	A		A	B		A	A	
Approach Delay (s)		8.3			9.1			10.0			9.2	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	9.2
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)	29	112	10	9	75	10	13	291	4	6	202	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	0.98		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	1830		1770	1859		1770	1855	
Flt Permitted	0.68	1.00		0.66	1.00		0.59	1.00		0.51	1.00	
Satd. Flow (perm)	1276	1840		1223	1830		1090	1859		952	1855	
Peak-hour factor, PHF	0.77	0.77	0.77	0.76	0.76	0.76	0.79	0.79	0.79	0.73	0.73	0.73
Adj. Flow (vph)	38	145	13	12	99	13	16	368	5	8	277	8
RTOR Reduction (vph)	0	4	0	0	6	0	0	1	0	0	1	0
Lane Group Flow (vph)	38	154	0	12	106	0	16	372	0	8	284	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	12.2	12.2		12.2	12.2		18.9	18.9		18.9	18.9	
Effective Green, g (s)	12.2	12.2		12.2	12.2		18.9	18.9		18.9	18.9	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.47	0.47		0.47	0.47	
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)	386	557		370	554		511	872		446	870	
v/s Ratio Prot		c0.08			0.06			c0.20			0.15	
v/s Ratio Perm	0.03			0.01			0.01			0.01		
v/c Ratio	0.10	0.28		0.03	0.19		0.03	0.43		0.02	0.33	
Uniform Delay, d1	10.1	10.7		9.9	10.4		5.8	7.1		5.7	6.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.0	0.1		0.0	0.5		0.0	0.3	
Delay (s)	10.2	10.9		9.9	10.5		5.8	7.6		5.8	7.0	
Level of Service	B	B		A	B		A	A		A	A	
Approach Delay (s)		10.8			10.5			7.5			7.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	40.3	Sum of lost time (s)	9.2
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
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	26	9	19	6	26	42	272	678	22
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	1685		1770	1688			1770	5085	2787	
Flt Permitted		0.71	1.00		0.72	1.00			0.95	1.00	1.00	
Satd. Flow (perm)		1323	1685		1347	1688			1770	5085	2787	
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.71	0.71	0.71	0.71	0.89	0.89	0.89	0.89
Adj. Flow (vph)	4	23	19	33	13	27	8	37	47	306	762	25
RTOR Reduction (vph)	0	0	30	0	0	34	0	0	0	0	1	0
Lane Group Flow (vph)	0	27	22	0	13	38	0	0	47	306	786	0
Turn Type	Perm	Perm			Perm				Prot		Over	
Protected Phases			8			8			5	2	7	
Permitted Phases	8	8			8							
Actuated Green, G (s)		6.0	6.0		6.0	6.0			3.8	13.9	21.3	
Effective Green, g (s)		6.0	6.0		6.0	6.0			3.8	13.9	21.3	
Actuated g/C Ratio		0.09	0.09		0.09	0.09			0.06	0.21	0.33	
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)		122	156		124	156			103	1087	913	
v/s Ratio Prot			0.01			c0.02			0.03	c0.06	c0.28	
v/s Ratio Perm		0.02			0.01							
v/c Ratio		0.22	0.14		0.10	0.25			0.46	0.28	0.86	
Uniform Delay, d1		27.3	27.1		27.0	27.4			29.6	21.4	20.5	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.2		0.1	0.3			1.2	0.5	10.2	
Delay (s)		27.7	27.3		27.2	27.7			30.8	21.9	30.6	
Level of Service		C	C		C	C			C	C	C	
Approach Delay (s)			27.4			27.6				28.3		
Approach LOS			C			C				C		

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL2	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations							
Volume (vph)	8	40	199	5	867	101	68
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	5067		4919		
Flt Permitted		0.95	1.00		0.96		
Satd. Flow (perm)		1770	5067		4919		
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.79	0.79	0.79
Adj. Flow (vph)	10	50	249	6	1097	128	86
RTOR Reduction (vph)	0	0	2	0	6	0	0
Lane Group Flow (vph)	0	60	253	0	1305	0	0
Turn Type	Prot	Prot					
Protected Phases	1	1	6		7		
Permitted Phases							
Actuated Green, G (s)		4.2	14.3		21.3		
Effective Green, g (s)		4.2	14.3		21.3		
Actuated g/C Ratio		0.06	0.22		0.33		
Clearance Time (s)		4.7	5.1		4.7		
Vehicle Extension (s)		2.0	6.8		8.0		
Lane Grp Cap (vph)		114	1115		1612		
v/s Ratio Prot		c0.03	0.05		0.27		
v/s Ratio Perm							
v/c Ratio		0.53	0.23		0.81		
Uniform Delay, d1		29.4	20.8		20.0		
Progression Factor		1.00	1.00		1.00		
Incremental Delay, d2		2.0	0.4		4.1		
Delay (s)		31.5	21.2		24.1		
Level of Service		C	C		C		
Approach Delay (s)			23.1		24.1		
Approach LOS			C		C		

Intersection Summary

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Volume (vph)	8	71	23	30	19	11	5	49	42	319	813	17
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	1704		1770	1631			1770	5085	2787	
Flt Permitted		0.69	1.00		0.71	1.00			0.95	1.00	1.00	
Satd. Flow (perm)		1291	1704		1329	1631			1770	5085	2787	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.66	0.66	0.66	0.66	0.73	0.73	0.73	0.73
Adj. Flow (vph)	10	90	29	38	29	17	8	74	58	437	1114	23
RTOR Reduction (vph)	0	0	33	0	0	64	0	0	0	0	1	0
Lane Group Flow (vph)	0	100	34	0	29	35	0	0	58	437	1136	0
Turn Type	Perm	Perm			Perm				Prot		Over	
Protected Phases			8			8			5	2	7	
Permitted Phases	8	8			8							
Actuated Green, G (s)		9.9	9.9		9.9	9.9			4.4	17.3	20.9	
Effective Green, g (s)		9.9	9.9		9.9	9.9			4.4	17.3	20.9	
Actuated g/C Ratio		0.14	0.14		0.14	0.14			0.06	0.24	0.29	
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)		179	236		184	226			109	1229	814	
v/s Ratio Prot			0.02			0.02			c0.03	c0.09	c0.41	
v/s Ratio Perm		c0.08			0.02							
v/c Ratio		0.56	0.15		0.16	0.16			0.53	0.36	1.40	
Uniform Delay, d1		28.8	27.1		27.2	27.2			32.6	22.5	25.4	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		2.1	0.1		0.1	0.1			2.5	0.6	185.7	
Delay (s)		31.0	27.2		27.3	27.3			35.1	23.1	211.0	
Level of Service		C	C		C	C			D	C	F	
Approach Delay (s)			29.5			27.3				154.4		
Approach LOS			C			C				F		

Intersection Summary			
HCM Average Control Delay	89.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	71.6	Sum of lost time (s)	14.5
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

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

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Volume (vph)	32	4	292	5	1	814	31	14
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	5071			4976		
Flt Permitted		0.95	1.00			0.85		
Satd. Flow (perm)		1770	5071			4419		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.81	0.81	0.81	0.81
Adj. Flow (vph)	36	4	324	6	1	1005	38	17
RTOR Reduction (vph)	0	0	2	0	0	1	0	0
Lane Group Flow (vph)	0	40	328	0	0	1060	0	0
Turn Type	Prot	Prot						
Protected Phases	1	1	6			7		
Permitted Phases								
Actuated Green, G (s)		3.9	16.8			20.9		
Effective Green, g (s)		3.9	16.8			20.9		
Actuated g/C Ratio		0.05	0.23			0.29		
Clearance Time (s)		4.7	5.1			4.7		
Vehicle Extension (s)		2.0	6.8			8.0		
Lane Grp Cap (vph)		96	1190			1290		
v/s Ratio Prot		0.02	0.06					
v/s Ratio Perm						0.24		
v/c Ratio		0.42	0.28			27.50dr		
Uniform Delay, d1		32.7	22.4			23.6		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		1.1	0.4			5.5		
Delay (s)		33.8	22.9			29.2		
Level of Service		C	C			C		
Approach Delay (s)			24.0			29.2		
Approach LOS			C			C		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	2067	25	0	0	0	0	229	87	134	521	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)		5060						3393		1770	3539	
Flt Permitted		1.00						1.00		0.95	1.00	
Satd. Flow (perm)		5060						3393		1770	3539	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.84	0.84	0.84	0.73	0.73	0.73
Adj. Flow (vph)	152	2199	27	0	0	0	0	273	104	184	714	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	40	0	0	0	0
Lane Group Flow (vph)	0	2377	0	0	0	0	0	337	0	184	714	0
Turn Type	Split									Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases												
Actuated Green, G (s)		29.5						12.1		10.0	26.3	
Effective Green, g (s)		29.5						12.1		10.0	26.3	
Actuated g/C Ratio		0.44						0.18		0.15	0.39	
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)		2228						613		264	1389	
v/s Ratio Prot		c0.47						0.10		c0.10	c0.20	
v/s Ratio Perm												
v/c Ratio		1.07						0.55		0.70	0.51	
Uniform Delay, d1		18.8						25.0		27.1	15.5	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		39.8						1.1		6.3	0.5	
Delay (s)		58.6						26.0		33.4	16.0	
Level of Service		E						C		C	B	
Approach Delay (s)		58.6			0.0			26.0			19.5	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM Average Control Delay	45.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	9.8
Intersection Capacity Utilization	72.8%	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)	95	1864	45	0	0	0	0	379	140	168	438	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)		5056						3396		1770	3539	
Flt Permitted		1.00						1.00		0.95	1.00	
Satd. Flow (perm)		5056						3396		1770	3539	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	102	2004	48	0	0	0	0	431	159	189	492	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	35	0	0	0	0
Lane Group Flow (vph)	0	2151	0	0	0	0	0	555	0	189	492	0
Turn Type	Split									Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases												
Actuated Green, G (s)		29.6						18.0		10.2	32.4	
Effective Green, g (s)		29.6						18.0		10.2	32.4	
Actuated g/C Ratio		0.40						0.25		0.14	0.44	
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)		2045						835		247	1566	
v/s Ratio Prot		c0.43						c0.16		c0.11	0.14	
v/s Ratio Perm												
v/c Ratio		1.05						0.66		0.77	0.31	
Uniform Delay, d1		21.8						24.9		30.3	13.2	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		35.2						2.0		11.9	0.2	
Delay (s)		57.0						26.9		42.3	13.4	
Level of Service		E						C		D	B	
Approach Delay (s)		57.0			0.0			26.9			21.4	
Approach LOS		E			A			C			C	

Intersection Summary			
HCM Average Control Delay	44.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	15.4
Intersection Capacity Utilization	76.0%	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)	237	1891	32	0	0	0	0	359	132	112	506	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		1.00						1.00	0.85	1.00	1.00	
Flt Protected		0.99						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		5046						3539	1583	1770	3539	
Flt Permitted		0.99						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		5046						3539	1583	1770	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.84	0.84	0.84	0.85	0.85	0.85
Adj. Flow (vph)	263	2101	36	0	0	0	0	427	157	132	595	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	62	0	0	0
Lane Group Flow (vph)	0	2398	0	0	0	0	0	427	95	132	595	0
Turn Type	Split								Perm	Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases									8			
Actuated Green, G (s)		30.1						18.3	18.3	7.4	29.9	
Effective Green, g (s)		30.1						18.3	18.3	7.4	29.9	
Actuated g/C Ratio		0.42						0.26	0.26	0.10	0.42	
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)		2133						910	407	184	1486	
v/s Ratio Prot		c0.48						c0.12		c0.07	0.17	
v/s Ratio Perm									0.06			
v/c Ratio		1.12						0.47	0.23	0.72	0.40	
Uniform Delay, d1		20.6						22.3	20.9	30.9	14.4	
Progression Factor		1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2		62.8						0.9	0.7	10.5	0.2	
Delay (s)		83.3						23.2	21.6	41.4	14.6	
Level of Service		F						C	C	D	B	
Approach Delay (s)		83.3			0.0			22.8			19.5	
Approach LOS		F			A			C			B	

Intersection Summary			
HCM Average Control Delay	61.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	15.4
Intersection Capacity Utilization	73.7%	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)	215	1956	45	0	0	0	0	627	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		1.00						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		5045						3539	1583	1770	3539	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		5045						3539	1583	1770	3539	
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.89	0.89	0.89	0.95	0.95	0.95
Adj. Flow (vph)	231	2103	48	0	0	0	0	704	247	179	719	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	36	0	0	0
Lane Group Flow (vph)	0	2380	0	0	0	0	0	704	211	179	719	0
Turn Type	Split								Perm	Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases									8			
Actuated Green, G (s)		29.5						23.4	23.4	10.1	37.7	
Effective Green, g (s)		29.5						23.4	23.4	10.1	37.7	
Actuated g/C Ratio		0.38						0.30	0.30	0.13	0.48	
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)		1898						1056	472	228	1702	
v/s Ratio Prot		c0.47						c0.20		c0.10	0.20	
v/s Ratio Perm									0.13			
v/c Ratio		1.25						0.67	0.45	0.79	0.42	
Uniform Delay, d1		24.5						24.1	22.3	33.1	13.3	
Progression Factor		1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2		118.7						2.2	1.6	15.0	0.2	
Delay (s)		143.1						26.3	23.8	48.1	13.5	
Level of Service		F						C	C	D	B	
Approach Delay (s)		143.1			0.0			25.7			20.4	
Approach LOS		F			A			C			C	

Intersection Summary			
HCM Average Control Delay	90.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	15.4
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 (veh/h)	8	3	7	5	2	7	5	233	4	4	202	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.56	0.56	0.50	0.50	0.50	0.84	0.84	0.84	0.80	0.80	0.80
Hourly flow rate (vph)	14	5	12	10	4	14	6	277	5	5	252	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)								722			817	
pX, platoon unblocked	0.98	0.98	0.98	0.98	0.98		0.98					
vC, conflicting volume	574	560	256	573	562	280	260			282		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	553	539	227	552	540	280	231			282		
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	99	98	98	99	98	100			100		
cM capacity (veh/h)	420	436	793	421	435	759	1306			1280		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	32	23	285	265
Volume Left	14	10	6	5
Volume Right	12	14	5	8
cSH	518	545	1306	1280
Volume to Capacity	0.06	0.05	0.00	0.00
Queue Length 95th (ft)	5	4	0	0
Control Delay (s)	12.4	12.0	0.2	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	12.4	12.0	0.2	0.2
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	25.1%	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)	4	0	3	8	3	7	4	338	2	5	210	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.58	0.58	0.58	0.64	0.64	0.64	0.74	0.74	0.74	0.79	0.79	0.79
Hourly flow rate (vph)	7	0	5	12	5	11	5	457	3	6	266	6
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	0.94	0.94	0.93	0.94	0.94	0.98	0.93			0.98		
vC, conflicting volume	764	752	269	756	754	458	272			459		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	668	655	182	659	657	434	185			436		
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	100	99	96	99	98	100			99		
cM capacity (veh/h)	339	361	804	351	360	608	1298			1099		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	23	465	276
Volume Left	7	12	5	6
Volume Right	5	11	3	6
cSH	451	422	1298	1099
Volume to Capacity	0.03	0.07	0.00	0.01
Queue Length 95th (ft)	2	5	0	0
Control Delay (s)	13.2	14.1	0.1	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	13.2	14.1	0.1	0.2
Approach LOS	B	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	29.8%	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 (vph)	0	1403	728	0	1542	611	0	0	0	171	0	162
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	4.0	
Lane Util. Factor		0.86	0.86		0.91					0.95	0.95	
Frt		0.98	0.85		0.96					1.00	0.86	
Flt Protected		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (prot)		4698	1362		4869					1681	1522	
Flt Permitted		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (perm)		4698	1362		4869					1681	1522	
Peak-hour factor, PHF	0.93	0.93	0.93	0.86	0.86	0.86	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	1509	783	0	1793	710	0	0	0	190	0	180
RTOR Reduction (vph)	0	19	172	0	60	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	1756	345	0	2443	0	0	0	0	171	194	0
Turn Type			Perm							Prot		
Protected Phases		2			6					4		
Permitted Phases			2									
Actuated Green, G (s)		36.4	36.4		36.4					9.7	9.7	
Effective Green, g (s)		36.4	36.4		36.4					9.7	9.7	
Actuated g/C Ratio		0.67	0.67		0.67					0.18	0.18	
Clearance Time (s)		4.4	4.4		4.4					4.1		
Vehicle Extension (s)		4.5	4.5		4.5					4.1		
Lane Grp Cap (vph)		3132	908		3246					299	270	
v/s Ratio Prot		0.37			c0.50					0.10	0.13	
v/s Ratio Perm			0.25									
v/c Ratio		0.56	0.38		0.75					0.57	0.72	
Uniform Delay, d1		4.8	4.1		6.1					20.5	21.2	
Progression Factor		1.00	1.00		1.00					1.00	1.00	
Incremental Delay, d2		0.3	0.5		1.2					3.3	9.5	
Delay (s)		5.2	4.5		7.2					23.8	30.7	
Level of Service		A	A		A					C	C	
Approach Delay (s)		5.0			7.2			0.0			27.5	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	54.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1272	877	0	2125	615	0	0	0	179	0	246
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	4.0	
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)		4638	1362		4914					1681	1517	
Flt Permitted		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (perm)		4638	1362		4914					1681	1517	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	0	1298	895	0	2168	628	0	0	0	206	0	283
RTOR Reduction (vph)	0	51	185	0	49	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	1641	316	0	2747	0	0	0	0	185	302	0
Turn Type			Perm							Prot		
Protected Phases		2			6					4		
Permitted Phases			2									
Actuated Green, G (s)		35.7	35.7		35.7					12.4	12.4	
Effective Green, g (s)		35.7	35.7		35.7					12.4	12.4	
Actuated g/C Ratio		0.63	0.63		0.63					0.22	0.22	
Clearance Time (s)		4.4	4.4		4.4					4.1		
Vehicle Extension (s)		4.5	4.5		4.5					4.1		
Lane Grp Cap (vph)		2925	859		3099					368	332	
v/s Ratio Prot		0.35			c0.56					0.11	0.20	
v/s Ratio Perm			0.23									
v/c Ratio		0.56	0.37		0.89					0.50	0.91	
Uniform Delay, d1		6.0	5.0		8.8					19.4	21.6	
Progression Factor		1.00	1.00		1.00					1.00	1.00	
Incremental Delay, d2		0.4	0.5		3.6					1.6	28.5	
Delay (s)		6.3	5.5		12.4					20.9	50.0	
Level of Service		A	A		B					C	D	
Approach Delay (s)		6.1			12.4			0.0			39.0	
Approach LOS		A			B			A			D	

Intersection Summary

HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	8.4
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	302	1285	0	0	1161	383	724	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	0.91	0.91	0.91	0.83	0.83	0.83	0.83	0.83	0.83	0.84	0.84	0.84
Adj. Flow (vph)	332	1412	0	0	1399	461	872	0	0	236	0	320
RTOR Reduction (vph)	0	0	0	0	0	330	0	0	0	0	0	9
Lane Group Flow (vph)	332	1412	0	0	1399	131	872	0	0	236	0	311
Turn Type	Prot					Over	Prot			Prot		Over
Protected Phases	5	2			6	4	8			4		5
Permitted Phases												
Actuated Green, G (s)	19.8	60.1			35.1	28.0	28.0			28.0		19.8
Effective Green, g (s)	19.8	60.1			35.1	28.0	28.0			28.0		19.8
Actuated g/C Ratio	0.20	0.61			0.35	0.28	0.28			0.28		0.20
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)	687	3090			1805	448	972			972		317
v/s Ratio Prot	0.10	0.28			c0.28	0.08	c0.25			0.07		c0.20
v/s Ratio Perm												
v/c Ratio	0.48	0.46			0.78	0.29	0.90			0.24		0.98
Uniform Delay, d1	35.0	10.5			28.4	27.7	34.1			27.3		39.4
Progression Factor	1.00	1.00			1.00	1.00	1.00			1.00		1.00
Incremental Delay, d2	0.2	0.2			2.4	0.6	10.9			0.2		45.2
Delay (s)	35.2	10.7			30.8	28.3	45.0			27.5		84.6
Level of Service	D	B			C	C	D			C		F
Approach Delay (s)		15.4			30.2			45.0			60.4	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	98.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	389	1110	0	0	1827	362	702	0	0	440	0	434
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	0.97	0.97	0.97	0.96	0.96	0.96	0.92	0.92	0.92	0.89	0.89	0.89
Adj. Flow (vph)	401	1144	0	0	1903	377	763	0	0	494	0	488
RTOR Reduction (vph)	0	0	0	0	0	221	0	0	0	0	0	12
Lane Group Flow (vph)	401	1144	0	0	1903	156	763	0	0	494	0	476
Turn Type	Prot					Over	Prot			Prot		Over
Protected Phases	5	2			6	4	8			4		5
Permitted Phases												
Actuated Green, G (s)	19.8	60.2			35.2	26.0	26.0			26.0		19.8
Effective Green, g (s)	19.8	60.2			35.2	26.0	26.0			26.0		19.8
Actuated g/C Ratio	0.20	0.62			0.36	0.27	0.27			0.27		0.20
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)	701	3156			1845	424	920			920		323
v/s Ratio Prot	0.12	0.22			c0.37	0.10	c0.22			0.14		c0.30
v/s Ratio Perm												
v/c Ratio	0.57	0.36			1.03	0.37	0.83			0.54		1.47
Uniform Delay, d1	34.8	9.0			30.9	28.8	33.4			30.4		38.6
Progression Factor	1.00	1.00			1.00	1.00	1.00			1.00		1.00
Incremental Delay, d2	0.7	0.1			29.5	0.9	6.4			0.9		229.4
Delay (s)	35.5	9.1			60.4	29.8	39.8			31.3		268.0
Level of Service	D	A			E	C	D			C		F
Approach Delay (s)		16.0			55.3			39.8			148.9	
Approach LOS		B			E			D			F	

Intersection Summary

HCM Average Control Delay	58.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	97.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.0%	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)	26	1764	429	559	1195	4	301	8	443	14	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		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	3433	3537		1681	1690	1583		1751	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	3433	3537		1681	1690	1583		1751	
Peak-hour factor, PHF	0.91	0.91	0.91	0.82	0.82	0.82	0.90	0.90	0.90	0.75	0.75	0.75
Adj. Flow (vph)	29	1938	471	682	1457	5	334	9	492	19	21	20
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	406	0	14	0
Lane Group Flow (vph)	29	1938	355	682	1462	0	170	173	86	0	46	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)	11.9	56.3	56.3	19.9	66.3		19.7	19.7	19.9		6.1	
Effective Green, g (s)	11.9	56.3	56.3	19.9	66.3		19.7	19.7	19.9		6.1	
Actuated g/C Ratio	0.10	0.46	0.46	0.16	0.54		0.16	0.16	0.16		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)	171	1615	722	554	1900		268	270	255		87	
v/s Ratio Prot	0.02	c0.55		c0.20	0.41		0.10	c0.10	0.05		c0.03	
v/s Ratio Perm			0.22									
v/c Ratio	0.17	1.20	0.49	1.23	0.77		0.63	0.64	0.34		0.53	
Uniform Delay, d1	51.2	33.6	23.5	51.8	22.5		48.5	48.5	45.9		57.2	
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	96.3	1.4	119.1	2.4		7.4	7.7	0.3		2.6	
Delay (s)	51.4	129.8	24.9	170.8	25.0		55.9	56.3	46.2		59.9	
Level of Service	D	F	C	F	C		E	E	D		E	
Approach Delay (s)		108.6			71.4			50.3			59.9	
Approach LOS		F			E			D			E	

Intersection Summary			
HCM Average Control Delay	84.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	123.4	Sum of lost time (s)	21.4
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	1543	423	496	1637	12	565	9	437	19	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		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	3433	3535		1681	1688	1583		1755	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	3433	3535		1681	1688	1583		1755	
Peak-hour factor, PHF	0.89	0.89	0.89	0.94	0.94	0.94	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	40	1734	475	528	1741	13	649	10	502	23	24	21
RTOR Reduction (vph)	0	0	135	0	0	0	0	0	403	0	12	0
Lane Group Flow (vph)	40	1734	340	528	1754	0	331	328	99	0	56	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)	12.2	56.1	56.1	19.8	65.7		24.1	24.1	19.8		6.7	
Effective Green, g (s)	12.2	56.1	56.1	19.8	65.7		24.1	24.1	19.8		6.7	
Actuated g/C Ratio	0.10	0.44	0.44	0.15	0.51		0.19	0.19	0.15		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)	169	1550	693	531	1813		316	318	245		92	
v/s Ratio Prot	0.02	c0.49		0.15	c0.50		c0.20	0.19	0.06		c0.03	
v/s Ratio Perm			0.21									
v/c Ratio	0.24	1.12	0.49	0.99	0.97		1.05	1.03	0.40		0.61	
Uniform Delay, d1	53.6	36.0	25.8	54.1	30.2		52.0	52.0	48.8		59.4	
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	62.7	1.4	37.3	14.4		63.6	58.8	0.4		7.5	
Delay (s)	53.9	98.7	27.2	91.4	44.6		115.6	110.8	49.2		66.9	
Level of Service	D	F	C	F	D		F	F	D		E	
Approach Delay (s)		82.8			55.4			85.5			66.9	
Approach LOS		F			E			F			E	

Intersection Summary			
HCM Average Control Delay	72.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	128.1	Sum of lost time (s)	21.1
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	273	1505	99	77	365	0	0	430	63
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			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5009		1770	3539			3471	
Flt Permitted					0.99		0.95	1.00			1.00	
Satd. Flow (perm)					5009		1770	3539			3471	
Peak-hour factor, PHF	0.92	0.92	0.92	0.82	0.82	0.82	0.94	0.94	0.94	0.78	0.78	0.78
Adj. Flow (vph)	0	0	0	333	1835	121	82	388	0	0	551	81
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	0	0	0	2283	0	82	388	0	0	619	0
Turn Type				Split			Prot					
Protected Phases				6	6		3	8			4	
Permitted Phases												
Actuated Green, G (s)					31.0		6.5	31.7			21.5	
Effective Green, g (s)					31.0		6.5	31.7			21.5	
Actuated g/C Ratio					0.43		0.09	0.44			0.30	
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)					2160		160	1560			1038	
v/s Ratio Prot					c0.46		c0.05	0.11			c0.18	
v/s Ratio Perm												
v/c Ratio					1.06		0.51	0.25			0.60	
Uniform Delay, d1					20.5		31.2	12.6			21.5	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					36.5		1.2	0.1			1.4	
Delay (s)					57.0		32.3	12.7			22.9	
Level of Service					E		C	B			C	
Approach Delay (s)		0.0			57.0			16.1			22.9	
Approach LOS		A			E			B			C	

Intersection Summary			
HCM Average Control Delay	45.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	12.9
Intersection Capacity Utilization	72.8%	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	0	0	210	1753	58	118	352	0	0	375	105
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					1.00		1.00	1.00			0.97	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5037		1770	3539			3423	
Flt Permitted					0.99		0.95	1.00			1.00	
Satd. Flow (perm)					5037		1770	3539			3423	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	0	0	223	1865	62	134	400	0	0	426	119
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	28	0
Lane Group Flow (vph)	0	0	0	0	2147	0	134	400	0	0	517	0
Turn Type				Split			Prot					
Protected Phases				6	6		3	8			4	
Permitted Phases												
Actuated Green, G (s)					31.1		8.4	31.9			19.8	
Effective Green, g (s)					31.1		8.4	31.9			19.8	
Actuated g/C Ratio					0.43		0.12	0.44			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)					2170		206	1564			939	
v/s Ratio Prot					c0.43		c0.08	0.11			c0.15	
v/s Ratio Perm												
v/c Ratio					0.99		0.65	0.26			0.55	
Uniform Delay, d1					20.4		30.5	12.7			22.4	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					16.8		5.5	0.1			1.2	
Delay (s)					37.2		36.0	12.8			23.6	
Level of Service					D		D	B			C	
Approach Delay (s)		0.0			37.2			18.6			23.6	
Approach LOS		A			D			B			C	

Intersection Summary

HCM Average Control Delay	31.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	12.9
Intersection Capacity Utilization	76.0%	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)	0	0	0	175	1990	61	98	525	0	0	497	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					1.00		1.00	1.00			1.00	0.85
Flt Protected					1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)					5045		1770	3539			3539	1583
Flt Permitted					1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)					5045		1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.88	0.88	0.88	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	192	2187	67	111	597	0	0	518	131
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	0	74
Lane Group Flow (vph)	0	0	0	0	2443	0	111	597	0	0	518	57
Turn Type				Split			Prot					Prot
Protected Phases				6	6		3	8			4	4
Permitted Phases												
Actuated Green, G (s)					31.2		7.6	32.0			20.2	20.2
Effective Green, g (s)					31.2		7.6	32.0			20.2	20.2
Actuated g/C Ratio					0.43		0.10	0.44			0.28	0.28
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)					2174		186	1564			987	442
v/s Ratio Prot					c0.48		c0.06	0.17			c0.15	0.04
v/s Ratio Perm												
v/c Ratio					1.12		0.60	0.38			0.52	0.13
Uniform Delay, d1					20.6		30.9	13.6			22.0	19.5
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					62.4		3.4	0.2			1.0	0.3
Delay (s)					83.0		34.3	13.7			23.1	19.8
Level of Service					F		C	B			C	B
Approach Delay (s)		0.0			83.0			17.0			22.4	
Approach LOS		A			F			B			C	

Intersection Summary			
HCM Average Control Delay	60.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	73.7%	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)	0	0	0	159	1782	91	183	669	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)					5031		1770	3539			3539	1583
Flt Permitted					1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)					5031		1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	167	1876	96	191	697	0	0	736	175
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	0	67
Lane Group Flow (vph)	0	0	0	0	2134	0	191	697	0	0	736	108
Turn Type				Split			Prot					Prot
Protected Phases				6	6		3	8			4	4
Permitted Phases												
Actuated Green, G (s)					30.6		13.0	41.5			24.3	24.3
Effective Green, g (s)					30.6		13.0	41.5			24.3	24.3
Actuated g/C Ratio					0.38		0.16	0.51			0.30	0.30
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)					1894		283	1807			1058	473
v/s Ratio Prot					c0.42		c0.11	0.20			c0.21	0.07
v/s Ratio Perm												
v/c Ratio					1.13		0.67	0.39			0.70	0.23
Uniform Delay, d1					25.3		32.2	12.1			25.2	21.4
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					64.5		4.9	0.1			2.6	0.6
Delay (s)					89.8		37.1	12.3			27.9	22.0
Level of Service					F		D	B			C	C
Approach Delay (s)		0.0			89.8			17.6			26.7	
Approach LOS		A			F			B			C	

Intersection Summary

HCM Average Control Delay	59.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	81.3	Sum of lost time (s)	13.4
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
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	7	2	318	139	61	543	18	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		0.99			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)		5018			3369	1441	1770	3522		1611
Flt Permitted		0.99			1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)		5018			3369	1441	1770	3522		1611
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.85	0.85	0.70	0.70	0.70	0.67
Adj. Flow (vph)	23	166	8	2	374	164	87	776	26	24
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	18
Lane Group Flow (vph)	0	199	0	0	390	148	87	802	0	6
Turn Type	Perm					Perm	Prot			custom
Protected Phases		4			2		1	6		
Permitted Phases	4					2				8
Actuated Green, G (s)		13.6			25.4	25.4	4.4	26.3		13.6
Effective Green, g (s)		13.6			25.4	25.4	4.4	26.3		13.6
Actuated g/C Ratio		0.24			0.44	0.44	0.08	0.46		0.24
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)		1193			1496	640	136	1619		383
v/s Ratio Prot					c0.12		0.05	c0.23		
v/s Ratio Perm		0.04				0.10				0.00
v/c Ratio		0.17			0.26	0.23	0.64	0.50		0.01
Uniform Delay, d1		17.3			10.0	9.9	25.6	10.8		16.7
Progression Factor		1.00			1.00	1.00	1.22	0.49		1.00
Incremental Delay, d2		0.0			0.0	0.1	9.3	0.1		0.0
Delay (s)		17.3			10.0	9.9	40.6	5.3		16.7
Level of Service		B			B	A	D	A		B
Approach Delay (s)		17.3			10.0			8.8		
Approach LOS		B			A			A		

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	57.2	Sum of lost time (s)	9.8
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
50: Monterey Street & Beale Ave

2/1/2011

Movement	EBL	EBT	EBR	EBR2	NBT	NBR	SBL2	SBT	SBR	NWR2
Lane Configurations										
Volume (vph)	55	327	9	15	513	238	56	503	16	19
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		0.99			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)		5007			3367	1441	1770	3523		1611
Flt Permitted		0.99			1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)		5007			3367	1441	1770	3523		1611
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.80	0.80	0.96	0.96	0.96	0.79
Adj. Flow (vph)	71	425	12	19	641	298	58	524	17	24
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	18
Lane Group Flow (vph)	0	527	0	0	671	268	58	541	0	6
Turn Type	Perm					Perm	Prot			custom
Protected Phases		4			2		1	6		
Permitted Phases	4					2				8
Actuated Green, G (s)		12.7			23.7	23.7	3.5	19.5		12.7
Effective Green, g (s)		12.7			23.7	23.7	3.5	19.5		12.7
Actuated g/C Ratio		0.24			0.44	0.44	0.07	0.36		0.24
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)		1184			1486	636	115	1279		381
v/s Ratio Prot					c0.20		0.03	c0.15		
v/s Ratio Perm		0.11				0.19				0.00
v/c Ratio		0.45			0.45	0.42	0.50	0.42		0.01
Uniform Delay, d1		17.5			10.5	10.3	24.3	12.9		15.7
Progression Factor		1.00			1.00	1.00	1.32	0.41		1.00
Incremental Delay, d2		0.1			0.1	0.2	1.3	0.1		0.0
Delay (s)		17.6			10.5	10.5	33.2	5.3		15.7
Level of Service		B			B	B	C	A		B
Approach Delay (s)		17.6			10.5			8.0		
Approach LOS		B			B			A		

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	14.7
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)	94	860	53	0	272	66	32	172	34	86	139	47
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	0.99			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	1.00
Satd. Flow (prot)	1770	5041			4936		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	5041			4936		1770	3451		1770	1863	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.85	0.85	0.85	0.88	0.88	0.88	0.71	0.71	0.71
Adj. Flow (vph)	107	977	60	0	320	78	36	195	39	121	196	66
RTOR Reduction (vph)	0	9	0	0	47	0	0	20	0	0	0	53
Lane Group Flow (vph)	107	1028	0	0	351	0	36	214	0	121	196	13
Turn Type	Prot						Split			Split		Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases												8
Actuated Green, G (s)	6.9	28.1			17.5		10.9	10.9		12.5	12.5	12.5
Effective Green, g (s)	6.9	28.1			17.5		10.9	10.9		12.5	12.5	12.5
Actuated g/C Ratio	0.11	0.43			0.27		0.17	0.17		0.19	0.19	0.19
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)	186	2159			1317		294	573		337	355	302
v/s Ratio Prot	c0.06	c0.20			0.07		0.02	c0.06		0.07	c0.11	
v/s Ratio Perm												0.01
v/c Ratio	0.58	0.48			0.27		0.12	0.37		0.36	0.55	0.04
Uniform Delay, d1	28.0	13.5			19.0		23.3	24.3		23.1	24.0	21.7
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.7	0.3			0.2		0.2	0.4		0.7	1.9	0.1
Delay (s)	30.6	13.8			19.2		23.5	24.7		23.7	25.9	21.7
Level of Service	C	B			B		C	C		C	C	C
Approach Delay (s)		15.3			19.2			24.6			24.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	12.9
Intersection Capacity Utilization	47.0%	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	1222	54	0	362	82	67	189	75	80	184	52
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	0.99			0.97		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	1.00
Satd. Flow (prot)	1770	5053			4945		1770	3388		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	5053			4945		1770	3388		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.73	0.73	0.73	0.80	0.80	0.80	0.85	0.85	0.85
Adj. Flow (vph)	104	1328	59	0	496	112	84	236	94	94	216	61
RTOR Reduction (vph)	0	6	0	0	37	0	0	51	0	0	0	50
Lane Group Flow (vph)	104	1381	0	0	571	0	84	279	0	94	216	11
Turn Type	Prot						Split			Split		Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases												8
Actuated Green, G (s)	7.3	37.1			26.1		12.3	12.3		13.3	13.3	13.3
Effective Green, g (s)	7.3	37.1			26.1		12.3	12.3		13.3	13.3	13.3
Actuated g/C Ratio	0.10	0.48			0.34		0.16	0.16		0.17	0.17	0.17
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)	168	2441			1681		283	543		307	323	274
v/s Ratio Prot	0.06	c0.27			0.12		0.05	c0.08		0.05	c0.12	
v/s Ratio Perm												0.01
v/c Ratio	0.62	0.57			0.34		0.30	0.51		0.31	0.67	0.04
Uniform Delay, d1	33.4	14.1			18.9		28.4	29.5		27.7	29.7	26.4
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	0.4			0.2		0.6	0.8		0.6	5.2	0.1
Delay (s)	38.1	14.6			19.1		29.0	30.3		28.3	34.9	26.5
Level of Service	D	B			B		C	C		C	C	C
Approach Delay (s)		16.2			19.1			30.1			31.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	76.8	Sum of lost time (s)	14.1
Intersection Capacity Utilization	54.6%	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)	238	199	27	0	0	0	0	539	141	154	1083	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	0.98						0.97		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	4994						4927		1770	5085	
Flt Permitted	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (perm)	1770	4994						4927		1770	5085	
Peak-hour factor, PHF	0.71	0.71	0.71	0.92	0.92	0.92	0.78	0.78	0.78	0.77	0.77	0.77
Adj. Flow (vph)	335	280	38	0	0	0	0	691	181	200	1406	0
RTOR Reduction (vph)	0	20	0	0	0	0	0	54	0	0	0	0
Lane Group Flow (vph)	335	298	0	0	0	0	0	818	0	200	1406	0
Turn Type	Split									Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.4	17.4						21.3		12.0	37.0	
Effective Green, g (s)	17.4	17.4						21.3		12.0	37.0	
Actuated g/C Ratio	0.28	0.28						0.34		0.19	0.59	
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)	490	1381						1668		338	2991	
v/s Ratio Prot	c0.19	0.06						0.17		c0.11	c0.28	
v/s Ratio Perm												
v/c Ratio	0.68	0.22						0.49		0.59	0.47	
Uniform Delay, d1	20.3	17.5						16.5		23.2	7.4	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.1						0.3		1.8	0.2	
Delay (s)	24.2	17.6						16.8		25.1	7.5	
Level of Service	C	B						B		C	A	
Approach Delay (s)		21.0			0.0			16.8			9.7	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	7.8
Intersection Capacity Utilization	45.7%	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)	180	224	28	0	0	0	0	748	355	291	725	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	0.98						0.95		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	5001						4840		1770	5085	
Flt Permitted	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (perm)	1770	5001						4840		1770	5085	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.94
Adj. Flow (vph)	214	267	33	0	0	0	0	840	399	310	771	0
RTOR Reduction (vph)	0	20	0	0	0	0	0	94	0	0	0	0
Lane Group Flow (vph)	214	280	0	0	0	0	0	1145	0	310	771	0
Turn Type	Split									Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.0	14.0						24.9		16.1	44.7	
Effective Green, g (s)	14.0	14.0						24.9		16.1	44.7	
Actuated g/C Ratio	0.21	0.21						0.37		0.24	0.67	
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)	369	1042						1793		424	3382	
v/s Ratio Prot	c0.12	0.06						c0.24		c0.18	0.15	
v/s Ratio Perm												
v/c Ratio	0.58	0.27						0.64		0.73	0.23	
Uniform Delay, d1	24.0	22.3						17.4		23.6	4.4	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.1						0.9		5.5	0.0	
Delay (s)	26.2	22.4						18.3		29.1	4.5	
Level of Service	C	C						B		C	A	
Approach Delay (s)		24.0			0.0			18.3			11.5	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	67.2	Sum of lost time (s)	12.2
Intersection Capacity Utilization	58.9%	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)	0	0	0	232	220	43	44	293	0	0	400	20
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	0.98		1.00	1.00			0.99	
Flt Protected				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (prot)				1610	3290		1770	3539			3514	
Flt Permitted				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (perm)				1610	3290		1770	3539			3514	
Peak-hour factor, PHF	0.92	0.92	0.92	0.85	0.85	0.85	0.82	0.82	0.82	0.54	0.54	0.54
Adj. Flow (vph)	0	0	0	273	259	51	54	357	0	0	741	37
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	191	382	0	54	357	0	0	775	0
Turn Type				Perm			Prot					
Protected Phases					8		5	2			6	
Permitted Phases				8								
Actuated Green, G (s)				13.6	13.6		3.5	25.4			26.3	
Effective Green, g (s)				13.6	13.6		3.5	25.4			26.3	
Actuated g/C Ratio				0.24	0.24		0.06	0.44			0.46	
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)				383	782		108	1572			1616	
v/s Ratio Prot							c0.03	0.10			c0.22	
v/s Ratio Perm				c0.12	0.12							
v/c Ratio				0.50	0.49		0.50	0.23			0.48	
Uniform Delay, d1				18.9	18.8		26.0	9.8			10.7	
Progression Factor				1.00	1.00		0.71	0.61			1.00	
Incremental Delay, d2				0.4	0.2		1.3	0.0			0.1	
Delay (s)				19.2	19.0		19.8	6.0			10.8	
Level of Service				B	B		B	A			B	
Approach Delay (s)		0.0			19.1			7.8			10.8	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	57.2	Sum of lost time (s)	13.8
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)	0	0	0	202	224	60	39	524	0	0	366	36
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			0.99	
Flt Protected				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (prot)				1610	3276		1770	3539			3491	
Flt Permitted				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (perm)				1610	3276		1770	3539			3491	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.76	0.76	0.76	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	222	246	66	51	689	0	0	402	40
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	178	339	0	51	689	0	0	436	0
Turn Type				Perm			Prot					
Protected Phases					8		5	2			6	
Permitted Phases				8								
Actuated Green, G (s)				12.7	12.7		7.7	23.7			19.5	
Effective Green, g (s)				12.7	12.7		7.7	23.7			19.5	
Actuated g/C Ratio				0.24	0.24		0.14	0.44			0.36	
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)				381	775		254	1562			1268	
v/s Ratio Prot							0.03	c0.19			c0.12	
v/s Ratio Perm				c0.11	0.10							
v/c Ratio				0.47	0.44		0.20	0.44			0.34	
Uniform Delay, d1				17.6	17.5		20.3	10.4			12.4	
Progression Factor				1.00	1.00		0.52	0.51			1.00	
Incremental Delay, d2				0.3	0.1		0.1	0.1			0.1	
Delay (s)				17.9	17.6		10.6	5.4			12.5	
Level of Service				B	B		B	A			B	
Approach Delay (s)		0.0			17.7			5.8			12.5	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	14.7
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↱			↱
Volume (veh/h)	0	260	1	0	475	9	0	0	44	0	0	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.69	0.69	0.69	0.73	0.73	0.73	0.81	0.81	0.81
Hourly flow rate (vph)	0	356	1	0	688	13	0	0	60	0	0	16
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	701			358			701	1058	179	873	1052	351
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	701			358			701	1058	179	873	1052	351
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	98
cM capacity (veh/h)	892			1198			317	223	833	227	225	645

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	237	120	455	243	60	16
Volume Left	0	0	0	0	0	0
Volume Right	0	1	0	13	60	16
cSH	1700	1700	1700	1700	833	645
Volume to Capacity	0.14	0.07	0.27	0.14	0.07	0.02
Queue Length 95th (ft)	0	0	0	0	6	2
Control Delay (s)	0.0	0.0	0.0	0.0	9.7	10.7
Lane LOS					A	B
Approach Delay (s)	0.0		0.0		9.7	10.7
Approach LOS					A	B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	23.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	506	2	0	537	20	0	0	41	0	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.68	0.68	0.68
Hourly flow rate (vph)	0	556	2	0	590	22	0	0	48	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	612			558			852	1169	279	879	1159	306
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	612			558			852	1169	279	879	1159	306
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	96
cM capacity (veh/h)	963			1009			243	192	718	226	194	690

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	371	188	393	219	48	28
Volume Left	0	0	0	0	0	0
Volume Right	0	2	0	22	48	28
cSH	1700	1700	1700	1700	718	690
Volume to Capacity	0.22	0.11	0.23	0.13	0.07	0.04
Queue Length 95th (ft)	0	0	0	0	5	3
Control Delay (s)	0.0	0.0	0.0	0.0	10.4	10.4
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		10.4	10.4
Approach LOS					B	B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	25.5%	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 (vph)	60	181	97	224	331	89	136	678	31	126	438	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	0.97		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	3354		3433	3427		3433	3985		3433	3946	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3354		3433	3427		3433	3985		3433	3946	
Peak-hour factor, PHF	0.89	0.89	0.89	0.69	0.69	0.69	0.81	0.81	0.81	0.88	0.88	0.88
Adj. Flow (vph)	67	203	109	325	480	129	168	837	38	143	498	60
RTOR Reduction (vph)	0	81	0	0	24	0	0	4	0	0	9	0
Lane Group Flow (vph)	67	231	0	325	585	0	168	871	0	143	549	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.3	13.1		10.4	19.2		7.1	19.1		6.8	18.8	
Effective Green, g (s)	4.3	13.1		10.4	19.2		7.1	19.1		6.8	18.8	
Actuated g/C Ratio	0.06	0.19		0.15	0.28		0.11	0.28		0.10	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)	113	650		528	973		361	1126		345	1097	
v/s Ratio Prot	0.04	0.07		c0.09	c0.17		0.05	c0.22		0.04	c0.14	
v/s Ratio Perm												
v/c Ratio	0.59	0.36		0.62	0.60		0.47	0.77		0.41	0.50	
Uniform Delay, d1	30.8	23.6		26.7	20.9		28.5	22.3		28.5	20.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.5	0.1		1.5	0.7		0.3	3.1		0.3	0.1	
Delay (s)	36.3	23.7		28.2	21.6		28.8	25.3		28.8	20.6	
Level of Service	D	C		C	C		C	C		C	C	
Approach Delay (s)		25.9			23.9			25.9			22.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	58.4%	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)	85	376	130	260	317	114	209	725	53	188	689	29
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	0.96		1.00	0.96		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	3403		3433	3399		3433	3970		3433	3987	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3403		3433	3399		3433	3970		3433	3987	
Peak-hour factor, PHF	0.89	0.89	0.89	0.94	0.94	0.94	0.90	0.90	0.90	0.83	0.83	0.83
Adj. Flow (vph)	96	422	146	277	337	121	232	806	59	227	830	35
RTOR Reduction (vph)	0	37	0	0	37	0	0	6	0	0	3	0
Lane Group Flow (vph)	96	531	0	277	421	0	232	859	0	227	862	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.5	15.8		10.2	19.5		8.5	19.2		8.5	19.2	
Effective Green, g (s)	6.5	15.8		10.2	19.5		8.5	19.2		8.5	19.2	
Actuated g/C Ratio	0.09	0.22		0.14	0.27		0.12	0.27		0.12	0.27	
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)	160	748		487	922		406	1060		406	1065	
v/s Ratio Prot	0.05	c0.16		c0.08	0.12		0.07	c0.22		0.07	c0.22	
v/s Ratio Perm												
v/c Ratio	0.60	0.71		0.57	0.46		0.57	0.81		0.56	0.81	
Uniform Delay, d1	31.4	25.9		28.8	21.8		30.0	24.6		29.9	24.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	2.5		0.9	0.1		1.2	4.5		1.0	4.4	
Delay (s)	35.7	28.5		29.7	21.9		31.2	29.2		30.9	29.0	
Level of Service	D	C		C	C		C	C		C	C	
Approach Delay (s)		29.5			24.9			29.6			29.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	21.1
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
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)	4	7	11	1	3	29	19	20	3	19	6	8
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				1984			1994		
Flt Permitted		0.95	1.00				0.87			0.97		
Satd. Flow (perm)		1770	1583				1769			1946		
Peak-hour factor, PHF	0.52	0.52	0.52	0.52	0.93	0.93	0.93	0.93	0.60	0.60	0.60	0.60
Adj. Flow (vph)	8	13	21	2	3	31	20	22	5	32	10	13
RTOR Reduction (vph)	0	0	2	0	0	0	10	0	0	7	0	0
Lane Group Flow (vph)	0	21	21	0	0	0	66	0	0	53	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)		3.3	3.3				8.2			8.2		
Effective Green, g (s)		3.3	3.3				8.2			8.2		
Actuated g/C Ratio		0.04	0.04				0.10			0.10		
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)		69	62				171			188		
v/s Ratio Prot		0.01										
v/s Ratio Perm			c0.01				c0.04			0.03		
v/c Ratio		0.30	0.34				0.39			0.28		
Uniform Delay, d1		39.7	39.7				36.0			35.6		
Progression Factor		1.00	1.00				1.00			1.00		
Incremental Delay, d2		0.9	1.2				2.5			1.4		
Delay (s)		40.6	40.9				38.5			37.0		
Level of Service		D	D				D			D		
Approach Delay (s)		40.8					38.5			37.0		
Approach LOS		D					D			D		

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	21.5
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR2	SEL	SET
Lane Configurations												
Volume (vph)	27	7	28	120	16	19	7	28	2	5	19	1281
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			2050			1770	5065
Flt Permitted		0.95	1.00		0.74			0.94			0.95	1.00
Satd. Flow (perm)		1770	1583		1537			1948			1770	5065
Peak-hour factor, PHF	0.78	0.78	0.78	0.45	0.45	0.45	0.81	0.81	0.81	0.81	0.91	0.91
Adj. Flow (vph)	35	9	36	267	36	42	9	35	2	6	21	1408
RTOR Reduction (vph)	0	0	0	0	3	0	0	3	0	0	0	1
Lane Group Flow (vph)	0	44	36	0	342	0	0	49	0	0	21	1445
Turn Type	Split		Perm	Perm			Perm				Prot	
Protected Phases	3	3			4			4			1	6
Permitted Phases			3	4			4					
Actuated Green, G (s)		5.9	5.9		26.3			26.3			2.5	48.1
Effective Green, g (s)		5.9	5.9		26.3			26.3			2.5	48.1
Actuated g/C Ratio		0.05	0.05		0.24			0.24			0.02	0.44
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)		96	86		372			471			41	2241
v/s Ratio Prot		c0.02									0.01	c0.29
v/s Ratio Perm			0.02		c0.22			0.03				
v/c Ratio		0.46	0.42		0.92			0.10			0.51	0.64
Uniform Delay, d1		49.9	49.7		40.2			32.0			52.5	23.6
Progression Factor		1.00	1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2		1.3	1.2		27.8			0.2			4.4	0.7
Delay (s)		51.1	50.9		68.0			32.2			56.9	24.3
Level of Service		D	D		E			C			E	C
Approach Delay (s)		51.0			68.0			32.2				24.8
Approach LOS		D			E			C				C

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	27.4
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations								
Volume (vph)	24	1039	98	16	25	38	1153	7
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	5010				1770	5081	
Flt Permitted	0.95	1.00				0.95	1.00	
Satd. Flow (perm)	1770	5010				1770	5081	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.81	0.81	0.81	0.81
Adj. Flow (vph)	27	1154	109	18	31	47	1423	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	27	1281	0	0	0	78	1432	0
Turn Type	Prot				Prot	Prot		
Protected Phases	1	6			5	5	2	
Permitted Phases								
Actuated Green, G (s)	3.3	44.9				7.0	48.6	
Effective Green, g (s)	3.3	44.9				7.0	48.6	
Actuated g/C Ratio	0.04	0.53				0.08	0.57	
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)	69	2650				146	2909	
v/s Ratio Prot	0.02	0.26				c0.04	c0.28	
v/s Ratio Perm								
v/c Ratio	0.39	0.48				0.53	0.49	
Uniform Delay, d1	39.8	12.7				37.4	10.8	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	1.3	0.2				1.9	0.2	
Delay (s)	41.2	12.8				39.3	11.0	
Level of Service	D	B				D	B	
Approach Delay (s)		13.4					12.5	
Approach LOS		B					B	

Intersection Summary

Movement	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations						
Volume (vph)	28	6	38	17	1182	16
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	0.91	0.91	0.88	0.88	0.88	0.88
Adj. Flow (vph)	31	7	43	19	1343	18
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	0	0	62	1360	0
Turn Type			Prot	Prot		
Protected Phases			5	5	2	
Permitted Phases						
Actuated Green, G (s)				6.9	52.5	
Effective Green, g (s)				6.9	52.5	
Actuated g/C Ratio				0.06	0.48	
Clearance Time (s)				5.2	5.9	
Vehicle Extension (s)				2.0	4.3	
Lane Grp Cap (vph)				112	2451	
v/s Ratio Prot				c0.04	c0.27	
v/s Ratio Perm						
v/c Ratio				0.55	0.56	
Uniform Delay, d1				49.4	19.8	
Progression Factor				1.00	1.00	
Incremental Delay, d2				3.3	0.4	
Delay (s)				52.7	20.2	
Level of Service				D	C	
Approach Delay (s)					21.6	
Approach LOS					C	

Intersection Summary

Movement	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations								
Volume (vph)	39	446	203	96	49	768	890	83
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	0.97		1.00	1.00	0.99	
Flt Protected		0.95	0.98		0.95	1.00	1.00	
Satd. Flow (prot)		1725	4576		1770	5085	5020	
Flt Permitted		0.95	0.98		0.95	1.00	1.00	
Satd. Flow (perm)		1725	4576		1770	5085	5020	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.81	0.81	0.90	0.90
Adj. Flow (vph)	46	525	239	113	60	948	989	92
RTOR Reduction (vph)	0	7	30	0	0	0	13	0
Lane Group Flow (vph)	0	280	606	0	60	948	1068	0
Turn Type	Split	Split			Prot			
Protected Phases	8	8	8		5	2	6	
Permitted Phases								
Actuated Green, G (s)		16.3	16.3		3.8	24.1	16.6	
Effective Green, g (s)		16.3	16.3		3.8	24.1	16.6	
Actuated g/C Ratio		0.33	0.33		0.08	0.49	0.34	
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)		575	1525		138	2506	1704	
v/s Ratio Prot		c0.16	0.13		0.03	c0.19	c0.21	
v/s Ratio Perm								
v/c Ratio		0.49	0.40		0.43	0.38	0.63	
Uniform Delay, d1		13.0	12.5		21.5	7.7	13.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.7	0.2		0.8	0.0	0.5	
Delay (s)		13.6	12.7		22.3	7.8	14.1	
Level of Service		B	B		C	A	B	
Approach Delay (s)			13.0			8.6	14.1	
Approach LOS			B			A	B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	12.9
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations								
Volume (vph)	20	243	359	242	99	839	778	157
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	0.94		1.00	1.00	0.97	
Flt Protected		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		1725	4520		1770	5085	4957	
Flt Permitted		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)		1725	4520		1770	5085	4957	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.91	0.91	0.97	0.97
Adj. Flow (vph)	22	270	399	269	109	922	802	162
RTOR Reduction (vph)	0	3	111	0	0	0	36	0
Lane Group Flow (vph)	0	240	606	0	109	922	928	0
Turn Type	Split	Split			Prot			
Protected Phases	8	8	8		5	2	6	
Permitted Phases								
Actuated Green, G (s)		15.8	15.8		6.4	25.9	15.8	
Effective Green, g (s)		15.8	15.8		6.4	25.9	15.8	
Actuated g/C Ratio		0.31	0.31		0.13	0.52	0.31	
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)		543	1423		226	2624	1560	
v/s Ratio Prot		c0.14	0.13		c0.06	0.18	c0.19	
v/s Ratio Perm								
v/c Ratio		0.44	0.43		0.48	0.35	0.59	
Uniform Delay, d1		13.7	13.6		20.4	7.2	14.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.6	0.2		0.6	0.0	0.4	
Delay (s)		14.3	13.8		21.0	7.2	14.9	
Level of Service		B	B		C	A	B	
Approach Delay (s)			13.9			8.7	14.9	
Approach LOS			B			A	B	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	12.2
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)	31	89	19	111	78	51	36	179	62	101	449	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	0.94		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	1814		1770	1753		1770	3403		1770	3465	
Flt Permitted	0.65	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1210	1814		1252	1753		1770	3403		1770	3465	
Peak-hour factor, PHF	0.81	0.81	0.81	0.76	0.76	0.76	0.85	0.85	0.85	0.76	0.76	0.76
Adj. Flow (vph)	38	110	23	146	103	67	42	211	73	133	591	96
RTOR Reduction (vph)	0	7	0	0	21	0	0	31	0	0	10	0
Lane Group Flow (vph)	38	126	0	146	149	0	42	253	0	133	677	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)	10.8	10.8		10.8	10.8		2.0	14.4		6.3	18.7	
Effective Green, g (s)	10.8	10.8		10.8	10.8		2.0	14.4		6.3	18.7	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.04	0.32		0.14	0.41	
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)	289	433		299	419		78	1084		247	1434	
v/s Ratio Prot		0.07			0.08		c0.02	0.07		0.08	c0.20	
v/s Ratio Perm	0.03			c0.12								
v/c Ratio	0.13	0.29		0.49	0.35		0.54	0.23		0.54	0.47	
Uniform Delay, d1	13.5	14.1		14.8	14.3		21.1	11.3		18.1	9.7	
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		0.5	0.2		3.5	0.0		1.1	0.1	
Delay (s)	13.6	14.2		15.3	14.5		24.7	11.4		19.2	9.7	
Level of Service	B	B		B	B		C	B		B	A	
Approach Delay (s)		14.1			14.9			13.1			11.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	45.2	Sum of lost time (s)	13.7
Intersection Capacity Utilization	46.0%	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	105	52	118	109	109	42	440	77	109	370	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	0.95		1.00	0.92		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	1770		1770	1723		1770	3460		1770	3459	
Flt Permitted	0.57	1.00		0.51	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1063	1770		942	1723		1770	3460		1770	3459	
Peak-hour factor, PHF	0.54	0.54	0.54	0.89	0.89	0.89	0.80	0.80	0.80	0.86	0.86	0.86
Adj. Flow (vph)	178	194	96	133	122	122	52	550	96	127	430	77
RTOR Reduction (vph)	0	14	0	0	28	0	0	13	0	0	14	0
Lane Group Flow (vph)	178	276	0	133	216	0	52	633	0	127	493	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)	19.8	19.8		19.8	19.8		7.4	19.3		7.1	19.0	
Effective Green, g (s)	19.8	19.8		19.8	19.8		7.4	19.3		7.1	19.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.12	0.32		0.12	0.32	
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)	351	585		311	570		219	1115		210	1097	
v/s Ratio Prot		0.16			0.13		0.03	c0.18		c0.07	0.14	
v/s Ratio Perm	c0.17			0.14								
v/c Ratio	0.51	0.47		0.43	0.38		0.24	0.57		0.60	0.45	
Uniform Delay, d1	16.1	15.9		15.6	15.3		23.7	16.8		25.1	16.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		0.3	0.2		0.2	0.4		3.3	0.1	
Delay (s)	16.5	16.1		16.0	15.5		23.9	17.2		28.4	16.4	
Level of Service	B	B		B	B		C	B		C	B	
Approach Delay (s)		16.3			15.7			17.7			18.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	59.9	Sum of lost time (s)	13.7
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)	6	128	38	89	106	232	31	195	118	75	324	57
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	0.97		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	1799		1770	1671		1770	3339		1770	3460	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1799		1770	1671		1770	3339		1770	3460	
Peak-hour factor, PHF	0.73	0.73	0.73	0.81	0.81	0.81	0.80	0.80	0.80	0.79	0.79	0.79
Adj. Flow (vph)	8	175	52	110	131	286	39	244	148	95	410	72
RTOR Reduction (vph)	0	18	0	0	125	0	0	109	0	0	20	0
Lane Group Flow (vph)	8	209	0	110	292	0	39	283	0	95	462	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.6	14.1		3.8	17.3		1.3	13.6		4.3	16.6	
Effective Green, g (s)	0.6	14.1		3.8	17.3		1.3	13.6		4.3	16.6	
Actuated g/C Ratio	0.01	0.27		0.07	0.33		0.03	0.26		0.08	0.32	
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)	21	490		130	558		44	877		147	1109	
v/s Ratio Prot	0.00	0.12		c0.06	c0.18		0.02	0.08		c0.05	c0.13	
v/s Ratio Perm												
v/c Ratio	0.38	0.43		0.85	0.52		0.89	0.32		0.65	0.42	
Uniform Delay, d1	25.4	15.5		23.7	13.9		25.2	15.4		23.0	13.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.2	0.6		36.9	0.9		92.1	0.2		9.4	0.3	
Delay (s)	36.6	16.1		60.7	14.8		117.2	15.6		32.4	14.1	
Level of Service	D	B		E	B		F	B		C	B	
Approach Delay (s)		16.8			24.4			24.8			17.1	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	51.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.6%	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)	14	152	26	116	99	286	28	343	203	71	254	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	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	0.94		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	1822		1770	1655		1770	3342		1770	3483	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1822		1770	1655		1770	3342		1770	3483	
Peak-hour factor, PHF	0.79	0.79	0.79	0.86	0.86	0.86	0.94	0.94	0.94	0.77	0.77	0.77
Adj. Flow (vph)	18	192	33	135	115	333	30	365	216	92	330	39
RTOR Reduction (vph)	0	10	0	0	159	0	0	134	0	0	13	0
Lane Group Flow (vph)	18	215	0	135	289	0	30	447	0	92	356	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.6	15.4		5.1	19.9		1.4	15.1		4.1	17.8	
Effective Green, g (s)	0.6	15.4		5.1	19.9		1.4	15.1		4.1	17.8	
Actuated g/C Ratio	0.01	0.28		0.09	0.36		0.03	0.27		0.07	0.32	
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)	19	504		162	591		44	906		130	1113	
v/s Ratio Prot	0.01	0.12		c0.08	c0.17		0.02	c0.13		c0.05	c0.10	
v/s Ratio Perm												
v/c Ratio	0.95	0.43		0.83	0.49		0.68	0.49		0.71	0.32	
Uniform Delay, d1	27.5	16.5		24.9	13.9		26.9	17.1		25.2	14.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	179.6	0.6		29.1	0.6		35.7	0.4		16.1	0.2	
Delay (s)	207.1	17.1		54.0	14.6		62.6	17.5		41.3	14.5	
Level of Service	F	B		D	B		E	B		D	B	
Approach Delay (s)		31.2			23.7			19.7			19.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	55.7	Sum of lost time (s)	16.0
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	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	160	11	42	10	14	21	33	1309	571	126	1118	13
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		0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1696	1583		1726		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	0.96	1.00		0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1696	1583		1726		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.85	0.85	0.85	0.88	0.88	0.88
Adj. Flow (vph)	174	12	46	11	16	24	39	1540	672	143	1270	15
RTOR Reduction (vph)	0	0	41	0	23	0	0	0	153	0	0	2
Lane Group Flow (vph)	92	94	5	0	28	0	39	1540	519	143	1270	13
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)	13.4	13.4	13.4		6.8		6.0	61.5	61.5	13.7	69.2	69.2
Effective Green, g (s)	13.4	13.4	13.4		6.8		6.0	61.5	61.5	13.7	69.2	69.2
Actuated g/C Ratio	0.12	0.12	0.12		0.06		0.05	0.53	0.53	0.12	0.60	0.60
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)	195	197	184		102		92	1884	843	210	2120	948
v/s Ratio Prot	0.05	c0.06			c0.02		0.02	c0.44		c0.08	0.36	
v/s Ratio Perm			0.00						0.33			0.01
v/c Ratio	0.47	0.48	0.03		0.28		0.42	0.82	0.62	0.68	0.60	0.01
Uniform Delay, d1	47.7	47.8	45.3		52.0		53.1	22.4	18.8	48.8	14.5	9.4
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	3.1	3.1	0.1		1.5		1.1	3.2	1.9	7.0	0.7	0.0
Delay (s)	50.8	50.9	45.4		53.5		54.2	25.6	20.7	55.8	15.2	9.4
Level of Service	D	D	D		D		D	C	C	E	B	A
Approach Delay (s)		49.8			53.5			24.6			19.2	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	115.5	Sum of lost time (s)	20.1
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
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)	511	20	87	24	23	25	17	1206	308	149	1447	5
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	1691	1583		1747		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	1691	1583		1747		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.87	0.87	0.87	0.64	0.64	0.64	0.93	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	587	23	100	38	36	39	18	1297	331	173	1683	6
RTOR Reduction (vph)	0	0	79	0	14	0	0	0	104	0	0	0
Lane Group Flow (vph)	305	305	21	0	99	0	18	1297	227	173	1683	6
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)	24.6	24.6	24.6		13.1		2.8	62.4	62.4	17.5	77.1	77.1
Effective Green, g (s)	24.6	24.6	24.6		13.1		2.8	62.4	62.4	17.5	77.1	77.1
Actuated g/C Ratio	0.18	0.18	0.18		0.10		0.02	0.45	0.45	0.13	0.56	0.56
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)	300	302	283		166		36	1604	717	225	1982	886
v/s Ratio Prot	c0.18	0.18			c0.06		0.01	0.37		c0.10	c0.48	
v/s Ratio Perm			0.01						0.14			0.00
v/c Ratio	1.02	1.01	0.07		0.60		0.50	0.81	0.32	0.77	0.85	0.01
Uniform Delay, d1	56.6	56.6	47.1		59.8		66.8	32.5	24.0	58.1	25.4	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	56.3	54.3	0.2		5.7		3.9	3.5	0.5	13.2	4.0	0.0
Delay (s)	112.8	110.9	47.3		65.5		70.7	36.0	24.5	71.4	29.4	13.4
Level of Service	F	F	D		E		E	D	C	E	C	B
Approach Delay (s)		102.8			65.5			34.1			33.2	
Approach LOS		F			E			C			C	

Intersection Summary			
HCM Average Control Delay	45.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	137.7	Sum of lost time (s)	14.8
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	189	0	52	0	271	0	0	96	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.87	0.87	0.87	0.45	0.45	0.45
Hourly flow rate (vph)	0	0	0	222	0	61	0	311	0	0	213	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	430	525	107	418	525	156	213			311		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	430	525	107	418	525	156	213			311		
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	57	100	93	100			100		
cM capacity (veh/h)	473	456	927	519	456	862	1354			1246		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	148	135	156	156	142	71
Volume Left	148	74	0	0	0	0
Volume Right	0	61	0	0	0	0
cSH	519	633	1700	1700	1700	1700
Volume to Capacity	0.29	0.21	0.09	0.09	0.08	0.04
Queue Length 95th (ft)	29	20	0	0	0	0
Control Delay (s)	14.7	12.2	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	13.5		0.0		0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	21.0%	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	77	4	42	0	510	0	0	172	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.83	0.83	0.83	0.89	0.89	0.89	0.69	0.69	0.69
Hourly flow rate (vph)	0	0	0	93	5	51	0	573	0	0	249	6
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	592	825	128	698	828	287	255			573		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	592	825	128	698	828	287	255			573		
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	72	98	93	100			100		
cM capacity (veh/h)	358	306	899	327	305	710	1307			996		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	62	95	287	287	165	59
Volume Left	62	31	0	0	0	0
Volume Right	0	51	0	0	0	6
cSH	327	476	1700	1700	1700	1700
Volume to Capacity	0.19	0.18	0.17	0.17	0.10	0.05
Queue Length 95th (ft)	17	16	0	0	0	0
Control Delay (s)	18.5	14.2	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	16.0		0.0		0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	24.3%	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 (vph)	0	1	8	304	1	39	31	428	481	100	693	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)		1643		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)		1643		1681	1686	1583	1770	3539	1583	1770	3538	
Peak-hour factor, PHF	0.38	0.38	0.38	0.78	0.78	0.78	0.85	0.85	0.85	0.69	0.69	0.69
Adj. Flow (vph)	0	3	21	390	1	50	36	504	566	145	1004	3
RTOR Reduction (vph)	0	20	0	0	0	40	0	0	371	0	0	0
Lane Group Flow (vph)	0	4	0	195	196	10	36	504	195	145	1007	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)		1.8		14.2	14.2	14.2	3.1	23.9	23.9	10.8	31.6	
Effective Green, g (s)		1.8		14.2	14.2	14.2	3.1	23.9	23.9	10.8	31.6	
Actuated g/C Ratio		0.03		0.21	0.21	0.21	0.04	0.35	0.35	0.16	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)		43		345	346	325	79	1222	547	276	1616	
v/s Ratio Prot		c0.00		0.12	c0.12		0.02	0.14		c0.08	c0.28	
v/s Ratio Perm						0.01			0.12			
v/c Ratio		0.08		0.57	0.57	0.03	0.46	0.41	0.36	0.53	0.62	
Uniform Delay, d1		32.9		24.7	24.7	22.0	32.2	17.3	16.9	26.8	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		0.3		1.3	1.3	0.0	1.5	0.1	0.1	0.8	0.5	
Delay (s)		33.2		26.0	26.0	22.0	33.7	17.4	17.1	27.7	14.8	
Level of Service		C		C	C	C	C	B	B	C	B	
Approach Delay (s)		33.2			25.5			17.7			16.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	69.2	Sum of lost time (s)	13.5
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	24	528	4	69	21	679	234	62	516	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		0.92		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)		1691		1681	1687	1583	1770	3539	1583	1770	3535	
Flt Permitted		0.99		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1691		1681	1687	1583	1770	3539	1583	1770	3535	
Peak-hour factor, PHF	0.79	0.79	0.79	0.83	0.83	0.83	0.83	0.83	0.83	0.84	0.84	0.84
Adj. Flow (vph)	8	10	30	636	5	83	25	818	282	74	614	5
RTOR Reduction (vph)	0	28	0	0	0	56	0	0	123	0	1	0
Lane Group Flow (vph)	0	20	0	318	323	27	25	818	159	74	618	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)		4.6		26.9	26.9	26.9	2.1	27.9	27.9	6.2	32.0	
Effective Green, g (s)		4.6		26.9	26.9	26.9	2.1	27.9	27.9	6.2	32.0	
Actuated g/C Ratio		0.05		0.32	0.32	0.32	0.02	0.33	0.33	0.07	0.38	
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)		92		538	540	506	44	1174	525	130	1345	
v/s Ratio Prot		c0.01		0.19	c0.19		0.01	c0.23		c0.04	0.17	
v/s Ratio Perm						0.02			0.10			
v/c Ratio		0.21		0.59	0.60	0.05	0.57	0.70	0.30	0.57	0.46	
Uniform Delay, d1		38.0		24.0	24.1	19.8	40.6	24.4	20.9	37.7	19.6	
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		1.2	1.2	0.0	9.6	1.5	0.1	3.4	0.1	
Delay (s)		38.4		25.2	25.2	19.8	50.2	25.9	21.0	41.0	19.7	
Level of Service		D		C	C	B	D	C	C	D	B	
Approach Delay (s)		38.4			24.6			25.2			21.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	18.5
Intersection Capacity Utilization	54.9%	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)	37	109	108	95	155	39	355	668	73	87	744	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	0.99		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	3539	1583	1770	3539	1583	1770	5010		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	5010		1770	5036	
Peak-hour factor, PHF	0.93	0.93	0.93	0.66	0.66	0.66	0.71	0.71	0.71	0.69	0.69	0.69
Adj. Flow (vph)	40	117	116	144	235	59	500	941	103	126	1078	75
RTOR Reduction (vph)	0	0	98	0	0	46	0	7	0	0	5	0
Lane Group Flow (vph)	40	117	18	144	235	13	500	1037	0	126	1148	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)	6.1	18.0	18.0	13.9	26.4	26.4	26.1	55.0		12.8	41.7	
Effective Green, g (s)	6.1	18.0	18.0	13.9	26.4	26.4	26.1	55.0		12.8	41.7	
Actuated g/C Ratio	0.05	0.15	0.15	0.12	0.23	0.23	0.22	0.47		0.11	0.36	
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)	92	545	244	210	799	357	395	2357		194	1796	
v/s Ratio Prot	0.02	0.03		c0.08	c0.07		c0.28	0.21		0.07	c0.23	
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.43	0.21	0.07	0.69	0.29	0.04	1.27	0.44		0.65	0.64	
Uniform Delay, d1	53.7	43.3	42.3	49.4	37.5	35.3	45.4	20.7		49.9	31.3	
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	1.2	0.4	0.3	7.2	0.2	0.0	138.4	0.3		5.5	1.1	
Delay (s)	54.9	43.7	42.6	56.6	37.7	35.4	183.8	20.9		55.4	32.4	
Level of Service	D	D	D	E	D	D	F	C		E	C	
Approach Delay (s)		44.9			43.6			73.7			34.7	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM Average Control Delay	53.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	116.9	Sum of lost time (s)	12.6
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)	89	239	257	162	125	72	149	667	155	101	482	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	0.97		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	3539	1583	1770	3539	1583	1770	4942		1770	5042	
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	4942		1770	5042	
Peak-hour factor, PHF	0.71	0.71	0.71	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	125	337	362	176	136	78	155	695	161	107	513	31
RTOR Reduction (vph)	0	0	277	0	0	57	0	25	0	0	4	0
Lane Group Flow (vph)	125	337	85	176	136	21	155	831	0	107	540	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)	12.2	22.6	22.6	15.0	26.0	26.0	13.9	30.4		11.1	27.6	
Effective Green, g (s)	12.2	22.6	22.6	15.0	26.0	26.0	13.9	30.4		11.1	27.6	
Actuated g/C Ratio	0.13	0.23	0.23	0.16	0.27	0.27	0.14	0.32		0.12	0.29	
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)	224	831	372	276	955	427	255	1560		204	1445	
v/s Ratio Prot	0.07	c0.10		c0.10	c0.04		c0.09	c0.17		0.06	0.11	
v/s Ratio Perm			0.05			0.01						
v/c Ratio	0.56	0.41	0.23	0.64	0.14	0.05	0.61	0.53		0.52	0.37	
Uniform Delay, d1	39.5	31.2	29.8	38.1	26.7	26.0	38.6	27.1		40.1	27.4	
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	1.7	0.7	0.7	3.5	0.1	0.0	2.8	0.6		1.1	0.3	
Delay (s)	41.2	31.8	30.5	41.6	26.7	26.0	41.4	27.8		41.2	27.8	
Level of Service	D	C	C	D	C	C	D	C		D	C	
Approach Delay (s)		32.7			33.3			29.9			30.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	96.3	Sum of lost time (s)	21.2
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	242	131	0	237	146	189	520
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	0.99	0.85		0.94		1.00	1.00
Flt Protected	0.96	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3420	1441		3337		1770	3539
Flt Permitted	0.96	1.00		1.00		0.50	1.00
Satd. Flow (perm)	3420	1441		3337		934	3539
Peak-hour factor, PHF	0.78	0.78	0.89	0.89	0.89	0.88	0.88
Adj. Flow (vph)	310	168	0	266	164	215	591
RTOR Reduction (vph)	11	106	0	88	0	0	0
Lane Group Flow (vph)	319	42	0	342	0	215	591
Turn Type		Perm	Perm			Perm	
Protected Phases	8			2			6
Permitted Phases		8	2			6	
Actuated Green, G (s)	8.9	8.9		14.7		14.7	14.7
Effective Green, g (s)	8.9	8.9		14.7		14.7	14.7
Actuated g/C Ratio	0.28	0.28		0.47		0.47	0.47
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)	963	406		1552		434	1646
v/s Ratio Prot	c0.09			0.10			0.17
v/s Ratio Perm		0.03				c0.23	
v/c Ratio	0.33	0.10		0.22		0.50	0.36
Uniform Delay, d1	9.0	8.4		5.0		5.9	5.4
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.2	0.1		0.1		0.9	0.1
Delay (s)	9.2	8.5		5.1		6.8	5.6
Level of Service	A	A		A		A	A
Approach Delay (s)	9.0			5.1			5.9
Approach LOS	A			A			A

Intersection Summary			
HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	31.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.0%	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	274	0	551	180	232	404
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	0.93	0.85		0.96		1.00	1.00
Flt Protected	0.97	1.00		1.00		0.95	1.00
Satd. Flow (prot)	3267	1441		3408		1770	3539
Flt Permitted	0.97	1.00		1.00		0.24	1.00
Satd. Flow (perm)	3267	1441		3408		455	3539
Peak-hour factor, PHF	0.84	0.84	0.71	0.71	0.71	0.96	0.96
Adj. Flow (vph)	174	326	0	776	254	242	421
RTOR Reduction (vph)	91	91	0	42	0	0	0
Lane Group Flow (vph)	246	72	0	988	0	242	421
Turn Type		Perm	Perm			Perm	
Protected Phases	8			2			6
Permitted Phases		8	2			6	
Actuated Green, G (s)	8.4	8.4		25.1		25.1	25.1
Effective Green, g (s)	8.4	8.4		25.1		25.1	25.1
Actuated g/C Ratio	0.20	0.20		0.60		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)	661	292		2061		275	2140
v/s Ratio Prot	c0.08			0.29			0.12
v/s Ratio Perm		0.05				c0.53	
v/c Ratio	0.37	0.25		0.48		0.88	0.20
Uniform Delay, d1	14.3	13.9		4.6		6.9	3.7
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.4	0.4		0.2		26.1	0.0
Delay (s)	14.6	14.3		4.7		33.1	3.7
Level of Service	B	B		A		C	A
Approach Delay (s)	14.5			4.7			14.4
Approach LOS	B			A			B

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	41.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.9%	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)	106	117	66	235	235	120	103	499	127	159	551	116
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	0.95		1.00	0.95		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	3348		1770	3360		1770	4930		1770	4952	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3348		1770	3360		1770	4930		1770	4952	
Peak-hour factor, PHF	0.73	0.73	0.73	0.74	0.74	0.74	0.67	0.67	0.67	0.76	0.76	0.76
Adj. Flow (vph)	145	160	90	318	318	162	154	745	190	209	725	153
RTOR Reduction (vph)	0	77	0	0	68	0	0	43	0	0	31	0
Lane Group Flow (vph)	145	173	0	318	412	0	154	892	0	209	847	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.7	11.5		18.3	18.1		10.7	22.5		11.2	23.0	
Effective Green, g (s)	11.7	11.5		18.3	18.1		10.7	22.5		11.2	23.0	
Actuated g/C Ratio	0.15	0.14		0.23	0.23		0.13	0.28		0.14	0.29	
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)	260	484		407	765		238	1395		249	1433	
v/s Ratio Prot	0.08	0.05		c0.18	c0.12		0.09	c0.18		c0.12	0.17	
v/s Ratio Perm												
v/c Ratio	0.56	0.36		0.78	0.54		0.65	0.64		0.84	0.59	
Uniform Delay, d1	31.5	30.7		28.7	27.0		32.6	24.9		33.3	24.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.5		9.4	0.7		5.9	1.0		21.3	0.7	
Delay (s)	34.1	31.1		38.1	27.8		38.5	25.9		54.5	24.9	
Level of Service	C	C		D	C		D	C		D	C	
Approach Delay (s)		32.2			31.9			27.7			30.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	30.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.0%	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)	133	205	108	80	140	82	121	539	86	152	361	62
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	0.95		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	3356		1770	3343		1770	4980		1770	4973	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3356		1770	3343		1770	4980		1770	4973	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.82	0.82	0.82	0.50	0.50	0.50
Adj. Flow (vph)	160	247	130	96	169	99	148	657	105	304	722	124
RTOR Reduction (vph)	0	72	0	0	84	0	0	21	0	0	23	0
Lane Group Flow (vph)	160	305	0	96	184	0	148	741	0	304	823	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.6	14.5		7.8	10.7		10.5	18.8		11.3	19.6	
Effective Green, g (s)	11.6	14.5		7.8	10.7		10.5	18.8		11.3	19.6	
Actuated g/C Ratio	0.17	0.21		0.11	0.16		0.15	0.27		0.17	0.29	
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)	300	711		202	523		272	1369		292	1425	
v/s Ratio Prot	c0.09	c0.09		0.05	0.06		0.08	0.15		c0.17	c0.17	
v/s Ratio Perm												
v/c Ratio	0.53	0.43		0.48	0.35		0.54	0.54		1.04	0.58	
Uniform Delay, d1	25.9	23.4		28.4	25.8		26.7	21.1		28.6	20.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.4		1.8	0.4		2.2	0.4		63.8	0.6	
Delay (s)	27.8	23.8		30.1	26.2		29.0	21.6		92.3	21.4	
Level of Service	C	C		C	C		C	C		F	C	
Approach Delay (s)		25.0			27.2			22.8			40.2	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
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	82	37	45
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.84	0.84	0.84	0.84	0.84	0.87	0.87
Hourly flow rate (vph)	22	120	111	52	28	55	25	93	69	98	43	52
Approach Volume (veh/h)			333					339				
Crossing Volume (veh/h)			923					909				
High Capacity (veh/h)			663					670				
High v/c (veh/h)			0.50					0.51				
Low Capacity (veh/h)			517					524				
Low v/c (veh/h)			0.64					0.65				

Intersection Summary				
Maximum v/c High	0.82			
Maximum v/c Low	1.00			
Intersection Capacity Utilization	108.5%	ICU Level of Service	G	

Movement	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	SEL2	SEL	SET	SER
Right Turn Channelized												
Volume (veh/h)	352	53	5	2	48	376	231	182	239	37	6	82
Peak Hour Factor	0.87	0.87	0.87	0.98	0.98	0.98	0.98	0.98	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	405	61	6	2	49	384	236	186	269	42	7	92
Approach Volume (veh/h)	566					856					413	
Crossing Volume (veh/h)	728					358					886	
High Capacity (veh/h)	777					1045					684	
High v/c (veh/h)	0.73					0.82					0.60	
Low Capacity (veh/h)	617					854					535	
Low v/c (veh/h)	0.92					1.00					0.77	

Intersection Summary

Movement	SER2
Right Turn Channelized	
Volume (veh/h)	4
Peak Hour Factor	0.89
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)	50	150	68	51	27	48	35	104	52	100	73	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86	0.86	0.86	0.92	0.92
Hourly flow rate (vph)	53	158	72	54	28	56	41	121	60	116	79	128
Approach Volume (veh/h)			364					394				
Crossing Volume (veh/h)			1173					1143				
High Capacity (veh/h)			540					553				
High v/c (veh/h)			0.67					0.71				
Low Capacity (veh/h)			412					424				
Low v/c (veh/h)			0.88					0.93				

Intersection Summary			
Maximum v/c High	1.48		
Maximum v/c Low	1.84		
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)	478	44	11	6	63	559	253	311	197	20	3	136
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.89	0.89	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	520	48	12	7	71	628	284	349	205	21	3	142
Approach Volume (veh/h)	787					1339					523	
Crossing Volume (veh/h)	698					538					1287#	
High Capacity (veh/h)	796					905					491	
High v/c (veh/h)	0.99					1.48					1.06	
Low Capacity (veh/h)	633					730					371	
Low v/c (veh/h)	1.24					1.84					1.41	

Intersection Summary

Movement	SER2
Right Turn Channelized	
Volume (veh/h)	146
Peak Hour Factor	0.96
Hourly flow rate (vph)	152
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	777	11	18	457	10	7	5	3	7	12	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	1.00		1.00	0.95		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	5075		1770	5068		1770	1761		1770	1686	
Flt Permitted	0.46	1.00		0.27	1.00		1.00	1.00		1.00	1.00	
Satd. Flow (perm)	857	5075		503	5068		1863	1761		1863	1686	
Peak-hour factor, PHF	0.69	0.69	0.69	0.94	0.94	0.94	0.75	0.75	0.75	0.65	0.65	0.65
Adj. Flow (vph)	48	1126	16	19	486	11	9	7	4	11	18	31
RTOR Reduction (vph)	0	2	0	0	4	0	0	4	0	0	29	0
Lane Group Flow (vph)	48	1140	0	19	493	0	9	7	0	11	20	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.8	14.8		14.8	14.8		1.9	1.9		1.9	1.9	
Effective Green, g (s)	14.8	14.8		14.8	14.8		1.9	1.9		1.9	1.9	
Actuated g/C Ratio	0.60	0.60		0.60	0.60		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)	514	3041		301	3037		143	135		143	130	
v/s Ratio Prot		c0.22			0.10			0.00			c0.01	
v/s Ratio Perm	0.06			0.04			0.00			0.01		
v/c Ratio	0.09	0.37		0.06	0.16		0.06	0.05		0.08	0.16	
Uniform Delay, d1	2.1	2.6		2.1	2.2		10.6	10.6		10.6	10.7	
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		0.1	0.0		0.2	0.2		0.2	0.6	
Delay (s)	2.2	2.6		2.2	2.2		10.8	10.7		10.8	11.2	
Level of Service	A	A		A	A		B	B		B	B	
Approach Delay (s)		2.6			2.2			10.7			11.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	2.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	24.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.4%	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)	62	846	12	18	1074	14	8	40	14	11	23	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	1.00		1.00	1.00		1.00	0.96		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5075		1770	5076		1770	1791		1770	1704	
Flt Permitted	0.23	1.00		0.29	1.00		1.00	1.00		1.00	1.00	
Satd. Flow (perm)	426	5075		548	5076		1863	1791		1863	1704	
Peak-hour factor, PHF	0.92	0.92	0.92	0.72	0.72	0.72	0.82	0.82	0.82	0.89	0.89	0.89
Adj. Flow (vph)	67	920	13	25	1492	19	10	49	17	12	26	34
RTOR Reduction (vph)	0	2	0	0	2	0	0	16	0	0	6	0
Lane Group Flow (vph)	67	931	0	25	1509	0	10	50	0	12	54	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.5	17.5		17.5	17.5		2.3	2.3		2.3	2.3	
Effective Green, g (s)	17.5	17.5		17.5	17.5		2.3	2.3		2.3	2.3	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		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)	268	3195		345	3195		154	148		154	141	
v/s Ratio Prot		0.18			c0.30			0.03			c0.03	
v/s Ratio Perm	0.16			0.05			0.01			0.01		
v/c Ratio	0.25	0.29		0.07	0.47		0.06	0.34		0.08	0.38	
Uniform Delay, d1	2.3	2.3		2.0	2.7		11.8	12.0		11.8	12.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.1		0.1	0.1		0.2	1.4		0.2	1.7	
Delay (s)	2.8	2.4		2.1	2.8		11.9	13.4		12.0	13.8	
Level of Service	A	A		A	A		B	B		B	B	
Approach Delay (s)		2.4			2.8			13.2			13.5	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	3.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	27.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

FRESNO HEAVY MAINTENANCE
EXISTING CONDITIONS

HCM Unsignalized Intersection Capacity Analysis
1: E Central Ave & Cedar Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	65	8	66	88	12	12	41	29	7	42	0
Peak Hour Factor	0.63	0.63	0.63	0.90	0.90	0.90	0.89	0.89	0.89	0.88	0.88	0.88
Hourly flow rate (vph)	0	103	13	73	98	13	13	46	33	8	48	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	116	184	92	56
Volume Left (vph)	0	73	13	8
Volume Right (vph)	13	13	33	0
Hadj (s)	-0.03	0.07	-0.15	0.06
Departure Headway (s)	4.4	4.5	4.5	4.8
Degree Utilization, x	0.14	0.23	0.12	0.07
Capacity (veh/h)	776	770	742	695
Control Delay (s)	8.2	8.8	8.1	8.2
Approach Delay (s)	8.2	8.8	8.1	8.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.4		
HCM Level of Service	A		
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: E Central Ave & Cedar Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	3	108	7	35	76	8	9	33	39	9	18	4
Peak Hour Factor	0.80	0.80	0.80	0.83	0.83	0.83	0.84	0.84	0.84	0.70	0.70	0.70
Hourly flow rate (vph)	4	135	9	42	92	10	11	39	46	13	26	6

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	148	143	96	44
Volume Left (vph)	4	42	11	13
Volume Right (vph)	9	10	46	6
Hadj (s)	0.00	0.05	-0.23	0.01
Departure Headway (s)	4.4	4.4	4.4	4.7
Degree Utilization, x	0.18	0.18	0.12	0.06
Capacity (veh/h)	787	770	764	705
Control Delay (s)	8.4	8.4	8.0	8.0
Approach Delay (s)	8.4	8.4	8.0	8.0
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↱	
Volume (veh/h)	0	430	129	0	413	72
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.82	0.82	0.66	0.66	0.84	0.84
Hourly flow rate (vph)	0	524	195	0	492	86
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	195				720	195
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	195				720	195
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	90
cM capacity (veh/h)	1377				395	846

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	524	195	577
Volume Left	0	0	492
Volume Right	0	0	86
cSH	1700	1700	429
Volume to Capacity	0.31	0.11	1.35
Queue Length 95th (ft)	0	0	667
Control Delay (s)	0.0	0.0	197.2
Lane LOS			F
Approach Delay (s)	0.0	0.0	197.2
Approach LOS			F

Intersection Summary			
Average Delay	87.8		
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: E Central Ave & SR 99 SB offramp

4/25/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		⋔	
Volume (veh/h)	0	349	144	0	244	76
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.77	0.77	0.75	0.75	0.99	0.99
Hourly flow rate (vph)	0	453	192	0	.246	77
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	192				645	192
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192				645	192
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				44	91
cM capacity (veh/h)	1381				437	850

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	453	192	323
Volume Left	0	0	246
Volume Right	0	0	77
cSH	1700	1700	494
Volume to Capacity	0.27	0.11	0.65
Queue Length 95th (ft)	0	0	117
Control Delay (s)	0.0	0.0	25.1
Lane LOS			D
Approach Delay (s)	0.0	0.0	25.1
Approach LOS			D

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: E Central Ave & SR 99 NB onramp

4/25/2011

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	60	722	161	285	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.89	0.89	0.92	0.92
Hourly flow rate (vph)	74	891	181	320	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	181				1381	341
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181				1381	341
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				100	100
cM capacity (veh/h)	1394				151	701

Direction, Lane #	EB 1	WB 1
Volume Total	965	501
Volume Left	74	0
Volume Right	0	320
cSH	1394	1700
Volume to Capacity	0.05	0.29
Queue Length 95th (ft)	4	0
Control Delay (s)	1.4	0.0
Lane LOS	A	
Approach Delay (s)	1.4	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: E Central Ave & SR 99 NB onramp

4/25/2011

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	85	520	133	618	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	612	145	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	145				1292	480
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	145				1292	480
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)	1438				167	586

Direction, Lane #	EB 1	WB 1
Volume Total	712	816
Volume Left	100	0
Volume Right	0	672
cSH	1438	1700
Volume to Capacity	0.07	0.48
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	0.8		
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: S.Chestnut Ave & SR 99 NB off ramp

4/25/2011

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	330	0	0	755	156	485
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.82	0.82	0.91	0.91
Hourly flow rate (vph)	375	0	0	921	171	533
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			375		1296	375
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			375		1296	375
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	21
cM capacity (veh/h)			1183		179	671

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	375	921	704
Volume Left	0	0	171
Volume Right	0	0	533
cSH	1700	1700	402
Volume to Capacity	0.22	0.54	1.75
Queue Length 95th (ft)	0	0	1095
Control Delay (s)	0.0	0.0	371.9
Lane LOS			F
Approach Delay (s)	0.0	0.0	371.9
Approach LOS			F

Intersection Summary			
Average Delay	131.0		
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: S. Chestnut Ave & SR 99 NB off ramp

4/25/2011

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	317	0	0	532	32	299
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.84	0.84
Hourly flow rate (vph)	352	0	0	578	38	356
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			352		930	352
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			352		930	352
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		87	49
cM capacity (veh/h)			1207		296	691

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	352	578	394
Volume Left	0	0	38
Volume Right	0	0	356
cSH	1700	1700	612
Volume to Capacity	0.21	0.34	0.64
Queue Length 95th (ft)	0	0	116
Control Delay (s)	0.0	0.0	20.9
Lane LOS			C
Approach Delay (s)	0.0	0.0	20.9
Approach LOS			C

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: SR 99 SB on ramp & Chestnut Ave

4/25/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	165	27	158	303
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	190	31	182	348
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	917	205			221	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	917	205			221	
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			87	
cM capacity (veh/h)	261	835			1348	

Direction, Lane #	NB 1	SB 1
Volume Total	221	530
Volume Left	0	182
Volume Right	31	0
cSH	1700	1348
Volume to Capacity	0.13	0.13
Queue Length 95th (ft)	0	12
Control Delay (s)	0.0	3.7
Lane LOS		A
Approach Delay (s)	0.0	3.7
Approach LOS		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: SR 99 SB on ramp &

4/25/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	319	65	265	299
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	0	0	367	75	288	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	1305	404			441	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1305	404			441	
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			74	
cM capacity (veh/h)	131	647			1119	

Direction, Lane #	NB 1	SB 1
Volume Total	441	613
Volume Left	0	288
Volume Right	75	0
cSH	1700	1119
Volume to Capacity	0.26	0.26
Queue Length 95th (ft)	0	26
Control Delay (s)	0.0	6.0
Lane LOS		A
Approach Delay (s)	0.0	6.0
Approach LOS		

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: E American Avenue & SR 99 SB off ramp

4/25/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	81	102	0	81	144
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.64	0.64	0.75	0.75
Hourly flow rate (vph)	0	95	159	0	108	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	159				255	159
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159				255	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 %	100				85	78
cM capacity (veh/h)	1420				734	886

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	95	159	108	192
Volume Left	0	0	108	0
Volume Right	0	0	0	192
cSH	1700	1700	734	886
Volume to Capacity	0.06	0.09	0.15	0.22
Queue Length 95th (ft)	0	0	13	21
Control Delay (s)	0.0	0.0	10.7	10.2
Lane LOS			B	B
Approach Delay (s)	0.0	0.0	10.4	
Approach LOS			B	

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: E American Avenue & SR 99 SB off ramp

4/25/2011

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	221	49	0	56	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.85	0.85
Hourly flow rate (vph)	0	287	64	0	66	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	64				351	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64				351	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				90	96
cM capacity (veh/h)	1539				647	1001

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	287	64	66	42
Volume Left	0	0	66	0
Volume Right	0	0	0	42
cSH	1700	1700	647	1001
Volume to Capacity	0.17	0.04	0.10	0.04
Queue Length 95th (ft)	0	0	8	3
Control Delay (s)	0.0	0.0	11.2	8.8
Lane LOS			B	A
Approach Delay (s)	0.0	0.0	10.2	
Approach LOS			B	

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
7: E American Ave & SR 99 NB on ramp

4/25/2011

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	43	121	92	68	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.73	0.73	0.92	0.92
Hourly flow rate (vph)	51	142	126	93	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	126				416	173
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126				416	173
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	100
cM capacity (veh/h)	1460				572	871

Direction, Lane #	EB 1	WB 1
Volume Total	193	219
Volume Left	51	0
Volume Right	0	93
cSH	1460	1700
Volume to Capacity	0.03	0.13
Queue Length 95th (ft)	3	0
Control Delay (s)	2.2	0.0
Lane LOS	A	
Approach Delay (s)	2.2	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
7: E American Ave & SR 99 NB on ramp

4/25/2011

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	111	161	52	88	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.76	0.76	0.92	0.92
Hourly flow rate (vph)	118	171	68	116	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	68				534	126
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68				534	126
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)	1533				468	924

Direction, Lane #	EB 1	WB 1
Volume Total	289	184
Volume Left	118	0
Volume Right	0	116
cSH	1533	1700
Volume to Capacity	0.08	0.11
Queue Length 95th (ft)	6	0
Control Delay (s)	3.5	0.0
Lane LOS	A	
Approach Delay (s)	3.5	0.0
Approach LOS		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
8: Adams Ave & Chestnut Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	16	50	4	5	48	15	5	62	4	8	53	23
Peak Hour Factor	0.58	0.58	0.58	0.68	0.68	0.68	0.71	0.71	0.71	0.75	0.75	0.75
Hourly flow rate (vph)	28	86	7	7	71	22	7	87	6	11	71	31

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	121	100	100	112
Volume Left (vph)	28	7	7	11
Volume Right (vph)	7	22	6	31
Hadj (s)	0.05	-0.08	0.01	-0.11
Departure Headway (s)	4.6	4.5	4.6	4.4
Degree Utilization, x	0.15	0.12	0.13	0.14
Capacity (veh/h)	740	756	743	761
Control Delay (s)	8.4	8.1	8.2	8.1
Approach Delay (s)	8.4	8.1	8.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
8: Adams Ave & Chestnut Ave

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	29	57	4	4	42	7	2	67	8	8	56	28
Peak Hour Factor	0.83	0.83	0.83	0.70	0.70	0.70	0.71	0.71	0.71	0.66	0.66	0.66
Hourly flow rate (vph)	35	69	5	6	60	10	3	94	11	12	85	42

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	108	76	108	139
Volume Left (vph)	35	6	3	12
Volume Right (vph)	5	10	11	42
Hadj (s)	0.07	-0.03	-0.02	-0.13
Departure Headway (s)	4.6	4.6	4.5	4.3
Degree Utilization, x	0.14	0.10	0.13	0.17
Capacity (veh/h)	725	732	761	783
Control Delay (s)	8.4	8.1	8.2	8.2
Approach Delay (s)	8.4	8.1	8.2	8.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
9: Clayton Ave & SR 99 SB off ramp

4/25/2011

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	43	25	0	23	6
Sign Control	Free			Stop	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.72	0.72	0.89	0.89	0.81	0.81
Hourly flow rate (vph)	0	60	28	0	28	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		14	0	0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		14	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		97	100	97	99
cM capacity (veh/h)	1623		971	896	896	1085

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	60	28	36
Volume Left	0	28	0
Volume Right	60	0	7
cSH	1700	971	929
Volume to Capacity	0.04	0.03	0.04
Queue Length 95th (ft)	0	2	3
Control Delay (s)	0.0	8.8	9.0
Lane LOS		A	A
Approach Delay (s)	0.0	8.8	9.0
Approach LOS		A	A

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
9: Clayton Ave & SR 99 SB off ramp

4/25/2011

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	74	54	0	96	10
Sign Control	Free			Stop	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.91	0.91
Hourly flow rate (vph)	0	92	60	0	105	11
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		53	0	0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		53	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		93	100	88	99
cM capacity (veh/h)	1623		852	896	896	1085

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	92	60	116
Volume Left	0	60	0
Volume Right	92	0	11
cSH	1700	852	911
Volume to Capacity	0.05	0.07	0.13
Queue Length 95th (ft)	0	6	11
Control Delay (s)	0.0	9.5	9.5
Lane LOS		A	A
Approach Delay (s)	0.0	9.5	9.5
Approach LOS		A	A

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
10: SR 99 NB off ramp &

4/25/2011

Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations										
Volume (veh/h)	0	0	79	75	0	0	487	18	17	331
Sign Control	Stop			Free			Free		Stop	
Grade	0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.80	0.80	0.80	0.79	0.79	0.79	0.76	0.76
Hourly flow rate (vph)	0	0	99	94	0	0	616	23	22	436
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	883	919	639			94			930	47
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	883	919	639			94			930	47
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	90			100			91	57
cM capacity (veh/h)	117	241	941			1498			238	1012

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NW 1	NW 2
Volume Total	99	47	47	411	228	22	436
Volume Left	99	0	0	0	0	0	0
Volume Right	0	0	0	0	23	0	436
cSH	941	1700	1700	1700	1700	238	1012
Volume to Capacity	0.10	0.03	0.03	0.24	0.13	0.09	0.43
Queue Length 95th (ft)	9	0	0	0	0	8	55
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	21.7	11.2
Lane LOS	A					C	B
Approach Delay (s)	4.8			0.0		11.7	
Approach LOS						B	

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	31.7%	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	44	111	0	0	461	12	40	390
Sign Control	Stop			Free			Free		Stop	
Grade	0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.88	0.83	0.83	0.83	0.81	0.81
Hourly flow rate (vph)	0	0	50	126	0	0	555	14	49	481
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	750	789	570			126			796	63
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	750	789	570			126			796	63
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	95			100			84	51
cM capacity (veh/h)	129	305	999			1458			302	988

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NW 1	NW 2
Volume Total	50	63	63	370	200	49	481
Volume Left	50	0	0	0	0	0	0
Volume Right	0	0	0	0	14	0	481
cSH	999	1700	1700	1700	1700	302	988
Volume to Capacity	0.05	0.04	0.04	0.22	0.12	0.16	0.49
Queue Length 95th (ft)	4	0	0	0	0	14	68
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	19.2	12.1
Lane LOS	A					C	B
Approach Delay (s)	2.5			0.0		12.7	
Approach LOS						B	

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
11: SR 99 SB onramp & S Clovis Ave

4/25/2011

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations											
Volume (veh/h)	0	0	3	136	14	412	79	19	19	20	24
Sign Control	Stop			Free			Free			Stop	
Grade	0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.80	0.80	0.80	0.80	0.80	0.80	0.88	0.88	0.88
Hourly flow rate (vph)	0	0	4	170	18	515	99	24	22	23	27
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	1277	1339	122			170			1233	1318	61
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1277	1339	122			170			1233	1318	61
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 %	100	100	100			63			77	77	97
cM capacity (veh/h)	71	96	1462			1405			95	99	991

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SE 1
Volume Total	4	113	74	515	66	57	72
Volume Left	4	0	0	515	0	0	22
Volume Right	0	0	18	0	0	24	27
cSH	1462	1700	1700	1405	1700	1700	156
Volume to Capacity	0.00	0.07	0.04	0.37	0.04	0.03	0.46
Queue Length 95th (ft)	0	0	0	43	0	0	53
Control Delay (s)	7.5	0.0	0.0	9.0	0.0	0.0	46.9
Lane LOS	A			A			E
Approach Delay (s)	0.1			7.3			46.9
Approach LOS							E

Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	40.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
11: SR 99 SB onramp & S Clovis Ave

4/25/2011

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations											
Volume (veh/h)	0	0	12	111	6	378	85	41	41	31	95
Sign Control	Stop			Free			Free			Stop	
Grade	0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.87	0.87	0.87	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	14	128	7	445	100	48	48	36	112
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	1116	1196	148			128			1105	1169	74
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1116	1196	148			128			1105	1169	74
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 %	100	100	99			69			62	72	89
cM capacity (veh/h)	87	127	1431			1456			125	132	972

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SE 1
Volume Total	14	85	49	445	67	82	196
Volume Left	14	0	0	445	0	0	48
Volume Right	0	0	7	0	0	48	112
cSH	1431	1700	1700	1456	1700	1700	297
Volume to Capacity	0.01	0.05	0.03	0.31	0.04	0.05	0.66
Queue Length 95th (ft)	1	0	0	33	0	0	109
Control Delay (s)	7.5	0.0	0.0	8.6	0.0	0.0	37.9
Lane LOS	A			A			E
Approach Delay (s)	0.7			6.4			37.9
Approach LOS							E

Intersection Summary				
Average Delay	12.1			
Intersection Capacity Utilization	38.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HANFORD HEAVY MAINTENANCE
EXISTING CONDITIONS

HCM Signalized Intersection Capacity Analysis
1: Houston Ave & Central Valley Hwy

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	38	12	11	52	66	12	160	5	62	191	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		0.98			0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1788			1727		1770	1855		1770	1832	
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1788			1727		1770	1855		1770	1832	
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.96	0.96	0.96	0.93	0.93	0.93
Adj. Flow (vph)	47	40	13	12	58	73	12	167	5	67	205	25
RTOR Reduction (vph)	0	8	0	0	54	0	0	2	0	0	6	0
Lane Group Flow (vph)	0	92	0	0	89	0	12	170	0	67	224	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		16.0			16.0		4.0	16.0		6.0	18.0	
Effective Green, g (s)		16.0			16.0		4.0	16.0		6.0	18.0	
Actuated g/C Ratio		0.23			0.23		0.06	0.23		0.09	0.26	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		409			395		101	424		152	471	
v/s Ratio Prot		c0.05			c0.05		0.01	0.09		c0.04	c0.12	
v/s Ratio Perm												
v/c Ratio		0.23			0.23		0.12	0.40		0.44	0.48	
Uniform Delay, d1		22.0			22.0		31.3	22.9		30.4	22.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.3			1.3		2.4	2.8		9.0	3.4	
Delay (s)		23.2			23.3		33.7	25.8		39.4	25.4	
Level of Service		C			C		C	C		D	C	
Approach Delay (s)		23.2			23.3			26.3			28.6	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Houston Ave & Central Valley Hwy

4/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	42	16	6	66	89	19	315	14	83	146	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		0.97			0.93		1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1789			1721		1770	1851		1770	1821	
Flt Permitted		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1789			1721		1770	1851		1770	1821	
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.85	0.85	0.85	0.89	0.89	0.89
Adj. Flow (vph)	25	46	17	7	79	106	22	371	16	93	164	29
RTOR Reduction (vph)	0	12	0	0	63	0	0	2	0	0	9	0
Lane Group Flow (vph)	0	76	0	0	129	0	22	385	0	93	184	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		16.0			16.0		4.0	16.0		6.0	18.0	
Effective Green, g (s)		16.0			16.0		4.0	16.0		6.0	18.0	
Actuated g/C Ratio		0.23			0.23		0.06	0.23		0.09	0.26	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		409			393		101	423		152	468	
v/s Ratio Prot		c0.04			c0.07		0.01	c0.21		c0.05	0.10	
v/s Ratio Perm												
v/c Ratio		0.18			0.33		0.22	0.91		0.61	0.39	
Uniform Delay, d1		21.7			22.5		31.5	26.3		30.9	21.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			2.2		4.9	26.1		17.0	2.5	
Delay (s)		22.7			24.7		36.4	52.4		47.9	24.0	
Level of Service		C			C		D	D		D	C	
Approach Delay (s)		22.7			24.7			51.5			31.7	
Approach LOS		C			C			D			C	

Intersection Summary

HCM Average Control Delay	37.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
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)	2	105	0	3	127	1	1	1	1	2	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.38	0.38	0.38	0.75	0.75	0.75
Hourly flow rate (vph)	2	122	0	3	140	1	3	3	3	3	1	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	87	17	1	77	16	4	1			5		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	87	17	1	77	16	4	1			5		
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	86	100	100	84	100	100			100		
cM capacity (veh/h)	786	874	1083	813	875	1080	1621			1616		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	124	144	8	4
Volume Left	2	3	3	3
Volume Right	0	1	3	0
cSH	872	875	1621	1616
Volume to Capacity	0.14	0.16	0.00	0.00
Queue Length 95th (ft)	12	15	0	0
Control Delay (s)	9.8	9.9	2.4	4.8
Lane LOS	A	A	A	A
Approach Delay (s)	9.8	9.9	2.4	4.8
Approach LOS	A	A		

Intersection Summary			
Average Delay	9.6		
Intersection Capacity Utilization	18.3%	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)	1	142	1	2	161	1	2	1	1	2	0	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.85	0.85	0.85	0.50	0.50	0.50	0.75	0.75	0.75
Hourly flow rate (vph)	1	161	1	2	189	1	4	2	2	3	0	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	113	18	1	99	18	3	1			4		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	113	18	1	99	18	3	1			4		
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	82	100	100	78	100	100			100		
cM capacity (veh/h)	717	872	1084	754	873	1081	1621			1618		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	164	193	8	4
Volume Left	1	2	4	3
Volume Right	1	1	2	1
cSH	872	872	1621	1618
Volume to Capacity	0.19	0.22	0.00	0.00
Queue Length 95th (ft)	17	21	0	0
Control Delay (s)	10.1	10.3	3.6	4.8
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	10.3	3.6	4.8
Approach LOS	B	B		

Intersection Summary			
Average Delay	10.0		
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
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	10	5	2	14	11	6	155	2	9	192	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.61	0.61	0.61	0.80	0.80	0.80	0.90	0.90	0.90
Hourly flow rate (vph)	3	11	6	3	23	18	8	194	2	10	213	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	477	449	218	459	452	195	222			196		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	477	449	218	459	452	195	222			196		
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	98	99	99	95	98	99			99		
cM capacity (veh/h)	466	499	822	495	497	846	1347			1377		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	44	204	232
Volume Left	3	3	8	10
Volume Right	6	18	2	9
cSH	553	597	1347	1377
Volume to Capacity	0.04	0.07	0.01	0.01
Queue Length 95th (ft)	3	6	0	1
Control Delay (s)	11.8	11.5	0.3	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	11.8	11.5	0.3	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay		1.8		
Intersection Capacity Utilization		24.2%	ICU Level of Service	A
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	12	3	4	8	14	7	310	1	6	146	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.72	0.72	0.72	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	6	14	4	6	11	19	8	369	1	7	174	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)												
pX, platoon unblocked												
vC, conflicting volume	601	577	176	587	578	370	177			370		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	601	577	176	587	578	370	177			370		
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	97	100	99	97	97	99			99		
cM capacity (veh/h)	389	422	868	405	422	676	1399			1188		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	36	379	185
Volume Left	6	6	8	7
Volume Right	4	19	1	4
cSH	447	525	1399	1188
Volume to Capacity	0.05	0.07	0.01	0.01
Queue Length 95th (ft)	4	6	0	0
Control Delay (s)	13.5	12.4	0.2	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	13.5	12.4	0.2	0.4
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	29.0%	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	1	0	26	1	0	1	0	0	2	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.68	0.68	0.68	0.25	0.25	0.25	0.75	0.75	0.75
Hourly flow rate (vph)	0	27	1	0	38	1	0	4	0	0	3	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	40			28			69	67	27	68	67	39
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	40			28			69	67	27	68	67	39
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	100
cM capacity (veh/h)	1570			1585			920	824	1048	921	824	1033

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	40	4	4
Volume Left	0	0	0	0
Volume Right	1	1	0	1
cSH	1570	1585	824	883
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	9.4	9.1
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	9.4	9.1
Approach LOS			A	A

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	13.3%	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	18	1	1	23	1	2	1	0	1	2	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.69	0.69	0.69	0.75	0.75	0.75	0.50	0.50	0.50
Hourly flow rate (vph)	0	23	1	1	33	1	3	1	0	2	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	35			24			64	61	23	61	61	34
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	35			24			64	61	23	61	61	34
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	100
cM capacity (veh/h)	1577			1591			924	829	1053	932	829	1039

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	36	4	8
Volume Left	0	1	3	2
Volume Right	1	1	0	2
cSH	1577	1591	890	899
Volume to Capacity	0.00	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	0.0	0.3	9.1	9.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.3	9.1	9.0
Approach LOS			A	A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

WASCO HEAVY MAINTENANCE
EXISTING 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)	61	152	25	18	186	10	21	52	24	7	37	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.68	0.68	0.68	0.92	0.92	0.92	0.93	0.93	0.93	0.83	0.83	0.83
Hourly flow rate (vph)	90	224	37	20	202	11	23	56	26	8	45	31
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	213			260			716	673	242	703	686	208
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	213			260			716	673	242	703	686	208
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			98			92	84	97	97	87	96
cM capacity (veh/h)	1357			1304			281	346	797	281	340	833

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	90	260	20	213	104	84
Volume Left	90	0	20	0	23	8
Volume Right	0	37	0	11	26	31
cSH	1357	1700	1304	1700	380	425
Volume to Capacity	0.07	0.15	0.02	0.13	0.27	0.20
Queue Length 95th (ft)	5	0	1	0	27	18
Control Delay (s)	7.8	0.0	7.8	0.0	18.0	15.6
Lane LOS	A		A		C	C
Approach Delay (s)	2.0		0.7		18.0	15.6
Approach LOS					C	C

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
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)	57	193	23	41	199	7	12	41	22	13	102	77
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.80	0.80	0.80	0.89	0.89	0.89	0.91	0.91	0.91
Hourly flow rate (vph)	65	219	26	51	249	9	13	46	25	14	112	85
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	258			245			854	722	232	752	731	253
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	258			245			854	722	232	752	731	253
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 %	95			96			92	86	97	95	65	89
cM capacity (veh/h)	1307			1321			170	322	807	264	319	786

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	65	245	51	258	84	211
Volume Left	65	0	51	0	13	14
Volume Right	0	26	0	9	25	85
cSH	1307	1700	1321	1700	333	411
Volume to Capacity	0.05	0.14	0.04	0.15	0.25	0.51
Queue Length 95th (ft)	4	0	3	0	25	71
Control Delay (s)	7.9	0.0	7.8	0.0	19.4	22.7
Lane LOS	A		A		C	C
Approach Delay (s)	1.6		1.3		19.4	22.7
Approach LOS					C	C

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	37.0%	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)	15	0	5	0	1	0	7	80	2	0	70	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.56	0.56	0.25	0.25	0.25	0.89	0.89	0.89	0.96	0.96	0.96
Hourly flow rate (vph)	27	0	9	0	4	0	8	90	2	0	73	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)												
pX, platoon unblocked												
vC, conflicting volume	186	187	79	194	191	91	84			92		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	186	187	79	194	191	91	84			92		
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	100	99	100	99	100	99			100		
cM capacity (veh/h)	768	704	982	755	700	967	1512			1503		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	36	4	8	92	84
Volume Left	27	0	8	0	0
Volume Right	9	0	0	2	11
cSH	812	700	1512	1700	1503
Volume to Capacity	0.04	0.01	0.01	0.05	0.00
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	9.6	10.2	7.4	0.0	0.0
Lane LOS	A	B	A		
Approach Delay (s)	9.6	10.2	0.6		0.0
Approach LOS	A	B			

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	20.3%	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)	17	0	6	0	0	0	9	58	0	0	136	26
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.92	0.92	0.92	0.93	0.93	0.93	0.83	0.83	0.83
Hourly flow rate (vph)	21	0	7	0	0	0	10	62	0	0	164	31
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	261	261	180	269	277	62	195			62		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	261	261	180	269	277	62	195			62		
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	100	99	100	100	100	99			100		
cM capacity (veh/h)	688	639	863	675	626	1002	1378			1540		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	28	0	10	62	195
Volume Left	21	0	10	0	0
Volume Right	7	0	0	0	31
cSH	726	1700	1378	1700	1540
Volume to Capacity	0.04	0.00	0.01	0.04	0.00
Queue Length 95th (ft)	3	0	1	0	0
Control Delay (s)	10.2	0.0	7.6	0.0	0.0
Lane LOS	B	A	A		
Approach Delay (s)	10.2	0.0	1.0		0.0
Approach LOS	B	A			

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	18.7%	ICU Level of Service		A
Analysis Period (min)	15			

SHAFTER HEAVY MAINTENANCE
EXISTING 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	3	5	1	0	1	1	234	2	8	438	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.56	0.56	0.50	0.50	0.50	0.71	0.71	0.71	0.79	0.79	0.79
Hourly flow rate (vph)	2	5	9	2	0	2	1	330	3	10	554	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	910	908	331	920	910	554	554			332		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	910	908	331	920	910	554	554			332		
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	98	99	99	100	100	100			99		
cM capacity (veh/h)	252	272	711	243	272	532	1016			1227		

Direction, Lane #	EB 1	WB 1	SE 1	NW 1
Volume Total	16	4	334	565
Volume Left	2	2	1	10
Volume Right	9	2	3	0
cSH	409	333	1016	1227
Volume to Capacity	0.04	0.01	0.00	0.01
Queue Length 95th (ft)	3	1	0	1
Control Delay (s)	14.2	15.9	0.1	0.2
Lane LOS	B	C	A	A
Approach Delay (s)	14.2	15.9	0.1	0.2
Approach LOS	B	C		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
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	3	5	0	3	24	12	472	1	10	307	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.56	0.56	0.56	0.52	0.52	0.52	0.91	0.91	0.91	0.92	0.92	0.92
Hourly flow rate (vph)	2	5	9	0	6	46	13	519	1	11	334	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	952	904	519	914	903	335	337			520		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	952	904	519	914	903	335	337			520		
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	98	98	100	98	93	99			99		
cM capacity (veh/h)	217	271	557	242	271	707	1222			1046		

Direction, Lane #	EB 1	WB 1	SE 1	NW 1
Volume Total	16	52	533	348
Volume Left	2	0	13	11
Volume Right	9	46	1	3
cSH	365	600	1222	1046
Volume to Capacity	0.04	0.09	0.01	0.01
Queue Length 95th (ft)	3	7	1	1
Control Delay (s)	15.3	11.6	0.3	0.4
Lane LOS	C	B	A	A
Approach Delay (s)	15.3	11.6	0.3	0.4
Approach LOS	C	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (vph)	73	5	181	61	15	380
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	0.81	0.81	0.81	0.81	0.91	0.91
Adj. Flow (vph)	90	6	223	75	16	418
RTOR Reduction (vph)	0	5	0	33	0	0
Lane Group Flow (vph)	90	1	223	42	16	418
Turn Type		Prot		Perm	Prot	
Protected Phases	3	3	6		5	2
Permitted Phases				6		
Actuated Green, G (s)	3.2	3.2	20.5	20.5	0.7	25.2
Effective Green, g (s)	3.2	3.2	20.5	20.5	0.7	25.2
Actuated g/C Ratio	0.09	0.09	0.56	0.56	0.02	0.69
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)	156	139	1049	892	34	1290
v/s Ratio Prot	c0.05	0.00	0.12		0.01	c0.22
v/s Ratio Perm				0.03		
v/c Ratio	0.58	0.00	0.21	0.05	0.47	0.32
Uniform Delay, d1	15.9	15.1	3.9	3.6	17.7	2.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	0.0	0.1	0.0	9.9	0.1
Delay (s)	21.0	15.2	4.0	3.6	27.6	2.4
Level of Service	C	B	A	A	C	A
Approach Delay (s)	20.7		3.9			3.3
Approach LOS	C		A			A

Intersection Summary

HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	36.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Volume (vph)	55	21	432	58	9	231
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	0.90	0.90	0.88	0.88	0.92	0.92
Adj. Flow (vph)	61	23	491	66	10	251
RTOR Reduction (vph)	0	21	0	27	0	0
Lane Group Flow (vph)	61	2	491	39	10	251
Turn Type		Prot		Perm	Prot	
Protected Phases	3	3	6		5	2
Permitted Phases				6		
Actuated Green, G (s)	3.1	3.1	23.1	23.1	0.7	27.8
Effective Green, g (s)	3.1	3.1	23.1	23.1	0.7	27.8
Actuated g/C Ratio	0.08	0.08	0.59	0.59	0.02	0.71
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)	141	126	1106	940	32	1331
v/s Ratio Prot	c0.03	0.00	c0.26		0.01	c0.13
v/s Ratio Perm				0.02		
v/c Ratio	0.43	0.01	0.44	0.04	0.31	0.19
Uniform Delay, d1	17.1	16.5	4.4	3.3	18.9	1.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.0	0.3	0.0	5.5	0.1
Delay (s)	19.2	16.5	4.6	3.3	24.4	1.9
Level of Service	B	B	A	A	C	A
Approach Delay (s)	18.5		4.5			2.8
Approach LOS	B		A			A

Intersection Summary

HCM Average Control Delay	5.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	38.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

CORCORAN EXISTING 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	16	6	4	16	0	5	0	23	0	60	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.61	0.61	0.61	0.71	0.71	0.71	0.70	0.70	0.70	0.89	0.89	0.89
Hourly flow rate (vph)	0	26	10	6	23	0	7	0	33	0	67	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)											284	
pX, platoon unblocked												
vC, conflicting volume	107	129	48	71	110	0	96			33		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	107	129	48	71	110	0	96			33		
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	97	99	99	97	100	100			100		
cM capacity (veh/h)	839	757	1011	876	776	1084	1496			1577		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	36	28	7	33	45	51
Volume Left	0	6	7	0	0	0
Volume Right	10	0	0	33	0	28
cSH	813	794	1496	1700	1700	1700
Volume to Capacity	0.04	0.04	0.00	0.02	0.03	0.03
Queue Length 95th (ft)	3	3	0	0	0	0
Control Delay (s)	9.6	9.7	7.4	0.0	0.0	0.0
Lane LOS	A	A	A			
Approach Delay (s)	9.6	9.7	1.3		0.0	
Approach LOS	A	A				

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	15.1%	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	25	6	3	21	0	16	0	41	0	76	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.75	0.75	0.75	0.80	0.80	0.80
Hourly flow rate (vph)	0	36	9	4	28	0	21	0	55	0	95	25
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	164	205	60	117	163	0	120			55		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	164	205	60	117	163	0	120			55		
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	95	99	99	96	100	99			100		
cM capacity (veh/h)	753	680	993	798	718	1084	1466			1549		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	44	32	21	55	63	57
Volume Left	0	4	21	0	0	0
Volume Right	9	0	0	55	0	25
cSH	725	727	1466	1700	1700	1700
Volume to Capacity	0.06	0.04	0.01	0.03	0.04	0.03
Queue Length 95th (ft)	5	3	1	0	0	0
Control Delay (s)	10.3	10.2	7.5	0.0	0.0	0.0
Lane LOS	B	B	A			
Approach Delay (s)	10.3	10.2	2.1		0.0	
Approach LOS	B	B				

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	17.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
2: Whitley Ave & Chittenden Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	107	10	5	72	8	6	14	8	9	21	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.76	0.76	0.76	0.54	0.54	0.54	0.83	0.83	0.83
Hourly flow rate (vph)	25	134	12	7	95	11	11	26	15	11	25	36
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	105			146			352	308	140	331	309	100
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	105			146			352	308	140	331	309	100
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			100			98	96	98	98	96	96
cM capacity (veh/h)	1486			1436			552	593	908	582	592	956

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	171	112	52	72
Volume Left	25	7	11	11
Volume Right	12	11	15	36
cSH	1486	1436	647	729
Volume to Capacity	0.02	0.00	0.08	0.10
Queue Length 95th (ft)	1	0	7	8
Control Delay (s)	1.2	0.5	11.1	10.5
Lane LOS	A	A	B	B
Approach Delay (s)	1.2	0.5	11.1	10.5
Approach LOS			B	B

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: Whitley Ave & Chittenden Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	41	142	20	12	144	15	11	21	8	5	30	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.74	0.74	0.74	0.89	0.89	0.89	0.91	0.91	0.91	0.73	0.73	0.73
Hourly flow rate (vph)	55	192	27	13	162	17	12	23	9	7	41	64
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	179			219			598	522	205	534	527	170
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	179			219			598	522	205	534	527	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 %	96			99			96	95	99	98	91	93
cM capacity (veh/h)	1397			1350			342	437	835	418	434	874

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	274	192	44	112
Volume Left	55	13	12	7
Volume Right	27	17	9	64
cSH	1397	1350	446	608
Volume to Capacity	0.04	0.01	0.10	0.18
Queue Length 95th (ft)	3	1	8	17
Control Delay (s)	1.8	0.6	14.0	12.3
Lane LOS	A	A	B	B
Approach Delay (s)	1.8	0.6	14.0	12.3
Approach LOS			B	B

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	34.1%	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)	17	70	9	12	44	2	4	11	13	3	15	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.76	0.76	0.76	0.78	0.78	0.78	0.70	0.70	0.70
Hourly flow rate (vph)	23	96	12	16	58	3	5	14	17	4	21	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	61			108			258	241	54	209	246	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	61			108			258	241	54	209	246	30
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			99			99	98	98	99	97	96
cM capacity (veh/h)	1541			1480			620	643	1002	692	639	1037

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	71	60	45	32	36	64
Volume Left	23	0	16	0	5	4
Volume Right	0	12	0	3	17	39
cSH	1541	1700	1480	1700	766	836
Volume to Capacity	0.02	0.04	0.01	0.02	0.05	0.08
Queue Length 95th (ft)	1	0	1	0	4	6
Control Delay (s)	2.5	0.0	2.7	0.0	9.9	9.7
Lane LOS	A		A		A	A
Approach Delay (s)	1.3		1.6		9.9	9.7
Approach LOS					A	A

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	17.6%	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)	24	87	6	12	71	5	9	14	17	4	12	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.68	0.68	0.68	0.81	0.81	0.81	0.91	0.91	0.91	0.81	0.81	0.81
Hourly flow rate (vph)	35	128	9	15	88	6	10	15	19	5	15	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	94			137			316	326	68	281	328	47
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	94			137			316	326	68	281	328	47
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			99			98	97	98	99	97	97
cM capacity (veh/h)	1498			1445			567	571	981	608	570	1012

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	99	73	59	50	44	52
Volume Left	35	0	15	0	10	5
Volume Right	0	9	0	6	19	32
cSH	1498	1700	1445	1700	693	788
Volume to Capacity	0.02	0.04	0.01	0.03	0.06	0.07
Queue Length 95th (ft)	2	0	1	0	5	5
Control Delay (s)	2.8	0.0	2.0	0.0	10.5	9.9
Lane LOS	A		A		B	A
Approach Delay (s)	1.6		1.1		10.5	9.9
Approach LOS					B	A

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Sherman Ave & Santa Fe Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	4	38	0	4	7	21	8	1	5	15	24
Sign Control		Yield			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.72	0.72	0.72	0.69	0.69	0.69	0.83	0.83	0.83	0.79	0.79	0.79
Hourly flow rate (vph)	33	6	53	0	6	10	25	10	1	6	19	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)												
pX, platoon unblocked												
vC, conflicting volume	121	108	34	163	92	10	19			11		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	121	108	34	163	92	10	19			11		
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 %	96	99	95	100	99	99	98			100		
cM capacity (veh/h)	829	766	1039	745	782	1071	1598			1608		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	92	16	36	56
Volume Left	33	0	25	6
Volume Right	53	10	1	30
cSH	933	944	1598	1608
Volume to Capacity	0.10	0.02	0.02	0.00
Queue Length 95th (ft)	8	1	1	0
Control Delay (s)	9.3	8.9	5.1	0.8
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	8.9	5.1	0.8
Approach LOS	A	A		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	19	2	19	0	5	2	37	15	0	1	4	30
Sign Control		Yield			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.71	0.71	0.71	0.25	0.25	0.25	0.93	0.93	0.93	0.73	0.73	0.73
Hourly flow rate (vph)	27	3	27	0	20	8	40	16	0	1	5	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	142	124	26	153	104	16	5			16		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	142	124	26	153	104	16	5			16		
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	100	97	100	97	99	98			100		
cM capacity (veh/h)	789	746	1050	776	766	1063	1616			1601		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	56	28	56	48
Volume Left	27	0	40	1
Volume Right	27	8	0	41
cSH	892	833	1616	1601
Volume to Capacity	0.06	0.03	0.02	0.00
Queue Length 95th (ft)	5	3	2	0
Control Delay (s)	9.3	9.5	5.2	0.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.5	5.2	0.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		