Appendix G
Qualitative Analysis for HMF

High-Speed Train Heavy Maintenance Facility __ Proposed Sites

S. No	Submitted by	Site Location	Access routes to sites	Type of access to major road	Lane information	Summary	Convenient Access	Preffered Site	Presence of Railway track	Assumption
1	Schuil & Associates	Southwest corner of Ave 112 and Rd 40, west of Hwy 43 and along the BNSF Railroad line, 9 miles south of the city of Corcoran, CA	Connected to Ave 112, Rd 40 and Angiola Dr. Ave 112 is connected to Hwy 43.	Intersection: Ave 112 and Hwy 43. .	Ave112 has one lane in each direction	1.Hwy 43 is one lane in either directionand does not have left turn pocket hence it will be difficult to get a gap for left turning vehicles. 2. There is a railway track parallel to the access road. 3.Ave 112 would be the only access to this site from Hwy 43.	No	No	Railway track parallel to Hwy 43	60% from NB and 40% from SB
2	Watson Touchstone Commercial Development	Between Sherwood Ave and Whisler Rd next to the East side of Hwy 99, south of McFarland, approximately 25 miles north of Bakersfield.	Connected to Sherwood Ave, Taylor Ave, Hanawalt Ave, S Browning Rd and Whisler Rd. Access from Sherwood Ave and Whisler Rd to State Hwy 99	Interchanges: Sherwood Ave & Hwy 99; Whisler Rd & Hwy 99. .	Sherwood Ave and Whisler Rd have one lane in each direction	1. Site location next to Sherwood Ave does not have a convenient access. 2. Site location close to Whisler Raod(i.e north of Whisler Interchage) has a better access, but would need to have paved roads for the access.	1.No (Close to Sherwood Avenue) 2.Yes (Close to Whisler Road)	Yes (Since the Access is from Hwy 99 which is 3 lanes in either direction in the vicinity)	Railway track parallel to Hwy 99	40% from NB and 60% from SB
3	City of Allensworth Development Group, LLC	Adjacent and to the west of State Hwy 43; located south of the Colonel Allensworth State Historic Park and north and west of the Allensworth Ecological Reserve.	Connected to Rd 84 and Ave 24. Access from Ave 24 to State Hwy 43.	Intersection: Ave 24 and Hwy 43	Ave 24 has one lane in either direction	1.Hwy 43 is one lane in either direction and does not have left turn pocket hence it will be difficult to get a gap for left turning vehicles. 2. There is a railway track parallel to the access road. 3.Ave 24 would be the only access to this site from Hwy 43.	No	No	Railway track parallel to Hwy 43	40% from NB and 60% from SB
4	MUSE LLC	Located in front of Meadows Field Airport, Bakersfield; Surrounded between Airport drive, Boughton Drive and Skyway drive.	Connected to Airport Dr, Boughton Dr and Skyway Dr. Access from Airport Dr to Golden State Hwy 99.	Interchanges: 7th Std Rd and Hwy 99; Norris Rd and Hwy 99	7th Std Rd is having 1 lane in either direction. Norris Rd has two lanes in either direction.	1. Airport drive is the only access from the site to 7th standard road and Norris road. So Airport drive will be experiencing more traffic. 2. There is a good access from Hwy 99 to the site from Olive Dr.and 7th standard road.And Partial access from Norris Rd. 7th Satandard Road is connected to Hwy 65.	Yes	Yes	Railway track parallel to Golden State Hwy	40% from NB and 60% from SB
5	Kern Council of Governments (in City of Wasco)	Located in City of Wasco, on SR-46 and J Street; Approximately 6.5 miles from the SR-99/SR-46 Interchange	Connected to Poso Ave, 6th St and J St. Access from J St to Hwy 46.	Intersections: Poso Ave & Hwy 43; Jst & Hwy 46, 6th St & Hwy 43	J St, 6th St, Poso Ave have one lane in either direction.	major highways 43 and 46 are one lane in each direction, but there is a left turn pocket on the highways to get into these routes. If this site is considered, Poso and 6th St would have to be paved.	Yes	Yes	Railway track parallel to Hwy 43	50% from NB and 50% from SB
6	Kern Council of Governments (in City of Shafter)	Located in City of Shafter, on Santa Fe Way, bordered by the BSNF Railway to the west, the Internatonal Trade and Transporttaion Center to the south on 7th Standard Rd and Burbank St to the north.	Connected to Burbank St, Driver Rd, Winchester St, Mendota St and Weidanbach St. Access from all these streets and roads to Santa Fe Way.	Intersections: Burbank St & Santa Fe Way; 7th Std rd & Santa Fe Way	Burbank St and 7th Std Rd have one lane in either direction	1. There is a railway track running parallel to the Santa Fe Way. Also, no separate left turn lane on Santa Fe Way makes it difficult to find a gap for left turning vehicles. 2) Driver road has no access to a major road or a highway for a long distance.	No	No	Railway track parallel to Santa Fe Way	40% from NB and 60% from SB
7	King County Economic Development Corporation	Located southeast of the city of Hanford; Site is bounded by Hwy 43 to the west, Houston Ave to the north, the proposed Highspeed Rail corridor to the east and Idaho Ave to the south.	Connected to Idaho Ave, Iona Ave, Houston Ave and Central Valley Hwy 43.	Intersections: Houston Ave& Hwy 43; Iona Ave & Hwy 43; Idaho Ave & Hwy 43	Houston Ave, Iona Ave and Idaho Ave have one lane in either direction	1. Access routes from Houston ave, Iona ave and Idaho ave to Hhwy 43. There may be chances of increase in traffic on Hwy 43 as it is having only one in either direction (since all of these access routes are one intersection apart).	Yes (access is good but would increase traffic on 43)	Yes	Proposed high speed rail corridor to the east of this site	50% from NB and 50% from SB
8	County of Fresno	Located on south edge of the City of Fresno. Site is bounded on the north by Hwy 99; on the south by Adams Ave; on the east by the Burlington northern Santa Fe Railroad right-of-way; on the west by Cedar Ave.	Connected to Adams Ave, Clayton Ave, Lincoln Ave, Jefferson Ave, American Ave, Malaga Ave, Central Ave and Cedar Ave. Access from Cedar Ave to Fwy 99.	Interchanges: Central Ave & Hwy 99; Adams Ave & Hwy 99; American Ave & Hwy 99	Central Ave, American Ave and Adams Ave have one lane in either direction	1. Many small access routes to the site. 2) There is an access from Hwy 99 to the site through Central Ave, American Ave, Adams Ave, Clayton Ave.	Yes	Yes	Railway track parallel to Cedar Ave	60% from NB and 40% from SB

Appendix H
Mitigation Synchro Output

FRESNO EXISTING PLUS PROJECT OVERPASS MITIGATIONS

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	31	7	83	326	550	0	0	318	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	724	0	0	370	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	1774	2012	246	1766	2073	362	492			724		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1774	2012	246	1766	2073	362	492			724		
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	35	754	36	32	635	1068			875		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	44	129	429	362	362	247	245
Volume Left	44	0	429	0	0	0	0
Volume Right	0	119	0	0	0	0	122
cSH	36	257	1068	1700	1700	1700	1700
Volume to Capacity	1.21	0.50	0.40	0.21	0.21	0.15	0.14
Queue Length 95th (ft)	115	65	49	0	0	0	0
Control Delay (s)	388.9	32.3	10.6	0.0	0.0	0.0	0.0
Lane LOS	F	D	B				
Approach Delay (s)	123.7		4.0			0.0	
Approach LOS	F						

Intersection Summary			
Average Delay	14.3		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	23	2	69	275	431	0	0	474	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	459	0	0	533	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	1695	1805	496	1310	2035	229	991			459		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1695	1805	496	1310	2035	229	991			459		
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	50	90	85	58			100		
cM capacity (veh/h)	32	45	520	78	33	773	693			1099		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	39	120	293	229	229	355	636
Volume Left	39	0	293	0	0	0	0
Volume Right	0	117	0	0	0	0	458
cSH	78	471	693	1700	1700	1700	1700
Volume to Capacity	0.50	0.26	0.42	0.13	0.13	0.21	0.37
Queue Length 95th (ft)	52	25	53	0	0	0	0
Control Delay (s)	90.0	15.2	13.9	0.0	0.0	0.0	0.0
Lane LOS	F	C	B				
Approach Delay (s)	33.5		5.4			0.0	
Approach LOS	D						

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	394	522	332	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)	469	621	420	672	0	0
RTOR Reduction (vph)	0	0	0	459	0	0
Lane Group Flow (vph)	469	621	420	213	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	11.4	35.3	20.2	20.2		
Effective Green, g (s)	11.4	35.3	20.2	20.2		
Actuated g/C Ratio	0.18	0.55	0.32	0.32		
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)	348	2154	1233	552		
v/s Ratio Prot	c0.24	0.16	0.11			
v/s Ratio Perm				c0.12		
v/c Ratio	1.35	0.29	0.34	0.39		
Uniform Delay, d1	26.2	7.6	16.7	17.0		
Progression Factor	1.00	1.00	1.20	3.10		
Incremental Delay, d2	174.4	0.0	0.2	0.6		
Delay (s)	200.6	7.6	20.2	53.2		
Level of Service	F	A	C	D		
Approach Delay (s)		90.7	40.5		0.0	
Approach LOS		F	D		A	

Intersection Summary			
HCM Average Control Delay	65.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	63.8	Sum of lost time (s)	32.2
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	690	757	263	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)	802	880	296	584	0	0
RTOR Reduction (vph)	0	0	0	429	0	0
Lane Group Flow (vph)	802	880	296	155	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	11.4	31.2	16.1	16.1		
Effective Green, g (s)	11.4	31.2	16.1	16.1		
Actuated g/C Ratio	0.19	0.52	0.27	0.27		
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)	367	2008	1036	464		
v/s Ratio Prot	c0.41	c0.23	0.08			
v/s Ratio Perm				0.09		
v/c Ratio	2.19	0.44	0.29	0.33		
Uniform Delay, d1	24.6	9.2	17.6	17.9		
Progression Factor	1.00	1.00	1.18	2.79		
Incremental Delay, d2	542.3	0.1	0.2	0.6		
Delay (s)	566.8	9.2	21.0	50.5		
Level of Service	F	A	C	D		
Approach Delay (s)		275.1	40.5		0.0	
Approach LOS		F	D		A	

Intersection Summary

HCM Average Control Delay	194.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	60.5	Sum of lost time (s)	28.9
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
63: E Divisadero St & N Echo St

4/10/2012

Movement	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL
Lane Configurations												
Volume (vph)	21	4	4	10	241	1	9	65	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			0.87	0.85				1.00	0.85	0.86	0.91
Flt Protected	1.00			1.00	1.00				0.95	1.00	1.00	0.98
Satd. Flow (prot)	1821			1531	1504				3362	1583	1611	3221
Flt Permitted	1.00			0.99	1.00				0.95	1.00	1.00	0.46
Satd. Flow (perm)	1821			1524	1504				3362	1583	1611	1494
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)	25	5	5	12	290	1	10	76	0	10	4	625
RTOR Reduction (vph)	4	0	0	0	0	0	0	0	0	9	4	0
Lane Group Flow (vph)	26	0	0	156	152	0	0	0	86	1	0	1594
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)	20.7			20.7	20.7				7.1	7.1	7.5	45.5
Effective Green, g (s)	20.7			20.7	20.7				7.1	7.1	7.5	45.5
Actuated g/C Ratio	0.24			0.24	0.24				0.08	0.08	0.09	0.52
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)	433			362	357				274	129	139	1683
v/s Ratio Prot	0.01										0.00	c0.49
v/s Ratio Perm				c0.10	0.10				0.03	0.00		
v/c Ratio	0.06			0.43	0.43				0.31	0.01	0.00	1.14dr
Uniform Delay, d1	25.7			28.2	28.2				37.7	36.8	36.4	19.7
Progression Factor	1.00			1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1			1.7	1.7				0.9	0.0	0.0	12.0
Delay (s)	25.8			29.9	29.9				38.6	36.8	36.4	31.6
Level of Service	C			C	C				D	D	D	C
Approach Delay (s)	25.8			29.9					38.4			31.6
Approach LOS	C			C					D			C

Intersection Summary			
HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	13.8
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

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

c Critical Lane Group

Movement	SER	SER2
Lane Configurations		
Volume (vph)	687	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)	968	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
80: CA 180 WB & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	322	710	5	72	0	0	0	0	3	628	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)		1690		1770	1863						3538	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1690		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	866	6	86	0	0	0	0	4	757	134
RTOR Reduction (vph)	0	75	0	0	0	0	0	0	0	0	0	86
Lane Group Flow (vph)	0	1184	0	6	86	0	0	0	0	0	761	48
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		32.1		1.0	36.8						25.8	25.8
Effective Green, g (s)		32.1		1.0	36.8						25.8	25.8
Actuated g/C Ratio		0.45		0.01	0.51						0.36	0.36
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)		757		25	956						1273	570
v/s Ratio Prot		c0.70		c0.00	0.05						c0.22	
v/s Ratio Perm												0.03
v/c Ratio		1.56		0.24	0.09						0.60	0.08
Uniform Delay, d1		19.8		35.0	8.9						18.7	15.2
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		260.2		1.8	0.1						1.2	0.1
Delay (s)		280.0		36.8	9.0						19.9	15.3
Level of Service		F		D	A						B	B
Approach Delay (s)		280.0			10.8			0.0			19.2	
Approach LOS		F			B			A			B	

Intersection Summary			
HCM Average Control Delay	165.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	71.7	Sum of lost time (s)	12.8
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
109: F St & Stanislaus St

4/10/2012

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	15	376	335	0	27	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	1742	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.46	1.00
Satd. Flow (perm)	1947	1742	2049		941	3893
Peak-hour factor, PHF	0.47	0.47	0.92	0.92	0.85	0.85
Adj. Flow (vph)	32	800	364	0	32	356
RTOR Reduction (vph)	0	190	0	0	0	0
Lane Group Flow (vph)	32	610	364	0	32	356
Turn Type		Perm			Perm	
Protected Phases	2		4			8
Permitted Phases		2			8	
Actuated Green, G (s)	14.6	14.6	11.1		11.1	11.1
Effective Green, g (s)	14.6	14.6	11.1		11.1	11.1
Actuated g/C Ratio	0.43	0.43	0.33		0.33	0.33
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)	844	755	675		310	1282
v/s Ratio Prot	0.02		c0.18			0.09
v/s Ratio Perm		c0.35			0.03	
v/c Ratio	0.04	0.81	0.54		0.10	0.28
Uniform Delay, d1	5.5	8.3	9.2		7.8	8.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	6.3	0.8		0.1	0.1
Delay (s)	5.5	14.7	10.0		8.0	8.5
Level of Service	A	B	B		A	A
Approach Delay (s)	14.3		10.0			8.4
Approach LOS	B		B			A

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	33.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
109: F St & Stanislaus St

4/10/2012

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	25	229	201	0	19	706
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	1742	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.62	1.00
Satd. Flow (perm)	1947	1742	2049		1274	3893
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	28	257	218	0	21	793
RTOR Reduction (vph)	0	194	0	0	0	0
Lane Group Flow (vph)	28	63	218	0	21	793
Turn Type		Perm			Perm	
Protected Phases	2		4			8
Permitted Phases		2			8	
Actuated Green, G (s)	6.6	6.6	12.2		12.2	12.2
Effective Green, g (s)	6.6	6.6	12.2		12.2	12.2
Actuated g/C Ratio	0.25	0.25	0.46		0.46	0.46
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	479	429	933		580	1772
v/s Ratio Prot	0.01		0.11			c0.20
v/s Ratio Perm		c0.04			0.02	
v/c Ratio	0.06	0.15	0.23		0.04	0.45
Uniform Delay, d1	7.7	7.9	4.5		4.0	5.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.2	0.1		0.0	0.2
Delay (s)	7.8	8.1	4.6		4.1	5.2
Level of Service	A	A	A		A	A
Approach Delay (s)	8.0		4.6			5.1
Approach LOS	A		A			A

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	26.8	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

HCM Signalized Intersection Capacity Analysis
117: N St & Stanislaus St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	71	14	53	39	0	0	0	0	162	526	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.98		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		2000		1947	2049					1947	2042	
Flt Permitted		1.00		0.69	1.00					0.95	1.00	
Satd. Flow (perm)		2000		1419	2049					1947	2042	
Peak-hour factor, PHF	0.85	0.85	0.85	0.79	0.79	0.79	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	0	84	16	67	49	0	0	0	0	193	626	15
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	87	0	67	49	0	0	0	0	193	640	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6			2								
Actuated Green, G (s)		7.2		7.2	7.2					10.2	19.8	
Effective Green, g (s)		7.2		7.2	7.2					10.2	19.8	
Actuated g/C Ratio		0.21		0.21	0.21					0.29	0.57	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		411		292	422					567	1155	
v/s Ratio Prot		0.04			0.02					0.10	c0.31	
v/s Ratio Perm				c0.05								
v/c Ratio		0.21		0.23	0.12					0.34	0.55	
Uniform Delay, d1		11.5		11.6	11.3					9.8	4.8	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		0.3		0.4	0.1					0.4	0.6	
Delay (s)		11.8		12.0	11.4					10.1	5.4	
Level of Service		B		B	B					B	A	
Approach Delay (s)		11.8			11.8			0.0			6.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	35.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: N St & Stanislaus St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	22	9	106	64	0	0	0	0	42	348	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.96		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1961		1947	2049					1947	2049	
Flt Permitted		1.00		0.72	1.00					0.95	1.00	
Satd. Flow (perm)		1961		1476	2049					1947	2049	
Peak-hour factor, PHF	0.55	0.55	0.55	0.57	0.57	0.57	0.92	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	40	16	186	112	0	0	0	0	49	409	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	45	0	186	112	0	0	0	0	49	409	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6			2								
Actuated Green, G (s)		10.1		10.1	10.1					2.6	15.4	
Effective Green, g (s)		10.1		10.1	10.1					2.6	15.4	
Actuated g/C Ratio		0.30		0.30	0.30					0.08	0.46	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		591		445	618					151	942	
v/s Ratio Prot		0.02			0.05					0.03	c0.20	
v/s Ratio Perm				c0.13								
v/c Ratio		0.08		0.42	0.18					0.32	0.43	
Uniform Delay, d1		8.4		9.4	8.6					14.6	6.1	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		0.1		0.6	0.1					1.3	0.3	
Delay (s)		8.4		10.0	8.8					15.9	6.4	
Level of Service		A		A	A					B	A	
Approach Delay (s)		8.4			9.5			0.0			7.4	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	33.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
124: W Olive Ave & SR 99 Southbound Off-Ramp

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	303	281	112	276	0	0	0	0	73	0	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.93		1.00	1.00						0.93	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3284		1770	3539						1692	
Flt Permitted		1.00		0.34	1.00						0.98	
Satd. Flow (perm)		3284		635	3539						1692	
Peak-hour factor, PHF	0.75	0.75	0.75	0.86	0.86	0.86	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	404	375	130	321	0	0	0	0	80	0	86
RTOR Reduction (vph)	0	210	0	0	0	0	0	0	0	0	63	0
Lane Group Flow (vph)	0	569	0	130	321	0	0	0	0	0	103	0
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		12.1		12.1	12.1						7.4	
Effective Green, g (s)		12.1		12.1	12.1						7.4	
Actuated g/C Ratio		0.44		0.44	0.44						0.27	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1445		279	1557						455	
v/s Ratio Prot		0.17			0.09							
v/s Ratio Perm				c0.20							0.06	
v/c Ratio		0.39		0.47	0.21						0.23	
Uniform Delay, d1		5.2		5.4	4.7						7.8	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.2		1.2	0.1						0.3	
Delay (s)		5.4		6.7	4.8						8.1	
Level of Service		A		A	A						A	
Approach Delay (s)		5.4			5.3			0.0			8.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	27.5	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
124: W Olive Ave & SR 99 Southbound Off-Ramp

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	385	160	199	454	0	0	0	0	73	0	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.96		1.00	1.00						0.92	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3383		1770	3539						1680	
Flt Permitted		1.00		0.40	1.00						0.98	
Satd. Flow (perm)		3383		749	3539						1680	
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	464	193	231	528	0	0	0	0	97	0	139
RTOR Reduction (vph)	0	96	0	0	0	0	0	0	0	0	105	0
Lane Group Flow (vph)	0	561	0	231	528	0	0	0	0	0	131	0
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		15.1		15.1	15.1						7.6	
Effective Green, g (s)		15.1		15.1	15.1						7.6	
Actuated g/C Ratio		0.49		0.49	0.49						0.25	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1664		368	1741						416	
v/s Ratio Prot		0.17			0.15							
v/s Ratio Perm				c0.31							0.08	
v/c Ratio		0.34		0.63	0.30						0.32	
Uniform Delay, d1		4.8		5.7	4.7						9.4	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.1		3.3	0.1						0.4	
Delay (s)		4.9		9.1	4.8						9.9	
Level of Service		A		A	A						A	
Approach Delay (s)		4.9			6.1			0.0			9.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	30.7	Sum of lost time (s)	8.0
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	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (vph)	0	151	189	103	196	0	99	7	49	10	0	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		
Lane Util. Factor		0.95		1.00	0.95			1.00		1.00		
Frt		0.92		1.00	1.00			0.96		0.91		
Flt Protected		1.00		0.95	1.00			0.97		0.98		
Satd. Flow (prot)		3244		1770	3539			1724		1667		
Flt Permitted		1.00		0.95	1.00			0.97		0.98		
Satd. Flow (perm)		3244		1770	3539			1724		1667		
Peak-hour factor, PHF	0.82	0.82	0.82	0.81	0.81	0.81	0.72	0.72	0.72	0.63	0.63	0.63
Adj. Flow (vph)	0	184	230	127	242	0	138	10	68	16	0	32
RTOR Reduction (vph)	0	174	0	0	0	0	0	36	0	23	0	0
Lane Group Flow (vph)	0	240	0	127	242	0	0	180	0	25	0	0
Turn Type				Prot			Perm					
Protected Phases		4		3	8			6l		2l		
Permitted Phases							6					
Actuated Green, G (s)		8.1		4.4	16.5			8.9		8.9		
Effective Green, g (s)		8.1		4.4	16.5			8.9		8.9		
Actuated g/C Ratio		0.24		0.13	0.49			0.27		0.27		
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)		787		233	1748			459		444		
v/s Ratio Prot		c0.07		c0.07	0.07					0.01		
v/s Ratio Perm								0.10				
v/c Ratio		0.30		0.55	0.14			0.39		0.06		
Uniform Delay, d1		10.3		13.6	4.6			10.0		9.1		
Progression Factor		1.00		1.00	1.00			1.00		1.00		
Incremental Delay, d2		0.2		2.6	0.0			0.6		0.1		
Delay (s)		10.6		16.2	4.6			10.6		9.2		
Level of Service		B		B	A			B		A		
Approach Delay (s)		10.6			8.6			10.6		9.2		
Approach LOS		B			A			B		A		

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	33.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (vph)	0	280	268	182	362	0	74	4	63	17	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0		4.0		
Lane Util. Factor		0.95		1.00	0.95			1.00		1.00		
Frt		0.93		1.00	1.00			0.94		0.94		
Flt Protected		1.00		0.95	1.00			0.97		0.97		
Satd. Flow (prot)		3280		1770	3539			1703		1698		
Flt Permitted		1.00		0.95	1.00			0.97		0.97		
Satd. Flow (perm)		3280		1770	3539			1703		1698		
Peak-hour factor, PHF	0.94	0.94	0.94	0.83	0.83	0.83	0.89	0.89	0.89	0.75	0.75	0.75
Adj. Flow (vph)	0	298	285	219	436	0	83	4	71	23	0	21
RTOR Reduction (vph)	0	207	0	0	0	0	0	56	0	16	0	0
Lane Group Flow (vph)	0	376	0	219	436	0	0	102	0	28	0	0
Turn Type				Prot			Perm					
Protected Phases		4		3	8			6!		2!		
Permitted Phases							6					
Actuated Green, G (s)		10.4		7.3	21.7			8.2		8.2		
Effective Green, g (s)		10.4		7.3	21.7			8.2		8.2		
Actuated g/C Ratio		0.27		0.19	0.57			0.22		0.22		
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)		900		341	2026			368		367		
v/s Ratio Prot		c0.11		c0.12	0.12					0.02		
v/s Ratio Perm								0.06				
v/c Ratio		0.42		0.64	0.22			0.28		0.08		
Uniform Delay, d1		11.3		14.1	3.9			12.4		11.8		
Progression Factor		1.00		1.00	1.00			1.00		1.00		
Incremental Delay, d2		0.3		4.1	0.1			0.4		0.1		
Delay (s)		11.6		18.2	4.0			12.8		11.9		
Level of Service		B		B	A			B		B		
Approach Delay (s)		11.6			8.7			12.8		11.9		
Approach LOS		B			A			B		B		

Intersection Summary

HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	37.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	40	228	0	0	161	36	136	0	157	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		
Frt		1.00			0.97			1.00	0.85		
Flt Protected		0.99			1.00			0.95	1.00		
Satd. Flow (prot)		3513			3441			1770	1583		
Flt Permitted		0.88			1.00			0.95	1.00		
Satd. Flow (perm)		3102			3441			1770	1583		
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.81	0.81	0.81	0.92	0.92
Adj. Flow (vph)	42	238	0	0	177	40	168	0	194	0	0
RTOR Reduction (vph)	0	0	0	0	30	0	0	0	112	0	0
Lane Group Flow (vph)	0	280	0	0	187	0	0	168	82	0	0
Turn Type	Perm						Perm		Perm		
Protected Phases		4			8			2			
Permitted Phases	4						2		2		
Actuated Green, G (s)		6.3			6.3			10.5	10.5		
Effective Green, g (s)		6.3			6.3			10.5	10.5		
Actuated g/C Ratio		0.25			0.25			0.42	0.42		
Clearance Time (s)		4.0			4.0			4.0	4.0		
Vehicle Extension (s)		3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)		788			874			749	670		
v/s Ratio Prot					0.05						
v/s Ratio Perm		c0.09						0.09	0.05		
v/c Ratio		0.36			0.21			0.22	0.12		
Uniform Delay, d1		7.6			7.3			4.6	4.3		
Progression Factor		1.00			1.00			1.00	1.00		
Incremental Delay, d2		0.3			0.1			0.2	0.1		
Delay (s)		7.9			7.4			4.7	4.4		
Level of Service		A			A			A	A		
Approach Delay (s)		7.9			7.4			4.6		0.0	
Approach LOS		A			A			A		A	

Intersection Summary

HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	24.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	83	270	0	0	370	92	203	0	128	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		
Frt		1.00			0.97			1.00	0.85		
Flt Protected		0.99			1.00			0.95	1.00		
Satd. Flow (prot)		3498			3433			1770	1583		
Flt Permitted		0.76			1.00			0.95	1.00		
Satd. Flow (perm)		2689			3433			1770	1583		
Peak-hour factor, PHF	0.90	0.90	0.90	0.81	0.81	0.81	0.84	0.84	0.84	0.92	0.92
Adj. Flow (vph)	92	300	0	0	457	114	242	0	152	0	0
RTOR Reduction (vph)	0	0	0	0	58	0	0	0	100	0	0
Lane Group Flow (vph)	0	392	0	0	513	0	0	242	52	0	0
Turn Type	Perm						Perm		Perm		
Protected Phases		4			8			2			
Permitted Phases	4						2		2		
Actuated Green, G (s)		9.9			9.9			9.3	9.3		
Effective Green, g (s)		9.9			9.9			9.3	9.3		
Actuated g/C Ratio		0.36			0.36			0.34	0.34		
Clearance Time (s)		4.0			4.0			4.0	4.0		
Vehicle Extension (s)		3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)		979			1250			605	541		
v/s Ratio Prot					c0.15						
v/s Ratio Perm		0.15						0.14	0.03		
v/c Ratio		0.40			0.41			0.40	0.10		
Uniform Delay, d1		6.4			6.5			6.8	6.1		
Progression Factor		1.00			1.00			1.00	1.00		
Incremental Delay, d2		0.3			0.2			0.4	0.1		
Delay (s)		6.7			6.7			7.3	6.2		
Level of Service		A			A			A	A		
Approach Delay (s)		6.7			6.7			6.8		0.0	
Approach LOS		A			A			A		A	

Intersection Summary

HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	27.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

FRESNO EXISTING PLUS PROJECT
UNDERPASS MITIGATIONS

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	31	7	83	326	550	0	0	318	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	724	0	0	370	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	1774	2012	246	1766	2073	362	492			724		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1774	2012	246	1766	2073	362	492			724		
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	35	754	36	32	635	1068			875		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	44	129	429	362	362	247	245
Volume Left	44	0	429	0	0	0	0
Volume Right	0	119	0	0	0	0	122
cSH	36	257	1068	1700	1700	1700	1700
Volume to Capacity	1.21	0.50	0.40	0.21	0.21	0.15	0.14
Queue Length 95th (ft)	115	65	49	0	0	0	0
Control Delay (s)	388.9	32.3	10.6	0.0	0.0	0.0	0.0
Lane LOS	F	D	B				
Approach Delay (s)	123.7		4.0			0.0	
Approach LOS	F						

Intersection Summary			
Average Delay	14.3		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	23	2	69	275	431	0	0	474	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	459	0	0	533	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	1695	1805	496	1310	2035	229	991			459		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1695	1805	496	1310	2035	229	991			459		
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	50	90	85	58			100		
cM capacity (veh/h)	32	45	520	78	33	773	693			1099		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	39	120	293	229	229	355	636
Volume Left	39	0	293	0	0	0	0
Volume Right	0	117	0	0	0	0	458
cSH	78	471	693	1700	1700	1700	1700
Volume to Capacity	0.50	0.26	0.42	0.13	0.13	0.21	0.37
Queue Length 95th (ft)	52	25	53	0	0	0	0
Control Delay (s)	90.0	15.2	13.9	0.0	0.0	0.0	0.0
Lane LOS	F	C	B				
Approach Delay (s)	33.5		5.4			0.0	
Approach LOS	D						

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	394	522	332	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)	469	621	420	672	0	0
RTOR Reduction (vph)	0	0	0	459	0	0
Lane Group Flow (vph)	469	621	420	213	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	11.4	35.3	20.2	20.2		
Effective Green, g (s)	11.4	35.3	20.2	20.2		
Actuated g/C Ratio	0.18	0.55	0.32	0.32		
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)	348	2154	1233	552		
v/s Ratio Prot	c0.24	0.16	0.11			
v/s Ratio Perm				c0.12		
v/c Ratio	1.35	0.29	0.34	0.39		
Uniform Delay, d1	26.2	7.6	16.7	17.0		
Progression Factor	1.00	1.00	1.20	3.10		
Incremental Delay, d2	174.4	0.0	0.2	0.6		
Delay (s)	200.6	7.6	20.2	53.2		
Level of Service	F	A	C	D		
Approach Delay (s)		90.7	40.5		0.0	
Approach LOS		F	D		A	

Intersection Summary			
HCM Average Control Delay	65.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	63.8	Sum of lost time (s)	32.2
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	690	757	263	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)	802	880	296	584	0	0
RTOR Reduction (vph)	0	0	0	429	0	0
Lane Group Flow (vph)	802	880	296	155	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	11.4	31.2	16.1	16.1		
Effective Green, g (s)	11.4	31.2	16.1	16.1		
Actuated g/C Ratio	0.19	0.52	0.27	0.27		
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)	367	2008	1036	464		
v/s Ratio Prot	c0.41	c0.23	0.08			
v/s Ratio Perm				0.09		
v/c Ratio	2.19	0.44	0.29	0.33		
Uniform Delay, d1	24.6	9.2	17.6	17.9		
Progression Factor	1.00	1.00	1.18	2.79		
Incremental Delay, d2	542.3	0.1	0.2	0.6		
Delay (s)	566.8	9.2	21.0	50.5		
Level of Service	F	A	C	D		
Approach Delay (s)		275.1	40.5		0.0	
Approach LOS		F	D		A	

Intersection Summary			
HCM Average Control Delay	194.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	60.5	Sum of lost time (s)	28.9
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
63: E Divisadero St & N Echo St

4/10/2012

Movement	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL
Lane Configurations												
Volume (vph)	21	4	4	10	241	1	9	65	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			0.87	0.85				1.00	0.85	0.86	0.91
Flt Protected	1.00			1.00	1.00				0.95	1.00	1.00	0.98
Satd. Flow (prot)	1821			1531	1504				3362	1583	1611	3221
Flt Permitted	1.00			0.99	1.00				0.95	1.00	1.00	0.46
Satd. Flow (perm)	1821			1525	1504				3362	1583	1611	1494
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)	25	5	5	12	290	1	10	76	0	10	4	625
RTOR Reduction (vph)	4	0	0	0	0	0	0	0	0	9	4	0
Lane Group Flow (vph)	26	0	0	156	152	0	0	0	86	1	0	1594
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)	20.5			20.5	20.5				6.9	6.9	7.3	37.6
Effective Green, g (s)	20.5			20.5	20.5				6.9	6.9	7.3	37.6
Actuated g/C Ratio	0.26			0.26	0.26				0.09	0.09	0.09	0.48
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)	474			397	391				294	139	149	1537
v/s Ratio Prot	0.01										0.00	c0.49
v/s Ratio Perm				c0.10	0.10				0.03	0.00		
v/c Ratio	0.06			0.39	0.39				0.29	0.01	0.00	1.24dr
Uniform Delay, d1	21.9			24.0	24.0				33.7	32.8	32.4	20.6
Progression Factor	1.00			1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1			1.3	1.3				0.8	0.0	0.0	33.2
Delay (s)	22.0			25.4	25.3				34.4	32.8	32.4	53.8
Level of Service	C			C	C				C	C	C	D
Approach Delay (s)	22.0			25.3					34.3			53.8
Approach LOS	C			C					C			D

Intersection Summary			
HCM Average Control Delay	48.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	13.8
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

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

c Critical Lane Group

Movement	SER	SER2
Lane Configurations		
Volume (vph)	687	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)	968	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
80: CA 180 WB & N Blackstone Ave

4/10/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	322	710	5	72	0	0	0	0	3	628	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)		1690		1770	1863						3538	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1690		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	866	6	86	0	0	0	0	4	757	134
RTOR Reduction (vph)	0	75	0	0	0	0	0	0	0	0	0	86
Lane Group Flow (vph)	0	1184	0	6	86	0	0	0	0	0	761	48
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		32.1		1.0	36.8						25.8	25.8
Effective Green, g (s)		32.1		1.0	36.8						25.8	25.8
Actuated g/C Ratio		0.45		0.01	0.51						0.36	0.36
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)		757		25	956						1273	570
v/s Ratio Prot		c0.70		c0.00	0.05						c0.22	
v/s Ratio Perm												0.03
v/c Ratio		1.56		0.24	0.09						0.60	0.08
Uniform Delay, d1		19.8		35.0	8.9						18.7	15.2
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		260.2		1.8	0.1						1.2	0.1
Delay (s)		280.0		36.8	9.0						19.9	15.3
Level of Service		F		D	A						B	B
Approach Delay (s)		280.0			10.8			0.0			19.2	
Approach LOS		F			B			A			B	

Intersection Summary			
HCM Average Control Delay	165.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	71.7	Sum of lost time (s)	12.8
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	45	16	45	25	9	3	111	563	15	3	381	156
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	0.95		1.00	0.95	
Frt		0.94			0.99		1.00	1.00		1.00	0.96	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1891			1961		1947	3878		1947	3723	
Flt Permitted		0.84			0.76		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1629			1534		1947	3878		1947	3723	
Peak-hour factor, PHF	0.89	0.89	0.89	0.78	0.78	0.78	0.83	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	51	18	51	32	12	4	134	678	18	3	414	170
RTOR Reduction (vph)	0	41	0	0	3	0	0	3	0	0	84	0
Lane Group Flow (vph)	0	79	0	0	45	0	134	693	0	3	500	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6			2								
Actuated Green, G (s)		7.4			7.4		4.4	17.3		0.6	13.5	
Effective Green, g (s)		7.4			7.4		4.4	17.3		0.6	13.5	
Actuated g/C Ratio		0.20			0.20		0.12	0.46		0.02	0.36	
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)		323			304		230	1799		31	1347	
v/s Ratio Prot							c0.07	c0.18		0.00	0.13	
v/s Ratio Perm		c0.05			0.03							
v/c Ratio		0.24			0.15		0.58	0.39		0.10	0.37	
Uniform Delay, d1		12.6			12.3		15.6	6.5		18.1	8.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.2		3.7	0.1		1.4	0.2	
Delay (s)		13.0			12.6		19.3	6.7		19.4	8.9	
Level of Service		B			B		B	A		B	A	
Approach Delay (s)		13.0			12.6			8.7			9.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	37.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	102	8	111	21	8	15	65	477	21	2	577	64
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	0.95		1.00	0.95	
Frt		0.93			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1867			1908		1947	3869		1947	3835	
Flt Permitted		0.82			0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1571			1656		1947	3869		1947	3835	
Peak-hour factor, PHF	0.82	0.82	0.82	0.73	0.73	0.73	0.91	0.91	0.91	0.77	0.77	0.77
Adj. Flow (vph)	124	10	135	29	11	21	71	524	23	3	749	83
RTOR Reduction (vph)	0	83	0	0	16	0	0	5	0	0	15	0
Lane Group Flow (vph)	0	186	0	0	45	0	71	542	0	3	817	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6			2								
Actuated Green, G (s)		9.9			9.9		2.4	17.2		0.6	15.4	
Effective Green, g (s)		9.9			9.9		2.4	17.2		0.6	15.4	
Actuated g/C Ratio		0.25			0.25		0.06	0.43		0.02	0.39	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		392			413		118	1676		29	1488	
v/s Ratio Prot							c0.04	0.14		0.00	c0.21	
v/s Ratio Perm		c0.12			0.03							
v/c Ratio		0.48			0.11		0.60	0.32		0.10	0.55	
Uniform Delay, d1		12.7			11.5		18.2	7.4		19.3	9.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			0.1		8.4	0.1		1.6	0.4	
Delay (s)		13.6			11.6		26.6	7.5		20.9	9.9	
Level of Service		B			B		C	A		C	A	
Approach Delay (s)		13.6			11.6			9.7			9.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	39.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	15	371	330	0	27	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	1742	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.47	1.00
Satd. Flow (perm)	1947	1742	2049		963	3893
Peak-hour factor, PHF	0.47	0.47	0.92	0.92	0.85	0.85
Adj. Flow (vph)	32	789	359	0	32	331
RTOR Reduction (vph)	0	195	0	0	0	0
Lane Group Flow (vph)	32	594	359	0	32	331
Turn Type		Perm			Perm	
Protected Phases	2		4			8
Permitted Phases		2			8	
Actuated Green, G (s)	14.3	14.3	11.1		11.1	11.1
Effective Green, g (s)	14.3	14.3	11.1		11.1	11.1
Actuated g/C Ratio	0.43	0.43	0.33		0.33	0.33
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)	834	746	681		320	1294
v/s Ratio Prot	0.02		c0.18			0.09
v/s Ratio Perm		c0.34			0.03	
v/c Ratio	0.04	0.80	0.53		0.10	0.26
Uniform Delay, d1	5.6	8.3	9.0		7.7	8.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	5.9	0.7		0.1	0.1
Delay (s)	5.6	14.2	9.8		7.8	8.2
Level of Service	A	B	A		A	A
Approach Delay (s)	13.9		9.8			8.2
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	33.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
109: F St & Stanislaus St

4/10/2012

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	25	204	176	0	19	663
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	1742	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.64	1.00
Satd. Flow (perm)	1947	1742	2049		1306	3893
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	28	229	191	0	21	745
RTOR Reduction (vph)	0	172	0	0	0	0
Lane Group Flow (vph)	28	57	191	0	21	745
Turn Type		Perm			Perm	
Protected Phases	2		4			8
Permitted Phases		2			8	
Actuated Green, G (s)	6.5	6.5	11.5		11.5	11.5
Effective Green, g (s)	6.5	6.5	11.5		11.5	11.5
Actuated g/C Ratio	0.25	0.25	0.44		0.44	0.44
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)	487	436	906		578	1722
v/s Ratio Prot	0.01		0.09			c0.19
v/s Ratio Perm		c0.03			0.02	
v/c Ratio	0.06	0.13	0.21		0.04	0.43
Uniform Delay, d1	7.4	7.6	4.5		4.1	5.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	0.1		0.0	0.2
Delay (s)	7.5	7.7	4.6		4.1	5.2
Level of Service	A	A	A		A	A
Approach Delay (s)	7.7		4.6			5.1
Approach LOS	A		A			A

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	26.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: N St & Stanislaus St

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	71	14	53	39	0	0	0	0	162	526	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.98		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		2000		1947	2049					1947	2042	
Flt Permitted		1.00		0.69	1.00					0.95	1.00	
Satd. Flow (perm)		2000		1419	2049					1947	2042	
Peak-hour factor, PHF	0.85	0.85	0.85	0.79	0.79	0.79	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	0	84	16	67	49	0	0	0	0	193	626	15
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	89	0	67	49	0	0	0	0	193	640	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6			2								
Actuated Green, G (s)		7.1		7.1	7.1					11.8	23.4	
Effective Green, g (s)		7.1		7.1	7.1					11.8	23.4	
Actuated g/C Ratio		0.18		0.18	0.18					0.31	0.61	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		369		262	378					597	1241	
v/s Ratio Prot		0.04			0.02					0.10	c0.31	
v/s Ratio Perm				c0.05								
v/c Ratio		0.24		0.26	0.13					0.32	0.52	
Uniform Delay, d1		13.4		13.4	13.1					10.3	4.3	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		0.3		0.5	0.2					0.3	0.4	
Delay (s)		13.7		14.0	13.3					10.6	4.7	
Level of Service		B		B	B					B	A	
Approach Delay (s)		13.7			13.7			0.0			6.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	38.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: N St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	22	9	106	64	0	0	0	0	42	348	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.96		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1961		1947	2049					1947	2049	
Flt Permitted		1.00		0.72	1.00					0.95	1.00	
Satd. Flow (perm)		1961		1476	2049					1947	2049	
Peak-hour factor, PHF	0.55	0.55	0.55	0.57	0.57	0.57	0.92	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	40	16	186	112	0	0	0	0	49	409	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	45	0	186	112	0	0	0	0	49	409	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6			2								
Actuated Green, G (s)		10.1		10.1	10.1					2.6	15.4	
Effective Green, g (s)		10.1		10.1	10.1					2.6	15.4	
Actuated g/C Ratio		0.30		0.30	0.30					0.08	0.46	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		591		445	618					151	942	
v/s Ratio Prot		0.02			0.05					0.03	c0.20	
v/s Ratio Perm				c0.13								
v/c Ratio		0.08		0.42	0.18					0.32	0.43	
Uniform Delay, d1		8.4		9.4	8.6					14.6	6.1	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		0.1		0.6	0.1					1.3	0.3	
Delay (s)		8.4		10.0	8.8					15.9	6.4	
Level of Service		A		A	A					B	A	
Approach Delay (s)		8.4			9.5			0.0			7.4	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	33.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
124: W Olive Ave & SR 99 Southbound Off-Ramp

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	303	281	112	276	0	0	0	0	73	0	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.93		1.00	1.00						0.93	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3284		1770	3539						1692	
Flt Permitted		1.00		0.34	1.00						0.98	
Satd. Flow (perm)		3284		635	3539						1692	
Peak-hour factor, PHF	0.75	0.75	0.75	0.86	0.86	0.86	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	404	375	130	321	0	0	0	0	80	0	86
RTOR Reduction (vph)	0	210	0	0	0	0	0	0	0	0	63	0
Lane Group Flow (vph)	0	569	0	130	321	0	0	0	0	0	103	0
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		12.1		12.1	12.1						7.4	
Effective Green, g (s)		12.1		12.1	12.1						7.4	
Actuated g/C Ratio		0.44		0.44	0.44						0.27	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1445		279	1557						455	
v/s Ratio Prot		0.17			0.09							
v/s Ratio Perm				c0.20							0.06	
v/c Ratio		0.39		0.47	0.21						0.23	
Uniform Delay, d1		5.2		5.4	4.7						7.8	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.2		1.2	0.1						0.3	
Delay (s)		5.4		6.7	4.8						8.1	
Level of Service		A		A	A						A	
Approach Delay (s)		5.4			5.3			0.0			8.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	27.5	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
124: W Olive Ave & SR 99 Southbound Off-Ramp

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	385	160	199	454	0	0	0	0	73	0	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		0.95		1.00	0.95						1.00	
Frt		0.96		1.00	1.00						0.92	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		3383		1770	3539						1680	
Flt Permitted		1.00		0.40	1.00						0.98	
Satd. Flow (perm)		3383		749	3539						1680	
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	464	193	231	528	0	0	0	0	97	0	139
RTOR Reduction (vph)	0	96	0	0	0	0	0	0	0	0	105	0
Lane Group Flow (vph)	0	561	0	231	528	0	0	0	0	0	131	0
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		15.1		15.1	15.1						7.6	
Effective Green, g (s)		15.1		15.1	15.1						7.6	
Actuated g/C Ratio		0.49		0.49	0.49						0.25	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		1664		368	1741						416	
v/s Ratio Prot		0.17			0.15							
v/s Ratio Perm				c0.31							0.08	
v/c Ratio		0.34		0.63	0.30						0.32	
Uniform Delay, d1		4.8		5.7	4.7						9.4	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.1		3.3	0.1						0.4	
Delay (s)		4.9		9.1	4.8						9.9	
Level of Service		A		A	A						A	
Approach Delay (s)		4.9			6.1			0.0			9.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	30.7	Sum of lost time (s)	8.0
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	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (vph)	0	151	189	103	196	0	99	7	49	10	0	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		
Lane Util. Factor		0.95		1.00	0.95			1.00		1.00		
Frt		0.92		1.00	1.00			0.96		0.91		
Flt Protected		1.00		0.95	1.00			0.97		0.98		
Satd. Flow (prot)		3244		1770	3539			1724		1667		
Flt Permitted		1.00		0.95	1.00			0.97		0.98		
Satd. Flow (perm)		3244		1770	3539			1724		1667		
Peak-hour factor, PHF	0.82	0.82	0.82	0.81	0.81	0.81	0.72	0.72	0.72	0.63	0.63	0.63
Adj. Flow (vph)	0	184	230	127	242	0	138	10	68	16	0	32
RTOR Reduction (vph)	0	174	0	0	0	0	0	36	0	23	0	0
Lane Group Flow (vph)	0	240	0	127	242	0	0	180	0	25	0	0
Turn Type				Prot			Perm					
Protected Phases		4		3	8			6!		2!		
Permitted Phases							6					
Actuated Green, G (s)		8.1		4.4	16.5			8.9		8.9		
Effective Green, g (s)		8.1		4.4	16.5			8.9		8.9		
Actuated g/C Ratio		0.24		0.13	0.49			0.27		0.27		
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)		787		233	1748			459		444		
v/s Ratio Prot		c0.07		c0.07	0.07					0.01		
v/s Ratio Perm								0.10				
v/c Ratio		0.30		0.55	0.14			0.39		0.06		
Uniform Delay, d1		10.3		13.6	4.6			10.0		9.1		
Progression Factor		1.00		1.00	1.00			1.00		1.00		
Incremental Delay, d2		0.2		2.6	0.0			0.6		0.1		
Delay (s)		10.6		16.2	4.6			10.6		9.2		
Level of Service		B		B	A			B		A		
Approach Delay (s)		10.6			8.6			10.6		9.2		
Approach LOS		B			A			B		A		

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	33.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (vph)	0	280	268	182	362	0	74	4	63	17	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0		4.0		
Lane Util. Factor		0.95		1.00	0.95			1.00		1.00		
Frt		0.93		1.00	1.00			0.94		0.94		
Flt Protected		1.00		0.95	1.00			0.97		0.97		
Satd. Flow (prot)		3280		1770	3539			1703		1698		
Flt Permitted		1.00		0.95	1.00			0.97		0.97		
Satd. Flow (perm)		3280		1770	3539			1703		1698		
Peak-hour factor, PHF	0.94	0.94	0.94	0.83	0.83	0.83	0.89	0.89	0.89	0.75	0.75	0.75
Adj. Flow (vph)	0	298	285	219	436	0	83	4	71	23	0	21
RTOR Reduction (vph)	0	207	0	0	0	0	0	56	0	16	0	0
Lane Group Flow (vph)	0	376	0	219	436	0	0	102	0	28	0	0
Turn Type				Prot			Perm					
Protected Phases		4		3	8			6!		2!		
Permitted Phases							6					
Actuated Green, G (s)		10.4		7.3	21.7			8.2		8.2		
Effective Green, g (s)		10.4		7.3	21.7			8.2		8.2		
Actuated g/C Ratio		0.27		0.19	0.57			0.22		0.22		
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)		900		341	2026			368		367		
v/s Ratio Prot		c0.11		c0.12	0.12					0.02		
v/s Ratio Perm								0.06				
v/c Ratio		0.42		0.64	0.22			0.28		0.08		
Uniform Delay, d1		11.3		14.1	3.9			12.4		11.8		
Progression Factor		1.00		1.00	1.00			1.00		1.00		
Incremental Delay, d2		0.3		4.1	0.1			0.4		0.1		
Delay (s)		11.6		18.2	4.0			12.8		11.9		
Level of Service		B		B	A			B		B		
Approach Delay (s)		11.6			8.7			12.8		11.9		
Approach LOS		B			A			B		B		

Intersection Summary

HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	37.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	40	228	0	0	161	36	136	0	157	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		
Frt		1.00			0.97			1.00	0.85		
Flt Protected		0.99			1.00			0.95	1.00		
Satd. Flow (prot)		3513			3441			1770	1583		
Flt Permitted		0.88			1.00			0.95	1.00		
Satd. Flow (perm)		3102			3441			1770	1583		
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.81	0.81	0.81	0.92	0.92
Adj. Flow (vph)	42	238	0	0	177	40	168	0	194	0	0
RTOR Reduction (vph)	0	0	0	0	30	0	0	0	112	0	0
Lane Group Flow (vph)	0	280	0	0	187	0	0	168	82	0	0
Turn Type	Perm						Perm		Perm		
Protected Phases		4			8			2			
Permitted Phases	4						2		2		
Actuated Green, G (s)		6.3			6.3			10.5	10.5		
Effective Green, g (s)		6.3			6.3			10.5	10.5		
Actuated g/C Ratio		0.25			0.25			0.42	0.42		
Clearance Time (s)		4.0			4.0			4.0	4.0		
Vehicle Extension (s)		3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)		788			874			749	670		
v/s Ratio Prot					0.05						
v/s Ratio Perm		c0.09						0.09	0.05		
v/c Ratio		0.36			0.21			0.22	0.12		
Uniform Delay, d1		7.6			7.3			4.6	4.3		
Progression Factor		1.00			1.00			1.00	1.00		
Incremental Delay, d2		0.3			0.1			0.2	0.1		
Delay (s)		7.9			7.4			4.7	4.4		
Level of Service		A			A			A	A		
Approach Delay (s)		7.9			7.4			4.6		0.0	
Approach LOS		A			A			A		A	

Intersection Summary

HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	24.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	83	270	0	0	370	92	203	0	128	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		
Frt		1.00			0.97			1.00	0.85		
Flt Protected		0.99			1.00			0.95	1.00		
Satd. Flow (prot)		3498			3433			1770	1583		
Flt Permitted		0.76			1.00			0.95	1.00		
Satd. Flow (perm)		2689			3433			1770	1583		
Peak-hour factor, PHF	0.90	0.90	0.90	0.81	0.81	0.81	0.84	0.84	0.84	0.92	0.92
Adj. Flow (vph)	92	300	0	0	457	114	242	0	152	0	0
RTOR Reduction (vph)	0	0	0	0	58	0	0	0	100	0	0
Lane Group Flow (vph)	0	392	0	0	513	0	0	242	52	0	0
Turn Type	Perm						Perm		Perm		
Protected Phases		4			8			2			
Permitted Phases	4						2		2		
Actuated Green, G (s)		9.9			9.9			9.3	9.3		
Effective Green, g (s)		9.9			9.9			9.3	9.3		
Actuated g/C Ratio		0.36			0.36			0.34	0.34		
Clearance Time (s)		4.0			4.0			4.0	4.0		
Vehicle Extension (s)		3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)		979			1250			605	541		
v/s Ratio Prot					c0.15						
v/s Ratio Perm		0.15						0.14	0.03		
v/c Ratio		0.40			0.41			0.40	0.10		
Uniform Delay, d1		6.4			6.5			6.8	6.1		
Progression Factor		1.00			1.00			1.00	1.00		
Incremental Delay, d2		0.3			0.2			0.4	0.1		
Delay (s)		6.7			6.7			7.3	6.2		
Level of Service		A			A			A	A		
Approach Delay (s)		6.7			6.7			6.8		0.0	
Approach LOS		A			A			A		A	

Intersection Summary

HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	27.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HANFORD EXISTING PLUS PROJECT CONDITIONS - MITIGATED

HCM Signalized Intersection Capacity Analysis
4: SR 198 & 7th Ave

1/30/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	569	7	8	828	11	6	12	8	9	10	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.96			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1770	1859		1770	1859			1767			1645	
Flt Permitted	0.15	1.00		0.33	1.00			0.94			0.98	
Satd. Flow (perm)	283	1859		618	1859			1672			1615	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86	0.45	0.45	0.45
Adj. Flow (vph)	111	654	8	9	952	13	7	14	9	20	22	222
RTOR Reduction (vph)	0	1	0	0	1	0	0	7	0	0	114	0
Lane Group Flow (vph)	111	661	0	9	964	0	0	23	0	0	150	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.3	33.3		33.3	33.3			10.2			10.2	
Effective Green, g (s)	33.3	33.3		33.3	33.3			10.2			10.2	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.20			0.20	
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)	183	1202		400	1202			331			320	
v/s Ratio Prot		0.36			c0.52							
v/s Ratio Perm	0.39			0.01				0.01			c0.09	
v/c Ratio	0.61	0.55		0.02	0.80			0.07			0.47	
Uniform Delay, d1	5.3	5.0		3.3	6.7			16.8			18.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	5.6	0.5		0.0	4.0			0.1			1.1	
Delay (s)	10.9	5.5		3.3	10.6			16.9			19.3	
Level of Service	B	A		A	B			B			B	
Approach Delay (s)		6.3			10.6			16.9			19.3	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	51.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: SR 198 & 7th Ave

1/30/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	989	13	5	786	1	7	3	2	4	3	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.98			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	1859		1770	1862			1773			1664	
Flt Permitted	0.22	1.00		0.14	1.00			0.82			0.96	
Satd. Flow (perm)	414	1859		259	1862			1491			1603	
Peak-hour factor, PHF	0.92	0.92	0.92	0.85	0.85	0.85	0.46	0.46	0.46	0.65	0.65	0.65
Adj. Flow (vph)	39	1075	14	6	925	1	15	7	4	6	5	32
RTOR Reduction (vph)	0	1	0	0	0	0	0	3	0	0	28	0
Lane Group Flow (vph)	39	1088	0	6	926	0	0	23	0	0	15	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	36.2	36.2		36.2	36.2			6.4			6.4	
Effective Green, g (s)	36.2	36.2		36.2	36.2			6.4			6.4	
Actuated g/C Ratio	0.72	0.72		0.72	0.72			0.13			0.13	
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)	296	1330		185	1332			189			203	
v/s Ratio Prot		c0.59			0.50							
v/s Ratio Perm	0.09			0.02				c0.02			0.01	
v/c Ratio	0.13	0.82		0.03	0.70			0.12			0.07	
Uniform Delay, d1	2.3	4.9		2.1	4.1			19.6			19.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	4.0		0.1	1.6			0.3			0.2	
Delay (s)	2.5	9.0		2.2	5.7			19.9			19.6	
Level of Service	A	A		A	A			B			B	
Approach Delay (s)		8.8			5.7			19.9			19.6	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	50.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	556	4	4	791	4	6	5	6	4	8	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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.95			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	1861		1770	1861			1741			1648	
Flt Permitted	0.20	1.00		0.34	1.00			0.87			0.98	
Satd. Flow (perm)	375	1861		628	1861			1538			1623	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.44	0.44	0.44	0.71	0.71	0.71
Adj. Flow (vph)	35	654	5	4	869	4	14	11	14	6	11	87
RTOR Reduction (vph)	0	0	0	0	0	0	0	12	0	0	72	0
Lane Group Flow (vph)	35	659	0	4	873	0	0	27	0	0	32	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.4	24.4		24.4	24.4			6.8			6.8	
Effective Green, g (s)	24.4	24.4		24.4	24.4			6.8			6.8	
Actuated g/C Ratio	0.62	0.62		0.62	0.62			0.17			0.17	
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)	233	1158		391	1158			267			282	
v/s Ratio Prot		0.35			c0.47							
v/s Ratio Perm	0.09			0.01				0.02			c0.02	
v/c Ratio	0.15	0.57		0.01	0.75			0.10			0.11	
Uniform Delay, d1	3.1	4.3		2.8	5.3			13.6			13.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	0.6		0.0	2.8			0.2			0.2	
Delay (s)	3.4	5.0		2.8	8.1			13.8			13.8	
Level of Service	A	A		A	A			B			B	
Approach Delay (s)		4.9			8.1			13.8			13.8	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	39.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.1%	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)	102	933	9	3	703	10	0	10	4	2	3	51
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	1.00	1.00		1.00	1.00			0.96			0.88	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1860		1770	1859			1784			1630	
Flt Permitted	0.21	1.00		0.17	1.00			1.00			0.99	
Satd. Flow (perm)	394	1860		323	1859			1784			1616	
Peak-hour factor, PHF	0.97	0.97	0.97	0.79	0.79	0.79	0.88	0.88	0.88	0.69	0.69	0.69
Adj. Flow (vph)	105	962	9	4	890	13	0	11	5	3	4	74
RTOR Reduction (vph)	0	0	0	0	1	0	0	4	0	0	63	0
Lane Group Flow (vph)	105	971	0	4	902	0	0	12	0	0	18	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.2	29.2		29.2	29.2			6.4			6.4	
Effective Green, g (s)	29.2	29.2		29.2	29.2			6.4			6.4	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.15			0.15	
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)	264	1246		216	1245			262			237	
v/s Ratio Prot		c0.52			0.49			0.01				
v/s Ratio Perm	0.27			0.01							c0.01	
v/c Ratio	0.40	0.78		0.02	0.72			0.04			0.08	
Uniform Delay, d1	3.2	5.0		2.4	4.6			16.0			16.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.0	3.1		0.0	2.1			0.1			0.1	
Delay (s)	4.2	8.1		2.4	6.7			16.0			16.2	
Level of Service	A	A		A	A			B			B	
Approach Delay (s)		7.7			6.7			16.0			16.2	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.1%	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)	4	539	6	5	780	4	6	3	3	2	7	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.97			0.91	
Flt Protected		1.00			1.00			0.98			1.00	
Satd. Flow (prot)		1859			1861			1756			1689	
Flt Permitted		0.99			1.00			0.85			0.98	
Satd. Flow (perm)		1850			1857			1530			1660	
Peak-hour factor, PHF	0.88	0.88	0.88	0.91	0.91	0.91	0.50	0.50	0.50	0.65	0.65	0.65
Adj. Flow (vph)	5	612	7	5	857	4	12	6	6	3	11	28
RTOR Reduction (vph)	0	1	0	0	0	0	0	5	0	0	23	0
Lane Group Flow (vph)	0	623	0	0	866	0	0	19	0	0	19	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		23.9			23.9			6.4			6.4	
Effective Green, g (s)		23.9			23.9			6.4			6.4	
Actuated g/C Ratio		0.62			0.62			0.17			0.17	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1154			1159			256			277	
v/s Ratio Prot												
v/s Ratio Perm		0.34			c0.47			c0.01			0.01	
v/c Ratio		0.54			0.75			0.07			0.07	
Uniform Delay, d1		4.1			5.1			13.5			13.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			2.7			0.1			0.1	
Delay (s)		4.6			7.7			13.6			13.5	
Level of Service		A			A			B			B	
Approach Delay (s)		4.6			7.7			13.6			13.5	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	38.3	Sum of lost time (s)	8.0
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)	21	888	10	2	690	8	3	7	2	3	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.98			0.91	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		1858			1860			1799			1693	
Flt Permitted		0.98			1.00			0.92			0.97	
Satd. Flow (perm)		1818			1856			1678			1646	
Peak-hour factor, PHF	0.95	0.95	0.95	0.79	0.79	0.79	0.63	0.63	0.63	0.57	0.57	0.57
Adj. Flow (vph)	22	935	11	3	873	10	5	11	3	5	11	28
RTOR Reduction (vph)	0	1	0	0	1	0	0	3	0	0	24	0
Lane Group Flow (vph)	0	967	0	0	885	0	0	16	0	0	20	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		29.9			29.9			6.4			6.4	
Effective Green, g (s)		29.9			29.9			6.4			6.4	
Actuated g/C Ratio		0.67			0.67			0.14			0.14	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1227			1253			242			238	
v/s Ratio Prot												
v/s Ratio Perm		c0.53			0.48			0.01			c0.01	
v/c Ratio		0.79			0.71			0.07			0.08	
Uniform Delay, d1		5.0			4.5			16.4			16.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.4			1.8			0.1			0.2	
Delay (s)		8.4			6.3			16.5			16.6	
Level of Service		A			A			B			B	
Approach Delay (s)		8.4			6.3			16.5			16.6	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	44.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
8: Lacey Blvd. & 8th Ave

1/30/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	24	66	107	18	20	65	231	189	18	471	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.98		1.00	0.93		1.00	1.00	
Flt Protected		0.99			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1692			1763		1770	1737		1770	1855	
Flt Permitted		0.94			0.77		0.38	1.00		0.44	1.00	
Satd. Flow (perm)		1601			1416		709	1737		824	1855	
Peak-hour factor, PHF	0.81	0.81	0.81	0.89	0.89	0.89	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	30	81	120	20	22	75	266	217	21	541	16
RTOR Reduction (vph)	0	63	0	0	17	0	0	57	0	0	2	0
Lane Group Flow (vph)	0	65	0	0	145	0	75	426	0	21	555	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.4			7.4		17.6	17.6		17.6	17.6	
Effective Green, g (s)		7.4			7.4		17.6	17.6		17.6	17.6	
Actuated g/C Ratio		0.22			0.22		0.53	0.53		0.53	0.53	
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)		359			318		378	926		439	989	
v/s Ratio Prot								0.25			c0.30	
v/s Ratio Perm		0.04			c0.10		0.11			0.03		
v/c Ratio		0.18			0.46		0.20	0.46		0.05	0.56	
Uniform Delay, d1		10.4			11.1		4.0	4.8		3.7	5.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			1.0		0.3	0.4		0.0	0.7	
Delay (s)		10.6			12.1		4.3	5.1		3.7	5.9	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		10.6			12.1			5.0			5.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	33.0	Sum of lost time (s)	8.0
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)	26	18	71	175	27	39	96	469	112	13	235	38
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		0.92			0.98		1.00	0.97		1.00	0.98	
Flt Protected		0.99			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1688			1758		1770	1809		1770	1824	
Flt Permitted		0.90			0.76		0.54	1.00		0.28	1.00	
Satd. Flow (perm)		1531			1381		1004	1809		518	1824	
Peak-hour factor, PHF	0.82	0.82	0.82	0.76	0.76	0.76	0.94	0.94	0.94	0.82	0.82	0.82
Adj. Flow (vph)	32	22	87	230	36	51	102	499	119	16	287	46
RTOR Reduction (vph)	0	59	0	0	16	0	0	19	0	0	12	0
Lane Group Flow (vph)	0	82	0	0	301	0	102	599	0	16	321	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.8			12.8		19.4	19.4		19.4	19.4	
Effective Green, g (s)		12.8			12.8		19.4	19.4		19.4	19.4	
Actuated g/C Ratio		0.32			0.32		0.48	0.48		0.48	0.48	
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)		487			440		485	873		250	880	
v/s Ratio Prot								c0.33			0.18	
v/s Ratio Perm		0.05			c0.22		0.10			0.03		
v/c Ratio		0.17			0.68		0.21	0.69		0.06	0.36	
Uniform Delay, d1		9.9			11.9		6.0	8.0		5.6	6.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			4.4		0.2	2.3		0.1	0.3	
Delay (s)		10.0			16.3		6.2	10.3		5.7	6.8	
Level of Service		B			B		A	B		A	A	
Approach Delay (s)		10.0			16.3			9.7			6.7	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	40.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HANFORD WEST EXISTING PLUS PROJECT MITIGATIONS

HCM Unsignalized Intersection Capacity Analysis
1: Hanford Armona Rd & 14th Avenue

7/13/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	70	17	69	53	55	17	98	65	57	147	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.65	0.65	0.65	0.93	0.93	0.93	0.71	0.71	0.71
Hourly flow rate (vph)	31	78	19	106	82	85	18	105	70	80	207	49
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	166			97			638	528	87	608	495	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166			97			638	528	87	608	495	124
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			92	75	93	72	52	95
cM capacity (veh/h)	1412			1497			215	414	971	284	432	927

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	128	272	194	80	256
Volume Left	31	106	18	80	0
Volume Right	19	85	70	0	49
cSH	1412	1497	471	284	482
Volume to Capacity	0.02	0.07	0.41	0.28	0.53
Queue Length 95th (ft)	2	6	50	28	77
Control Delay (s)	2.0	3.3	17.9	22.6	20.7
Lane LOS	A	A	C	C	C
Approach Delay (s)	2.0	3.3	17.9	21.1	
Approach LOS			C	C	

Intersection Summary				
Average Delay	12.6			
Intersection Capacity Utilization	46.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Hanford Armona Rd & 14th Avenue

7/13/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↑	
Volume (veh/h)	16	87	29	61	71	73	32	182	35	107	112	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.66	0.66	0.66	0.89	0.89	0.89	0.91	0.91	0.91	0.80	0.80	0.80
Hourly flow rate (vph)	24	132	44	69	80	82	35	200	38	134	140	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	162			176			554	501	154	599	482	121
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162			176			554	501	154	599	482	121
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			95			89	55	96	45	69	97
cM capacity (veh/h)	1417			1401			313	441	892	244	452	931

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	200	230	274	134	164
Volume Left	24	69	35	134	0
Volume Right	44	82	38	0	24
cSH	1417	1401	449	244	489
Volume to Capacity	0.02	0.05	0.61	0.55	0.34
Queue Length 95th (ft)	1	4	99	75	36
Control Delay (s)	1.0	2.6	24.7	36.4	16.0
Lane LOS	A	A	C	E	C
Approach Delay (s)	1.0	2.6	24.7	25.2	
Approach LOS			C	D	

Intersection Summary				
Average Delay	15.0			
Intersection Capacity Utilization	48.8%	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)	83	163	3	56	103	156	0	0	0	139	84	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			0.93						0.96	
Flt Protected		0.98			0.99						0.98	
Satd. Flow (prot)		1829			1723						1745	
Flt Permitted		0.82			0.90						0.98	
Satd. Flow (perm)		1531			1562						1745	
Peak-hour factor, PHF	0.91	0.91	0.91	0.84	0.84	0.84	0.92	0.92	0.92	0.83	0.83	0.83
Adj. Flow (vph)	91	179	3	67	123	186	0	0	0	167	101	128
RTOR Reduction (vph)	0	1	0	0	90	0	0	0	0	0	46	0
Lane Group Flow (vph)	0	272	0	0	286	0	0	0	0	0	350	0
Turn Type	Perm			Perm						custom		
Protected Phases		6			2							
Permitted Phases	6			2						8	8	
Actuated Green, G (s)		12.1			12.1						11.1	
Effective Green, g (s)		12.1			12.1						11.1	
Actuated g/C Ratio		0.39			0.39						0.36	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		3.0			3.0						3.0	
Lane Grp Cap (vph)		594			606						621	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.18						c0.20	
v/c Ratio		0.46			0.47						0.56	
Uniform Delay, d1		7.1			7.2						8.1	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.6			0.6						1.2	
Delay (s)		7.7			7.7						9.3	
Level of Service		A			A						A	
Approach Delay (s)		7.7			7.7			0.0			9.3	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	31.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.8%	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)	45	207	15	67	95	216	0	0	0	207	86	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		0.99			0.92						0.96	
Flt Protected		0.99			0.99						0.98	
Satd. Flow (prot)		1834			1704						1743	
Flt Permitted		0.91			0.90						0.98	
Satd. Flow (perm)		1677			1546						1743	
Peak-hour factor, PHF	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	52	241	17	71	100	227	0	0	0	230	96	146
RTOR Reduction (vph)	0	6	0	0	127	0	0	0	0	0	41	0
Lane Group Flow (vph)	0	304	0	0	271	0	0	0	0	0	431	0
Turn Type	Perm			Perm						custom		
Protected Phases		6			2							
Permitted Phases	6			2						8	8	
Actuated Green, G (s)		11.5			11.5						12.2	
Effective Green, g (s)		11.5			11.5						12.2	
Actuated g/C Ratio		0.36			0.36						0.38	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		3.0			3.0						3.0	
Lane Grp Cap (vph)		608			561						671	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.18						c0.25	
v/c Ratio		0.50			0.48						0.64	
Uniform Delay, d1		7.9			7.8						8.0	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.7			0.7						2.1	
Delay (s)		8.5			8.5						10.1	
Level of Service		A			A						B	
Approach Delay (s)		8.5			8.5			0.0			10.1	
Approach LOS		A			A			A			B	

Intersection Summary

HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	31.7	Sum of lost time (s)	8.0
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	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	157	150	0	0	124	19	74	0	51	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		1.00			1.00		1.00		1.00			
Frt		1.00			0.98		1.00		0.85			
Flt Protected		0.98			1.00		0.95		1.00			
Satd. Flow (prot)		1816			1829		1770		1583			
Flt Permitted		0.74			1.00		0.95		1.00			
Satd. Flow (perm)		1374			1829		1770		1583			
Peak-hour factor, PHF	0.88	0.88	0.88	0.71	0.71	0.71	0.77	0.77	0.77	0.92	0.92	0.92
Adj. Flow (vph)	178	170	0	0	175	27	96	0	66	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	46	0	0	0
Lane Group Flow (vph)	0	348	0	0	189	0	96	0	20	0	0	0
Turn Type	Perm						custom		custom			
Protected Phases		4			8				2			
Permitted Phases	4						2					
Actuated Green, G (s)		11.7			11.7		8.3		8.3			
Effective Green, g (s)		11.7			11.7		8.3		8.3			
Actuated g/C Ratio		0.42			0.42		0.30		0.30			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		574			764		525		469			
v/s Ratio Prot					0.10				0.01			
v/s Ratio Perm		c0.25					c0.05					
v/c Ratio		0.61			0.25		0.18		0.04			
Uniform Delay, d1		6.4			5.3		7.3		7.0			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		1.8			0.2		0.2		0.0			
Delay (s)		8.2			5.5		7.5		7.1			
Level of Service		A			A		A		A			
Approach Delay (s)		8.2			5.5			7.3			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	28.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	225	190	0	0	232	22	143	0	99	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		1.00			1.00		1.00		1.00			
Frt		1.00			0.99		1.00		0.85			
Flt Protected		0.97			1.00		0.95		1.00			
Satd. Flow (prot)		1814			1841		1770		1583			
Flt Permitted		0.69			1.00		0.95		1.00			
Satd. Flow (perm)		1276			1841		1770		1583			
Peak-hour factor, PHF	0.93	0.93	0.93	0.90	0.90	0.90	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	242	204	0	0	258	24	161	0	111	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	82	0	0	0
Lane Group Flow (vph)	0	446	0	0	275	0	161	0	29	0	0	0
Turn Type	Perm						custom		custom			
Protected Phases		4			8				2			
Permitted Phases	4						2					
Actuated Green, G (s)		16.9			16.9		8.9		8.9			
Effective Green, g (s)		16.9			16.9		8.9		8.9			
Actuated g/C Ratio		0.50			0.50		0.26		0.26			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		638			921		466		417			
v/s Ratio Prot					0.15				0.02			
v/s Ratio Perm		c0.35					c0.09					
v/c Ratio		0.70			0.30		0.35		0.07			
Uniform Delay, d1		6.5			5.0		10.1		9.3			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		3.4			0.2		0.4		0.1			
Delay (s)		9.8			5.1		10.5		9.4			
Level of Service		A			A		B		A			
Approach Delay (s)		9.8			5.1			10.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	33.8	Sum of lost time (s)	8.0
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)	0	0	0	241	134	10	123	109	0	0	59	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0			4.0	
Lane Util. Factor					0.95			1.00			1.00	
Frt					1.00			1.00			0.95	
Flt Protected					0.97			0.97			1.00	
Satd. Flow (prot)					3419			1815			1775	
Flt Permitted					0.97			0.78			1.00	
Satd. Flow (perm)					3419			1450			1775	
Peak-hour factor, PHF	0.92	0.92	0.92	0.75	0.75	0.75	0.95	0.95	0.95	0.78	0.78	0.78
Adj. Flow (vph)	0	0	0	321	179	13	129	115	0	0	76	41
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	0	0	0	508	0	0	244	0	0	91	0
Turn Type				Split			Perm					
Protected Phases				8	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)					10.2			10.2			10.2	
Effective Green, g (s)					10.2			10.2			10.2	
Actuated g/C Ratio					0.36			0.36			0.36	
Clearance Time (s)					4.0			4.0			4.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					1228			521			638	
v/s Ratio Prot					c0.15						0.05	
v/s Ratio Perm								c0.17				
v/c Ratio					0.41			0.47			0.14	
Uniform Delay, d1					6.8			7.0			6.1	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.2			0.7			0.1	
Delay (s)					7.1			7.7			6.2	
Level of Service					A			A			A	
Approach Delay (s)		0.0			7.1			7.7			6.2	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	28.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	310	152	12	84	86	0	0	167	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	
Lane Util. Factor					0.95			1.00			1.00	
Frt					1.00			1.00			0.96	
Flt Protected					0.97			0.98			1.00	
Satd. Flow (prot)					3414			1818			1795	
Flt Permitted					0.97			0.70			1.00	
Satd. Flow (perm)					3414			1313			1795	
Peak-hour factor, PHF	0.92	0.92	0.92	0.72	0.72	0.72	0.82	0.82	0.82	0.69	0.69	0.69
Adj. Flow (vph)	0	0	0	431	211	17	102	105	0	0	242	90
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	37	0
Lane Group Flow (vph)	0	0	0	0	654	0	0	207	0	0	295	0
Turn Type				Split			Perm					
Protected Phases				8	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)					11.6			10.2			10.2	
Effective Green, g (s)					11.6			10.2			10.2	
Actuated g/C Ratio					0.39			0.34			0.34	
Clearance Time (s)					4.0			4.0			4.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					1329			449			614	
v/s Ratio Prot					c0.19						c0.16	
v/s Ratio Perm								0.16				
v/c Ratio					0.49			0.46			0.48	
Uniform Delay, d1					6.9			7.7			7.7	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.3			0.8			0.6	
Delay (s)					7.2			8.4			8.3	
Level of Service					A			A			A	
Approach Delay (s)		0.0			7.2			8.4			8.3	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	29.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

BAKERSFIELD EXISTING PLUS PROJECT CONDITIONS - MITIGATED

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

1/29/2011

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1255	348	0	2208	1340	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2			4.9	4.9	
Lane Util. Factor	0.97			0.91	0.91	
Frt	0.97			1.00	0.97	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	3364			5085	4921	
Flt Permitted	0.96			1.00	1.00	
Satd. Flow (perm)	3364			5085	4921	
Peak-hour factor, PHF	0.83	0.83	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1512	419	0	2598	1576	433
RTOR Reduction (vph)	23	0	0	0	66	0
Lane Group Flow (vph)	1908	0	0	2598	1943	0
Turn Type						
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	20.8			45.1	45.1	
Effective Green, g (s)	20.8			45.1	45.1	
Actuated g/C Ratio	0.28			0.60	0.60	
Clearance Time (s)	4.2			4.9	4.9	
Vehicle Extension (s)	3.0			4.0	4.0	
Lane Grp Cap (vph)	933			3058	2959	
v/s Ratio Prot	c0.57			c0.51	0.39	
v/s Ratio Perm						
v/c Ratio	2.04			0.85	0.66	
Uniform Delay, d1	27.1			12.2	9.8	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	473.9			2.5	0.6	
Delay (s)	501.0			14.7	10.4	
Level of Service	F			B	B	
Approach Delay (s)	501.0			14.7	10.4	
Approach LOS	F			B	B	

Intersection Summary			
HCM Average Control Delay	157.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

1/29/2011

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	371	159	0	1110	1133	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2			4.9	4.9	
Lane Util. Factor	0.97			0.91	0.91	
Frt	0.96			1.00	0.98	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	3335			5085	4962	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	3335			5085	4962	
Peak-hour factor, PHF	0.81	0.81	0.83	0.83	0.75	0.75
Adj. Flow (vph)	458	196	0	1337	1511	291
RTOR Reduction (vph)	28	0	0	0	37	0
Lane Group Flow (vph)	626	0	0	1337	1765	0
Turn Type						
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	17.5			42.6	42.6	
Effective Green, g (s)	17.5			42.6	42.6	
Actuated g/C Ratio	0.25			0.62	0.62	
Clearance Time (s)	4.2			4.9	4.9	
Vehicle Extension (s)	3.0			4.0	4.0	
Lane Grp Cap (vph)	843			3130	3055	
v/s Ratio Prot	c0.19			0.26	c0.36	
v/s Ratio Perm						
v/c Ratio	0.74			0.43	0.58	
Uniform Delay, d1	23.8			6.9	7.9	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	3.6			0.1	0.3	
Delay (s)	27.4			7.1	8.3	
Level of Service	C			A	A	
Approach Delay (s)	27.4			7.1	8.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	69.2	Sum of lost time (s)	9.1
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: California Ave & parking lot

1/29/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	1308	452	0	1067	12	479	16	705	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	0.91	0.95	1.00		1.00
Frt	1.00	0.96			1.00	0.85	1.00	0.88	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.99	1.00	0.95		1.00
Satd. Flow (prot)	1770	4889			5085	1583	1681	1479	1504	1770		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.99	1.00	0.58		1.00
Satd. Flow (perm)	1770	4889			5085	1583	1681	1479	1504	1080		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	1521	526	0	1199	13	630	21	928	23	0	37
RTOR Reduction (vph)	0	42	0	0	0	3	0	116	251	0	0	35
Lane Group Flow (vph)	12	2005	0	0	1199	10	548	405	259	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)	1.2	58.2			52.9	52.9	25.5	25.5	25.5	6.9		6.9
Effective Green, g (s)	1.2	58.2			52.9	52.9	25.5	25.5	25.5	6.9		6.9
Actuated g/C Ratio	0.01	0.56			0.51	0.51	0.25	0.25	0.25	0.07		0.07
Clearance Time (s)	3.7	4.9			5.3	5.3	4.6	4.6	4.6	3.7		3.7
Vehicle Extension (s)	2.0	5.1			4.2	4.2	5.0	5.0	5.0	1.5		1.5
Lane Grp Cap (vph)	20	2741			2591	807	413	363	369	72		105
v/s Ratio Prot	0.01	c0.41			0.24	0.01	c0.33	0.27				
v/s Ratio Perm									0.17	c0.02		0.00
v/c Ratio	0.60	0.73			0.46	0.01	1.33	1.12	0.70	0.32		0.02
Uniform Delay, d1	51.1	17.0			16.3	12.6	39.2	39.2	35.7	46.2		45.3
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	30.1	1.3			0.2	0.0	163.1	82.2	7.4	0.9		0.0
Delay (s)	81.1	18.3			16.5	12.6	202.2	121.3	43.1	47.1		45.3
Level of Service	F	B			B	B	F	F	D	D		D
Approach Delay (s)		18.6			16.5			124.1			46.0	
Approach LOS		B			B			F			D	

Intersection Summary

HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	103.8	Sum of lost time (s)	13.2
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: California Ave & parking lot

1/29/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	1168	686	0	1944	31	301	9	356	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	0.91	0.95	1.00		1.00
Frt	1.00	0.94			1.00	0.85	1.00	0.90	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98	1.00	0.95		1.00
Satd. Flow (prot)	1770	4803			5085	1583	1681	1508	1504	1770		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98	1.00	0.65		1.00
Satd. Flow (perm)	1770	4803			5085	1583	1681	1508	1504	1202		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	1229	722	0	2260	36	331	10	391	19	0	65
RTOR Reduction (vph)	0	69	0	0	0	6	0	53	181	0	0	61
Lane Group Flow (vph)	73	1882	0	0	2260	30	255	189	54	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)	7.2	56.5			45.2	45.2	22.4	22.4	22.4	6.2		6.2
Effective Green, g (s)	7.2	56.5			45.2	45.2	22.4	22.4	22.4	6.2		6.2
Actuated g/C Ratio	0.07	0.57			0.46	0.46	0.23	0.23	0.23	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)	130	2761			2338	728	383	344	343	76		100
v/s Ratio Prot	0.04	c0.39			c0.44	0.02	c0.15	0.13				
v/s Ratio Perm									0.04	c0.02		0.00
v/c Ratio	0.56	0.68			0.97	0.04	0.67	0.55	0.16	0.25		0.04
Uniform Delay, d1	44.0	14.6			25.8	14.6	34.5	33.5	30.4	43.8		43.3
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.3	0.9			11.8	0.0	5.7	3.1	0.4	0.6		0.1
Delay (s)	47.3	15.5			37.6	14.7	40.2	36.6	30.8	44.5		43.3
Level of Service	D	B			D	B	D	D	C	D		D
Approach Delay (s)		16.7			37.3			36.0			43.6	
Approach LOS		B			D			D			D	

Intersection Summary			
HCM Average Control Delay	29.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
29: Hayden Ct & Union Ave

2/1/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	0	12	133	0	18	96	1320	104	154	896	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.85		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1794		1681	1905	1583	1770	5030		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1794		1681	1905	1583	1770	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)	232	0	48	199	0	27	126	1737	137	211	1227	190
RTOR Reduction (vph)	0	39	0	0	0	23	0	7	0	0	0	57
Lane Group Flow (vph)	232	9	0	99	100	4	126	1867	0	211	1227	133
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)	18.5	18.5		13.9	13.9	13.9	11.6	35.5		15.8	39.7	39.7
Effective Green, g (s)	18.5	18.5		13.9	13.9	13.9	11.6	35.5		15.8	39.7	39.7
Actuated g/C Ratio	0.18	0.18		0.14	0.14	0.14	0.12	0.35		0.16	0.40	0.40
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)	327	331		233	264	220	205	1782		279	2015	627
v/s Ratio Prot	c0.13	0.00		c0.06	0.05		0.07	c0.37		c0.12	0.24	
v/s Ratio Perm						0.00						0.08
v/c Ratio	0.71	0.03		0.42	0.38	0.02	0.61	1.05		0.76	0.61	0.21
Uniform Delay, d1	38.3	33.5		39.5	39.2	37.3	42.2	32.4		40.4	24.1	19.9
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	9.3	0.1		3.0	2.2	0.1	3.8	35.0		9.9	0.8	0.4
Delay (s)	47.6	33.6		42.5	41.5	37.3	46.0	67.4		50.3	24.9	20.3
Level of Service	D	C		D	D	D	D	E		D	C	C
Approach Delay (s)		45.2			41.4			66.0			27.6	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM Average Control Delay	48.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.2	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

HCM Signalized Intersection Capacity Analysis
41: 21st Street & Union Ave

1/29/2011

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Volume (vph)	8	71	23	32	19	11	5	49	46	362	854	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	1699		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	1699		1325	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	41	29	17	8	74	63	496	1170	23
RTOR Reduction (vph)	0	0	36	0	0	64	0	0	0	0	1	0
Lane Group Flow (vph)	0	100	34	0	29	35	0	0	63	496	1192	0
Turn Type	Perm	Perm			Perm				Prot		Over	
Protected Phases			8			8			5	2	7	
Permitted Phases	8	8			8							
Actuated Green, G (s)		10.3	10.3		10.3	10.3			6.2	21.1	24.8	
Effective Green, g (s)		10.3	10.3		10.3	10.3			6.2	21.1	24.8	
Actuated g/C Ratio		0.13	0.13		0.13	0.13			0.08	0.26	0.31	
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)		166	219		171	210			137	1343	865	
v/s Ratio Prot			0.02			0.02			c0.04	c0.10	c0.43	
v/s Ratio Perm		c0.08			0.02							
v/c Ratio		0.60	0.16		0.17	0.16			0.46	0.37	1.38	
Uniform Delay, d1		32.9	30.9		31.0	31.0			35.2	24.0	27.6	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		4.2	0.1		0.2	0.1			0.9	0.6	177.5	
Delay (s)		37.0	31.1		31.2	31.1			36.1	24.6	205.1	
Level of Service		D	C		C	C			D	C	F	
Approach Delay (s)			34.6			31.1				147.9		
Approach LOS			C			C				F		

Intersection Summary			
HCM Average Control Delay	88.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	14.5
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Volume (vph)	32	4	310	5	1	832	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	5072			4977		
Flt Permitted		0.95	1.00			0.86		
Satd. Flow (perm)		1770	5072			4474		
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	344	6	1	1027	38	17
RTOR Reduction (vph)	0	0	2	0	0	1	0	0
Lane Group Flow (vph)	0	40	348	0	0	1082	0	0
Turn Type	Prot	Prot			Perm			
Protected Phases	1	1	6			7		
Permitted Phases					7			
Actuated Green, G (s)		4.1	19.0			24.8		
Effective Green, g (s)		4.1	19.0			24.8		
Actuated g/C Ratio		0.05	0.24			0.31		
Clearance Time (s)		4.7	5.1			4.7		
Vehicle Extension (s)		2.0	6.8			8.0		
Lane Grp Cap (vph)		91	1206			1389		
v/s Ratio Prot		0.02	0.07					
v/s Ratio Perm						0.24		
v/c Ratio		0.44	0.29			0.78		
Uniform Delay, d1		36.8	24.9			25.1		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		1.2	0.5			4.1		
Delay (s)		38.0	25.4			29.2		
Level of Service		D	C			C		
Approach Delay (s)			26.7			29.2		
Approach LOS			C			C		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
29: Hayden Ct & Union Ave

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	0	9	192	0	52	26	1320	244	232	896	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.85		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1794		1681	1905	1583	1770	4966		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1794		1681	1905	1583	1770	4966		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)	16	0	36	287	0	78	34	1737	321	318	1227	18
RTOR Reduction (vph)	0	34	0	0	0	65	0	20	0	0	0	4
Lane Group Flow (vph)	16	2	0	143	144	13	34	2038	0	318	1227	14
Turn Type	Split			Split		Perm	Prot			Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	5.2	5.2		16.1	16.1	16.1	4.1	37.4		20.9	54.2	54.2
Effective Green, g (s)	5.2	5.2		16.1	16.1	16.1	4.1	37.4		20.9	54.2	54.2
Actuated g/C Ratio	0.05	0.05		0.17	0.17	0.17	0.04	0.39		0.22	0.56	0.56
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)	96	97		282	319	265	76	1933		385	2868	893
v/s Ratio Prot	c0.01	0.00		c0.09	0.08		0.02	c0.41		c0.18	0.24	
v/s Ratio Perm						0.01						0.01
v/c Ratio	0.17	0.02		0.51	0.45	0.05	0.45	1.05		0.83	0.43	0.02
Uniform Delay, d1	43.4	43.0		36.4	36.0	33.6	44.9	29.3		35.9	12.0	9.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.0	0.2		3.5	2.5	0.2	1.5	36.5		12.9	0.2	0.0
Delay (s)	45.4	43.2		39.9	38.5	33.8	46.4	65.9		48.7	12.3	9.2
Level of Service	D	D		D	D	C	D	E		D	B	A
Approach Delay (s)		43.9			38.0			65.5			19.7	
Approach LOS		D			D			E			B	

Intersection Summary

HCM Average Control Delay	45.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	96.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
71: Truxtun St & Tulare St

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	27	320	6	30	549	9	6	1	6	10	6	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.88	0.88	0.88	0.65	0.65	0.65	0.68	0.68	0.68
Hourly flow rate (vph)	34	405	8	34	624	10	9	2	9	15	9	32
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)					1065							
pX, platoon unblocked												
vC, conflicting volume	634			413			894	1179	139	901	1178	317
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	634			413			894	1179	139	901	1178	317
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 %	96			97			96	99	99	93	95	95
cM capacity (veh/h)	945			1143			205	177	884	218	177	679

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	34	162	162	89	34	416	218	20	56
Volume Left	34	0	0	0	34	0	0	9	15
Volume Right	0	0	0	8	0	0	10	9	32
cSH	945	1700	1700	1700	1143	1700	1700	374	339
Volume to Capacity	0.04	0.10	0.10	0.05	0.03	0.24	0.13	0.05	0.17
Queue Length 95th (ft)	3	0	0	0	2	0	0	4	15
Control Delay (s)	9.0	0.0	0.0	0.0	8.2	0.0	0.0	17.1	17.7
Lane LOS	A				A			C	C
Approach Delay (s)	0.7				0.4			17.1	17.7
Approach LOS								C	C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
71: Truxtun St & Tulare St

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	635	8	37	436	2	28	7	65	7	6	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.93	0.93	0.93	0.39	0.39	0.39	0.79	0.79	0.79
Hourly flow rate (vph)	18	814	10	40	469	2	72	18	167	9	8	8
Pedestrians		7										
Lane Width (ft)		12.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		1										
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					1065							
pX, platoon unblocked												
vC, conflicting volume	471			824			1187	1406	276	866	1410	242
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	471			824			1187	1406	276	866	1410	242
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			95			44	86	77	95	94	99
cM capacity (veh/h)	1087			802			128	129	721	162	128	754

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	326	326	173	40	313	158	256	24
Volume Left	18	0	0	0	40	0	0	72	9
Volume Right	0	0	0	10	0	0	2	167	8
cSH	1087	1700	1700	1700	802	1700	1700	367	194
Volume to Capacity	0.02	0.19	0.19	0.10	0.05	0.18	0.09	0.70	0.12
Queue Length 95th (ft)	1	0	0	0	4	0	0	127	10
Control Delay (s)	8.4	0.0	0.0	0.0	9.7	0.0	0.0	35.8	26.2
Lane LOS	A				A			E	D
Approach Delay (s)	0.2				0.8			35.8	26.2
Approach LOS								E	D

Intersection Summary				
Average Delay	6.3			
Intersection Capacity Utilization	33.0%	ICU Level of Service		A
Analysis Period (min)	15			

FRESNO HEAVY MAINTENANCE EXISTING PLUS PROJECT CONDITIONS - MITIGATED

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		⋔	
Volume (vph)	0	454	142	0	413	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.97	
Flt Protected		1.00	1.00		0.96	
Satd. Flow (prot)		1863	1863		1745	
Flt Permitted		1.00	1.00		0.96	
Satd. Flow (perm)		1863	1863		1745	
Peak-hour factor, PHF	0.82	0.82	0.66	0.66	0.84	0.84
Adj. Flow (vph)	0	554	215	0	492	113
RTOR Reduction (vph)	0	0	0	0	17	0
Lane Group Flow (vph)	0	554	215	0	588	0
Turn Type						
Protected Phases		4	8		6	
Permitted Phases						
Actuated Green, G (s)		16.9	16.9		18.5	
Effective Green, g (s)		16.9	16.9		18.5	
Actuated g/C Ratio		0.39	0.39		0.43	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		725	725		744	
v/s Ratio Prot		c0.30	0.12		c0.34	
v/s Ratio Perm						
v/c Ratio		0.76	0.30		0.79	
Uniform Delay, d1		11.5	9.1		10.8	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		4.8	0.2		5.7	
Delay (s)		16.3	9.4		16.5	
Level of Service		B	A		B	
Approach Delay (s)		16.3	9.4		16.5	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	43.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Volume (vph)	0	385	152	0	244	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.96	
Flt Protected		1.00	1.00		0.96	
Satd. Flow (prot)		1863	1863		1731	
Flt Permitted		1.00	1.00		0.96	
Satd. Flow (perm)		1863	1863		1731	
Peak-hour factor, PHF	0.77	0.77	0.75	0.75	0.99	0.99
Adj. Flow (vph)	0	500	203	0	246	92
RTOR Reduction (vph)	0	0	0	0	37	0
Lane Group Flow (vph)	0	500	203	0	301	0
Turn Type						
Protected Phases		4	8		6	
Permitted Phases						
Actuated Green, G (s)		12.9	12.9		10.6	
Effective Green, g (s)		12.9	12.9		10.6	
Actuated g/C Ratio		0.41	0.41		0.34	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		763	763		582	
v/s Ratio Prot		c0.27	0.11		c0.17	
v/s Ratio Perm						
v/c Ratio		0.66	0.27		0.52	
Uniform Delay, d1		7.5	6.2		8.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		2.0	0.2		0.8	
Delay (s)		9.5	6.4		9.2	
Level of Service		A	A		A	
Approach Delay (s)		9.5	6.4		9.2	
Approach LOS		A	A		A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	31.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations											
Volume (vph)	0	0	3	136	14	422	79	81	19	61	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor			1.00	0.95		1.00	0.95			1.00	1.00
Frt			1.00	0.99		1.00	0.92			1.00	0.85
Flt Protected			0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)			1770	3488		1770	3271			1770	1583
Flt Permitted			0.63	1.00		0.63	1.00			0.95	1.00
Satd. Flow (perm)			1166	3488		1180	3271			1770	1583
Peak-hour factor, PHF	0.92	0.92	0.80	0.80	0.80	0.80	0.80	0.80	0.88	0.88	0.88
Adj. Flow (vph)	0	0	4	170	18	528	99	101	22	69	27
RTOR Reduction (vph)	0	0	0	5	0	0	30	0	0	0	23
Lane Group Flow (vph)	0	0	4	183	0	528	170	0	0	91	4
Turn Type			Perm			Perm			Perm		Perm
Protected Phases				2			6			4	
Permitted Phases			2			6			4		4
Actuated Green, G (s)			34.0	34.0		34.0	34.0			6.4	6.4
Effective Green, g (s)			34.0	34.0		34.0	34.0			6.4	6.4
Actuated g/C Ratio			0.70	0.70		0.70	0.70			0.13	0.13
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)			819	2450		829	2298			234	209
v/s Ratio Prot				0.05			0.05				
v/s Ratio Perm			0.00			c0.45				0.05	0.00
v/c Ratio			0.00	0.07		0.64	0.07			0.39	0.02
Uniform Delay, d1			2.1	2.3		3.9	2.3			19.2	18.3
Progression Factor			1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2			0.0	0.0		1.6	0.0			1.1	0.0
Delay (s)			2.2	2.3		5.5	2.3			20.3	18.3
Level of Service			A	A		A	A			C	B
Approach Delay (s)	0.0			2.3			4.6			19.8	
Approach LOS	A			A			A			B	

Intersection Summary

HCM Average Control Delay	5.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations											
Volume (vph)	0	0	12	111	6	393	85	82	41	93	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor			1.00	0.95		1.00	0.95			1.00	1.00
Frt			1.00	0.99		1.00	0.93			1.00	0.85
Flt Protected			0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)			1770	3512		1770	3279			1770	1583
Flt Permitted			0.63	1.00		0.67	1.00			0.95	1.00
Satd. Flow (perm)			1171	3512		1241	3279			1770	1583
Peak-hour factor, PHF	0.92	0.92	0.87	0.87	0.87	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	14	128	7	462	100	96	48	109	112
RTOR Reduction (vph)	0	0	0	3	0	0	37	0	0	0	91
Lane Group Flow (vph)	0	0	14	132	0	462	159	0	0	157	21
Turn Type			Perm			Perm			Perm		Perm
Protected Phases				2			6			4	
Permitted Phases			2			6			4		4
Actuated Green, G (s)			24.5	24.5		24.5	24.5			7.5	7.5
Effective Green, g (s)			24.5	24.5		24.5	24.5			7.5	7.5
Actuated g/C Ratio			0.61	0.61		0.61	0.61			0.19	0.19
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)			717	2151		760	2008			332	297
v/s Ratio Prot				0.04			0.05				
v/s Ratio Perm			0.01			c0.37				0.09	0.01
v/c Ratio			0.02	0.06		0.61	0.08			0.47	0.07
Uniform Delay, d1			3.0	3.1		4.8	3.2			14.5	13.4
Progression Factor			1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2			0.0	0.0		1.4	0.0			1.1	0.1
Delay (s)			3.1	3.1		6.2	3.2			15.6	13.5
Level of Service			A	A		A	A			B	B
Approach Delay (s)	0.0			3.1			5.3			14.7	
Approach LOS	A			A			A			B	

Intersection Summary

HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

WASCO HEAVY MAINTENANCE EXISTING PLUS PROJECT CONDITIONS - MITIGATED

HCM Signalized 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 (vph)	61	184	57	18	208	17	43	82	24	18	82	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	1.00	0.96		1.00	0.99			0.98			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1797		1770	1842			1796			1798	
Flt Permitted	0.61	1.00		0.52	1.00			0.89			0.95	
Satd. Flow (perm)	1131	1797		967	1842			1617			1715	
Peak-hour factor, PHF	0.68	0.68	0.68	0.92	0.92	0.92	0.93	0.93	0.93	0.83	0.83	0.83
Adj. Flow (vph)	90	271	84	20	226	18	46	88	26	22	99	31
RTOR Reduction (vph)	0	32	0	0	8	0	0	16	0	0	19	0
Lane Group Flow (vph)	90	323	0	20	236	0	0	144	0	0	133	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.3	8.3		8.3	8.3			10.1			10.1	
Effective Green, g (s)	8.3	8.3		8.3	8.3			10.1			10.1	
Actuated g/C Ratio	0.31	0.31		0.31	0.31			0.38			0.38	
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)	356	565		304	579			619			656	
v/s Ratio Prot		c0.18			0.13							
v/s Ratio Perm	0.08			0.02				c0.09			0.08	
v/c Ratio	0.25	0.57		0.07	0.41			0.23			0.20	
Uniform Delay, d1	6.7	7.6		6.3	7.1			5.5			5.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.4	1.4		0.1	0.5			0.2			0.2	
Delay (s)	7.1	9.0		6.4	7.6			5.7			5.6	
Level of Service	A	A		A	A			A			A	
Approach Delay (s)		8.6			7.5			5.7			5.6	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	26.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	215	45	41	231	18	44	86	22	20	132	77
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	1.00	0.97		1.00	0.99			0.98			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1770	1814		1770	1843			1800			1770	
Flt Permitted	0.57	1.00		0.58	1.00			0.86			0.97	
Satd. Flow (perm)	1064	1814		1080	1843			1577			1720	
Peak-hour factor, PHF	0.88	0.88	0.88	0.80	0.80	0.80	0.89	0.89	0.89	0.91	0.91	0.91
Adj. Flow (vph)	65	244	51	51	289	22	49	97	25	22	145	85
RTOR Reduction (vph)	0	22	0	0	8	0	0	15	0	0	45	0
Lane Group Flow (vph)	65	273	0	51	303	0	0	156	0	0	207	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.1	8.1		8.1	8.1			10.8			10.8	
Effective Green, g (s)	8.1	8.1		8.1	8.1			10.8			10.8	
Actuated g/C Ratio	0.30	0.30		0.30	0.30			0.40			0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	320	546		325	555			633			691	
v/s Ratio Prot		0.15			c0.16							
v/s Ratio Perm	0.06			0.05				0.10			c0.12	
v/c Ratio	0.20	0.50		0.16	0.55			0.25			0.30	
Uniform Delay, d1	7.0	7.7		6.9	7.9			5.3			5.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	0.7		0.2	1.1			0.2			0.2	
Delay (s)	7.3	8.5		7.1	9.0			5.6			5.7	
Level of Service	A	A		A	A			A			A	
Approach Delay (s)		8.3			8.7			5.6			5.7	
Approach LOS		A			A			A			A	

Intersection Summary

HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	26.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

FRESNO NO-BUILD PLUS PROJECT
OVERPASS MITIGATIONS

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

4/10/2012

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

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	118	194	142	122	348	393
Volume Left (vph)	21	0	0	0	348	174
Volume Right (vph)	0	0	0	51	0	98
Hadj (s)	0.12	0.03	0.03	-0.26	0.53	0.08
Departure Headway (s)	7.2	7.1	7.2	6.9	6.8	6.3
Degree Utilization, x	0.23	0.38	0.28	0.23	0.65	0.69
Capacity (veh/h)	478	488	480	498	522	555
Control Delay (s)	11.1	13.2	11.8	10.7	20.3	20.9
Approach Delay (s)	12.4		11.3		20.6	
Approach LOS	B		B		C	

Intersection Summary			
Delay	16.8		
HCM Level of Service	C		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

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

4/10/2012

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

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	200	199	359	308	196	286
Volume Left (vph)	100	0	0	0	196	98
Volume Right (vph)	0	0	0	128	0	122
Hadj (s)	0.28	0.03	0.03	-0.26	0.53	-0.09
Departure Headway (s)	7.5	7.2	6.9	6.6	7.7	7.1
Degree Utilization, x	0.41	0.40	0.69	0.56	0.42	0.57
Capacity (veh/h)	463	479	508	523	446	480
Control Delay (s)	14.5	13.8	22.3	16.5	15.1	17.8
Approach Delay (s)	14.1		19.6		16.7	
Approach LOS	B		C		C	

Intersection Summary				
Delay	17.3			
HCM Level of Service	C			
Intersection Capacity Utilization	50.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	115	24	426	386	931	0	0	676	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	
Lane Util. Factor					0.95		1.00	0.95			0.95	
Frt					0.89		1.00	1.00			0.96	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3107		1770	3539			3411	
Flt Permitted					0.99		0.27	1.00			1.00	
Satd. Flow (perm)					3107		512	3539			3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	125	26	463	420	1012	0	0	735	233
RTOR Reduction (vph)	0	0	0	0	161	0	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	453	0	420	1012	0	0	938	0
Turn Type				Perm			Perm					
Protected Phases					2			4			8	
Permitted Phases				2			4					
Actuated Green, G (s)					15.9		76.0	76.0			76.0	
Effective Green, g (s)					15.9		76.0	76.0			76.0	
Actuated g/C Ratio					0.16		0.76	0.76			0.76	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					495		390	2692			2595	
v/s Ratio Prot								0.29			0.27	
v/s Ratio Perm					0.15		c0.82					
v/c Ratio					1.11dr		1.08	0.38			0.36	
Uniform Delay, d1					41.3		12.0	4.0			3.9	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					21.6		67.7	0.1			0.1	
Delay (s)					62.9		79.6	4.1			4.0	
Level of Service					E		E	A			A	
Approach Delay (s)		0.0			62.9			26.2			4.0	
Approach LOS		A			E			C			A	

Intersection Summary

HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	300	5	374	314	917	0	0	1330	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	
Lane Util. Factor					0.95		1.00	0.95			0.95	
Frt					0.92		1.00	1.00			0.96	
Flt Protected					0.98		0.95	1.00			1.00	
Satd. Flow (prot)					3176		1770	3539			3415	
Flt Permitted					0.98		0.13	1.00			1.00	
Satd. Flow (perm)					3176		240	3539			3415	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	326	5	407	341	997	0	0	1446	443
RTOR Reduction (vph)	0	0	0	0	76	0	0	0	0	0	51	0
Lane Group Flow (vph)	0	0	0	0	662	0	341	997	0	0	1838	0
Turn Type				Perm			Perm					
Protected Phases					2			4			8	
Permitted Phases				2			4					
Actuated Green, G (s)					14.7		31.0	31.0			31.0	
Effective Green, g (s)					14.7		31.0	31.0			31.0	
Actuated g/C Ratio					0.27		0.58	0.58			0.58	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					869		139	2043			1971	
v/s Ratio Prot								0.28			0.54	
v/s Ratio Perm					0.21		c1.42					
v/c Ratio					0.76		2.45	0.49			0.93	
Uniform Delay, d1					17.9		11.4	6.7			10.4	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					4.0		675.1	0.2			8.7	
Delay (s)					21.9		686.5	6.9			19.1	
Level of Service					C		F	A			B	
Approach Delay (s)		0.0			21.9			180.1			19.1	
Approach LOS		A			C			F			B	

Intersection Summary			
HCM Average Control Delay	73.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.91		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	21	4	38	49	19	13	190	1156	3	1	814	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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.92			0.98			1.00			0.99	
Flt Protected		0.98			0.97			0.99			1.00	
Satd. Flow (prot)		1683			1769			3513			3520	
Flt Permitted		0.90			0.84			0.67			0.95	
Satd. Flow (perm)		1547			1534			2353			3359	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	4	41	53	21	14	207	1257	3	1	885	33
RTOR Reduction (vph)	0	35	0	0	9	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	33	0	0	79	0	0	1467	0	0	916	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		9.1			9.1			49.6			49.6	
Effective Green, g (s)		9.1			9.1			49.6			49.6	
Actuated g/C Ratio		0.14			0.14			0.74			0.74	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		211			209			1750			2498	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.05			c0.62			0.27	
v/c Ratio		0.15			0.38			0.84			0.37	
Uniform Delay, d1		25.4			26.2			5.8			3.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			1.1			3.7			0.1	
Delay (s)		25.7			27.3			9.5			3.1	
Level of Service		C			C			A			A	
Approach Delay (s)		25.7			27.3			9.5			3.1	
Approach LOS		C			C			A			A	

Intersection Summary

HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	33	5	93	250	162	153	274	998	82	6	1238	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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.90			0.96			0.99			1.00	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1663			1756			3472			3526	
Flt Permitted		0.83			0.79			0.50			0.95	
Satd. Flow (perm)		1398			1412			1767			3339	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	5	101	272	176	166	298	1085	89	7	1346	33
RTOR Reduction (vph)	0	32	0	0	17	0	0	6	0	0	2	0
Lane Group Flow (vph)	0	110	0	0	597	0	0	1466	0	0	1384	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		26.0			26.0			46.0			46.0	
Effective Green, g (s)		26.0			26.0			46.0			46.0	
Actuated g/C Ratio		0.32			0.32			0.58			0.58	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		454			459			1016			1920	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.42			c0.83			0.41	
v/c Ratio		0.24			1.30			2.33dl			0.72	
Uniform Delay, d1		19.8			27.0			17.0			12.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			150.7			204.9			1.4	
Delay (s)		20.1			177.7			221.9			13.7	
Level of Service		C			F			F			B	
Approach Delay (s)		20.1			177.7			221.9			13.7	
Approach LOS		C			F			F			B	

Intersection Summary			
HCM Average Control Delay	126.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	121.9%	ICU Level of Service	H
Analysis Period (min)	15		

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

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	221	501	53	326	553	104	150	725	441	82	461	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.0		4.2	4.0		4.0	4.2	4.2	4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	1.00		0.97	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3488		1770	1819		3433	3539	1583	1770	3321	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3488		1770	1819		3433	3539	1583	1770	3321	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	240	545	58	354	601	113	163	788	479	89	501	350
RTOR Reduction (vph)	0	7	0	0	6	0	0	0	368	0	114	0
Lane Group Flow (vph)	240	596	0	354	708	0	163	788	111	89	737	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	2	5		6	1		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	18.1	21.9		36.2	40.0		8.0	24.9	24.9	8.0	24.9	
Effective Green, g (s)	18.1	21.9		36.2	40.0		8.0	24.9	24.9	8.0	24.9	
Actuated g/C Ratio	0.17	0.20		0.34	0.37		0.07	0.23	0.23	0.07	0.23	
Clearance Time (s)	4.2	4.0		4.2	4.0		4.0	4.2	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	2.0	
Lane Grp Cap (vph)	298	711		597	677		256	820	367	132	770	
v/s Ratio Prot	c0.14	0.17		0.20	c0.39		0.05	c0.22		c0.05	0.22	
v/s Ratio Perm									0.07			
v/c Ratio	0.81	0.84		0.59	1.05		0.64	0.96	0.30	0.67	0.96	
Uniform Delay, d1	43.0	41.0		29.5	33.7		48.3	40.8	34.1	48.4	40.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.8	8.2		1.1	47.0		3.8	22.2	0.2	10.2	22.2	
Delay (s)	56.8	49.2		30.6	80.7		52.1	62.9	34.2	58.6	62.9	
Level of Service	E	D		C	F		D	E	C	E	E	
Approach Delay (s)		51.4			64.1			52.1			62.5	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM Average Control Delay	57.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	107.4	Sum of lost time (s)	16.4
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	197	769	88	273	386	159	347	843	412	168	895	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.0		4.2	4.0		4.0	4.2	4.2	4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	1.00		0.97	0.95	1.00	1.00	0.95	
Frt	1.00	0.98		1.00	0.96		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	3485		1770	1781		3433	3539	1583	1770	3406	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3485		1770	1781		3433	3539	1583	1770	3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	836	96	297	420	173	377	916	448	183	973	325
RTOR Reduction (vph)	0	6	0	0	10	0	0	0	239	0	21	0
Lane Group Flow (vph)	214	926	0	297	583	0	377	916	209	183	1277	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	2	5		6	1		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	20.5	37.0		27.5	44.0		15.0	48.9	48.9	18.0	51.9	
Effective Green, g (s)	20.5	37.0		27.5	44.0		15.0	48.9	48.9	18.0	51.9	
Actuated g/C Ratio	0.14	0.25		0.19	0.30		0.10	0.33	0.33	0.12	0.35	
Clearance Time (s)	4.2	4.0		4.2	4.0		4.0	4.2	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	2.0	
Lane Grp Cap (vph)	246	872		329	530		348	1171	524	216	1196	
v/s Ratio Prot	0.12	0.27		c0.17	c0.33		c0.11	0.26		0.10	c0.37	
v/s Ratio Perm									0.13			
v/c Ratio	0.87	1.06		0.90	1.10		1.08	0.78	0.40	0.85	1.07	
Uniform Delay, d1	62.3	55.4		58.8	51.9		66.4	44.6	38.1	63.6	48.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	25.5	48.3		26.1	69.4		72.4	3.2	0.2	24.3	46.0	
Delay (s)	87.8	103.7		84.9	121.3		138.8	47.9	38.3	87.9	94.0	
Level of Service	F	F		F	F		F	D	D	F	F	
Approach Delay (s)		100.7			109.1			65.1			93.2	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM Average Control Delay	88.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	147.8	Sum of lost time (s)	12.2
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	35	216	56	254	522	194	61	720	159	189	543	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3430		1770	3395		1770	3443		1770	3449	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3430		1770	3395		1770	3443		1770	3449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	235	61	276	567	211	66	783	173	205	590	121
RTOR Reduction (vph)	0	27	0	0	42	0	0	21	0	0	19	0
Lane Group Flow (vph)	38	269	0	276	736	0	66	935	0	205	692	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.3	17.3		15.0	30.0		8.8	28.9		11.0	31.1	
Effective Green, g (s)	2.3	17.3		15.0	30.0		8.8	28.9		11.0	31.1	
Actuated g/C Ratio	0.03	0.20		0.17	0.34		0.10	0.33		0.12	0.35	
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	3.0	4.8		3.0	4.8		2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	46	670		300	1150		176	1123		220	1211	
v/s Ratio Prot	0.02	0.08		c0.16	c0.22		0.04	c0.27		c0.12	0.20	
v/s Ratio Perm												
v/c Ratio	0.83	0.40		0.92	0.64		0.38	0.83		0.93	0.57	
Uniform Delay, d1	43.0	31.1		36.2	24.7		37.3	27.6		38.4	23.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	69.9	0.8		31.9	1.6		0.5	6.0		41.5	1.0	
Delay (s)	112.9	31.9		68.1	26.3		37.8	33.6		80.0	24.3	
Level of Service	F	C		E	C		D	C		E	C	
Approach Delay (s)		41.1			37.3			33.9			36.8	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	88.6	Sum of lost time (s)	12.2
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	155	495	101	480	506	176	58	890	171	97	707	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3449		1770	3402		1770	3454		1770	3480	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3449		1770	3402		1770	3454		1770	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	538	110	522	550	191	63	967	186	105	768	97
RTOR Reduction (vph)	0	13	0	0	25	0	0	12	0	0	7	0
Lane Group Flow (vph)	168	635	0	522	716	0	63	1141	0	105	858	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	23.4		37.0	43.4		10.0	42.0		12.0	44.0	
Effective Green, g (s)	17.0	23.4		37.0	43.4		10.0	42.0		12.0	44.0	
Actuated g/C Ratio	0.13	0.18		0.28	0.33		0.08	0.32		0.09	0.34	
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	3.0	4.8		3.0	4.8		2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	230	617		501	1129		135	1109		162	1171	
v/s Ratio Prot	0.09	c0.18		c0.29	0.21		0.04	c0.33		0.06	c0.25	
v/s Ratio Perm												
v/c Ratio	0.73	1.03		1.04	0.63		0.47	1.03		0.65	0.73	
Uniform Delay, d1	54.7	53.7		46.9	37.0		57.8	44.4		57.4	38.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.3	43.8		51.5	1.6		0.9	34.6		6.5	2.8	
Delay (s)	66.0	97.5		98.4	38.5		58.8	79.0		63.9	41.1	
Level of Service	E	F		F	D		E	E		E	D	
Approach Delay (s)		91.0			63.3			78.0			43.5	
Approach LOS		F			E			E			D	

Intersection Summary

HCM Average Control Delay	68.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	16.6
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	285	58	56	9	245	4	307	486	233	135	61	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.0	4.2		4.0	4.2	4.2
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93			1.00		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1725			1856		1770	1772		1770	1863	1583
Flt Permitted	0.47	1.00			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	874	1725			1843		1770	1772		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	310	63	61	10	266	4	334	528	253	147	66	223
RTOR Reduction (vph)	0	32	0	0	1	0	0	16	0	0	0	124
Lane Group Flow (vph)	310	92	0	0	279	0	334	765	0	147	66	99
Turn Type	Perm			Perm			Prot			Prot		custom
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2			2								4
Actuated Green, G (s)	38.6	38.6			38.6		31.6	48.2		9.0	25.6	48.2
Effective Green, g (s)	38.6	38.6			38.6		31.6	48.2		9.0	25.6	48.2
Actuated g/C Ratio	0.36	0.36			0.36		0.29	0.45		0.08	0.24	0.45
Clearance Time (s)	4.2	4.2			4.2		4.0	4.2		4.0	4.2	4.2
Vehicle Extension (s)	0.2	0.2			0.2		3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	312	615			657		517	789		147	441	705
v/s Ratio Prot		0.05					0.19	c0.43		c0.08	0.04	
v/s Ratio Perm	c0.35				0.15							0.06
v/c Ratio	0.99	0.15			0.43		0.65	0.97		1.00	0.15	0.14
Uniform Delay, d1	34.7	23.6			26.4		33.4	29.3		49.6	32.7	17.8
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	48.9	0.0			0.2		2.8	24.7		74.2	0.1	0.0
Delay (s)	83.6	23.7			26.6		36.2	54.0		123.8	32.7	17.8
Level of Service	F	C			C		D	D		F	C	B
Approach Delay (s)		66.5			26.6			48.7			55.8	
Approach LOS		E			C			D			E	

Intersection Summary			
HCM Average Control Delay	50.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	108.2	Sum of lost time (s)	12.4
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	277	74	255	79	446	71	241	412	265	326	1473	796
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.0	4.2		4.0	4.2	4.2
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.88			0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1646			1821		1770	1753		1770	1863	1583
Flt Permitted	0.25	1.00			0.63		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	460	1646			1155		1770	1753		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	301	80	277	86	485	77	262	448	288	354	1601	865
RTOR Reduction (vph)	0	83	0	0	3	0	0	15	0	0	0	80
Lane Group Flow (vph)	301	274	0	0	645	0	262	721	0	354	1601	785
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2			2								8
Actuated Green, G (s)	53.8	53.8			53.8		11.0	60.8		23.0	72.8	72.8
Effective Green, g (s)	53.8	53.8			53.8		11.0	60.8		23.0	72.8	72.8
Actuated g/C Ratio	0.36	0.36			0.36		0.07	0.41		0.15	0.49	0.49
Clearance Time (s)	4.2	4.2			4.2		4.0	4.2		4.0	4.2	4.2
Vehicle Extension (s)	0.2	0.2			0.2		3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	165	590			414		130	711		271	904	768
v/s Ratio Prot		0.17					c0.15	0.41		0.20	c0.86	
v/s Ratio Perm	c0.65				0.56							0.50
v/c Ratio	1.82	0.46			1.56		2.02	1.01		1.31	1.77	1.02
Uniform Delay, d1	48.1	37.0			48.1		69.5	44.6		63.5	38.6	38.6
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	393.7	0.2			262.5		482.9	37.1		161.9	351.5	38.3
Delay (s)	441.8	37.2			310.6		552.4	81.7		225.4	390.1	76.9
Level of Service	F	D			F		F	F		F	F	E
Approach Delay (s)		222.3			310.6			205.3			273.3	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	258.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	156.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	205	38	0	0	0	21	307	74	307	1217	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6				4.0	4.6		4.0	4.6	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	0.97		1.00	0.98	
Flt Protected		0.99	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1848	1583				1770	3437		1770	3478	
Flt Permitted		0.99	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1848	1583				1770	3437		1770	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	223	41	0	0	0	23	334	80	334	1323	174
RTOR Reduction (vph)	0	0	22	0	0	0	0	20	0	0	8	0
Lane Group Flow (vph)	0	265	19	0	0	0	23	394	0	334	1489	0
Turn Type	Split		Perm				Prot			Prot		
Protected Phases	4	4					5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		12.6	12.6				2.5	24.7		17.1	39.3	
Effective Green, g (s)		12.6	12.6				2.5	24.7		17.1	39.3	
Actuated g/C Ratio		0.19	0.19				0.04	0.37		0.25	0.58	
Clearance Time (s)		4.6	4.6				4.0	4.6		4.0	4.6	
Vehicle Extension (s)		0.2	0.2				3.0	4.1		3.0	4.1	
Lane Grp Cap (vph)		344	295				65	1256		448	2022	
v/s Ratio Prot		c0.14					0.01	0.11		c0.19	c0.43	
v/s Ratio Perm			0.01									
v/c Ratio		0.77	0.06				0.35	0.31		0.75	0.74	
Uniform Delay, d1		26.1	22.6				31.8	15.4		23.2	10.4	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.3	0.0				3.3	0.2		6.6	1.5	
Delay (s)		35.5	22.7				35.1	15.6		29.9	11.9	
Level of Service		D	C				D	B		C	B	
Approach Delay (s)		33.7			0.0			16.6			15.2	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	8.6
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	254	486	59	0	0	0	30	965	85	304	999	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6				4.0	4.6		4.0	4.6	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	0.99		1.00	0.98	
Flt Protected		0.98	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831	1583				1770	3496		1770	3457	
Flt Permitted		0.98	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1831	1583				1770	3496		1770	3457	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	276	528	64	0	0	0	33	1049	92	330	1086	198
RTOR Reduction (vph)	0	0	7	0	0	0	0	5	0	0	11	0
Lane Group Flow (vph)	0	804	57	0	0	0	33	1136	0	330	1273	0
Turn Type	Split		Perm				Prot			Prot		
Protected Phases	4	4					5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		53.4	53.4				3.2	42.2		22.0	61.0	
Effective Green, g (s)		53.4	53.4				3.2	42.2		22.0	61.0	
Actuated g/C Ratio		0.41	0.41				0.02	0.32		0.17	0.47	
Clearance Time (s)		4.6	4.6				4.0	4.6		4.0	4.6	
Vehicle Extension (s)		0.2	0.2				3.0	4.1		3.0	4.1	
Lane Grp Cap (vph)		748	646				43	1128		298	1612	
v/s Ratio Prot		c0.44					0.02	c0.32		c0.19	0.37	
v/s Ratio Perm			0.04									
v/c Ratio		1.07	0.09				0.77	1.01		1.11	0.79	
Uniform Delay, d1		38.7	23.8				63.4	44.3		54.4	29.5	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		54.9	0.0				56.1	28.6		84.1	2.8	
Delay (s)		93.6	23.8				119.5	72.9		138.5	32.3	
Level of Service		F	C				F	E		F	C	
Approach Delay (s)		88.4			0.0			74.2			54.0	
Approach LOS		F			A			E			D	

Intersection Summary			
HCM Average Control Delay	68.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	13.2
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	630	485	409	0	0	0	0	863	458	261	639	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.7	4.7	4.7					5.2	5.2	5.2	5.2	
Lane Util. Factor	1.00	1.00	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	685	527	445	0	0	0	0	938	498	284	695	0
RTOR Reduction (vph)	0	0	112	0	0	0	0	0	114	0	0	0
Lane Group Flow (vph)	685	527	333	0	0	0	0	938	384	284	695	0
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	34.3	34.3	34.3					25.0	25.0	14.8	45.0	
Effective Green, g (s)	34.3	34.3	34.3					25.0	25.0	14.8	45.0	
Actuated g/C Ratio	0.38	0.38	0.38					0.28	0.28	0.17	0.50	
Clearance Time (s)	4.7	4.7	4.7					5.2	5.2	5.2	5.2	
Vehicle Extension (s)	6.2	6.2	6.2					0.2	0.2	2.0	0.2	
Lane Grp Cap (vph)	681	716	609					992	444	294	1785	
v/s Ratio Prot	c0.39	0.28						c0.27		c0.16	0.20	
v/s Ratio Perm			0.21						0.24			
v/c Ratio	1.01	0.74	0.55					0.95	0.87	0.97	0.39	
Uniform Delay, d1	27.5	23.6	21.4					31.4	30.5	36.9	13.6	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	35.9	5.5	2.4					16.7	15.5	42.6	0.1	
Delay (s)	63.4	29.1	23.8					48.1	46.0	79.6	13.7	
Level of Service	E	C	C					D	D	E	B	
Approach Delay (s)		41.8			0.0			47.4			32.8	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM Average Control Delay	41.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	15.1
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	247	721	790	0	0	0	0	1003	479	390	741	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.7	4.7	4.7					5.2	5.2	5.2	5.2	
Lane Util. Factor	1.00	1.00	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	784	859	0	0	0	0	1090	521	424	805	0
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	53	0	0	0
Lane Group Flow (vph)	268	784	768	0	0	0	0	1090	468	424	805	0
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	55.3	55.3	55.3					40.8	40.8	28.8	74.8	
Effective Green, g (s)	55.3	55.3	55.3					40.8	40.8	28.8	74.8	
Actuated g/C Ratio	0.39	0.39	0.39					0.29	0.29	0.21	0.53	
Clearance Time (s)	4.7	4.7	4.7					5.2	5.2	5.2	5.2	
Vehicle Extension (s)	6.2	6.2	6.2					0.2	0.2	2.0	0.2	
Lane Grp Cap (vph)	699	736	625					1031	461	364	1891	
v/s Ratio Prot	0.15	0.42						c0.31		c0.24	0.23	
v/s Ratio Perm			c0.49						0.30			
v/c Ratio	0.38	1.07	1.23					1.06	1.01	1.16	0.43	
Uniform Delay, d1	30.2	42.4	42.4					49.6	49.6	55.6	19.7	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	51.9	116.8					44.4	45.7	100.1	0.1	
Delay (s)	31.2	94.3	159.1					94.0	95.3	155.7	19.7	
Level of Service	C	F	F					F	F	F	B	
Approach Delay (s)		114.6			0.0			94.5			66.6	
Approach LOS		F			A			F			E	

Intersection Summary			
HCM Average Control Delay	95.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	183.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	352	517	443	643	857	0	0	539	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Lane Util. Factor					0.95	1.00	1.00	0.95			0.91	0.91
Frt					1.00	0.85	1.00	1.00			0.99	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3469	1583	1770	3539			3369	1441
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3469	1583	1770	3539			3369	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	383	562	482	699	932	0	0	586	261
RTOR Reduction (vph)	0	0	0	0	0	104	0	0	0	0	2	71
Lane Group Flow (vph)	0	0	0	0	945	378	699	932	0	0	610	164
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					32.0	32.0	41.3	66.0			21.0	21.0
Effective Green, g (s)					32.0	32.0	41.3	66.0			21.0	21.0
Actuated g/C Ratio					0.29	0.29	0.38	0.61			0.19	0.19
Clearance Time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Vehicle Extension (s)					5.0	5.0	2.0	0.2			0.2	0.2
Lane Grp Cap (vph)					1022	466	673	2151			651	279
v/s Ratio Prot					c0.27		c0.40	0.26			c0.18	
v/s Ratio Perm						0.24						0.11
v/c Ratio					0.92	0.81	1.04	0.43			0.94	0.59
Uniform Delay, d1					37.1	35.5	33.6	11.3			43.1	39.9
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					14.1	11.6	45.1	0.1			20.7	2.0
Delay (s)					51.2	47.1	78.8	11.4			63.8	41.9
Level of Service					D	D	E	B			E	D
Approach Delay (s)		0.0			49.8			40.3			57.7	
Approach LOS		A			D			D			E	

Intersection Summary			
HCM Average Control Delay	47.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	14.3
Intersection Capacity Utilization	123.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	335	511	609	647	594	0	0	786	1028
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Lane Util. Factor					0.95	1.00	1.00	0.95			0.91	0.91
Frt					1.00	0.85	1.00	1.00			0.94	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3470	1583	1770	3539			3202	1441
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3470	1583	1770	3539			3202	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	364	555	662	703	646	0	0	854	1117
RTOR Reduction (vph)	0	0	0	0	0	248	0	0	0	0	34	34
Lane Group Flow (vph)	0	0	0	0	919	414	703	646	0	0	1323	580
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					35.6	35.6	47.3	103.8			52.8	52.8
Effective Green, g (s)					35.6	35.6	47.3	103.8			52.8	52.8
Actuated g/C Ratio					0.24	0.24	0.32	0.69			0.35	0.35
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)					824	376	558	2449			1127	507
v/s Ratio Prot					c0.26		c0.40	0.18			c0.41	
v/s Ratio Perm						0.26						0.40
v/c Ratio					1.12	1.10	1.26	0.26			1.17	1.14
Uniform Delay, d1					57.2	57.2	51.4	8.7			48.6	48.6
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					68.0	76.6	130.9	0.0			88.0	86.3
Delay (s)					125.2	133.8	182.3	8.7			136.6	134.9
Level of Service					F	F	F	A			F	F
Approach Delay (s)		0.0			128.8			99.2			136.0	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM Average Control Delay	123.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	115.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	214	156	235	144	265	204	173	611	354	64	459	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Lane Util. Factor	1.00	1.00		0.97	0.95		0.97	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1695		3433	3308		3433	3344		1770	3427	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1695		3433	3308		3433	3344		1770	3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	170	255	157	288	222	188	664	385	70	499	134
RTOR Reduction (vph)	0	67	0	0	169	0	0	93	0	0	28	0
Lane Group Flow (vph)	233	358	0	157	341	0	188	956	0	70	605	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	12.1	22.6		7.9	18.4		7.8	24.8		5.9	22.9	
Effective Green, g (s)	12.1	22.6		7.9	18.4		7.8	24.8		5.9	22.9	
Actuated g/C Ratio	0.16	0.29		0.10	0.24		0.10	0.32		0.08	0.29	
Clearance Time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	275	492		349	782		344	1066		134	1009	
v/s Ratio Prot	c0.13	c0.21		0.05	0.10		c0.05	c0.29		0.04	0.18	
v/s Ratio Perm												
v/c Ratio	0.85	0.73		0.45	0.44		0.55	0.90		0.52	0.60	
Uniform Delay, d1	32.0	24.8		32.9	25.3		33.3	25.3		34.6	23.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.8	6.5		0.9	0.8		1.8	10.6		3.6	1.5	
Delay (s)	52.7	31.3		33.8	26.1		35.1	35.9		38.2	25.0	
Level of Service	D	C		C	C		D	D		D	C	
Approach Delay (s)		38.9			27.9			35.8			26.3	
Approach LOS		D			C			D			C	

Intersection Summary

HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	8.2
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	106	278	238	222	441	194	313	663	370	183	1052	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Lane Util. Factor	1.00	1.00		0.97	0.95		0.97	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1734		3433	3377		3433	3349		1770	3488	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1734		3433	3377		3433	3349		1770	3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	302	259	241	479	211	340	721	402	199	1143	123
RTOR Reduction (vph)	0	29	0	0	47	0	0	73	0	0	8	0
Lane Group Flow (vph)	115	532	0	241	643	0	340	1050	0	199	1258	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	9.6	32.0		8.3	30.7		11.3	34.9		13.2	36.8	
Effective Green, g (s)	9.6	32.0		8.3	30.7		11.3	34.9		13.2	36.8	
Actuated g/C Ratio	0.09	0.30		0.08	0.29		0.11	0.33		0.13	0.35	
Clearance Time (s)	4.1	4.2		4.1	4.2		4.1	4.2		4.1	4.2	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	162	528		271	987		369	1113		223	1222	
v/s Ratio Prot	0.06	c0.31		c0.07	0.19		0.10	0.31		c0.11	c0.36	
v/s Ratio Perm												
v/c Ratio	0.71	1.01		0.89	0.65		0.92	0.94		0.89	1.03	
Uniform Delay, d1	46.3	36.5		47.9	32.5		46.4	34.1		45.2	34.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.3	41.0		27.7	2.1		27.9	15.7		32.9	33.6	
Delay (s)	59.7	77.5		75.6	34.6		74.3	49.8		78.1	67.7	
Level of Service	E	E		E	C		E	D		E	E	
Approach Delay (s)		74.4			45.2			55.5			69.1	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM Average Control Delay	60.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.2
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	8	117	13	635	202	367	355	547	47	80	150	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.88	1.00	1.00	0.97	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1835		1681	1724	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1770	1835		1681	1724	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	127	14	690	220	399	386	595	51	87	163	313
RTOR Reduction (vph)	0	4	0	0	0	283	0	0	23	0	0	273
Lane Group Flow (vph)	9	137	0	448	462	116	386	595	28	87	163	40
Turn Type	Split			Split		Perm		custom	custom	Prot		Perm
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	12.0	12.0		26.5	26.5	26.5	23.1	27.2	27.2	7.5	11.6	11.6
Effective Green, g (s)	12.0	12.0		26.5	26.5	26.5	23.1	27.2	27.2	7.5	11.6	11.6
Actuated g/C Ratio	0.13	0.13		0.29	0.29	0.29	0.25	0.30	0.30	0.08	0.13	0.13
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)	233	242		490	502	461	449	833	473	146	438	202
v/s Ratio Prot	0.01	c0.07		0.27	c0.27		c0.22	c0.21		0.05	0.05	
v/s Ratio Perm						0.07			0.02			0.03
v/c Ratio	0.04	0.56		0.91	0.92	0.25	0.86	0.71	0.06	0.60	0.37	0.20
Uniform Delay, d1	34.5	37.1		31.2	31.2	24.7	32.4	28.4	22.8	40.3	36.4	35.5
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	0.1	3.0		21.9	22.6	0.3	15.1	3.5	0.1	4.3	1.0	0.9
Delay (s)	34.5	40.1		53.0	53.8	25.0	47.5	31.9	22.9	44.6	37.4	36.5
Level of Service	C	D		D	D	C	D	C	C	D	D	D
Approach Delay (s)		39.7			44.8		37.3				38.0	
Approach LOS		D			D		D				D	

Intersection Summary			
HCM Average Control Delay	40.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	12	247	43	794	44	424	412	612	13	17	763	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.88	1.00	1.00	0.97	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.85	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1821		1681	1694	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1770	1821		1681	1694	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	268	47	863	48	461	448	665	14	18	829	893
RTOR Reduction (vph)	0	4	0	0	0	278	0	0	4	0	0	368
Lane Group Flow (vph)	13	311	0	457	454	183	448	665	10	18	829	525
Turn Type	Split			Split		Perm		custom	custom	Prot		Perm
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	25.8	25.8		34.4	34.4	34.4	30.0	64.2	64.2	4.2	38.4	38.4
Effective Green, g (s)	25.8	25.8		34.4	34.4	34.4	30.0	64.2	64.2	4.2	38.4	38.4
Actuated g/C Ratio	0.18	0.18		0.23	0.23	0.23	0.20	0.44	0.44	0.03	0.26	0.26
Clearance Time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Vehicle Extension (s)	3.0	3.0		3.5	3.5	3.5	3.0	4.8	4.8	2.0	4.8	4.8
Lane Grp Cap (vph)	312	321		395	398	372	363	1222	694	51	900	415
v/s Ratio Prot	0.01	c0.17		c0.27	0.27		c0.25	0.24		0.01	0.24	
v/s Ratio Perm						0.12			0.01			c0.33
v/c Ratio	0.04	0.97		1.16	1.14	0.49	1.23	0.54	0.01	0.35	0.92	1.26
Uniform Delay, d1	50.0	59.9		56.0	56.0	48.4	58.2	30.3	23.2	69.8	52.5	54.0
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	0.1	41.3		95.5	89.3	1.2	127.0	0.8	0.0	1.5	15.0	137.2
Delay (s)	50.1	101.2		151.5	145.3	49.6	185.2	31.1	23.2	71.3	67.5	191.2
Level of Service	D	F		F	F	D	F	C	C	E	E	F
Approach Delay (s)		99.1			115.2		92.3				131.0	
Approach LOS		F			F		F				F	

Intersection Summary			
HCM Average Control Delay	114.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	146.4	Sum of lost time (s)	17.8
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	486	477	0	0	308	67	42	265	102	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.2	4.2	4.2			
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.97		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)	1770	1863			1813		1770	1863	1583			
Flt Permitted	0.47	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (perm)	879	1863			1813		1770	1863	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	528	518	0	0	335	73	46	288	111	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	80	0	0	0
Lane Group Flow (vph)	528	518	0	0	398	0	46	288	31	0	0	0
Turn Type	Perm			Perm			Split		Perm			
Protected Phases		2			6		8	8				
Permitted Phases	2			6					8			
Actuated Green, G (s)	50.0	50.0			50.0		22.5	22.5	22.5			
Effective Green, g (s)	50.0	50.0			50.0		22.5	22.5	22.5			
Actuated g/C Ratio	0.62	0.62			0.62		0.28	0.28	0.28			
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)	543	1151			1121		492	518	440			
v/s Ratio Prot		0.28			0.22		0.03	c0.15				
v/s Ratio Perm	c0.60								0.02			
v/c Ratio	0.97	0.45			0.36		0.09	0.56	0.07			
Uniform Delay, d1	14.8	8.2			7.6		21.6	24.9	21.5			
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00			
Incremental Delay, d2	31.3	0.1			0.1		0.0	0.7	0.0			
Delay (s)	46.1	8.3			7.6		21.7	25.7	21.5			
Level of Service	D	A			A		C	C	C			
Approach Delay (s)		27.4			7.6			24.2			0.0	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	408	370	0	0	691	115	46	242	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.2	4.2	4.2			
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.98		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)	1770	1863			1823		1770	1863	1583			
Flt Permitted	0.27	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (perm)	501	1863			1823		1770	1863	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	443	402	0	0	751	125	50	263	146	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	125	0	0	0
Lane Group Flow (vph)	443	402	0	0	872	0	50	263	21	0	0	0
Turn Type	Perm			Perm			Split		Perm			
Protected Phases		2			6		8	8				
Permitted Phases	2			6					8			
Actuated Green, G (s)	119.6	119.6			119.6		22.0	22.0	22.0			
Effective Green, g (s)	119.6	119.6			119.6		22.0	22.0	22.0			
Actuated g/C Ratio	0.80	0.80			0.80		0.15	0.15	0.15			
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)	399	1485			1454		260	273	232			
v/s Ratio Prot		0.22			0.48		0.03	c0.14				
v/s Ratio Perm	c0.88								0.01			
v/c Ratio	1.11	0.27			0.60		0.19	0.96	0.09			
Uniform Delay, d1	15.2	3.9			5.9		56.2	63.6	55.4			
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00			
Incremental Delay, d2	78.4	0.0			0.4		0.1	43.9	0.1			
Delay (s)	93.6	4.0			6.4		56.3	107.5	55.4			
Level of Service	F	A			A		E	F	E			
Approach Delay (s)		50.9			6.4			85.4			0.0	
Approach LOS		D			A			F			A	

Intersection Summary			
HCM Average Control Delay	40.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	263	263	90	262	606	0	0	0	25	1026	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4	5.4		5.4						5.4	
Lane Util. Factor		1.00	1.00		0.95						0.91	
Frt		1.00	0.85		0.91						0.99	
Flt Protected		1.00	1.00		1.00						1.00	
Satd. Flow (prot)		1863	1583		3188						5026	
Flt Permitted		1.00	1.00		0.88						1.00	
Satd. Flow (perm)		1863	1583		2833						5026	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	286	286	98	285	659	0	0	0	27	1115	86
RTOR Reduction (vph)	0	0	140	0	216	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	286	146	0	826	0	0	0	0	0	1218	0
Turn Type	Perm		Perm	Perm			Split			Split		
Protected Phases		2			2		4	4		8	8	
Permitted Phases	2		2	2								
Actuated Green, G (s)		29.5	29.5		29.5						17.3	
Effective Green, g (s)		29.5	29.5		29.5						17.3	
Actuated g/C Ratio		0.51	0.51		0.51						0.30	
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)		954	811		1451						1510	
v/s Ratio Prot		0.15									c0.24	
v/s Ratio Perm			0.09		c0.29							
v/c Ratio		0.30	0.18		0.57						0.81	
Uniform Delay, d1		8.1	7.6		9.7						18.6	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		0.1	0.0		0.3						3.1	
Delay (s)		8.2	7.6		10.0						21.7	
Level of Service		A	A		A						C	
Approach Delay (s)		7.9			10.0			0.0			21.7	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	57.6	Sum of lost time (s)	10.8
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	448	572	108	159	602	0	0	0	60	2571	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.4	5.4		5.4						5.4	
Lane Util. Factor		1.00	1.00		0.95						0.91	
Frt		1.00	0.85		0.90						0.99	
Flt Protected		1.00	1.00		0.99						1.00	
Satd. Flow (prot)		1863	1583		3152						5052	
Flt Permitted		1.00	1.00		0.59						1.00	
Satd. Flow (perm)		1863	1583		1886						5052	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	487	622	117	173	654	0	0	0	65	2795	107
RTOR Reduction (vph)	0	0	126	0	251	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	487	496	0	693	0	0	0	0	0	2965	0
Turn Type	Perm		Perm	Perm			Split			Split		
Protected Phases		2			2		4	4		8	8	
Permitted Phases	2		2	2								
Actuated Green, G (s)		47.6	47.6		47.6						71.6	
Effective Green, g (s)		47.6	47.6		47.6						71.6	
Actuated g/C Ratio		0.37	0.37		0.37						0.55	
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)		682	580		691						2782	
v/s Ratio Prot		0.26									c0.59	
v/s Ratio Perm			0.31		c0.37							
v/c Ratio		0.71	0.85		1.00						1.07	
Uniform Delay, d1		35.4	38.0		41.2						29.2	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		3.0	11.4		34.9						37.8	
Delay (s)		38.3	49.4		76.1						67.0	
Level of Service		D	D		E						E	
Approach Delay (s)		44.5			76.1			0.0			67.0	
Approach LOS		D			E			A			E	

Intersection Summary			
HCM Average Control Delay	63.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	129.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	137	496	10	159	0	52	493	708	115	635	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	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	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1863	1583	1770	1863		1770	1863	1583	1770	1863	1583
Flt Permitted		1.00	1.00	0.65	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1863	1583	1208	1863		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	149	539	11	173	0	57	536	770	125	690	17
RTOR Reduction (vph)	0	0	192	0	0	0	0	0	271	0	0	4
Lane Group Flow (vph)	0	149	347	11	173	0	57	536	499	125	690	13
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6		6	2					4			8
Actuated Green, G (s)		19.6	19.6	19.6	19.6		2.4	32.6	32.6	6.0	36.2	36.2
Effective Green, g (s)		19.6	19.6	19.6	19.6		2.4	32.6	32.6	6.0	36.2	36.2
Actuated g/C Ratio		0.28	0.28	0.28	0.28		0.03	0.46	0.46	0.08	0.51	0.51
Clearance Time (s)		4.2	4.2	4.2	4.2		4.0	4.2	4.2	4.0	4.2	4.2
Vehicle Extension (s)		0.2	0.2	0.2	0.2		3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)		517	439	335	517		60	860	731	150	955	812
v/s Ratio Prot		0.08			0.09		0.03	0.29		c0.07	c0.37	
v/s Ratio Perm			c0.22	0.01					0.32			0.01
v/c Ratio		0.29	0.79	0.03	0.33		0.95	0.62	0.68	0.83	0.72	0.02
Uniform Delay, d1		20.0	23.6	18.6	20.3		34.0	14.4	14.9	31.8	13.3	8.4
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1	8.8	0.0	0.1		97.0	1.0	2.1	30.9	2.3	0.0
Delay (s)		20.1	32.4	18.6	20.4		131.1	15.4	17.0	62.7	15.6	8.5
Level of Service		C	C	B	C		F	B	B	E	B	A
Approach Delay (s)		29.7			20.3			21.2			22.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	12.4
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	112	380	188	176	0	242	740	695	40	1398	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	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	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1863	1583	1770	1863		1770	1863	1583	1770	1863	1583
Flt Permitted		1.00	1.00	0.57	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1863	1583	1054	1863		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	122	413	204	191	0	263	804	755	43	1520	372
RTOR Reduction (vph)	0	0	183	0	0	0	0	0	220	0	0	23
Lane Group Flow (vph)	0	122	230	204	191	0	263	804	535	43	1520	349
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6		6	2					4			8
Actuated Green, G (s)		26.8	26.8	26.8	26.8		18.0	81.6	81.6	24.8	88.6	88.6
Effective Green, g (s)		26.8	26.8	26.8	26.8		18.0	81.6	81.6	24.8	88.6	88.6
Actuated g/C Ratio		0.18	0.18	0.18	0.18		0.12	0.56	0.56	0.17	0.61	0.61
Clearance Time (s)		4.2	4.2	4.2	4.2		4.0	4.2	4.2	4.2	4.2	4.2
Vehicle Extension (s)		0.2	0.2	0.2	0.2		3.0	0.2	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		342	291	194	342		219	1043	886	301	1132	962
v/s Ratio Prot		0.07			0.10		c0.15	0.43		0.02	c0.82	
v/s Ratio Perm			0.15	c0.19					0.34			0.22
v/c Ratio		0.36	0.79	1.05	0.56		1.20	0.77	0.60	0.14	1.34	0.36
Uniform Delay, d1		52.0	56.8	59.5	54.1		63.9	24.9	21.3	51.5	28.6	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		0.2	12.8	78.9	1.1		125.7	3.3	0.8	0.1	160.2	0.1
Delay (s)		52.2	69.6	138.4	55.2		189.6	28.1	22.1	51.5	188.8	14.5
Level of Service		D	E	F	E		F	C	C	D	F	B
Approach Delay (s)		65.6			98.2			49.0			152.3	
Approach LOS		E			F			D			F	

Intersection Summary			
HCM Average Control Delay	97.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	145.8	Sum of lost time (s)	12.4
Intersection Capacity Utilization	123.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	6	1594	354	10	9	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1862	1856		1704	
Flt Permitted		1.00	1.00		0.97	
Satd. Flow (perm)		1860	1856		1704	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	1733	385	11	10	8
RTOR Reduction (vph)	0	0	0	0	8	0
Lane Group Flow (vph)	0	1740	396	0	10	0
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)		126.2	126.2		3.0	
Effective Green, g (s)		126.2	126.2		3.0	
Actuated g/C Ratio		0.92	0.92		0.02	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1711	1707		37	
v/s Ratio Prot			0.21		c0.01	
v/s Ratio Perm		c0.94				
v/c Ratio		1.02	0.23		0.27	
Uniform Delay, d1		5.5	0.6		66.0	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		26.1	0.3		4.0	
Delay (s)		31.6	0.9		70.0	
Level of Service		C	A		E	
Approach Delay (s)		31.6	0.9		70.0	
Approach LOS		C	A		E	

Intersection Summary			
HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	137.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	5	1688	608	4	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.95	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1862	1861		1722	
Flt Permitted		1.00	1.00		0.97	
Satd. Flow (perm)		1860	1861		1722	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1835	661	4	4	2
RTOR Reduction (vph)	0	0	0	0	2	0
Lane Group Flow (vph)	0	1840	665	0	4	0
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)		126.1	126.1		1.3	
Effective Green, g (s)		126.1	126.1		1.3	
Actuated g/C Ratio		0.93	0.93		0.01	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1732	1733		17	
v/s Ratio Prot			0.36		c0.00	
v/s Ratio Perm		c0.99				
v/c Ratio		1.06	0.38		0.24	
Uniform Delay, d1		4.7	0.5		66.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		40.4	0.1		7.1	
Delay (s)		45.0	0.6		73.6	
Level of Service		D	A		E	
Approach Delay (s)		45.0	0.6		73.6	
Approach LOS		D	A		E	

Intersection Summary			
HCM Average Control Delay	33.3	HCM Level of Service	C
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	135.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	49	1548	342	21	52	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.93	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1770	1863	1848		1691	
Flt Permitted	0.52	1.00	1.00		0.98	
Satd. Flow (perm)	971	1863	1848		1691	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	1683	372	23	57	62
RTOR Reduction (vph)	0	0	1	0	27	0
Lane Group Flow (vph)	53	1683	394	0	92	0
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)	126.1	126.1	126.1		12.5	
Effective Green, g (s)	126.1	126.1	126.1		12.5	
Actuated g/C Ratio	0.86	0.86	0.86		0.09	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	835	1602	1590		144	
v/s Ratio Prot		c0.90	0.21		c0.05	
v/s Ratio Perm	0.05					
v/c Ratio	0.06	1.05	0.25		0.64	
Uniform Delay, d1	1.5	10.2	1.8		64.9	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	37.1	0.1		9.4	
Delay (s)	1.5	47.3	1.9		74.3	
Level of Service	A	D	A		E	
Approach Delay (s)		45.9	1.9		74.3	
Approach LOS		D	A		E	

Intersection Summary			
HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	146.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	118	1626	547	69	73	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.90	
Flt Protected	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	1863	1835		1651	
Flt Permitted	0.37	1.00	1.00		0.99	
Satd. Flow (perm)	697	1863	1835		1651	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	1767	595	75	79	261
RTOR Reduction (vph)	0	0	3	0	85	0
Lane Group Flow (vph)	128	1767	667	0	255	0
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)	116.0	116.0	116.0		16.0	
Effective Green, g (s)	116.0	116.0	116.0		16.0	
Actuated g/C Ratio	0.83	0.83	0.83		0.11	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	578	1544	1520		189	
v/s Ratio Prot		c0.95	0.36		c0.15	
v/s Ratio Perm	0.18					
v/c Ratio	0.22	1.14	0.44		1.35	
Uniform Delay, d1	2.5	12.0	3.2		62.0	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.2	73.2	0.2		187.9	
Delay (s)	2.7	85.2	3.4		249.9	
Level of Service	A	F	A		F	
Approach Delay (s)		79.6	3.4		249.9	
Approach LOS		E	A		F	

Intersection Summary			
HCM Average Control Delay	82.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
63: E Divisadero St & N Echo St

4/10/2012

Movement	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL
Lane Configurations												
Volume (vph)	29	9	11	35	774	1	42	288	0	42	3	719
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6	4.6			4.6	4.6		4.2	4.6
Lane Util. Factor	1.00			0.91	0.91			0.97	1.00		1.00	0.94
Frt	0.97			0.87	0.85			1.00	0.85		0.86	0.90
Flt Protected	1.00			1.00	1.00			0.95	1.00		1.00	0.98
Satd. Flow (prot)	1803			1480	2882			3433	1583		1611	4645
Flt Permitted	1.00			0.99	1.00			0.95	1.00		1.00	0.61
Satd. Flow (perm)	1803			1470	2882			3433	1583		1611	2864
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	10	12	38	841	1	46	313	0	46	3	782
RTOR Reduction (vph)	7	0	0	0	0	0	0	0	39	0	3	0
Lane Group Flow (vph)	35	0	0	302	590	0	0	359	7	0	0	2412
Turn Type			Perm		Perm		Perm	Perm			custom	
Protected Phases	6			6					4		8	5
Permitted Phases			6		6		4	4				2
Actuated Green, G (s)	28.3			28.3	28.3			16.5	16.5		16.9	47.6
Effective Green, g (s)	28.3			28.3	28.3			16.5	16.5		16.9	47.6
Actuated g/C Ratio	0.27			0.27	0.27			0.16	0.16		0.16	0.45
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)	480			392	768			533	246		256	2082
v/s Ratio Prot	0.02								0.00		0.00	c0.52
v/s Ratio Perm				c0.21	0.20			c0.10				
v/c Ratio	0.07			0.77	0.77			0.67	0.03		0.00	2.26dr
Uniform Delay, d1	29.1			36.0	35.9			42.3	38.1		37.6	29.3
Progression Factor	1.00			1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1			10.5	5.5			3.7	0.1		0.0	77.2
Delay (s)	29.3			46.4	41.4			46.0	38.1		37.6	106.5
Level of Service	C			D	D			D	D		D	F
Approach Delay (s)	29.3			43.1					45.1			106.5
Approach LOS	C			D					D			F

Intersection Summary			
HCM Average Control Delay	83.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	106.2	Sum of lost time (s)	13.8
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

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

c Critical Lane Group

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

HCM Signalized Intersection Capacity Analysis
63: E Divisadero St & N Echo St

4/10/2012

Movement	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL2	SEL
Lane Configurations												
Volume (vph)	52	42	22	1545	2	9	691	0	44	6	1	987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6		4.6	4.6			4.6	4.6		4.2		4.6
Lane Util. Factor	1.00		0.91	0.91			0.97	1.00		1.00		0.94
Frt	0.94		0.86	0.85			1.00	0.85		0.86		0.91
Flt Protected	1.00		1.00	1.00			0.95	1.00		1.00		0.98
Satd. Flow (prot)	1750		1451	2882			3433	1583		1611		4697
Flt Permitted	1.00		1.00	1.00			0.95	1.00		1.00		0.94
Satd. Flow (perm)	1750		1451	2882			3433	1583		1611		4508
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	46	24	1679	2	10	751	0	48	7	1	1073
RTOR Reduction (vph)	20	0	0	0	0	0	0	40	0	6	0	0
Lane Group Flow (vph)	83	0	578	1127	0	0	761	8	0	1	0	2556
Turn Type				custom		Perm	Perm			custom	Perm	
Protected Phases	6		6	2				4		8		5
Permitted Phases				6		4	4				5	2
Actuated Green, G (s)	45.4		45.4	64.8			26.4	26.4		26.8		59.8
Effective Green, g (s)	45.4		45.4	64.8			26.4	26.4		26.8		59.8
Actuated g/C Ratio	0.30		0.30	0.43			0.18	0.18		0.18		0.40
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)	530		439	1245			604	279		288		1848
v/s Ratio Prot	0.05		c0.40	0.12				0.01		0.00		c0.37
v/s Ratio Perm				0.27			c0.22					c0.18
v/c Ratio	0.16		1.32	0.91			1.26	0.03		0.00		2.14dr
Uniform Delay, d1	38.3		52.3	39.7			61.8	51.2		50.6		47.0
Progression Factor	1.00		1.00	1.00			1.00	1.00		1.00		1.00
Incremental Delay, d2	0.3		157.9	10.1			130.0	0.1		0.0		175.9
Delay (s)	38.6		210.2	49.8			191.8	51.3		50.6		222.8
Level of Service	D		F	D			F	D		D		F
Approach Delay (s)	38.6		104.2					183.4				222.8
Approach LOS	D		F					F				F

Intersection Summary			
HCM Average Control Delay	173.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

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

c Critical Lane Group

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

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	398	720	272	6	226	44	60	163	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5	4.5		4.5	4.5		4.2				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.95				
Frt		1.00	0.85		1.00	0.85		0.99				
Flt Protected		0.98	1.00		1.00	1.00		0.99				
Satd. Flow (prot)		3477	1583		3534	1583		3463				
Flt Permitted		0.75	1.00		0.93	1.00		0.99				
Satd. Flow (perm)		2641	1583		3275	1583		3463				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	433	783	296	7	246	48	65	177	16	0	0	0
RTOR Reduction (vph)	0	0	147	0	0	24	0	7	0	0	0	0
Lane Group Flow (vph)	0	1216	149	0	253	24	0	251	0	0	0	0
Turn Type	Perm		Perm	Perm		Perm	Split					
Protected Phases		8			4		6	6				
Permitted Phases	8		8	4		4						
Actuated Green, G (s)		31.3	31.3		31.3	31.3		22.0				
Effective Green, g (s)		31.3	31.3		31.3	31.3		22.0				
Actuated g/C Ratio		0.50	0.50		0.50	0.50		0.35				
Clearance Time (s)		4.5	4.5		4.5	4.5		4.2				
Vehicle Extension (s)		0.2	0.2		0.2	0.2		0.2				
Lane Grp Cap (vph)		1333	799		1653	799		1229				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		c0.46	0.09		0.08	0.02						
v/c Ratio		0.91	0.19		0.15	0.03		0.20				
Uniform Delay, d1		14.1	8.4		8.2	7.7		13.9				
Progression Factor		1.00	1.00		1.00	1.00		1.00				
Incremental Delay, d2		9.5	0.0		0.0	0.0		0.0				
Delay (s)		23.6	8.4		8.3	7.7		13.9				
Level of Service		C	A		A	A		B				
Approach Delay (s)		20.6			8.2			13.9			0.0	
Approach LOS		C			A			B			A	

Intersection Summary

HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	57	0	18	2	0	0	1	2190	29	40	1119	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6			4.2	4.2	4.2	4.2	
Lane Util. Factor	1.00	1.00			1.00			0.95	1.00	1.00	0.95	
Frt	1.00	0.85			1.00			1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00			0.95			1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1583			1770			3539	1583	1770	3536	
Flt Permitted	0.76	1.00			0.74			0.95	1.00	0.04	1.00	
Satd. Flow (perm)	1409	1583			1386			3379	1583	81	3536	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	0	20	2	0	0	1	2380	32	43	1216	7
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	3	0	0	0
Lane Group Flow (vph)	62	16	0	0	2	0	0	2381	29	43	1223	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)	21.3	21.3			21.3			92.1	92.1	92.1	92.1	
Effective Green, g (s)	21.3	21.3			21.3			92.1	92.1	92.1	92.1	
Actuated g/C Ratio	0.17	0.17			0.17			0.75	0.75	0.75	0.75	
Clearance Time (s)	4.6	4.6			4.6			4.2	4.2	4.2	4.2	
Vehicle Extension (s)	5.0	5.0			5.0			4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	246	276			242			2547	1193	61	2665	
v/s Ratio Prot		0.01									0.35	
v/s Ratio Perm	c0.04				0.00			c0.70	0.02	0.53		
v/c Ratio	0.25	0.06			0.01			0.93	0.02	0.70	0.46	
Uniform Delay, d1	43.6	42.1			41.7			12.5	3.8	7.9	5.7	
Progression Factor	1.00	1.00			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.2			0.0			7.3	0.0	32.8	0.2	
Delay (s)	44.7	42.3			41.7			19.9	3.8	40.7	5.8	
Level of Service	D	D			D			B	A	D	A	
Approach Delay (s)		44.1			41.7			19.7			7.0	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	8.8
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	800	508	179	9	897	108	178	537	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5	4.5		4.5	4.5		4.2				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.95				
Frt		1.00	0.85		1.00	0.85		1.00				
Flt Protected		0.97	1.00		1.00	1.00		0.99				
Satd. Flow (prot)		3434	1583		3537	1583		3485				
Flt Permitted		0.50	1.00		0.93	1.00		0.99				
Satd. Flow (perm)		1783	1583		3305	1583		3485				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	870	552	195	10	975	117	193	584	18	0	0	0
RTOR Reduction (vph)	0	0	51	0	0	8	0	2	0	0	0	0
Lane Group Flow (vph)	0	1422	144	0	985	109	0	793	0	0	0	0
Turn Type	Perm		Perm	Perm		Perm	Split					
Protected Phases		8			4		6	6				
Permitted Phases	8		8	4		4						
Actuated Green, G (s)		93.5	93.5		93.5	93.5		27.8				
Effective Green, g (s)		93.5	93.5		93.5	93.5		27.8				
Actuated g/C Ratio		0.72	0.72		0.72	0.72		0.21				
Clearance Time (s)		4.5	4.5		4.5	4.5		4.2				
Vehicle Extension (s)		0.2	0.2		0.2	0.2		0.2				
Lane Grp Cap (vph)		1282	1139		2377	1139		745				
v/s Ratio Prot								c0.23				
v/s Ratio Perm		c0.80	0.09		0.30	0.07						
v/c Ratio		2.51dl	0.13		0.41	0.10		1.07				
Uniform Delay, d1		18.2	5.6		7.3	5.5		51.1				
Progression Factor		1.00	1.00		1.00	1.00		1.00				
Incremental Delay, d2		60.7	0.0		0.0	0.0		51.7				
Delay (s)		78.9	5.7		7.3	5.5		102.8				
Level of Service		E	A		A	A		F				
Approach Delay (s)		70.1			7.1			102.8			0.0	
Approach LOS		E			A			F			A	

Intersection Summary

HCM Average Control Delay	57.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

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

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

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	29	0	23	0	0	2	1	2328	57	25	2269	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6			4.2	4.2	4.2	4.2	
Lane Util. Factor	1.00	1.00			1.00			0.95	1.00	1.00	0.95	
Frt	1.00	0.85			0.86			1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1583			1611			3539	1583	1770	3539	
Flt Permitted	0.76	1.00			1.00			0.95	1.00	0.04	1.00	
Satd. Flow (perm)	1409	1583			1611			3377	1583	81	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	0	25	0	0	2	1	2530	62	27	2466	1
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	6	0	0	0
Lane Group Flow (vph)	32	23	0	0	0	0	0	2531	56	27	2467	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)	21.3	21.3			21.3			92.1	92.1	92.1	92.1	
Effective Green, g (s)	21.3	21.3			21.3			92.1	92.1	92.1	92.1	
Actuated g/C Ratio	0.17	0.17			0.17			0.75	0.75	0.75	0.75	
Clearance Time (s)	4.6	4.6			4.6			4.2	4.2	4.2	4.2	
Vehicle Extension (s)	5.0	5.0			5.0			4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	246	276			281			2545	1193	61	2667	
v/s Ratio Prot		0.01			0.00						0.70	
v/s Ratio Perm	c0.02							c0.75	0.04	0.33		
v/c Ratio	0.13	0.08			0.00			0.99	0.05	0.44	0.93	
Uniform Delay, d1	42.6	42.3			41.7			14.8	3.8	5.6	12.2	
Progression Factor	1.00	1.00			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3			0.0			16.5	0.0	6.8	6.2	
Delay (s)	43.1	42.5			41.7			31.3	3.9	12.4	18.5	
Level of Service	D	D			D			C	A	B	B	
Approach Delay (s)		42.9			41.7			30.6			18.4	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	8.8
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	174	59	86	114	0	0	0	0	181	1445	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2						4.9	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frt		0.97		1.00	1.00						0.99	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1799		1770	1863						5024	
Flt Permitted		1.00		0.55	1.00						0.99	
Satd. Flow (perm)		1799		1026	1863						5024	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	189	64	93	124	0	0	0	0	197	1571	85
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	246	0	93	124	0	0	0	0	0	1844	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		12.7		12.7	12.7						23.2	
Effective Green, g (s)		12.7		12.7	12.7						23.2	
Actuated g/C Ratio		0.28		0.28	0.28						0.52	
Clearance Time (s)		4.2		4.2	4.2						4.9	
Vehicle Extension (s)		4.0		4.0	4.0						5.0	
Lane Grp Cap (vph)		508		290	526						2590	
v/s Ratio Prot		c0.14			0.07						c0.37	
v/s Ratio Perm				0.09								
v/c Ratio		0.48		0.32	0.24						0.71	
Uniform Delay, d1		13.4		12.7	12.4						8.3	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		1.0		0.9	0.3						1.2	
Delay (s)		14.4		13.6	12.7						9.5	
Level of Service		B		B	B						A	
Approach Delay (s)		14.4			13.1			0.0			9.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	326	160	164	303	0	0	0	0	184	1788	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2						4.9	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frt		0.96		1.00	1.00						0.99	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1780		1770	1863						4995	
Flt Permitted		1.00		0.23	1.00						1.00	
Satd. Flow (perm)		1780		425	1863						4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	354	174	178	329	0	0	0	0	200	1943	215
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	526	0	178	329	0	0	0	0	0	2341	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		26.8		26.8	26.8						34.1	
Effective Green, g (s)		26.8		26.8	26.8						34.1	
Actuated g/C Ratio		0.38		0.38	0.38						0.49	
Clearance Time (s)		4.2		4.2	4.2						4.9	
Vehicle Extension (s)		4.0		4.0	4.0						5.0	
Lane Grp Cap (vph)		681		163	713						2433	
v/s Ratio Prot		0.30			0.18						c0.47	
v/s Ratio Perm				c0.42								
v/c Ratio		0.77		1.09	0.46						0.96	
Uniform Delay, d1		18.9		21.6	16.2						17.3	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		5.7		97.2	0.6						11.0	
Delay (s)		24.7		118.8	16.8						28.3	
Level of Service		C		F	B						C	
Approach Delay (s)		24.7			52.6			0.0			28.3	
Approach LOS		C			D			A			C	

Intersection Summary

HCM Average Control Delay	31.4	HCM Level of Service	C
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	370	1155	0	0	287	330	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.91	0.91					
Frt	1.00	1.00			0.95	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3224	1441					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3224	1441					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	402	1255	0	0	312	359	0	0	0	0	0
RTOR Reduction (vph)	36	0	0	0	53	87	0	0	0	0	0
Lane Group Flow (vph)	366	1255	0	0	410	121	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	71.4	71.4			18.2	18.2					
Effective Green, g (s)	71.4	71.4			18.2	18.2					
Actuated g/C Ratio	0.72	0.72			0.18	0.18					
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)	1279	1279			594	265					
v/s Ratio Prot	0.21	c0.71			c0.13						
v/s Ratio Perm						0.08					
v/c Ratio	0.29	0.98			0.69	0.46					
Uniform Delay, d1	4.8	13.1			37.7	35.9					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.3	20.8			4.0	2.1					
Delay (s)	5.0	33.9			41.7	38.0					
Level of Service	A	C			D	D					
Approach Delay (s)		26.9			40.5			0.0		0.0	
Approach LOS		C			D			A		A	

Intersection Summary			
HCM Average Control Delay	30.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	98.8	Sum of lost time (s)	9.2
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	321	1101	0	0	507	824	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.91	0.91					
Frt	1.00	1.00			0.93	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3165	1441					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3165	1441					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	349	1197	0	0	551	896	0	0	0	0	0
RTOR Reduction (vph)	31	0	0	0	64	64	0	0	0	0	0
Lane Group Flow (vph)	318	1197	0	0	926	393	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	76.4	76.4			34.4	34.4					
Effective Green, g (s)	76.4	76.4			34.4	34.4					
Actuated g/C Ratio	0.64	0.64			0.29	0.29					
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)	1127	1127			907	413					
v/s Ratio Prot	0.18	c0.68			c0.29						
v/s Ratio Perm						0.27					
v/c Ratio	0.28	1.06			1.02	0.95					
Uniform Delay, d1	9.7	21.8			42.8	42.0					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.3	44.9			35.2	32.3					
Delay (s)	9.9	66.7			78.0	74.3					
Level of Service	A	E			E	E					
Approach Delay (s)		53.9			76.8			0.0		0.0	
Approach LOS		D			E			A		A	

Intersection Summary			
HCM Average Control Delay	65.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1040	0	56	611	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	0.97			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			1.00		
Satd. Flow (prot)	3433			3524		
Flt Permitted	0.95			1.00		
Satd. Flow (perm)	3433			3524		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1130	0	61	664	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1130	0	0	725	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	22.8			19.7		
Effective Green, g (s)	22.8			19.7		
Actuated g/C Ratio	0.44			0.38		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	1514			1343		
v/s Ratio Prot	c0.33			c0.21		
v/s Ratio Perm						
v/c Ratio	0.75			0.54		
Uniform Delay, d1	12.0			12.5		
Progression Factor	1.00			1.00		
Incremental Delay, d2	2.1			0.7		
Delay (s)	14.1			13.2		
Level of Service	B			B		
Approach Delay (s)	14.1			13.2	0.0	
Approach LOS	B			B	A	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	51.7	Sum of lost time (s)	9.2
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1305	0	105	721	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	0.97			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	3433			3517		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	3433			3517		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1418	0	114	784	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1418	0	0	898	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	26.5			22.2		
Effective Green, g (s)	26.5			22.2		
Actuated g/C Ratio	0.46			0.38		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	1571			1348		
v/s Ratio Prot	c0.41			c0.26		
v/s Ratio Perm						
v/c Ratio	0.90			0.67		
Uniform Delay, d1	14.5			14.8		
Progression Factor	1.00			1.00		
Incremental Delay, d2	7.7			1.6		
Delay (s)	22.2			16.4		
Level of Service	C			B		
Approach Delay (s)	22.2			16.4	0.0	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	9.2
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1474	145	111	376	0	0	0	0	376	1457	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2					4.9	4.9	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frt		0.99		1.00	1.00					1.00	0.98	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3492		1770	3539					1770	4958	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3492		1770	3539					1770	4958	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1602	158	121	409	0	0	0	0	409	1584	316
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	1754	0	121	409	0	0	0	0	409	1877	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		60.8		8.3	72.8					48.1	48.1	
Effective Green, g (s)		60.8		8.3	72.8					48.1	48.1	
Actuated g/C Ratio		0.47		0.06	0.56					0.37	0.37	
Clearance Time (s)		4.2		3.7	4.2					4.9	4.9	
Vehicle Extension (s)		6.8		2.0	6.8					0.2	0.2	
Lane Grp Cap (vph)		1633		113	1982					655	1834	
v/s Ratio Prot		c0.50		c0.07	0.12					0.23	c0.38	
v/s Ratio Perm												
v/c Ratio		1.07		1.07	0.21					0.62	1.02	
Uniform Delay, d1		34.6		60.9	14.2					33.5	41.0	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		45.2		105.0	0.2					1.3	27.1	
Delay (s)		79.8		165.8	14.4					34.9	68.1	
Level of Service		E		F	B					C	E	
Approach Delay (s)		79.8			49.0			0.0			62.2	
Approach LOS		E			D			A			E	

Intersection Summary			
HCM Average Control Delay	67.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	97.1%	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)	0	1673	179	251	1353	0	0	0	0	364	1740	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2					4.9	4.9	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frt		0.99		1.00	1.00					1.00	0.96	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3488		1770	3539					1770	4901	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3488		1770	3539					1770	4901	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1818	195	273	1471	0	0	0	0	396	1891	603
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	2008	0	273	1471	0	0	0	0	396	2477	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		56.8		15.3	75.8					55.1	55.1	
Effective Green, g (s)		56.8		15.3	75.8					55.1	55.1	
Actuated g/C Ratio		0.41		0.11	0.54					0.39	0.39	
Clearance Time (s)		4.2		3.7	4.2					4.9	4.9	
Vehicle Extension (s)		6.8		2.0	6.8					0.2	0.2	
Lane Grp Cap (vph)		1415		193	1916					697	1929	
v/s Ratio Prot		c0.58		c0.15	0.42					0.22	c0.51	
v/s Ratio Perm												
v/c Ratio		1.42		1.41	0.77					0.57	1.28	
Uniform Delay, d1		41.6		62.4	25.2					33.2	42.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		192.7		214.2	2.6					0.6	131.9	
Delay (s)		234.3		276.6	27.8					33.8	174.4	
Level of Service		F		F	C					C	F	
Approach Delay (s)		234.3			66.8			0.0			155.1	
Approach LOS		F			E			A			F	

Intersection Summary

HCM Average Control Delay	155.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	122.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	272	0	0	169	489	2	636	1129	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	1.00			1.00	1.00		0.86	0.86			
Frt	1.00	1.00			1.00	0.85		0.93	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	1863			1863	1583		4467	1362			
Flt Permitted	0.64	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1195	1863			1863	1583		4467	1362			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	296	0	0	184	532	2	691	1227	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	56	0	280	280	0	0	0
Lane Group Flow (vph)	8	296	0	0	184	476	0	1027	333	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	20.5	20.5			20.5	20.5		19.0	19.0			
Effective Green, g (s)	20.5	20.5			20.5	20.5		19.0	19.0			
Actuated g/C Ratio	0.42	0.42			0.42	0.42		0.39	0.39			
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)	504	786			786	668		1746	532			
v/s Ratio Prot		0.16			0.10			0.23				
v/s Ratio Perm	0.01					c0.30			c0.24			
v/c Ratio	0.02	0.38			0.23	0.71		0.59	0.63			
Uniform Delay, d1	8.2	9.7			9.0	11.6		11.7	11.9			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.0	0.8			0.4	4.9		0.8	3.4			
Delay (s)	8.2	10.4			9.4	16.6		12.5	15.3			
Level of Service	A	B			A	B		B	B			
Approach Delay (s)		10.4			14.7			13.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	48.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	118.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	480	0	0	102	581	0	1187	1197	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	1.00			1.00	1.00		0.86	0.86			
Frt	1.00	1.00			1.00	0.85		0.95	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	1863			1863	1583		4564	1362			
Flt Permitted	0.69	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1277	1863			1863	1583		4564	1362			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	522	0	0	111	632	0	1290	1301	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	13	0	119	119	0	0	0
Lane Group Flow (vph)	25	522	0	0	111	619	0	1822	531	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	31.8	31.8			31.8	31.8		34.1	34.1			
Effective Green, g (s)	31.8	31.8			31.8	31.8		34.1	34.1			
Actuated g/C Ratio	0.42	0.42			0.42	0.42		0.45	0.45			
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)	541	790			790	671		2075	619			
v/s Ratio Prot		0.28			0.06			c0.40				
v/s Ratio Perm	0.02					c0.39			0.39			
v/c Ratio	0.05	0.66			0.14	0.92		0.88	0.86			
Uniform Delay, d1	12.7	17.3			13.2	20.4		18.6	18.3			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.1	3.1			0.2	19.3		5.0	12.5			
Delay (s)	12.8	20.4			13.4	39.7		23.6	30.8			
Level of Service	B	C			B	D		C	C			
Approach Delay (s)		20.0			35.8			25.4			0.0	
Approach LOS		C			D			C			A	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	142.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	415	1268	5	146	0	0	0	0	3	935	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	3.7	4.2						4.9	4.9
Lane Util. Factor		0.95	0.95	1.00	1.00						0.95	1.00
Frt		0.92	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (prot)		1631	1504	1770	1863						3539	1583
Flt Permitted		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (perm)		1631	1504	1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	451	1378	5	159	0	0	0	0	3	1016	352
RTOR Reduction (vph)	0	27	72	0	0	0	0	0	0	0	0	182
Lane Group Flow (vph)	0	920	810	5	159	0	0	0	0	0	1019	170
Turn Type			Perm	Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases			4									
Actuated Green, G (s)		76.9	76.9	1.1	81.7						42.1	42.1
Effective Green, g (s)		76.9	76.9	1.1	81.7						42.1	42.1
Actuated g/C Ratio		0.58	0.58	0.01	0.61						0.32	0.32
Clearance Time (s)		4.2	4.2	3.7	4.2						4.9	4.9
Vehicle Extension (s)		4.9	4.9	2.0	4.6						5.2	5.2
Lane Grp Cap (vph)		944	870	15	1145						1121	501
v/s Ratio Prot		c0.56		c0.00	0.09						c0.29	0.11
v/s Ratio Perm			0.54									
v/c Ratio		0.98	0.93	0.33	0.14						0.91	0.34
Uniform Delay, d1		27.1	25.6	65.5	10.8						43.6	34.8
Progression Factor		1.00	1.00	1.00	1.00						1.00	1.00
Incremental Delay, d2		23.4	16.9	4.7	0.1						11.4	0.9
Delay (s)		50.5	42.4	70.3	10.9						55.0	35.7
Level of Service		D	D	E	B						D	D
Approach Delay (s)		46.6			12.7			0.0			50.0	
Approach LOS		D			B			A			D	

Intersection Summary			
HCM Average Control Delay	46.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	132.9	Sum of lost time (s)	12.8
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	594	1192	20	303	0	0	0	0	5	1819	674
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	3.7	4.2						4.9	4.9
Lane Util. Factor		0.95	0.95	1.00	1.00						0.95	1.00
Frt		0.94	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (prot)		1672	1504	1770	1863						3539	1583
Flt Permitted		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (perm)		1672	1504	1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	646	1296	22	329	0	0	0	0	5	1977	733
RTOR Reduction (vph)	0	14	71	0	0	0	0	0	0	0	0	180
Lane Group Flow (vph)	0	1008	849	22	329	0	0	0	0	0	1982	553
Turn Type			Perm	Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases			4									
Actuated Green, G (s)		62.0	62.0	6.9	72.6						63.6	63.6
Effective Green, g (s)		62.0	62.0	6.9	72.6						63.6	63.6
Actuated g/C Ratio		0.43	0.43	0.05	0.50						0.44	0.44
Clearance Time (s)		4.2	4.2	3.7	4.2						4.9	4.9
Vehicle Extension (s)		4.9	4.9	2.0	4.6						5.2	5.2
Lane Grp Cap (vph)		713	642	84	931						1549	693
v/s Ratio Prot		c0.60		0.01	c0.18						c0.56	0.35
v/s Ratio Perm			0.56									
v/c Ratio		1.41	1.32	0.26	0.35						1.28	0.80
Uniform Delay, d1		41.7	41.7	66.7	22.1						40.9	35.3
Progression Factor		1.00	1.00	1.00	1.00						1.00	1.00
Incremental Delay, d2		194.6	155.7	0.6	0.4						130.9	7.4
Delay (s)		236.2	197.4	67.4	22.5						171.8	42.7
Level of Service		F	F	E	C						F	D
Approach Delay (s)		217.8			25.3			0.0			136.9	
Approach LOS		F			C			A			F	

Intersection Summary

HCM Average Control Delay	160.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	145.3	Sum of lost time (s)	13.3
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	7	562	26	57	49	32	5	37	29	17	24	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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frt		0.99			0.97			0.94			0.99	
Flt Protected		1.00			0.98			1.00			0.98	
Satd. Flow (prot)		3514			1768			1753			1812	
Flt Permitted		0.95			0.73			0.97			1.00	
Satd. Flow (perm)		3350			1322			1709			1847	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	611	28	62	53	35	5	40	32	18	26	3
RTOR Reduction (vph)	0	5	0	0	12	0	0	29	0	0	3	0
Lane Group Flow (vph)	0	642	0	0	138	0	0	48	0	0	44	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		20.1			20.1			2.7			2.7	
Effective Green, g (s)		20.1			20.1			2.7			2.7	
Actuated g/C Ratio		0.65			0.65			0.09			0.09	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		2186			863			150			162	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.10			c0.03			0.02	
v/c Ratio		0.29			0.16			0.32			0.27	
Uniform Delay, d1		2.3			2.1			13.2			13.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			1.2			0.9	
Delay (s)		2.4			2.2			14.4			14.0	
Level of Service		A			A			B			B	
Approach Delay (s)		2.4			2.2			14.4			14.0	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	30.8	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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	193	65	160	237	271	0	14	1624	1	276	1961	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frt		0.94			1.00			1.00			0.99	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		3261			1820			1862			1841	
Flt Permitted		0.59			0.50			0.96			0.42	
Satd. Flow (perm)		1956			934			1783			774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	71	174	258	295	0	15	1765	1	300	2132	108
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	450	0	0	553	0	0	1781	0	0	2539	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		53.0			53.0			89.0			89.0	
Effective Green, g (s)		53.0			53.0			89.0			89.0	
Actuated g/C Ratio		0.35			0.35			0.59			0.59	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		691			330			1058			459	
v/s Ratio Prot												
v/s Ratio Perm		0.23			c0.59			1.00			c3.28	
v/c Ratio		0.65			1.68			1.68			5.53	
Uniform Delay, d1		40.7			48.5			30.5			30.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.2			317.1			311.6			2043.8	
Delay (s)		42.9			365.6			342.1			2074.3	
Level of Service		D			F			F			F	
Approach Delay (s)		42.9			365.6			342.1			2074.3	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM Average Control Delay	1144.6	HCM Level of Service	F
HCM Volume to Capacity ratio	4.09		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	264.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	11	44	38	98	12	138	77	1080	88	48	643	907
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95		1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	0.86		1.00	0.99		1.00	0.94	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)	1947	2049	1742	1947	3356		3776	3849		1947	3506	1585
Flt Permitted	0.65	1.00	1.00	0.73	1.00		0.26	1.00		0.26	1.00	1.00
Satd. Flow (perm)	1329	2049	1742	1487	3356		1026	3849		529	3506	1585
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	48	41	107	13	150	84	1174	96	52	699	986
RTOR Reduction (vph)	0	0	31	0	15	0	0	13	0	0	200	264
Lane Group Flow (vph)	12	48	10	107	148	0	84	1257	0	52	962	259
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4			8		8
Actuated Green, G (s)	7.8	7.8	7.8	7.8	7.8		15.5	15.5		15.5	15.5	15.5
Effective Green, g (s)	7.8	7.8	7.8	7.8	7.8		15.5	15.5		15.5	15.5	15.5
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25		0.50	0.50		0.50	0.50	0.50
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	331	511	434	371	836		508	1906		262	1736	785
v/s Ratio Prot		0.02			0.04			c0.33			0.27	
v/s Ratio Perm	0.01		0.01	c0.07			0.08			0.10		0.16
v/c Ratio	0.04	0.09	0.02	0.29	0.18		0.17	0.66		0.20	0.55	0.33
Uniform Delay, d1	8.9	9.0	8.9	9.5	9.2		4.3	5.9		4.4	5.5	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	0.1	0.0	0.4	0.1		0.2	0.8		0.4	0.4	0.2
Delay (s)	8.9	9.1	8.9	9.9	9.3		4.5	6.8		4.8	5.9	5.0
Level of Service	A	A	A	A	A		A	A		A	A	A
Approach Delay (s)		9.0			9.6			6.6			5.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	31.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	79	33	157	221	468	120	440	621	120	147	1457	1374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95		1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.96	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)	1947	2049	1742	1947	3774		3776	3799		1947	3585	1585
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)	1947	2049	1742	1947	3774		3776	3799		1947	3585	1585
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	36	171	240	509	130	478	675	130	160	1584	1493
RTOR Reduction (vph)	0	0	151	0	16	0	0	10	0	0	21	78
Lane Group Flow (vph)	86	36	20	240	623	0	478	795	0	160	2115	863
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6									8
Actuated Green, G (s)	7.0	17.4	17.4	17.0	27.4		18.0	82.0		17.0	81.0	81.0
Effective Green, g (s)	7.0	17.4	17.4	17.0	27.4		18.0	82.0		17.0	81.0	81.0
Actuated g/C Ratio	0.05	0.12	0.12	0.11	0.18		0.12	0.55		0.11	0.54	0.54
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)	91	239	203	222	692		455	2085		222	1944	859
v/s Ratio Prot	0.04	0.02		c0.12	c0.17		c0.13	0.21		0.08	c0.59	
v/s Ratio Perm			0.01									0.54
v/c Ratio	0.95	0.15	0.10	1.08	0.90		1.05	0.38		0.72	1.09	1.00
Uniform Delay, d1	71.0	59.4	59.0	66.2	59.7		65.7	19.2		63.9	34.2	34.2
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	75.7	0.3	0.2	83.6	14.9		56.1	0.1		10.9	48.8	31.8
Delay (s)	146.7	59.6	59.2	149.8	74.6		121.8	19.3		74.8	83.0	66.0
Level of Service	F	E	E	F	E		F	B		E	F	E
Approach Delay (s)		84.9			95.1			57.5			77.7	
Approach LOS		F			F			E			E	

Intersection Summary

HCM Average Control Delay	76.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	149.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	360	70	15	284	25	31	100	16	139	140	77
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			0.99		1.00	0.98		1.00	0.95	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2001			2023		1947	2008		1947	1940	
Flt Permitted		0.97			0.98		0.61	1.00		0.49	1.00	
Satd. Flow (perm)		1953			1983		1254	2008		1003	1940	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	391	76	16	309	27	34	109	17	151	152	84
RTOR Reduction (vph)	0	13	0	0	6	0	0	12	0	0	37	0
Lane Group Flow (vph)	0	477	0	0	346	0	34	114	0	151	199	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.6			13.6		11.6	10.5		19.9	14.8	
Effective Green, g (s)		13.6			13.6		11.6	10.5		19.9	14.8	
Actuated g/C Ratio		0.33			0.33		0.28	0.25		0.48	0.36	
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)		640			650		369	508		604	692	
v/s Ratio Prot							0.00	0.06		c0.03	c0.10	
v/s Ratio Perm		c0.24			0.17		0.02			0.09		
v/c Ratio		0.75			0.53		0.09	0.22		0.25	0.29	
Uniform Delay, d1		12.4			11.4		11.0	12.3		6.3	9.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.7			0.8		0.1	0.2		0.2	0.2	
Delay (s)		17.1			12.2		11.1	12.5		6.5	9.8	
Level of Service		B			B		B	B		A	A	
Approach Delay (s)		17.1			12.2			12.2			8.5	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	41.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.1%	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)	142	538	60	92	474	43	113	132	171	402	222	135
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		0.99			0.99		1.00	0.92		1.00	0.94	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2007			2014		1947	1875		1947	1933	
Flt Permitted		0.73			0.78		0.42	1.00		0.19	1.00	
Satd. Flow (perm)		1476			1574		860	1875		398	1933	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	154	585	65	100	515	47	123	143	186	437	241	147
RTOR Reduction (vph)	0	3	0	0	3	0	0	47	0	0	22	0
Lane Group Flow (vph)	0	801	0	0	659	0	123	282	0	437	366	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		54.0			54.0		21.6	16.6		37.6	28.6	
Effective Green, g (s)		54.0			54.0		21.6	16.6		37.6	28.6	
Actuated g/C Ratio		0.54			0.54		0.22	0.17		0.38	0.29	
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)		800			853		241	313		415	555	
v/s Ratio Prot							0.03	0.15		c0.18	0.19	
v/s Ratio Perm		c0.54			0.42		0.09			c0.22		
v/c Ratio		1.00			0.77		0.51	0.90		1.05	0.66	
Uniform Delay, d1		22.8			18.0		32.8	40.7		26.9	31.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		32.1			4.4		1.8	27.4		58.8	2.8	
Delay (s)		54.9			22.4		34.7	68.1		85.7	34.1	
Level of Service		D			C		C	E		F	C	
Approach Delay (s)		54.9			22.4			59.0			61.4	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM Average Control Delay	49.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	99.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	135	543	420	151	445	395	529	1113	156	268	946	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1947	3893	1742	1947	2049	1742	1947	3821		1947	3893	1742
Flt Permitted	0.22	1.00	1.00	0.22	1.00	1.00	0.17	1.00		0.20	1.00	1.00
Satd. Flow (perm)	455	3893	1742	453	2049	1742	342	3821		410	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	590	457	164	484	429	575	1210	170	291	1028	301
RTOR Reduction (vph)	0	0	226	0	0	329	0	14	0	0	0	193
Lane Group Flow (vph)	147	590	231	164	484	100	575	1366	0	291	1028	108
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	25.7	18.0	18.0	25.9	18.1	18.1	42.0	29.0		29.0	20.0	20.0
Effective Green, g (s)	25.7	18.0	18.0	25.9	18.1	18.1	42.0	29.0		29.0	20.0	20.0
Actuated g/C Ratio	0.32	0.23	0.23	0.32	0.23	0.23	0.53	0.36		0.36	0.25	0.25
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	291	878	393	293	465	395	542	1389		322	976	437
v/s Ratio Prot	0.05	0.15		c0.05	c0.24		c0.24	0.36		0.10	0.26	
v/s Ratio Perm	0.11		0.13	0.13		0.06	c0.32			0.23		0.06
v/c Ratio	0.51	0.67	0.59	0.56	1.04	0.25	1.06	0.98		0.90	1.05	0.25
Uniform Delay, d1	21.2	28.2	27.6	20.5	30.8	25.3	21.7	25.2		20.9	29.9	23.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	2.0	2.2	2.3	52.8	0.3	55.8	20.1		27.1	43.9	0.3
Delay (s)	22.5	30.2	29.8	22.8	83.6	25.7	77.5	45.3		48.0	73.8	24.2
Level of Service	C	C	C	C	F	C	E	D		D	E	C
Approach Delay (s)		29.1			51.3			54.8			59.9	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM Average Control Delay	50.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	184	615	366	224	825	550	674	1463	176	494	1097	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1947	3893	1742	1947	2049	1742	1947	3831		1947	3893	1742
Flt Permitted	0.13	1.00	1.00	0.13	1.00	1.00	0.10	1.00		0.11	1.00	1.00
Satd. Flow (perm)	261	3893	1742	264	2049	1742	205	3831		228	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	668	398	243	897	598	733	1590	191	537	1192	761
RTOR Reduction (vph)	0	0	179	0	0	203	0	7	0	0	0	161
Lane Group Flow (vph)	200	668	219	243	897	395	733	1774	0	537	1192	600
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	38.4	31.4	31.4	51.0	40.0	40.0	71.0	43.0		60.0	36.0	36.0
Effective Green, g (s)	38.4	31.4	31.4	51.0	40.0	40.0	71.0	43.0		60.0	36.0	36.0
Actuated g/C Ratio	0.30	0.24	0.24	0.39	0.31	0.31	0.55	0.33		0.46	0.28	0.28
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	168	940	421	306	630	536	527	1267		423	1078	482
v/s Ratio Prot	c0.06	0.17		0.10	c0.44		c0.33	c0.46		0.23	0.31	
v/s Ratio Perm	0.29		0.13	0.22		0.23	0.43			0.35		0.34
v/c Ratio	1.19	0.71	0.52	0.79	1.42	0.74	1.39	1.40		1.27	1.11	1.25
Uniform Delay, d1	42.5	45.1	42.8	30.6	45.0	40.3	40.3	43.5		40.5	47.0	47.0
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	129.9	2.6	1.2	13.2	199.9	5.3	187.3	184.8		138.8	61.2	127.1
Delay (s)	172.4	47.7	43.9	43.8	244.9	45.5	227.7	228.3		179.3	108.2	174.1
Level of Service	F	D	D	D	F	D	F	F		F	F	F
Approach Delay (s)		66.2			148.2			228.1			143.7	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM Average Control Delay	158.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	140.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	65	25	29	49	37	6	1	1627	39	18	2574	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1947	1882		1947	2003		1947	3893	1742	1947	3893	1742
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1947	1882		1947	2003		1947	3893	1742	1947	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	27	32	53	40	7	1	1768	42	20	2798	38
RTOR Reduction (vph)	0	30	0	0	5	0	0	0	8	0	0	3
Lane Group Flow (vph)	71	29	0	53	42	0	1	1768	34	20	2798	35
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	6.2	8.1		6.1	8.0		1.1	90.7	90.7	2.9	92.5	92.5
Effective Green, g (s)	6.2	8.1		6.1	8.0		1.1	90.7	90.7	2.9	92.5	92.5
Actuated g/C Ratio	0.05	0.07		0.05	0.06		0.01	0.73	0.73	0.02	0.75	0.75
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)	98	123		96	129		17	2852	1276	46	2909	1302
v/s Ratio Prot	c0.04	0.02		0.03	c0.02		0.00	0.45		c0.01	c0.72	
v/s Ratio Perm									0.02			0.02
v/c Ratio	0.72	0.24		0.55	0.33		0.06	0.62	0.03	0.43	0.96	0.03
Uniform Delay, d1	58.0	54.9		57.5	55.3		60.8	8.1	4.5	59.6	14.1	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	23.1	1.0		6.7	1.5		1.5	0.4	0.0	6.5	9.4	0.0
Delay (s)	81.1	55.9		64.2	56.8		62.3	8.5	4.5	66.1	23.5	4.0
Level of Service	F	E		E	E		E	A	A	E	C	A
Approach Delay (s)		69.7			60.7			8.5			23.5	
Approach LOS		E			E			A			C	

Intersection Summary			
HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	123.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	378	405	159	954	670	18	183	182	1365	412	254	2038
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95			0.97	0.95	1.00	0.97	0.95
Frt	1.00	0.96		1.00	1.00			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3776	3728		3776	3878			3776	3893	1742	3776	3893
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3776	3728		3776	3878			3776	3893	1742	3776	3893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	411	440	173	1037	728	20	199	198	1484	448	276	2215
RTOR Reduction (vph)	0	30	0	0	2	0	0	0	0	133	0	0
Lane Group Flow (vph)	411	583	0	1037	746	0	0	397	1484	315	276	2215
Turn Type	Prot			Prot			Prot	Prot		Perm	Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases										2		
Actuated Green, G (s)	16.0	17.0		29.0	30.0			12.0	65.2	65.2	12.8	66.0
Effective Green, g (s)	16.0	17.0		29.0	30.0			12.0	65.2	65.2	12.8	66.0
Actuated g/C Ratio	0.11	0.12		0.21	0.21			0.09	0.47	0.47	0.09	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	432	453		782	831			324	1813	811	345	1835
v/s Ratio Prot	0.11	c0.16		c0.27	0.19			c0.11	0.38		0.07	c0.57
v/s Ratio Perm										0.18		
v/c Ratio	0.95	1.29		1.33	0.90			1.23	0.82	0.39	0.80	1.21
Uniform Delay, d1	61.6	61.5		55.5	53.5			64.0	32.3	24.4	62.3	37.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.0	145.1		155.6	12.4			125.7	3.0	0.3	12.5	98.6
Delay (s)	92.6	206.6		211.1	65.9			189.7	35.3	24.7	74.8	135.6
Level of Service	F	F		F	E			F	D	C	E	F
Approach Delay (s)		160.9			150.2				59.6			108.1
Approach LOS		F			F				E			F

Intersection Summary			
HCM Average Control Delay	110.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	123.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	610
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
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
Adj. Flow (vph)	663
RTOR Reduction (vph)	132
Lane Group Flow (vph)	531
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	66.0
Effective Green, g (s)	66.0
Actuated g/C Ratio	0.47
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	821
v/s Ratio Prot	
v/s Ratio Perm	0.31
v/c Ratio	0.65
Uniform Delay, d1	28.1
Progression Factor	1.00
Incremental Delay, d2	1.8
Delay (s)	29.9
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	653	621	517	1124	914	32	281	271	1920	443	502	2970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95			0.97	0.95	1.00	0.97	0.95
Frt	1.00	0.93		1.00	0.99			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3776	3628		3776	3873			3776	3893	1742	3776	3893
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3776	3628		3776	3873			3776	3893	1742	3776	3893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	710	675	562	1222	993	35	305	295	2087	482	546	3228
RTOR Reduction (vph)	0	100	0	0	1	0	0	0	0	95	0	0
Lane Group Flow (vph)	710	1137	0	1222	1027	0	0	600	2087	387	546	3228
Turn Type	Prot			Prot			Prot	Prot		Perm	Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases										2		
Actuated Green, G (s)	15.0	28.0		24.0	37.0			12.0	70.0	70.0	12.0	70.0
Effective Green, g (s)	15.0	28.0		24.0	37.0			12.0	70.0	70.0	12.0	70.0
Actuated g/C Ratio	0.10	0.19		0.16	0.25			0.08	0.47	0.47	0.08	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	378	677		604	955			302	1817	813	302	1817
v/s Ratio Prot	0.19	c0.31		c0.32	0.27			c0.16	0.54		0.14	c0.83
v/s Ratio Perm										0.22		
v/c Ratio	1.88	1.68		2.02	1.08			1.99	1.15	0.48	1.81	1.78
Uniform Delay, d1	67.5	61.0		63.0	56.5			69.0	40.0	27.4	69.0	40.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	405.2	312.2		466.2	51.7			455.7	73.8	0.4	376.5	351.7
Delay (s)	472.7	373.2		529.2	108.2			524.7	113.8	27.9	445.5	391.7
Level of Service	F	F		F	F			F	F	C	F	F
Approach Delay (s)		409.5			336.9				178.5			342.4
Approach LOS		F			F				F			F

Intersection Summary			
HCM Average Control Delay	308.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.82		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	177.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	649
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
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
Adj. Flow (vph)	705
RTOR Reduction (vph)	90
Lane Group Flow (vph)	615
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	70.0
Effective Green, g (s)	70.0
Actuated g/C Ratio	0.47
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	813
v/s Ratio Prot	
v/s Ratio Perm	0.35
v/c Ratio	0.76
Uniform Delay, d1	33.0
Progression Factor	1.00
Incremental Delay, d2	4.1
Delay (s)	37.0
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	15	647	606	0	52	1078
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.88	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	3065	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	3065	2049		1947	3893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	703	659	0	57	1172
RTOR Reduction (vph)	0	378	0	0	0	0
Lane Group Flow (vph)	16	325	659	0	57	1172
Turn Type		Prot			Prot	
Protected Phases	2	2	4		3	8
Permitted Phases						
Actuated Green, G (s)	9.9	9.9	19.8		2.0	25.8
Effective Green, g (s)	9.9	9.9	19.8		2.0	25.8
Actuated g/C Ratio	0.23	0.23	0.45		0.05	0.59
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)	441	694	928		89	2298
v/s Ratio Prot	0.01	c0.11	c0.32		0.03	c0.30
v/s Ratio Perm						
v/c Ratio	0.04	0.47	0.71		0.64	0.51
Uniform Delay, d1	13.2	14.6	9.6		20.5	5.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.5	2.6		14.7	0.2
Delay (s)	13.2	15.1	12.2		35.2	5.4
Level of Service	B	B	B		D	A
Approach Delay (s)	15.1		12.2			6.8
Approach LOS	B		B			A

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	43.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	530	1075	602	0	42	2202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.88	1.00		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1947	3065	2049		1947	3893
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1947	3065	2049		1947	3893
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	596	1208	654	0	47	2474
RTOR Reduction (vph)	0	375	0	0	0	0
Lane Group Flow (vph)	596	833	654	0	47	2474
Turn Type		Perm			Prot	
Protected Phases	2		4		3	8
Permitted Phases		2				
Actuated Green, G (s)	27.0	27.0	49.0		3.6	56.6
Effective Green, g (s)	27.0	27.0	49.0		3.6	56.6
Actuated g/C Ratio	0.29	0.29	0.53		0.04	0.62
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)	574	903	1096		77	2406
v/s Ratio Prot	c0.31		0.32		0.02	c0.64
v/s Ratio Perm		0.27				
v/c Ratio	1.04	0.92	0.60		0.61	1.03
Uniform Delay, d1	32.3	31.3	14.6		43.3	17.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	47.9	14.6	0.9		13.5	26.0
Delay (s)	80.2	45.8	15.4		56.8	43.5
Level of Service	F	D	B		E	D
Approach Delay (s)	57.2		15.4			43.8
Approach LOS	E		B			D

Intersection Summary			
HCM Average Control Delay	44.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	91.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
110: F St & Tuolumne St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	55	0	0	48	0	612	0	126	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0			
Lane Util. Factor		1.00			1.00		0.95	0.95	1.00			
Frt		1.00			1.00		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)		2049			2049		1849	1849	1742			
Flt Permitted		1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)		2049			2049		1849	1849	1742			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	60	0	0	52	0	665	0	137	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	75	0	0	0
Lane Group Flow (vph)	0	60	0	0	52	0	332	333	62	0	0	0
Turn Type	Perm						Split		Perm	custom		custom
Protected Phases		6			2		4	4				8
Permitted Phases	6								4	8		
Actuated Green, G (s)		6.4			6.4		11.9	11.9	11.9			
Effective Green, g (s)		6.4			6.4		11.9	11.9	11.9			
Actuated g/C Ratio		0.24			0.24		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)		499			499		837	837	788			
v/s Ratio Prot		c0.03			0.03		0.18	c0.18				
v/s Ratio Perm									0.04			
v/c Ratio		0.12			0.10		0.40	0.40	0.08			
Uniform Delay, d1		7.8			7.7		4.8	4.8	4.1			
Progression Factor		1.00			1.00		1.00	1.00	1.00			
Incremental Delay, d2		0.1			0.1		0.3	0.3	0.0			
Delay (s)		7.9			7.8		5.1	5.1	4.1			
Level of Service		A			A		A	A	A			
Approach Delay (s)		7.9			7.8			4.9			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	26.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
110: F St & Tuolumne St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	37	0	0	995	0	623	0	173	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0			
Lane Util. Factor		1.00			1.00		0.95	0.95	1.00			
Frt		1.00			1.00		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	0.95	1.00			
Satd. Flow (prot)		2049			2049		1849	1849	1742			
Flt Permitted		1.00			1.00		0.95	0.95	1.00			
Satd. Flow (perm)		2049			2049		1849	1849	1742			
Peak-hour factor, PHF	0.75	0.75	0.75	0.73	0.73	0.73	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	0	49	0	0	1363	0	670	0	186	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	142	0	0	0
Lane Group Flow (vph)	0	49	0	0	1363	0	335	335	44	0	0	0
Turn Type	Perm						Split		Perm	custom		custom
Protected Phases		6			2		4	4				8
Permitted Phases	6								4	8		
Actuated Green, G (s)		96.0			96.0		26.0	26.0	26.0			
Effective Green, g (s)		96.0			96.0		26.0	26.0	26.0			
Actuated g/C Ratio		0.74			0.74		0.20	0.20	0.20			
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)		1513			1513		370	370	348			
v/s Ratio Prot		0.02			c0.67		c0.18	0.18				
v/s Ratio Perm									0.03			
v/c Ratio		0.03			0.90		0.91	0.91	0.13			
Uniform Delay, d1		4.6			13.3		50.8	50.8	42.7			
Progression Factor		1.00			1.00		1.00	1.00	1.00			
Incremental Delay, d2		0.0			7.7		24.7	24.7	0.2			
Delay (s)		4.6			21.0		75.5	75.5	42.9			
Level of Service		A			C		E	E	D			
Approach Delay (s)		4.6			21.0			68.4			0.0	
Approach LOS		A			C			E			A	

Intersection Summary			
HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
113: L St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	171	21	115	122	0	0	0	0	202	716	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.99		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		2019		1947	2049					1947	2046	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		2019		1947	2049					1947	2046	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	186	23	125	133	0	0	0	0	220	778	7
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	204	0	125	133	0	0	0	0	220	784	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		12.2		10.1	10.1					32.4	32.4	
Effective Green, g (s)		12.2		10.1	10.1					32.4	32.4	
Actuated g/C Ratio		0.18		0.15	0.15					0.49	0.49	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		369		295	310					946	994	
v/s Ratio Prot		c0.10		0.06	c0.06					0.11	c0.38	
v/s Ratio Perm												
v/c Ratio		0.55		0.42	0.43					0.23	0.79	
Uniform Delay, d1		24.8		25.7	25.7					9.9	14.3	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		1.8		1.0	1.0					0.1	4.2	
Delay (s)		26.6		26.6	26.6					10.1	18.5	
Level of Service		C		C	C					B	B	
Approach Delay (s)		26.6			26.6			0.0			16.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
113: L St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	129	72	230	476	0	0	0	0	226	1549	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.95		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1950		1947	2049					1947	2046	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1950		1947	2049					1947	2046	
Peak-hour factor, PHF	0.77	0.77	0.77	0.75	0.75	0.75	0.92	0.92	0.92	0.81	0.81	0.81
Adj. Flow (vph)	0	168	94	307	635	0	0	0	0	279	1912	17
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	249	0	307	635	0	0	0	0	279	1929	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		16.0		33.0	33.0					81.0	81.0	
Effective Green, g (s)		16.0		33.0	33.0					81.0	81.0	
Actuated g/C Ratio		0.11		0.23	0.23					0.57	0.57	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		220		452	476					1111	1167	
v/s Ratio Prot		c0.13		0.16	c0.31					0.14	c0.94	
v/s Ratio Perm												
v/c Ratio		1.13		0.68	1.33					0.25	1.65	
Uniform Delay, d1		63.0		49.7	54.5					15.3	30.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		100.2		4.0	164.1					0.1	297.7	
Delay (s)		163.2		53.7	218.6					15.4	328.2	
Level of Service		F		D	F					B	F	
Approach Delay (s)		163.2			164.9			0.0			288.7	
Approach LOS		F			F			A			F	

Intersection Summary			
HCM Average Control Delay	244.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.51		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	128.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
115: Stanislaus St &

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	444	230	0	0	0	0	0	0	760	693	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0							4.0	4.0	
Lane Util. Factor		1.00	1.00							1.00	1.00	
Frt		1.00	0.85							1.00	1.00	
Flt Protected		1.00	1.00							0.95	1.00	
Satd. Flow (prot)		2049	1742							1947	2040	
Flt Permitted		1.00	1.00							0.95	1.00	
Satd. Flow (perm)		2049	1742							1947	2040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	483	250	0	0	0	0	0	0	826	753	22
RTOR Reduction (vph)	0	0	132	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	483	118	0	0	0	0	0	0	826	774	0
Turn Type	Perm		Perm				Prot			Prot		
Protected Phases		6					7	4		3	8	
Permitted Phases	6		6									
Actuated Green, G (s)		21.7	21.7							37.4	37.4	
Effective Green, g (s)		21.7	21.7							37.4	37.4	
Actuated g/C Ratio		0.32	0.32							0.56	0.56	
Clearance Time (s)		4.0	4.0							4.0	4.0	
Vehicle Extension (s)		3.0	3.0							3.0	3.0	
Lane Grp Cap (vph)		663	563							1085	1137	
v/s Ratio Prot		c0.24								c0.42	0.38	
v/s Ratio Perm			0.07									
v/c Ratio		0.73	0.21							0.76	0.68	
Uniform Delay, d1		20.1	16.5							11.4	10.6	
Progression Factor		1.00	1.00							1.00	1.00	
Incremental Delay, d2		4.0	0.2							3.2	1.7	
Delay (s)		24.1	16.7							14.6	12.3	
Level of Service		C	B							B	B	
Approach Delay (s)		21.6			0.0			0.0			13.5	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
115: Stanislaus St &

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	365	403	0	0	0	0	0	0	590	1385	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0							4.0	4.0	
Lane Util. Factor		1.00	1.00							1.00	1.00	
Frt		1.00	0.85							1.00	0.99	
Flt Protected		1.00	1.00							0.95	1.00	
Satd. Flow (prot)		2049	1742							1947	2038	
Flt Permitted		1.00	1.00							0.95	1.00	
Satd. Flow (perm)		2049	1742							1947	2038	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	0	440	486	0	0	0	0	0	0	702	1649	60
RTOR Reduction (vph)	0	0	63	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	440	423	0	0	0	0	0	0	702	1708	0
Turn Type	Perm		Perm				Prot			Prot		
Protected Phases		6					7	4		3	8	
Permitted Phases	6		6									
Actuated Green, G (s)		33.0	33.0							101.0	101.0	
Effective Green, g (s)		33.0	33.0							101.0	101.0	
Actuated g/C Ratio		0.23	0.23							0.71	0.71	
Clearance Time (s)		4.0	4.0							4.0	4.0	
Vehicle Extension (s)		3.0	3.0							3.0	3.0	
Lane Grp Cap (vph)		476	405							1385	1450	
v/s Ratio Prot		0.21								0.36	c0.84	
v/s Ratio Perm			c0.24									
v/c Ratio		0.92	1.04							0.51	1.18	
Uniform Delay, d1		53.3	54.5							9.3	20.5	
Progression Factor		1.00	1.00							1.00	1.00	
Incremental Delay, d2		23.7	56.8							0.3	87.6	
Delay (s)		77.0	111.3							9.5	108.1	
Level of Service		E	F							A	F	
Approach Delay (s)		95.0			0.0			0.0			79.4	
Approach LOS		F			A			A			E	

Intersection Summary			
HCM Average Control Delay	83.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: N St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	221	40	239	44	0	0	0	0	388	1086	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	0.95	
Frt		0.98		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		2002		1947	2049					1947	3886	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		2002		1947	2049					1947	3886	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	240	43	260	48	0	0	0	0	422	1180	14
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	275	0	260	48	0	0	0	0	422	1193	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		13.9		11.9	29.8					27.7	27.7	
Effective Green, g (s)		13.9		11.9	29.8					27.7	27.7	
Actuated g/C Ratio		0.21		0.18	0.45					0.42	0.42	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		425		354	932					823	1643	
v/s Ratio Prot		c0.14		c0.13	0.02					0.22	c0.31	
v/s Ratio Perm												
v/c Ratio		0.65		0.73	0.05					0.51	0.73	
Uniform Delay, d1		23.6		25.3	10.0					13.9	15.7	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		3.4		7.7	0.0					0.5	1.6	
Delay (s)		26.9		33.0	10.0					14.5	17.4	
Level of Service		C		C	A					B	B	
Approach Delay (s)		26.9			29.4			0.0			16.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: N St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	122	33	392	462	0	0	0	0	339	1740	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	0.95	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1984		1947	2049					1947	3893	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1984		1947	2049					1947	3893	
Peak-hour factor, PHF	0.55	0.55	0.55	0.57	0.57	0.57	0.92	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	222	60	688	811	0	0	0	0	399	2047	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	276	0	688	811	0	0	0	0	399	2047	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		20.0		44.0	68.0					66.0	66.0	
Effective Green, g (s)		20.0		44.0	68.0					66.0	66.0	
Actuated g/C Ratio		0.14		0.31	0.48					0.46	0.46	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		279		603	981					905	1809	
v/s Ratio Prot		c0.14		c0.35	0.40					0.20	c0.53	
v/s Ratio Perm												
v/c Ratio		0.99		1.14	0.83					0.44	1.13	
Uniform Delay, d1		60.9		49.0	31.9					25.6	38.0	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		50.4		82.1	5.8					0.3	66.8	
Delay (s)		111.2		131.1	37.7					25.9	104.8	
Level of Service		F		F	D					C	F	
Approach Delay (s)		111.2			80.6			0.0			91.9	
Approach LOS		F			F			A			F	

Intersection Summary			
HCM Average Control Delay	89.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
124: W Olive Ave & SR 99 Southbound Off-Ramp

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	693	691	478	304	0	0	0	0	1100	0	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95		1.00	0.95					0.95	0.95	
Frt		0.93		1.00	1.00					1.00	0.90	
Flt Protected		1.00		0.95	1.00					0.95	0.98	
Satd. Flow (prot)		3274		1770	3539					1681	1571	
Flt Permitted		1.00		0.95	1.00					0.95	0.98	
Satd. Flow (perm)		3274		1770	3539					1681	1571	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	753	751	520	330	0	0	0	0	1196	0	534
RTOR Reduction (vph)	0	180	0	0	0	0	0	0	0	0	64	0
Lane Group Flow (vph)	0	1324	0	520	330	0	0	0	0	897	769	0
Turn Type				Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases										6		
Actuated Green, G (s)		28.0		19.0	51.0					41.0	41.0	
Effective Green, g (s)		28.0		19.0	51.0					41.0	41.0	
Actuated g/C Ratio		0.28		0.19	0.51					0.41	0.41	
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)		917		336	1805					689	644	
v/s Ratio Prot		c0.40		c0.29	0.09							
v/s Ratio Perm										c0.53	0.49	
v/c Ratio		1.44		1.55	0.18					1.30	1.19	
Uniform Delay, d1		36.0		40.5	13.2					29.5	29.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		205.9		260.7	0.0					146.3	101.9	
Delay (s)		241.9		301.2	13.3					175.8	131.4	
Level of Service		F		F	B					F	F	
Approach Delay (s)		241.9			189.4			0.0			154.4	
Approach LOS		F			F			A			F	

Intersection Summary			
HCM Average Control Delay	193.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	133.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
124: W Olive Ave & SR 99 Southbound Off-Ramp

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	715	614	587	481	0	0	0	0	897	0	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95		1.00	0.95					0.95	0.95	
Frt		0.93		1.00	1.00					1.00	0.88	
Flt Protected		1.00		0.95	1.00					0.95	0.99	
Satd. Flow (prot)		3294		1770	3539					1681	1541	
Flt Permitted		1.00		0.95	1.00					0.95	0.99	
Satd. Flow (perm)		3294		1770	3539					1681	1541	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	777	667	638	523	0	0	0	0	975	0	601
RTOR Reduction (vph)	0	141	0	0	0	0	0	0	0	0	135	0
Lane Group Flow (vph)	0	1303	0	638	523	0	0	0	0	829	612	0
Turn Type				Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases										6		
Actuated Green, G (s)		31.0		26.0	61.0					41.0	41.0	
Effective Green, g (s)		31.0		26.0	61.0					41.0	41.0	
Actuated g/C Ratio		0.28		0.24	0.55					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)		928		418	1963					627	574	
v/s Ratio Prot		c0.40		c0.36	0.15							
v/s Ratio Perm										c0.49	0.40	
v/c Ratio		1.40		1.53	0.27					1.32	1.07	
Uniform Delay, d1		39.5		42.0	12.8					34.5	34.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		188.5		248.7	0.1					155.9	56.5	
Delay (s)		228.0		290.7	12.9					190.4	91.0	
Level of Service		F		F	B					F	F	
Approach Delay (s)		228.0			165.6			0.0			143.3	
Approach LOS		F			F			A			F	

Intersection Summary			
HCM Average Control Delay	178.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	176.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	447	1325	0	0	634	188	155	0	342	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0		4.0		
Lane Util. Factor	1.00	0.95			0.95		0.97		1.00		
Frt	1.00	1.00			0.97		1.00		0.85		
Flt Protected	0.95	1.00			1.00		0.95		1.00		
Satd. Flow (prot)	1770	3539			3418		3433		1583		
Flt Permitted	0.95	1.00			1.00		0.95		1.00		
Satd. Flow (perm)	1770	3539			3418		3433		1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	486	1440	0	0	689	204	168	0	372	0	0
RTOR Reduction (vph)	0	0	0	0	39	0	0	0	38	0	0
Lane Group Flow (vph)	486	1440	0	0	854	0	168	0	334	0	0
Turn Type	Prot						custom		custom		
Protected Phases	7	4			8						
Permitted Phases							2		2		
Actuated Green, G (s)	20.8	42.9			18.1		16.8		16.8		
Effective Green, g (s)	20.8	42.9			18.1		16.8		16.8		
Actuated g/C Ratio	0.31	0.63			0.27		0.25		0.25		
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)	544	2243			914		852		393		
v/s Ratio Prot	c0.27	0.41			c0.25						
v/s Ratio Perm							0.05		c0.21		
v/c Ratio	0.89	0.64			0.93		0.20		0.85		
Uniform Delay, d1	22.4	7.7			24.2		20.1		24.2		
Progression Factor	1.00	1.00			1.00		1.00		1.00		
Incremental Delay, d2	16.9	0.6			16.1		0.1		15.6		
Delay (s)	39.3	8.3			40.4		20.2		39.8		
Level of Service	D	A			D		C		D		
Approach Delay (s)		16.1			40.4			33.7		0.0	
Approach LOS		B			D			C		A	

Intersection Summary			
HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	133.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	769	540	0	0	736	627	986	0	855	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0		4.0		
Lane Util. Factor	1.00	0.95			0.95		0.97		1.00		
Frt	1.00	1.00			0.93		1.00		0.85		
Flt Protected	0.95	1.00			1.00		0.95		1.00		
Satd. Flow (prot)	1770	3539			3295		3433		1583		
Flt Permitted	0.95	1.00			1.00		0.95		1.00		
Satd. Flow (perm)	1770	3539			3295		3433		1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	836	587	0	0	800	682	1072	0	929	0	0
RTOR Reduction (vph)	0	0	0	0	102	0	0	0	235	0	0
Lane Group Flow (vph)	836	587	0	0	1380	0	1072	0	694	0	0
Turn Type	Prot						custom		custom		
Protected Phases	7	4			8						
Permitted Phases							2		2		
Actuated Green, G (s)	49.0	97.0			44.0		45.0		45.0		
Effective Green, g (s)	49.0	97.0			44.0		45.0		45.0		
Actuated g/C Ratio	0.33	0.65			0.29		0.30		0.30		
Clearance Time (s)	4.0	4.0			4.0		4.0		4.0		
Vehicle Extension (s)	3.0	3.0			3.0		3.0		3.0		
Lane Grp Cap (vph)	578	2289			967		1030		475		
v/s Ratio Prot	c0.47	0.17			c0.42						
v/s Ratio Perm							0.31		c0.44		
v/c Ratio	1.45	0.26			1.43		1.04		1.46		
Uniform Delay, d1	50.5	11.2			53.0		52.5		52.5		
Progression Factor	1.00	1.00			1.00		1.00		1.00		
Incremental Delay, d2	210.5	0.1			198.0		39.2		218.7		
Delay (s)	261.0	11.3			251.0		91.7		271.2		
Level of Service	F	B			F		F		F		
Approach Delay (s)		158.0			251.0			175.0		0.0	
Approach LOS		F			F			F		A	

Intersection Summary

HCM Average Control Delay	193.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	176.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (vph)	0	1147	645	251	491	0	220	18	155	10	0	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		
Lane Util. Factor		0.95			0.95			1.00		1.00		
Frt		0.95			1.00			0.95		0.91		
Flt Protected		1.00			0.98			0.97		0.98		
Satd. Flow (prot)		3348			3480			1712		1667		
Flt Permitted		1.00			0.56			0.97		0.98		
Satd. Flow (perm)		3348			1989			1712		1667		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1247	701	273	534	0	239	20	168	11	0	22
RTOR Reduction (vph)	0	127	0	0	0	0	0	39	0	16	0	0
Lane Group Flow (vph)	0	1821	0	0	807	0	0	388	0	17	0	0
Turn Type				Perm			Perm					
Protected Phases		4			8			6!		2!		
Permitted Phases				8			6					
Actuated Green, G (s)		34.6			34.6			15.8		15.8		
Effective Green, g (s)		34.6			34.6			15.8		15.8		
Actuated g/C Ratio		0.59			0.59			0.27		0.27		
Clearance Time (s)		4.0			4.0			4.0		4.0		
Vehicle Extension (s)		3.0			3.0			3.0		3.0		
Lane Grp Cap (vph)		1984			1178			463		451		
v/s Ratio Prot		c0.54								0.01		
v/s Ratio Perm					0.41			0.23				
v/c Ratio		0.92			2.13dl			0.84		0.04		
Uniform Delay, d1		10.6			8.2			20.1		15.7		
Progression Factor		1.00			1.00			1.00		1.00		
Incremental Delay, d2		7.2			1.7			12.4		0.0		
Delay (s)		17.9			9.8			32.5		15.7		
Level of Service		B			A			C		B		
Approach Delay (s)		17.9			9.8			32.5		15.7		
Approach LOS		B			A			C		B		

Intersection Summary

HCM Average Control Delay	17.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (vph)	0	729	400	416	2028	0	304	7	284	17	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0		4.0		
Lane Util. Factor		0.95			0.95			1.00		1.00		
Frt		0.95			1.00			0.94		0.93		
Flt Protected		1.00			0.99			0.97		0.97		
Satd. Flow (prot)		3351			3509			1698		1697		
Flt Permitted		1.00			0.53			0.97		0.97		
Satd. Flow (perm)		3351			1884			1698		1697		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	792	435	452	2204	0	330	8	309	18	0	17
RTOR Reduction (vph)	0	50	0	0	0	0	0	10	0	12	0	0
Lane Group Flow (vph)	0	1177	0	0	2656	0	0	637	0	23	0	0
Turn Type				Perm			Perm					
Protected Phases		4			8			6!		2!		
Permitted Phases				8			6					
Actuated Green, G (s)		102.0			102.0			40.0		40.0		
Effective Green, g (s)		102.0			102.0			40.0		40.0		
Actuated g/C Ratio		0.68			0.68			0.27		0.27		
Clearance Time (s)		4.0			4.0			4.0		4.0		
Vehicle Extension (s)		3.0			3.0			3.0		3.0		
Lane Grp Cap (vph)		2279			1281			453		453		
v/s Ratio Prot		0.35								0.01		
v/s Ratio Perm					c1.41			0.38				
v/c Ratio		0.52			2.07			1.41		0.05		
Uniform Delay, d1		11.8			24.0			55.0		40.9		
Progression Factor		1.00			1.00			1.00		1.00		
Incremental Delay, d2		0.2			485.7			196.1		0.0		
Delay (s)		12.0			509.7			251.1		40.9		
Level of Service		B			F			F		D		
Approach Delay (s)		12.0			509.7			251.1		40.9		
Approach LOS		B			F			F		D		

Intersection Summary

HCM Average Control Delay	335.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.89		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	152.4%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	216	1478	0	0	524	163	228	0	445	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		
Frt		1.00			0.96			1.00	0.85		
Flt Protected		0.99			1.00			0.95	1.00		
Satd. Flow (prot)		3517			3413			1770	1583		
Flt Permitted		0.69			1.00			0.95	1.00		
Satd. Flow (perm)		2430			3413			1770	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	235	1607	0	0	570	177	248	0	484	0	0
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	36	0	0
Lane Group Flow (vph)	0	1842	0	0	722	0	0	248	448	0	0
Turn Type	Perm						Perm		Perm		
Protected Phases		4			8			2			
Permitted Phases	4						2		2		
Actuated Green, G (s)		83.0			83.0			29.0	29.0		
Effective Green, g (s)		83.0			83.0			29.0	29.0		
Actuated g/C Ratio		0.69			0.69			0.24	0.24		
Clearance Time (s)		4.0			4.0			4.0	4.0		
Vehicle Extension (s)		3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)		1681			2361			428	383		
v/s Ratio Prot					0.21						
v/s Ratio Perm		c0.76						0.14	c0.28		
v/c Ratio		1.10			0.31			0.58	1.17		
Uniform Delay, d1		18.5			7.2			40.1	45.5		
Progression Factor		1.00			1.00			1.00	1.00		
Incremental Delay, d2		53.1			0.1			1.9	100.5		
Delay (s)		71.6			7.3			42.0	146.0		
Level of Service		E			A			D	F		
Approach Delay (s)		71.6			7.3			110.8		0.0	
Approach LOS		E			A			F		A	

Intersection Summary			
HCM Average Control Delay	65.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	445	593	0	0	1078	766	1359	0	828	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		
Frt		1.00			0.94			1.00	0.85		
Flt Protected		0.98			1.00			0.95	1.00		
Satd. Flow (prot)		3465			3319			1770	1583		
Flt Permitted		0.58			1.00			0.95	1.00		
Satd. Flow (perm)		2069			3319			1770	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	484	645	0	0	1172	833	1477	0	900	0	0
RTOR Reduction (vph)	0	0	0	0	98	0	0	0	53	0	0
Lane Group Flow (vph)	0	1129	0	0	1907	0	0	1477	847	0	0
Turn Type	Perm						Perm		Perm		
Protected Phases		4			8			2			
Permitted Phases	4						2		2		
Actuated Green, G (s)		50.0			50.0			72.0	72.0		
Effective Green, g (s)		50.0			50.0			72.0	72.0		
Actuated g/C Ratio		0.38			0.38			0.55	0.55		
Clearance Time (s)		4.0			4.0			4.0	4.0		
Vehicle Extension (s)		3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)		796			1277			980	877		
v/s Ratio Prot					c0.57						
v/s Ratio Perm		0.55						0.83	0.53		
v/c Ratio		8.49dl			1.49			1.51	0.97		
Uniform Delay, d1		40.0			40.0			29.0	27.8		
Progression Factor		1.00			1.00			1.00	1.00		
Incremental Delay, d2		195.6			226.0			233.5	22.2		
Delay (s)		235.6			266.0			262.5	50.0		
Level of Service		F			F			F	D		
Approach Delay (s)		235.6			266.0			182.1		0.0	
Approach LOS		F			F			F		A	

Intersection Summary

HCM Average Control Delay	223.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	169.0%	ICU Level of Service	H
Analysis Period (min)	15		

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

FRESNO NO-BUILD PLUS PROJECT
UNDERPASS MITIGATIONS

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

4/10/2012

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	480	112	90	0	0	0	19	268	0	0	196	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	522	122	98	0	0	0	21	291	0	0	213	51

Direction, Lane #	NB 1	NB 2	SE 1	SE 2	NW 1	NW 2
Volume Total (vph)	348	393	118	194	142	122
Volume Left (vph)	348	174	21	0	0	0
Volume Right (vph)	0	98	0	0	0	51
Hadj (s)	0.53	0.08	0.12	0.03	0.03	-0.26
Departure Headway (s)	6.8	6.3	7.2	7.1	7.2	6.9
Degree Utilization, x	0.65	0.69	0.23	0.38	0.28	0.23
Capacity (veh/h)	518	555	479	488	478	498
Control Delay (s)	20.3	20.9	11.1	13.2	11.8	10.7
Approach Delay (s)	20.6		12.4		11.3	
Approach LOS	C		B		B	

Intersection Summary			
Delay	16.8		
HCM Level of Service	C		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

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

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total (vph)	200	199	359	308	196	286
Volume Left (vph)	100	0	0	0	196	98
Volume Right (vph)	0	0	0	128	0	122
Hadj (s)	0.28	0.03	0.03	-0.26	0.53	-0.09
Departure Headway (s)	7.5	7.2	6.9	6.6	7.7	7.1
Degree Utilization, x	0.41	0.40	0.69	0.56	0.42	0.57
Capacity (veh/h)	463	479	508	523	446	480
Control Delay (s)	14.5	13.8	22.3	16.5	15.1	17.8
Approach Delay (s)	14.1		19.6		16.7	
Approach LOS	B		C		C	

Intersection Summary			
Delay	17.3		
HCM Level of Service	C		
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	115	24	426	386	931	0	0	676	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	
Lane Util. Factor					0.95		1.00	0.95			0.95	
Frt					0.89		1.00	1.00			0.96	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3107		1770	3539			3411	
Flt Permitted					0.99		0.27	1.00			1.00	
Satd. Flow (perm)					3107		512	3539			3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	125	26	463	420	1012	0	0	735	233
RTOR Reduction (vph)	0	0	0	0	161	0	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	453	0	420	1012	0	0	938	0
Turn Type				Perm			Perm					
Protected Phases					2			4			8	
Permitted Phases				2			4					
Actuated Green, G (s)					15.9		76.0	76.0			76.0	
Effective Green, g (s)					15.9		76.0	76.0			76.0	
Actuated g/C Ratio					0.16		0.76	0.76			0.76	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					495		390	2692			2595	
v/s Ratio Prot								0.29			0.27	
v/s Ratio Perm					0.15		c0.82					
v/c Ratio					1.11dr		1.08	0.38			0.36	
Uniform Delay, d1					41.3		12.0	4.0			3.9	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					21.6		67.7	0.1			0.1	
Delay (s)					62.9		79.6	4.1			4.0	
Level of Service					E		E	A			A	
Approach Delay (s)		0.0			62.9			26.2			4.0	
Approach LOS		A			E			C			A	

Intersection Summary

HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	300	5	374	314	917	0	0	1330	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	
Lane Util. Factor					0.95		1.00	0.95			0.95	
Frt					0.92		1.00	1.00			0.96	
Flt Protected					0.98		0.95	1.00			1.00	
Satd. Flow (prot)					3176		1770	3539			3415	
Flt Permitted					0.98		0.13	1.00			1.00	
Satd. Flow (perm)					3176		240	3539			3415	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	326	5	407	341	997	0	0	1446	443
RTOR Reduction (vph)	0	0	0	0	76	0	0	0	0	0	51	0
Lane Group Flow (vph)	0	0	0	0	662	0	341	997	0	0	1838	0
Turn Type				Perm			Perm					
Protected Phases					2			4			8	
Permitted Phases				2			4					
Actuated Green, G (s)					14.7		31.0	31.0			31.0	
Effective Green, g (s)					14.7		31.0	31.0			31.0	
Actuated g/C Ratio					0.27		0.58	0.58			0.58	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					869		139	2043			1971	
v/s Ratio Prot								0.28			0.54	
v/s Ratio Perm					0.21		c1.42					
v/c Ratio					0.76		2.45	0.49			0.93	
Uniform Delay, d1					17.9		11.4	6.7			10.4	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					4.0		675.1	0.2			8.7	
Delay (s)					21.9		686.5	6.9			19.1	
Level of Service					C		F	A			B	
Approach Delay (s)		0.0			21.9			180.1			19.1	
Approach LOS		A			C			F			B	

Intersection Summary			
HCM Average Control Delay	73.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.91		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	21	4	38	49	19	13	190	1156	3	1	814	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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.92			0.98			1.00			0.99	
Flt Protected		0.98			0.97			0.99			1.00	
Satd. Flow (prot)		1683			1769			3513			3520	
Flt Permitted		0.90			0.84			0.67			0.95	
Satd. Flow (perm)		1547			1534			2353			3359	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	4	41	53	21	14	207	1257	3	1	885	33
RTOR Reduction (vph)	0	35	0	0	9	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	33	0	0	79	0	0	1467	0	0	916	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		9.1			9.1			49.6			49.6	
Effective Green, g (s)		9.1			9.1			49.6			49.6	
Actuated g/C Ratio		0.14			0.14			0.74			0.74	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		211			209			1750			2498	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.05			c0.62			0.27	
v/c Ratio		0.15			0.38			0.84			0.37	
Uniform Delay, d1		25.4			26.2			5.8			3.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			1.1			3.7			0.1	
Delay (s)		25.7			27.3			9.5			3.1	
Level of Service		C			C			A			A	
Approach Delay (s)		25.7			27.3			9.5			3.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	33	5	93	250	162	153	274	998	82	6	1238	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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.90			0.96			0.99			1.00	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1663			1756			3472			3526	
Flt Permitted		0.83			0.79			0.50			0.95	
Satd. Flow (perm)		1398			1412			1767			3339	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	5	101	272	176	166	298	1085	89	7	1346	33
RTOR Reduction (vph)	0	32	0	0	17	0	0	6	0	0	2	0
Lane Group Flow (vph)	0	110	0	0	597	0	0	1466	0	0	1384	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		26.0			26.0			46.0			46.0	
Effective Green, g (s)		26.0			26.0			46.0			46.0	
Actuated g/C Ratio		0.32			0.32			0.58			0.58	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		454			459			1016			1920	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.42			c0.83			0.41	
v/c Ratio		0.24			1.30			2.33dl			0.72	
Uniform Delay, d1		19.8			27.0			17.0			12.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			150.7			204.9			1.4	
Delay (s)		20.1			177.7			221.9			13.7	
Level of Service		C			F			F			B	
Approach Delay (s)		20.1			177.7			221.9			13.7	
Approach LOS		C			F			F			B	

Intersection Summary

HCM Average Control Delay	126.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	121.9%	ICU Level of Service	H
Analysis Period (min)	15		

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

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	290	501	87	347	553	32	117	638	394	64	461	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	5.6		4.0	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	1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3460		1770	1863	1583	1770	3337		1770	3327	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3460		1770	1863	1583	1770	3337		1770	3327	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	545	95	377	601	35	127	693	428	70	501	333
RTOR Reduction (vph)	0	11	0	0	0	12	0	79	0	0	95	0
Lane Group Flow (vph)	315	629	0	377	601	23	127	1042	0	70	739	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4						
Actuated Green, G (s)	20.0	30.6		27.1	37.7	37.7	10.4	36.7		6.3	32.6	
Effective Green, g (s)	20.0	30.6		27.1	37.7	37.7	10.4	36.7		6.3	32.6	
Actuated g/C Ratio	0.17	0.26		0.23	0.32	0.32	0.09	0.31		0.05	0.28	
Clearance Time (s)	4.0	5.6		4.0	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	2.0	
Lane Grp Cap (vph)	299	893		405	593	504	155	1033		94	915	
v/s Ratio Prot	c0.18	0.18		c0.21	c0.32		c0.07	c0.31		0.04	0.22	
v/s Ratio Perm						0.01						
v/c Ratio	1.05	0.70		0.93	1.01	0.05	0.82	1.01		0.74	0.81	
Uniform Delay, d1	49.2	39.8		44.8	40.4	27.9	53.1	40.9		55.3	40.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	66.8	2.1		27.7	40.4	0.0	26.2	30.2		24.0	5.0	
Delay (s)	116.1	41.9		72.5	80.8	28.0	79.3	71.1		79.3	45.0	
Level of Service	F	D		E	F	C	E	E		E	D	
Approach Delay (s)		66.4			75.9			72.0			47.7	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM Average Control Delay	66.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/10/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	350	769	229	290	386	71	251	648	360	123	895	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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		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	1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3417		1770	1863	1583	1770	3350		1770	3432	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3417		1770	1863	1583	1770	3350		1770	3432	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	380	836	249	315	420	77	273	704	391	134	973	246
RTOR Reduction (vph)	0	18	0	0	0	31	0	51	0	0	15	0
Lane Group Flow (vph)	380	1067	0	315	420	46	273	1044	0	134	1204	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4						
Actuated Green, G (s)	30.0	40.0		24.4	34.4	34.4	19.0	55.8		12.0	48.8	
Effective Green, g (s)	30.0	40.0		24.4	34.4	34.4	19.0	55.8		12.0	48.8	
Actuated g/C Ratio	0.20	0.27		0.16	0.23	0.23	0.13	0.37		0.08	0.33	
Clearance Time (s)	4.0	4.0		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	2.0	
Lane Grp Cap (vph)	354	911		288	427	363	224	1246		142	1117	
v/s Ratio Prot	c0.21	c0.31		0.18	0.23		c0.15	0.31		0.08	c0.35	
v/s Ratio Perm						0.03						
v/c Ratio	1.07	1.17		1.09	0.98	0.13	1.22	0.84		0.94	1.08	
Uniform Delay, d1	60.0	55.0		62.8	57.5	45.9	65.5	43.0		68.7	50.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	68.8	88.6		80.4	38.9	0.1	131.9	4.9		57.8	50.6	
Delay (s)	128.8	143.6		143.2	96.4	45.9	197.4	47.8		126.4	101.2	
Level of Service	F	F		F	F	D	F	D		F	F	
Approach Delay (s)		139.8			109.8			77.7			103.7	
Approach LOS		F			F			E			F	

Intersection Summary

HCM Average Control Delay	108.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.2
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	35	216	56	254	522	194	61	706	159	189	543	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3430		1770	3395		1770	3442		1770	3449	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3430		1770	3395		1770	3442		1770	3449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	235	61	276	567	211	66	767	173	205	590	121
RTOR Reduction (vph)	0	27	0	0	41	0	0	21	0	0	19	0
Lane Group Flow (vph)	38	269	0	276	737	0	66	919	0	205	692	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.4	17.2		15.4	28.2		8.3	27.4		11.6	30.7	
Effective Green, g (s)	4.4	17.2		15.4	28.2		8.3	27.4		11.6	30.7	
Actuated g/C Ratio	0.05	0.20		0.18	0.32		0.09	0.31		0.13	0.35	
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	3.0	4.8		3.0	4.8		2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	89	670		310	1088		167	1072		233	1203	
v/s Ratio Prot	0.02	0.08		c0.16	c0.22		0.04	c0.27		c0.12	0.20	
v/s Ratio Perm												
v/c Ratio	0.43	0.40		0.89	0.68		0.40	0.86		0.88	0.58	
Uniform Delay, d1	40.6	30.9		35.5	25.9		37.5	28.5		37.5	23.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.3	0.8		25.6	2.1		0.6	7.5		28.4	1.0	
Delay (s)	43.8	31.7		61.1	28.1		38.1	36.0		65.9	24.4	
Level of Service	D	C		E	C		D	D		E	C	
Approach Delay (s)		33.1			36.7			36.1			33.7	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	35.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	72.7%	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)	155	495	101	480	506	176	58	862	171	97	707	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3449		1770	3402		1770	3451		1770	3480	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3449		1770	3402		1770	3451		1770	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	538	110	522	550	191	63	937	186	105	768	97
RTOR Reduction (vph)	0	13	0	0	25	0	0	13	0	0	7	0
Lane Group Flow (vph)	168	635	0	522	716	0	63	1110	0	105	858	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	23.4		37.0	43.4		10.0	42.0		12.0	44.0	
Effective Green, g (s)	17.0	23.4		37.0	43.4		10.0	42.0		12.0	44.0	
Actuated g/C Ratio	0.13	0.18		0.28	0.33		0.08	0.32		0.09	0.34	
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	
Vehicle Extension (s)	3.0	4.8		3.0	4.8		2.0	4.8		2.0	4.8	
Lane Grp Cap (vph)	230	617		501	1129		135	1108		162	1171	
v/s Ratio Prot	0.09	c0.18		c0.29	0.21		0.04	c0.32		0.06	c0.25	
v/s Ratio Perm												
v/c Ratio	0.73	1.03		1.04	0.63		0.47	1.00		0.65	0.73	
Uniform Delay, d1	54.7	53.7		46.9	37.0		57.8	44.4		57.4	38.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.3	43.8		51.5	1.6		0.9	27.5		6.5	2.8	
Delay (s)	66.0	97.5		98.4	38.5		58.8	71.9		63.9	41.1	
Level of Service	E	F		F	D		E	E		E	D	
Approach Delay (s)		91.0			63.3			71.2			43.5	
Approach LOS		F			E			E			D	

Intersection Summary			
HCM Average Control Delay	66.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	16.6
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	449	202	240	219	31	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	488	220	261	238	34	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	537			471		
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			708		1239	354
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			665		1206	305
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			71		73	92
cM capacity (veh/h)			903		123	679

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	325	382	340	159	85
Volume Left	0	0	261	0	34
Volume Right	0	220	0	0	51
cSH	1700	1700	903	1700	309
Volume to Capacity	0.19	0.22	0.29	0.09	0.27
Queue Length 95th (ft)	0	0	30	0	27
Control Delay (s)	0.0	0.0	8.9	0.0	24.3
Lane LOS			A		C
Approach Delay (s)	0.0		6.1		24.3
Approach LOS					C

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	656	62	39	569	109	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	713	67	42	618	118	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	537			479		
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			780		1141	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			551		948	120
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		47	90
cM capacity (veh/h)			920		224	824

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	475	305	249	412	202
Volume Left	0	0	42	0	118
Volume Right	0	67	0	0	84
cSH	1700	1700	920	1700	382
Volume to Capacity	0.28	0.18	0.05	0.24	0.53
Queue Length 95th (ft)	0	0	4	0	74
Control Delay (s)	0.0	0.0	1.9	0.0	26.3
Lane LOS			A		D
Approach Delay (s)	0.0		0.7		26.3
Approach LOS					D

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	112	86	10	9	28	137	68	608	102	86	70	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	4.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.88		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	1833		1770	1630		1770	1823		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	1833		1770	1630		1770	1823		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	93	11	10	30	149	74	661	111	93	76	133
RTOR Reduction (vph)	0	5	0	0	113	0	0	7	0	0	0	77
Lane Group Flow (vph)	122	99	0	10	66	0	74	765	0	93	76	56
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												8
Actuated Green, G (s)	7.0	27.5		0.8	21.3		6.8	39.1		5.0	37.3	37.3
Effective Green, g (s)	7.0	27.5		0.8	21.3		6.8	39.1		5.0	37.3	37.3
Actuated g/C Ratio	0.08	0.31		0.01	0.24		0.08	0.44		0.06	0.42	0.42
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	4.2
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	140	568		16	391		136	803		100	783	665
v/s Ratio Prot	c0.07	c0.05		0.01	0.04		0.04	c0.42		c0.05	0.04	
v/s Ratio Perm												0.04
v/c Ratio	0.87	0.17		0.62	0.17		0.54	0.95		0.93	0.10	0.08
Uniform Delay, d1	40.5	22.4		43.9	26.7		39.5	24.0		41.7	15.6	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	40.6	0.1		57.6	0.1		4.4	20.8		67.5	0.0	0.0
Delay (s)	81.0	22.4		101.4	26.8		43.9	44.8		109.3	15.6	15.5
Level of Service	F	C		F	C		D	D		F	B	B
Approach Delay (s)		54.1			30.8			44.7			44.4	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	44.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	296	121	228	102	211	102	125	480	147	154	1313	528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	4.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.95		1.00	0.96		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	1680		1770	1772		1770	1797		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	1680		1770	1772		1770	1797		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	322	132	248	111	229	111	136	522	160	167	1427	574
RTOR Reduction (vph)	0	45	0	0	12	0	0	7	0	0	0	48
Lane Group Flow (vph)	322	335	0	111	328	0	136	675	0	167	1427	526
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												8
Actuated Green, G (s)	18.0	32.8		10.0	24.8		8.0	73.9		16.9	82.8	82.8
Effective Green, g (s)	18.0	32.8		10.0	24.8		8.0	73.9		16.9	82.8	82.8
Actuated g/C Ratio	0.12	0.22		0.07	0.17		0.05	0.49		0.11	0.55	0.55
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	4.2
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	212	367		118	293		94	885		199	1028	874
v/s Ratio Prot	c0.18	0.20		0.06	c0.19		c0.08	0.38		0.09	c0.77	
v/s Ratio Perm												0.33
v/c Ratio	1.52	0.91		0.94	1.12		1.45	0.76		0.84	1.39	0.60
Uniform Delay, d1	66.0	57.2		69.7	62.6		71.0	30.9		65.2	33.6	22.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	256.1	25.8		64.2	89.0		250.8	3.5		25.4	180.7	0.8
Delay (s)	322.1	83.0		133.9	151.6		321.8	34.5		90.6	214.3	23.3
Level of Service	F	F		F	F		F	C		F	F	C
Approach Delay (s)		192.7			147.3			82.2			154.2	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	145.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.4
Intersection Capacity Utilization	123.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	243	524	43	105	292	123	121	663	153	161	193	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.2		4.0	4.2	4.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	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)	1770	3539	1583	1770	3539	1583	1770	3440		1770	3539	1583
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)	1770	3539	1583	1770	3539	1583	1770	3440		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	570	47	114	317	134	132	721	166	175	210	82
RTOR Reduction (vph)	0	0	18	0	0	97	0	22	0	0	0	58
Lane Group Flow (vph)	264	570	29	114	317	37	132	865	0	175	210	24
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						4
Actuated Green, G (s)	14.0	28.9	28.9	8.9	23.8	23.8	8.8	25.0		10.0	26.2	26.2
Effective Green, g (s)	14.0	28.9	28.9	8.9	23.8	23.8	8.8	25.0		10.0	26.2	26.2
Actuated g/C Ratio	0.16	0.32	0.32	0.10	0.27	0.27	0.10	0.28		0.11	0.29	0.29
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.2		4.0	4.2	4.2
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	277	1143	511	176	941	421	174	961		198	1036	463
v/s Ratio Prot	c0.15	c0.16		0.06	0.09		0.07	c0.25		c0.10	0.06	
v/s Ratio Perm			0.02			0.02						0.02
v/c Ratio	0.95	0.50	0.06	0.65	0.34	0.09	0.76	0.90		0.88	0.20	0.05
Uniform Delay, d1	37.4	24.5	20.9	38.8	26.5	24.7	39.3	31.0		39.2	23.8	22.7
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	41.2	0.1	0.0	8.0	0.1	0.0	17.1	10.9		33.9	0.0	0.0
Delay (s)	78.6	24.6	20.9	46.7	26.6	24.7	56.4	41.9		73.1	23.8	22.7
Level of Service	E	C	C	D	C	C	E	D		E	C	C
Approach Delay (s)		40.6			30.2			43.8			42.1	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	39.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	12.2
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	189	456	197	187	400	245	88	781	131	218	1656	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.2		4.0	4.2	4.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3463		1770	3539	1583
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)	1770	3539	1583	1770	3539	1583	1770	3463		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	496	214	203	435	266	96	849	142	237	1800	243
RTOR Reduction (vph)	0	0	74	0	0	105	0	11	0	0	0	23
Lane Group Flow (vph)	205	496	140	203	435	161	96	980	0	237	1800	220
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						4
Actuated Green, G (s)	14.0	23.1	23.1	14.0	23.1	23.1	7.0	47.2		18.8	59.0	59.0
Effective Green, g (s)	14.0	23.1	23.1	14.0	23.1	23.1	7.0	47.2		18.8	59.0	59.0
Actuated g/C Ratio	0.12	0.19	0.19	0.12	0.19	0.19	0.06	0.39		0.16	0.49	0.49
Clearance Time (s)	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.2		4.0	4.2	4.2
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	207	682	305	207	682	305	103	1364		278	1743	780
v/s Ratio Prot	c0.12	c0.14		0.11	0.12		0.05	0.28		c0.13	c0.51	
v/s Ratio Perm			0.09			0.10						0.14
v/c Ratio	0.99	0.73	0.46	0.98	0.64	0.53	0.93	0.72		0.85	1.03	0.28
Uniform Delay, d1	52.8	45.4	42.8	52.8	44.5	43.5	56.2	30.7		49.2	30.4	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	59.6	3.3	0.4	56.8	1.4	0.8	66.8	1.5		21.5	30.5	0.1
Delay (s)	112.4	48.7	43.2	109.5	45.9	44.2	123.0	32.2		70.6	60.9	18.0
Level of Service	F	D	D	F	D	D	F	C		E	E	B
Approach Delay (s)		61.7			59.7			40.2			57.3	
Approach LOS		E			E			D			E	

Intersection Summary

HCM Average Control Delay	54.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	119.8	Sum of lost time (s)	16.7
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	210	140	136	385	60	142	529	160	90	273	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	4.2
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.94		1.00	0.98		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	1751		1770	3468		1770	3416		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	1751		1770	3468		1770	3416		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	228	152	148	418	65	154	575	174	98	297	170
RTOR Reduction (vph)	0	32	0	0	16	0	0	37	0	0	0	123
Lane Group Flow (vph)	92	348	0	148	467	0	154	712	0	98	297	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)	5.8	19.5		7.8	21.5		7.9	22.0		5.8	19.9	19.9
Effective Green, g (s)	5.8	19.5		7.8	21.5		7.9	22.0		5.8	19.9	19.9
Actuated g/C Ratio	0.08	0.27		0.11	0.30		0.11	0.31		0.08	0.28	0.28
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	4.2
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	144	478		193	1043		196	1051		144	985	441
v/s Ratio Prot	0.05	c0.20		c0.08	0.13		c0.09	c0.21		0.06	0.08	
v/s Ratio Perm												0.03
v/c Ratio	0.64	0.73		0.77	0.45		0.79	0.68		0.68	0.30	0.11
Uniform Delay, d1	31.8	23.6		31.0	20.2		31.0	21.6		31.9	20.3	19.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.7	6.7		15.0	0.6		17.2	2.3		10.1	0.4	0.2
Delay (s)	38.5	30.3		46.0	20.8		48.1	23.9		42.0	20.7	19.4
Level of Service	D	C		D	C		D	C		D	C	B
Approach Delay (s)		31.9			26.7			28.0			24.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	12.2
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	110	399	231	348	450	94	195	880	156	139	1354	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	4.2
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		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	1760		1770	3448		1770	3459		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	1760		1770	3448		1770	3459		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	434	251	378	489	102	212	957	170	151	1472	229
RTOR Reduction (vph)	0	14	0	0	11	0	0	10	0	0	0	50
Lane Group Flow (vph)	120	671	0	378	580	0	212	1117	0	151	1472	179
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	14.0	46.8		23.0	55.8		15.0	50.8		13.0	48.8	48.8
Effective Green, g (s)	14.0	46.8		23.0	55.8		15.0	50.8		13.0	48.8	48.8
Actuated g/C Ratio	0.09	0.31		0.15	0.37		0.10	0.34		0.09	0.33	0.33
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.2		4.0	4.2	4.2
Vehicle Extension (s)	2.0	5.0		2.0	5.0		2.0	5.0		2.0	5.0	5.0
Lane Grp Cap (vph)	165	549		271	1283		177	1171		153	1151	515
v/s Ratio Prot	0.07	c0.38		c0.21	0.17		c0.12	0.32		0.09	c0.42	
v/s Ratio Perm												0.11
v/c Ratio	0.73	1.22		1.39	0.45		1.20	0.95		0.99	1.28	0.35
Uniform Delay, d1	66.1	51.6		63.5	35.6		67.5	48.5		68.4	50.6	38.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.7	115.8		198.7	0.5		130.9	16.7		68.1	132.3	0.9
Delay (s)	78.8	167.4		262.2	36.1		198.4	65.2		136.5	182.9	39.3
Level of Service	E	F		F	D		F	E		F	F	D
Approach Delay (s)		154.2			124.3			86.3			161.4	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	132.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.4
Intersection Capacity Utilization	116.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	39	205	38	0	0	0	21	307	74	307	1217	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6				4.0	4.6		4.0	4.6	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	0.97		1.00	0.98	
Flt Protected		0.99	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1848	1583				1770	3437		1770	3478	
Flt Permitted		0.99	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1848	1583				1770	3437		1770	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	223	41	0	0	0	23	334	80	334	1323	174
RTOR Reduction (vph)	0	0	22	0	0	0	0	20	0	0	8	0
Lane Group Flow (vph)	0	265	19	0	0	0	23	394	0	334	1489	0
Turn Type	Split		Perm				Prot			Prot		
Protected Phases	4	4					5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		12.6	12.6				2.5	24.7		17.1	39.3	
Effective Green, g (s)		12.6	12.6				2.5	24.7		17.1	39.3	
Actuated g/C Ratio		0.19	0.19				0.04	0.37		0.25	0.58	
Clearance Time (s)		4.6	4.6				4.0	4.6		4.0	4.6	
Vehicle Extension (s)		0.2	0.2				3.0	4.1		3.0	4.1	
Lane Grp Cap (vph)		344	295				65	1256		448	2022	
v/s Ratio Prot		c0.14					0.01	0.11		c0.19	c0.43	
v/s Ratio Perm			0.01									
v/c Ratio		0.77	0.06				0.35	0.31		0.75	0.74	
Uniform Delay, d1		26.1	22.6				31.8	15.4		23.2	10.4	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.3	0.0				3.3	0.2		6.6	1.5	
Delay (s)		35.5	22.7				35.1	15.6		29.9	11.9	
Level of Service		D	C				D	B		C	B	
Approach Delay (s)		33.7			0.0			16.6			15.2	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	8.6
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	254	486	59	0	0	0	30	965	85	304	999	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.6	4.6				4.0	4.6		4.0	4.6	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	0.99		1.00	0.98	
Flt Protected		0.98	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831	1583				1770	3496		1770	3457	
Flt Permitted		0.98	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1831	1583				1770	3496		1770	3457	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	276	528	64	0	0	0	33	1049	92	330	1086	198
RTOR Reduction (vph)	0	0	7	0	0	0	0	5	0	0	11	0
Lane Group Flow (vph)	0	804	57	0	0	0	33	1136	0	330	1273	0
Turn Type	Split		Perm				Prot			Prot		
Protected Phases	4	4					5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		53.4	53.4				4.8	43.0		22.0	60.2	
Effective Green, g (s)		53.4	53.4				4.8	43.0		22.0	60.2	
Actuated g/C Ratio		0.41	0.41				0.04	0.33		0.17	0.46	
Clearance Time (s)		4.6	4.6				4.0	4.6		4.0	4.6	
Vehicle Extension (s)		0.2	0.2				3.0	4.1		3.0	4.1	
Lane Grp Cap (vph)		743	642				65	1142		296	1581	
v/s Ratio Prot		c0.44					0.02	c0.32		c0.19	0.37	
v/s Ratio Perm			0.04									
v/c Ratio		1.08	0.09				0.51	0.99		1.11	0.81	
Uniform Delay, d1		39.1	24.1				62.2	44.2		54.8	30.7	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		57.5	0.0				6.1	25.3		86.8	3.3	
Delay (s)		96.6	24.1				68.4	69.5		141.6	34.0	
Level of Service		F	C				E	E		F	C	
Approach Delay (s)		91.2			0.0			69.4			56.0	
Approach LOS		F			A			E			E	

Intersection Summary

HCM Average Control Delay	68.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	131.6	Sum of lost time (s)	13.2
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	630	485	409	0	0	0	0	863	458	261	639	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.7	4.7	4.7					5.2	5.2	5.2	5.2	
Lane Util. Factor	1.00	1.00	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	685	527	445	0	0	0	0	938	498	284	695	0
RTOR Reduction (vph)	0	0	112	0	0	0	0	0	114	0	0	0
Lane Group Flow (vph)	685	527	333	0	0	0	0	938	384	284	695	0
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	34.3	34.3	34.3					25.0	25.0	14.8	45.0	
Effective Green, g (s)	34.3	34.3	34.3					25.0	25.0	14.8	45.0	
Actuated g/C Ratio	0.38	0.38	0.38					0.28	0.28	0.17	0.50	
Clearance Time (s)	4.7	4.7	4.7					5.2	5.2	5.2	5.2	
Vehicle Extension (s)	6.2	6.2	6.2					0.2	0.2	2.0	0.2	
Lane Grp Cap (vph)	681	716	609					992	444	294	1785	
v/s Ratio Prot	c0.39	0.28						c0.27		c0.16	0.20	
v/s Ratio Perm			0.21						0.24			
v/c Ratio	1.01	0.74	0.55					0.95	0.87	0.97	0.39	
Uniform Delay, d1	27.5	23.6	21.4					31.4	30.5	36.9	13.6	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	35.9	5.5	2.4					16.7	15.5	42.6	0.1	
Delay (s)	63.4	29.1	23.8					48.1	46.0	79.6	13.7	
Level of Service	E	C	C					D	D	E	B	
Approach Delay (s)		41.8			0.0			47.4			32.8	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM Average Control Delay	41.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	15.1
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	247	721	790	0	0	0	0	1003	479	390	741	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.7	4.7	4.7					5.2	5.2	5.2	5.2	
Lane Util. Factor	1.00	1.00	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583					3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	784	859	0	0	0	0	1090	521	424	805	0
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	53	0	0	0
Lane Group Flow (vph)	268	784	768	0	0	0	0	1090	468	424	805	0
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	55.3	55.3	55.3					40.8	40.8	28.8	74.8	
Effective Green, g (s)	55.3	55.3	55.3					40.8	40.8	28.8	74.8	
Actuated g/C Ratio	0.39	0.39	0.39					0.29	0.29	0.21	0.53	
Clearance Time (s)	4.7	4.7	4.7					5.2	5.2	5.2	5.2	
Vehicle Extension (s)	6.2	6.2	6.2					0.2	0.2	2.0	0.2	
Lane Grp Cap (vph)	699	736	625					1031	461	364	1891	
v/s Ratio Prot	0.15	0.42						c0.31		c0.24	0.23	
v/s Ratio Perm			c0.49						0.30			
v/c Ratio	0.38	1.07	1.23					1.06	1.01	1.16	0.43	
Uniform Delay, d1	30.2	42.4	42.4					49.6	49.6	55.6	19.7	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	51.9	116.8					44.4	45.7	100.1	0.1	
Delay (s)	31.2	94.3	159.1					94.0	95.3	155.7	19.7	
Level of Service	C	F	F					F	F	F	B	
Approach Delay (s)		114.6			0.0			94.5			66.6	
Approach LOS		F			A			F			E	

Intersection Summary			
HCM Average Control Delay	95.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.1
Intersection Capacity Utilization	183.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	352	517	443	643	857	0	0	539	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Lane Util. Factor					0.95	1.00	0.97	1.00			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3469	1583	3433	1863			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3469	1583	3433	1863			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	383	562	482	699	932	0	0	586	260
RTOR Reduction (vph)	0	0	0	0	0	67	0	0	0	0	0	73
Lane Group Flow (vph)	0	0	0	0	945	415	699	932	0	0	586	187
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					31.8	31.8	23.1	45.4			18.6	18.6
Effective Green, g (s)					31.8	31.8	23.1	45.4			18.6	18.6
Actuated g/C Ratio					0.36	0.36	0.26	0.52			0.21	0.21
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)					1256	573	903	963			750	335
v/s Ratio Prot					c0.27		0.20	c0.50			0.17	
v/s Ratio Perm						0.26						0.12
v/c Ratio					0.75	0.72	0.77	0.97			0.78	0.56
Uniform Delay, d1					24.5	24.2	29.9	20.5			32.7	30.9
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					3.1	5.5	3.8	21.2			4.9	1.2
Delay (s)					27.6	29.7	33.8	41.7			37.6	32.1
Level of Service					C	C	C	D			D	C
Approach Delay (s)		0.0			28.4			38.3			35.9	
Approach LOS		A			C			D			D	

Intersection Summary			
HCM Average Control Delay	34.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	10.6
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	335	511	609	647	594	0	0	786	1003
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					5.4	5.4	3.7	5.2			5.2	5.2
Lane Util. Factor					0.95	1.00	0.97	1.00			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3470	1583	3433	1863			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3470	1583	3433	1863			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	364	555	662	703	646	0	0	854	1090
RTOR Reduction (vph)	0	0	0	0	0	248	0	0	0	0	0	15
Lane Group Flow (vph)	0	0	0	0	919	414	703	646	0	0	854	1075
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					35.6	35.6	23.3	103.8			76.8	76.8
Effective Green, g (s)					35.6	35.6	23.3	103.8			76.8	76.8
Actuated g/C Ratio					0.24	0.24	0.16	0.69			0.51	0.51
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)					824	376	533	1289			1812	810
v/s Ratio Prot					c0.26		c0.20	0.35			0.24	
v/s Ratio Perm						0.26						c0.68
v/c Ratio					1.12	1.10	1.32	0.50			0.47	1.33
Uniform Delay, d1					57.2	57.2	63.4	10.9			23.5	36.6
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					68.0	76.6	156.3	0.1			0.1	155.9
Delay (s)					125.2	133.8	219.7	11.0			23.6	192.5
Level of Service					F	F	F	B			C	F
Approach Delay (s)		0.0			128.8			119.8			118.3	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM Average Control Delay	122.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	183.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	214	211	180	99	265	204	149	611	92	64	459	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	4.2	4.2	4.1	4.2		4.1	4.2		4.1	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.93		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	3308		1770	3470		1770	3427	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	3308		1770	3470		1770	3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	229	196	108	288	222	162	664	100	70	499	134
RTOR Reduction (vph)	0	0	140	0	173	0	0	13	0	0	28	0
Lane Group Flow (vph)	233	229	56	108	337	0	162	751	0	70	605	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	11.7	21.6	21.6	6.9	16.8		8.5	25.2		5.9	22.6	
Effective Green, g (s)	11.7	21.6	21.6	6.9	16.8		8.5	25.2		5.9	22.6	
Actuated g/C Ratio	0.15	0.28	0.28	0.09	0.22		0.11	0.33		0.08	0.30	
Clearance Time (s)	4.1	4.2	4.2	4.1	4.2		4.1	4.2		4.1	4.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	272	528	449	160	729		197	1148		137	1016	
v/s Ratio Prot	c0.13	c0.12		0.06	0.10		c0.09	c0.22		0.04	0.18	
v/s Ratio Perm			0.04									
v/c Ratio	0.86	0.43	0.12	0.68	0.46		0.82	0.65		0.51	0.60	
Uniform Delay, d1	31.4	22.3	20.3	33.6	25.8		33.1	21.8		33.8	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	22.3	1.2	0.3	10.7	1.0		23.3	1.8		3.2	1.4	
Delay (s)	53.8	23.5	20.5	44.3	26.8		56.4	23.6		37.0	24.3	
Level of Service	D	C	C	D	C		E	C		D	C	
Approach Delay (s)		33.3			29.8			29.3			25.6	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	12.4
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	106	302	214	203	441	194	258	663	136	183	1052	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	4.2	4.2	4.1	4.2		4.1	4.2		4.1	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	3377		1770	3449		1770	3488	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	3377		1770	3449		1770	3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	328	233	221	479	211	280	721	148	199	1143	123
RTOR Reduction (vph)	0	0	157	0	44	0	0	14	0	0	7	0
Lane Group Flow (vph)	115	328	76	221	646	0	280	855	0	199	1259	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	10.5	23.9	23.9	14.9	28.3		18.7	42.7		15.9	39.9	
Effective Green, g (s)	10.5	23.9	23.9	14.9	28.3		18.7	42.7		15.9	39.9	
Actuated g/C Ratio	0.09	0.21	0.21	0.13	0.25		0.16	0.37		0.14	0.35	
Clearance Time (s)	4.1	4.2	4.2	4.1	4.2		4.1	4.2		4.1	4.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	163	391	332	231	838		290	1292		247	1221	
v/s Ratio Prot	0.06	0.18		c0.12	c0.19		c0.16	c0.25		0.11	c0.36	
v/s Ratio Perm			0.05									
v/c Ratio	0.71	0.84	0.23	0.96	0.77		0.97	0.66		0.81	1.03	
Uniform Delay, d1	50.2	43.2	37.4	49.2	39.8		47.3	29.6		47.6	37.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.0	16.0	0.7	46.7	5.2		43.1	1.7		17.2	34.0	
Delay (s)	63.3	59.2	38.1	95.9	45.0		90.4	31.3		64.7	71.1	
Level of Service	E	E	D	F	D		F	C		E	E	
Approach Delay (s)		52.6			57.4			45.7			70.2	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM Average Control Delay	57.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	114.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	8	117	13	635	202	367	355	547	47	80	150	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.88	1.00	1.00	0.97	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1835		1681	1724	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1770	1835		1681	1724	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	127	14	690	220	399	386	595	51	87	163	313
RTOR Reduction (vph)	0	4	0	0	0	283	0	0	23	0	0	273
Lane Group Flow (vph)	9	137	0	448	462	116	386	595	28	87	163	40
Turn Type	Split			Split		Perm		custom	custom	Prot		Perm
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	12.0	12.0		26.5	26.5	26.5	23.1	27.2	27.2	7.5	11.6	11.6
Effective Green, g (s)	12.0	12.0		26.5	26.5	26.5	23.1	27.2	27.2	7.5	11.6	11.6
Actuated g/C Ratio	0.13	0.13		0.29	0.29	0.29	0.25	0.30	0.30	0.08	0.13	0.13
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)	233	242		490	502	461	449	833	473	146	438	202
v/s Ratio Prot	0.01	c0.07		0.27	c0.27		c0.22	c0.21		0.05	0.05	
v/s Ratio Perm						0.07			0.02			0.03
v/c Ratio	0.04	0.56		0.91	0.92	0.25	0.86	0.71	0.06	0.60	0.37	0.20
Uniform Delay, d1	34.5	37.1		31.2	31.2	24.7	32.4	28.4	22.8	40.3	36.4	35.5
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	0.1	3.0		21.9	22.6	0.3	15.1	3.5	0.1	4.3	1.0	0.9
Delay (s)	34.5	40.1		53.0	53.8	25.0	47.5	31.9	22.9	44.6	37.4	36.5
Level of Service	C	D		D	D	C	D	C	C	D	D	D
Approach Delay (s)		39.7			44.8		37.3				38.0	
Approach LOS		D			D		D				D	

Intersection Summary

HCM Average Control Delay	40.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	12	247	43	794	44	424	412	612	13	17	763	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.88	1.00	1.00	0.97	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.85	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	1821		1681	1694	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1770	1821		1681	1694	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	268	47	863	48	461	448	665	14	18	829	893
RTOR Reduction (vph)	0	4	0	0	0	278	0	0	4	0	0	368
Lane Group Flow (vph)	13	311	0	457	454	183	448	665	10	18	829	525
Turn Type	Split			Split		Perm		custom	custom	Prot		Perm
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	25.8	25.8		34.4	34.4	34.4	30.0	64.2	64.2	4.2	38.4	38.4
Effective Green, g (s)	25.8	25.8		34.4	34.4	34.4	30.0	64.2	64.2	4.2	38.4	38.4
Actuated g/C Ratio	0.18	0.18		0.23	0.23	0.23	0.20	0.44	0.44	0.03	0.26	0.26
Clearance Time (s)	4.6	4.6		4.6	4.6	4.6	4.0	4.6	4.6	4.0	4.6	4.6
Vehicle Extension (s)	3.0	3.0		3.5	3.5	3.5	3.0	4.8	4.8	2.0	4.8	4.8
Lane Grp Cap (vph)	312	321		395	398	372	363	1222	694	51	900	415
v/s Ratio Prot	0.01	c0.17		c0.27	0.27		c0.25	0.24		0.01	0.24	
v/s Ratio Perm						0.12			0.01			c0.33
v/c Ratio	0.04	0.97		1.16	1.14	0.49	1.23	0.54	0.01	0.35	0.92	1.26
Uniform Delay, d1	50.0	59.9		56.0	56.0	48.4	58.2	30.3	23.2	69.8	52.5	54.0
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	0.1	41.3		95.5	89.3	1.2	127.0	0.8	0.0	1.5	15.0	137.2
Delay (s)	50.1	101.2		151.5	145.3	49.6	185.2	31.1	23.2	71.3	67.5	191.2
Level of Service	D	F		F	F	D	F	C	C	E	E	F
Approach Delay (s)		99.1			115.2		92.3				131.0	
Approach LOS		F			F		F				F	

Intersection Summary			
HCM Average Control Delay	114.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	146.4	Sum of lost time (s)	17.8
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	519	477	0	0	308	67	42	232	102	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.2	4.2	4.2			
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.97		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)	1770	1863			1813		1770	1863	1583			
Flt Permitted	0.48	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (perm)	890	1863			1813		1770	1863	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	564	518	0	0	335	73	46	252	111	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	82	0	0	0
Lane Group Flow (vph)	564	518	0	0	399	0	46	252	29	0	0	0
Turn Type	Perm			Perm			Split		Perm			
Protected Phases		2			6		8	8				
Permitted Phases	2			6					8			
Actuated Green, G (s)	55.8	55.8			55.8		22.2	22.2	22.2			
Effective Green, g (s)	55.8	55.8			55.8		22.2	22.2	22.2			
Actuated g/C Ratio	0.65	0.65			0.65		0.26	0.26	0.26			
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)	575	1203			1171		455	479	407			
v/s Ratio Prot		0.28			0.22		0.03	c0.14				
v/s Ratio Perm	c0.63								0.02			
v/c Ratio	0.98	0.43			0.34		0.10	0.53	0.07			
Uniform Delay, d1	14.8	7.5			6.9		24.5	27.6	24.3			
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00			
Incremental Delay, d2	32.4	0.1			0.1		0.0	0.5	0.0			
Delay (s)	47.2	7.6			7.0		24.5	28.1	24.3			
Level of Service	D	A			A		C	C	C			
Approach Delay (s)		28.3			7.0			26.6			0.0	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	293	370	0	0	691	115	46	357	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2		4.2	4.2	4.2			
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.98		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)	1770	1863			1823		1770	1863	1583			
Flt Permitted	0.23	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (perm)	427	1863			1823		1770	1863	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	318	402	0	0	751	125	50	388	146	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	116	0	0	0
Lane Group Flow (vph)	318	402	0	0	871	0	50	388	30	0	0	0
Turn Type	Perm			Perm			Split		Perm			
Protected Phases		2			6		8	8				
Permitted Phases	2			6					8			
Actuated Green, G (s)	78.8	78.8			78.8		22.8	22.8	22.8			
Effective Green, g (s)	78.8	78.8			78.8		22.8	22.8	22.8			
Actuated g/C Ratio	0.72	0.72			0.72		0.21	0.21	0.21			
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)	306	1335			1306		367	386	328			
v/s Ratio Prot		0.22			0.48		0.03	c0.21				
v/s Ratio Perm	c0.74								0.02			
v/c Ratio	1.04	0.30			0.67		0.14	1.01	0.09			
Uniform Delay, d1	15.6	5.6			8.5		35.6	43.6	35.2			
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00			
Incremental Delay, d2	62.0	0.0			1.0		0.1	47.1	0.0			
Delay (s)	77.6	5.7			9.5		35.6	90.7	35.3			
Level of Service	E	A			A		D	F	D			
Approach Delay (s)		37.5			9.5			72.1			0.0	
Approach LOS		D			A			E			A	

Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	303	15	76	272	0	0	0	433	247	633	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	0.95	
Frt		0.99		1.00	1.00			0.85		1.00	0.99	
Flt Protected		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1851		1770	1863			1583		1770	3505	
Flt Permitted		1.00		0.37	1.00			1.00		0.95	1.00	
Satd. Flow (perm)		1851		692	1863			1583		1770	3505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	329	16	83	296	0	0	0	471	268	688	47
RTOR Reduction (vph)	0	2	0	0	0	0	0	219	0	0	5	0
Lane Group Flow (vph)	0	343	0	83	296	0	0	252	0	268	730	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6								
Actuated Green, G (s)		28.0		28.0	28.0			22.0		22.0	48.2	
Effective Green, g (s)		28.0		28.0	28.0			22.0		22.0	48.2	
Actuated g/C Ratio		0.33		0.33	0.33			0.26		0.26	0.57	
Clearance Time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Vehicle Extension (s)		0.2		0.2	0.2			0.2		0.2	0.2	
Lane Grp Cap (vph)		613		229	617			412		460	1997	
v/s Ratio Prot		c0.19			0.16			c0.16		c0.15	0.21	
v/s Ratio Perm				0.12								
v/c Ratio		0.56		0.36	0.48			0.61		0.58	0.37	
Uniform Delay, d1		23.2		21.5	22.5			27.5		27.3	9.9	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.6		0.4	0.2			1.9		1.2	0.0	
Delay (s)		23.9		21.9	22.7			29.4		28.5	9.9	
Level of Service		C		C	C			C		C	A	
Approach Delay (s)		23.9			22.5			29.4			14.9	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	12.6
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	234	27	211	506	0	0	0	255	155	1539	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	0.95	
Frt		0.99		1.00	1.00			0.85		1.00	0.99	
Flt Protected		1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1837		1770	1863			1583		1770	3512	
Flt Permitted		1.00		0.45	1.00			1.00		0.95	1.00	
Satd. Flow (perm)		1837		846	1863			1583		1770	3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	254	29	229	550	0	0	0	277	168	1673	90
RTOR Reduction (vph)	0	5	0	0	0	0	0	205	0	0	4	0
Lane Group Flow (vph)	0	278	0	229	550	0	0	72	0	168	1759	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6								
Actuated Green, G (s)		28.2		28.2	28.2			22.0		22.0	48.2	
Effective Green, g (s)		28.2		28.2	28.2			22.0		22.0	48.2	
Actuated g/C Ratio		0.33		0.33	0.33			0.26		0.26	0.57	
Clearance Time (s)		4.2		4.2	4.2			4.2		4.2	4.2	
Vehicle Extension (s)		0.2		0.2	0.2			0.2		0.2	0.2	
Lane Grp Cap (vph)		611		281	620			411		459	1996	
v/s Ratio Prot		0.15			c0.30			0.05		0.09	c0.50	
v/s Ratio Perm				0.27								
v/c Ratio		0.46		0.81	0.89			0.17		0.37	0.88	
Uniform Delay, d1		22.3		25.9	26.8			24.4		25.7	15.8	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.2		15.6	14.0			0.1		0.2	4.8	
Delay (s)		22.5		41.5	40.8			24.4		25.9	20.6	
Level of Service		C		D	D			C		C	C	
Approach Delay (s)		22.5			41.0			24.4			21.1	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	8.4
Intersection Capacity Utilization	112.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	6	1594	354	10	9	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1862	1856		1704	
Flt Permitted		1.00	1.00		0.97	
Satd. Flow (perm)		1860	1856		1704	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	1733	385	11	10	8
RTOR Reduction (vph)	0	0	0	0	8	0
Lane Group Flow (vph)	0	1740	396	0	10	0
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)		126.2	126.2		3.0	
Effective Green, g (s)		126.2	126.2		3.0	
Actuated g/C Ratio		0.92	0.92		0.02	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1711	1707		37	
v/s Ratio Prot			0.21		c0.01	
v/s Ratio Perm		c0.94				
v/c Ratio		1.02	0.23		0.27	
Uniform Delay, d1		5.5	0.6		66.0	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		26.1	0.3		4.0	
Delay (s)		31.6	0.9		70.0	
Level of Service		C	A		E	
Approach Delay (s)		31.6	0.9		70.0	
Approach LOS		C	A		E	

Intersection Summary			
HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	137.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	5	1688	608	4	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.95	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1862	1861		1722	
Flt Permitted		1.00	1.00		0.97	
Satd. Flow (perm)		1860	1861		1722	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1835	661	4	4	2
RTOR Reduction (vph)	0	0	0	0	2	0
Lane Group Flow (vph)	0	1840	665	0	4	0
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)		126.1	126.1		1.3	
Effective Green, g (s)		126.1	126.1		1.3	
Actuated g/C Ratio		0.93	0.93		0.01	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1732	1733		17	
v/s Ratio Prot			0.36		c0.00	
v/s Ratio Perm		c0.99				
v/c Ratio		1.06	0.38		0.24	
Uniform Delay, d1		4.7	0.5		66.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		40.4	0.1		7.1	
Delay (s)		45.0	0.6		73.6	
Level of Service		D	A		E	
Approach Delay (s)		45.0	0.6		73.6	
Approach LOS		D	A		E	

Intersection Summary

HCM Average Control Delay	33.3	HCM Level of Service	C
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	135.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	49	1548	342	21	52	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.93	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1770	1863	1848		1691	
Flt Permitted	0.52	1.00	1.00		0.98	
Satd. Flow (perm)	971	1863	1848		1691	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	1683	372	23	57	62
RTOR Reduction (vph)	0	0	1	0	27	0
Lane Group Flow (vph)	53	1683	394	0	92	0
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)	126.1	126.1	126.1		12.5	
Effective Green, g (s)	126.1	126.1	126.1		12.5	
Actuated g/C Ratio	0.86	0.86	0.86		0.09	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	835	1602	1590		144	
v/s Ratio Prot		c0.90	0.21		c0.05	
v/s Ratio Perm	0.05					
v/c Ratio	0.06	1.05	0.25		0.64	
Uniform Delay, d1	1.5	10.2	1.8		64.9	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	37.1	0.1		9.4	
Delay (s)	1.5	47.3	1.9		74.3	
Level of Service	A	D	A		E	
Approach Delay (s)		45.9	1.9		74.3	
Approach LOS		D	A		E	

Intersection Summary			
HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	146.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	118	1626	547	69	73	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.90	
Flt Protected	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	1863	1835		1651	
Flt Permitted	0.37	1.00	1.00		0.99	
Satd. Flow (perm)	697	1863	1835		1651	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	1767	595	75	79	261
RTOR Reduction (vph)	0	0	3	0	85	0
Lane Group Flow (vph)	128	1767	667	0	255	0
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)	116.0	116.0	116.0		16.0	
Effective Green, g (s)	116.0	116.0	116.0		16.0	
Actuated g/C Ratio	0.83	0.83	0.83		0.11	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	578	1544	1520		189	
v/s Ratio Prot		c0.95	0.36		c0.15	
v/s Ratio Perm	0.18					
v/c Ratio	0.22	1.14	0.44		1.35	
Uniform Delay, d1	2.5	12.0	3.2		62.0	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.2	73.2	0.2		187.9	
Delay (s)	2.7	85.2	3.4		249.9	
Level of Service	A	F	A		F	
Approach Delay (s)		79.6	3.4		249.9	
Approach LOS		E	A		F	

Intersection Summary			
HCM Average Control Delay	82.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL
Lane Configurations												
Volume (vph)	29	9	11	35	774	1	42	288	0	42	3	719
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6	4.6			4.6	4.6		4.2	4.6
Lane Util. Factor	1.00			0.91	0.91			0.97	1.00		1.00	0.94
Frt	0.97			0.87	0.85			1.00	0.85		0.86	0.90
Flt Protected	1.00			1.00	1.00			0.95	1.00		1.00	0.98
Satd. Flow (prot)	1803			1480	2882			3433	1583		1611	4645
Flt Permitted	1.00			0.99	1.00			0.95	1.00		1.00	0.61
Satd. Flow (perm)	1803			1470	2882			3433	1583		1611	2864
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	10	12	38	841	1	46	313	0	46	3	782
RTOR Reduction (vph)	7	0	0	0	0	0	0	0	39	0	3	0
Lane Group Flow (vph)	35	0	0	302	590	0	0	359	7	0	0	2412
Turn Type			Perm		Perm		Perm	Perm			custom	
Protected Phases	6			6					4		8	5
Permitted Phases			6		6		4	4				2
Actuated Green, G (s)	28.3			28.3	28.3			16.5	16.5		16.9	47.6
Effective Green, g (s)	28.3			28.3	28.3			16.5	16.5		16.9	47.6
Actuated g/C Ratio	0.27			0.27	0.27			0.16	0.16		0.16	0.45
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)	480			392	768			533	246		256	2082
v/s Ratio Prot	0.02								0.00		0.00	c0.52
v/s Ratio Perm				c0.21	0.20			c0.10				
v/c Ratio	0.07			0.77	0.77			0.67	0.03		0.00	2.26dr
Uniform Delay, d1	29.1			36.0	35.9			42.3	38.1		37.6	29.3
Progression Factor	1.00			1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1			10.5	5.5			3.7	0.1		0.0	77.2
Delay (s)	29.3			46.4	41.4			46.0	38.1		37.6	106.5
Level of Service	C			D	D			D	D		D	F
Approach Delay (s)	29.3			43.1					45.1			106.5
Approach LOS	C			D					D			F

Intersection Summary			
HCM Average Control Delay	83.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	106.2	Sum of lost time (s)	13.8
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

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

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

Intersection Summary

Movement	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL2	SEL
Lane Configurations												
Volume (vph)	52	42	22	1545	2	9	691	0	44	6	1	987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6		4.6	4.6			4.6	4.6		4.2		4.6
Lane Util. Factor	1.00		0.91	0.91			0.97	1.00		1.00		0.94
Frt	0.94		0.86	0.85			1.00	0.85		0.86		0.91
Flt Protected	1.00		1.00	1.00			0.95	1.00		1.00		0.98
Satd. Flow (prot)	1750		1451	2882			3433	1583		1611		4697
Flt Permitted	1.00		1.00	1.00			0.95	1.00		1.00		0.94
Satd. Flow (perm)	1750		1451	2882			3433	1583		1611		4508
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	46	24	1679	2	10	751	0	48	7	1	1073
RTOR Reduction (vph)	20	0	0	0	0	0	0	40	0	6	0	0
Lane Group Flow (vph)	83	0	578	1127	0	0	761	8	0	1	0	2556
Turn Type				custom		Perm	Perm			custom	Perm	
Protected Phases	6		6	2				4		8		5
Permitted Phases				6		4	4				5	2
Actuated Green, G (s)	45.4		45.4	64.8			26.4	26.4		26.8		59.8
Effective Green, g (s)	45.4		45.4	64.8			26.4	26.4		26.8		59.8
Actuated g/C Ratio	0.30		0.30	0.43			0.18	0.18		0.18		0.40
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)	530		439	1245			604	279		288		1848
v/s Ratio Prot	0.05		c0.40	0.12				0.01		0.00		c0.37
v/s Ratio Perm				0.27			c0.22					c0.18
v/c Ratio	0.16		1.32	0.91			1.26	0.03		0.00		2.14dr
Uniform Delay, d1	38.3		52.3	39.7			61.8	51.2		50.6		47.0
Progression Factor	1.00		1.00	1.00			1.00	1.00		1.00		1.00
Incremental Delay, d2	0.3		157.9	10.1			130.0	0.1		0.0		175.9
Delay (s)	38.6		210.2	49.8			191.8	51.3		50.6		222.8
Level of Service	D		F	D			F	D		D		F
Approach Delay (s)	38.6		104.2					183.4				222.8
Approach LOS	D		F					F				F

Intersection Summary			
HCM Average Control Delay	173.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

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

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

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	398	720	272	6	226	44	60	163	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5	4.5		4.5	4.5		4.2				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.95				
Frt		1.00	0.85		1.00	0.85		0.99				
Flt Protected		0.98	1.00		1.00	1.00		0.99				
Satd. Flow (prot)		3477	1583		3534	1583		3463				
Flt Permitted		0.75	1.00		0.93	1.00		0.99				
Satd. Flow (perm)		2641	1583		3275	1583		3463				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	433	783	296	7	246	48	65	177	16	0	0	0
RTOR Reduction (vph)	0	0	147	0	0	24	0	7	0	0	0	0
Lane Group Flow (vph)	0	1216	149	0	253	24	0	251	0	0	0	0
Turn Type	Perm		Perm	Perm		Perm	Split					
Protected Phases		8			4		6	6				
Permitted Phases	8		8	4		4						
Actuated Green, G (s)		31.3	31.3		31.3	31.3		22.0				
Effective Green, g (s)		31.3	31.3		31.3	31.3		22.0				
Actuated g/C Ratio		0.50	0.50		0.50	0.50		0.35				
Clearance Time (s)		4.5	4.5		4.5	4.5		4.2				
Vehicle Extension (s)		0.2	0.2		0.2	0.2		0.2				
Lane Grp Cap (vph)		1333	799		1653	799		1229				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		c0.46	0.09		0.08	0.02						
v/c Ratio		0.91	0.19		0.15	0.03		0.20				
Uniform Delay, d1		14.1	8.4		8.2	7.7		13.9				
Progression Factor		1.00	1.00		1.00	1.00		1.00				
Incremental Delay, d2		9.5	0.0		0.0	0.0		0.0				
Delay (s)		23.6	8.4		8.3	7.7		13.9				
Level of Service		C	A		A	A		B				
Approach Delay (s)		20.6			8.2			13.9			0.0	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	800	508	179	9	897	108	178	537	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5	4.5		4.5	4.5		4.2				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.95				
Frt		1.00	0.85		1.00	0.85		1.00				
Flt Protected		0.97	1.00		1.00	1.00		0.99				
Satd. Flow (prot)		3434	1583		3537	1583		3485				
Flt Permitted		0.50	1.00		0.93	1.00		0.99				
Satd. Flow (perm)		1783	1583		3305	1583		3485				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	870	552	195	10	975	117	193	584	18	0	0	0
RTOR Reduction (vph)	0	0	51	0	0	8	0	2	0	0	0	0
Lane Group Flow (vph)	0	1422	144	0	985	109	0	793	0	0	0	0
Turn Type	Perm		Perm	Perm		Perm	Split					
Protected Phases		8			4		6	6				
Permitted Phases	8		8	4		4						
Actuated Green, G (s)		93.5	93.5		93.5	93.5		27.8				
Effective Green, g (s)		93.5	93.5		93.5	93.5		27.8				
Actuated g/C Ratio		0.72	0.72		0.72	0.72		0.21				
Clearance Time (s)		4.5	4.5		4.5	4.5		4.2				
Vehicle Extension (s)		0.2	0.2		0.2	0.2		0.2				
Lane Grp Cap (vph)		1282	1139		2377	1139		745				
v/s Ratio Prot								c0.23				
v/s Ratio Perm		c0.80	0.09		0.30	0.07						
v/c Ratio		2.51dl	0.13		0.41	0.10		1.07				
Uniform Delay, d1		18.2	5.6		7.3	5.5		51.1				
Progression Factor		1.00	1.00		1.00	1.00		1.00				
Incremental Delay, d2		60.7	0.0		0.0	0.0		51.7				
Delay (s)		78.9	5.7		7.3	5.5		102.8				
Level of Service		E	A		A	A		F				
Approach Delay (s)		70.1			7.1			102.8			0.0	
Approach LOS		E			A			F			A	

Intersection Summary

HCM Average Control Delay	57.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

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

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	57	0	18	2	0	0	1	2190	29	40	1119	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6			4.2	4.2	4.2	4.2	
Lane Util. Factor	1.00	1.00			1.00			0.95	1.00	1.00	0.95	
Frt	1.00	0.85			1.00			1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00			0.95			1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1583			1770			3539	1583	1770	3536	
Flt Permitted	0.76	1.00			0.74			0.95	1.00	0.04	1.00	
Satd. Flow (perm)	1409	1583			1386			3379	1583	81	3536	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	0	20	2	0	0	1	2380	32	43	1216	7
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	3	0	0	0
Lane Group Flow (vph)	62	16	0	0	2	0	0	2381	29	43	1223	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)	21.3	21.3			21.3			92.1	92.1	92.1	92.1	
Effective Green, g (s)	21.3	21.3			21.3			92.1	92.1	92.1	92.1	
Actuated g/C Ratio	0.17	0.17			0.17			0.75	0.75	0.75	0.75	
Clearance Time (s)	4.6	4.6			4.6			4.2	4.2	4.2	4.2	
Vehicle Extension (s)	5.0	5.0			5.0			4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	246	276			242			2547	1193	61	2665	
v/s Ratio Prot		0.01									0.35	
v/s Ratio Perm	c0.04				0.00			c0.70	0.02	0.53		
v/c Ratio	0.25	0.06			0.01			0.93	0.02	0.70	0.46	
Uniform Delay, d1	43.6	42.1			41.7			12.5	3.8	7.9	5.7	
Progression Factor	1.00	1.00			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.2			0.0			7.3	0.0	32.8	0.2	
Delay (s)	44.7	42.3			41.7			19.9	3.8	40.7	5.8	
Level of Service	D	D			D			B	A	D	A	
Approach Delay (s)		44.1			41.7			19.7			7.0	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	8.8
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	29	0	23	0	0	2	1	2328	57	25	2269	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6			4.2	4.2	4.2	4.2	
Lane Util. Factor	1.00	1.00			1.00			0.95	1.00	1.00	0.95	
Frt	1.00	0.85			0.86			1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1583			1611			3539	1583	1770	3539	
Flt Permitted	0.76	1.00			1.00			0.95	1.00	0.04	1.00	
Satd. Flow (perm)	1409	1583			1611			3377	1583	81	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	0	25	0	0	2	1	2530	62	27	2466	1
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	6	0	0	0
Lane Group Flow (vph)	32	23	0	0	0	0	0	2531	56	27	2467	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)	21.3	21.3			21.3			92.1	92.1	92.1	92.1	
Effective Green, g (s)	21.3	21.3			21.3			92.1	92.1	92.1	92.1	
Actuated g/C Ratio	0.17	0.17			0.17			0.75	0.75	0.75	0.75	
Clearance Time (s)	4.6	4.6			4.6			4.2	4.2	4.2	4.2	
Vehicle Extension (s)	5.0	5.0			5.0			4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	246	276			281			2545	1193	61	2667	
v/s Ratio Prot		0.01			0.00						0.70	
v/s Ratio Perm	c0.02							c0.75	0.04	0.33		
v/c Ratio	0.13	0.08			0.00			0.99	0.05	0.44	0.93	
Uniform Delay, d1	42.6	42.3			41.7			14.8	3.8	5.6	12.2	
Progression Factor	1.00	1.00			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3			0.0			16.5	0.0	6.8	6.2	
Delay (s)	43.1	42.5			41.7			31.3	3.9	12.4	18.5	
Level of Service	D	D			D			C	A	B	B	
Approach Delay (s)		42.9			41.7			30.6			18.4	
Approach LOS		D			D			C			B	

Intersection Summary

HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	8.8
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	174	59	86	114	0	0	0	0	181	1445	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2						4.9	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frt		0.97		1.00	1.00						0.99	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1799		1770	1863						5024	
Flt Permitted		1.00		0.55	1.00						0.99	
Satd. Flow (perm)		1799		1026	1863						5024	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	189	64	93	124	0	0	0	0	197	1571	85
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	246	0	93	124	0	0	0	0	0	1844	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		12.7		12.7	12.7						23.2	
Effective Green, g (s)		12.7		12.7	12.7						23.2	
Actuated g/C Ratio		0.28		0.28	0.28						0.52	
Clearance Time (s)		4.2		4.2	4.2						4.9	
Vehicle Extension (s)		4.0		4.0	4.0						5.0	
Lane Grp Cap (vph)		508		290	526						2590	
v/s Ratio Prot		c0.14			0.07						c0.37	
v/s Ratio Perm				0.09								
v/c Ratio		0.48		0.32	0.24						0.71	
Uniform Delay, d1		13.4		12.7	12.4						8.3	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		1.0		0.9	0.3						1.2	
Delay (s)		14.4		13.6	12.7						9.5	
Level of Service		B		B	B						A	
Approach Delay (s)		14.4			13.1			0.0			9.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	326	160	164	303	0	0	0	0	184	1788	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		4.2	4.2						4.9	
Lane Util. Factor		1.00		1.00	1.00						0.91	
Frt		0.96		1.00	1.00						0.99	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1780		1770	1863						4995	
Flt Permitted		1.00		0.23	1.00						1.00	
Satd. Flow (perm)		1780		425	1863						4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	354	174	178	329	0	0	0	0	200	1943	215
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	526	0	178	329	0	0	0	0	0	2341	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		26.8		26.8	26.8						34.1	
Effective Green, g (s)		26.8		26.8	26.8						34.1	
Actuated g/C Ratio		0.38		0.38	0.38						0.49	
Clearance Time (s)		4.2		4.2	4.2						4.9	
Vehicle Extension (s)		4.0		4.0	4.0						5.0	
Lane Grp Cap (vph)		681		163	713						2433	
v/s Ratio Prot		0.30			0.18						c0.47	
v/s Ratio Perm				c0.42								
v/c Ratio		0.77		1.09	0.46						0.96	
Uniform Delay, d1		18.9		21.6	16.2						17.3	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		5.7		97.2	0.6						11.0	
Delay (s)		24.7		118.8	16.8						28.3	
Level of Service		C		F	B						C	
Approach Delay (s)		24.7			52.6			0.0			28.3	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	31.4	HCM Level of Service	C
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	370	1155	0	0	287	330	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.91	0.91					
Frt	1.00	1.00			0.95	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3224	1441					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3224	1441					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	402	1255	0	0	312	359	0	0	0	0	0
RTOR Reduction (vph)	36	0	0	0	53	87	0	0	0	0	0
Lane Group Flow (vph)	366	1255	0	0	410	121	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	71.4	71.4			18.2	18.2					
Effective Green, g (s)	71.4	71.4			18.2	18.2					
Actuated g/C Ratio	0.72	0.72			0.18	0.18					
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)	1279	1279			594	265					
v/s Ratio Prot	0.21	c0.71			c0.13						
v/s Ratio Perm						0.08					
v/c Ratio	0.29	0.98			0.69	0.46					
Uniform Delay, d1	4.8	13.1			37.7	35.9					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.3	20.8			4.0	2.1					
Delay (s)	5.0	33.9			41.7	38.0					
Level of Service	A	C			D	D					
Approach Delay (s)		26.9			40.5			0.0		0.0	
Approach LOS		C			D			A		A	

Intersection Summary			
HCM Average Control Delay	30.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	98.8	Sum of lost time (s)	9.2
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	321	1101	0	0	507	824	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.91	0.91					
Frt	1.00	1.00			0.93	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3165	1441					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3165	1441					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	349	1197	0	0	551	896	0	0	0	0	0
RTOR Reduction (vph)	31	0	0	0	64	64	0	0	0	0	0
Lane Group Flow (vph)	318	1197	0	0	926	393	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	76.4	76.4			34.4	34.4					
Effective Green, g (s)	76.4	76.4			34.4	34.4					
Actuated g/C Ratio	0.64	0.64			0.29	0.29					
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)	1127	1127			907	413					
v/s Ratio Prot	0.18	c0.68			c0.29						
v/s Ratio Perm						0.27					
v/c Ratio	0.28	1.06			1.02	0.95					
Uniform Delay, d1	9.7	21.8			42.8	42.0					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.3	44.9			35.2	32.3					
Delay (s)	9.9	66.7			78.0	74.3					
Level of Service	A	E			E	E					
Approach Delay (s)		53.9			76.8			0.0		0.0	
Approach LOS		D			E			A		A	

Intersection Summary

HCM Average Control Delay	65.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1040	0	56	611	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	0.97			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			1.00		
Satd. Flow (prot)	3433			3524		
Flt Permitted	0.95			1.00		
Satd. Flow (perm)	3433			3524		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1130	0	61	664	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1130	0	0	725	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	22.8			19.7		
Effective Green, g (s)	22.8			19.7		
Actuated g/C Ratio	0.44			0.38		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	1514			1343		
v/s Ratio Prot	c0.33			c0.21		
v/s Ratio Perm						
v/c Ratio	0.75			0.54		
Uniform Delay, d1	12.0			12.5		
Progression Factor	1.00			1.00		
Incremental Delay, d2	2.1			0.7		
Delay (s)	14.1			13.2		
Level of Service	B			B		
Approach Delay (s)	14.1			13.2	0.0	
Approach LOS	B			B	A	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	51.7	Sum of lost time (s)	9.2
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1305	0	105	721	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	0.97			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	3433			3517		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	3433			3517		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1418	0	114	784	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1418	0	0	898	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	26.5			22.2		
Effective Green, g (s)	26.5			22.2		
Actuated g/C Ratio	0.46			0.38		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	1571			1348		
v/s Ratio Prot	c0.41			c0.26		
v/s Ratio Perm						
v/c Ratio	0.90			0.67		
Uniform Delay, d1	14.5			14.8		
Progression Factor	1.00			1.00		
Incremental Delay, d2	7.7			1.6		
Delay (s)	22.2			16.4		
Level of Service	C			B		
Approach Delay (s)	22.2			16.4	0.0	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	9.2
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1474	145	111	376	0	0	0	0	376	1457	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2					4.9	4.9	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frt		0.99		1.00	1.00					1.00	0.98	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3492		1770	3539					1770	4958	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3492		1770	3539					1770	4958	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1602	158	121	409	0	0	0	0	409	1584	316
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	1754	0	121	409	0	0	0	0	409	1877	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		60.8		8.3	72.8					48.1	48.1	
Effective Green, g (s)		60.8		8.3	72.8					48.1	48.1	
Actuated g/C Ratio		0.47		0.06	0.56					0.37	0.37	
Clearance Time (s)		4.2		3.7	4.2					4.9	4.9	
Vehicle Extension (s)		6.8		2.0	6.8					0.2	0.2	
Lane Grp Cap (vph)		1633		113	1982					655	1834	
v/s Ratio Prot		c0.50		c0.07	0.12					0.23	c0.38	
v/s Ratio Perm												
v/c Ratio		1.07		1.07	0.21					0.62	1.02	
Uniform Delay, d1		34.6		60.9	14.2					33.5	41.0	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		45.2		105.0	0.2					1.3	27.1	
Delay (s)		79.8		165.8	14.4					34.9	68.1	
Level of Service		E		F	B					C	E	
Approach Delay (s)		79.8			49.0			0.0			62.2	
Approach LOS		E			D			A			E	

Intersection Summary			
HCM Average Control Delay	67.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	97.1%	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)	0	1673	179	251	1353	0	0	0	0	364	1740	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		3.7	4.2					4.9	4.9	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frt		0.99		1.00	1.00					1.00	0.96	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3488		1770	3539					1770	4901	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3488		1770	3539					1770	4901	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1818	195	273	1471	0	0	0	0	396	1891	603
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	2008	0	273	1471	0	0	0	0	396	2477	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		56.8		15.3	75.8					55.1	55.1	
Effective Green, g (s)		56.8		15.3	75.8					55.1	55.1	
Actuated g/C Ratio		0.41		0.11	0.54					0.39	0.39	
Clearance Time (s)		4.2		3.7	4.2					4.9	4.9	
Vehicle Extension (s)		6.8		2.0	6.8					0.2	0.2	
Lane Grp Cap (vph)		1415		193	1916					697	1929	
v/s Ratio Prot		c0.58		c0.15	0.42					0.22	c0.51	
v/s Ratio Perm												
v/c Ratio		1.42		1.41	0.77					0.57	1.28	
Uniform Delay, d1		41.6		62.4	25.2					33.2	42.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		192.7		214.2	2.6					0.6	131.9	
Delay (s)		234.3		276.6	27.8					33.8	174.4	
Level of Service		F		F	C					C	F	
Approach Delay (s)		234.3			66.8			0.0			155.1	
Approach LOS		F			E			A			F	

Intersection Summary

HCM Average Control Delay	155.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	122.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	272	0	0	169	489	2	636	1129	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	1.00			1.00	1.00		0.86	0.86			
Frt	1.00	1.00			1.00	0.85		0.93	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	1863			1863	1583		4467	1362			
Flt Permitted	0.64	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1195	1863			1863	1583		4467	1362			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	296	0	0	184	532	2	691	1227	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	56	0	280	280	0	0	0
Lane Group Flow (vph)	8	296	0	0	184	476	0	1027	333	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	20.5	20.5			20.5	20.5		19.0	19.0			
Effective Green, g (s)	20.5	20.5			20.5	20.5		19.0	19.0			
Actuated g/C Ratio	0.42	0.42			0.42	0.42		0.39	0.39			
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)	504	786			786	668		1746	532			
v/s Ratio Prot		0.16			0.10			0.23				
v/s Ratio Perm	0.01					c0.30			c0.24			
v/c Ratio	0.02	0.38			0.23	0.71		0.59	0.63			
Uniform Delay, d1	8.2	9.7			9.0	11.6		11.7	11.9			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.0	0.8			0.4	4.9		0.8	3.4			
Delay (s)	8.2	10.4			9.4	16.6		12.5	15.3			
Level of Service	A	B			A	B		B	B			
Approach Delay (s)		10.4			14.7			13.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	48.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	118.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	480	0	0	102	581	0	1187	1197	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.2	4.2			4.2	4.2		4.9	4.9			
Lane Util. Factor	1.00	1.00			1.00	1.00		0.86	0.86			
Frt	1.00	1.00			1.00	0.85		0.95	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	1863			1863	1583		4564	1362			
Flt Permitted	0.69	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1277	1863			1863	1583		4564	1362			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	522	0	0	111	632	0	1290	1301	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	13	0	119	119	0	0	0
Lane Group Flow (vph)	25	522	0	0	111	619	0	1822	531	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	31.8	31.8			31.8	31.8		34.1	34.1			
Effective Green, g (s)	31.8	31.8			31.8	31.8		34.1	34.1			
Actuated g/C Ratio	0.42	0.42			0.42	0.42		0.45	0.45			
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)	541	790			790	671		2075	619			
v/s Ratio Prot		0.28			0.06			c0.40				
v/s Ratio Perm	0.02					c0.39			0.39			
v/c Ratio	0.05	0.66			0.14	0.92		0.88	0.86			
Uniform Delay, d1	12.7	17.3			13.2	20.4		18.6	18.3			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.1	3.1			0.2	19.3		5.0	12.5			
Delay (s)	12.8	20.4			13.4	39.7		23.6	30.8			
Level of Service	B	C			B	D		C	C			
Approach Delay (s)		20.0			35.8			25.4			0.0	
Approach LOS		C			D			C			A	

Intersection Summary

HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	142.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	415	1268	5	146	0	0	0	0	3	935	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	3.7	4.2						4.9	4.9
Lane Util. Factor		0.95	0.95	1.00	1.00						0.95	1.00
Frt		0.92	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (prot)		1631	1504	1770	1863						3539	1583
Flt Permitted		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (perm)		1631	1504	1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	451	1378	5	159	0	0	0	0	3	1016	352
RTOR Reduction (vph)	0	27	72	0	0	0	0	0	0	0	0	182
Lane Group Flow (vph)	0	920	810	5	159	0	0	0	0	0	1019	170
Turn Type			Perm	Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases			4									
Actuated Green, G (s)		76.9	76.9	1.1	81.7						42.1	42.1
Effective Green, g (s)		76.9	76.9	1.1	81.7						42.1	42.1
Actuated g/C Ratio		0.58	0.58	0.01	0.61						0.32	0.32
Clearance Time (s)		4.2	4.2	3.7	4.2						4.9	4.9
Vehicle Extension (s)		4.9	4.9	2.0	4.6						5.2	5.2
Lane Grp Cap (vph)		944	870	15	1145						1121	501
v/s Ratio Prot		c0.56		c0.00	0.09						c0.29	0.11
v/s Ratio Perm			0.54									
v/c Ratio		0.98	0.93	0.33	0.14						0.91	0.34
Uniform Delay, d1		27.1	25.6	65.5	10.8						43.6	34.8
Progression Factor		1.00	1.00	1.00	1.00						1.00	1.00
Incremental Delay, d2		23.4	16.9	4.7	0.1						11.4	0.9
Delay (s)		50.5	42.4	70.3	10.9						55.0	35.7
Level of Service		D	D	E	B						D	D
Approach Delay (s)		46.6			12.7			0.0			50.0	
Approach LOS		D			B			A			D	

Intersection Summary			
HCM Average Control Delay	46.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	132.9	Sum of lost time (s)	12.8
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	594	1192	20	303	0	0	0	0	5	1819	674
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2	3.7	4.2						4.9	4.9
Lane Util. Factor		0.95	0.95	1.00	1.00						0.95	1.00
Frt		0.94	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (prot)		1672	1504	1770	1863						3539	1583
Flt Permitted		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (perm)		1672	1504	1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	646	1296	22	329	0	0	0	0	5	1977	733
RTOR Reduction (vph)	0	14	71	0	0	0	0	0	0	0	0	180
Lane Group Flow (vph)	0	1008	849	22	329	0	0	0	0	0	1982	553
Turn Type			Perm	Prot						Split		Prot
Protected Phases		4		3	8					6	6	6
Permitted Phases			4									
Actuated Green, G (s)		62.0	62.0	6.9	72.6						63.6	63.6
Effective Green, g (s)		62.0	62.0	6.9	72.6						63.6	63.6
Actuated g/C Ratio		0.43	0.43	0.05	0.50						0.44	0.44
Clearance Time (s)		4.2	4.2	3.7	4.2						4.9	4.9
Vehicle Extension (s)		4.9	4.9	2.0	4.6						5.2	5.2
Lane Grp Cap (vph)		713	642	84	931						1549	693
v/s Ratio Prot		c0.60		0.01	c0.18						c0.56	0.35
v/s Ratio Perm			0.56									
v/c Ratio		1.41	1.32	0.26	0.35						1.28	0.80
Uniform Delay, d1		41.7	41.7	66.7	22.1						40.9	35.3
Progression Factor		1.00	1.00	1.00	1.00						1.00	1.00
Incremental Delay, d2		194.6	155.7	0.6	0.4						130.9	7.4
Delay (s)		236.2	197.4	67.4	22.5						171.8	42.7
Level of Service		F	F	E	C						F	D
Approach Delay (s)		217.8			25.3			0.0			136.9	
Approach LOS		F			C			A			F	

Intersection Summary

HCM Average Control Delay	160.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	145.3	Sum of lost time (s)	13.3
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	7	562	26	57	49	32	5	37	29	17	24	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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frt		0.99			0.97			0.94			0.99	
Flt Protected		1.00			0.98			1.00			0.98	
Satd. Flow (prot)		3514			1768			1753			1812	
Flt Permitted		0.95			0.73			0.97			1.00	
Satd. Flow (perm)		3350			1322			1709			1847	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	611	28	62	53	35	5	40	32	18	26	3
RTOR Reduction (vph)	0	5	0	0	12	0	0	29	0	0	3	0
Lane Group Flow (vph)	0	642	0	0	138	0	0	48	0	0	44	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		20.1			20.1			2.7			2.7	
Effective Green, g (s)		20.1			20.1			2.7			2.7	
Actuated g/C Ratio		0.65			0.65			0.09			0.09	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		2186			863			150			162	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.10			c0.03			0.02	
v/c Ratio		0.29			0.16			0.32			0.27	
Uniform Delay, d1		2.3			2.1			13.2			13.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			1.2			0.9	
Delay (s)		2.4			2.2			14.4			14.0	
Level of Service		A			A			B			B	
Approach Delay (s)		2.4			2.2			14.4			14.0	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	30.8	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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	193	65	160	237	271	0	14	1624	1	276	1961	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frt		0.94			1.00			1.00			0.99	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		3261			1820			1862			1841	
Flt Permitted		0.59			0.50			0.96			0.42	
Satd. Flow (perm)		1956			934			1783			774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	71	174	258	295	0	15	1765	1	300	2132	108
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	450	0	0	553	0	0	1781	0	0	2539	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		53.0			53.0			89.0			89.0	
Effective Green, g (s)		53.0			53.0			89.0			89.0	
Actuated g/C Ratio		0.35			0.35			0.59			0.59	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		691			330			1058			459	
v/s Ratio Prot												
v/s Ratio Perm		0.23			c0.59			1.00			c3.28	
v/c Ratio		0.65			1.68			1.68			5.53	
Uniform Delay, d1		40.7			48.5			30.5			30.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.2			317.1			311.6			2043.8	
Delay (s)		42.9			365.6			342.1			2074.3	
Level of Service		D			F			F			F	
Approach Delay (s)		42.9			365.6			342.1			2074.3	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM Average Control Delay	1144.6	HCM Level of Service	F
HCM Volume to Capacity ratio	4.09		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	264.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	115	168	106	12	30	77	1080	88	28	622	779
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		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)	1947	2049	1742	1947	3474		3776	3849		1947	3893	1742
Flt Permitted	0.73	1.00	1.00	0.68	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1486	2049	1742	1387	3474		3776	3849		1947	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	125	183	115	13	33	84	1174	96	30	676	847
RTOR Reduction (vph)	0	0	146	0	26	0	0	9	0	0	0	434
Lane Group Flow (vph)	80	125	37	115	20	0	84	1261	0	30	676	413
Turn Type	Perm		Perm	Perm			Prot			Prot		Perm
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6		6	2								8
Actuated Green, G (s)	9.2	9.2	9.2	9.2	9.2		2.0	23.5		0.6	22.1	22.1
Effective Green, g (s)	9.2	9.2	9.2	9.2	9.2		2.0	23.5		0.6	22.1	22.1
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20		0.04	0.52		0.01	0.49	0.49
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	302	416	354	282	706		167	1997		26	1899	850
v/s Ratio Prot		0.06			0.01		c0.02	c0.33		0.02	0.17	
v/s Ratio Perm	0.05		0.02	c0.08								0.24
v/c Ratio	0.26	0.30	0.10	0.41	0.03		0.50	0.63		1.15	0.36	0.49
Uniform Delay, d1	15.2	15.3	14.7	15.7	14.5		21.2	7.8		22.3	7.2	7.8
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	0.5	0.4	0.1	1.0	0.0		2.4	0.7		227.3	0.1	0.4
Delay (s)	15.7	15.7	14.8	16.6	14.5		23.5	8.5		249.7	7.3	8.2
Level of Service	B	B	B	B	B		C	A		F	A	A
Approach Delay (s)		15.3			16.0			9.4			12.5	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	45.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.9%	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)	158	279	188	156	468	86	440	591	120	50	1440	1087
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.97	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.97		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)	1947	2049	1742	1947	3803		3776	3795		1947	3893	1742
Flt Permitted	0.25	1.00	1.00	0.35	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	503	2049	1742	717	3803		3776	3795		1947	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	303	204	170	509	93	478	642	130	54	1565	1182
RTOR Reduction (vph)	0	0	93	0	14	0	0	15	0	0	0	39
Lane Group Flow (vph)	172	303	111	170	588	0	478	757	0	54	1565	1143
Turn Type	Perm		Perm	Perm			Prot			Prot		Perm
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6		6	2								8
Actuated Green, G (s)	31.0	31.0	31.0	31.0	31.0		11.0	61.6		6.2	56.8	56.8
Effective Green, g (s)	31.0	31.0	31.0	31.0	31.0		11.0	61.6		6.2	56.8	56.8
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.10	0.56		0.06	0.51	0.51
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)	141	573	487	201	1064		375	2110		109	1996	893
v/s Ratio Prot		0.15			0.15		c0.13	0.20		0.03	0.40	
v/s Ratio Perm	c0.34		0.06	0.24								c0.66
v/c Ratio	1.22	0.53	0.23	0.85	0.55		1.27	0.36		0.50	0.78	1.28
Uniform Delay, d1	39.9	33.7	30.7	37.6	34.0		49.9	13.6		50.8	22.0	27.0
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	146.7	0.9	0.2	26.5	0.6		142.9	0.1		3.5	2.1	134.8
Delay (s)	186.6	34.6	30.9	64.1	34.6		192.8	13.8		54.3	24.1	161.8
Level of Service	F	C	C	E	C		F	B		D	C	F
Approach Delay (s)		72.0			41.1			82.2			82.8	
Approach LOS		E			D			F			F	

Intersection Summary

HCM Average Control Delay	75.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	110.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	61	68	124	91	38	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.93			1.00	0.97	
Flt Protected	1.00			0.97	0.96	
Satd. Flow (prot)	1903			1992	1918	
Flt Permitted	1.00			0.80	0.96	
Satd. Flow (perm)	1903			1633	1918	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	74	135	99	41	10
RTOR Reduction (vph)	22	0	0	0	10	0
Lane Group Flow (vph)	118	0	0	234	41	0
Turn Type			Perm			
Protected Phases	6			2		
Permitted Phases			2		4	
Actuated Green, G (s)	22.0			22.0	1.2	
Effective Green, g (s)	22.0			22.0	1.2	
Actuated g/C Ratio	0.71			0.71	0.04	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1342			1151	74	
v/s Ratio Prot	0.06					
v/s Ratio Perm				c0.14	c0.02	
v/c Ratio	0.09			0.20	0.56	
Uniform Delay, d1	1.4			1.6	14.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.0			0.1	8.9	
Delay (s)	1.5			1.7	23.6	
Level of Service	A			A	C	
Approach Delay (s)	1.5			1.7	23.6	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	4.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	31.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	105	218	164	348	184	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.91			1.00	0.98	
Flt Protected	1.00			0.98	0.96	
Satd. Flow (prot)	1862			2017	1922	
Flt Permitted	1.00			0.78	0.96	
Satd. Flow (perm)	1862			1601	1922	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	237	178	378	200	41
RTOR Reduction (vph)	106	0	0	0	17	0
Lane Group Flow (vph)	245	0	0	556	224	0
Turn Type			Perm			
Protected Phases	6			2		
Permitted Phases			2		4	
Actuated Green, G (s)	22.5			22.5	10.1	
Effective Green, g (s)	22.5			22.5	10.1	
Actuated g/C Ratio	0.55			0.55	0.25	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1032			887	478	
v/s Ratio Prot	0.13					
v/s Ratio Perm				c0.35	c0.12	
v/c Ratio	0.24			0.63	0.47	
Uniform Delay, d1	4.6			6.2	13.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.1			1.4	0.7	
Delay (s)	4.8			7.6	13.7	
Level of Service	A			A	B	
Approach Delay (s)	4.8			7.6	13.7	
Approach LOS	A			A	B	

Intersection Summary			
HCM Average Control Delay	8.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	40.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	103	22	53	31	13	6	126	1058	16	10	762	370
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	0.95		1.00	0.95	
Frt		0.96			0.98		1.00	1.00		1.00	0.95	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1911			1953		1947	3885		1947	3702	
Flt Permitted		0.79			0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1555			1646		1947	3885		1947	3702	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	24	58	34	14	7	137	1150	17	11	828	402
RTOR Reduction (vph)	0	29	0	0	6	0	0	1	0	0	87	0
Lane Group Flow (vph)	0	165	0	0	49	0	137	1166	0	11	1143	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6			2								
Actuated Green, G (s)		10.6			10.6		5.1	27.6		0.7	23.2	
Effective Green, g (s)		10.6			10.6		5.1	27.6		0.7	23.2	
Actuated g/C Ratio		0.21			0.21		0.10	0.54		0.01	0.46	
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)		324			343		195	2107		27	1687	
v/s Ratio Prot							c0.07	0.30		0.01	c0.31	
v/s Ratio Perm		c0.11			0.03							
v/c Ratio		0.51			0.14		0.70	0.55		0.41	0.68	
Uniform Delay, d1		17.8			16.4		22.2	7.6		24.9	10.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.3			0.2		10.9	0.3		9.7	1.1	
Delay (s)		19.1			16.6		33.1	7.9		34.6	12.0	
Level of Service		B			B		C	A		C	B	
Approach Delay (s)		19.1			16.6			10.6			12.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	50.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	229	10	216	25	10	21	141	1119	27	3	1238	148
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	0.95		1.00	0.95	
Frt		0.94			0.95		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1871			1903		1947	3880		1947	3831	
Flt Permitted		0.82			0.80		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1578			1548		1947	3880		1947	3831	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	11	235	27	11	23	153	1216	29	3	1346	161
RTOR Reduction (vph)	0	38	0	0	16	0	0	1	0	0	9	0
Lane Group Flow (vph)	0	457	0	0	45	0	153	1244	0	3	1498	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6			2								
Actuated Green, G (s)		28.1			28.1		8.9	48.1		0.8	40.0	
Effective Green, g (s)		28.1			28.1		8.9	48.1		0.8	40.0	
Actuated g/C Ratio		0.32			0.32		0.10	0.54		0.01	0.45	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		498			489		195	2097		18	1722	
v/s Ratio Prot							c0.08	0.32		0.00	c0.39	
v/s Ratio Perm		c0.29			0.03							
v/c Ratio		0.92			0.09		0.78	0.59		0.17	0.87	
Uniform Delay, d1		29.3			21.5		39.1	13.8		43.8	22.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		21.6			0.1		18.4	0.5		4.3	5.0	
Delay (s)		51.0			21.5		57.5	14.3		48.1	27.1	
Level of Service		D			C		E	B		D	C	
Approach Delay (s)		51.0			21.5			19.0			27.2	
Approach LOS		D			C			B			C	

Intersection Summary

HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	360	70	15	284	25	31	100	16	139	140	77
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			0.99		1.00	0.98		1.00	0.95	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2001			2023		1947	2008		1947	1940	
Flt Permitted		0.97			0.98		0.61	1.00		0.49	1.00	
Satd. Flow (perm)		1953			1983		1254	2008		1003	1940	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	391	76	16	309	27	34	109	17	151	152	84
RTOR Reduction (vph)	0	13	0	0	6	0	0	12	0	0	37	0
Lane Group Flow (vph)	0	477	0	0	346	0	34	114	0	151	199	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.6			13.6		11.6	10.5		19.9	14.8	
Effective Green, g (s)		13.6			13.6		11.6	10.5		19.9	14.8	
Actuated g/C Ratio		0.33			0.33		0.28	0.25		0.48	0.36	
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)		640			650		369	508		604	692	
v/s Ratio Prot							0.00	0.06		c0.03	c0.10	
v/s Ratio Perm		c0.24			0.17		0.02			0.09		
v/c Ratio		0.75			0.53		0.09	0.22		0.25	0.29	
Uniform Delay, d1		12.4			11.4		11.0	12.3		6.3	9.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.7			0.8		0.1	0.2		0.2	0.2	
Delay (s)		17.1			12.2		11.1	12.5		6.5	9.8	
Level of Service		B			B		B	B		A	A	
Approach Delay (s)		17.1			12.2			12.2			8.5	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	41.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.1%	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)	142	538	60	92	474	43	113	132	171	402	222	135
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		0.99			0.99		1.00	0.92		1.00	0.94	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2007			2014		1947	1875		1947	1933	
Flt Permitted		0.73			0.78		0.42	1.00		0.19	1.00	
Satd. Flow (perm)		1476			1574		860	1875		398	1933	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	154	585	65	100	515	47	123	143	186	437	241	147
RTOR Reduction (vph)	0	3	0	0	3	0	0	47	0	0	22	0
Lane Group Flow (vph)	0	801	0	0	659	0	123	282	0	437	366	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		54.0			54.0		21.6	16.6		37.6	28.6	
Effective Green, g (s)		54.0			54.0		21.6	16.6		37.6	28.6	
Actuated g/C Ratio		0.54			0.54		0.22	0.17		0.38	0.29	
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)		800			853		241	313		415	555	
v/s Ratio Prot							0.03	0.15		c0.18	0.19	
v/s Ratio Perm		c0.54			0.42		0.09			c0.22		
v/c Ratio		1.00			0.77		0.51	0.90		1.05	0.66	
Uniform Delay, d1		22.8			18.0		32.8	40.7		26.9	31.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		32.1			4.4		1.8	27.4		58.8	2.8	
Delay (s)		54.9			22.4		34.7	68.1		85.7	34.1	
Level of Service		D			C		C	E		F	C	
Approach Delay (s)		54.9			22.4			59.0			61.4	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM Average Control Delay	49.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	99.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	135	543	420	151	445	395	529	1113	156	268	946	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1947	3893	1742	1947	2049	1742	1947	3821		1947	3893	1742
Flt Permitted	0.22	1.00	1.00	0.22	1.00	1.00	0.17	1.00		0.20	1.00	1.00
Satd. Flow (perm)	455	3893	1742	453	2049	1742	342	3821		410	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	590	457	164	484	429	575	1210	170	291	1028	301
RTOR Reduction (vph)	0	0	226	0	0	329	0	14	0	0	0	193
Lane Group Flow (vph)	147	590	231	164	484	100	575	1366	0	291	1028	108
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	25.7	18.0	18.0	25.9	18.1	18.1	42.0	29.0		29.0	20.0	20.0
Effective Green, g (s)	25.7	18.0	18.0	25.9	18.1	18.1	42.0	29.0		29.0	20.0	20.0
Actuated g/C Ratio	0.32	0.23	0.23	0.32	0.23	0.23	0.53	0.36		0.36	0.25	0.25
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	291	878	393	293	465	395	542	1389		322	976	437
v/s Ratio Prot	0.05	0.15		c0.05	c0.24		c0.24	0.36		0.10	0.26	
v/s Ratio Perm	0.11		0.13	0.13		0.06	c0.32			0.23		0.06
v/c Ratio	0.51	0.67	0.59	0.56	1.04	0.25	1.06	0.98		0.90	1.05	0.25
Uniform Delay, d1	21.2	28.2	27.6	20.5	30.8	25.3	21.7	25.2		20.9	29.9	23.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	2.0	2.2	2.3	52.8	0.3	55.8	20.1		27.1	43.9	0.3
Delay (s)	22.5	30.2	29.8	22.8	83.6	25.7	77.5	45.3		48.0	73.8	24.2
Level of Service	C	C	C	C	F	C	E	D		D	E	C
Approach Delay (s)		29.1			51.3			54.8			59.9	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM Average Control Delay	50.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

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

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	184	615	366	224	825	550	674	1463	176	494	1097	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1947	3893	1742	1947	2049	1742	1947	3831		1947	3893	1742
Flt Permitted	0.13	1.00	1.00	0.13	1.00	1.00	0.10	1.00		0.11	1.00	1.00
Satd. Flow (perm)	261	3893	1742	264	2049	1742	205	3831		228	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	668	398	243	897	598	733	1590	191	537	1192	761
RTOR Reduction (vph)	0	0	179	0	0	203	0	7	0	0	0	161
Lane Group Flow (vph)	200	668	219	243	897	395	733	1774	0	537	1192	600
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	38.4	31.4	31.4	51.0	40.0	40.0	71.0	43.0		60.0	36.0	36.0
Effective Green, g (s)	38.4	31.4	31.4	51.0	40.0	40.0	71.0	43.0		60.0	36.0	36.0
Actuated g/C Ratio	0.30	0.24	0.24	0.39	0.31	0.31	0.55	0.33		0.46	0.28	0.28
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	168	940	421	306	630	536	527	1267		423	1078	482
v/s Ratio Prot	c0.06	0.17		0.10	c0.44		c0.33	c0.46		0.23	0.31	
v/s Ratio Perm	0.29		0.13	0.22		0.23	0.43			0.35		0.34
v/c Ratio	1.19	0.71	0.52	0.79	1.42	0.74	1.39	1.40		1.27	1.11	1.25
Uniform Delay, d1	42.5	45.1	42.8	30.6	45.0	40.3	40.3	43.5		40.5	47.0	47.0
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	129.9	2.6	1.2	13.2	199.9	5.3	187.3	184.8		138.8	61.2	127.1
Delay (s)	172.4	47.7	43.9	43.8	244.9	45.5	227.7	228.3		179.3	108.2	174.1
Level of Service	F	D	D	D	F	D	F	F		F	F	F
Approach Delay (s)		66.2			148.2			228.1			143.7	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM Average Control Delay	158.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	140.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	65	25	29	49	37	6	1	1627	39	18	2574	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1947	1882		1947	2003		1947	3893	1742	1947	3893	1742
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1947	1882		1947	2003		1947	3893	1742	1947	3893	1742
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	27	32	53	40	7	1	1768	42	20	2798	38
RTOR Reduction (vph)	0	30	0	0	5	0	0	0	8	0	0	3
Lane Group Flow (vph)	71	29	0	53	42	0	1	1768	34	20	2798	35
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	6.2	8.1		6.1	8.0		1.1	90.7	90.7	2.9	92.5	92.5
Effective Green, g (s)	6.2	8.1		6.1	8.0		1.1	90.7	90.7	2.9	92.5	92.5
Actuated g/C Ratio	0.05	0.07		0.05	0.06		0.01	0.73	0.73	0.02	0.75	0.75
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)	98	123		96	129		17	2852	1276	46	2909	1302
v/s Ratio Prot	c0.04	0.02		0.03	c0.02		0.00	0.45		c0.01	c0.72	
v/s Ratio Perm									0.02			0.02
v/c Ratio	0.72	0.24		0.55	0.33		0.06	0.62	0.03	0.43	0.96	0.03
Uniform Delay, d1	58.0	54.9		57.5	55.3		60.8	8.1	4.5	59.6	14.1	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	23.1	1.0		6.7	1.5		1.5	0.4	0.0	6.5	9.4	0.0
Delay (s)	81.1	55.9		64.2	56.8		62.3	8.5	4.5	66.1	23.5	4.0
Level of Service	F	E		E	E		E	A	A	E	C	A
Approach Delay (s)		69.7			60.7			8.5			23.5	
Approach LOS		E			E			A			C	

Intersection Summary

HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	123.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	378	405	159	954	670	18	183	182	1365	412	254	2038
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95			0.97	0.95	1.00	0.97	0.95
Frt	1.00	0.96		1.00	1.00			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3776	3728		3776	3878			3776	3893	1742	3776	3893
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3776	3728		3776	3878			3776	3893	1742	3776	3893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	411	440	173	1037	728	20	199	198	1484	448	276	2215
RTOR Reduction (vph)	0	30	0	0	2	0	0	0	0	133	0	0
Lane Group Flow (vph)	411	583	0	1037	746	0	0	397	1484	315	276	2215
Turn Type	Prot			Prot			Prot	Prot		Perm	Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases										2		
Actuated Green, G (s)	16.0	17.0		29.0	30.0			12.0	65.2	65.2	12.8	66.0
Effective Green, g (s)	16.0	17.0		29.0	30.0			12.0	65.2	65.2	12.8	66.0
Actuated g/C Ratio	0.11	0.12		0.21	0.21			0.09	0.47	0.47	0.09	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	432	453		782	831			324	1813	811	345	1835
v/s Ratio Prot	0.11	c0.16		c0.27	0.19			c0.11	0.38		0.07	c0.57
v/s Ratio Perm										0.18		
v/c Ratio	0.95	1.29		1.33	0.90			1.23	0.82	0.39	0.80	1.21
Uniform Delay, d1	61.6	61.5		55.5	53.5			64.0	32.3	24.4	62.3	37.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.0	145.1		155.6	12.4			125.7	3.0	0.3	12.5	98.6
Delay (s)	92.6	206.6		211.1	65.9			189.7	35.3	24.7	74.8	135.6
Level of Service	F	F		F	E			F	D	C	E	F
Approach Delay (s)		160.9			150.2				59.6			108.1
Approach LOS		F			F				E			F

Intersection Summary			
HCM Average Control Delay	110.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	123.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	610
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
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
Adj. Flow (vph)	663
RTOR Reduction (vph)	132
Lane Group Flow (vph)	531
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	66.0
Effective Green, g (s)	66.0
Actuated g/C Ratio	0.47
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	821
v/s Ratio Prot	
v/s Ratio Perm	0.31
v/c Ratio	0.65
Uniform Delay, d1	28.1
Progression Factor	1.00
Incremental Delay, d2	1.8
Delay (s)	29.9
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Volume (vph)	653	621	517	1124	914	32	281	271	1920	443	502	2970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95			0.97	0.95	1.00	0.97	0.95
Frt	1.00	0.93		1.00	0.99			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3776	3628		3776	3873			3776	3893	1742	3776	3893
Flt Permitted	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3776	3628		3776	3873			3776	3893	1742	3776	3893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	710	675	562	1222	993	35	305	295	2087	482	546	3228
RTOR Reduction (vph)	0	100	0	0	1	0	0	0	0	95	0	0
Lane Group Flow (vph)	710	1137	0	1222	1027	0	0	600	2087	387	546	3228
Turn Type	Prot			Prot			Prot	Prot		Perm	Prot	
Protected Phases	3	8		7	4		5	5	2		1	6
Permitted Phases										2		
Actuated Green, G (s)	15.0	28.0		24.0	37.0			12.0	70.0	70.0	12.0	70.0
Effective Green, g (s)	15.0	28.0		24.0	37.0			12.0	70.0	70.0	12.0	70.0
Actuated g/C Ratio	0.10	0.19		0.16	0.25			0.08	0.47	0.47	0.08	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	378	677		604	955			302	1817	813	302	1817
v/s Ratio Prot	0.19	c0.31		c0.32	0.27			c0.16	0.54		0.14	c0.83
v/s Ratio Perm										0.22		
v/c Ratio	1.88	1.68		2.02	1.08			1.99	1.15	0.48	1.81	1.78
Uniform Delay, d1	67.5	61.0		63.0	56.5			69.0	40.0	27.4	69.0	40.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	405.2	312.2		466.2	51.7			455.7	73.8	0.4	376.5	351.7
Delay (s)	472.7	373.2		529.2	108.2			524.7	113.8	27.9	445.5	391.7
Level of Service	F	F		F	F			F	F	C	F	F
Approach Delay (s)		409.5			336.9				178.5			342.4
Approach LOS		F			F				F			F

Intersection Summary

HCM Average Control Delay	308.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.82		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	177.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWR
Lane Configurations	
Volume (vph)	649
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
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
Adj. Flow (vph)	705
RTOR Reduction (vph)	90
Lane Group Flow (vph)	615
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	70.0
Effective Green, g (s)	70.0
Actuated g/C Ratio	0.47
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	813
v/s Ratio Prot	
v/s Ratio Perm	0.35
v/c Ratio	0.76
Uniform Delay, d1	33.0
Progression Factor	1.00
Incremental Delay, d2	4.1
Delay (s)	37.0
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
113: L St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	171	21	115	122	0	0	0	0	202	716	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.99		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		2019		1947	2049					1947	2046	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		2019		1947	2049					1947	2046	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	186	23	125	133	0	0	0	0	220	778	7
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	204	0	125	133	0	0	0	0	220	784	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		12.2		10.1	10.1					32.4	32.4	
Effective Green, g (s)		12.2		10.1	10.1					32.4	32.4	
Actuated g/C Ratio		0.18		0.15	0.15					0.49	0.49	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		369		295	310					946	994	
v/s Ratio Prot		c0.10		0.06	c0.06					0.11	c0.38	
v/s Ratio Perm												
v/c Ratio		0.55		0.42	0.43					0.23	0.79	
Uniform Delay, d1		24.8		25.7	25.7					9.9	14.3	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		1.8		1.0	1.0					0.1	4.2	
Delay (s)		26.6		26.6	26.6					10.1	18.5	
Level of Service		C		C	C					B	B	
Approach Delay (s)		26.6			26.6			0.0			16.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
113: L St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	129	72	230	476	0	0	0	0	226	1549	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	
Frt		0.95		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1950		1947	2049					1947	2046	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1950		1947	2049					1947	2046	
Peak-hour factor, PHF	0.77	0.77	0.77	0.75	0.75	0.75	0.92	0.92	0.92	0.81	0.81	0.81
Adj. Flow (vph)	0	168	94	307	635	0	0	0	0	279	1912	17
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	249	0	307	635	0	0	0	0	279	1929	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		16.0		33.0	33.0					81.0	81.0	
Effective Green, g (s)		16.0		33.0	33.0					81.0	81.0	
Actuated g/C Ratio		0.11		0.23	0.23					0.57	0.57	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		220		452	476					1111	1167	
v/s Ratio Prot		c0.13		0.16	c0.31					0.14	c0.94	
v/s Ratio Perm												
v/c Ratio		1.13		0.68	1.33					0.25	1.65	
Uniform Delay, d1		63.0		49.7	54.5					15.3	30.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		100.2		4.0	164.1					0.1	297.7	
Delay (s)		163.2		53.7	218.6					15.4	328.2	
Level of Service		F		D	F					B	F	
Approach Delay (s)		163.2			164.9			0.0			288.7	
Approach LOS		F			F			A			F	

Intersection Summary			
HCM Average Control Delay	244.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.51		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	128.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
115: Stanislaus St &

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	444	230	0	0	0	0	0	0	760	693	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0							4.0	4.0	
Lane Util. Factor		1.00	1.00							1.00	1.00	
Frt		1.00	0.85							1.00	1.00	
Flt Protected		1.00	1.00							0.95	1.00	
Satd. Flow (prot)		2049	1742							1947	2040	
Flt Permitted		1.00	1.00							0.95	1.00	
Satd. Flow (perm)		2049	1742							1947	2040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	483	250	0	0	0	0	0	0	826	753	22
RTOR Reduction (vph)	0	0	132	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	483	118	0	0	0	0	0	0	826	774	0
Turn Type	Perm		Perm				Prot			Prot		
Protected Phases		6					7	4		3	8	
Permitted Phases	6		6									
Actuated Green, G (s)		21.7	21.7							37.4	37.4	
Effective Green, g (s)		21.7	21.7							37.4	37.4	
Actuated g/C Ratio		0.32	0.32							0.56	0.56	
Clearance Time (s)		4.0	4.0							4.0	4.0	
Vehicle Extension (s)		3.0	3.0							3.0	3.0	
Lane Grp Cap (vph)		663	563							1085	1137	
v/s Ratio Prot		c0.24								c0.42	0.38	
v/s Ratio Perm			0.07									
v/c Ratio		0.73	0.21							0.76	0.68	
Uniform Delay, d1		20.1	16.5							11.4	10.6	
Progression Factor		1.00	1.00							1.00	1.00	
Incremental Delay, d2		4.0	0.2							3.2	1.7	
Delay (s)		24.1	16.7							14.6	12.3	
Level of Service		C	B							B	B	
Approach Delay (s)		21.6			0.0			0.0			13.5	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
115: Stanislaus St &

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	365	403	0	0	0	0	0	0	590	1385	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0							4.0	4.0	
Lane Util. Factor		1.00	1.00							1.00	1.00	
Frt		1.00	0.85							1.00	0.99	
Flt Protected		1.00	1.00							0.95	1.00	
Satd. Flow (prot)		2049	1742							1947	2038	
Flt Permitted		1.00	1.00							0.95	1.00	
Satd. Flow (perm)		2049	1742							1947	2038	
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	0	440	486	0	0	0	0	0	0	702	1649	60
RTOR Reduction (vph)	0	0	63	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	440	423	0	0	0	0	0	0	702	1708	0
Turn Type	Perm		Perm				Prot			Prot		
Protected Phases		6					7	4		3	8	
Permitted Phases	6		6									
Actuated Green, G (s)		33.0	33.0							101.0	101.0	
Effective Green, g (s)		33.0	33.0							101.0	101.0	
Actuated g/C Ratio		0.23	0.23							0.71	0.71	
Clearance Time (s)		4.0	4.0							4.0	4.0	
Vehicle Extension (s)		3.0	3.0							3.0	3.0	
Lane Grp Cap (vph)		476	405							1385	1450	
v/s Ratio Prot		0.21								0.36	c0.84	
v/s Ratio Perm			c0.24									
v/c Ratio		0.92	1.04							0.51	1.18	
Uniform Delay, d1		53.3	54.5							9.3	20.5	
Progression Factor		1.00	1.00							1.00	1.00	
Incremental Delay, d2		23.7	56.8							0.3	87.6	
Delay (s)		77.0	111.3							9.5	108.1	
Level of Service		E	F							A	F	
Approach Delay (s)		95.0			0.0			0.0			79.4	
Approach LOS		F			A			A			E	

Intersection Summary			
HCM Average Control Delay	83.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: N St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	221	40	239	44	0	0	0	0	388	1086	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	0.95	
Frt		0.98		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		2002		1947	2049					1947	3886	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		2002		1947	2049					1947	3886	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	240	43	260	48	0	0	0	0	422	1180	14
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	275	0	260	48	0	0	0	0	422	1193	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		13.9		11.9	29.8					27.7	27.7	
Effective Green, g (s)		13.9		11.9	29.8					27.7	27.7	
Actuated g/C Ratio		0.21		0.18	0.45					0.42	0.42	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		425		354	932					823	1643	
v/s Ratio Prot		c0.14		c0.13	0.02					0.22	c0.31	
v/s Ratio Perm												
v/c Ratio		0.65		0.73	0.05					0.51	0.73	
Uniform Delay, d1		23.6		25.3	10.0					13.9	15.7	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		3.4		7.7	0.0					0.5	1.6	
Delay (s)		26.9		33.0	10.0					14.5	17.4	
Level of Service		C		C	A					B	B	
Approach Delay (s)		26.9			29.4			0.0			16.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: N St & Stanislaus St

4/11/2012

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	122	33	392	462	0	0	0	0	339	1740	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00					1.00	0.95	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		1984		1947	2049					1947	3893	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		1984		1947	2049					1947	3893	
Peak-hour factor, PHF	0.55	0.55	0.55	0.57	0.57	0.57	0.92	0.92	0.92	0.85	0.85	0.85
Adj. Flow (vph)	0	222	60	688	811	0	0	0	0	399	2047	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	276	0	688	811	0	0	0	0	399	2047	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)		20.0		44.0	68.0					66.0	66.0	
Effective Green, g (s)		20.0		44.0	68.0					66.0	66.0	
Actuated g/C Ratio		0.14		0.31	0.48					0.46	0.46	
Clearance Time (s)		4.0		4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		279		603	981					905	1809	
v/s Ratio Prot		c0.14		c0.35	0.40					0.20	c0.53	
v/s Ratio Perm												
v/c Ratio		0.99		1.14	0.83					0.44	1.13	
Uniform Delay, d1		60.9		49.0	31.9					25.6	38.0	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		50.4		82.1	5.8					0.3	66.8	
Delay (s)		111.2		131.1	37.7					25.9	104.8	
Level of Service		F		F	D					C	F	
Approach Delay (s)		111.2			80.6			0.0			91.9	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	89.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	142.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
124: W Olive Ave & SR 99 Southbound Off-Ramp

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	693	691	478	304	0	0	0	0	1100	0	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95		1.00	0.95					0.95	0.95	
Frt		0.93		1.00	1.00					1.00	0.90	
Flt Protected		1.00		0.95	1.00					0.95	0.98	
Satd. Flow (prot)		3274		1770	3539					1681	1571	
Flt Permitted		1.00		0.95	1.00					0.95	0.98	
Satd. Flow (perm)		3274		1770	3539					1681	1571	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	753	751	520	330	0	0	0	0	1196	0	534
RTOR Reduction (vph)	0	180	0	0	0	0	0	0	0	0	64	0
Lane Group Flow (vph)	0	1324	0	520	330	0	0	0	0	897	769	0
Turn Type				Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases										6		
Actuated Green, G (s)		28.0		19.0	51.0					41.0	41.0	
Effective Green, g (s)		28.0		19.0	51.0					41.0	41.0	
Actuated g/C Ratio		0.28		0.19	0.51					0.41	0.41	
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)		917		336	1805					689	644	
v/s Ratio Prot		c0.40		c0.29	0.09							
v/s Ratio Perm										c0.53	0.49	
v/c Ratio		1.44		1.55	0.18					1.30	1.19	
Uniform Delay, d1		36.0		40.5	13.2					29.5	29.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		205.9		260.7	0.0					146.3	101.9	
Delay (s)		241.9		301.2	13.3					175.8	131.4	
Level of Service		F		F	B					F	F	
Approach Delay (s)		241.9			189.4			0.0			154.4	
Approach LOS		F			F			A			F	

Intersection Summary			
HCM Average Control Delay	193.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	133.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
124: W Olive Ave & SR 99 Southbound Off-Ramp

4/11/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	715	614	587	481	0	0	0	0	897	0	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0					4.0	4.0	
Lane Util. Factor		0.95		1.00	0.95					0.95	0.95	
Frt		0.93		1.00	1.00					1.00	0.88	
Flt Protected		1.00		0.95	1.00					0.95	0.99	
Satd. Flow (prot)		3294		1770	3539					1681	1541	
Flt Permitted		1.00		0.95	1.00					0.95	0.99	
Satd. Flow (perm)		3294		1770	3539					1681	1541	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	777	667	638	523	0	0	0	0	975	0	601
RTOR Reduction (vph)	0	141	0	0	0	0	0	0	0	0	135	0
Lane Group Flow (vph)	0	1303	0	638	523	0	0	0	0	829	612	0
Turn Type				Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases										6		
Actuated Green, G (s)		31.0		26.0	61.0					41.0	41.0	
Effective Green, g (s)		31.0		26.0	61.0					41.0	41.0	
Actuated g/C Ratio		0.28		0.24	0.55					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)		928		418	1963					627	574	
v/s Ratio Prot		c0.40		c0.36	0.15							
v/s Ratio Perm										c0.49	0.40	
v/c Ratio		1.40		1.53	0.27					1.32	1.07	
Uniform Delay, d1		39.5		42.0	12.8					34.5	34.5	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		188.5		248.7	0.1					155.9	56.5	
Delay (s)		228.0		290.7	12.9					190.4	91.0	
Level of Service		F		F	B					F	F	
Approach Delay (s)		228.0			165.6			0.0			143.3	
Approach LOS		F			F			A			F	

Intersection Summary

HCM Average Control Delay	178.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	176.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	447	1325	0	0	634	188	155	0	342	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0		4.0		
Lane Util. Factor	1.00	0.95			0.95		0.97		1.00		
Frt	1.00	1.00			0.97		1.00		0.85		
Flt Protected	0.95	1.00			1.00		0.95		1.00		
Satd. Flow (prot)	1770	3539			3418		3433		1583		
Flt Permitted	0.95	1.00			1.00		0.95		1.00		
Satd. Flow (perm)	1770	3539			3418		3433		1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	486	1440	0	0	689	204	168	0	372	0	0
RTOR Reduction (vph)	0	0	0	0	39	0	0	0	38	0	0
Lane Group Flow (vph)	486	1440	0	0	854	0	168	0	334	0	0
Turn Type	Prot						custom		custom		
Protected Phases	7	4			8						
Permitted Phases							2		2		
Actuated Green, G (s)	20.8	42.9			18.1		16.8		16.8		
Effective Green, g (s)	20.8	42.9			18.1		16.8		16.8		
Actuated g/C Ratio	0.31	0.63			0.27		0.25		0.25		
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)	544	2243			914		852		393		
v/s Ratio Prot	c0.27	0.41			c0.25						
v/s Ratio Perm							0.05		c0.21		
v/c Ratio	0.89	0.64			0.93		0.20		0.85		
Uniform Delay, d1	22.4	7.7			24.2		20.1		24.2		
Progression Factor	1.00	1.00			1.00		1.00		1.00		
Incremental Delay, d2	16.9	0.6			16.1		0.1		15.6		
Delay (s)	39.3	8.3			40.4		20.2		39.8		
Level of Service	D	A			D		C		D		
Approach Delay (s)		16.1			40.4			33.7		0.0	
Approach LOS		B			D			C		A	

Intersection Summary			
HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	133.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	769	540	0	0	736	627	986	0	855	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0		4.0		
Lane Util. Factor	1.00	0.95			0.95		0.97		1.00		
Frt	1.00	1.00			0.93		1.00		0.85		
Flt Protected	0.95	1.00			1.00		0.95		1.00		
Satd. Flow (prot)	1770	3539			3295		3433		1583		
Flt Permitted	0.95	1.00			1.00		0.95		1.00		
Satd. Flow (perm)	1770	3539			3295		3433		1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	836	587	0	0	800	682	1072	0	929	0	0
RTOR Reduction (vph)	0	0	0	0	102	0	0	0	235	0	0
Lane Group Flow (vph)	836	587	0	0	1380	0	1072	0	694	0	0
Turn Type	Prot						custom		custom		
Protected Phases	7	4			8						
Permitted Phases							2		2		
Actuated Green, G (s)	49.0	97.0			44.0		45.0		45.0		
Effective Green, g (s)	49.0	97.0			44.0		45.0		45.0		
Actuated g/C Ratio	0.33	0.65			0.29		0.30		0.30		
Clearance Time (s)	4.0	4.0			4.0		4.0		4.0		
Vehicle Extension (s)	3.0	3.0			3.0		3.0		3.0		
Lane Grp Cap (vph)	578	2289			967		1030		475		
v/s Ratio Prot	c0.47	0.17			c0.42						
v/s Ratio Perm							0.31		c0.44		
v/c Ratio	1.45	0.26			1.43		1.04		1.46		
Uniform Delay, d1	50.5	11.2			53.0		52.5		52.5		
Progression Factor	1.00	1.00			1.00		1.00		1.00		
Incremental Delay, d2	210.5	0.1			198.0		39.2		218.7		
Delay (s)	261.0	11.3			251.0		91.7		271.2		
Level of Service	F	B			F		F		F		
Approach Delay (s)		158.0			251.0			175.0		0.0	
Approach LOS		F			F			F		A	

Intersection Summary

HCM Average Control Delay	193.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	176.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (vph)	0	1147	645	251	491	0	220	18	155	10	0	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		
Lane Util. Factor		0.95			0.95			1.00		1.00		
Frt		0.95			1.00			0.95		0.91		
Flt Protected		1.00			0.98			0.97		0.98		
Satd. Flow (prot)		3348			3480			1712		1667		
Flt Permitted		1.00			0.56			0.97		0.98		
Satd. Flow (perm)		3348			1989			1712		1667		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1247	701	273	534	0	239	20	168	11	0	22
RTOR Reduction (vph)	0	127	0	0	0	0	0	39	0	16	0	0
Lane Group Flow (vph)	0	1821	0	0	807	0	0	388	0	17	0	0
Turn Type				Perm			Perm					
Protected Phases		4			8			6!		2!		
Permitted Phases				8			6					
Actuated Green, G (s)		34.6			34.6			15.8		15.8		
Effective Green, g (s)		34.6			34.6			15.8		15.8		
Actuated g/C Ratio		0.59			0.59			0.27		0.27		
Clearance Time (s)		4.0			4.0			4.0		4.0		
Vehicle Extension (s)		3.0			3.0			3.0		3.0		
Lane Grp Cap (vph)		1984			1178			463		451		
v/s Ratio Prot		c0.54								0.01		
v/s Ratio Perm					0.41			0.23				
v/c Ratio		0.92			2.13dl			0.84		0.04		
Uniform Delay, d1		10.6			8.2			20.1		15.7		
Progression Factor		1.00			1.00			1.00		1.00		
Incremental Delay, d2		7.2			1.7			12.4		0.0		
Delay (s)		17.9			9.8			32.5		15.7		
Level of Service		B			A			C		B		
Approach Delay (s)		17.9			9.8			32.5		15.7		
Approach LOS		B			A			C		B		

Intersection Summary

HCM Average Control Delay	17.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Volume (vph)	0	729	400	416	2028	0	304	7	284	17	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0		4.0		
Lane Util. Factor		0.95			0.95			1.00		1.00		
Frt		0.95			1.00			0.94		0.93		
Flt Protected		1.00			0.99			0.97		0.97		
Satd. Flow (prot)		3351			3509			1698		1697		
Flt Permitted		1.00			0.53			0.97		0.97		
Satd. Flow (perm)		3351			1884			1698		1697		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	792	435	452	2204	0	330	8	309	18	0	17
RTOR Reduction (vph)	0	50	0	0	0	0	0	10	0	12	0	0
Lane Group Flow (vph)	0	1177	0	0	2656	0	0	637	0	23	0	0
Turn Type				Perm			Perm					
Protected Phases		4			8			6!		2!		
Permitted Phases				8			6					
Actuated Green, G (s)		102.0			102.0			40.0		40.0		
Effective Green, g (s)		102.0			102.0			40.0		40.0		
Actuated g/C Ratio		0.68			0.68			0.27		0.27		
Clearance Time (s)		4.0			4.0			4.0		4.0		
Vehicle Extension (s)		3.0			3.0			3.0		3.0		
Lane Grp Cap (vph)		2279			1281			453		453		
v/s Ratio Prot		0.35								0.01		
v/s Ratio Perm					c1.41			0.38				
v/c Ratio		0.52			2.07			1.41		0.05		
Uniform Delay, d1		11.8			24.0			55.0		40.9		
Progression Factor		1.00			1.00			1.00		1.00		
Incremental Delay, d2		0.2			485.7			196.1		0.0		
Delay (s)		12.0			509.7			251.1		40.9		
Level of Service		B			F			F		D		
Approach Delay (s)		12.0			509.7			251.1		40.9		
Approach LOS		B			F			F		D		

Intersection Summary

HCM Average Control Delay	335.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.89		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	152.4%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	216	1478	0	0	524	163	228	0	445	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		
Frt		1.00			0.96			1.00	0.85		
Flt Protected		0.99			1.00			0.95	1.00		
Satd. Flow (prot)		3517			3413			1770	1583		
Flt Permitted		0.69			1.00			0.95	1.00		
Satd. Flow (perm)		2430			3413			1770	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	235	1607	0	0	570	177	248	0	484	0	0
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	36	0	0
Lane Group Flow (vph)	0	1842	0	0	722	0	0	248	448	0	0
Turn Type	Perm						Perm		Perm		
Protected Phases		4			8			2			
Permitted Phases	4						2		2		
Actuated Green, G (s)		83.0			83.0			29.0	29.0		
Effective Green, g (s)		83.0			83.0			29.0	29.0		
Actuated g/C Ratio		0.69			0.69			0.24	0.24		
Clearance Time (s)		4.0			4.0			4.0	4.0		
Vehicle Extension (s)		3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)		1681			2361			428	383		
v/s Ratio Prot					0.21						
v/s Ratio Perm		c0.76						0.14	c0.28		
v/c Ratio		1.10			0.31			0.58	1.17		
Uniform Delay, d1		18.5			7.2			40.1	45.5		
Progression Factor		1.00			1.00			1.00	1.00		
Incremental Delay, d2		53.1			0.1			1.9	100.5		
Delay (s)		71.6			7.3			42.0	146.0		
Level of Service		E			A			D	F		
Approach Delay (s)		71.6			7.3			110.8		0.0	
Approach LOS		E			A			F		A	

Intersection Summary			
HCM Average Control Delay	65.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Volume (vph)	445	593	0	0	1078	766	1359	0	828	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		
Frt		1.00			0.94			1.00	0.85		
Flt Protected		0.98			1.00			0.95	1.00		
Satd. Flow (prot)		3465			3319			1770	1583		
Flt Permitted		0.58			1.00			0.95	1.00		
Satd. Flow (perm)		2069			3319			1770	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	484	645	0	0	1172	833	1477	0	900	0	0
RTOR Reduction (vph)	0	0	0	0	98	0	0	0	53	0	0
Lane Group Flow (vph)	0	1129	0	0	1907	0	0	1477	847	0	0
Turn Type	Perm						Perm		Perm		
Protected Phases		4			8			2			
Permitted Phases	4						2		2		
Actuated Green, G (s)		50.0			50.0			72.0	72.0		
Effective Green, g (s)		50.0			50.0			72.0	72.0		
Actuated g/C Ratio		0.38			0.38			0.55	0.55		
Clearance Time (s)		4.0			4.0			4.0	4.0		
Vehicle Extension (s)		3.0			3.0			3.0	3.0		
Lane Grp Cap (vph)		796			1277			980	877		
v/s Ratio Prot					c0.57						
v/s Ratio Perm		0.55						0.83	0.53		
v/c Ratio		8.49dl			1.49			1.51	0.97		
Uniform Delay, d1		40.0			40.0			29.0	27.8		
Progression Factor		1.00			1.00			1.00	1.00		
Incremental Delay, d2		195.6			226.0			233.5	22.2		
Delay (s)		235.6			266.0			262.5	50.0		
Level of Service		F			F			F	D		
Approach Delay (s)		235.6			266.0			182.1		0.0	
Approach LOS		F			F			F		A	

Intersection Summary

HCM Average Control Delay	223.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	169.0%	ICU Level of Service	H
Analysis Period (min)	15		

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

HANFORD FUTURE PLUS PROJECT
CONDITIONS - MITIGATED

HCM Signalized Intersection Capacity Analysis
1: SR 198 & 9 th Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	754	26	117	907	28	0	0	49	0	0	565
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	0.95		1.00	0.95				1.00			1.00
Frt	1.00	1.00		1.00	1.00				0.86			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1770	3522		1770	3524				1611			1611
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1770	3522		1770	3524				1611			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	820	28	127	986	30	0	0	53	0	0	614
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	37	0	0	234
Lane Group Flow (vph)	52	844	0	127	1013	0	0	0	16	0	0	380
Turn Type	Prot			Prot					custom			custom
Protected Phases	7	4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)	4.0	19.0		5.7	20.7				15.7			15.7
Effective Green, g (s)	4.0	19.0		5.7	20.7				15.7			15.7
Actuated g/C Ratio	0.08	0.36		0.11	0.40				0.30			0.30
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)	135	1277		193	1392				483			483
v/s Ratio Prot	0.03	0.24		c0.07	c0.29							
v/s Ratio Perm									0.01			c0.24
v/c Ratio	0.39	0.66		0.66	0.73				0.03			0.79
Uniform Delay, d1	23.0	14.0		22.4	13.5				13.0			16.8
Progression Factor	1.00	1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2	1.8	1.3		7.9	1.9				0.0			8.3
Delay (s)	24.9	15.3		30.3	15.4				13.0			25.1
Level of Service	C	B		C	B				B			C
Approach Delay (s)		15.9			17.0			13.0			25.1	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: SR 198 & 9 th Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	838	988	33	40	1009	59	0	0	315	0	0	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00			1.00
Frt	1.00	1.00		1.00	0.99				0.86			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1770	3522		1770	3510				1611			1611
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1770	3522		1770	3510				1611			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	911	1074	36	43	1097	64	0	0	342	0	0	103
RTOR Reduction (vph)	0	1	0	0	3	0	0	0	211	0	0	93
Lane Group Flow (vph)	911	1109	0	43	1158	0	0	0	131	0	0	10
Turn Type	Prot			Prot					custom			custom
Protected Phases	7	4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)	74.1	114.1		6.8	46.8				14.8			14.8
Effective Green, g (s)	74.1	114.1		6.8	46.8				14.8			14.8
Actuated g/C Ratio	0.50	0.77		0.05	0.32				0.10			0.10
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)	888	2721		81	1112				161			161
v/s Ratio Prot	c0.51	0.31		0.02	c0.33							
v/s Ratio Perm									c0.08			0.01
v/c Ratio	1.03	0.41		0.53	1.04				0.82			0.06
Uniform Delay, d1	36.8	5.6		68.9	50.4				65.1			60.2
Progression Factor	1.00	1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2	37.0	0.1		6.5	38.5				26.3			0.2
Delay (s)	73.8	5.7		75.4	88.9				91.4			60.3
Level of Service	E	A		E	F				F			E
Approach Delay (s)		36.4			88.4			91.4			60.3	
Approach LOS		D			F			F			E	

Intersection Summary			
HCM Average Control Delay	59.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	147.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	40	0	145	0	276	0	0	585	102	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0			4.0			
Lane Util. Factor	1.00		1.00		1.00			1.00			
Frt	1.00		0.85		1.00			0.98			
Flt Protected	0.95		1.00		1.00			1.00			
Satd. Flow (prot)	1770		1583		1863			1825			
Flt Permitted	0.95		1.00		1.00			1.00			
Satd. Flow (perm)	1770		1583		1863			1825			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	0	158	0	300	0	0	636	111	0	0
RTOR Reduction (vph)	0	0	137	0	0	0	0	9	0	0	0
Lane Group Flow (vph)	43	0	21	0	300	0	0	738	0	0	0
Turn Type	custom		custom								
Protected Phases					2			6			
Permitted Phases	8		8								
Actuated Green, G (s)	5.1		5.1		26.0			26.0			
Effective Green, g (s)	5.1		5.1		26.0			26.0			
Actuated g/C Ratio	0.13		0.13		0.66			0.66			
Clearance Time (s)	4.0		4.0		4.0			4.0			
Vehicle Extension (s)	3.0		3.0		3.0			3.0			
Lane Grp Cap (vph)	231		206		1239			1214			
v/s Ratio Prot					0.16			c0.40			
v/s Ratio Perm	c0.02		0.01								
v/c Ratio	0.19		0.10		0.24			0.61			
Uniform Delay, d1	15.2		15.0		2.6			3.7			
Progression Factor	1.00		1.00		1.00			1.00			
Incremental Delay, d2	0.4		0.2		0.1			0.9			
Delay (s)	15.5		15.2		2.7			4.6			
Level of Service	B		B		A			A			
Approach Delay (s)		15.3			2.7			4.6		0.0	
Approach LOS		B			A			A		A	

Intersection Summary

HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	39.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	48	0	209	0	746	0	0	332	134	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0			4.0			
Lane Util. Factor	1.00		1.00		1.00			1.00			
Frt	1.00		0.85		1.00			0.96			
Flt Protected	0.95		1.00		1.00			1.00			
Satd. Flow (prot)	1770		1583		1863			1790			
Flt Permitted	0.95		1.00		1.00			1.00			
Satd. Flow (perm)	1770		1583		1863			1790			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	0	227	0	811	0	0	361	146	0	0
RTOR Reduction (vph)	0	0	152	0	0	0	0	22	0	0	0
Lane Group Flow (vph)	52	0	75	0	811	0	0	485	0	0	0
Turn Type	custom		custom								
Protected Phases					2			6			
Permitted Phases	8		8								
Actuated Green, G (s)	7.9		7.9		27.3			27.3			
Effective Green, g (s)	7.9		7.9		27.3			27.3			
Actuated g/C Ratio	0.18		0.18		0.63			0.63			
Clearance Time (s)	4.0		4.0		4.0			4.0			
Vehicle Extension (s)	3.0		3.0		3.0			3.0			
Lane Grp Cap (vph)	324		289		1177			1131			
v/s Ratio Prot					c0.44			0.27			
v/s Ratio Perm	0.03		c0.05								
v/c Ratio	0.16		0.26		0.69			0.43			
Uniform Delay, d1	14.9		15.1		5.2			4.0			
Progression Factor	1.00		1.00		1.00			1.00			
Incremental Delay, d2	0.2		0.5		1.7			0.3			
Delay (s)	15.1		15.6		6.9			4.3			
Level of Service	B		B		A			A			
Approach Delay (s)		15.5			6.9			4.3		0.0	
Approach LOS		B			A			A		A	

Intersection Summary

HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	43.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	110	0	228	0	273	35	0	574	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0			4.0			
Lane Util. Factor	1.00		1.00		1.00			1.00			
Frt	1.00		0.85		0.98			1.00			
Flt Protected	0.95		1.00		1.00			1.00			
Satd. Flow (prot)	1770		1583		1834			1863			
Flt Permitted	0.95		1.00		1.00			1.00			
Satd. Flow (perm)	1770		1583		1834			1863			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	0	248	0	297	38	0	624	0	0	0
RTOR Reduction (vph)	0	0	152	0	8	0	0	0	0	0	0
Lane Group Flow (vph)	120	0	96	0	327	0	0	624	0	0	0
Turn Type	custom		custom								
Protected Phases					2			6			
Permitted Phases	4		4								
Actuated Green, G (s)	6.6		6.6		19.4			19.4			
Effective Green, g (s)	6.6		6.6		19.4			19.4			
Actuated g/C Ratio	0.19		0.19		0.57			0.57			
Clearance Time (s)	4.0		4.0		4.0			4.0			
Vehicle Extension (s)	3.0		3.0		3.0			3.0			
Lane Grp Cap (vph)	344		307		1046			1063			
v/s Ratio Prot					0.18			c0.33			
v/s Ratio Perm	c0.07		0.06								
v/c Ratio	0.35		0.31		0.31			0.59			
Uniform Delay, d1	11.8		11.8		3.8			4.7			
Progression Factor	1.00		1.00		1.00			1.00			
Incremental Delay, d2	0.6		0.6		0.2			0.8			
Delay (s)	12.5		12.3		4.0			5.5			
Level of Service	B		B		A			A			
Approach Delay (s)		12.4			4.0			5.5		0.0	
Approach LOS		B			A			A		A	

Intersection Summary

HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	34.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	105	0	213	0	822	109	0	290	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0			4.0			
Lane Util. Factor	1.00		1.00		1.00			1.00			
Frt	1.00		0.85		0.98			1.00			
Flt Protected	0.95		1.00		1.00			1.00			
Satd. Flow (prot)	1770		1583		1833			1863			
Flt Permitted	0.95		1.00		1.00			1.00			
Satd. Flow (perm)	1770		1583		1833			1863			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	0	232	0	893	118	0	315	0	0	0
RTOR Reduction (vph)	0	0	193	0	6	0	0	0	0	0	0
Lane Group Flow (vph)	114	0	39	0	1005	0	0	315	0	0	0
Turn Type	custom		custom								
Protected Phases					2			6			
Permitted Phases	4		4								
Actuated Green, G (s)	8.7		8.7		35.3			35.3			
Effective Green, g (s)	8.7		8.7		35.3			35.3			
Actuated g/C Ratio	0.17		0.17		0.68			0.68			
Clearance Time (s)	4.0		4.0		4.0			4.0			
Vehicle Extension (s)	3.0		3.0		3.0			3.0			
Lane Grp Cap (vph)	296		265		1244			1265			
v/s Ratio Prot					c0.55			0.17			
v/s Ratio Perm	c0.06		0.02								
v/c Ratio	0.39		0.15		0.81			0.25			
Uniform Delay, d1	19.3		18.5		5.9			3.2			
Progression Factor	1.00		1.00		1.00			1.00			
Incremental Delay, d2	0.8		0.3		3.9			0.1			
Delay (s)	20.1		18.7		9.9			3.3			
Level of Service	C		B		A			A			
Approach Delay (s)		19.2			9.9			3.3		0.0	
Approach LOS		B			A			A		A	

Intersection Summary

HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	8.0
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)	97	569	7	47	828	11	6	12	17	79	14	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.94			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1770	3532		1770	3532			1728			1697	
Flt Permitted	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (perm)	1770	3532		1770	3532			1728			1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	618	8	51	900	12	7	13	18	86	15	109
RTOR Reduction (vph)	0	1	0	0	1	0	0	16	0	0	54	0
Lane Group Flow (vph)	105	625	0	51	911	0	0	22	0	0	156	0
Turn Type	Prot			Prot			Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	5.9	22.0		4.2	20.3			6.5			10.4	
Effective Green, g (s)	5.9	22.0		4.2	20.3			6.5			10.4	
Actuated g/C Ratio	0.10	0.37		0.07	0.34			0.11			0.18	
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)	177	1315		126	1213			190			299	
v/s Ratio Prot	c0.06	0.18		0.03	c0.26			c0.01			c0.09	
v/s Ratio Perm												
v/c Ratio	0.59	0.48		0.40	0.75			0.12			0.52	
Uniform Delay, d1	25.5	14.1		26.3	17.2			23.7			22.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	5.2	0.3		2.1	2.7			0.3			1.6	
Delay (s)	30.7	14.4		28.4	19.8			24.0			23.7	
Level of Service	C	B		C	B			C			C	
Approach Delay (s)		16.8			20.3			24.0			23.7	
Approach LOS		B			C			C			C	

Intersection Summary

HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	1032	13	18	1057	9	47	155	67	16	7	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1770	3533		1770	3535			1784			1712	
Flt Permitted	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (perm)	1770	3533		1770	3535			1784			1712	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	1122	14	20	1149	10	51	168	73	17	8	23
RTOR Reduction (vph)	0	1	0	0	1	0	0	15	0	0	21	0
Lane Group Flow (vph)	60	1135	0	20	1158	0	0	277	0	0	27	0
Turn Type	Prot			Prot			Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	4.2	28.9		1.3	26.0			13.9			6.7	
Effective Green, g (s)	4.2	28.9		1.3	26.0			13.9			6.7	
Actuated g/C Ratio	0.06	0.43		0.02	0.39			0.21			0.10	
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)	111	1528		34	1376			371			172	
v/s Ratio Prot	c0.03	c0.32		0.01	c0.33			c0.16			c0.02	
v/s Ratio Perm												
v/c Ratio	0.54	0.74		0.59	0.84			0.75			0.16	
Uniform Delay, d1	30.4	15.8		32.5	18.5			24.8			27.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	5.3	2.0		23.4	4.9			8.0			0.4	
Delay (s)	35.6	17.8		55.9	23.4			32.8			27.9	
Level of Service	D	B		E	C			C			C	
Approach Delay (s)		18.7			23.9			32.8			27.9	
Approach LOS		B			C			C			C	

Intersection Summary

HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	20.0
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)	87	556	13	4	791	4	12	5	6	4	8	87
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	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.96			0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.97			1.00	
Satd. Flow (prot)	1770	3527		1770	3537			1747			1639	
Flt Permitted	0.95	1.00		0.95	1.00			0.97			1.00	
Satd. Flow (perm)	1770	3527		1770	3537			1747			1639	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	604	14	4	860	4	13	5	7	4	9	95
RTOR Reduction (vph)	0	2	0	0	1	0	0	6	0	0	84	0
Lane Group Flow (vph)	95	616	0	4	863	0	0	19	0	0	24	0
Turn Type	Prot			Prot			Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	5.8	25.5		1.1	20.8			6.3			6.7	
Effective Green, g (s)	5.8	25.5		1.1	20.8			6.3			6.7	
Actuated g/C Ratio	0.10	0.46		0.02	0.37			0.11			0.12	
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)	185	1618		35	1323			198			198	
v/s Ratio Prot	c0.05	0.17		0.00	c0.24			c0.01			c0.01	
v/s Ratio Perm												
v/c Ratio	0.51	0.38		0.11	0.65			0.09			0.12	
Uniform Delay, d1	23.6	9.9		26.8	14.4			22.1			21.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.4	0.2		1.5	1.2			0.2			0.3	
Delay (s)	26.0	10.0		28.2	15.6			22.3			22.1	
Level of Service	C	B		C	B			C			C	
Approach Delay (s)		12.1			15.6			22.3			22.1	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	43.6%	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)	102	997	9	3	973	10	0	42	23	2	3	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.95			0.87	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	3534		1770	3534			1774			1621	
Flt Permitted	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (perm)	1770	3534		1770	3534			1774			1621	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	1084	10	3	1058	11	0	46	25	2	3	113
RTOR Reduction (vph)	0	0	0	0	1	0	0	22	0	0	101	0
Lane Group Flow (vph)	111	1094	0	3	1068	0	0	49	0	0	17	0
Turn Type	Prot			Prot			Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	6.1	31.7		1.1	26.7			7.2			6.7	
Effective Green, g (s)	6.1	31.7		1.1	26.7			7.2			6.7	
Actuated g/C Ratio	0.10	0.51		0.02	0.43			0.11			0.11	
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)	172	1787		31	1505			204			173	
v/s Ratio Prot	c0.06	0.31		0.00	c0.30			c0.03			c0.01	
v/s Ratio Perm												
v/c Ratio	0.65	0.61		0.10	0.71			0.24			0.10	
Uniform Delay, d1	27.3	11.1		30.3	14.8			25.3			25.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	8.0	0.6		1.4	1.6			0.6			0.3	
Delay (s)	35.3	11.7		31.7	16.4			25.9			25.5	
Level of Service	D	B		C	B			C			C	
Approach Delay (s)		13.9			16.4			25.9			25.5	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.3%	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)	4	539	16	114	780	4	7	6	44	2	7	18
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	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.90			0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1770	3524		1770	3537			1661			1689	
Flt Permitted	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (perm)	1770	3524		1770	3537			1661			1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	586	17	124	848	4	8	7	48	2	8	20
RTOR Reduction (vph)	0	3	0	0	1	0	0	42	0	0	18	0
Lane Group Flow (vph)	4	600	0	124	851	0	0	21	0	0	12	0
Turn Type	Prot			Prot			Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	1.0	18.0		6.1	23.1			6.5			6.2	
Effective Green, g (s)	1.0	18.0		6.1	23.1			6.5			6.2	
Actuated g/C Ratio	0.02	0.34		0.12	0.44			0.12			0.12	
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)	34	1201		204	1547			204			198	
v/s Ratio Prot	0.00	0.17		c0.07	c0.24			c0.01			c0.01	
v/s Ratio Perm												
v/c Ratio	0.12	0.50		0.61	0.55			0.10			0.06	
Uniform Delay, d1	25.5	13.8		22.2	11.0			20.6			20.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.5	0.3		5.1	0.4			0.2			0.1	
Delay (s)	27.0	14.2		27.3	11.4			20.8			20.8	
Level of Service	C	B		C	B			C			C	
Approach Delay (s)		14.2			13.4			20.8			20.8	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.2%	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)	21	994	21	45	912	8	12	8	132	3	13	16
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	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.88			0.93	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	3528		1770	3534			1638			1729	
Flt Permitted	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (perm)	1770	3528		1770	3534			1638			1729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	1080	23	49	991	9	13	9	143	3	14	17
RTOR Reduction (vph)	0	2	0	0	1	0	0	126	0	0	15	0
Lane Group Flow (vph)	23	1101	0	49	999	0	0	39	0	0	19	0
Turn Type	Prot			Prot			Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	1.3	26.0		4.1	28.8			7.2			6.4	
Effective Green, g (s)	1.3	26.0		4.1	28.8			7.2			6.4	
Actuated g/C Ratio	0.02	0.44		0.07	0.48			0.12			0.11	
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)	39	1536		122	1705			198			185	
v/s Ratio Prot	0.01	c0.31		c0.03	c0.28			c0.02			c0.01	
v/s Ratio Perm												
v/c Ratio	0.59	0.72		0.40	0.59			0.20			0.10	
Uniform Delay, d1	28.9	13.8		26.6	11.1			23.6			24.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	20.8	1.6		2.2	0.5			0.5			0.2	
Delay (s)	49.7	15.5		28.8	11.7			24.1			24.3	
Level of Service	D	B		C	B			C			C	
Approach Delay (s)		16.2			12.5			24.1			24.3	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	53.1%	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)	14	24	66	107	18	20	65	231	191	55	513	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.98		1.00	0.93		1.00	1.00	
Flt Protected		0.99			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1691			1763		1770	1736		1770	1855	
Flt Permitted		0.99			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1691			1763		1770	1736		1770	1855	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	26	72	116	20	22	71	251	208	60	558	15
RTOR Reduction (vph)	0	65	0	0	8	0	0	29	0	0	1	0
Lane Group Flow (vph)	0	48	0	0	150	0	71	430	0	60	572	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		6.0			9.0		4.2	29.4		4.1	29.3	
Effective Green, g (s)		6.0			9.0		4.2	29.4		4.1	29.3	
Actuated g/C Ratio		0.09			0.14		0.07	0.46		0.06	0.45	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		157			246		115	791		113	843	
v/s Ratio Prot		c0.03			c0.09		c0.04	0.25		0.03	c0.31	
v/s Ratio Perm												
v/c Ratio		0.30			0.61		0.62	0.54		0.53	0.68	
Uniform Delay, d1		27.3			26.1		29.4	12.7		29.3	13.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1			4.4		9.5	0.8		4.7	2.2	
Delay (s)		28.4			30.5		38.8	13.5		34.0	16.1	
Level of Service		C			C		D	B		C	B	
Approach Delay (s)		28.4			30.5			16.9			17.8	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.2%	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)	26	18	71	175	27	39	96	782	132	15	240	38
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		0.92			0.98		1.00	0.98		1.00	0.98	
Flt Protected		0.99			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1689			1758		1770	1823		1770	1825	
Flt Permitted		0.99			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1689			1758		1770	1823		1770	1825	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	20	77	190	29	42	104	850	143	16	261	41
RTOR Reduction (vph)	0	51	0	0	6	0	0	5	0	0	4	0
Lane Group Flow (vph)	0	74	0	0	255	0	104	988	0	16	298	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		10.0			17.1		10.7	63.4		2.8	55.5	
Effective Green, g (s)		10.0			17.1		10.7	63.4		2.8	55.5	
Actuated g/C Ratio		0.09			0.16		0.10	0.58		0.03	0.51	
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)		155			275		173	1057		45	927	
v/s Ratio Prot		c0.04			c0.15		c0.06	c0.54		0.01	0.16	
v/s Ratio Perm												
v/c Ratio		0.48			0.93		0.60	0.94		0.36	0.32	
Uniform Delay, d1		47.2			45.5		47.3	21.1		52.4	15.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.3			35.2		5.8	14.5		4.8	0.2	
Delay (s)		49.5			80.7		53.0	35.6		57.1	16.0	
Level of Service		D			F		D	D		E	B	
Approach Delay (s)		49.5			80.7			37.3			18.1	
Approach LOS		D			F			D			B	

Intersection Summary

HCM Average Control Delay	41.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	109.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HANFORD WEST NO BUILD PLUS PROJECT MITIGATIONS

HCM Unsignalized Intersection Capacity Analysis
1: Hanford Armona Rd & 14th Avenue

7/13/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	147	17	69	75	55	17	98	65	57	147	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	160	18	75	82	60	18	107	71	62	160	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	141			178			609	521	169	615	501	111
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	141			178			609	521	169	615	501	111
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			95			93	75	92	78	63	96
cM capacity (veh/h)	1442			1398			265	426	875	283	438	942

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	209	216	196	62	198
Volume Left	30	75	18	62	0
Volume Right	18	60	71	0	38
cSH	1442	1398	488	283	488
Volume to Capacity	0.02	0.05	0.40	0.22	0.41
Queue Length 95th (ft)	2	4	48	20	49
Control Delay (s)	1.3	3.0	17.2	21.2	17.3
Lane LOS	A	A	C	C	C
Approach Delay (s)	1.3	3.0	17.2	18.3	
Approach LOS			C	C	

Intersection Summary				
Average Delay	10.2			
Intersection Capacity Utilization	52.2%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
1: Hanford Armona Rd & 14th Avenue

7/13/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	188	29	61	198	73	32	182	35	107	112	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	204	32	66	215	79	35	198	38	116	122	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	295			236			724	682	220	779	658	255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	295			236			724	682	220	779	658	255
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			85	43	95	26	66	97
cM capacity (veh/h)	1267			1331			234	349	820	157	360	784

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	253	361	271	116	142
Volume Left	17	66	35	116	0
Volume Right	32	79	38	0	21
cSH	1267	1331	355	157	391
Volume to Capacity	0.01	0.05	0.76	0.74	0.36
Queue Length 95th (ft)	1	4	152	113	41
Control Delay (s)	0.7	1.8	41.3	74.5	19.4
Lane LOS	A	A	E	F	C
Approach Delay (s)	0.7	1.8	41.3	44.2	
Approach LOS			E	E	

Intersection Summary			
Average Delay	20.5		
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	163	8	186	103	156	0	0	0	149	256	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			0.95						0.97	
Flt Protected		0.98			0.98						0.99	
Satd. Flow (prot)		1825			1738						1785	
Flt Permitted		0.80			0.77						0.99	
Satd. Flow (perm)		1479			1365						1785	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	177	9	202	112	170	0	0	0	162	278	115
RTOR Reduction (vph)	0	3	0	0	45	0	0	0	0	0	21	0
Lane Group Flow (vph)	0	273	0	0	439	0	0	0	0	0	534	0
Turn Type	Perm			Perm						custom		
Protected Phases		6			2							
Permitted Phases	6			2						8	8	
Actuated Green, G (s)		16.5			16.5						15.0	
Effective Green, g (s)		16.5			16.5						15.0	
Actuated g/C Ratio		0.42			0.42						0.38	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		3.0			3.0						3.0	
Lane Grp Cap (vph)		618			570						678	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.32						c0.30	
v/c Ratio		0.44			0.77						0.79	
Uniform Delay, d1		8.2			9.9						10.8	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.5			6.2						6.0	
Delay (s)		8.7			16.1						16.9	
Level of Service		A			B						B	
Approach Delay (s)		8.7			16.1			0.0			16.9	
Approach LOS		A			B			A			B	

Intersection Summary

HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	39.5	Sum of lost time (s)	8.0
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)	58	207	24	150	120	434	0	0	0	250	153	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		0.99			0.92						0.96	
Flt Protected		0.99			0.99						0.98	
Satd. Flow (prot)		1824			1690						1751	
Flt Permitted		0.82			0.86						0.98	
Satd. Flow (perm)		1518			1477						1751	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	225	26	163	130	472	0	0	0	272	166	178
RTOR Reduction (vph)	0	8	0	0	131	0	0	0	0	0	32	0
Lane Group Flow (vph)	0	306	0	0	634	0	0	0	0	0	584	0
Turn Type	Perm			Perm						custom		
Protected Phases		6			2							
Permitted Phases	6			2						8	8	
Actuated Green, G (s)		20.2			20.2						15.9	
Effective Green, g (s)		20.2			20.2						15.9	
Actuated g/C Ratio		0.46			0.46						0.36	
Clearance Time (s)		4.0			4.0						4.0	
Vehicle Extension (s)		3.0			3.0						3.0	
Lane Grp Cap (vph)		695			677						631	
v/s Ratio Prot												
v/s Ratio Perm		0.20			c0.43						c0.33	
v/c Ratio		0.44			0.94						0.93	
Uniform Delay, d1		8.1			11.3						13.5	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.4			20.3						19.5	
Delay (s)		8.6			31.6						33.1	
Level of Service		A			C						C	
Approach Delay (s)		8.6			31.6			0.0			33.1	
Approach LOS		A			C			A			C	

Intersection Summary

HCM Average Control Delay	27.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	44.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	64	24	22	375	409	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.96			1.00	0.99	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1732			1858	1842	
Flt Permitted	0.96			0.97	1.00	
Satd. Flow (perm)	1732			1806	1842	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	26	24	408	445	40
RTOR Reduction (vph)	23	0	0	0	5	0
Lane Group Flow (vph)	73	0	0	432	480	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	4.2			22.6	22.6	
Effective Green, g (s)	4.2			22.6	22.6	
Actuated g/C Ratio	0.12			0.65	0.65	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	209			1173	1196	
v/s Ratio Prot	c0.04				c0.26	
v/s Ratio Perm				0.24		
v/c Ratio	0.35			0.37	0.40	
Uniform Delay, d1	14.0			2.8	2.9	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.0			0.2	0.2	
Delay (s)	15.1			3.0	3.1	
Level of Service	B			A	A	
Approach Delay (s)	15.1			3.0	3.1	
Approach LOS	B			A	A	

Intersection Summary

HCM Average Control Delay	4.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	34.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	64	23	70	629	412	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.96			1.00	0.99	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	1733			1853	1837	
Flt Permitted	0.96			0.92	1.00	
Satd. Flow (perm)	1733			1715	1837	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	25	76	684	448	51
RTOR Reduction (vph)	23	0	0	0	5	0
Lane Group Flow (vph)	72	0	0	760	494	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	4.5			34.3	34.3	
Effective Green, g (s)	4.5			34.3	34.3	
Actuated g/C Ratio	0.10			0.73	0.73	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	167			1257	1346	
v/s Ratio Prot	c0.04				0.27	
v/s Ratio Perm				c0.44		
v/c Ratio	0.43			0.60	0.37	
Uniform Delay, d1	19.9			3.0	2.3	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.8			0.8	0.2	
Delay (s)	21.8			3.8	2.5	
Level of Service	C			A	A	
Approach Delay (s)	21.8			3.8	2.5	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	4.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	46.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	19	18	380	15	18	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	1.00		1.00			1.00
Frt	0.93		0.99			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	1697		1853			1859
Flt Permitted	0.98		1.00			0.98
Satd. Flow (perm)	1697		1853			1825
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	20	413	16	20	427
RTOR Reduction (vph)	19	0	2	0	0	0
Lane Group Flow (vph)	22	0	427	0	0	447
Turn Type					Perm	
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	1.1		24.5			24.5
Effective Green, g (s)	1.1		24.5			24.5
Actuated g/C Ratio	0.03		0.73			0.73
Clearance Time (s)	4.0		4.0			4.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	56		1351			1331
v/s Ratio Prot	c0.01		0.23			
v/s Ratio Perm						c0.24
v/c Ratio	0.39		0.32			0.34
Uniform Delay, d1	15.9		1.6			1.6
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	4.4		0.1			0.2
Delay (s)	20.3		1.7			1.8
Level of Service	C		A			A
Approach Delay (s)	20.3		1.7			1.8
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	2.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	33.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	76	98	577	53	33	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	1.00		1.00			1.00
Frt	0.92		0.99			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	1684		1841			1856
Flt Permitted	0.98		1.00			0.94
Satd. Flow (perm)	1684		1841			1750
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	107	627	58	36	464
RTOR Reduction (vph)	89	0	5	0	0	0
Lane Group Flow (vph)	101	0	680	0	0	500
Turn Type					Perm	
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	6.4		24.6			24.6
Effective Green, g (s)	6.4		24.6			24.6
Actuated g/C Ratio	0.16		0.63			0.63
Clearance Time (s)	4.0		4.0			4.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	276		1161			1104
v/s Ratio Prot	c0.06		c0.37			
v/s Ratio Perm						0.29
v/c Ratio	0.36		0.59			0.45
Uniform Delay, d1	14.5		4.2			3.7
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.8		0.8			0.3
Delay (s)	15.3		5.0			4.0
Level of Service	B		A			A
Approach Delay (s)	15.3		5.0			4.0
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	39.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL2	NBL	NBT	SBT	SBR
Lane Configurations												
Volume (vph)	83	0	163	8	33	33	162	186	17	156	116	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00				1.00		1.00	1.00	1.00	1.00	
Frt		0.91				0.90		1.00	1.00	1.00	0.90	
Flt Protected		0.98				0.99		0.95	0.95	1.00	1.00	
Satd. Flow (prot)		1666				1672		1770	1770	1863	1677	
Flt Permitted		0.98				0.99		0.95	0.12	1.00	1.00	
Satd. Flow (perm)		1666				1672		1770	222	1863	1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	0	177	9	36	36	176	202	18	170	126	278
RTOR Reduction (vph)	0	2	0	0	0	102	0	0	0	0	8	0
Lane Group Flow (vph)	0	274	0	0	0	146	0	202	18	170	475	0
Turn Type	Split				Split			Prot	Perm			
Protected Phases	4	4			3	3		5		2	6	
Permitted Phases									2			
Actuated Green, G (s)		15.8				11.4		11.8	42.3	42.3	26.5	
Effective Green, g (s)		15.8				11.4		11.8	42.3	42.3	26.5	
Actuated g/C Ratio		0.19				0.14		0.14	0.52	0.52	0.33	
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)		323				234		256	115	967	545	
v/s Ratio Prot		c0.16				c0.09		c0.11		0.09	c0.28	
v/s Ratio Perm									0.08			
v/c Ratio		0.85				0.62		0.79	0.16	0.18	0.87	
Uniform Delay, d1		31.7				33.0		33.6	10.3	10.4	25.9	
Progression Factor		1.00				1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		18.4				5.1		14.8	0.6	0.1	14.2	
Delay (s)		50.1				38.1		48.5	10.9	10.5	40.1	
Level of Service		D				D		D	B	B	D	
Approach Delay (s)		50.1				38.1				30.2	40.1	
Approach LOS		D				D				C	D	

Intersection Summary

HCM Average Control Delay	39.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Volume (vph)	73
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	79
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL2	NBL	NBT	SBT	SBR
Lane Configurations												
Volume (vph)	58	0	207	24	53	53	141	150	146	434	197	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00				1.00		1.00	1.00	1.00	1.00	
Frt		0.89				0.92		1.00	1.00	1.00	0.92	
Flt Protected		0.99				0.99		0.95	0.95	1.00	1.00	
Satd. Flow (prot)		1645				1701		1770	1770	1863	1719	
Flt Permitted		0.99				0.99		0.95	0.17	1.00	1.00	
Satd. Flow (perm)		1645				1701		1770	315	1863	1719	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	0	225	26	58	58	153	163	159	472	214	166
RTOR Reduction (vph)	0	3	0	0	0	48	0	0	0	0	11	0
Lane Group Flow (vph)	0	311	0	0	0	221	0	163	159	472	490	0
Turn Type	Split				Split			Prot	Perm			
Protected Phases	4	4			3	3		5		2	6	
Permitted Phases									2			
Actuated Green, G (s)		17.0				15.1		12.2	54.8	54.8	38.6	
Effective Green, g (s)		17.0				15.1		12.2	54.8	54.8	38.6	
Actuated g/C Ratio		0.17				0.15		0.12	0.55	0.55	0.39	
Clearance Time (s)		4.0				4.0		4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0				3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		283				260		218	175	1032	671	
v/s Ratio Prot		c0.19				c0.13		0.09		0.25	0.29	
v/s Ratio Perm									c0.50			
v/c Ratio		1.10				0.85		0.75	0.91	0.46	0.73	
Uniform Delay, d1		41.0				40.8		41.9	19.8	13.2	25.7	
Progression Factor		1.00				1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		82.2				21.9		13.1	42.3	0.3	4.1	
Delay (s)		123.2				62.7		54.9	62.1	13.5	29.8	
Level of Service		F				E		D	E	B	C	
Approach Delay (s)		123.2				62.7				31.7	29.8	
Approach LOS		F				E				C	C	

Intersection Summary

HCM Average Control Delay	50.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	98.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Volume (vph)	111
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	121
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	181	150	0	0	275	19	112	0	51	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		1.00			1.00		1.00		1.00			
Frt		1.00			0.99		1.00		0.85			
Flt Protected		0.97			1.00		0.95		1.00			
Satd. Flow (prot)		1813			1846		1770		1583			
Flt Permitted		0.67			1.00		0.95		1.00			
Satd. Flow (perm)		1239			1846		1770		1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	197	163	0	0	299	21	122	0	55	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	36	0	0	0
Lane Group Flow (vph)	0	360	0	0	313	0	122	0	19	0	0	0
Turn Type	Perm						custom		custom			
Protected Phases		4			8				2			
Permitted Phases	4						2					
Actuated Green, G (s)		10.7			10.7		9.7		9.7			
Effective Green, g (s)		10.7			10.7		9.7		9.7			
Actuated g/C Ratio		0.38			0.38		0.34		0.34			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		467			696		605		541			
v/s Ratio Prot					0.17				0.01			
v/s Ratio Perm		c0.29					c0.07					
v/c Ratio		0.77			0.45		0.20		0.03			
Uniform Delay, d1		7.8			6.6		6.6		6.2			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		7.7			0.5		0.2		0.0			
Delay (s)		15.5			7.1		6.8		6.3			
Level of Service		B			A		A		A			
Approach Delay (s)		15.5			7.1			6.6			0.0	
Approach LOS		B			A			A			A	

Intersection Summary

HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	28.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	261	190	0	0	324	22	379	0	155	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		1.00			1.00		1.00		1.00			
Frt		1.00			0.99		1.00		0.85			
Flt Protected		0.97			1.00		0.95		1.00			
Satd. Flow (prot)		1810			1847		1770		1583			
Flt Permitted		0.58			1.00		0.95		1.00			
Satd. Flow (perm)		1079			1847		1770		1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	207	0	0	352	24	412	0	168	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	48	0	0	0
Lane Group Flow (vph)	0	491	0	0	371	0	412	0	120	0	0	0
Turn Type	Perm						custom		custom			
Protected Phases		4			8							
Permitted Phases	4						2		2			
Actuated Green, G (s)		25.8			25.8		14.5		14.5			
Effective Green, g (s)		25.8			25.8		14.5		14.5			
Actuated g/C Ratio		0.53			0.53		0.30		0.30			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		576			987		531		475			
v/s Ratio Prot					0.20							
v/s Ratio Perm		c0.46					c0.23		0.08			
v/c Ratio		0.85			0.38		0.78		0.25			
Uniform Delay, d1		9.6			6.6		15.4		12.8			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		11.7			0.2		7.0		0.3			
Delay (s)		21.3			6.8		22.4		13.1			
Level of Service		C			A		C		B			
Approach Delay (s)		21.3			6.8			19.7			0.0	
Approach LOS		C			A			B			A	

Intersection Summary

HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	112	36	15	92	0	221	10	44	9	21	181	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	0.95	0.95			1.00			1.00			0.95	
Frt	1.00	0.97			0.90			0.94			1.00	
Flt Protected	0.95	0.98			0.99			1.00			0.95	
Satd. Flow (prot)	1681	1690			1659			1760			1681	
Flt Permitted	0.95	0.98			0.99			1.00			0.95	
Satd. Flow (perm)	1681	1690			1659			1760			1681	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	39	16	100	0	240	11	48	10	23	197	112
RTOR Reduction (vph)	0	12	0	0	1	0	0	20	0	0	0	0
Lane Group Flow (vph)	89	76	0	0	350	0	0	61	0	0	171	0
Turn Type	Split			Split							Prot	Perm
Protected Phases	3	3		4	4			2			1	
Permitted Phases												6
Actuated Green, G (s)	6.9	6.9			16.5			8.6			9.2	
Effective Green, g (s)	6.9	6.9			16.5			8.6			9.2	
Actuated g/C Ratio	0.12	0.12			0.29			0.15			0.16	
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)	203	204			479			265			270	
v/s Ratio Prot	c0.05	0.04			c0.21			0.03			0.10	
v/s Ratio Perm												
v/c Ratio	0.44	0.37			0.73			0.23			0.63	
Uniform Delay, d1	23.4	23.2			18.3			21.4			22.4	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	1.5	1.1			5.5			0.5			4.8	
Delay (s)	24.9	24.3			23.9			21.8			27.2	
Level of Service	C	C			C			C			C	
Approach Delay (s)		24.6			23.9			21.8				
Approach LOS		C			C			C				

Intersection Summary

HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	57.2	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	SBT
Lane Configurations	↱
Volume (vph)	28
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	0.95
Frt	1.00
Flt Protected	0.96
Satd. Flow (prot)	1700
Flt Permitted	0.34
Satd. Flow (perm)	603
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	30
RTOR Reduction (vph)	0
Lane Group Flow (vph)	168
Turn Type	
Protected Phases	6
Permitted Phases	
Actuated Green, G (s)	21.8
Effective Green, g (s)	21.8
Actuated g/C Ratio	0.38
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	230
v/s Ratio Prot	
v/s Ratio Perm	c0.28
v/c Ratio	0.73
Uniform Delay, d1	15.2
Progression Factor	1.00
Incremental Delay, d2	11.3
Delay (s)	26.5
Level of Service	C
Approach Delay (s)	26.8
Approach LOS	C

Intersection Summary

Movement	EBL2	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	379	135	20	15	0	219	12	153	10	17	261	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	0.95	0.95			1.00			1.00			0.95	
Frt	1.00	0.99			0.87			0.98			1.00	
Flt Protected	0.95	0.98			1.00			1.00			0.95	
Satd. Flow (prot)	1681	1713			1621			1825			1681	
Flt Permitted	0.95	0.98			1.00			1.00			0.95	
Satd. Flow (perm)	1681	1713			1621			1825			1681	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	412	147	22	16	0	238	13	166	11	18	284	175
RTOR Reduction (vph)	0	4	0	0	2	0	0	5	0	0	0	0
Lane Group Flow (vph)	288	289	0	0	265	0	0	190	0	0	256	0
Turn Type	Split			Split							Prot	Perm
Protected Phases	3	3		4	4			2			1	
Permitted Phases												6
Actuated Green, G (s)	15.4	15.4			15.2			19.0			13.0	
Effective Green, g (s)	15.4	15.4			15.2			19.0			13.0	
Actuated g/C Ratio	0.20	0.20			0.19			0.24			0.17	
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)	329	336			313			441			278	
v/s Ratio Prot	c0.17	0.17			c0.16			0.10			0.15	
v/s Ratio Perm												
v/c Ratio	0.88	0.86			0.85			0.43			0.92	
Uniform Delay, d1	30.7	30.6			30.6			25.2			32.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	21.9	19.5			18.5			0.7			33.7	
Delay (s)	52.6	50.1			49.0			25.9			66.0	
Level of Service	D	D			D			C			E	
Approach Delay (s)		51.3			49.0			25.9				
Approach LOS		D			D			C				

Intersection Summary

HCM Average Control Delay	58.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	78.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT
Lane Configurations	↰↑
Volume (vph)	35
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	0.95
Frt	1.00
Flt Protected	0.96
Satd. Flow (prot)	1698
Flt Permitted	0.28
Satd. Flow (perm)	491
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	38
RTOR Reduction (vph)	0
Lane Group Flow (vph)	241
Turn Type	
Protected Phases	6
Permitted Phases	
Actuated Green, G (s)	36.0
Effective Green, g (s)	36.0
Actuated g/C Ratio	0.46
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	225
v/s Ratio Prot	
v/s Ratio Perm	c0.49
v/c Ratio	1.07
Uniform Delay, d1	21.3
Progression Factor	1.00
Incremental Delay, d2	80.1
Delay (s)	101.4
Level of Service	F
Approach Delay (s)	83.2
Approach LOS	F

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	595	134	10	179	109	0	0	59	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0			4.0	
Lane Util. Factor					0.95			1.00			1.00	
Frt					1.00			1.00			0.95	
Flt Protected					0.96			0.97			1.00	
Satd. Flow (prot)					3395			1806			1774	
Flt Permitted					0.96			0.97			1.00	
Satd. Flow (perm)					3395			1806			1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	647	146	11	195	118	0	0	64	35
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	803	0	0	313	0	0	69	0
Turn Type				Split			Split					
Protected Phases				8	8		2	2			6	
Permitted Phases												
Actuated Green, G (s)					15.5			12.8			7.4	
Effective Green, g (s)					15.5			12.8			7.4	
Actuated g/C Ratio					0.32			0.27			0.16	
Clearance Time (s)					4.0			4.0			4.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					1103			485			275	
v/s Ratio Prot					c0.24			c0.17			c0.04	
v/s Ratio Perm												
v/c Ratio					1.13dl			0.65			0.25	
Uniform Delay, d1					14.2			15.4			17.7	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					2.4			2.9			0.5	
Delay (s)					16.7			18.4			18.2	
Level of Service					B			B			B	
Approach Delay (s)		0.0			16.7			18.4			18.2	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	47.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.9%	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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	381	152	12	115	86	0	0	167	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	
Lane Util. Factor					0.95			1.00			1.00	
Frt					1.00			1.00			0.96	
Flt Protected					0.97			0.97			1.00	
Satd. Flow (prot)					3408			1811			1795	
Flt Permitted					0.97			0.97			1.00	
Satd. Flow (perm)					3408			1811			1795	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	414	165	13	125	93	0	0	182	67
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	0	0	0	589	0	0	218	0	0	226	0
Turn Type				Split			Split					
Protected Phases				8	8		2	2			6	
Permitted Phases												
Actuated Green, G (s)					13.2			11.1			11.2	
Effective Green, g (s)					13.2			11.1			11.2	
Actuated g/C Ratio					0.28			0.23			0.24	
Clearance Time (s)					4.0			4.0			4.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					947			423			423	
v/s Ratio Prot					c0.17			c0.12			c0.13	
v/s Ratio Perm												
v/c Ratio					0.62			0.52			0.53	
Uniform Delay, d1					15.0			15.9			15.9	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					1.3			1.1			1.3	
Delay (s)					16.3			16.9			17.2	
Level of Service					B			B			B	
Approach Delay (s)		0.0			16.3			16.9			17.2	
Approach LOS		A			B			B			B	

Intersection Summary

HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	12.0
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)	14	7	66	44	11	20	65	240	43	55	535	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.90			0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1659			1744		1770	1820		1770	1856	
Flt Permitted		0.95			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1583			1629		1770	1820		1770	1856	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	8	72	48	12	22	71	261	47	60	582	15
RTOR Reduction (vph)	0	65	0	0	20	0	0	8	0	0	1	0
Lane Group Flow (vph)	0	30	0	0	62	0	71	300	0	60	596	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		4.4			4.4		2.0	25.9		1.9	25.8	
Effective Green, g (s)		4.4			4.4		2.0	25.9		1.9	25.8	
Actuated g/C Ratio		0.10			0.10		0.05	0.59		0.04	0.58	
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)		158			162		80	1066		76	1083	
v/s Ratio Prot							c0.04	0.16		0.03	c0.32	
v/s Ratio Perm		0.02			c0.04							
v/c Ratio		0.19			0.38		0.89	0.28		0.79	0.55	
Uniform Delay, d1		18.3			18.6		21.0	4.5		21.0	5.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			1.5		63.6	0.1		40.6	0.6	
Delay (s)		18.9			20.1		84.6	4.7		61.5	6.2	
Level of Service		B			C		F	A		E	A	
Approach Delay (s)		18.9			20.1			19.6			11.3	
Approach LOS		B			C			B			B	

Intersection Summary

HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.5%	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)	26	11	71	27	10	39	96	804	69	15	249	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.93		1.00	0.99		1.00	0.98	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1677			1704		1770	1841		1770	1826	
Flt Permitted		0.93			0.87		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1582			1507		1770	1841		1770	1826	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	12	77	29	11	42	104	874	75	16	271	41
RTOR Reduction (vph)	0	69	0	0	37	0	0	3	0	0	7	0
Lane Group Flow (vph)	0	48	0	0	45	0	104	946	0	16	305	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		6.4	35.2		0.6	29.4	
Effective Green, g (s)		5.9			5.9		6.4	35.2		0.6	29.4	
Actuated g/C Ratio		0.11			0.11		0.12	0.66		0.01	0.55	
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)		174			166		211	1207		20	1000	
v/s Ratio Prot							c0.06	c0.51		0.01	0.17	
v/s Ratio Perm		c0.03			0.03							
v/c Ratio		0.28			0.27		0.49	0.78		0.80	0.31	
Uniform Delay, d1		21.9			21.9		22.1	6.6		26.5	6.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			0.9		1.8	3.4		110.1	0.2	
Delay (s)		22.8			22.8		23.9	9.9		136.6	6.8	
Level of Service		C			C		C	A		F	A	
Approach Delay (s)		22.8			22.8			11.3			13.1	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

BAKERSFIELD FUTURE PLUS PROJECT CONDITIONS - MITIGATED

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1265	419	0	2224	1341	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2			4.9	4.9	
Lane Util. Factor	0.97			0.91	0.91	
Frt	0.96			1.00	0.97	
Flt Protected	0.96			1.00	1.00	
Satd. Flow (prot)	3353			5085	4920	
Flt Permitted	0.96			1.00	1.00	
Satd. Flow (perm)	3353			5085	4920	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1375	455	0	2417	1458	402
RTOR Reduction (vph)	7	0	0	0	41	0
Lane Group Flow (vph)	1823	0	0	2417	1819	0
Turn Type						
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	56.8			54.1	54.1	
Effective Green, g (s)	56.8			54.1	54.1	
Actuated g/C Ratio	0.47			0.45	0.45	
Clearance Time (s)	4.2			4.9	4.9	
Vehicle Extension (s)	3.0			4.0	4.0	
Lane Grp Cap (vph)	1587			2292	2218	
v/s Ratio Prot	c0.54			c0.48	0.37	
v/s Ratio Perm						
v/c Ratio	1.15			1.05	0.82	
Uniform Delay, d1	31.6			33.0	28.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	74.8			35.1	2.7	
Delay (s)	106.4			68.1	31.4	
Level of Service	F			E	C	
Approach Delay (s)	106.4			68.1	31.4	
Approach LOS	F			E	C	

Intersection Summary			
HCM Average Control Delay	68.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	628	651	0	1437	1134	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2			4.9	4.9	
Lane Util. Factor	0.97			0.91	0.91	
Frt	0.92			1.00	0.96	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	3258			5085	4866	
Flt Permitted	0.98			1.00	1.00	
Satd. Flow (perm)	3258			5085	4866	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	683	708	0	1562	1233	497
RTOR Reduction (vph)	7	0	0	0	133	0
Lane Group Flow (vph)	1384	0	0	1562	1597	0
Turn Type						
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	24.8			21.1	21.1	
Effective Green, g (s)	24.8			21.1	21.1	
Actuated g/C Ratio	0.45			0.38	0.38	
Clearance Time (s)	4.2			4.9	4.9	
Vehicle Extension (s)	3.0			4.0	4.0	
Lane Grp Cap (vph)	1469			1951	1867	
v/s Ratio Prot	c0.42			0.31	c0.33	
v/s Ratio Perm						
v/c Ratio	0.96dr			0.80	0.86	
Uniform Delay, d1	14.4			15.1	15.6	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	12.3			2.6	4.2	
Delay (s)	26.7			17.7	19.8	
Level of Service	C			B	B	
Approach Delay (s)	26.7			17.7	19.8	
Approach LOS	C			B	B	

Intersection Summary

HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	112	109	65	298	223	400	98	1524	193	95	1483	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.9	3.7	4.9	4.9	3.7	4.9		3.7	4.9	
Lane Util. Factor	1.00	0.95	1.00	0.97	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	3433	3539	1583	1770	4999		1770	5056	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1770	4999		1770	5056	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	118	71	324	242	435	107	1657	210	103	1612	64
RTOR Reduction (vph)	0	0	57	0	0	182	0	17	0	0	4	0
Lane Group Flow (vph)	122	118	14	324	242	253	107	1850	0	103	1672	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.1	15.7	15.7	9.8	19.4	19.4	6.0	29.6		6.0	29.6	
Effective Green, g (s)	6.1	15.7	15.7	9.8	19.4	19.4	6.0	29.6		6.0	29.6	
Actuated g/C Ratio	0.08	0.20	0.20	0.13	0.25	0.25	0.08	0.38		0.08	0.38	
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)	138	710	317	430	877	392	136	1890		136	1911	
v/s Ratio Prot	0.07	0.03		c0.09	0.07		c0.06	c0.37		0.06	0.33	
v/s Ratio Perm			0.01			c0.16						
v/c Ratio	0.88	0.17	0.04	0.75	0.28	0.65	0.79	0.98		0.76	0.87	
Uniform Delay, d1	35.7	25.9	25.3	33.1	23.8	26.4	35.5	24.0		35.4	22.6	
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	42.8	0.3	0.1	6.5	0.4	5.2	23.5	15.9		19.0	5.2	
Delay (s)	78.6	26.2	25.4	39.6	24.2	31.6	59.1	39.9		54.4	27.9	
Level of Service	E	C	C	D	C	C	E	D		D	C	
Approach Delay (s)		46.5			32.4			40.9			29.4	
Approach LOS		D			C			D			C	

Intersection Summary

HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	17.2
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	208	195	197	283	282	350	111	1458	267	103	2238	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.9	3.7	4.9	4.9	3.7	4.9		3.7	4.9	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1770	4967		1770	5061	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1770	4967		1770	5061	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	212	214	308	307	380	121	1585	290	112	2433	79
RTOR Reduction (vph)	0	0	96	0	0	116	0	19	0	0	2	0
Lane Group Flow (vph)	226	212	118	308	307	264	121	1856	0	112	2510	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)	17.3	26.0	26.0	14.6	23.3	23.3	9.3	66.0		11.2	67.9	
Effective Green, g (s)	17.3	26.0	26.0	14.6	23.3	23.3	9.3	66.0		11.2	67.9	
Actuated g/C Ratio	0.13	0.19	0.19	0.11	0.17	0.17	0.07	0.49		0.08	0.50	
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)	227	682	305	371	611	273	122	2428		147	2545	
v/s Ratio Prot	c0.13	0.06		0.09	0.09		c0.07	0.37		0.06	c0.50	
v/s Ratio Perm			c0.07			c0.17						
v/c Ratio	1.00	0.31	0.39	0.83	0.50	0.97	0.99	0.76		0.76	0.99	
Uniform Delay, d1	58.8	46.8	47.5	59.0	50.6	55.5	62.8	28.2		60.6	33.1	
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	58.1	0.6	1.9	13.9	1.5	45.8	78.6	1.7		18.7	14.7	
Delay (s)	116.9	47.4	49.5	72.9	52.1	101.3	141.4	29.8		79.3	47.8	
Level of Service	F	D	D	E	D	F	F	C		E	D	
Approach Delay (s)		72.2			77.3			36.6			49.1	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	52.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	342	39	381	277	4	659	58	56	2	88	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.9	5.9	4.0	5.9		4.2	4.2			4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.93			0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3532		3433	1725			1794	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3532		3433	1725			1794	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	372	42	414	301	4	716	63	61	2	96	36
RTOR Reduction (vph)	0	0	30	0	1	0	0	24	0	0	11	0
Lane Group Flow (vph)	21	372	12	414	304	0	716	100	0	0	123	0
Turn Type	Prot		Perm	Prot			Split			Split		
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2									
Actuated Green, G (s)	2.1	21.3	21.3	32.5	51.7		32.1	32.1			12.5	
Effective Green, g (s)	2.1	21.3	21.3	32.5	51.7		32.1	32.1			12.5	
Actuated g/C Ratio	0.02	0.18	0.18	0.28	0.44		0.28	0.28			0.11	
Clearance Time (s)	4.0	5.9	5.9	4.0	5.9		4.2	4.2			4.2	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0			2.0	
Lane Grp Cap (vph)	32	646	289	493	1565		944	474			192	
v/s Ratio Prot	0.01	c0.11		c0.23	0.09		c0.21	0.06			c0.07	
v/s Ratio Perm			0.01									
v/c Ratio	0.66	0.58	0.04	0.84	0.19		0.76	0.21			0.64	
Uniform Delay, d1	56.9	43.6	39.3	39.6	19.8		38.7	32.6			50.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	39.4	1.5	0.1	11.9	0.1		3.8	0.3			5.4	
Delay (s)	96.3	45.1	39.4	51.6	19.9		42.5	32.9			55.4	
Level of Service	F	D	D	D	B		D	C			E	
Approach Delay (s)		47.0			38.1			41.1			55.4	
Approach LOS		D			D			D			E	

Intersection Summary

HCM Average Control Delay	42.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	116.7	Sum of lost time (s)	18.3
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)	59	462	53	312	403	4	479	84	104	3	107	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.9	5.9	4.0	5.9		4.2	4.2			4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3534		3433	1708			1774	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3534		3433	1708			1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	502	58	339	438	4	521	91	113	3	116	63
RTOR Reduction (vph)	0	0	32	0	1	0	0	35	0	0	16	0
Lane Group Flow (vph)	64	502	26	339	441	0	521	169	0	0	166	0
Turn Type	Prot		Perm	Prot			Split			Split		
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2									
Actuated Green, G (s)	7.0	21.7	21.7	22.5	37.2		24.1	24.1			14.1	
Effective Green, g (s)	7.0	21.7	21.7	22.5	37.2		24.1	24.1			14.1	
Actuated g/C Ratio	0.07	0.22	0.22	0.22	0.37		0.24	0.24			0.14	
Clearance Time (s)	4.0	5.9	5.9	4.0	5.9		4.2	4.2			4.2	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0			2.0	
Lane Grp Cap (vph)	123	763	341	395	1306		822	409			248	
v/s Ratio Prot	0.04	c0.14		c0.19	0.12		c0.15	0.10			c0.09	
v/s Ratio Perm			0.02									
v/c Ratio	0.52	0.66	0.08	0.86	0.34		0.63	0.41			0.67	
Uniform Delay, d1	45.2	36.1	31.5	37.6	22.9		34.3	32.3			41.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	3.9	2.3	0.1	16.6	0.2		1.8	0.9			5.2	
Delay (s)	49.2	38.4	31.6	54.2	23.1		36.2	33.3			46.3	
Level of Service	D	D	C	D	C		D	C			D	
Approach Delay (s)		38.9			36.6			35.3			46.3	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	37.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.7	Sum of lost time (s)	18.3
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	35	3	9	46	43	13	398	11	35	201	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		1.00			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1804			1744		1770	1855		1770	1846	
Flt Permitted		0.77			0.95		0.61	1.00		0.50	1.00	
Satd. Flow (perm)		1421			1671		1144	1855		934	1846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	38	3	10	50	47	14	433	12	38	218	14
RTOR Reduction (vph)	0	3	0	0	40	0	0	2	0	0	4	0
Lane Group Flow (vph)	0	91	0	0	67	0	14	443	0	38	228	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		4.6			4.6		18.4	18.4		18.4	18.4	
Effective Green, g (s)		4.6			4.6		18.4	18.4		18.4	18.4	
Actuated g/C Ratio		0.15			0.15		0.59	0.59		0.59	0.59	
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)		211			248		679	1101		554	1096	
v/s Ratio Prot								c0.24			0.12	
v/s Ratio Perm		c0.06			0.04		0.01			0.04		
v/c Ratio		0.43			0.27		0.02	0.40		0.07	0.21	
Uniform Delay, d1		12.0			11.7		2.6	3.4		2.7	2.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.4			0.6		0.0	0.2		0.1	0.1	
Delay (s)		13.4			12.3		2.6	3.6		2.7	3.0	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		13.4			12.3			3.6			3.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	5.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	31.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.3%	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)	42	58	21	32	65	56	17	415	22	71	584	67
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			0.95		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1788			1753		1770	1849		1770	1834	
Flt Permitted		0.87			0.93		0.30	1.00		0.46	1.00	
Satd. Flow (perm)		1574			1639		560	1849		862	1834	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	63	23	35	71	61	18	451	24	77	635	73
RTOR Reduction (vph)	0	17	0	0	46	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	115	0	0	121	0	18	472	0	77	702	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.0			7.0		23.8	23.8		23.8	23.8	
Effective Green, g (s)		7.0			7.0		23.8	23.8		23.8	23.8	
Actuated g/C Ratio		0.18			0.18		0.61	0.61		0.61	0.61	
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)		284			296		344	1134		529	1125	
v/s Ratio Prot								0.26			c0.38	
v/s Ratio Perm		0.07			c0.07		0.03			0.09		
v/c Ratio		0.40			0.41		0.05	0.42		0.15	0.62	
Uniform Delay, d1		14.1			14.1		3.0	3.9		3.2	4.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			0.9		0.1	0.2		0.1	1.1	
Delay (s)		15.0			15.0		3.1	4.1		3.3	5.8	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		15.0			15.0			4.1			5.5	
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)	38.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.2%	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)	10	1308	1003	0	1249	23	479	16	705	31	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.0		5.3	5.3	4.6	4.6	4.6	3.7		3.7
Lane Util. Factor	1.00	0.91	1.00		0.91	1.00	0.95	0.91	0.95	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	0.88	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.99	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1583		5085	1583	1681	1479	1504	1770		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.99	1.00	0.89		1.00
Satd. Flow (perm)	1770	5085	1583		5085	1583	1681	1479	1504	1656		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1422	1090	0	1358	25	521	17	766	34	0	37
RTOR Reduction (vph)	0	0	0	0	0	11	0	105	105	0	0	35
Lane Group Flow (vph)	11	1422	1090	0	1358	14	453	325	316	34	0	2
Turn Type	Prot		Free			Prot	Split		Perm	custom		custom
Protected Phases	5	2			6	6	3	3				
Permitted Phases			Free						3	4		4
Actuated Green, G (s)	1.2	35.8	82.8		30.5	30.5	29.3	29.3	29.3	4.5		4.5
Effective Green, g (s)	1.2	35.8	82.8		30.5	30.5	29.3	29.3	29.3	4.5		4.5
Actuated g/C Ratio	0.01	0.43	1.00		0.37	0.37	0.35	0.35	0.35	0.05		0.05
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)	26	2199	1583		1873	583	595	523	532	90		86
v/s Ratio Prot	0.01	0.28			0.27	0.01	0.27	0.22				
v/s Ratio Perm			c0.69						0.21	0.02		0.00
v/c Ratio	0.42	0.65	0.69		0.73	0.02	0.76	0.62	0.59	0.38		0.02
Uniform Delay, d1	40.5	18.5	0.0		22.5	16.7	23.7	22.2	21.9	37.8		37.1
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	4.0	0.9	2.5		1.6	0.0	6.7	3.2	2.7	1.0		0.0
Delay (s)	44.5	19.4	2.5		24.1	16.7	30.4	25.4	24.6	38.8		37.1
Level of Service	D	B	A		C	B	C	C	C	D		D
Approach Delay (s)		12.2			24.0			26.8			37.9	
Approach LOS		B			C			C			D	

Intersection Summary

HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	82.8	Sum of lost time (s)	0.0
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)	69	1168	1202	0	2243	68	301	9	586	55	0	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.0		5.3	5.3	4.6	4.6	4.6	3.7		3.7
Lane Util. Factor	1.00	0.91	1.00		0.91	1.00	0.95	0.91	0.95	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	0.87	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1583		5085	1583	1681	1466	1504	1770		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.54		1.00
Satd. Flow (perm)	1770	5085	1583		5085	1583	1681	1466	1504	1003		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	1270	1307	0	2438	74	327	10	637	60	0	80
RTOR Reduction (vph)	0	0	0	0	0	15	0	68	68	0	0	75
Lane Group Flow (vph)	75	1270	1307	0	2438	59	294	274	270	60	0	5
Turn Type	Prot		Free			Prot	Split		Perm	custom		custom
Protected Phases	5	2			6	6	3	3				
Permitted Phases			Free						3	4		4
Actuated Green, G (s)	6.4	71.0	121.2		60.5	60.5	28.7	28.7	28.7	8.3		8.3
Effective Green, g (s)	6.4	71.0	121.2		60.5	60.5	28.7	28.7	28.7	8.3		8.3
Actuated g/C Ratio	0.05	0.59	1.00		0.50	0.50	0.24	0.24	0.24	0.07		0.07
Clearance Time (s)	3.7	4.9			5.3	5.3	4.6	4.6	4.6	3.7		3.7
Vehicle Extension (s)	2.0	5.1			4.2	4.2	5.0	5.0	5.0	1.5		1.5
Lane Grp Cap (vph)	93	2979	1583		2538	790	398	347	356	69		108
v/s Ratio Prot	0.04	0.25			c0.48	0.04	0.17	0.19				
v/s Ratio Perm			c0.83						0.18	0.06		0.00
v/c Ratio	0.81	0.43	0.83		0.96	0.08	0.74	0.79	0.76	0.87		0.05
Uniform Delay, d1	56.8	13.9	0.0		29.2	15.8	42.8	43.4	43.0	55.9		52.8
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	36.4	0.2	5.1		10.3	0.1	8.5	13.0	10.6	62.8		0.1
Delay (s)	93.2	14.1	5.1		39.5	15.9	51.2	56.4	53.6	118.7		52.8
Level of Service	F	B	A		D	B	D	E	D	F		D
Approach Delay (s)		11.9			38.8			53.9			81.1	
Approach LOS		B			D			D			F	

Intersection Summary

HCM Average Control Delay	30.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	121.2	Sum of lost time (s)	5.3
Intersection Capacity Utilization	81.1%	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)	765	1124	116	52	585	118	229	485	82	90	210	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.9	4.9	4.6	4.9	4.9	5.3	5.3		5.3	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91		1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.94	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	3433	4975		1770	3203	1441
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	3433	4975		1770	3203	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	832	1222	126	57	636	128	249	527	89	98	228	296
RTOR Reduction (vph)	0	0	54	0	0	85	0	19	0	0	62	136
Lane Group Flow (vph)	832	1222	72	57	636	43	249	597	0	98	299	27
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4						2
Actuated Green, G (s)	29.9	44.1	44.1	5.4	19.6	19.6	11.7	19.1		8.5	15.9	15.9
Effective Green, g (s)	29.9	44.1	44.1	5.4	19.6	19.6	11.7	19.1		8.5	15.9	15.9
Actuated g/C Ratio	0.31	0.45	0.45	0.06	0.20	0.20	0.12	0.20		0.09	0.16	0.16
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)	1056	1606	718	191	1025	319	413	978		155	524	236
v/s Ratio Prot	0.24	c0.35		0.02	c0.13		c0.07	c0.12		0.06	0.09	
v/s Ratio Perm			0.05			0.03						0.02
v/c Ratio	0.79	0.76	0.10	0.30	0.62	0.13	0.60	0.61		0.63	0.57	0.11
Uniform Delay, d1	30.8	22.2	15.2	44.1	35.4	31.8	40.5	35.7		42.8	37.5	34.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.7	2.0	0.0	0.3	0.8	0.1	1.7	0.8		6.0	0.9	0.1
Delay (s)	34.4	24.1	15.2	44.4	36.3	31.9	42.3	36.4		48.9	38.4	34.7
Level of Service	C	C	B	D	D	C	D	D		D	D	C
Approach Delay (s)		27.5			36.1			38.1			39.1	
Approach LOS		C			D			D			D	

Intersection Summary

HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	97.2	Sum of lost time (s)	15.5
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	503	823	206	177	1070	104	278	527	59	134	746	685
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.9	4.9	4.6	4.9	4.9	5.3	5.3		5.3	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91		1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	3433	5009		1770	3264	1441
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	3433	5009		1770	3264	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	547	895	224	192	1163	113	302	573	64	146	811	745
RTOR Reduction (vph)	0	0	132	0	0	35	0	9	0	0	20	233
Lane Group Flow (vph)	547	895	92	192	1163	78	302	628	0	146	1059	244
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4						2
Actuated Green, G (s)	21.4	39.1	39.1	14.5	32.2	32.2	16.3	47.1		15.5	46.3	46.3
Effective Green, g (s)	21.4	39.1	39.1	14.5	32.2	32.2	16.3	47.1		15.5	46.3	46.3
Actuated g/C Ratio	0.16	0.29	0.29	0.11	0.24	0.24	0.12	0.35		0.11	0.34	0.34
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)	539	1015	454	365	1201	374	411	1731		201	1109	489
v/s Ratio Prot	c0.16	0.25		0.06	c0.23		c0.09	0.13		0.08	c0.32	
v/s Ratio Perm			0.06			0.05						0.17
v/c Ratio	1.01	0.88	0.20	0.53	0.97	0.21	0.73	0.36		0.73	0.96	0.50
Uniform Delay, d1	57.5	46.4	36.8	57.6	51.5	41.8	57.9	33.4		58.4	44.0	35.8
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	42.5	8.9	0.1	0.6	18.5	0.1	5.8	0.0		10.5	17.0	0.3
Delay (s)	100.0	55.3	36.9	58.3	70.1	41.9	63.7	33.4		68.9	61.0	36.1
Level of Service	F	E	D	E	E	D	E	C		E	E	D
Approach Delay (s)		67.5			66.3			43.2			54.7	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	59.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	136.3	Sum of lost time (s)	20.1
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	284	113	295	344	181	199	1747	178	180	1361	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4	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	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4868		3433	4822		1770	5085	1583	1770	5085	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	4868		3433	4822		1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	309	123	321	374	197	216	1899	193	196	1479	264
RTOR Reduction (vph)	0	82	0	0	109	0	0	0	114	0	0	131
Lane Group Flow (vph)	212	350	0	321	462	0	216	1899	79	196	1479	133
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	6.8	14.9		8.8	16.9		13.6	36.2	36.2	10.4	33.0	33.0
Effective Green, g (s)	6.8	14.9		8.8	16.9		13.6	36.2	36.2	10.4	33.0	33.0
Actuated g/C Ratio	0.08	0.17		0.10	0.19		0.15	0.41	0.41	0.12	0.38	0.38
Clearance Time (s)	5.2	4.4		5.2	4.4		3.7	4.4	4.4	3.7	4.4	4.4
Vehicle Extension (s)	2.0	5.2		2.0	5.2		2.0	5.2	5.2	2.0	5.2	5.2
Lane Grp Cap (vph)	265	824		343	926		274	2092	651	209	1907	594
v/s Ratio Prot	0.06	0.07		c0.09	c0.10		0.12	c0.37		c0.11	0.29	
v/s Ratio Perm									0.05			0.08
v/c Ratio	0.80	0.42		0.94	0.50		0.79	0.91	0.12	0.94	0.78	0.22
Uniform Delay, d1	39.9	32.7		39.3	31.8		35.8	24.3	16.1	38.5	24.2	18.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.9	0.8		31.8	0.9		12.9	6.6	0.2	44.1	2.4	0.4
Delay (s)	54.8	33.5		71.1	32.7		48.7	31.0	16.2	82.6	26.7	19.2
Level of Service	D	C		E	C		D	C	B	F	C	B
Approach Delay (s)		40.5			46.5			31.4			31.3	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	374	649	329	479	421	165	161	1654	257	290	1870	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4	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	1.00	0.91	1.00
Frt	1.00	0.95		1.00	0.96		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	4828		3433	4871		1770	5085	1583	1770	5085	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	4828		3433	4871		1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	705	358	521	458	179	175	1798	279	315	2033	332
RTOR Reduction (vph)	0	71	0	0	54	0	0	0	129	0	0	86
Lane Group Flow (vph)	407	992	0	521	583	0	175	1798	150	315	2033	246
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	18.7	25.6		18.8	25.7		12.3	46.6	46.6	21.3	55.6	55.6
Effective Green, g (s)	18.7	25.6		18.8	25.7		12.3	46.6	46.6	21.3	55.6	55.6
Actuated g/C Ratio	0.14	0.20		0.14	0.20		0.09	0.36	0.36	0.16	0.43	0.43
Clearance Time (s)	5.2	4.4		5.2	4.4		3.7	4.4	4.4	3.7	4.4	4.4
Vehicle Extension (s)	2.0	5.2		2.0	5.2		2.0	5.2	5.2	2.0	5.2	5.2
Lane Grp Cap (vph)	494	951		496	963		167	1823	567	290	2175	677
v/s Ratio Prot	0.12	c0.21		c0.15	0.12		0.10	c0.35		c0.18	0.40	
v/s Ratio Perm									0.09			0.16
v/c Ratio	0.82	1.04		1.05	0.61		1.05	0.99	0.26	1.09	0.93	0.36
Uniform Delay, d1	54.1	52.2		55.6	47.5		58.9	41.4	29.6	54.4	35.5	25.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.2	41.2		54.3	1.7		82.9	17.9	0.6	77.8	8.6	0.7
Delay (s)	64.3	93.4		109.9	49.2		141.7	59.3	30.1	132.1	44.0	25.9
Level of Service	E	F		F	D		F	E	C	F	D	C
Approach Delay (s)		85.3			76.5			62.1			52.2	
Approach LOS		F			E			E			D	

Intersection Summary

HCM Average Control Delay	65.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.7
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1343	1042	135	133	534	58	401	624	420	107	263	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91		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	5011		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	5011		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1460	1133	147	145	580	63	436	678	457	116	286	450
RTOR Reduction (vph)	0	0	55	0	9	0	0	0	148	0	0	380
Lane Group Flow (vph)	1460	1133	92	145	634	0	436	678	309	116	286	70
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	56.2	52.8	52.8	24.2	20.8		17.1	30.6	30.6	7.2	20.7	20.7
Effective Green, g (s)	56.2	52.8	52.8	24.2	20.8		17.1	30.6	30.6	7.2	20.7	20.7
Actuated g/C Ratio	0.42	0.40	0.40	0.18	0.16		0.13	0.23	0.23	0.05	0.16	0.16
Clearance Time (s)	4.0	4.9	4.9	4.0	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		0.5	2.0	2.0	0.5	2.0	2.0
Lane Grp Cap (vph)	1451	1405	628	625	784		441	814	364	186	551	246
v/s Ratio Prot	c0.43	c0.32		0.04	0.13		c0.13	0.19		c0.03	0.08	
v/s Ratio Perm			0.06						c0.20			0.04
v/c Ratio	1.01	0.81	0.15	0.23	0.81		0.99	0.83	0.85	0.62	0.52	0.28
Uniform Delay, d1	38.4	35.6	25.7	46.5	54.2		57.9	48.8	49.0	61.6	51.6	49.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.1	3.3	0.0	0.1	5.8		39.4	7.0	16.1	4.6	0.3	0.2
Delay (s)	63.5	38.9	25.7	46.5	60.0		97.2	55.8	65.0	66.2	51.9	49.8
Level of Service	E	D	C	D	E		F	E	E	E	D	D
Approach Delay (s)		51.3			57.5			70.0			52.8	
Approach LOS		D			E			E			D	

Intersection Summary

HCM Average Control Delay	57.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	133.0	Sum of lost time (s)	16.9
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1001	1367	335	447	1221	88	283	603	299	113	822	949
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9		4.0	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91		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	5034		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	5034		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1088	1486	364	486	1327	96	308	655	325	123	893	1032
RTOR Reduction (vph)	0	0	89	0	6	0	0	0	177	0	0	269
Lane Group Flow (vph)	1088	1486	275	486	1417	0	308	655	148	123	893	763
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	31.0	53.1	53.1	14.0	36.1		10.0	32.8	32.8	21.9	44.7	44.7
Effective Green, g (s)	31.0	53.1	53.1	14.0	36.1		10.0	32.8	32.8	21.9	44.7	44.7
Actuated g/C Ratio	0.22	0.38	0.38	0.10	0.26		0.07	0.23	0.23	0.16	0.32	0.32
Clearance Time (s)	4.0	4.9	4.9	4.0	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		0.5	2.0	2.0	0.5	2.0	2.0
Lane Grp Cap (vph)	760	1342	600	343	1298		245	829	371	537	1130	505
v/s Ratio Prot	c0.32	c0.42		0.14	0.28		c0.09	0.19		0.04	0.25	
v/s Ratio Perm			0.17						0.09			c0.48
v/c Ratio	1.43	1.11	0.46	1.42	1.09		1.26	0.79	0.40	0.23	0.79	1.51
Uniform Delay, d1	54.5	43.4	32.7	63.0	51.9		65.0	50.4	45.3	51.7	43.4	47.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	201.8	59.5	0.2	204.0	53.9		144.5	4.8	0.3	0.1	3.6	240.1
Delay (s)	256.3	103.0	32.9	267.0	105.9		209.5	55.2	45.5	51.7	47.0	287.8
Level of Service	F	F	C	F	F		F	E	D	D	D	F
Approach Delay (s)		151.1			146.9			89.6			168.6	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	144.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Volume (vph)	3	18	15	30	13	29	9	39	76	494	1206	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	5.1		5.1	5.1			4.7	5.1	4.7	
Lane Util. Factor		1.00	1.00		1.00	1.00			1.00	0.91	0.76	
Frt		1.00	0.90		1.00	0.91			1.00	1.00	0.85	
Flt Protected		0.95	1.00		0.95	1.00			0.95	1.00	1.00	
Satd. Flow (prot)		1770	1675		1770	1690			1770	5085	3610	
Flt Permitted		0.70	1.00		0.73	1.00			0.95	1.00	1.00	
Satd. Flow (perm)		1308	1675		1351	1690			1770	5085	3610	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	20	16	33	14	32	10	42	83	537	1311	41
RTOR Reduction (vph)	0	0	31	0	0	37	0	0	0	0	2	0
Lane Group Flow (vph)	0	23	18	0	14	47	0	0	83	537	1350	0
Turn Type	Perm	Perm			Perm				Prot		Over	
Protected Phases			8			8			5	2	7	
Permitted Phases	8	8			8							
Actuated Green, G (s)		6.4	6.4		6.4	6.4			6.3	21.3	40.0	
Effective Green, g (s)		6.4	6.4		6.4	6.4			6.3	21.3	40.0	
Actuated g/C Ratio		0.07	0.07		0.07	0.07			0.07	0.22	0.41	
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)		87	111		89	112			115	1120	1493	
v/s Ratio Prot			0.01			c0.03			0.05	0.11	c0.37	
v/s Ratio Perm		0.02			0.01							
v/c Ratio		0.26	0.16		0.16	0.42			0.72	0.48	0.90	
Uniform Delay, d1		42.9	42.6		42.6	43.4			44.3	32.9	26.6	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		0.6	0.3		0.3	0.9			17.1	1.1	9.3	
Delay (s)		43.5	42.9		42.9	44.3			61.5	34.0	35.9	
Level of Service		D	D		D	D			E	C	D	
Approach Delay (s)			43.1			44.1				36.4		
Approach LOS			D			D				D		

Intersection Summary

HCM Average Control Delay	35.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	96.7	Sum of lost time (s)	19.6
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Volume (vph)	8	71	23	32	24	14	7	62	96	738	1812	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	5.1		5.1	5.1			4.7	5.1	4.7	
Lane Util. Factor		1.00	1.00		1.00	1.00			1.00	0.91	0.76	
Frt		1.00	0.91		1.00	0.88			1.00	1.00	0.85	
Flt Protected		0.95	1.00		0.95	1.00			0.95	1.00	1.00	
Satd. Flow (prot)		1770	1700		1770	1630			1770	5085	3610	
Flt Permitted		0.61	1.00		0.72	1.00			0.95	1.00	1.00	
Satd. Flow (perm)		1130	1700		1337	1630			1770	5085	3610	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	77	25	35	26	15	8	67	104	802	1970	39
RTOR Reduction (vph)	0	0	32	0	0	61	0	0	0	0	1	0
Lane Group Flow (vph)	0	86	28	0	26	29	0	0	104	802	2008	0
Turn Type	Perm	Perm			Perm				Prot		Over	
Protected Phases			8			8			5	2	7	
Permitted Phases	8	8			8							
Actuated Green, G (s)		13.3	13.3		13.3	13.3			7.3	27.8	71.4	
Effective Green, g (s)		13.3	13.3		13.3	13.3			7.3	27.8	71.4	
Actuated g/C Ratio		0.09	0.09		0.09	0.09			0.05	0.19	0.50	
Clearance Time (s)		5.1	5.1		5.1	5.1			4.7	5.1	4.7	
Vehicle Extension (s)		0.2	0.2		0.2	0.2			2.0	6.8	8.0	
Lane Grp Cap (vph)		105	158		124	151			90	986	1797	
v/s Ratio Prot			0.02			0.02			0.06	0.16	c0.56	
v/s Ratio Perm		c0.08			0.02							
v/c Ratio		0.82	0.18		0.21	0.19			1.16	0.81	1.12	
Uniform Delay, d1		63.9	60.0		60.2	60.1			68.0	55.3	36.0	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		35.5	0.2		0.3	0.2			142.8	6.4	61.1	
Delay (s)		99.4	60.2		60.5	60.3			210.9	61.7	97.1	
Level of Service		F	E		E	E			F	E	F	
Approach Delay (s)			83.3			60.4				91.4		
Approach LOS			F			E				F		

Intersection Summary

HCM Average Control Delay	75.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	143.4	Sum of lost time (s)	19.6
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations							
Volume (vph)	23	116	622	15	1388	157	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	5.1		4.7		
Lane Util. Factor		1.00	0.91		0.94		
Frt		1.00	1.00		0.98		
Flt Protected		0.95	1.00		0.96		
Satd. Flow (prot)		1770	5068		4921		
Flt Permitted		0.95	1.00		0.96		
Satd. Flow (perm)		1770	5068		4921		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	126	676	16	1509	171	115
RTOR Reduction (vph)	0	0	2	0	6	0	0
Lane Group Flow (vph)	0	151	690	0	1789	0	0
Turn Type	Prot	Prot					
Protected Phases	1	1	6		7		
Permitted Phases							
Actuated Green, G (s)		9.4	24.4		40.0		
Effective Green, g (s)		9.4	24.4		40.0		
Actuated g/C Ratio		0.10	0.25		0.41		
Clearance Time (s)		4.7	5.1		4.7		
Vehicle Extension (s)		2.0	6.8		8.0		
Lane Grp Cap (vph)		172	1279		2036		
v/s Ratio Prot		c0.09	c0.14		0.36		
v/s Ratio Perm							
v/c Ratio		0.88	0.54		0.88		
Uniform Delay, d1		43.1	31.3		26.1		
Progression Factor		1.00	1.00		1.00		
Incremental Delay, d2		35.2	1.2		5.7		
Delay (s)		78.2	32.5		31.8		
Level of Service		E	C		C		
Approach Delay (s)			40.7		31.8		
Approach LOS			D		C		

Intersection Summary

Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Volume (vph)	115	14	1068	18	1	1556	59	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	5.1			4.7		
Lane Util. Factor		1.00	0.91			0.94		
Frt		1.00	1.00			0.99		
Flt Protected		0.95	1.00			0.95		
Satd. Flow (prot)		1770	5072			4976		
Flt Permitted		0.95	1.00			0.92		
Satd. Flow (perm)		1770	5072			4806		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	15	1161	20	1	1691	64	29
RTOR Reduction (vph)	0	0	1	0	0	1	0	0
Lane Group Flow (vph)	0	140	1180	0	0	1784	0	0
Turn Type	Prot	Prot			Perm			
Protected Phases	1	1	6			7		
Permitted Phases					7			
Actuated Green, G (s)		11.3	31.8			71.4		
Effective Green, g (s)		11.3	31.8			71.4		
Actuated g/C Ratio		0.08	0.22			0.50		
Clearance Time (s)		4.7	5.1			4.7		
Vehicle Extension (s)		2.0	6.8			8.0		
Lane Grp Cap (vph)		139	1125			2393		
v/s Ratio Prot		c0.08	c0.23					
v/s Ratio Perm						0.37		
v/c Ratio		1.01	1.05			0.75		
Uniform Delay, d1		66.0	55.8			28.7		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		78.2	40.7			2.1		
Delay (s)		144.3	96.5			30.9		
Level of Service		F	F			C		
Approach Delay (s)			101.5			30.9		
Approach LOS			F			C		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	223	1650	336	0	608	66	74	176	34	86	181	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	0.97	0.91			0.91		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97			0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4956			5010		1770	3453		1770	1863	1583
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4956			5010		1770	3453		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	242	1793	365	0	661	72	80	191	37	93	197	55
RTOR Reduction (vph)	0	30	0	0	13	0	0	17	0	0	0	45
Lane Group Flow (vph)	242	2128	0	0	720	0	80	211	0	93	197	10
Turn Type	Prot						Split			Split		Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases												8
Actuated Green, G (s)	8.9	38.6			26.0		10.1	10.1		13.7	13.7	13.7
Effective Green, g (s)	8.9	38.6			26.0		10.1	10.1		13.7	13.7	13.7
Actuated g/C Ratio	0.12	0.50			0.34		0.13	0.13		0.18	0.18	0.18
Clearance Time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	1.5	4.5			4.5		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	399	2501			1703		234	456		317	334	283
v/s Ratio Prot	0.07	c0.43			0.14		0.05	c0.06		0.05	c0.11	
v/s Ratio Perm												0.01
v/c Ratio	0.61	0.85			0.42		0.34	0.46		0.29	0.59	0.03
Uniform Delay, d1	32.1	16.5			19.5		30.2	30.7		27.2	28.8	25.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	3.2			0.3		0.9	0.7		0.5	2.7	0.1
Delay (s)	33.9	19.7			19.8		31.1	31.4		27.7	31.5	26.0
Level of Service	C	B			B		C	C		C	C	C
Approach Delay (s)		21.1			19.8			31.3			29.6	
Approach LOS		C			B			C			C	

Intersection Summary

HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	14.1
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1030	2489	681	0	742	82	351	381	75	80	279	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	0.97	0.91			0.91		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97			0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4921			5010		1770	3451		1770	1863	1583
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4921			5010		1770	3451		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1120	2705	740	0	807	89	382	414	82	87	303	189
RTOR Reduction (vph)	0	33	0	0	9	0	0	11	0	0	0	156
Lane Group Flow (vph)	1120	3412	0	0	887	0	382	485	0	87	303	33
Turn Type	Prot						Split			Split		Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases												8
Actuated Green, G (s)	47.3	82.5			31.5		26.4	26.4		26.1	26.1	26.1
Effective Green, g (s)	47.3	82.5			31.5		26.4	26.4		26.1	26.1	26.1
Actuated g/C Ratio	0.32	0.55			0.21		0.18	0.18		0.18	0.18	0.18
Clearance Time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	1.5	4.5			4.5		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	1089	2723			1058		313	611		310	326	277
v/s Ratio Prot	0.33	c0.69			0.18		c0.22	0.14		0.05	c0.16	
v/s Ratio Perm												0.02
v/c Ratio	1.03	1.25			0.84		1.22	0.79		0.28	0.93	0.12
Uniform Delay, d1	50.9	33.3			56.4		61.3	58.7		53.4	60.6	51.8
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	34.8	117.1			6.5		124.6	7.0		0.5	31.7	0.2
Delay (s)	85.7	150.4			62.8		185.9	65.8		53.9	92.3	52.0
Level of Service	F	F			E		F	E		D	F	D
Approach Delay (s)		134.5			62.8			118.1			73.4	
Approach LOS		F			E			F			E	

Intersection Summary

HCM Average Control Delay	118.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	149.1	Sum of lost time (s)	14.1
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations												
Volume (vph)	14	24	37	3	22	212	139	146	11	64	20	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	16	12	12	16	12	12
Total Lost time (s)		5.2	5.2			5.2	5.2			5.2		
Lane Util. Factor		1.00	1.00			0.95	0.95			1.00		
Frt		1.00	0.85			1.00	0.93			0.95		
Flt Protected		0.95	1.00			0.95	1.00			1.00		
Satd. Flow (prot)		1770	1583			1681	1856			1993		
Flt Permitted		0.95	1.00			0.56	0.97			0.66		
Satd. Flow (perm)		1770	1583			989	1811			1329		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	26	40	3	24	230	151	159	12	70	22	29
RTOR Reduction (vph)	0	0	2	0	0	0	22	0	0	6	0	0
Lane Group Flow (vph)	0	41	41	0	0	231	311	0	0	127	0	0
Turn Type	Split		Perm		Perm	Perm			Perm			
Protected Phases	3	3					4			4		
Permitted Phases			3		4	4			4			
Actuated Green, G (s)		5.4	5.4			31.8	31.8			31.8		
Effective Green, g (s)		5.4	5.4			31.8	31.8			31.8		
Actuated g/C Ratio		0.04	0.04			0.21	0.21			0.21		
Clearance Time (s)		5.2	5.2			5.2	5.2			5.2		
Vehicle Extension (s)		2.0	2.0			4.5	4.5			4.5		
Lane Grp Cap (vph)		64	57			212	387			284		
v/s Ratio Prot		0.02										
v/s Ratio Perm			c0.03			c0.23	0.17			0.10		
v/c Ratio		0.64	0.72			1.09	0.80			0.45		
Uniform Delay, d1		70.7	70.9			58.4	55.5			50.8		
Progression Factor		1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2		15.2	31.3			87.8	12.7			1.9		
Delay (s)		85.9	102.2			146.2	68.1			52.7		
Level of Service		F	F			F	E			D		
Approach Delay (s)		94.2					100.1			52.7		
Approach LOS		F					F			D		

Intersection Summary

HCM Average Control Delay	121.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	148.7	Sum of lost time (s)	21.5
Intersection Capacity Utilization	111.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations								
Volume (vph)	55	2438	226	37	69	105	3215	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12
Total Lost time (s)	5.2	5.9				5.2	5.9	
Lane Util. Factor	1.00	0.91				1.00	0.91	
Frt	1.00	0.99				1.00	1.00	
Flt Protected	0.95	1.00				0.95	1.00	
Satd. Flow (prot)	1770	5011				1770	5081	
Flt Permitted	0.95	1.00				0.95	1.00	
Satd. Flow (perm)	1770	5011				1770	5081	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	2650	246	40	75	114	3495	22
RTOR Reduction (vph)	0	1	0	0	0	0	0	0
Lane Group Flow (vph)	60	2935	0	0	0	189	3517	0
Turn Type	Prot				Prot	Prot		
Protected Phases	1	6			5	5	2	
Permitted Phases								
Actuated Green, G (s)	6.7	77.2				12.8	83.3	
Effective Green, g (s)	6.7	77.2				12.8	83.3	
Actuated g/C Ratio	0.05	0.52				0.09	0.56	
Clearance Time (s)	5.2	5.9				5.2	5.9	
Vehicle Extension (s)	2.0	3.6				2.0	4.3	
Lane Grp Cap (vph)	80	2602				152	2846	
v/s Ratio Prot	0.03	0.59				c0.11	c0.69	
v/s Ratio Perm								
v/c Ratio	0.75	1.13				1.24	1.24	
Uniform Delay, d1	70.2	35.7				67.9	32.7	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	29.0	63.2				152.9	109.2	
Delay (s)	99.2	98.9				220.8	141.9	
Level of Service	F	F				F	F	
Approach Delay (s)		98.9					146.0	
Approach LOS		F					F	

Intersection Summary

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR2	SEL	SET
Lane Configurations												
Volume (vph)	28	7	29	304	40	48	17	67	4	12	65	4400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	16	12	12	16	12	12	12	12
Total Lost time (s)		5.2	5.2	5.2	5.2			5.2			5.2	5.9
Lane Util. Factor		1.00	1.00	0.95	0.95			1.00			1.00	0.91
Frt		1.00	0.85	1.00	0.96			0.98			1.00	1.00
Flt Protected		0.95	1.00	0.95	0.97			0.99			0.95	1.00
Satd. Flow (prot)		1770	1583	1681	1880			2049			1770	5066
Flt Permitted		0.95	1.00	0.59	0.69			0.79			0.95	1.00
Satd. Flow (perm)		1770	1583	1052	1337			1623			1770	5066
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	8	32	330	43	52	18	73	4	13	71	4783
RTOR Reduction (vph)	0	0	0	0	7	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	38	32	211	207	0	0	105	0	0	71	4909
Turn Type	Split		Perm	Perm			Perm				Prot	
Protected Phases	3	3			4			4			1	6
Permitted Phases			3	4			4					
Actuated Green, G (s)		5.3	5.3	27.0	27.0			27.0			6.8	85.0
Effective Green, g (s)		5.3	5.3	27.0	27.0			27.0			6.8	85.0
Actuated g/C Ratio		0.04	0.04	0.18	0.18			0.18			0.05	0.57
Clearance Time (s)		5.2	5.2	5.2	5.2			5.2			5.2	5.9
Vehicle Extension (s)		2.0	2.0	4.5	4.5			4.5			2.0	3.6
Lane Grp Cap (vph)		63	56	191	243			295			81	2898
v/s Ratio Prot		c0.02									0.04	c0.97
v/s Ratio Perm			0.02	c0.20	0.15			0.06				
v/c Ratio		0.60	0.57	1.10	0.85			0.36			0.88	1.69
Uniform Delay, d1		70.6	70.5	60.8	58.8			53.2			70.5	31.8
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2		10.7	8.5	95.9	25.1			1.3			58.7	313.7
Delay (s)		81.3	79.0	156.7	84.0			54.5			129.2	345.5
Level of Service		F	E	F	F			D			F	F
Approach Delay (s)		80.2			120.1			54.5				342.4
Approach LOS		F			F			D				F

Intersection Summary

HCM Average Control Delay	255.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.58		
Actuated Cycle Length (s)	148.6	Sum of lost time (s)	27.4
Intersection Capacity Utilization	137.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations						
Volume (vph)	96	20	112	50	3523	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)				5.2	5.9	
Lane Util. Factor				1.00	0.91	
Frt				1.00	1.00	
Flt Protected				0.95	1.00	
Satd. Flow (prot)				1770	5075	
Flt Permitted				0.95	1.00	
Satd. Flow (perm)				1770	5075	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	22	122	54	3829	51
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	0	0	176	3879	0
Turn Type			Prot	Prot		
Protected Phases			5	5	2	
Permitted Phases						
Actuated Green, G (s)				9.8	88.0	
Effective Green, g (s)				9.8	88.0	
Actuated g/C Ratio				0.07	0.59	
Clearance Time (s)				5.2	5.9	
Vehicle Extension (s)				2.0	4.3	
Lane Grp Cap (vph)				117	3005	
v/s Ratio Prot				c0.10	c0.76	
v/s Ratio Perm						
v/c Ratio				1.50	1.29	
Uniform Delay, d1				69.4	30.3	
Progression Factor				1.00	1.00	
Incremental Delay, d2				266.1	133.5	
Delay (s)				335.5	163.8	
Level of Service				F	F	
Approach Delay (s)					171.3	
Approach LOS					F	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
23: California Ave & Union Ave

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	280	61	295	344	181	130	1816	178	184	1413	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4	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	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4949		3433	4822		1770	5085	1583	1770	5085	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	4949		3433	4822		1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	304	66	321	374	197	141	1974	193	200	1536	264
RTOR Reduction (vph)	0	38	0	0	109	0	0	0	74	0	0	127
Lane Group Flow (vph)	212	332	0	321	462	0	141	1974	119	200	1536	137
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	6.8	14.9		8.8	16.9		9.5	36.2	36.2	10.3	37.0	37.0
Effective Green, g (s)	6.8	14.9		8.8	16.9		9.5	36.2	36.2	10.3	37.0	37.0
Actuated g/C Ratio	0.08	0.17		0.10	0.19		0.11	0.41	0.41	0.12	0.42	0.42
Clearance Time (s)	5.2	4.4		5.2	4.4		3.7	4.4	4.4	3.7	4.4	4.4
Vehicle Extension (s)	2.0	5.2		2.0	5.2		2.0	5.2	5.2	2.0	5.2	5.2
Lane Grp Cap (vph)	266	839		344	927		191	2094	652	207	2140	666
v/s Ratio Prot	0.06	0.07		c0.09	c0.10		0.08	c0.39		c0.11	0.30	
v/s Ratio Perm									0.08			0.09
v/c Ratio	0.80	0.40		0.93	0.50		0.74	0.94	0.18	0.97	0.72	0.21
Uniform Delay, d1	39.9	32.5		39.3	31.7		38.0	24.9	16.4	38.6	21.1	16.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.2	0.7		31.3	0.9		12.1	9.7	0.3	52.1	1.5	0.3
Delay (s)	54.1	33.2		70.5	32.7		50.0	34.6	16.7	90.7	22.6	16.5
Level of Service	D	C		E	C		D	C	B	F	C	B
Approach Delay (s)		40.8			46.3			34.0			28.6	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	87.9	Sum of lost time (s)	13.3
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
23: California Ave & Union Ave

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	374	640	208	479	421	165	131	1684	257	300	1991	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4	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	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.96		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	4898		3433	4871		1770	5085	1583	1770	5085	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	4898		3433	4871		1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	696	226	521	458	179	142	1830	279	326	2164	332
RTOR Reduction (vph)	0	49	0	0	59	0	0	0	87	0	0	88
Lane Group Flow (vph)	407	873	0	521	578	0	142	1830	192	326	2164	244
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	16.3	20.6		16.8	21.1		9.3	44.6	44.6	20.3	55.6	55.6
Effective Green, g (s)	16.3	20.6		16.8	21.1		9.3	44.6	44.6	20.3	55.6	55.6
Actuated g/C Ratio	0.14	0.17		0.14	0.18		0.08	0.37	0.37	0.17	0.46	0.46
Clearance Time (s)	5.2	4.4		5.2	4.4		3.7	4.4	4.4	3.7	4.4	4.4
Vehicle Extension (s)	2.0	5.2		2.0	5.2		2.0	5.2	5.2	2.0	5.2	5.2
Lane Grp Cap (vph)	466	841		481	856		137	1890	588	299	2356	733
v/s Ratio Prot	0.12	c0.18		c0.15	0.12		0.08	c0.36		c0.18	0.43	
v/s Ratio Perm									0.12			0.15
v/c Ratio	0.87	1.04		1.08	0.68		1.04	0.97	0.33	1.09	0.92	0.33
Uniform Delay, d1	50.8	49.7		51.6	46.3		55.4	37.0	27.0	49.9	30.1	20.4
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	15.9	41.4		65.3	2.9		86.9	14.1	0.7	78.3	6.7	0.6
Delay (s)	66.8	91.1		116.9	49.1		142.3	51.1	27.7	128.2	36.8	21.0
Level of Service	E	F		F	D		F	D	C	F	D	C
Approach Delay (s)		83.6			79.6			53.9			45.5	
Approach LOS		F			E			D			D	

Intersection Summary			
HCM Average Control Delay	59.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.7
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
71: Truxtun St & Tulare St

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	433	35	51	1207	9	16	1	6	10	9	46
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	0.91		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.96			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1770	5028		1770	3535			1733			1673	
Flt Permitted	0.95	1.00		0.95	1.00			0.78			0.95	
Satd. Flow (perm)	1770	5028		1770	3535			1399			1602	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	471	38	55	1312	10	17	1	7	11	10	50
RTOR Reduction (vph)	0	12	0	0	0	0	0	6	0	0	43	0
Lane Group Flow (vph)	82	497	0	55	1322	0	0	19	0	0	28	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	2.7	25.2		2.1	24.6			6.6			6.6	
Effective Green, g (s)	2.7	25.2		2.1	24.6			6.6			6.6	
Actuated g/C Ratio	0.06	0.55		0.05	0.54			0.14			0.14	
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)	104	2760		81	1895			201			230	
v/s Ratio Prot	c0.05	0.10		0.03	c0.37							
v/s Ratio Perm								0.01			c0.02	
v/c Ratio	0.79	0.18		0.68	0.70			0.09			0.12	
Uniform Delay, d1	21.3	5.2		21.6	7.9			17.1			17.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	31.6	0.0		20.3	1.1			0.2			0.2	
Delay (s)	52.9	5.2		41.8	9.0			17.3			17.4	
Level of Service	D	A		D	A			B			B	
Approach Delay (s)		11.8			10.3			17.3			17.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	45.9	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

HCM Signalized Intersection Capacity Analysis
71: Truxtun St & Tulare St

6/18/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	910	8	55	505	25	28	7	140	26	6	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	
Lane Util. Factor	1.00	0.91		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.89			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	
Satd. Flow (prot)	1770	5078		1770	3514			1649			1762	
Flt Permitted	0.95	1.00		0.95	1.00			0.94			0.83	
Satd. Flow (perm)	1770	5078		1770	3514			1567			1509	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	989	9	60	549	27	30	8	152	28	7	7
RTOR Reduction (vph)	0	1	0	0	5	0	0	122	0	0	6	0
Lane Group Flow (vph)	15	997	0	60	571	0	0	68	0	0	36	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	0.6	16.1		1.8	17.3			7.4			7.4	
Effective Green, g (s)	0.6	16.1		1.8	17.3			7.4			7.4	
Actuated g/C Ratio	0.02	0.43		0.05	0.46			0.20			0.20	
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)	28	2192		85	1630			311			299	
v/s Ratio Prot	0.01	c0.20		c0.03	0.16							
v/s Ratio Perm								c0.04			0.02	
v/c Ratio	0.54	0.45		0.71	0.35			0.22			0.12	
Uniform Delay, d1	18.2	7.5		17.5	6.4			12.5			12.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	18.3	0.2		23.3	0.1			0.4			0.2	
Delay (s)	36.5	7.6		40.8	6.5			12.9			12.5	
Level of Service	D	A		D	A			B			B	
Approach Delay (s)		8.1			9.8			12.9			12.5	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	37.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

FRESNO HEAVY MAINTENANCE FUTURE PLUS PROJECT CONDITIONS - MITIGATED

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		⋔	
Volume (vph)	0	454	389	0	432	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.96	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1863	1863		1728	
Flt Permitted		1.00	1.00		0.97	
Satd. Flow (perm)		1863	1863		1728	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	493	423	0	470	193
RTOR Reduction (vph)	0	0	0	0	34	0
Lane Group Flow (vph)	0	493	423	0	629	0
Turn Type						
Protected Phases		4	8		6	
Permitted Phases						
Actuated Green, G (s)		14.1	14.1		18.0	
Effective Green, g (s)		14.1	14.1		18.0	
Actuated g/C Ratio		0.35	0.35		0.45	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		655	655		776	
v/s Ratio Prot		c0.26	0.23		c0.36	
v/s Ratio Perm						
v/c Ratio		0.75	0.65		0.81	
Uniform Delay, d1		11.5	10.9		9.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		4.9	2.2		6.4	
Delay (s)		16.3	13.1		16.0	
Level of Service		B	B		B	
Approach Delay (s)		16.3	13.1		16.0	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	40.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		⋎	
Volume (vph)	0	534	443	0	317	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		0.95	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1863	1863		1718	
Flt Permitted		1.00	1.00		0.97	
Satd. Flow (perm)		1863	1863		1718	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	580	482	0	345	192
RTOR Reduction (vph)	0	0	0	0	46	0
Lane Group Flow (vph)	0	580	482	0	491	0
Turn Type						
Protected Phases		4	8		6	
Permitted Phases						
Actuated Green, G (s)		16.1	16.1		15.0	
Effective Green, g (s)		16.1	16.1		15.0	
Actuated g/C Ratio		0.41	0.41		0.38	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		767	767		659	
v/s Ratio Prot		c0.31	0.26		c0.29	
v/s Ratio Perm						
v/c Ratio		0.76	0.63		0.75	
Uniform Delay, d1		9.8	9.1		10.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		4.3	1.6		4.6	
Delay (s)		14.1	10.7		15.0	
Level of Service		B	B		B	
Approach Delay (s)		14.1	10.7		15.0	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	39.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Volume (vph)	0	331	464	0	108	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1770	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	360	504	0	117	215
RTOR Reduction (vph)	0	0	0	0	0	154
Lane Group Flow (vph)	0	360	504	0	117	61
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		12.5	12.5		7.4	7.4
Effective Green, g (s)		12.5	12.5		7.4	7.4
Actuated g/C Ratio		0.45	0.45		0.27	0.27
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		835	835		469	420
v/s Ratio Prot		0.19	c0.27		c0.07	
v/s Ratio Perm						0.04
v/c Ratio		0.43	0.60		0.25	0.14
Uniform Delay, d1		5.3	5.8		8.1	7.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	1.2		0.3	0.2
Delay (s)		5.6	7.1		8.3	8.0
Level of Service		A	A		A	A
Approach Delay (s)		5.6	7.1		8.1	
Approach LOS		A	A		A	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	27.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Volume (vph)	0	572	552	0	325	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1770	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	622	600	0	353	84
RTOR Reduction (vph)	0	0	0	0	0	56
Lane Group Flow (vph)	0	622	600	0	353	28
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		18.0	18.0		13.0	13.0
Effective Green, g (s)		18.0	18.0		13.0	13.0
Actuated g/C Ratio		0.46	0.46		0.33	0.33
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		860	860		590	528
v/s Ratio Prot		c0.33	0.32		c0.20	
v/s Ratio Perm						0.02
v/c Ratio		0.72	0.70		0.60	0.05
Uniform Delay, d1		8.5	8.3		10.8	8.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		3.0	2.5		1.6	0.0
Delay (s)		11.5	10.8		12.5	8.9
Level of Service		B	B		B	A
Approach Delay (s)		11.5	10.8		11.8	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	39.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations											
Volume (vph)	0	0	7	136	45	819	79	91	19	61	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor			1.00	0.95		1.00	0.95			1.00	1.00
Frt			1.00	0.96		1.00	0.92			1.00	0.85
Flt Protected			0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)			1770	3407		1770	3255			1770	1583
Flt Permitted			0.64	1.00		0.63	1.00			0.95	1.00
Satd. Flow (perm)			1183	3407		1170	3255			1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	8	148	49	890	86	99	21	66	26
RTOR Reduction (vph)	0	0	0	9	0	0	18	0	0	0	24
Lane Group Flow (vph)	0	0	8	188	0	890	167	0	0	87	2
Turn Type			Perm			Perm			Perm		Perm
Protected Phases				2			6			4	
Permitted Phases			2			6			4		4
Actuated Green, G (s)			76.7	76.7		76.7	76.7			8.5	8.5
Effective Green, g (s)			76.7	76.7		76.7	76.7			8.5	8.5
Actuated g/C Ratio			0.82	0.82		0.82	0.82			0.09	0.09
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)			974	2804		963	2679			161	144
v/s Ratio Prot				0.06			0.05				
v/s Ratio Perm			0.01			c0.76				0.05	0.00
v/c Ratio			0.01	0.07		0.92	0.06			0.54	0.02
Uniform Delay, d1			1.5	1.5		6.1	1.5			40.5	38.5
Progression Factor			1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2			0.0	0.0		14.1	0.0			3.7	0.0
Delay (s)			1.5	1.6		20.2	1.5			44.2	38.6
Level of Service			A	A		C	A			D	D
Approach Delay (s)	0.0			1.6			17.0			42.9	
Approach LOS	A			A			B			D	

Intersection Summary

HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized 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 (vph)	0	0	38	219	34	626	197	82	41	112	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor			1.00	0.95		1.00	0.95			1.00	1.00
Frt			1.00	0.98		1.00	0.96			1.00	0.85
Flt Protected			0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)			1770	3468		1770	3383			1770	1583
Flt Permitted			0.57	1.00		0.58	1.00			0.95	1.00
Satd. Flow (perm)			1056	3468		1085	3383			1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	41	238	37	680	214	89	45	122	243
RTOR Reduction (vph)	0	0	0	11	0	0	26	0	0	0	201
Lane Group Flow (vph)	0	0	41	264	0	680	277	0	0	167	42
Turn Type			Perm			Perm			Perm		Perm
Protected Phases				2			6			4	
Permitted Phases			2			6			4		4
Actuated Green, G (s)			48.3	48.3		48.3	48.3			11.8	11.8
Effective Green, g (s)			48.3	48.3		48.3	48.3			11.8	11.8
Actuated g/C Ratio			0.71	0.71		0.71	0.71			0.17	0.17
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)			749	2460		770	2399			307	274
v/s Ratio Prot				0.08			0.08				
v/s Ratio Perm			0.04			c0.63				0.09	0.03
v/c Ratio			0.05	0.11		0.88	0.12			0.54	0.15
Uniform Delay, d1			3.0	3.1		7.7	3.1			25.7	23.9
Progression Factor			1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2			0.0	0.0		11.7	0.0			2.0	0.3
Delay (s)			3.0	3.1		19.4	3.2			27.7	24.2
Level of Service			A	A		B	A			C	C
Approach Delay (s)	0.0			3.1			14.4			25.6	
Approach LOS	A			A			B			C	

Intersection Summary

HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	68.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HANFORD HEAVY MAINTENANCE FUTURE PLUS PROJECT CONDITIONS - MITIGATED

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Volume (vph)	45	50	104	11	60	77	49	287	9	79	734	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	1.00		1.00	1.00	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1712			1725		1770	1854		1770	1854	
Flt Permitted		0.91			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1581			1692		1770	1854		1770	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	54	113	12	65	84	53	312	10	86	798	25
RTOR Reduction (vph)	0	72	0	0	67	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	144	0	0	94	0	53	320	0	86	822	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)		10.0			10.0		2.6	23.2		4.4	25.0	
Effective Green, g (s)		10.0			10.0		2.6	23.2		4.4	25.0	
Actuated g/C Ratio		0.20			0.20		0.05	0.47		0.09	0.50	
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)		319			341		93	867		157	934	
v/s Ratio Prot							0.03	0.17		c0.05	c0.44	
v/s Ratio Perm		c0.09			0.06							
v/c Ratio		0.45			0.28		0.57	0.37		0.55	0.88	
Uniform Delay, d1		17.4			16.7		23.0	8.5		21.6	11.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			0.4		7.8	0.3		3.9	9.5	
Delay (s)		18.4			17.2		30.7	8.8		25.5	20.4	
Level of Service		B			B		C	A		C	C	
Approach Delay (s)		18.4			17.2			11.9			20.9	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	49.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
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)	25	50	177	8	78	106	153	815	29	94	406	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.93		1.00	0.99		1.00	0.99	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1678			1721		1770	1853		1770	1846	
Flt Permitted		0.93			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1570			1673		1770	1853		1770	1846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	54	192	9	85	115	166	886	32	102	441	28
RTOR Reduction (vph)	0	120	0	0	62	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	153	0	0	147	0	166	916	0	102	466	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)		11.4			11.4		8.6	36.5		5.8	33.7	
Effective Green, g (s)		11.4			11.4		8.6	36.5		5.8	33.7	
Actuated g/C Ratio		0.17			0.17		0.13	0.56		0.09	0.51	
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)		272			290		232	1029		156	947	
v/s Ratio Prot							c0.09	c0.49		0.06	0.25	
v/s Ratio Perm		c0.10			0.09							
v/c Ratio		0.56			0.51		0.72	0.89		0.65	0.49	
Uniform Delay, d1		24.9			24.6		27.4	12.8		29.0	10.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.7			1.4		10.0	9.8		9.5	0.4	
Delay (s)		27.5			26.0		37.4	22.6		38.4	10.8	
Level of Service		C			C		D	C		D	B	
Approach Delay (s)		27.5			26.0			24.9			15.8	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	3	11	5	11	15	11	6	354	16	9	816	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			0.99			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1786			1761			1851			1859	
Flt Permitted		1.00			1.00			0.99			1.00	
Satd. Flow (perm)		1800			1787			1832			1853	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	12	5	12	16	12	7	385	17	10	887	9
RTOR Reduction (vph)	0	5	0	0	11	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	15	0	0	29	0	0	407	0	0	906	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		2.3			2.3			36.4			36.4	
Effective Green, g (s)		2.3			2.3			36.4			36.4	
Actuated g/C Ratio		0.05			0.05			0.78			0.78	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		89			88			1428			1444	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.02			0.22			c0.49	
v/c Ratio		0.17			0.32			0.29			0.63	
Uniform Delay, d1		21.3			21.4			1.5			2.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.9			2.2			0.1			0.9	
Delay (s)		22.2			23.6			1.6			3.1	
Level of Service		C			C			A			A	
Approach Delay (s)		22.2			23.6			1.6			3.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	3.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	46.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	5	13	5	18	9	14	7	966	10	7	602	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.95			1.00			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1792			1740			1859			1860	
Flt Permitted		0.92			0.85			1.00			0.99	
Satd. Flow (perm)		1657			1504			1853			1842	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	14	5	20	10	15	8	1050	11	8	654	3
RTOR Reduction (vph)	0	5	0	0	14	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	19	0	0	31	0	0	1069	0	0	665	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.9			3.9			42.6			42.6	
Effective Green, g (s)		3.9			3.9			42.6			42.6	
Actuated g/C Ratio		0.07			0.07			0.78			0.78	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		119			108			1448			1440	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.02			c0.58			0.36	
v/c Ratio		0.16			0.29			0.74			0.46	
Uniform Delay, d1		23.8			24.0			3.1			2.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			1.5			2.0			0.2	
Delay (s)		24.4			25.5			5.1			2.3	
Level of Service		C			C			A			A	
Approach Delay (s)		24.4			25.5			5.1			2.3	
Approach LOS		C			C			A			A	

Intersection Summary

HCM Average Control Delay	4.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

WASCO HEAVY MAINTENANCE FUTURE PLUS PROJECT CONDITIONS - MITIGATED

HCM Signalized 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 (vph)	271	401	105	18	376	21	149	261	58	30	170	180
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	1.00	0.97		1.00	0.99			0.98			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	1805		1770	1848			1803			1737	
Flt Permitted	0.38	1.00		0.27	1.00			0.71			0.94	
Satd. Flow (perm)	716	1805		510	1848			1299			1643	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	295	436	114	20	409	23	162	284	63	33	185	196
RTOR Reduction (vph)	0	16	0	0	3	0	0	7	0	0	48	0
Lane Group Flow (vph)	295	534	0	20	429	0	0	502	0	0	366	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	27.4	27.4		27.4	27.4			26.2			26.2	
Effective Green, g (s)	27.4	27.4		27.4	27.4			26.2			26.2	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.43			0.43	
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)	318	803		227	822			552			699	
v/s Ratio Prot		0.30			0.23							
v/s Ratio Perm	c0.41			0.04				c0.39			0.22	
v/c Ratio	0.93	0.67		0.09	0.52			0.91			0.52	
Uniform Delay, d1	16.2	13.5		9.9	12.4			16.6			13.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	31.9	2.1		0.2	0.6			18.7			0.7	
Delay (s)	48.1	15.6		10.0	13.0			35.3			13.8	
Level of Service	D	B		B	B			D			B	
Approach Delay (s)		26.9			12.8			35.3			13.8	
Approach LOS		C			B			D			B	

Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized 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 (vph)	299	423	153	60	512	20	134	243	42	20	271	296
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	1.00	0.96		1.00	0.99			0.99			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	1789		1770	1852			1808			1733	
Flt Permitted	0.25	1.00		0.25	1.00			0.62			0.98	
Satd. Flow (perm)	466	1789		466	1852			1136			1698	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	325	460	166	65	557	22	146	264	46	22	295	322
RTOR Reduction (vph)	0	32	0	0	4	0	0	10	0	0	91	0
Lane Group Flow (vph)	325	594	0	65	575	0	0	446	0	0	548	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0			16.0			16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0			16.0			16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.40			0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	186	716		186	741			454			679	
v/s Ratio Prot		0.33			0.31							
v/s Ratio Perm	c0.70			0.14				c0.39			0.32	
v/c Ratio	1.75	0.83		0.35	0.78			0.98			0.81	
Uniform Delay, d1	12.0	10.8		8.4	10.4			11.9			10.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	357.6	7.9		1.1	5.1			37.3			7.0	
Delay (s)	369.6	18.6		9.5	15.6			49.2			17.6	
Level of Service	F	B		A	B			D			B	
Approach Delay (s)		138.6			15.0			49.2			17.6	
Approach LOS		F			B			D			B	

Intersection Summary

HCM Average Control Delay	65.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	114.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

SHAFTER HEAVY MAINTENANCE FUTURE PLUS PROJECT CONDITIONS - MITIGATED

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	1	38	16	5	11	8	57	859	2	92	1027	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.96			0.95			1.00			1.00	
Flt Protected		1.00			0.99			1.00			1.00	
Satd. Flow (prot)		1789			1759			1856			1855	
Flt Permitted		1.00			0.96			0.86			0.84	
Satd. Flow (perm)		1782			1709			1607			1571	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	41	17	5	12	9	62	934	2	100	1116	0
RTOR Reduction (vph)	0	16	0	0	8	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	43	0	0	18	0	0	998	0	0	1216	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		6.8			6.8			87.6			87.6	
Effective Green, g (s)		6.8			6.8			87.6			87.6	
Actuated g/C Ratio		0.07			0.07			0.86			0.86	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		118			113			1375			1344	
v/s Ratio Prot												
v/s Ratio Perm		c0.02			0.01			0.62			c0.77	
v/c Ratio		0.37			0.16			0.73			0.90	
Uniform Delay, d1		45.7			45.1			2.8			4.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.9			0.6			1.9			8.9	
Delay (s)		47.7			45.7			4.8			13.6	
Level of Service		D			D			A			B	
Approach Delay (s)		47.7			45.7			4.8			13.6	
Approach LOS		D			D			A			B	

Intersection Summary

HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	102.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	1	14	30	0	21	63	19	1204	1	35	1012	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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.91			0.90			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1692			1675			1861			1851	
Flt Permitted		0.99			1.00			0.98			0.93	
Satd. Flow (perm)		1680			1675			1816			1722	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	15	33	0	23	68	21	1309	1	38	1100	42
RTOR Reduction (vph)	0	31	0	0	63	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	18	0	0	28	0	0	1331	0	0	1179	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		6.1			6.1			72.0			72.0	
Effective Green, g (s)		6.1			6.1			72.0			72.0	
Actuated g/C Ratio		0.07			0.07			0.84			0.84	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		119			119			1519			1440	
v/s Ratio Prot					c0.02							
v/s Ratio Perm		0.01						c0.73			0.68	
v/c Ratio		0.15			0.23			0.88			0.82	
Uniform Delay, d1		37.6			37.8			4.3			3.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			1.0			6.0			3.8	
Delay (s)		38.2			38.8			10.3			7.4	
Level of Service		D			D			B			A	
Approach Delay (s)		38.2			38.8			10.3			7.4	
Approach LOS		D			D			B			A	

Intersection Summary

HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

CORCORAN FUTURE PLUS PROJECT CONDITIONS - MITIGATED

HCM Signalized Intersection Capacity Analysis
3: Whitley Ave & Pickerell Ave

5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	468	9	14	67	6	4	11	13	3	240	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		1.00			0.99			0.94			0.97	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		3509			3473			1734			1815	
Flt Permitted		0.91			0.87			0.95			1.00	
Satd. Flow (perm)		3219			3035			1652			1813	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	509	10	15	73	7	4	12	14	3	261	60
RTOR Reduction (vph)	0	3	0	0	4	0	0	9	0	0	22	0
Lane Group Flow (vph)	0	586	0	0	91	0	0	21	0	0	302	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.2			11.2			10.2			10.2	
Effective Green, g (s)		11.2			11.2			10.2			10.2	
Actuated g/C Ratio		0.38			0.38			0.35			0.35	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1226			1156			573			629	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.03			0.01			c0.17	
v/c Ratio		0.48			0.08			0.04			0.48	
Uniform Delay, d1		6.9			5.8			6.3			7.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.0			0.0			0.6	
Delay (s)		7.2			5.8			6.4			8.1	
Level of Service		A			A			A			A	
Approach Delay (s)		7.2			5.8			6.4			8.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	29.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Whitley Ave & Pickerell Ave

5/24/2011

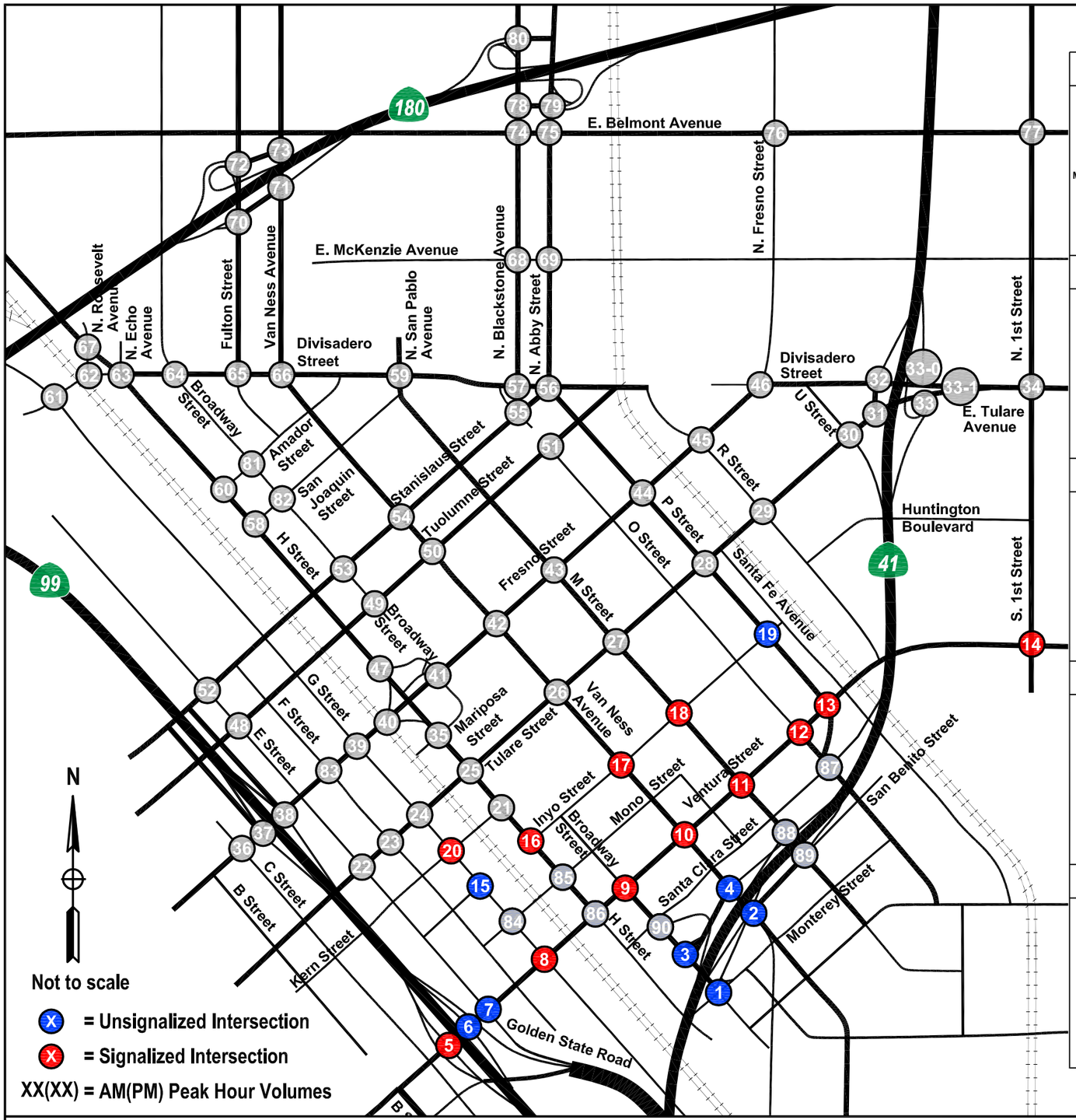
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	148	6	88	630	145	11	254	26	4	28	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		1.00			0.97			0.99			0.92	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		3450			3432			1837			1704	
Flt Permitted		0.61			0.89			0.99			0.98	
Satd. Flow (perm)		2136			3058			1821			1676	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	161	7	96	685	158	12	276	28	4	30	55
RTOR Reduction (vph)	0	4	0	0	40	0	0	10	0	0	37	0
Lane Group Flow (vph)	0	298	0	0	899	0	0	306	0	0	52	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		14.6			14.6			10.8			10.8	
Effective Green, g (s)		14.6			14.6			10.8			10.8	
Actuated g/C Ratio		0.44			0.44			0.32			0.32	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		934			1337			589			542	
v/s Ratio Prot												
v/s Ratio Perm		0.14			c0.29			c0.17			0.03	
v/c Ratio		0.32			0.67			0.52			0.10	
Uniform Delay, d1		6.1			7.5			9.2			7.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			1.3			0.8			0.1	
Delay (s)		6.3			8.8			10.0			8.0	
Level of Service		A			A			A			A	
Approach Delay (s)		6.3			8.8			10.0			8.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	33.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

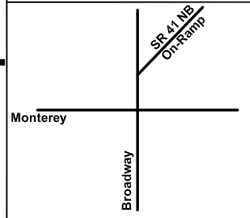
c Critical Lane Group

Appendix I
Construction Scenario - Trips and Synchro Output

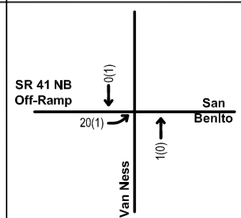
CONSTRUCTION ONLY TRIPS FIGURES



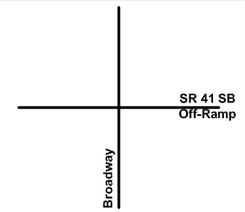
1. Broadway Street / SR 41 NB On-Ramp / Monterey Street



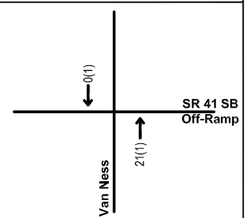
2. Van Ness Avenue / SR 41 NB Off-Ramp / San Benito Street



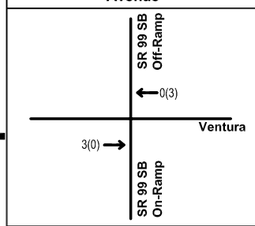
3. Broadway Street / SR 41 SB Off-Ramp



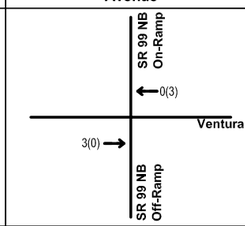
4. Van Ness Avenue / SR 41 SB Off-Ramp



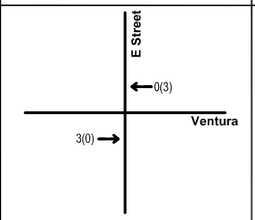
5. SR 99 SB Ramps / Ventura Avenue



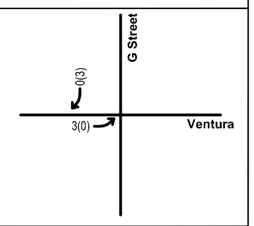
6. SR 99 NB Ramps / Ventura Avenue



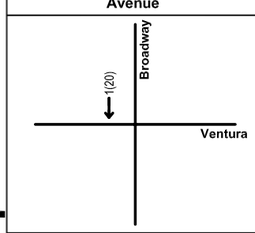
7. E Street / Ventura Avenue



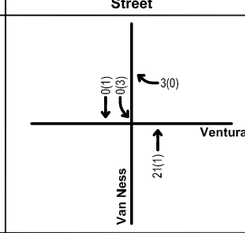
8. G Street / Ventura Avenue



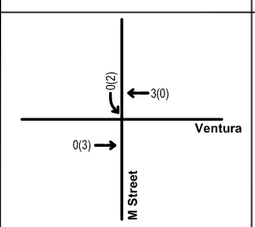
9. Broadway Street / Ventura Avenue



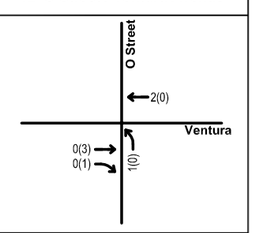
10. Van Ness Avenue / Ventura Street



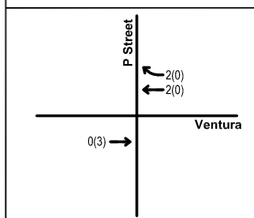
11. M Street / Ventura Street



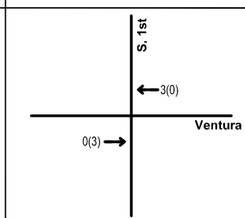
12. O Street / Ventura Avenue



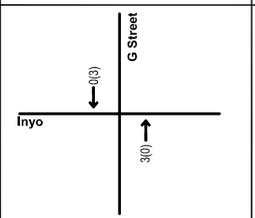
13. P Street / Ventura Avenue



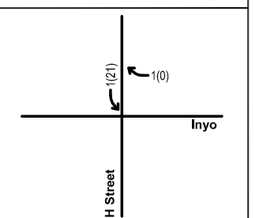
14. S. 1st Street / Ventura Avenue



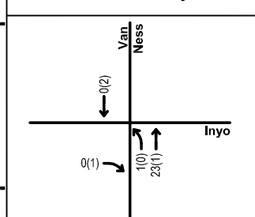
15. G Street / Inyo Street



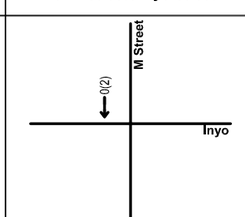
16. H Street / Inyo Street



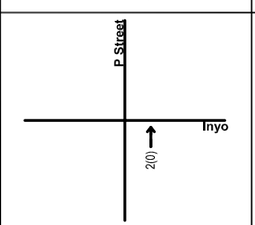
17. Van Ness Street / Inyo Street



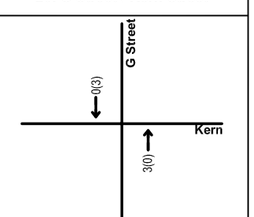
18. M Street / Inyo Street



19. P Street / Inyo Street

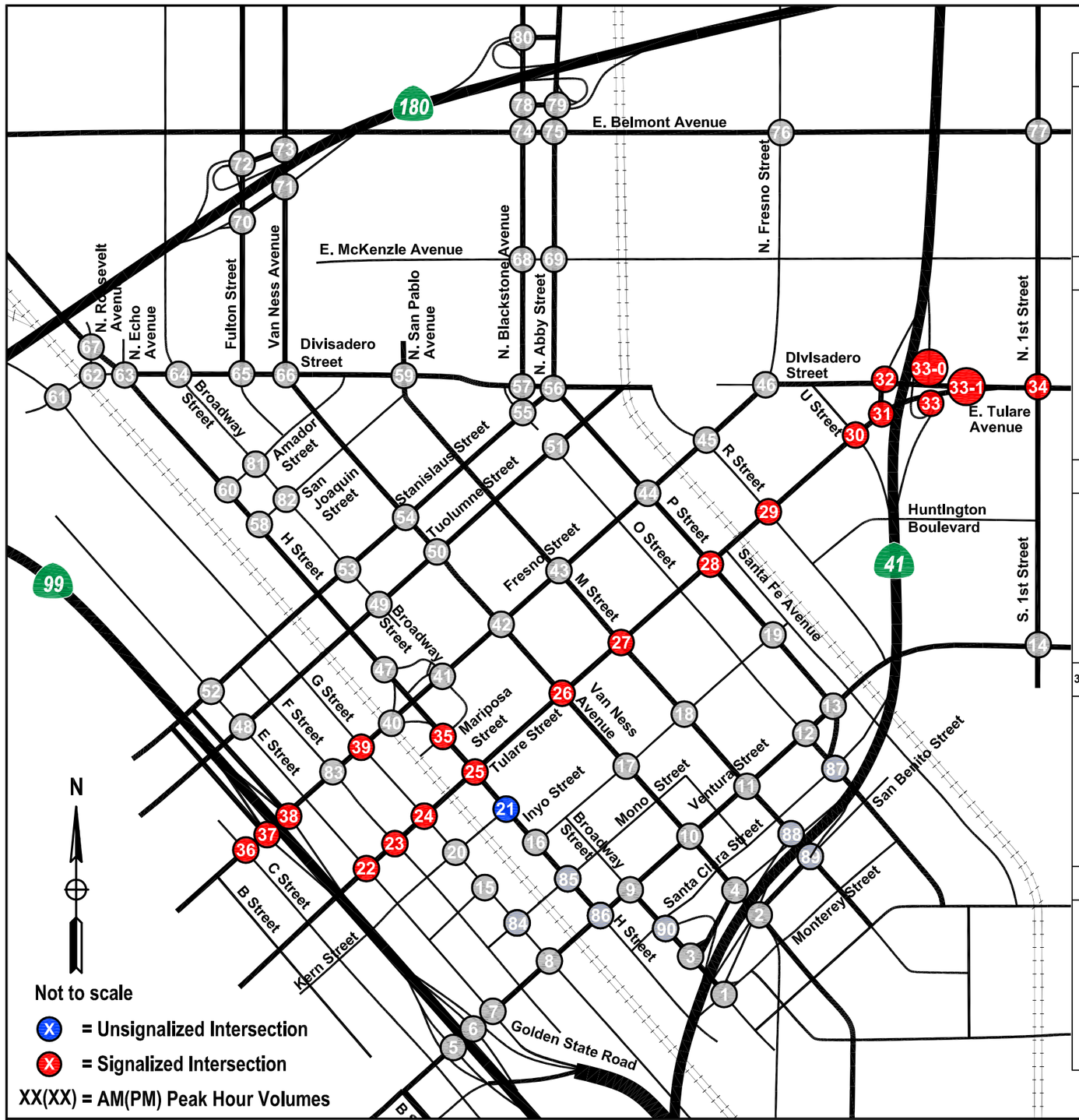


20. G Street / Kern Street

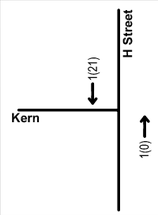


California High-Speed Train Program EIR/EIS

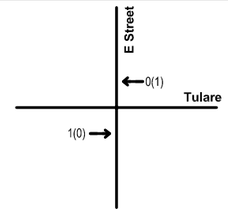
Construction Only Trips - Fresno Station



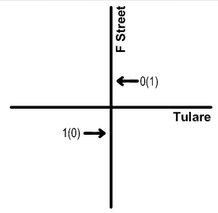
21. H Street / Kern Street



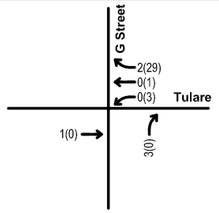
22. E Street / Tulare Street



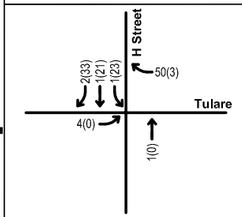
23. F Street / Tulare Street



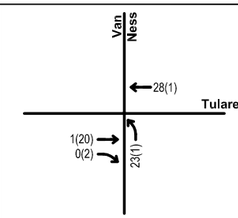
24. G Street / Tulare Street



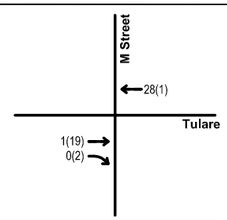
25. H Street / Tulare Street



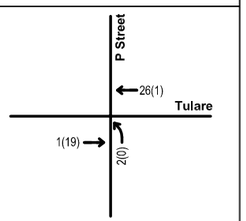
26. Van Ness Avenue / Tulare Street



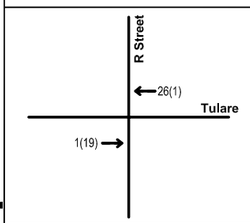
27. M Street / Tulare Street



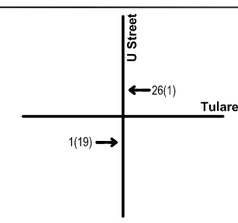
28. P Street / Tulare Street



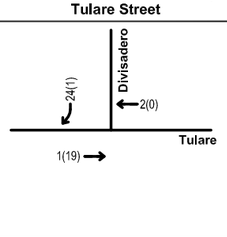
29. R Street / Tulare Street



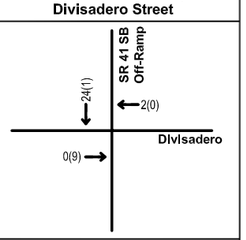
30. U Street / Tulare Street



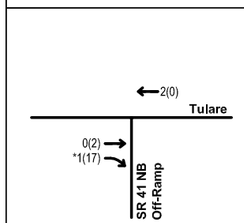
31. Divisadero Street Off-Ramp / Tulare Street



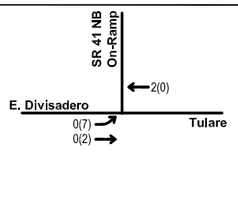
32. SR 41 SB Off-Ramp / Divisadero Street



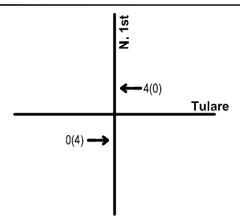
33. SR 41 NB Ramps / Tulare Street



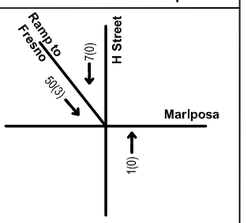
33-0. SR 41 NB On-Ramp / E. Divisadero Street



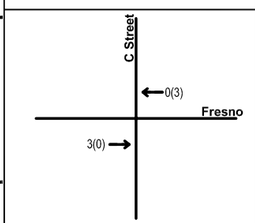
34. N. 1st Street / Tulare Street



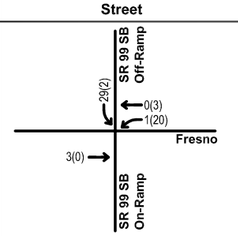
35. H Street / Mariposa Street / Fresno Street Ramp



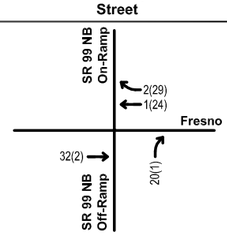
36. C Street / Fresno Street



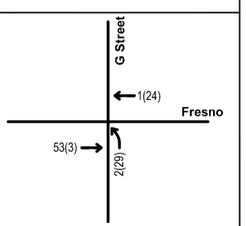
37. SR 99 SB Ramps / Fresno Street



38. SR 99 NB Ramps / Fresno Street

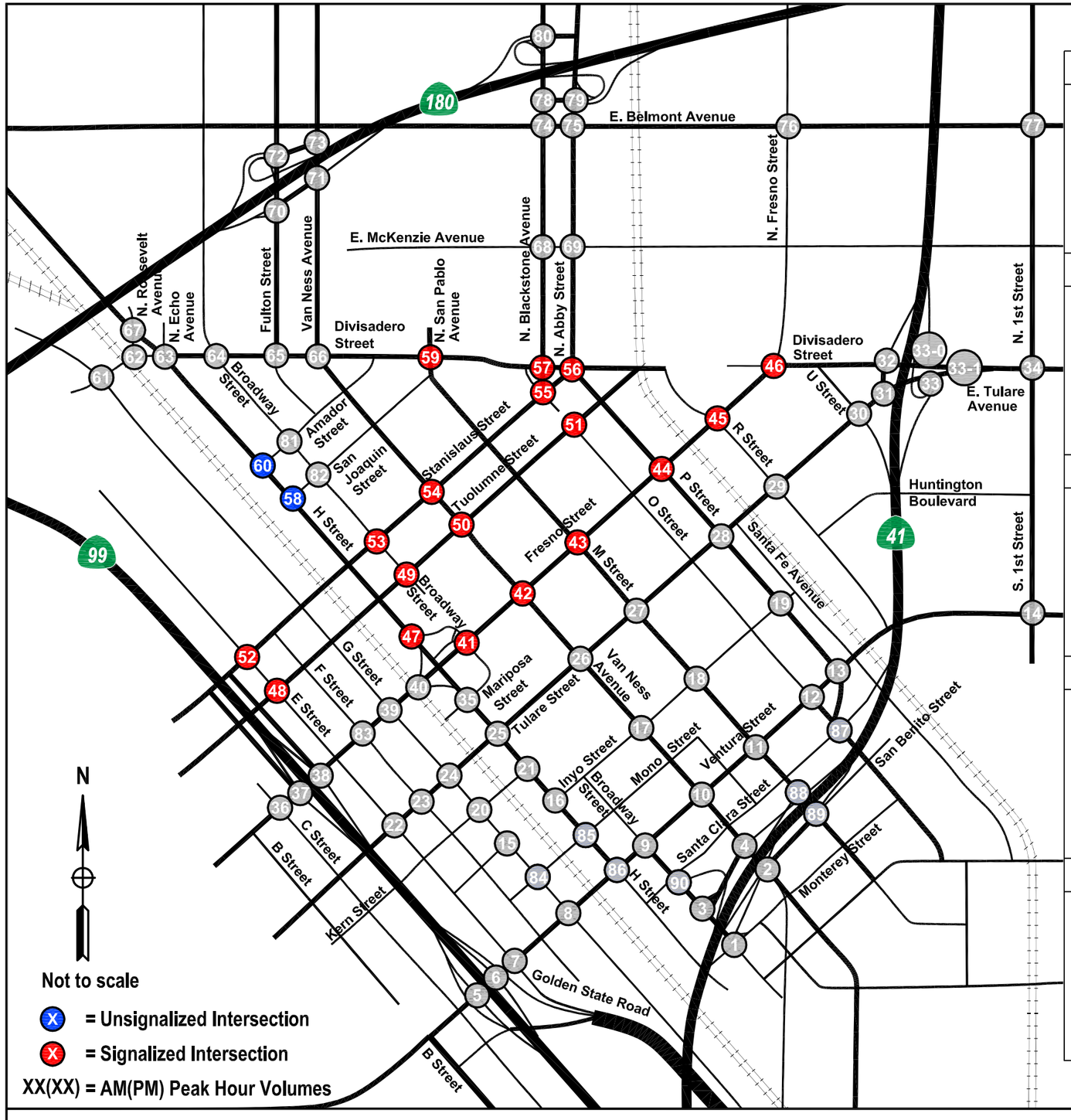


39. G Street / Fresno Street

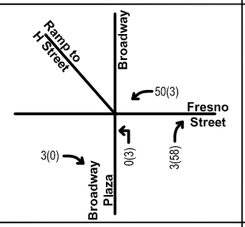


Note:
*XX(XX) Volume going to SR 41 NB On-Ramp

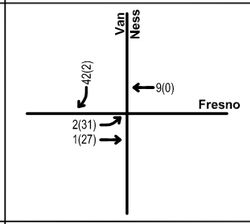
California High-Speed Train Program EIR/EIS	Construction Only Trips - Fresno Station	Sheet 2 of 5



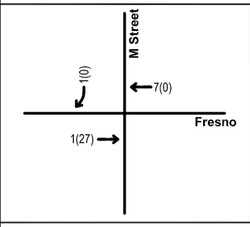
41. Broadway Street / Fresno Street / H Street Ramp



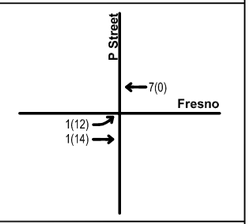
42. Van Ness Avenue / Fresno Street



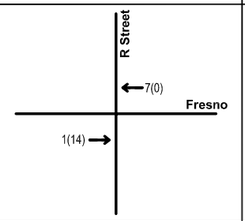
43. M Street / Fresno Street



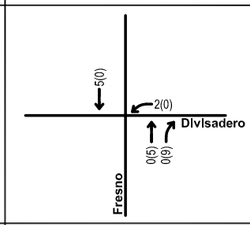
44. P Street / Fresno Street



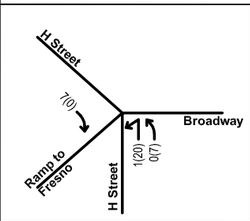
45. R Street / Fresno Street



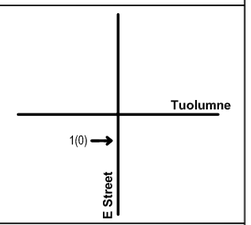
46. Fresno Street / Divisadero Street



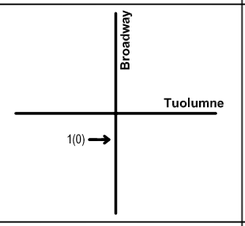
47. H Street / Broadway Street / Fresno Street Ramp



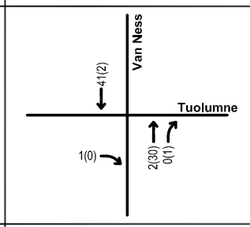
48. E Street / Tuolumne Street



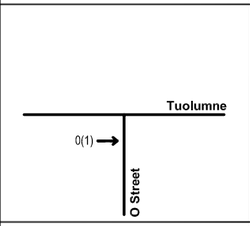
49. Broadway / Tuolumne Street



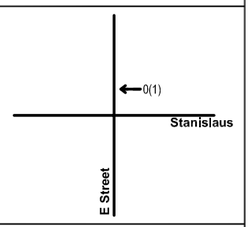
50. Van Ness Avenue / Tuolumne Street



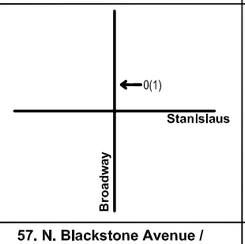
51. O Street / Tuolumne Street



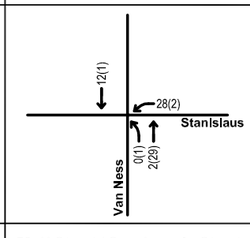
52. E Street / Stanislaus Street



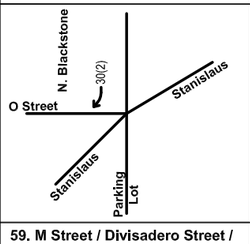
53. Broadway Street / Stanislaus Street



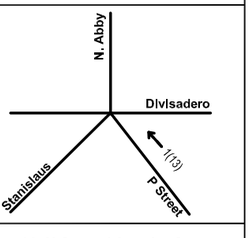
54. Van Ness Avenue / Stanislaus Street



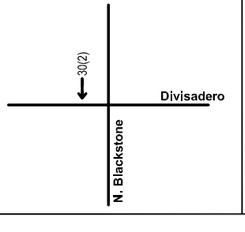
55. N. Blackstone Avenue / Stanislaus Street / O Street



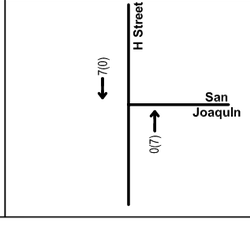
56. N. Abby Street / Divisadero Street / P Street / Stanislaus Street



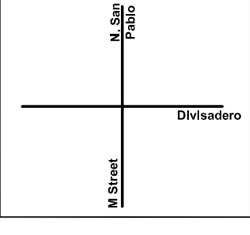
57. N. Blackstone Avenue / Divisadero Street



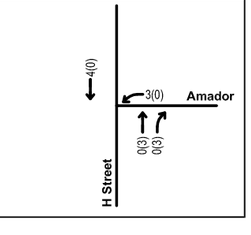
58. H Street / San Joaquin Street



59. M Street / Divisadero Street / N. San Pablo Avenue



60. H Street / Amador Street



California High-Speed Train Program EIR/EIS

Construction Only Trips - Fresno Station

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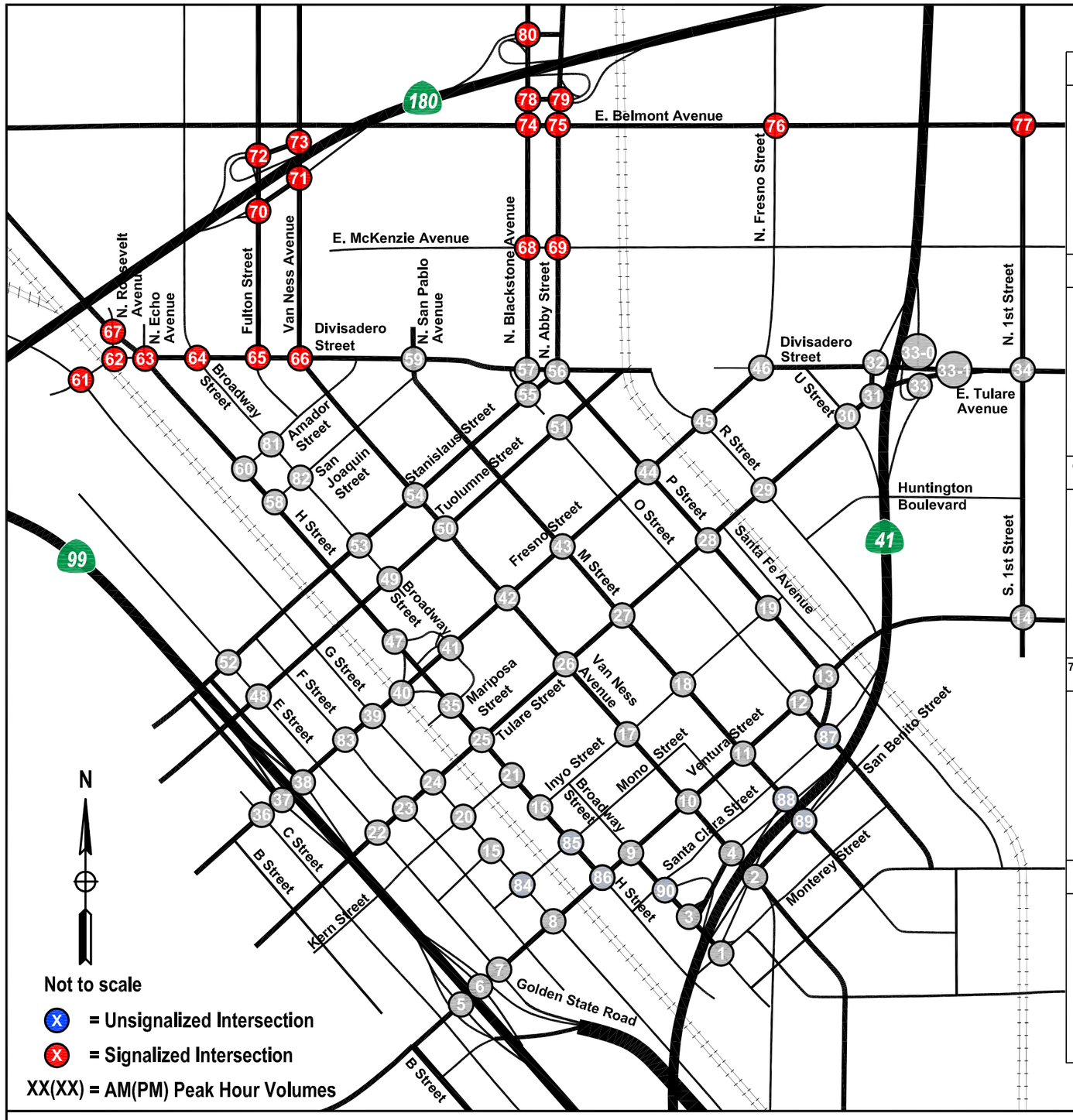
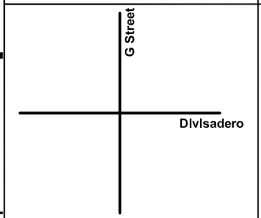
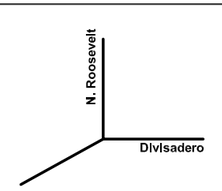
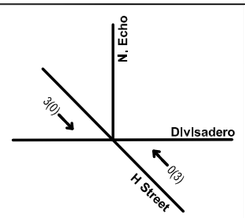
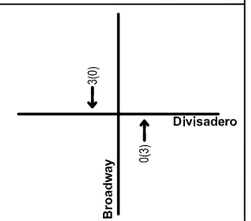
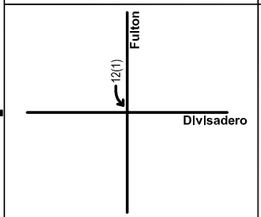
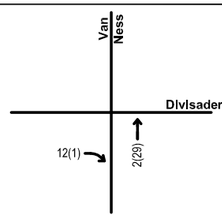
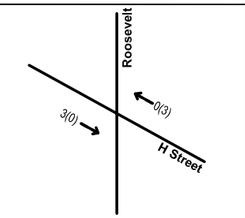
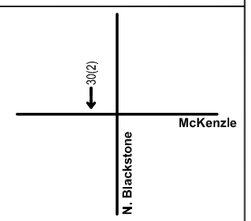
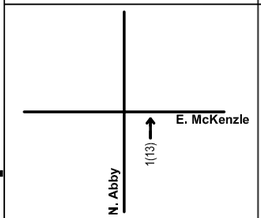
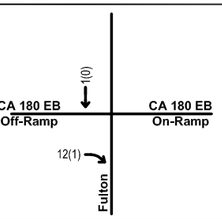
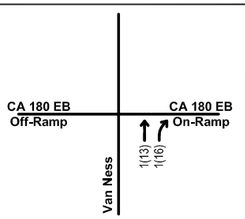
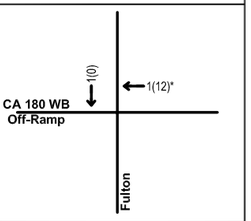
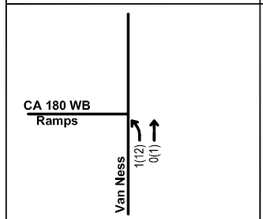
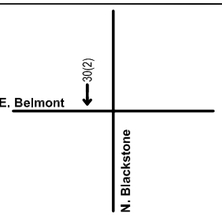
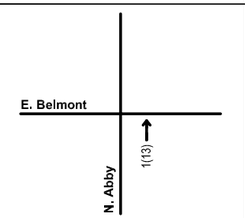
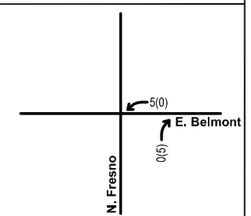
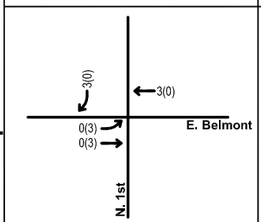
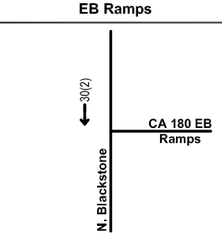
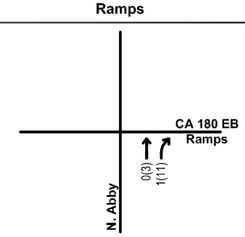
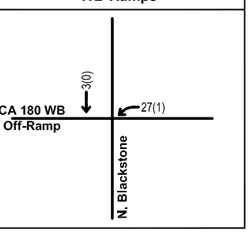
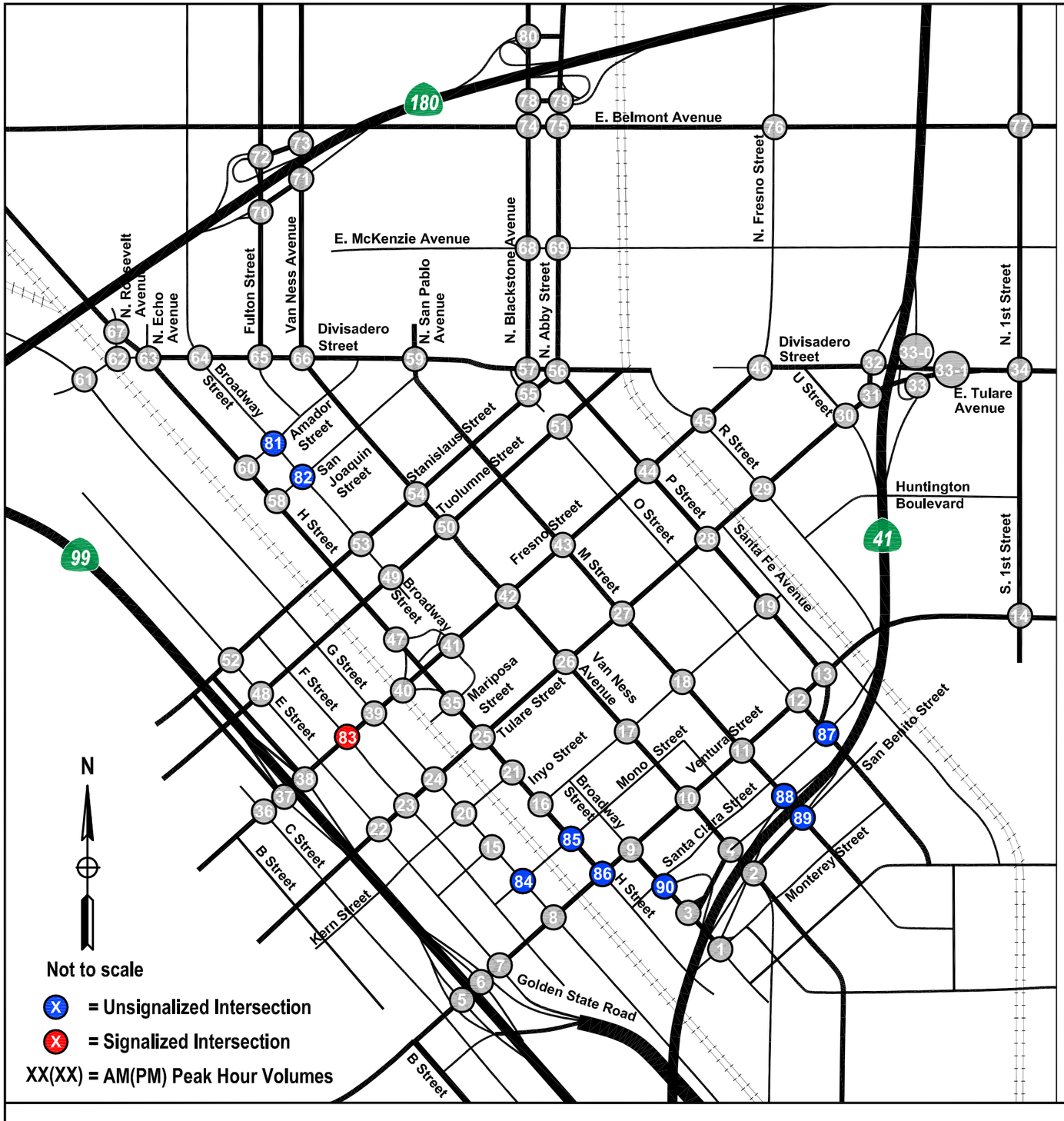
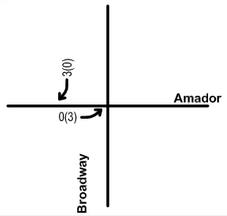


61. G Street / Divisadero Street	62. N. Roosevelt Avenue / Divisadero Avenue	63. H Street / Divisadero Street / N. Echo Avenue	64. Broadway Street / Divisadero Street
			
65. Fulton Street / Divisadero Street	**66. Van Ness Avenue / Divisadero Street**	**67. H Street / Roosevelt Street**	**68. N. Blackstone Avenue / E. McKenzie Avenue**
			
69. N. Abby Street / E. McKenzie Avenue	**70. Fulton Street / CA 180 EB Ramps**	**71. Van Ness Avenue / CA 180 EB Ramps**	**72. Fulton Street / CA 180 WB Ramps**
			
73. Van Ness Avenue / CA 180 WB Ramps	**74. N. Blackstone Avenue / E. Belmont Avenue**	**75. N. Abby Street / E. Belmont Avenue**	**76. N. Fresno Street / E. Belmont Avenue**
			
77. N. 1st Street / E. Belmont Avenue	**78. N. Blackstone Avenue / CA 180 EB Ramps**	**79. N. Abby Street / CA 180 EB Ramps**	**80. N. Blackstone Avenue / CA 180 WB Ramps**
			

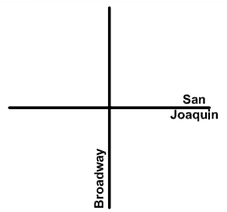
Note:
*XX(XX) Volume going to CA 180 WB On-Ramp



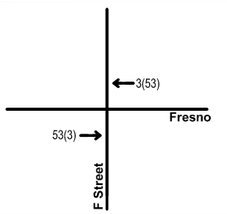
81. Broadway Street / Amador Street



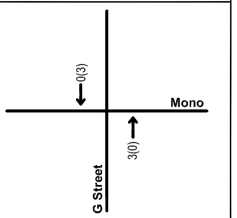
82. Broadway Street / San Joaquln Street



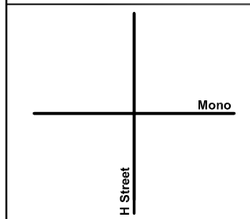
83. F Street / Fresno Street



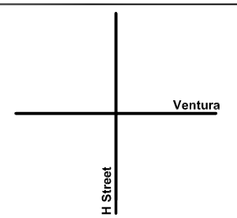
84. G Street / Mono Street



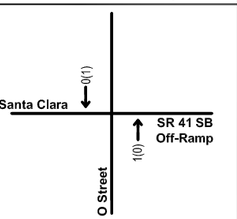
85. H Street / Mono Street



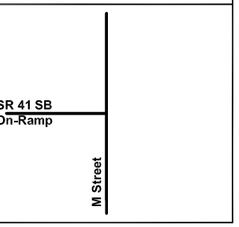
86. H Street / Ventura Street



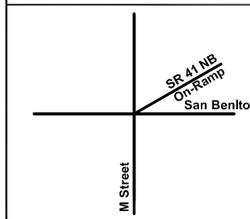
87. O Street / Santa Clara Street - SR 41 SB Off-Ramp



88. M Street / SR 41 SB On-Ramp



89. M Street / San Benito Street - SR 41 NB On-Ramp



90. Broadway Street / Santa Clara Street - SR 41 SB Loop On-Ramp

California High-Speed Train Program EIR/EIS	Construction Only Trips - Fresno Station	Sheet 5 of 5

N

= Signalized Intersection

= Unsignalized Intersection

XX(XX) = AM(PM) Peak Hour Volumes

Not to scale

Grangeville Boulevard

Lacey Boulevard

7th Road

Hanford Armona Road

Houston Avenue

S. 11th Avenue

S. Irvine Street

10th Avenue

9th Avenue

8th Avenue

7th Avenue

6th Avenue

Road 28

2nd Avenue

Road 48

Road 56

Road 60

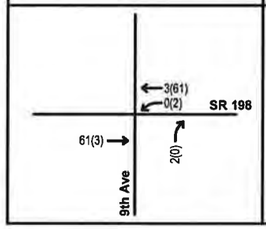
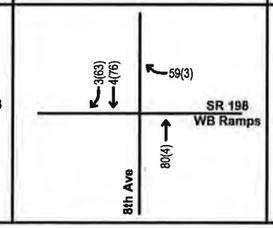
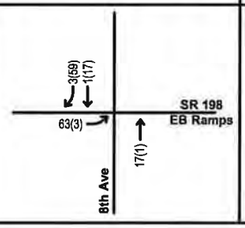
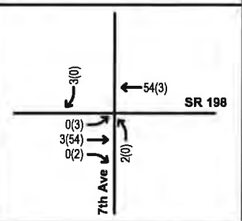
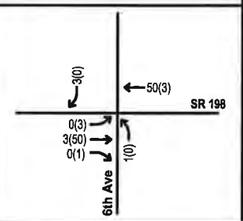
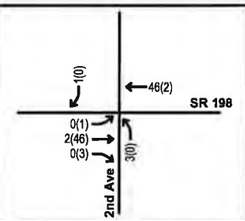
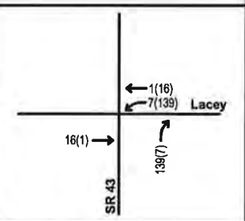
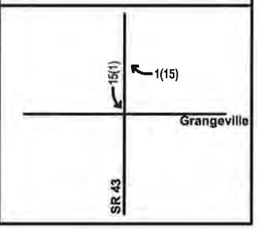
Road 68

Road J25

43

198

99

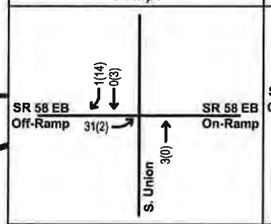
1. 9th Avenue / SR 198	2. 8th Avenue / SR 198 WB Ramps	3. 8th Avenue / SR 198 EB Ramps	4. 7th Avenue / SR 198	5. 7th Avenue / 7th Road	6. 6th Avenue / SR 198	7. 2nd Avenue / SR 198	8. SR 43 / Lacey Boulevard	9. SR 43 / Grangeville Boulevard
				INTERSECTION NOT TO BE ANALYZED				

California High-Speed Train Program EIR/EIS

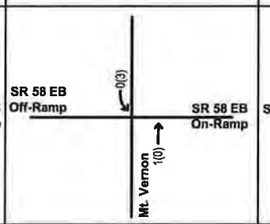
Kings/Tulare Regional Station - Construction Only Trips

Sheet 1 of 1

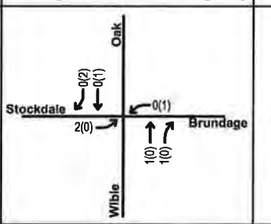
1. S. Union Avenue / SR 58 EB Ramps



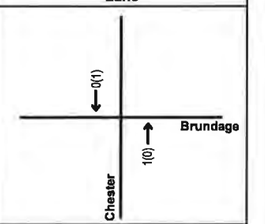
2. Mt. Vernon Avenue / SR 58 EB Ramps



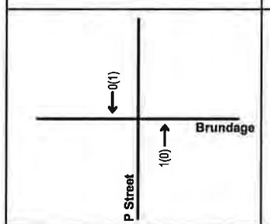
3. Wible Road / Oak Street / Brundage Lane/Stockdale Highway



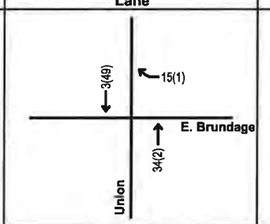
4. Chester Avenue / Brundage Lane



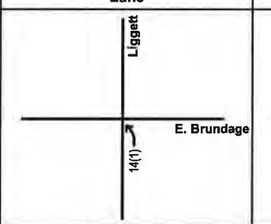
5. P Street / Brundage Lane



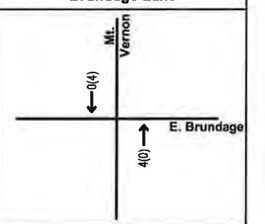
6. Union Avenue / E. Brundage Lane



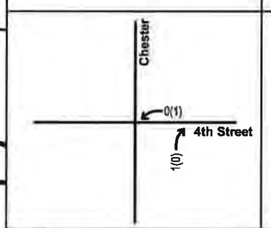
7. Liggett Street / E. Brundage Lane



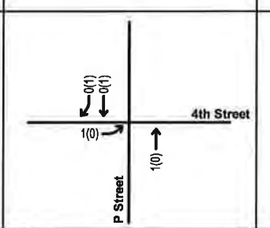
8. Mt. Vernon Avenue / E. Brundage Lane



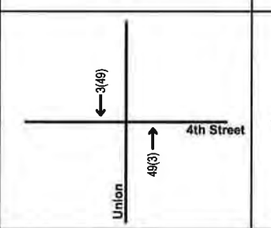
9. Chester Avenue / 4th Street



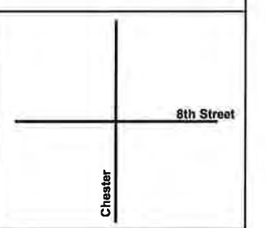
10. P Street / 4th Street



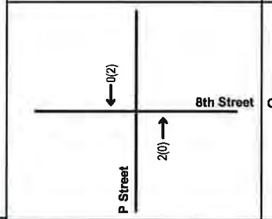
11. Union Avenue / 4th Street



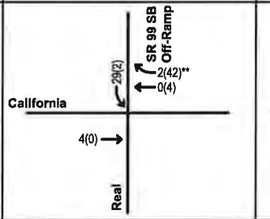
12. Chester Avenue / 8th Street



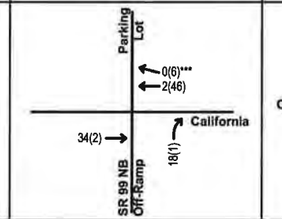
13. P Street / 8th Street



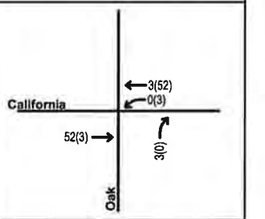
14. Real Road / California Avenue / SR 99 SB Ramps



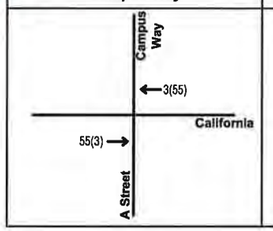
15. SR 99 NB Ramps / California Avenue



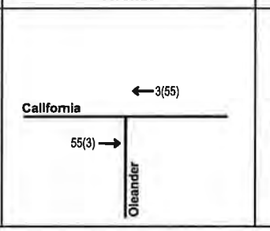
16. Oak Street / California Avenue



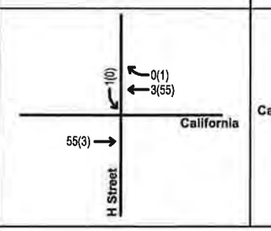
17. A Street / California Avenue / Campus Way



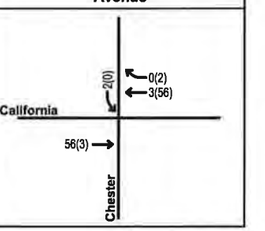
18. Oleander Avenue / California Avenue



19. H Street / California Avenue

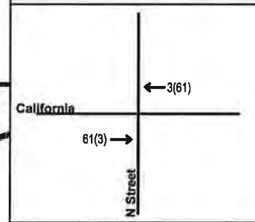


20. Chester Avenue / California Avenue

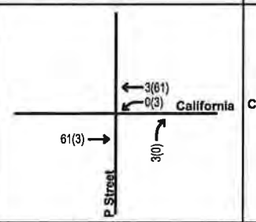


California High-Speed Train Program EIR/EIS	Construction Only Trips - Bakersfield Station	Sheet 1 of 4

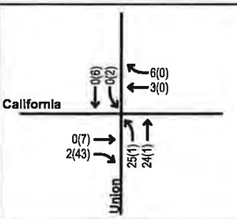
21. N Street / California Avenue



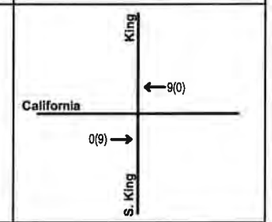
22. P Street / California Avenue



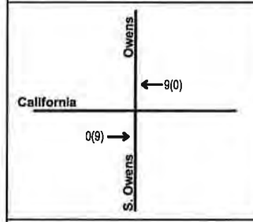
23. Union Avenue / California Avenue



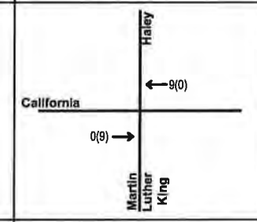
24. King Street / California Avenue



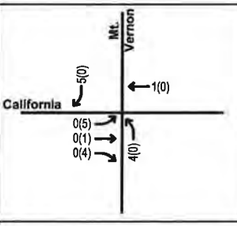
25. Owens Street / California Avenue



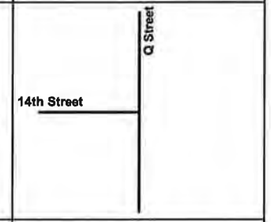
26. Dr Martin Luther King Jr Blvd / Haley Street / California Avenue



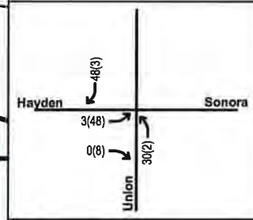
27. Mt. Vernon Avenue / California Avenue



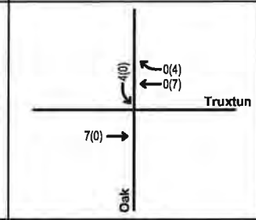
28. Q Street / 14th Street



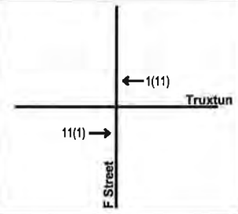
29. Union Avenue / Hayden Court / Sonora Street



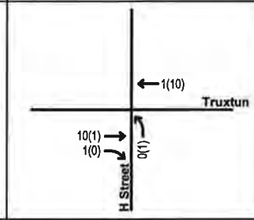
30. Oak Street / Truxtun Avenue



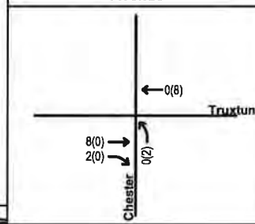
31. F Street / Truxtun Avenue



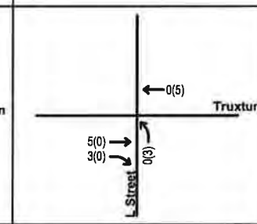
32. H Street / Truxtun Avenue



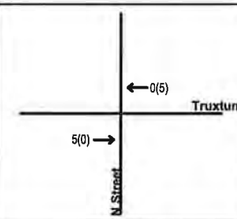
33. Chester Avenue / Truxtun Avenue



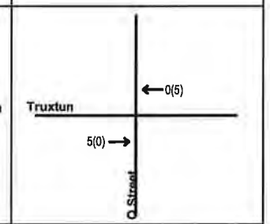
34. L Street / Truxtun Avenue



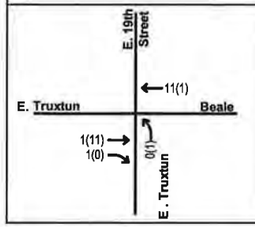
35. N Street / Truxtun Avenue



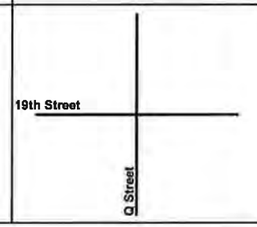
36. Q Street / Truxtun Avenue



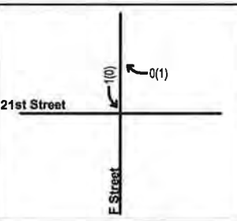
37. E. Truxtun Avenue / Beale Avenue / E. 19th Street



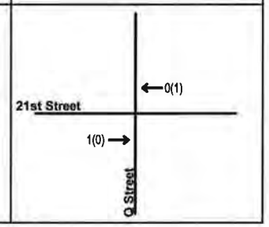
38. Q Street / 19th Street



39. F Street / 21st Street



40. Q Street / 21st Street



California High-Speed Train Program EIR/EIS

Construction Only Trips - Bakersfield Station

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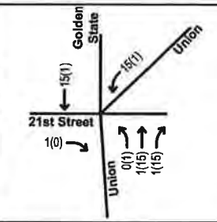
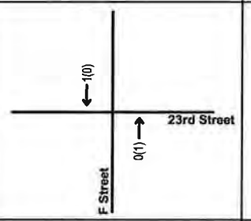
Note:
*XX(XX) Volume going to Beale Ave

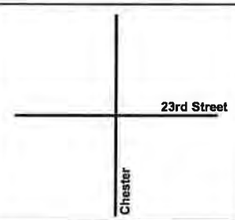
41. Union Avenue / Golden State Avenue / 21st Street



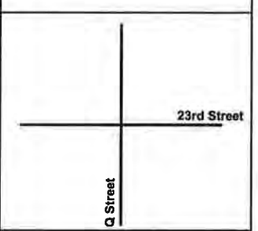
42. F Street / 23rd Street



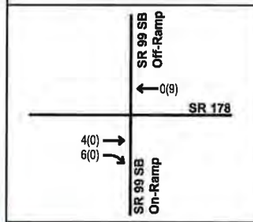
43. Chester Avenue / 23rd Street



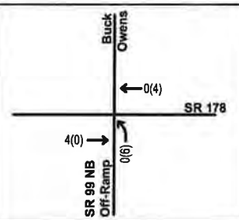
44. Q Street / 23rd Street



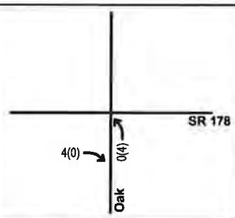
45. SR 178 / SR 99 SB Ramps



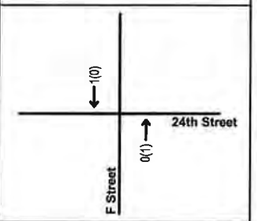
46. SR 178 / SR 99 NB Off-Ramp / Buck Owens Blvd



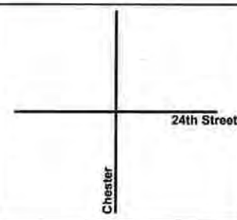
47. Oak Street / SR 178



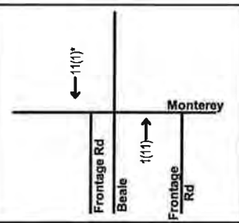
48. F Street / 24th Street



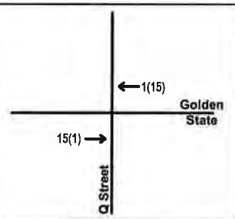
49. Chester Avenue / 24th Street



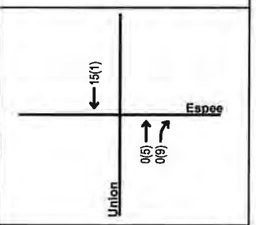
50. Beale Avenue / Monterey Street



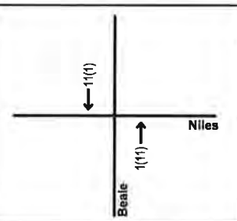
51. Q Street / Golden State Avenue



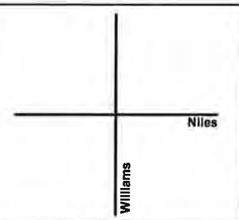
52. Union Avenue / Espee Street



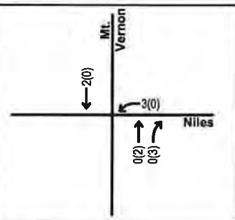
53. Beale Avenue / Niles Street



54. Williams Street / Niles Street

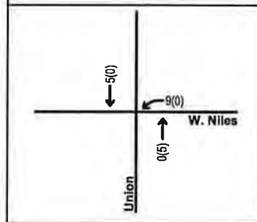


55. Mt. Vernon Avenue / Niles Street

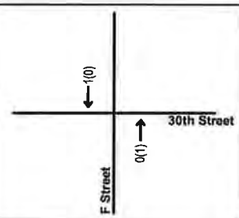


56. M Street / 28th Street / Golden State Avenue

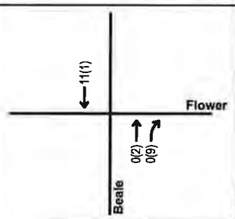
57. Union Avenue / W. Niles Street



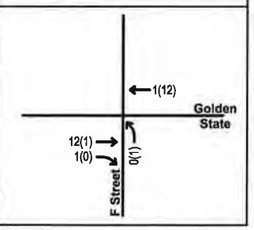
58. F Street / 30th Street



59. Beale Avenue / Flower Street



60. F Street / Golden State Avenue



California High-Speed Train Program EIR/EIS

Construction Only Trips - Bakersfield Station

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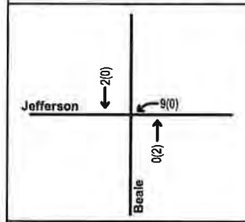
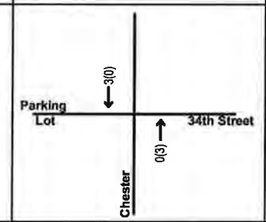
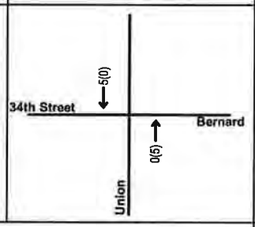
61. Beale Avenue / Jefferson Street



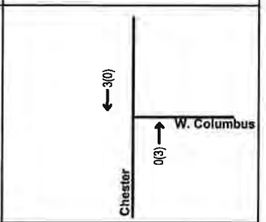
62. Chester Avenue / 34th Street



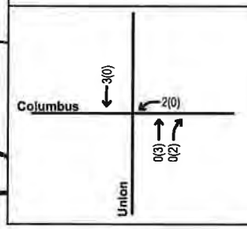
63. Union Avenue / 34th Street / Bernard Street



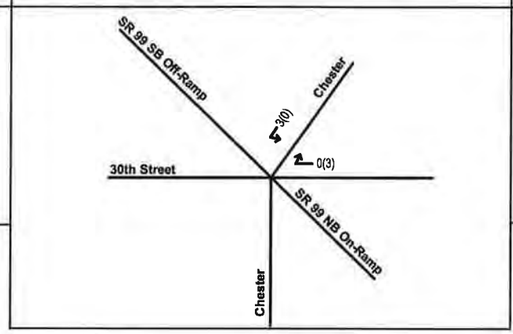
64. Chester Avenue / W. Columbus Street



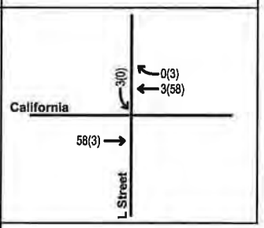
65. Union Avenue / Columbus Street



66. Chester Avenue / 30th Street / SR 99 Ramps



67. L Street / California Avenue



= Signalized Intersection

= Unsignalized Intersection

Not to scale XX(XX) = AM(PM) Peak Hour Volumes

California High-Speed Train Program EIR/EIS	Construction Only Trips - Bakersfield Station	Sheet 4 of 4

FRESNO CONSTRUCTION CONDITIONS
SYNCHRO OUTPUT

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

11/10/2010

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	0	63	0	0	101	0	0	0	0	0	0	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	68	0	0	110	0	0	0	0	0	0	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)												
pX, platoon unblocked												
vC, conflicting volume	110			68			178	178	68	178	178	110
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	110			68			178	178	68	178	178	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 %	100			100			100	100	100	100	100	99
cM capacity (veh/h)	1480			1533			776	715	995	784	715	944

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total	68	110	0	0	10
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	10
cSH	1480	1533	1700	1700	944
Volume to Capacity	0.00	0.00	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0	0	1
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	0.5		
Intersection Capacity Utilization	15.3%	ICU Level of Service	A
Analysis Period (min)	15		

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

11/10/2010

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	42	46	0	220	0	0	0	0	0	0	83
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	46	50	0	239	0	0	0	0	0	0	90
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	239			96			310	310	71	310	335	239
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	239			96			310	310	71	310	335	239
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	89
cM capacity (veh/h)	1328			1498			570	605	992	643	586	800

Direction, Lane #	SE 1	NW 1	NE 1	SW 1	SW 2
Volume Total	96	239	0	0	90
Volume Left	0	0	0	0	0
Volume Right	50	0	0	0	90
cSH	1328	1498	1700	1700	800
Volume to Capacity	0.00	0.00	0.00	0.00	0.11
Queue Length 95th (ft)	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	10.1
Lane LOS			A	A	B
Approach Delay (s)	0.0	0.0	0.0	10.1	
Approach LOS			A	B	

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	23.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	141	90	68	0	0	0	21	292	0	0	213	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	153	98	74	0	0	0	23	317	0	0	232	55

Direction, Lane #	NB 1	NB 2	SE 1	SE 2	NW 1	NW 2
Volume Total (vph)	202	123	129	212	154	133
Volume Left (vph)	153	0	23	0	0	0
Volume Right (vph)	0	74	0	0	0	55
Hadj (s)	0.41	-0.39	0.12	0.03	0.03	-0.26
Departure Headway (s)	6.5	5.7	6.0	5.9	6.0	5.7
Degree Utilization, x	0.37	0.19	0.21	0.35	0.26	0.21
Capacity (veh/h)	528	595	570	585	573	602
Control Delay (s)	12.0	8.9	9.4	10.8	9.9	9.0
Approach Delay (s)	10.8		10.3		9.5	
Approach LOS	B		B		A	

Intersection Summary			
Delay	10.2		
HCM Level of Service	B		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	129	33	45	0	0	0	85	189	0	0	233	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	140	36	49	0	0	0	92	205	0	0	253	62

Direction, Lane #	NB 1	NB 2	SE 1	SE 2	NW 1	NW 2
Volume Total (vph)	158	67	161	137	169	146
Volume Left (vph)	140	0	92	0	0	0
Volume Right (vph)	0	49	0	0	0	62
Hadj (s)	0.48	-0.48	0.32	0.03	0.03	-0.26
Departure Headway (s)	6.5	5.5	5.9	5.6	5.6	5.3
Degree Utilization, x	0.28	0.10	0.26	0.21	0.26	0.22
Capacity (veh/h)	527	608	583	615	615	649
Control Delay (s)	10.8	7.9	9.8	8.9	9.4	8.5
Approach Delay (s)	9.9		9.4		9.0	
Approach LOS	A		A		A	

Intersection Summary				
Delay	9.4			
HCM Level of Service	A			
Intersection Capacity Utilization	33.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		↰	↱
Volume (veh/h)	0	138	65	0	7	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	150	71	0	8	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)		1132				
pX, platoon unblocked						
vC, conflicting volume	71				221	71
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	71				221	71
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)	1530				768	992

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	150	71	8	8
Volume Left	0	0	8	0
Volume Right	0	0	0	8
cSH	1700	1700	768	992
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	9.7	8.7
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	9.2	
Approach LOS			A	

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		↰	↱
Volume (veh/h)	0	280	107	0	17	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	304	116	0	18	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)		1132				
pX, platoon unblocked						
vC, conflicting volume	116				421	116
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	116				421	116
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				97	99
cM capacity (veh/h)	1472				589	936

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	304	116	18	10
Volume Left	0	0	18	0
Volume Right	0	0	0	10
cSH	1700	1700	589	936
Volume to Capacity	0.18	0.07	0.03	0.01
Queue Length 95th (ft)	0	0	2	1
Control Delay (s)	0.0	0.0	11.3	8.9
Lane LOS			B	A
Approach Delay (s)	0.0	0.0	10.5	
Approach LOS			B	

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	128	2	3	349	0	0	0	0	186	14	448
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	139	2	3	379	0	0	0	0	202	15	487
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	379			141			344	526	140	526	527	190
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			141			344	526	140	526	527	190
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	53	97	41
cM capacity (veh/h)	1176			1439			231	454	882	434	454	820

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	141	130	253	380	325
Volume Left	0	3	0	202	0
Volume Right	2	0	0	162	325
cSH	1700	1439	1700	544	820
Volume to Capacity	0.08	0.00	0.15	0.70	0.40
Queue Length 95th (ft)	0	0	0	137	48
Control Delay (s)	0.0	0.2	0.0	25.4	12.2
Lane LOS		A		D	B
Approach Delay (s)	0.0	0.1		19.4	
Approach LOS				C	

Intersection Summary				
Average Delay	11.1			
Intersection Capacity Utilization	38.6%	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)	0	214	19	12	349	0	0	0	0	63	11	199
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	233	21	13	379	0	0	0	0	68	12	216
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	379			253			465	648	243	648	659	190
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			253			465	648	243	648	659	190
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	81	97	74
cM capacity (veh/h)	1176			1309			343	384	758	352	378	820

Direction, Lane #	SE 1	NW 1	NW 2	SW 1	SW 2
Volume Total	253	139	253	153	144
Volume Left	0	13	0	68	0
Volume Right	21	0	0	72	144
cSH	1700	1309	1700	486	820
Volume to Capacity	0.15	0.01	0.15	0.31	0.18
Queue Length 95th (ft)	0	1	0	33	16
Control Delay (s)	0.0	0.8	0.0	15.8	10.3
Lane LOS		A		C	B
Approach Delay (s)	0.0	0.3		13.1	
Approach LOS				B	

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	322	0	347	0	0	0	0	635	61	48	332	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						3493		1770	3539	
Flt Permitted	0.95	1.00						1.00		0.35	1.00	
Satd. Flow (perm)	1770	1583						3493		653	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	0	377	0	0	0	0	690	66	52	361	0
RTOR Reduction (vph)	0	274	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	350	103	0	0	0	0	0	740	0	52	361	0
Turn Type	Split									Perm		
Protected Phases	4	4						2			2	
Permitted Phases										2		
Actuated Green, G (s)	12.1	12.1						23.0		23.0	23.0	
Effective Green, g (s)	12.1	12.1						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)	481	430						1805		338	1829	
v/s Ratio Prot	c0.20	0.06						c0.21			0.10	
v/s Ratio Perm										0.08		
v/c Ratio	0.73	0.24						0.41		0.15	0.20	
Uniform Delay, d1	14.7	12.6						6.6		5.6	5.8	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	6.8	0.6						0.1		0.1	0.0	
Delay (s)	21.5	13.3						6.6		5.7	5.8	
Level of Service	C	B						A		A	A	
Approach Delay (s)		17.2			0.0			6.6			5.8	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	44.5	Sum of lost time (s)	9.4
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	163	2	217	0	0	0	0	609	36	125	411	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						3510		1770	3539	
Flt Permitted	0.95	1.00						1.00		0.38	1.00	
Satd. Flow (perm)	1770	1586						3510		715	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	2	236	0	0	0	0	662	39	136	447	0
RTOR Reduction (vph)	0	176	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	177	62	0	0	0	0	0	692	0	136	447	0
Turn Type	Split									Perm		
Protected Phases	4	4						2			2	
Permitted Phases										2		
Actuated Green, G (s)	11.0	11.0						23.0		23.0	23.0	
Effective Green, g (s)	11.0	11.0						23.0		23.0	23.0	
Actuated g/C Ratio	0.25	0.25						0.53		0.53	0.53	
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)	449	402						1860		379	1876	
v/s Ratio Prot	c0.10	0.04						c0.20			0.13	
v/s Ratio Perm										0.19		
v/c Ratio	0.39	0.15						0.37		0.36	0.24	
Uniform Delay, d1	13.4	12.6						6.0		5.9	5.5	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.4						0.0		0.2	0.0	
Delay (s)	14.7	13.0						6.0		6.1	5.5	
Level of Service	B	B						A		A	A	
Approach Delay (s)		13.7			0.0			6.0			5.7	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	43.4	Sum of lost time (s)	9.4
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	34	8	91	357	595	0	0	343	115
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	37	9	99	388	647	0	0	373	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)								284			1117	
pX, platoon unblocked												
vC, conflicting volume	1638	1858	249	1609	1921	323	498			647		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1638	1858	249	1609	1921	323	498			647		
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	26	79	85	63			100		
cM capacity (veh/h)	35	46	751	50	42	672	1062			935		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	41	103	388	323	323	249	249
Volume Left	37	0	388	0	0	0	0
Volume Right	0	99	0	0	0	0	125
cSH	49	413	1062	1700	1700	1700	1700
Volume to Capacity	0.84	0.25	0.37	0.19	0.19	0.15	0.15
Queue Length 95th (ft)	87	24	42	0	0	0	0
Control Delay (s)	213.7	16.6	10.3	0.0	0.0	0.0	0.0
Lane LOS	F	C	B				
Approach Delay (s)	72.9		3.9			0.0	
Approach LOS	F						

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	25	2	75	301	467	0	0	512	446
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	27	2	82	327	508	0	0	557	485
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								284			1117	
pX, platoon unblocked	0.98	0.98	0.98	0.98	0.98		0.98					
vC, conflicting volume	1790	1961	521	1440	2203	254	1041			508		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1766	1941	472	1410	2188	254	1003			508		
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	54	90	89	51			100		
cM capacity (veh/h)	27	33	528	60	23	746	673			1053		

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	NE 3	SW 1	SW 2
Volume Total	28	83	327	254	254	371	670
Volume Left	27	0	327	0	0	0	0
Volume Right	0	82	0	0	0	0	485
cSH	56	525	673	1700	1700	1700	1700
Volume to Capacity	0.50	0.16	0.49	0.15	0.15	0.22	0.39
Queue Length 95th (ft)	49	14	67	0	0	0	0
Control Delay (s)	121.9	13.1	15.3	0.0	0.0	0.0	0.0
Lane LOS	F	B	C				
Approach Delay (s)	40.8		6.0			0.0	
Approach LOS	E						

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	64.0%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	23	4	30	15	11	14	45	650	3	1	408	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	4	33	16	12	15	49	707	3	1	443	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)								595			806	
pX, platoon unblocked												
vC, conflicting volume	933	1268	236	1065	1281	355	473			710		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	933	1268	236	1065	1281	355	473			710		
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 %	87	97	96	90	92	98	95			100		
cM capacity (veh/h)	196	160	765	160	157	641	1085			885		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	62	43	402	357	223	251
Volume Left	25	16	49	0	1	0
Volume Right	33	15	0	3	0	29
cSH	314	215	1085	1700	885	1700
Volume to Capacity	0.20	0.20	0.05	0.21	0.00	0.15
Queue Length 95th (ft)	18	18	4	0	0	0
Control Delay (s)	19.3	25.9	1.5	0.0	0.1	0.0
Lane LOS	C	D	A		A	
Approach Delay (s)	19.3	25.9	0.8		0.0	
Approach LOS	C	D				

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	46.0%	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)	36	2	87	10	10	20	61	471	5	2	864	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	2	95	11	11	22	66	512	5	2	939	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)								595			806	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90		0.90					
vC, conflicting volume	1377	1611	488	1217	1627	259	975			517		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1189	1450	196	1010	1467	259	740			517		
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 %	63	98	87	92	90	97	91			100		
cM capacity (veh/h)	107	106	728	139	104	740	773			1045		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	136	43	322	261	472	505
Volume Left	39	11	66	0	2	0
Volume Right	95	22	0	5	0	36
cSH	263	205	773	1700	1045	1700
Volume to Capacity	0.52	0.21	0.09	0.15	0.00	0.30
Queue Length 95th (ft)	68	19	7	0	0	0
Control Delay (s)	32.3	27.3	2.9	0.0	0.1	0.0
Lane LOS	D	D	A		A	
Approach Delay (s)	32.3	27.3	1.6		0.0	
Approach LOS	D	D				

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	60.4%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	26	81	11	39	117	79	35	585	35	42	375	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1829		1770	1750		1770	3509		1770	3490	
Flt Permitted	0.62	1.00		0.69	1.00		0.49	1.00		0.36	1.00	
Satd. Flow (perm)	1155	1829		1290	1750		916	3509		665	3490	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	88	12	42	127	86	38	636	38	46	408	42
RTOR Reduction (vph)	0	8	0	0	40	0	0	7	0	0	12	0
Lane Group Flow (vph)	28	92	0	42	173	0	38	667	0	46	438	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		25.9	25.9		25.9	25.9	
Effective Green, g (s)	18.6	18.6		18.6	18.6		25.9	25.9		25.9	25.9	
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)	404	639		451	612		446	1708		324	1699	
v/s Ratio Prot		0.05			c0.10			c0.19			0.13	
v/s Ratio Perm	0.02			0.03			0.04			0.07		
v/c Ratio	0.07	0.14		0.09	0.28		0.09	0.39		0.14	0.26	
Uniform Delay, d1	11.5	11.8		11.6	12.5		7.3	8.6		7.5	8.0	
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		0.2	0.5		0.2	0.3		0.4	0.2	
Delay (s)	11.7	12.1		11.8	13.0		7.5	9.0		7.9	8.2	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		12.0			12.8			8.9			8.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	8.7
Intersection Capacity Utilization	63.8%	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)	75	94	69	75	152	96	24	479	30	60	775	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1744		1770	1755		1770	3508		1770	3512	
Flt Permitted	0.54	1.00		0.65	1.00		0.25	1.00		0.42	1.00	
Satd. Flow (perm)	1002	1744		1203	1755		469	3508		787	3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	102	75	82	165	104	26	521	33	65	842	46
RTOR Reduction (vph)	0	43	0	0	37	0	0	7	0	0	6	0
Lane Group Flow (vph)	82	134	0	82	232	0	26	547	0	65	882	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	20.1	20.1		20.1	20.1		27.6	27.6		27.6	27.6	
Effective Green, g (s)	20.1	20.1		20.1	20.1		27.6	27.6		27.6	27.6	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		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)	357	622		429	625		230	1717		385	1719	
v/s Ratio Prot		0.08			c0.13			0.16			c0.25	
v/s Ratio Perm	0.08			0.07			0.06			0.08		
v/c Ratio	0.23	0.22		0.19	0.37		0.11	0.32		0.17	0.51	
Uniform Delay, d1	12.7	12.7		12.5	13.5		7.8	8.7		8.0	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.4		0.5	0.8		0.5	0.2		0.4	0.5	
Delay (s)	13.4	13.0		13.0	14.2		8.2	8.9		8.5	10.3	
Level of Service	B	B		B	B		A	A		A	B	
Approach Delay (s)		13.1			14.0			8.9			10.2	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	8.7
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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

6/8/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	19	20	4	66	42	5	8	491	117	15	456	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	5.6	5.6		5.6	5.6		4.0	4.2		4.0	4.2	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		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	3458		1770	1835		1770	3437		1770	3524	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3458		1770	1835		1770	3437		1770	3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	22	4	72	46	5	9	534	127	16	496	15
RTOR Reduction (vph)	0	4	0	0	3	0	0	15	0	0	1	0
Lane Group Flow (vph)	21	22	0	72	48	0	9	646	0	16	510	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.7	5.7		8.9	8.9		1.0	20.2		1.0	20.2	
Effective Green, g (s)	5.7	5.7		8.9	8.9		1.0	20.2		1.0	20.2	
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)	183	357		285	296		32	1258		32	1290	
v/s Ratio Prot	c0.01	0.01		c0.04	0.03		0.01	c0.19		c0.01	0.14	
v/s Ratio Perm												
v/c Ratio	0.11	0.06		0.25	0.16		0.28	0.51		0.50	0.40	
Uniform Delay, d1	22.5	22.3		20.2	19.9		26.7	13.7		26.9	13.0	
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	0.1		4.4	0.1	
Delay (s)	22.6	22.4		20.4	20.0		28.5	13.8		31.3	13.0	
Level of Service	C	C		C	C		C	B		C	B	
Approach Delay (s)		22.5			20.3			14.0			13.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	19.4
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

6/8/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	31	117	16	75	20	12	21	448	153	59	786	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	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	3477		1770	1759		1770	3404		1770	3526	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3477		1770	1759		1770	3404		1770	3526	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	127	17	82	22	13	23	487	166	64	854	21
RTOR Reduction (vph)	0	9	0	0	11	0	0	25	0	0	1	0
Lane Group Flow (vph)	34	135	0	82	24	0	23	628	0	64	874	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.9	12.9		8.8	8.8		2.7	23.7		6.2	27.2	
Effective Green, g (s)	12.9	12.9		8.8	8.8		2.7	23.7		6.2	27.2	
Actuated g/C Ratio	0.18	0.18		0.12	0.12		0.04	0.33		0.09	0.38	
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)	322	632		219	218		67	1136		155	1351	
v/s Ratio Prot	0.02	c0.04		c0.05	0.01		0.01	0.18		c0.04	c0.25	
v/s Ratio Perm												
v/c Ratio	0.11	0.21		0.37	0.11		0.34	0.55		0.41	0.65	
Uniform Delay, d1	24.2	24.7		28.6	27.6		33.3	19.3		30.7	18.0	
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		1.1	0.3		0.7	0.8	
Delay (s)	24.3	24.8		29.0	27.7		34.4	19.7		31.3	18.8	
Level of Service	C	C		C	C		C	B		C	B	
Approach Delay (s)		24.7			28.6			20.2			19.6	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	71.0	Sum of lost time (s)	19.4
Intersection Capacity Utilization	65.2%	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)	19	55	36	218	530	150	60	412	46	42	269	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)	4.2	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	0.98		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	1753		1770	1863	1583	1770	3486		1770	3416	
Flt Permitted	0.29	1.00		0.69	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	532	1753		1291	1863	1583	1770	3486		1770	3416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	60	39	237	576	163	65	448	50	46	292	88
RTOR Reduction (vph)	0	20	0	0	0	32	0	8	0	0	28	0
Lane Group Flow (vph)	21	79	0	237	576	131	65	490	0	46	352	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)	35.2	35.2		35.2	35.2	35.2	6.0	19.7		3.9	17.6	
Effective Green, g (s)	35.2	35.2		35.2	35.2	35.2	6.0	19.7		3.9	17.6	
Actuated g/C Ratio	0.49	0.49		0.49	0.49	0.49	0.08	0.28		0.05	0.25	
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)	263	867		638	921	783	149	965		97	844	
v/s Ratio Prot		0.05			c0.31		0.04	c0.14		0.03	c0.10	
v/s Ratio Perm	0.04			0.18		0.08						
v/c Ratio	0.08	0.09		0.37	0.63	0.17	0.44	0.51		0.47	0.42	
Uniform Delay, d1	9.5	9.5		11.1	13.2	9.9	31.0	21.7		32.7	22.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.1		0.7	1.8	0.2	0.7	0.8		1.3	0.7	
Delay (s)	9.7	9.6		11.9	15.0	10.1	31.7	22.5		34.0	23.1	
Level of Service	A	A		B	B	B	C	C		C	C	
Approach Delay (s)		9.6			13.4			23.6			24.3	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	12.6
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	84	130	65	217	282	68	42	406	44	37	582	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1769		1770	1863	1583	1770	3487		1770	3467	
Flt Permitted	0.48	1.00		0.60	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	894	1769		1111	1863	1583	1770	3487		1770	3467	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	141	71	236	307	74	46	441	48	40	633	100
RTOR Reduction (vph)	0	20	0	0	0	33	0	7	0	0	11	0
Lane Group Flow (vph)	91	192	0	236	307	41	46	482	0	40	722	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)	24.6	24.6		24.6	24.6	24.6	3.7	24.0		3.5	23.8	
Effective Green, g (s)	24.6	24.6		24.6	24.6	24.6	3.7	24.0		3.5	23.8	
Actuated g/C Ratio	0.38	0.38		0.38	0.38	0.38	0.06	0.37		0.05	0.37	
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)	341	675		424	711	604	102	1297		96	1279	
v/s Ratio Prot		0.11			0.16		0.03	c0.14		0.02	c0.21	
v/s Ratio Perm	0.10			c0.21		0.03						
v/c Ratio	0.27	0.28		0.56	0.43	0.07	0.45	0.37		0.42	0.56	
Uniform Delay, d1	13.7	13.8		15.7	14.8	12.7	29.4	14.8		29.5	16.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.5		2.5	0.8	0.1	1.2	0.4		1.1	0.9	
Delay (s)	14.6	14.3		18.2	15.6	12.8	30.6	15.1		30.6	17.1	
Level of Service	B	B		B	B	B	C	B		C	B	
Approach Delay (s)		14.4			16.3			16.4			17.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	8.4
Intersection Capacity Utilization	60.7%	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)	39	200	21	0	0	0	0	423	22	26	446	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		0.47	1.00	
Satd. Flow (perm)		5044	1583					3513		870	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	217	23	0	0	0	0	460	24	28	485	0
RTOR Reduction (vph)	0	0	14	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	259	9	0	0	0	0	479	0	28	485	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		407	1657	
v/s Ratio Prot		c0.05						0.14			c0.14	
v/s Ratio Perm			0.01							0.03		
v/c Ratio		0.14	0.01					0.29		0.07	0.29	
Uniform Delay, d1		11.0	10.5					8.7		7.8	8.8	
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)		11.0			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	0.22		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	45.3%	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)	64	532	12	0	0	0	0	600	19	73	782	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)		5058	1583					3523		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.35	1.00	
Satd. Flow (perm)		5058	1583					3523		656	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	578	13	0	0	0	0	652	21	79	850	0
RTOR Reduction (vph)	0	0	8	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	648	5	0	0	0	0	670	0	79	850	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)		1894	593					1649		307	1657	
v/s Ratio Prot		c0.13						0.19			c0.24	
v/s Ratio Perm			0.00							0.12		
v/c Ratio		0.34	0.01					0.41		0.26	0.51	
Uniform Delay, d1		12.0	10.5					9.3		8.6	9.9	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.1		0.2	0.1	
Delay (s)		12.0	10.5					9.4		8.7	10.1	
Level of Service		B	B					A		A	B	
Approach Delay (s)		12.0			0.0			9.4			9.9	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	26	13	17	85	342	7	93	371	2	9	374	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	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	1768	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	1768	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	14	18	92	372	8	101	403	2	10	407	41
RTOR Reduction (vph)	0	0	17	0	0	4	0	0	1	0	0	31
Lane Group Flow (vph)	28	14	1	83	381	4	101	403	1	10	407	10
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)	5.2	5.2	5.2	36.7	36.7	36.7	9.7	30.8	30.8	1.0	22.1	22.1
Effective Green, g (s)	5.2	5.2	5.2	36.7	36.7	36.7	9.7	30.8	30.8	1.0	22.1	22.1
Actuated g/C Ratio	0.06	0.06	0.06	0.41	0.41	0.41	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)	102	107	91	683	719	643	190	1207	540	20	866	387
v/s Ratio Prot	c0.02	0.01		0.05	c0.22		c0.06	0.11		0.01	c0.11	
v/s Ratio Perm			0.00			0.00			0.00			0.01
v/c Ratio	0.27	0.13	0.01	0.12	0.53	0.01	0.53	0.33	0.00	0.50	0.47	0.03
Uniform Delay, d1	40.7	40.4	40.1	16.7	20.3	16.0	38.1	22.1	19.6	44.4	29.1	25.9
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	2.9	1.1	0.1	0.2	1.3	0.0	1.4	0.3	0.0	7.0	0.8	0.1
Delay (s)	43.7	41.5	40.2	16.9	21.6	16.0	39.6	22.5	19.6	51.4	29.9	26.0
Level of Service	D	D	D	B	C	B	D	C	B	D	C	C
Approach Delay (s)		42.1			20.7			25.9			30.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.3	Sum of lost time (s)	16.6
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	93	37	177	60	102	12	47	609	10	5	619	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1764	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	1764	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	40	192	65	111	13	51	662	11	5	673	26
RTOR Reduction (vph)	0	0	159	0	0	11	0	0	5	0	0	11
Lane Group Flow (vph)	101	40	33	58	118	2	51	662	6	5	673	15
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)	13.3	13.3	13.3	13.7	13.7	13.7	5.8	33.7	33.7	0.9	28.8	28.8
Effective Green, g (s)	13.3	13.3	13.3	13.7	13.7	13.7	5.8	33.7	33.7	0.9	28.8	28.8
Actuated g/C Ratio	0.17	0.17	0.17	0.18	0.18	0.18	0.07	0.43	0.43	0.01	0.37	0.37
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)	301	317	269	294	309	277	131	1525	682	20	1303	583
v/s Ratio Prot	c0.06	0.02		0.03	c0.07		c0.03	0.19		0.00	c0.19	
v/s Ratio Perm			0.02			0.00			0.00			0.01
v/c Ratio	0.34	0.13	0.12	0.20	0.38	0.01	0.39	0.43	0.01	0.25	0.52	0.03
Uniform Delay, d1	28.6	27.5	27.5	27.6	28.5	26.6	34.5	15.6	12.7	38.3	19.3	15.7
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	0.7	1.6	0.0	0.7	0.4	0.0	2.4	0.7	0.0
Delay (s)	29.9	27.9	27.9	28.2	30.1	26.7	35.2	16.0	12.7	40.7	19.9	15.8
Level of Service	C	C	C	C	C	C	D	B	B	D	B	B
Approach Delay (s)		28.5			29.3			17.3			19.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	78.2	Sum of lost time (s)	16.6
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	38	97	122	44	370	0	0	404	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					4.2	4.2	4.2	4.2			4.2	
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	
Frt					1.00	0.85	1.00	1.00			0.96	
Flt Protected					0.99	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					3490	1583	1770	3539			3415	
Flt Permitted					0.99	1.00	0.44	1.00			1.00	
Satd. Flow (perm)					3490	1583	813	3539			3415	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	41	105	133	48	402	0	0	439	134
RTOR Reduction (vph)	0	0	0	0	0	104	0	0	0	0	35	0
Lane Group Flow (vph)	0	0	0	0	146	29	48	402	0	0	538	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)					767	348	447	1945			1876	
v/s Ratio Prot					c0.04			0.11			c0.16	
v/s Ratio Perm						0.02	0.06					
v/c Ratio					0.19	0.08	0.11	0.21			0.29	
Uniform Delay, d1					11.6	11.3	3.9	4.2			4.4	
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)					11.6	11.3	4.0	4.2			4.4	
Level of Service					B	B	A	A			A	
Approach Delay (s)		0.0			11.5			4.2			4.4	
Approach LOS		A			B			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)	36.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	34	55	130	81	633	0	0	615	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)					4.2	4.2	4.2	4.2			4.2	
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	
Frt					1.00	0.85	1.00	1.00			0.98	
Flt Protected					0.98	1.00	0.95	1.00			1.00	
Satd. Flow (prot)					3473	1583	1770	3539			3475	
Flt Permitted					0.98	1.00	0.36	1.00			1.00	
Satd. Flow (perm)					3473	1583	677	3539			3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	37	60	141	88	688	0	0	668	92
RTOR Reduction (vph)	0	0	0	0	0	117	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	97	24	88	688	0	0	748	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)					597	272	398	2079			2041	
v/s Ratio Prot					c0.03			0.19			c0.22	
v/s Ratio Perm						0.02	0.13					
v/c Ratio					0.16	0.09	0.22	0.33			0.37	
Uniform Delay, d1					12.3	12.2	3.4	3.7			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	3.7			3.8	
Level of Service					B	B	A	A			A	
Approach Delay (s)		0.0			12.3			3.7			3.8	
Approach LOS		A			B			A			A	

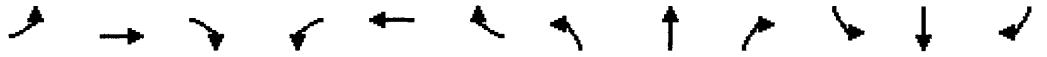
Intersection Summary			
HCM Average Control Delay	4.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	34.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	320	4	13	428	167	7	155	5	142	113	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3533		1770	3539	1583	1770	3524		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.68	1.00		0.64	1.00	1.00
Satd. Flow (perm)	1770	3533		1770	3539	1583	1263	3524		1197	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	348	4	14	465	182	8	168	5	154	123	76
RTOR Reduction (vph)	0	0	0	0	0	92	0	2	0	0	0	60
Lane Group Flow (vph)	79	352	0	14	465	90	8	171	0	154	123	16
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)	5.9	32.8		1.0	27.9	27.9	12.3	12.3		12.3	12.3	12.3
Effective Green, g (s)	5.9	32.8		1.0	27.9	27.9	12.3	12.3		12.3	12.3	12.3
Actuated g/C Ratio	0.10	0.55		0.02	0.47	0.47	0.21	0.21		0.21	0.21	0.21
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)	176	1954		30	1665	745	262	731		248	386	328
v/s Ratio Prot	c0.04	0.10		0.01	c0.13			0.05			0.07	
v/s Ratio Perm						0.06	0.01			c0.13		0.01
v/c Ratio	0.45	0.18		0.47	0.28	0.12	0.03	0.23		0.62	0.32	0.05
Uniform Delay, d1	25.2	6.6		28.9	9.6	8.8	18.7	19.6		21.4	19.9	18.8
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	0.7	0.0		4.1	0.0	0.0	0.0	0.1		3.4	0.2	0.0
Delay (s)	25.8	6.6		33.0	9.6	8.8	18.8	19.6		24.8	20.1	18.8
Level of Service	C	A		C	A	A	B	B		C	C	B
Approach Delay (s)		10.1			9.9			19.6			21.9	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	13.2
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)	130	561	8	23	429	279	11	237	17	206	180	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	3531		1770	3539	1583	1770	3505		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.58	1.00		0.58	1.00	1.00
Satd. Flow (perm)	1770	3531		1770	3539	1583	1078	3505		1084	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	610	9	25	466	303	12	258	18	224	196	122
RTOR Reduction (vph)	0	1	0	0	0	174	0	5	0	0	0	89
Lane Group Flow (vph)	141	618	0	25	466	129	12	271	0	224	196	33
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)	10.2	36.3		2.3	28.4	28.4	19.6	19.6		19.6	19.6	19.6
Effective Green, g (s)	10.2	36.3		2.3	28.4	28.4	19.6	19.6		19.6	19.6	19.6
Actuated g/C Ratio	0.14	0.51		0.03	0.40	0.40	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)	253	1795		57	1408	630	296	962		298	511	435
v/s Ratio Prot	c0.08	c0.18		0.01	0.13			0.08			0.11	
v/s Ratio Perm						0.08	0.01			c0.21		0.02
v/c Ratio	0.56	0.34		0.44	0.33	0.20	0.04	0.28		0.75	0.38	0.08
Uniform Delay, d1	28.5	10.5		33.9	14.9	14.1	19.0	20.4		23.7	21.0	19.2
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	1.5	0.0		2.0	0.1	0.1	0.0	0.1		9.1	0.2	0.0
Delay (s)	30.0	10.5		35.9	15.0	14.2	19.0	20.4		32.8	21.2	19.2
Level of Service	C	B		D	B	B	B	C		C	C	B
Approach Delay (s)		14.1			15.3			20.4			25.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	8.6
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	122	0	8	190	5	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	133	0	9	207	5	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	484					
pX, platoon unblocked						
vC, conflicting volume			133		357	133
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			133		357	133
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	100
cM capacity (veh/h)			1452		638	917

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	133	215	10
Volume Left	0	9	5
Volume Right	0	0	4
cSH	1700	1452	738
Volume to Capacity	0.08	0.01	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.4	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.4	9.9
Approach LOS			A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	165	0	4	182	4	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	179	0	4	198	4	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	484					
pX, platoon unblocked						
vC, conflicting volume			179		386	179
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			179		386	179
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)			1396		615	863

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	179	202	9
Volume Left	0	4	4
Volume Right	0	0	4
cSH	1700	1396	719
Volume to Capacity	0.11	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.2	10.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	10.1
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

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

6/8/2011

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	93	112	190	15	5	161
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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	122	207	16	5	175
RTOR Reduction (vph)	0	0	0	11	0	144
Lane Group Flow (vph)	101	122	207	5	5	31
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	4.2	17.1	8.9	8.9	5.4	5.4
Effective Green, g (s)	4.2	17.1	8.9	8.9	5.4	5.4
Actuated g/C Ratio	0.14	0.55	0.29	0.29	0.17	0.17
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)	241	1031	537	456	309	277
v/s Ratio Prot	c0.06	0.07	c0.11		0.00	
v/s Ratio Perm				0.00		c0.02
v/c Ratio	0.42	0.12	0.39	0.01	0.02	0.11
Uniform Delay, d1	12.2	3.3	8.8	7.9	10.6	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.1	0.9	0.0	0.0	0.1
Delay (s)	13.4	3.4	9.7	7.9	10.6	10.8
Level of Service	B	A	A	A	B	B
Approach Delay (s)		7.9	9.6		10.8	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	30.9	Sum of lost time (s)	12.4
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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

6/8/2011

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	92	179	82	5	11	124
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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	195	89	5	12	135
RTOR Reduction (vph)	0	0	0	4	0	110
Lane Group Flow (vph)	100	195	89	1	12	25
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	4.2	15.3	7.1	7.1	5.3	5.3
Effective Green, g (s)	4.2	15.3	7.1	7.1	5.3	5.3
Actuated g/C Ratio	0.14	0.53	0.24	0.24	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)	256	983	456	388	323	289
v/s Ratio Prot	c0.06	c0.10	0.05		0.01	
v/s Ratio Perm				0.00		c0.02
v/c Ratio	0.39	0.20	0.20	0.00	0.04	0.09
Uniform Delay, d1	11.2	3.6	8.7	8.3	9.8	9.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.2	0.4	0.0	0.0	0.0
Delay (s)	12.2	3.8	9.1	8.3	9.8	9.9
Level of Service	B	A	A	A	A	A
Approach Delay (s)		6.7	9.1		9.9	
Approach LOS		A	A		A	

Intersection Summary

HCM Average Control Delay	8.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	29.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	24.6%	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	112	14	35	521	59	23	58	5	7	31	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)	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	1834		1770	1842		1770	1766	
Flt Permitted	0.34	1.00	1.00	0.68	1.00		0.72	1.00		0.71	1.00	
Satd. Flow (perm)	630	1863	1583	1264	1834		1347	1842		1328	1766	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	122	15	38	566	64	25	63	5	8	34	18
RTOR Reduction (vph)	0	0	6	0	5	0	0	4	0	0	14	0
Lane Group Flow (vph)	5	122	9	38	625	0	25	64	0	8	38	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)	29.6	29.6	29.6	29.6	29.6		10.7	10.7		10.7	10.7	
Effective Green, g (s)	29.6	29.6	29.6	29.6	29.6		10.7	10.7		10.7	10.7	
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61		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)	383	1132	962	768	1115		296	405		292	388	
v/s Ratio Prot		0.07			c0.34			c0.03			0.02	
v/s Ratio Perm	0.01		0.01	0.03			0.02			0.01		
v/c Ratio	0.01	0.11	0.01	0.05	0.56		0.08	0.16		0.03	0.10	
Uniform Delay, d1	3.8	4.0	3.8	3.9	5.7		15.1	15.4		14.9	15.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0	0.0	0.0	0.4		0.0	0.1		0.0	0.0	
Delay (s)	3.8	4.0	3.8	3.9	6.1		15.2	15.4		14.9	15.2	
Level of Service	A	A	A	A	A		B	B		B	B	
Approach Delay (s)		4.0			5.9			15.4			15.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	48.7	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)	10	217	42	44	329	24	51	43	36	22	66	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1844		1770	1736		1770	1758	
Flt Permitted	0.47	1.00	1.00	0.61	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	877	1863	1583	1140	1844		1272	1736		1306	1758	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	236	46	48	358	26	55	47	39	24	72	43
RTOR Reduction (vph)	0	0	23	0	5	0	0	25	0	0	27	0
Lane Group Flow (vph)	11	236	23	48	379	0	55	61	0	24	88	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)	377	800	680	490	792		462	630		474	638	
v/s Ratio Prot		0.13			c0.21			0.04			c0.05	
v/s Ratio Perm	0.01		0.01	0.04			0.04			0.02		
v/c Ratio	0.03	0.30	0.03	0.10	0.48		0.12	0.10		0.05	0.14	
Uniform Delay, d1	6.7	7.5	6.7	6.9	8.3		8.6	8.5		8.4	8.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.1	0.0	0.0	0.2		0.0	0.0		0.0	0.0	
Delay (s)	6.7	7.6	6.7	6.9	8.5		8.6	8.5		8.4	8.7	
Level of Service	A	A	A	A	A		A	A		A	A	
Approach Delay (s)		7.4			8.3			8.6			8.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
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)	39	170	50	0	0	0	0	55	20	7	40	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)		4902						1795		1770	1863	
Flt Permitted		0.99						1.00		0.70	1.00	
Satd. Flow (perm)		4902						1795		1311	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	185	54	0	0	0	0	60	22	8	43	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	245	0	0	0	0	0	68	0	8	43	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)		1674						613		448	636	
v/s Ratio Prot		c0.05						c0.04			0.02	
v/s Ratio Perm										0.01		
v/c Ratio		0.15						0.11		0.02	0.07	
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						6.4		6.2	6.3	
Level of Service		A						A		A	A	
Approach Delay (s)		6.5			0.0			6.4			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	0.13		
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)	20	423	25	0	0	0	0	58	101	42	65	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						1703		1770	1863	
Flt Permitted		1.00						1.00		0.65	1.00	
Satd. Flow (perm)		5034						1703		1207	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	460	27	0	0	0	0	63	110	46	71	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	67	0	0	0	0
Lane Group Flow (vph)	0	497	0	0	0	0	0	106	0	46	71	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		467	721	
v/s Ratio Prot		c0.10						c0.06			0.04	
v/s Ratio Perm										0.04		
v/c Ratio		0.26						0.16		0.10	0.10	
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						8.0		7.8	7.8	
Level of Service		A						A		A	A	
Approach Delay (s)		8.3			0.0			8.0			7.8	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.21		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	28	226	8	15	9	0	0	9	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	30	246	9	16	10	0	0	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)		1000			1010							
pX, platoon unblocked												
vC, conflicting volume	254			0			197	315	0	316	311	127
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	254			0			197	315	0	316	311	127
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			98	98	100	100	98	99
cM capacity (veh/h)	1308			1622			717	588	1084	597	591	899

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	SW 1
Volume Total	153	132	16	10	18
Volume Left	30	0	16	0	0
Volume Right	0	9	0	0	9
cSH	1622	1700	717	588	705
Volume to Capacity	0.02	0.08	0.02	0.02	0.03
Queue Length 95th (ft)	1	0	2	1	2
Control Delay (s)	1.6	0.0	10.1	11.2	10.2
Lane LOS	A		B	B	B
Approach Delay (s)	0.8		10.5		10.2
Approach LOS			B		B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	0	0	30	220	19	69	21	0	0	5	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	33	239	21	75	23	0	0	5	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1000			1010							
pX, platoon unblocked												
vC, conflicting volume	260			0			192	325	0	326	315	130
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	260			0			192	325	0	326	315	130
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			90	96	100	100	99	100
cM capacity (veh/h)	1302			1622			730	580	1084	576	588	896

Direction, Lane #	NW 1	NW 2	NE 1	NE 2	SW 1
Volume Total	152	140	75	23	10
Volume Left	33	0	75	0	0
Volume Right	0	21	0	0	4
cSH	1622	1700	730	580	694
Volume to Capacity	0.02	0.08	0.10	0.04	0.01
Queue Length 95th (ft)	2	0	9	3	1
Control Delay (s)	1.7	0.0	10.5	11.5	10.3
Lane LOS	A		B	B	B
Approach Delay (s)	0.9		10.7		10.3
Approach LOS			B		B

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	21	107	9	13	162	24	2	17	11	4	8	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)		3477			3464			1763			1793	
Flt Permitted		0.89			0.93			1.00			1.00	
Satd. Flow (perm)		3131			3221			1768			1816	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	116	10	14	176	26	2	18	12	4	9	3
RTOR Reduction (vph)	0	8	0	0	20	0	0	11	0	0	3	0
Lane Group Flow (vph)	0	141	0	0	196	0	0	21	0	0	13	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)		674			694			82			84	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.06			c0.01			0.01	
v/c Ratio		0.21			0.28			0.25			0.16	
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			0.3	
Delay (s)		4.2			4.3			6.6			6.3	
Level of Service		A			A			A			A	
Approach Delay (s)		4.2			4.3			6.6			6.3	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	4.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	13.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	4	131	16	19	167	3	25	20	24	10	32	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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			0.99			0.98			0.99	
Satd. Flow (prot)		3480			3514			1744			1791	
Flt Permitted		0.94			0.91			1.00			1.00	
Satd. Flow (perm)		3283			3217			1776			1807	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	142	17	21	182	3	27	22	26	11	35	13
RTOR Reduction (vph)	0	14	0	0	2	0	0	23	0	0	12	0
Lane Group Flow (vph)	0	149	0	0	204	0	0	52	0	0	47	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		2.7			2.7			1.4			1.4	
Effective Green, g (s)		2.7			2.7			1.4			1.4	
Actuated g/C Ratio		0.20			0.20			0.10			0.10	
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)		647			634			181			185	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.06			c0.03			0.03	
v/c Ratio		0.23			0.32			0.29			0.26	
Uniform Delay, d1		4.6			4.7			5.7			5.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			0.3			0.3	
Delay (s)		4.7			4.8			6.0			5.9	
Level of Service		A			A			A			A	
Approach Delay (s)		4.7			4.8			6.0			5.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	13.7	Sum of lost time (s)	9.6
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	188	73	173	178	12	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	204	79	188	193	13	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	537			471		
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			284		814	244
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			247		793	206
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		96	97
cM capacity (veh/h)			1280		296	810

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	284	382	34
Volume Left	0	188	13
Volume Right	79	0	21
cSH	1700	1280	485
Volume to Capacity	0.17	0.15	0.07
Queue Length 95th (ft)	0	13	6
Control Delay (s)	0.0	4.8	13.0
Lane LOS		A	B
Approach Delay (s)	0.0	4.8	13.0
Approach LOS			B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	215	17	24	182	42	59
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	234	18	26	198	46	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)	537			471		
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			252		493	243
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			241		484	232
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		91	92
cM capacity (veh/h)			1314		526	800

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	252	224	110
Volume Left	0	26	46
Volume Right	18	0	64
cSH	1700	1314	658
Volume to Capacity	0.15	0.02	0.17
Queue Length 95th (ft)	0	2	15
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	2.6		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	21	48	4	3	42	7	8	84	4	3	67	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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			1823		1770	1851		1770	1791	
Flt Permitted		0.92			0.99		0.69	1.00		0.70	1.00	
Satd. Flow (perm)		1703			1806		1292	1851		1295	1791	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	52	4	3	46	8	9	91	4	3	73	25
RTOR Reduction (vph)	0	3	0	0	6	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	76	0	0	51	0	9	94	0	3	87	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)		480			509		666	954		668	924	
v/s Ratio Prot								c0.05			0.05	
v/s Ratio Perm		c0.04			0.03		0.01			0.00		
v/c Ratio		0.16			0.10		0.01	0.10		0.00	0.09	
Uniform Delay, d1		11.2			11.0		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		0.1			0.0		0.0	0.0		0.0	0.0	
Delay (s)		11.3			11.0		4.9	5.1		4.9	5.1	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		11.3			11.0			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	0.12		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	23	81	19	9	69	11	14	78	15	27	154	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	
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)		1806			1822		1770	1818		1770	1817	
Flt Permitted		0.94			0.97		0.63	1.00		0.69	1.00	
Satd. Flow (perm)		1712			1775		1178	1818		1288	1817	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	88	21	10	75	12	15	85	16	29	167	33
RTOR Reduction (vph)	0	11	0	0	8	0	0	5	0	0	5	0
Lane Group Flow (vph)	0	123	0	0	89	0	15	96	0	29	195	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		13.1			13.1		31.2	31.2		31.2	31.2	
Effective Green, g (s)		13.1			13.1		31.2	31.2		31.2	31.2	
Actuated g/C Ratio		0.25			0.25		0.59	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)		426			441		697	1076		763	1076	
v/s Ratio Prot								0.05			c0.11	
v/s Ratio Perm		c0.07			0.05		0.01			0.02		
v/c Ratio		0.29			0.20		0.02	0.09		0.04	0.18	
Uniform Delay, d1		16.0			15.7		4.4	4.6		4.5	4.9	
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)		16.2			15.7		4.4	4.6		4.5	4.9	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		16.2			15.7			4.6			4.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	52.7	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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	8	32	2	2	14	10	3	99	9	12	92	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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			1758		1770	1839		1770	1812	
Flt Permitted		0.95			0.98		0.68	1.00		0.68	1.00	
Satd. Flow (perm)		1754			1731		1264	1839		1269	1812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	35	2	2	15	11	3	108	10	13	100	22
RTOR Reduction (vph)	0	1	0	0	8	0	0	5	0	0	12	0
Lane Group Flow (vph)	0	45	0	0	20	0	3	113	0	13	110	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		7.7			7.7		14.1	14.1		14.1	14.1	
Effective Green, g (s)		7.7			7.7		14.1	14.1		14.1	14.1	
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)		447			441		590	859		592	846	
v/s Ratio Prot								c0.06			0.06	
v/s Ratio Perm		c0.03			0.01		0.00			0.01		
v/c Ratio		0.10			0.04		0.01	0.13		0.02	0.13	
Uniform Delay, d1		8.6			8.5		4.3	4.6		4.3	4.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			0.0		0.0	0.0		0.0	0.0	
Delay (s)		8.6			8.5		4.3	4.6		4.3	4.6	
Level of Service		A			A		A	A		A	A	
Approach Delay (s)		8.6			8.5			4.6			4.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	30.2	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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	12	50	17	4	45	19	4	79	13	19	166	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		1796			1787		1770	1824		1770	1817	
Flt Permitted		0.96			0.99		0.62	1.00		0.69	1.00	
Satd. Flow (perm)		1737			1770		1162	1824		1290	1817	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	54	18	4	49	21	4	86	14	21	180	35
RTOR Reduction (vph)	0	13	0	0	15	0	0	7	0	0	12	0
Lane Group Flow (vph)	0	72	0	0	59	0	4	93	0	21	203	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			505		606	952		673	948	
v/s Ratio Prot								0.05			c0.11	
v/s Ratio Perm		c0.04			0.03		0.00			0.02		
v/c Ratio		0.15			0.12		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		0.0			0.0		0.0	0.0		0.0	0.0	
Delay (s)		11.6			11.5		5.0	5.3		5.1	5.6	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		11.6			11.5			5.2			5.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.4	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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	19	109	8	7	125	42	14	94	13	19	100	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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			0.96		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)		3482			3404		1770	1829		1770	1806	
Flt Permitted		0.92			0.95		0.67	1.00		0.68	1.00	
Satd. Flow (perm)		3211			3228		1247	1829		1271	1806	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	118	9	8	136	46	15	102	14	21	109	28
RTOR Reduction (vph)	0	5	0	0	23	0	0	8	0	0	14	0
Lane Group Flow (vph)	0	143	0	0	167	0	15	108	0	21	123	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)		1575			1583		387	568		395	561	
v/s Ratio Prot								0.06			c0.07	
v/s Ratio Perm		0.04			c0.05		0.01			0.02		
v/c Ratio		0.09			0.11		0.04	0.19		0.05	0.22	
Uniform Delay, d1		5.7			5.8		10.2	10.7		10.2	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	0.1		0.0	0.1	
Delay (s)		5.7			5.8		10.2	10.7		10.2	10.8	
Level of Service		A			A		B	B		B	B	
Approach Delay (s)		5.7			5.8			10.7			10.8	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	8.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.15		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	20	91	7	20	163	20	9	91	23	35	202	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	0.96	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3477			3469		1770	1806		1770	1788	
Flt Permitted		0.90			0.93		0.47	1.00		0.68	1.00	
Satd. Flow (perm)		3171			3240		878	1806		1262	1788	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	99	8	22	177	22	10	99	25	38	220	80
RTOR Reduction (vph)	0	4	0	0	11	0	0	14	0	0	20	0
Lane Group Flow (vph)	0	125	0	0	210	0	10	110	0	38	280	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)		1657			1693		291	598		418	592	
v/s Ratio Prot								0.06			c0.16	
v/s Ratio Perm		0.04			c0.06		0.01			0.03		
v/c Ratio		0.08			0.12		0.03	0.18		0.09	0.47	
Uniform Delay, d1		6.8			7.0		13.0	13.7		13.2	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	0.1		0.0	0.2	
Delay (s)		6.8			7.0		13.0	13.7		13.3	15.4	
Level of Service		A			A		B	B		B	B	
Approach Delay (s)		6.8			7.0			13.7			15.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.26		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	220	213	21	16	148	26	38	107	13	43	120	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	0.92	
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	1821		1770	3482		1770	3261	
Flt Permitted	0.64	1.00	1.00	0.60	1.00		0.58	1.00		0.67	1.00	
Satd. Flow (perm)	1189	1863	1583	1120	1821		1087	3482		1247	3261	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	232	23	17	161	28	41	116	14	47	130	143
RTOR Reduction (vph)	0	0	14	0	10	0	0	8	0	0	80	0
Lane Group Flow (vph)	239	232	9	17	179	0	41	122	0	47	193	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)	482	756	642	454	739		479	1535		550	1438	
v/s Ratio Prot		0.12			0.10			0.04			c0.06	
v/s Ratio Perm	c0.20		0.01	0.02			0.04			0.04		
v/c Ratio	0.50	0.31	0.01	0.04	0.24		0.09	0.08		0.09	0.13	
Uniform Delay, d1	12.5	11.4	10.1	10.2	11.1		9.2	9.2		9.2	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	0.3	0.1	0.0	0.0	0.1		0.0	0.0		0.0	0.0	
Delay (s)	12.8	11.5	10.1	10.2	11.2		9.2	9.2		9.2	9.4	
Level of Service	B	B	B	B	B		A	A		A	A	
Approach Delay (s)		12.1			11.1			9.2			9.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	8.7
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	131	196	78	24	163	47	17	98	12	40	209	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	3482		1770	3351	
Flt Permitted	0.61	1.00	1.00	0.62	1.00		0.54	1.00		0.68	1.00	
Satd. Flow (perm)	1129	1863	1583	1163	1800		1008	3482		1259	3351	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	142	213	85	26	177	51	18	107	13	43	227	125
RTOR Reduction (vph)	0	0	51	0	17	0	0	7	0	0	70	0
Lane Group Flow (vph)	142	213	34	26	211	0	18	113	0	43	282	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)	458	756	642	472	730		444	1535		555	1478	
v/s Ratio Prot		0.11			0.12			0.03			c0.08	
v/s Ratio Perm	c0.13		0.02	0.02			0.02			0.03		
v/c Ratio	0.31	0.28	0.05	0.06	0.29		0.04	0.07		0.08	0.19	
Uniform Delay, d1	11.5	11.3	10.2	10.2	11.3		9.0	9.2		9.2	9.7	
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	0.1	0.0	0.0	0.1		0.0	0.0		0.0	0.0	
Delay (s)	11.6	11.4	10.3	10.3	11.4		9.0	9.2		9.2	9.7	
Level of Service	B	B	B	B	B		A	A		A	A	
Approach Delay (s)		11.2			11.3			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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	93	118	57	77	412	59	78	236	23	40	207	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	3473		1770	3492		1770	3299	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1772		1770	3473		1770	3492		1770	3299	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	128	62	84	448	64	85	257	25	43	225	186
RTOR Reduction (vph)	0	20	0	0	13	0	0	8	0	0	141	0
Lane Group Flow (vph)	101	170	0	84	499	0	85	274	0	43	270	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	6.4	18.6		6.1	18.3		6.1	17.5		3.6	15.0	
Effective Green, g (s)	6.4	18.6		6.1	18.3		6.1	17.5		3.6	15.0	
Actuated g/C Ratio	0.10	0.30		0.10	0.29		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)	182	530		174	1022		174	982		102	796	
v/s Ratio Prot	c0.06	0.10		0.05	c0.14		c0.05	0.08		0.02	c0.08	
v/s Ratio Perm												
v/c Ratio	0.55	0.32		0.48	0.49		0.49	0.28		0.42	0.34	
Uniform Delay, d1	26.5	16.9		26.6	18.1		26.6	17.4		28.3	19.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.7		0.8	0.8		0.8	0.3		1.0	0.5	
Delay (s)	28.6	17.6		27.3	18.9		27.4	17.8		29.3	20.0	
Level of Service	C	B		C	B		C	B		C	C	
Approach Delay (s)		21.4			20.1			20.0			20.9	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	16.4
Intersection Capacity Utilization	47.6%	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)	90	195	52	64	377	49	51	225	25	42	228	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.2		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	1804		1770	3478		1770	3487		1770	3310	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1804		1770	3478		1770	3487		1770	3310	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	212	57	70	410	53	55	245	27	46	248	189
RTOR Reduction (vph)	0	10	0	0	12	0	0	10	0	0	143	0
Lane Group Flow (vph)	98	259	0	70	451	0	55	262	0	46	294	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	6.3	20.2		4.1	18.0		3.7	14.4		3.5	14.2	
Effective Green, g (s)	6.3	20.2		4.1	18.0		3.7	14.4		3.5	14.2	
Actuated g/C Ratio	0.11	0.34		0.07	0.31		0.06	0.25		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)	190	622		124	1068		112	857		106	802	
v/s Ratio Prot	c0.06	c0.14		0.04	0.13		c0.03	0.08		0.03	c0.09	
v/s Ratio Perm												
v/c Ratio	0.52	0.42		0.56	0.42		0.49	0.31		0.43	0.37	
Uniform Delay, d1	24.7	14.7		26.4	16.2		26.5	18.0		26.6	18.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.9		3.5	0.6		1.2	0.4		1.0	0.6	
Delay (s)	25.7	15.6		29.9	16.7		27.8	18.4		27.6	19.1	
Level of Service	C	B		C	B		C	B		C	B	
Approach Delay (s)		18.3			18.5			20.0			19.9	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	12.2
Intersection Capacity Utilization	45.9%	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)	141	200	197	0	0	0	0	308	61	84	632	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					3452		1770	3539	
Flt Permitted		0.98	1.00					1.00		0.52	1.00	
Satd. Flow (perm)		4982	1583					3452		961	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	153	217	214	0	0	0	0	335	66	91	687	0
RTOR Reduction (vph)	0	0	109	0	0	0	0	30	0	0	0	0
Lane Group Flow (vph)	0	370	105	0	0	0	0	371	0	91	687	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		463	1704	
v/s Ratio Prot		c0.07						0.11			c0.19	
v/s Ratio Perm			0.07							0.09		
v/c Ratio		0.21	0.19					0.22		0.20	0.40	
Uniform Delay, d1		12.3	12.1					8.1		8.0	9.0	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.1					0.0		0.1	0.1	
Delay (s)		12.3	12.2					8.2		8.1	9.1	
Level of Service		B	B					A		A	A	
Approach Delay (s)		12.3			0.0			8.2			9.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	168	290	114	0	0	0	0	505	41	72	430	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		0.40	1.00	
Satd. Flow (perm)		4994	1583					3499		754	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	315	124	0	0	0	0	549	45	78	467	0
RTOR Reduction (vph)	0	0	80	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	498	44	0	0	0	0	583	0	78	467	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		363	1704	
v/s Ratio Prot		c0.10						c0.17			0.13	
v/s Ratio Perm			0.03							0.10		
v/c Ratio		0.28	0.08					0.35		0.21	0.27	
Uniform Delay, d1		12.6	11.7					8.7		8.1	8.4	
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)		12.6	11.7					8.8		8.2	8.4	
Level of Service		B	B					A		A	A	
Approach Delay (s)		12.4			0.0			8.8			8.4	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	36	162	47	45	235	0	0	1078	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				4.2	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	0.20	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	365	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	39	176	51	49	255	0	0	1172	123
RTOR Reduction (vph)	0	0	0	0	0	41	0	0	0	0	0	53
Lane Group Flow (vph)	0	0	0	39	176	10	49	255	0	0	1172	70
Turn Type				Split		Perm	Perm					Perm
Protected Phases				6	6			8			4	
Permitted Phases						6	8					4
Actuated Green, G (s)				7.0	7.0	7.0	20.4	20.4			20.4	20.4
Effective Green, g (s)				7.0	7.0	7.0	20.4	20.4			20.4	20.4
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)				346	364	310	208	2017			2017	902
v/s Ratio Prot				0.02	c0.09			0.07			c0.33	
v/s Ratio Perm						0.01	0.13					0.04
v/c Ratio				0.11	0.48	0.03	0.24	0.13			0.58	0.08
Uniform Delay, d1				11.8	12.8	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	13.8	11.7	5.0	3.6			5.6	3.5
Level of Service				B	B	B	A	A			A	A
Approach Delay (s)		0.0			13.1			3.9			5.4	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	35.8	Sum of lost time (s)	8.4
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	42	137	104	15	1045	0	0	445	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)				4.2	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	0.48	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	887	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	46	149	113	16	1136	0	0	484	36
RTOR Reduction (vph)	0	0	0	0	0	41	0	0	0	0	0	15
Lane Group Flow (vph)	0	0	0	46	149	72	16	1136	0	0	484	21
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	20.3	20.3			20.3	20.3
Effective Green, g (s)				6.7	6.7	6.7	20.3	20.3			20.3	20.3
Actuated g/C Ratio				0.19	0.19	0.19	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)				335	353	300	509	2029			2029	908
v/s Ratio Prot				0.03	c0.08			c0.32			0.14	
v/s Ratio Perm						0.05	0.02					0.01
v/c Ratio				0.14	0.42	0.24	0.03	0.56			0.24	0.02
Uniform Delay, d1				11.9	12.6	12.2	3.3	4.7			3.7	3.3
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2				0.2	0.8	0.4	0.1	0.6			0.1	0.0
Delay (s)				12.1	13.5	12.6	3.3	5.3			3.9	3.3
Level of Service				B	B	B	A	A			A	A
Approach Delay (s)		0.0			13.0			5.3			3.8	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	35.4	Sum of lost time (s)	8.4
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	40	171	47	69	230	89	34	219	22	98	1102	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	3488	
Flt Permitted	0.55	1.00	1.00	0.64	1.00	1.00	0.13	1.00		0.59	1.00	
Satd. Flow (perm)	1025	1863	1583	1193	1863	1583	247	3491		1099	3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	186	51	75	250	97	37	238	24	107	1198	127
RTOR Reduction (vph)	0	0	32	0	0	65	0	12	0	0	13	0
Lane Group Flow (vph)	43	186	19	75	250	32	37	250	0	107	1312	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)	336	610	519	391	610	519	129	1818		572	1816	
v/s Ratio Prot		0.10			c0.13			0.07			c0.38	
v/s Ratio Perm	0.04		0.01	0.06		0.02	0.15			0.10		
v/c Ratio	0.13	0.30	0.04	0.19	0.41	0.06	0.29	0.14		0.19	0.72	
Uniform Delay, d1	13.7	14.6	13.3	14.0	15.1	13.4	7.8	7.2		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)	13.7	14.7	13.3	14.1	15.3	13.4	8.3	7.2		7.4	11.9	
Level of Service	B	B	B	B	B	B	A	A		A	B	
Approach Delay (s)		14.3			14.7			7.3			11.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	124	246	36	51	211	113	35	995	69	66	363	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)	4.6	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	3505		1770	3475	
Flt Permitted	0.58	1.00	1.00	0.53	1.00	1.00	0.49	1.00		0.16	1.00	
Satd. Flow (perm)	1081	1863	1583	980	1863	1583	917	3505		305	3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	267	39	55	229	123	38	1082	75	72	395	54
RTOR Reduction (vph)	0	0	26	0	0	44	0	8	0	0	18	0
Lane Group Flow (vph)	135	267	13	55	229	79	38	1149	0	72	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)	354	610	519	321	610	519	477	1825		159	1809	
v/s Ratio Prot		c0.14			0.12			c0.33			0.12	
v/s Ratio Perm	0.12		0.01	0.06		0.05	0.04			0.24		
v/c Ratio	0.38	0.44	0.02	0.17	0.38	0.15	0.08	0.63		0.45	0.24	
Uniform Delay, d1	15.0	15.3	13.2	13.9	15.0	13.8	7.0	9.9		8.7	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	0.3	0.2	0.0	0.1	0.1	0.1	0.0	0.5		0.7	0.0	
Delay (s)	15.2	15.5	13.2	14.0	15.1	13.9	7.0	10.4		9.5	7.6	
Level of Service	B	B	B	B	B	B	A	B		A	A	
Approach Delay (s)		15.2			14.6			10.3			7.9	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	97.7%	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)	33	86	42	0	0	0	23	313	46	185	1280	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	3475	
Flt Permitted		0.99	1.00				0.13	1.00		0.52	1.00	
Satd. Flow (perm)		1837	1583				243	3471		971	3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	93	46	0	0	0	25	340	50	201	1391	190
RTOR Reduction (vph)	0	0	16	0	0	0	0	11	0	0	10	0
Lane Group Flow (vph)	0	129	30	0	0	0	25	379	0	201	1571	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				30.6	30.6		30.6	30.6	
Effective Green, g (s)		6.2	6.2				30.6	30.6		30.6	30.6	
Actuated g/C Ratio		0.13	0.13				0.67	0.67		0.67	0.67	
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)		248	213				162	2309		646	2312	
v/s Ratio Prot		c0.07						0.11			c0.45	
v/s Ratio Perm			0.02				0.10			0.21		
v/c Ratio		0.52	0.14				0.15	0.16		0.31	0.68	
Uniform Delay, d1		18.5	17.5				2.9	2.9		3.3	4.7	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9	0.1				0.6	0.0		0.4	0.9	
Delay (s)		19.4	17.7				3.5	2.9		3.6	5.6	
Level of Service		B	B				A	A		A	A	
Approach Delay (s)		19.0			0.0			3.0			5.4	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	82	149	22	0	0	0	25	1020	91	153	585	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	3496		1770	3481	
Flt Permitted		0.98	1.00				0.37	1.00		0.19	1.00	
Satd. Flow (perm)		1830	1583				697	3496		349	3481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	162	24	0	0	0	27	1109	99	166	636	78
RTOR Reduction (vph)	0	0	19	0	0	0	0	7	0	0	10	0
Lane Group Flow (vph)	0	251	5	0	0	0	27	1201	0	166	704	0
Turn Type	Split		Perm				Perm			Perm		
Protected Phases	4	4						2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)		10.1	10.1				30.5	30.5		30.5	30.5	
Effective Green, g (s)		10.1	10.1				30.5	30.5		30.5	30.5	
Actuated g/C Ratio		0.20	0.20				0.61	0.61		0.61	0.61	
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)		371	321				427	2141		214	2132	
v/s Ratio Prot		c0.14						0.34			0.20	
v/s Ratio Perm			0.00				0.04			c0.48		
v/c Ratio		0.68	0.02				0.06	0.56		0.78	0.33	
Uniform Delay, d1		18.3	15.9				3.9	5.7		7.1	4.7	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.8	0.0				0.1	0.4		17.1	0.1	
Delay (s)		22.2	15.9				4.0	6.1		24.2	4.8	
Level of Service		C	B				A	A		C	A	
Approach Delay (s)		21.6			0.0			6.1			8.5	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	9.2
Intersection Capacity Utilization	63.4%	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	942	0	346	677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.1		4.1	4.6	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		2787		3539	3539	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		2787		3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1024	0	376	736	0
RTOR Reduction (vph)	0	551	0	0	0	0
Lane Group Flow (vph)	0	473	0	376	736	0
Turn Type		custom				
Protected Phases				6	4	
Permitted Phases		7				
Actuated Green, G (s)		16.4		10.9	15.9	
Effective Green, g (s)		16.4		10.9	15.9	
Actuated g/C Ratio		0.46		0.31	0.45	
Clearance Time (s)		4.1		4.1	4.6	
Vehicle Extension (s)		1.2		3.0	4.0	
Lane Grp Cap (vph)		1288		1087	1585	
v/s Ratio Prot				c0.11	c0.21	
v/s Ratio Perm		0.17				
v/c Ratio		0.37		0.35	0.46	
Uniform Delay, d1		6.2		9.5	6.8	
Progression Factor		1.00		1.00	1.00	
Incremental Delay, d2		0.1		0.2	0.3	
Delay (s)		6.3		9.7	7.1	
Level of Service		A		A	A	
Approach Delay (s)	6.3			9.7	7.1	
Approach LOS	A			A	A	

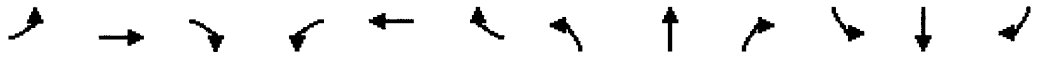
Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	35.5	Sum of lost time (s)	8.7
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	0	314	0	1103	509	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)		4.1		4.1	4.6	
Lane Util. Factor		0.88		0.95	0.95	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		2787		3539	3539	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		2787		3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	341	0	1199	553	0
RTOR Reduction (vph)	0	225	0	0	0	0
Lane Group Flow (vph)	0	116	0	1199	553	0
Turn Type		custom				
Protected Phases				6	4	
Permitted Phases		7				
Actuated Green, G (s)		14.9		20.8	14.4	
Effective Green, g (s)		14.9		20.8	14.4	
Actuated g/C Ratio		0.34		0.47	0.33	
Clearance Time (s)		4.1		4.1	4.6	
Vehicle Extension (s)		1.2		3.0	4.0	
Lane Grp Cap (vph)		946		1677	1161	
v/s Ratio Prot				c0.34	c0.16	
v/s Ratio Perm		0.04				
v/c Ratio		0.12		0.71	0.48	
Uniform Delay, d1		10.0		9.2	11.7	
Progression Factor		1.00		1.00	1.00	
Incremental Delay, d2		0.0		1.5	0.4	
Delay (s)		10.0		10.7	12.2	
Level of Service		B		B	B	
Approach Delay (s)	10.0			10.7	12.2	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	43.9	Sum of lost time (s)	8.7
Intersection Capacity Utilization	33.9%	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)	0	535	5	0	312	0	0	0	0	475	960	896
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		3535			3539					1610	3382	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3535			3539					1610	3382	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	582	5	0	339	0	0	0	0	516	1043	974
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	201
Lane Group Flow (vph)	0	586	0	0	339	0	0	0	0	464	1095	773
Turn Type	Perm									Perm		Perm
Protected Phases		4			8						2	
Permitted Phases	4									2		2
Actuated Green, G (s)		11.7			11.7					16.1	16.1	16.1
Effective Green, g (s)		11.7			11.7					16.1	16.1	16.1
Actuated g/C Ratio		0.33			0.33					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)		1155			1157					724	1521	712
v/s Ratio Prot		c0.17			0.10							
v/s Ratio Perm										0.29	0.32	c0.49
v/c Ratio		0.51			0.29					0.64	0.72	1.09
Uniform Delay, d1		9.7			9.0					7.6	8.0	9.8
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.4			0.1					1.9	1.7	59.4
Delay (s)		10.1			9.1					9.6	9.7	69.3
Level of Service		B			A					A	A	E
Approach Delay (s)		10.1			9.1			0.0			32.6	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	35.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.8%	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	1080	10	0	276	0	0	0	0	594	308	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1174	11	0	300	0	0	0	0	646	335	367
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	227
Lane Group Flow (vph)	0	1183	0	0	300	0	0	0	0	323	658	140
Turn Type										Perm		Perm
Protected Phases		4			8						2	
Permitted Phases										2		2
Actuated Green, G (s)		15.6			15.6					14.5	14.5	14.5
Effective Green, g (s)		15.6			15.6					14.5	14.5	14.5
Actuated g/C Ratio		0.41			0.41					0.38	0.38	0.38
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)		1447			1449					613	1259	602
v/s Ratio Prot		c0.33			0.08							
v/s Ratio Perm										c0.20	0.20	0.09
v/c Ratio		0.82			0.21					0.53	0.52	0.23
Uniform Delay, d1		10.0			7.3					9.1	9.1	8.0
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		3.7			0.1					0.8	0.4	0.2
Delay (s)		13.7			7.3					10.0	9.5	8.2
Level of Service		B			A					A	A	A
Approach Delay (s)		13.7			7.3			0.0			9.3	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	38.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑	↰	↱
Volume (vph)	143	184	0	447	232	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.1	4.1		4.1	4.1	4.1
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3539	1583		3539	1770	1583
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3539	1583		3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	155	200	0	486	252	201
RTOR Reduction (vph)	0	130	0	0	0	99
Lane Group Flow (vph)	155	70	0	486	252	102
Turn Type		Perm				Perm
Protected Phases	6			6	8	
Permitted Phases		6				8
Actuated Green, G (s)	20.4	20.4		20.4	29.5	29.5
Effective Green, g (s)	20.4	20.4		20.4	29.5	29.5
Actuated g/C Ratio	0.35	0.35		0.35	0.51	0.51
Clearance Time (s)	4.1	4.1		4.1	4.1	4.1
Vehicle Extension (s)	3.0	3.0		3.0	0.2	0.2
Lane Grp Cap (vph)	1243	556		1243	899	804
v/s Ratio Prot	0.04			c0.14	c0.14	
v/s Ratio Perm		0.04				0.06
v/c Ratio	0.12	0.13		0.39	0.28	0.13
Uniform Delay, d1	12.8	12.8		14.2	8.2	7.5
Progression Factor	1.00	1.00		0.60	1.00	1.00
Incremental Delay, d2	0.0	0.1		0.1	0.1	0.0
Delay (s)	12.8	12.9		8.6	8.3	7.6
Level of Service	B	B		A	A	A
Approach Delay (s)	12.9			8.6	8.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	8.2
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑	↰	↱
Volume (vph)	404	766	0	371	137	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	4.1	4.1		4.1	4.1	4.1
Lane Util. Factor	0.95	1.00		0.95	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3539	1583		3539	1770	1583
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3539	1583		3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	439	833	0	403	149	332
RTOR Reduction (vph)	0	524	0	0	0	81
Lane Group Flow (vph)	439	309	0	403	149	251
Turn Type		Perm				Perm
Protected Phases	6			6	8	
Permitted Phases		6				8
Actuated Green, G (s)	21.2	21.2		21.2	27.7	27.7
Effective Green, g (s)	21.2	21.2		21.2	27.7	27.7
Actuated g/C Ratio	0.37	0.37		0.37	0.49	0.49
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)	1314	588		1314	859	768
v/s Ratio Prot	0.12			0.11	0.08	
v/s Ratio Perm		c0.20				c0.16
v/c Ratio	0.33	0.53		0.31	0.17	0.33
Uniform Delay, d1	12.9	14.0		12.7	8.3	9.0
Progression Factor	1.00	1.00		0.56	1.00	1.00
Incremental Delay, d2	0.2	0.9		0.1	0.0	0.1
Delay (s)	13.0	14.9		7.2	8.3	9.1
Level of Service	B	B		A	A	A
Approach Delay (s)	14.2			7.2	8.8	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	8.2
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	422	569	359	581	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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	459	618	390	632	0	0
RTOR Reduction (vph)	0	0	0	421	0	0
Lane Group Flow (vph)	459	618	390	211	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	6.4	29.5	19.4	19.4		
Effective Green, g (s)	6.4	29.5	19.4	19.4		
Actuated g/C Ratio	0.11	0.51	0.33	0.33		
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)	214	1977	1300	582		
v/s Ratio Prot	c0.24	0.16	0.10			
v/s Ratio Perm				c0.12		
v/c Ratio	2.14	0.31	0.30	0.36		
Uniform Delay, d1	25.8	8.4	14.3	14.7		
Progression Factor	1.00	1.00	1.22	3.66		
Incremental Delay, d2	530.5	0.0	0.2	0.5		
Delay (s)	556.3	8.4	17.6	54.1		
Level of Service	F	A	B	D		
Approach Delay (s)		241.9	40.2		0.0	
Approach LOS		F	D		A	

Intersection Summary			
HCM Average Control Delay	143.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	32.3
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	741	823	285	569	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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	805	895	310	618	0	0
RTOR Reduction (vph)	0	0	0	428	0	0
Lane Group Flow (vph)	805	895	310	190	0	0
Turn Type	Prot			Perm		
Protected Phases	3	8	4			
Permitted Phases				4		
Actuated Green, G (s)	6.4	27.7	17.6	17.6		
Effective Green, g (s)	6.4	27.7	17.6	17.6		
Actuated g/C Ratio	0.11	0.49	0.31	0.31		
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)	218	1889	1200	537		
v/s Ratio Prot	c0.41	c0.23	0.08			
v/s Ratio Perm				0.11		
v/c Ratio	3.69	0.47	0.26	0.35		
Uniform Delay, d1	25.4	9.8	14.8	15.3		
Progression Factor	1.00	1.00	1.19	3.20		
Incremental Delay, d2	1222.9	0.1	0.2	0.5		
Delay (s)	1248.3	9.9	17.8	49.6		
Level of Service	F	A	B	D		
Approach Delay (s)		596.3	39.0		0.0	
Approach LOS		F	D		A	

Intersection Summary			
HCM Average Control Delay	399.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	29.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	646	96	102	771	57	424	300	30	203	310	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	3503		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	3503		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	702	104	111	838	62	461	326	33	221	337	196
RTOR Reduction (vph)	0	0	66	0	8	0	0	0	27	0	0	176
Lane Group Flow (vph)	124	702	38	111	892	0	461	326	6	221	337	20
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)	5.3	23.5	23.5	5.2	23.1		11.2	11.8	11.8	6.1	6.4	6.4
Effective Green, g (s)	5.3	23.5	23.5	5.2	23.1		11.2	11.8	11.8	6.1	6.4	6.4
Actuated g/C Ratio	0.08	0.37	0.37	0.08	0.36		0.18	0.18	0.18	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)	285	1304	583	280	1268		603	655	293	328	355	159
v/s Ratio Prot	c0.04	0.20		0.03	c0.25		c0.13	0.09		0.06	c0.10	
v/s Ratio Perm			0.02						0.00			0.01
v/c Ratio	0.44	0.54	0.07	0.40	0.70		0.76	0.50	0.02	0.67	0.95	0.12
Uniform Delay, d1	27.8	15.9	13.0	27.8	17.4		25.0	23.3	21.3	27.9	28.5	26.1
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	0.4	0.8	0.1	0.3	2.3		5.2	1.2	0.1	4.3	35.2	0.8
Delay (s)	28.2	16.7	13.1	28.1	19.8		30.2	24.6	21.3	32.1	63.8	26.9
Level of Service	C	B	B	C	B		C	C	C	C	E	C
Approach Delay (s)		17.8			20.7			27.6			44.9	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	63.8	Sum of lost time (s)	17.8
Intersection Capacity Utilization	62.0%	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)	397	925	190	110	627	92	380	452	52	259	355	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	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	3471		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	3471		3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	432	1005	207	120	682	100	413	491	57	282	386	97
RTOR Reduction (vph)	0	0	92	0	17	0	0	0	46	0	0	87
Lane Group Flow (vph)	432	1005	115	120	765	0	413	491	11	282	386	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	26.0	26.0	5.5	23.2		11.0	12.4	12.4	6.0	7.1	7.1
Effective Green, g (s)	8.0	26.0	26.0	5.5	23.2		11.0	12.4	12.4	6.0	7.1	7.1
Actuated g/C Ratio	0.12	0.39	0.39	0.08	0.35		0.16	0.18	0.18	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)	409	1371	613	281	1200		563	654	293	307	374	168
v/s Ratio Prot	c0.13	c0.28		0.03	0.22		c0.12	c0.14		c0.08	0.11	
v/s Ratio Perm			0.07						0.01			0.01
v/c Ratio	1.06	0.73	0.19	0.43	0.64		0.73	0.75	0.04	0.92	1.03	0.06
Uniform Delay, d1	29.6	17.6	13.6	29.3	18.4		26.7	25.9	22.4	30.3	30.0	27.0
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	60.1	2.5	0.3	0.4	1.6		4.3	5.8	0.1	30.3	55.0	0.3
Delay (s)	89.7	20.1	13.9	29.7	20.0		30.9	31.6	22.6	60.6	85.0	27.3
Level of Service	F	C	B	C	C		C	C	C	E	F	C
Approach Delay (s)		37.6			21.3			30.8			68.7	
Approach LOS		D			C			C			E	

Intersection Summary			
HCM Average Control Delay	38.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	329	4	28	92	25	7	31	10	91	12	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		3533			1802			1797			1726	
Flt Permitted		1.00			0.90			0.96			0.81	
Satd. Flow (perm)		3533			1640			1730			1430	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	358	4	30	100	27	8	34	11	99	13	59
RTOR Reduction (vph)	0	1	0	0	12	0	0	7	0	0	29	0
Lane Group Flow (vph)	0	361	0	0	145	0	0	46	0	0	142	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			14.0			14.0	
Effective Green, g (s)		19.3			19.3			14.0			14.0	
Actuated g/C Ratio		0.46			0.46			0.33			0.33	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		1612			748			573			473	
v/s Ratio Prot		c0.10										
v/s Ratio Perm					0.09			0.03			c0.10	
v/c Ratio		0.22			0.19			0.08			0.30	
Uniform Delay, d1		7.0			6.9			9.7			10.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.0			0.0			0.1	
Delay (s)		7.0			6.9			9.7			10.6	
Level of Service		A			A			A			B	
Approach Delay (s)		7.0			6.9			9.7			10.6	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	42.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	32	275	9	23	199	141	55	82	24	31	5	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	4.5			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	3522			1760			1795			1681	
Flt Permitted	0.53	1.00			0.97			0.87			0.87	
Satd. Flow (perm)	989	3522			1710			1595			1490	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	299	10	25	216	153	60	89	26	34	5	61
RTOR Reduction (vph)	0	4	0	0	36	0	0	9	0	0	41	0
Lane Group Flow (vph)	35	305	0	0	358	0	0	166	0	0	59	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)	451	1607			780			528			493	
v/s Ratio Prot		0.09										
v/s Ratio Perm	0.04				c0.21			c0.10			0.04	
v/c Ratio	0.08	0.19			0.46			0.31			0.12	
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			0.2			0.1			0.0	
Delay (s)	6.5	6.9			8.1			10.7			9.9	
Level of Service	A	A			A			B			A	
Approach Delay (s)		6.8			8.1			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	0.40		
Actuated Cycle Length (s)	42.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	60	23	11	44	27	43	12	430	34	102	478	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)	4.0	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	1690		1770	3500		1770	3482	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.43	1.00		0.47	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1690		805	3500		870	3482	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	25	12	48	29	47	13	467	37	111	520	63
RTOR Reduction (vph)	0	0	11	0	43	0	0	9	0	0	14	0
Lane Group Flow (vph)	65	25	1	48	33	0	13	495	0	111	569	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)	3.1	4.9	4.9	2.0	3.8		20.7	20.7		20.7	20.7	
Effective Green, g (s)	3.1	4.9	4.9	2.0	3.8		20.7	20.7		20.7	20.7	
Actuated g/C Ratio	0.08	0.12	0.12	0.05	0.10		0.52	0.52		0.52	0.52	
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)	137	228	194	89	161		417	1811		450	1802	
v/s Ratio Prot	c0.04	0.01		0.03	c0.02			0.14			c0.16	
v/s Ratio Perm			0.00				0.02			0.13		
v/c Ratio	0.47	0.11	0.01	0.54	0.21		0.03	0.27		0.25	0.32	
Uniform Delay, d1	17.7	15.6	15.4	18.6	16.7		4.7	5.4		5.3	5.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.1	0.0	3.1	0.2		0.1	0.2		0.8	0.3	
Delay (s)	18.6	15.7	15.4	21.7	16.9		4.8	5.7		6.1	5.9	
Level of Service	B	B	B	C	B		A	A		A	A	
Approach Delay (s)		17.5			18.8			5.6			5.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	154	108	27	107	98	84	15	476	55	114	450	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1734		1770	3484		1770	3428	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.39	1.00		0.42	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1734		735	3484		781	3428	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	117	29	116	107	91	16	517	60	124	489	129
RTOR Reduction (vph)	0	0	25	0	57	0	0	14	0	0	37	0
Lane Group Flow (vph)	167	117	4	116	141	0	16	563	0	124	581	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)	5.5	7.0	7.0	5.2	6.7		22.3	22.3		22.3	22.3	
Effective Green, g (s)	5.5	7.0	7.0	5.2	6.7		22.3	22.3		22.3	22.3	
Actuated g/C Ratio	0.12	0.15	0.15	0.11	0.14		0.48	0.48		0.48	0.48	
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)	208	278	236	196	248		349	1657		371	1630	
v/s Ratio Prot	c0.09	0.06		0.07	c0.08			0.16			c0.17	
v/s Ratio Perm			0.00				0.02			0.16		
v/c Ratio	0.80	0.42	0.02	0.59	0.57		0.05	0.34		0.33	0.36	
Uniform Delay, d1	20.2	18.1	17.0	19.8	18.8		6.6	7.7		7.7	7.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.6	0.4	0.0	3.2	2.0		0.2	0.3		1.5	0.4	
Delay (s)	38.8	18.5	17.0	23.0	20.7		6.7	8.0		9.2	8.1	
Level of Service	D	B	B	C	C		A	A		A	A	
Approach Delay (s)		29.2			21.6			8.0			8.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	46.9	Sum of lost time (s)	12.4
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	540	129	318	0	0	0	0	457	70	41	316	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	587	140	346	0	0	0	0	497	76	45	343	0
RTOR Reduction (vph)	0	0	191	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	587	140	155	0	0	0	0	555	0	45	343	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	28.6	28.6	28.6					16.7		3.3	25.2	
Effective Green, g (s)	28.6	28.6	28.6					16.7		3.3	25.2	
Actuated g/C Ratio	0.45	0.45	0.45					0.26		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)	795	836	711					909		92	1400	
v/s Ratio Prot	c0.33	0.08						c0.16		c0.03	0.10	
v/s Ratio Perm			0.10									
v/c Ratio	0.74	0.17	0.22					0.61		0.49	0.24	
Uniform Delay, d1	14.5	10.5	10.7					20.6		29.4	12.9	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	5.1	0.3	0.5					0.9		1.5	0.0	
Delay (s)	19.5	10.7	11.2					21.5		30.9	12.9	
Level of Service	B	B	B					C		C	B	
Approach Delay (s)		15.7			0.0			21.5			15.0	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	63.7	Sum of lost time (s)	15.1
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	155	197	219	0	0	0	0	602	110	227	461	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	214	238	0	0	0	0	654	120	247	501	0
RTOR Reduction (vph)	0	0	161	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	168	214	77	0	0	0	0	754	0	247	501	0
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	19.0	19.0	19.0					18.1		6.2	29.5	
Effective Green, g (s)	19.0	19.0	19.0					18.1		6.2	29.5	
Actuated g/C Ratio	0.33	0.33	0.33					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)	576	606	515					1071		188	1788	
v/s Ratio Prot	0.09	c0.11						c0.22		c0.14	0.14	
v/s Ratio Perm			0.05									
v/c Ratio	0.29	0.35	0.15					0.70		1.31	0.28	
Uniform Delay, d1	14.7	15.0	14.0					17.8		26.1	8.3	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	0.8	1.1	0.4					1.7		173.8	0.0	
Delay (s)	15.5	16.1	14.4					19.5		199.9	8.4	
Level of Service	B	B	B					B		F	A	
Approach Delay (s)		15.3			0.0			19.5			71.6	
Approach LOS		B			A			B			E	

Intersection Summary			
HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	15.1
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	100	171	441	195	799	0	0	280	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	109	186	479	212	868	0	0	304	145
RTOR Reduction (vph)	0	0	0	0	0	57	0	0	0	0	0	110
Lane Group Flow (vph)	0	0	0	0	295	422	212	868	0	0	304	35
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					25.7	25.7	10.9	30.8			16.2	16.2
Effective Green, g (s)					25.7	25.7	10.9	30.8			16.2	16.2
Actuated g/C Ratio					0.38	0.38	0.16	0.46			0.24	0.24
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)					1331	606	288	1624			854	382
v/s Ratio Prot					0.08		c0.12	c0.25			0.09	
v/s Ratio Perm						c0.27						0.02
v/c Ratio					0.22	0.70	0.74	0.53			0.36	0.09
Uniform Delay, d1					14.0	17.4	26.7	13.0			21.1	19.7
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	4.4	8.2	0.2			0.1	0.0
Delay (s)					14.1	21.8	34.9	13.2			21.2	19.8
Level of Service					B	C	C	B			C	B
Approach Delay (s)		0.0			18.9			17.4			20.8	
Approach LOS		A			B			B			C	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	14.3
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	104	118	184	335	391	0	0	597	577
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	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)					3458	1583	1770	3539			3539	1583
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					3458	1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	113	128	200	364	425	0	0	649	627
RTOR Reduction (vph)	0	0	0	0	0	155	0	0	0	0	0	389
Lane Group Flow (vph)	0	0	0	0	241	45	364	425	0	0	649	238
Turn Type				Split		Perm	Prot					Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)					12.3	12.3	11.5	32.3			17.1	17.1
Effective Green, g (s)					12.3	12.3	11.5	32.3			17.1	17.1
Actuated g/C Ratio					0.22	0.22	0.21	0.59			0.31	0.31
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)					771	353	369	2071			1096	490
v/s Ratio Prot					c0.07		c0.21	0.12			c0.18	
v/s Ratio Perm						0.03						0.15
v/c Ratio					0.31	0.13	0.99	0.21			0.59	0.49
Uniform Delay, d1					17.9	17.2	21.8	5.4			16.1	15.5
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.5	0.3	42.7	0.0			0.6	0.3
Delay (s)					18.4	17.5	64.5	5.4			16.7	15.8
Level of Service					B	B	E	A			B	B
Approach Delay (s)		0.0			18.0			32.7			16.2	
Approach LOS		A			B			C			B	

Intersection Summary			
HCM Average Control Delay	21.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	14.3
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	36	106	49	21	104	32	0	952	26	0	284	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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			3525			3539	1583
Flt Permitted	0.70	1.00	1.00		0.90			1.00			1.00	1.00
Satd. Flow (perm)	1307	3539	1583		3078			3525			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	115	53	23	113	35	0	1035	28	0	309	26
RTOR Reduction (vph)	0	0	46	0	31	0	0	2	0	0	0	8
Lane Group Flow (vph)	39	115	7	0	140	0	0	1061	0	0	309	18
Turn Type	Perm		Perm	Perm								Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4								2
Actuated Green, G (s)	5.7	5.7	5.7		5.7			31.2			31.2	31.2
Effective Green, g (s)	5.7	5.7	5.7		5.7			31.2			31.2	31.2
Actuated g/C Ratio	0.12	0.12	0.12		0.12			0.68			0.68	0.68
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)	163	442	198		385			2412			2421	1083
v/s Ratio Prot		0.03						c0.30			0.09	
v/s Ratio Perm	0.03		0.00		c0.05							0.01
v/c Ratio	0.24	0.26	0.03		0.36			0.44			0.13	0.02
Uniform Delay, d1	18.0	18.0	17.5		18.3			3.3			2.5	2.3
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2	0.3	0.1	0.0		0.2			0.3			0.1	0.0
Delay (s)	18.3	18.2	17.6		18.5			3.5			2.5	2.3
Level of Service	B	B	B		B			A			A	A
Approach Delay (s)		18.0			18.5			3.5			2.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.6	Sum of lost time (s)	8.7
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	23	78	57	65	162	33	0	402	20	0	809	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	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		3429			3514			3539	1583
Flt Permitted	0.58	1.00	1.00		0.86			1.00			1.00	1.00
Satd. Flow (perm)	1077	3539	1583		2975			3514			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	85	62	71	176	36	0	437	22	0	879	51
RTOR Reduction (vph)	0	0	50	0	23	0	0	4	0	0	0	19
Lane Group Flow (vph)	25	85	12	0	260	0	0	455	0	0	879	32
Turn Type	Perm		Perm	Perm								Perm
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4								2
Actuated Green, G (s)	9.3	9.3	9.3		9.3			30.3			30.3	30.3
Effective Green, g (s)	9.3	9.3	9.3		9.3			30.3			30.3	30.3
Actuated g/C Ratio	0.19	0.19	0.19		0.19			0.63			0.63	0.63
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)	207	681	305		573			2204			2220	993
v/s Ratio Prot		0.02						0.13			c0.25	
v/s Ratio Perm	0.02		0.01		c0.09							0.02
v/c Ratio	0.12	0.12	0.04		0.45			0.21			0.40	0.03
Uniform Delay, d1	16.1	16.1	15.9		17.3			3.9			4.5	3.4
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)	16.2	16.2	15.9		17.5			4.0			4.7	3.5
Level of Service	B	B	B		B			A			A	A
Approach Delay (s)		16.1			17.5			4.0			4.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	8.7
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	61	25	21	13	1	3	34	79	427	89	98	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	15	12	12	12	12	12	12	12
Total Lost time (s)	4.8	4.8			4.8	4.8			4.8		4.8	4.8
Lane Util. Factor	1.00	1.00			1.00	1.00			0.95		1.00	1.00
Frt	1.00	0.93			1.00	0.86			0.98		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.99		0.95	1.00
Satd. Flow (prot)	1770	1734			1947	1604			3437		1770	1863
Flt Permitted	1.00	1.00			1.00	1.00			0.88		0.50	1.00
Satd. Flow (perm)	1863	1734			2049	1604			3031		931	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	27	23	14	1	3	37	86	464	97	107	224
RTOR Reduction (vph)	0	0	0	0	0	33	0	0	26	0	0	0
Lane Group Flow (vph)	66	50	0	0	15	7	0	0	621	0	107	224
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			8.0		8.0	8.0
Effective Green, g (s)	2.3	2.3			2.3	2.3			8.0		8.0	8.0
Actuated g/C Ratio	0.12	0.12			0.12	0.12			0.40		0.40	0.40
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)	215	200			237	185			1218		374	749
v/s Ratio Prot		0.03				0.00						0.12
v/s Ratio Perm	c0.04				0.01				c0.21		0.11	
v/c Ratio	0.31	0.25			0.06	0.04			0.51		0.29	0.30
Uniform Delay, d1	8.1	8.0			7.8	7.8			4.5		4.0	4.0
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			0.2		0.2	0.1
Delay (s)	8.4	8.3			7.9	7.9			4.6		4.2	4.1
Level of Service	A	A			A	A			A		A	A
Approach Delay (s)		8.3				7.9			4.6			4.1
Approach LOS		A				A			A			A

Intersection Summary			
HCM Average Control Delay	4.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	19.9	Sum of lost time (s)	9.6
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Volume (vph)	5	51
Ideal Flow (vphpl)	1900	1900
Lane Width	15	12
Total Lost time (s)	4.8	
Lane Util. Factor	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1742	
Flt Permitted	1.00	
Satd. Flow (perm)	1742	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	5	55
RTOR Reduction (vph)	33	0
Lane Group Flow (vph)	27	0
Turn Type	Perm	
Protected Phases		
Permitted Phases	2	
Actuated Green, G (s)	8.0	
Effective Green, g (s)	8.0	
Actuated g/C Ratio	0.40	
Clearance Time (s)	4.8	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	700	
v/s Ratio Prot		
v/s Ratio Perm	0.02	
v/c Ratio	0.04	
Uniform Delay, d1	3.6	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	3.6	
Level of Service	A	
Approach Delay (s)		
Approach LOS		

Intersection Summary

Movement	SEL	SET	SER	NWL2	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	75	9	69	97	3	15	173	12	365	22	74	562
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	0.86			0.99		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00			1.00		0.95	1.00
Satd. Flow (prot)	1770	1616			1947	1605			3505		1770	1863
Flt Permitted	0.98	1.00			0.98	1.00			0.93		0.50	1.00
Satd. Flow (perm)	1817	1616			1999	1605			3282		931	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	10	75	105	3	16	188	13	397	24	80	611
RTOR Reduction (vph)	0	0	0	0	0	162	0	0	6	0	0	0
Lane Group Flow (vph)	82	85	0	0	108	42	0	0	428	0	80	611
Turn Type	Perm			Perm	Perm			Perm			Perm	
Protected Phases		4				4			2			2
Permitted Phases	4			4	4			2			2	
Actuated Green, G (s)	4.1	4.1			4.1	4.1			16.0		16.0	16.0
Effective Green, g (s)	4.1	4.1			4.1	4.1			16.0		16.0	16.0
Actuated g/C Ratio	0.14	0.14			0.14	0.14			0.54		0.54	0.54
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)	251	223			276	222			1768		502	1004
v/s Ratio Prot		0.05				0.03						c0.33
v/s Ratio Perm	0.05				c0.05				0.13		0.09	
v/c Ratio	0.33	0.38			0.39	0.19			0.24		0.16	0.61
Uniform Delay, d1	11.6	11.6			11.7	11.3			3.6		3.5	4.7
Progression Factor	1.00	1.00			1.00	1.00			1.00		1.00	1.00
Incremental Delay, d2	0.3	0.4			0.3	0.2			0.0		0.1	0.7
Delay (s)	11.8	12.0			12.0	11.5			3.7		3.5	5.4
Level of Service	B	B			B	B			A		A	A
Approach Delay (s)		11.9				11.7			3.7			5.0
Approach LOS		B				B			A			A

Intersection Summary			
HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	29.7	Sum of lost time (s)	9.6
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Volume (vph)	4	55
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	60
RTOR Reduction (vph)	28	0
Lane Group Flow (vph)	36	0
Turn Type	Perm	
Protected Phases		
Permitted Phases	2	
Actuated Green, G (s)	16.0	
Effective Green, g (s)	16.0	
Actuated g/C Ratio	0.54	
Clearance Time (s)	4.8	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	938	
v/s Ratio Prot		
v/s Ratio Perm	0.02	
v/c Ratio	0.04	
Uniform Delay, d1	3.2	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	3.2	
Level of Service	A	
Approach Delay (s)		
Approach LOS		

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	75	166	104	108	278	200	135	445	101	69	233	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	0.94		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	1755		1770	3317		1770	3441		1770	3427	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1755		1770	3317		1770	3441		1770	3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	180	113	117	302	217	147	484	110	75	253	68
RTOR Reduction (vph)	0	23	0	0	136	0	0	19	0	0	26	0
Lane Group Flow (vph)	82	270	0	117	383	0	147	575	0	75	295	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	7.0	18.1		8.5	19.6		11.8	24.1		7.0	19.3	
Effective Green, g (s)	7.0	18.1		8.5	19.6		11.8	24.1		7.0	19.3	
Actuated g/C Ratio	0.09	0.24		0.11	0.26		0.16	0.32		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)	167	428		202	875		281	1116		167	890	
v/s Ratio Prot	0.05	c0.15		c0.07	0.12		c0.08	c0.17		0.04	0.09	
v/s Ratio Perm												
v/c Ratio	0.49	0.63		0.58	0.44		0.52	0.52		0.45	0.33	
Uniform Delay, d1	32.0	25.1		31.2	22.8		28.7	20.4		31.8	22.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	4.2		4.0	0.7		1.8	0.8		1.9	0.5	
Delay (s)	34.2	29.3		35.2	23.5		30.4	21.2		33.7	22.7	
Level of Service	C	C		D	C		C	C		C	C	
Approach Delay (s)		30.4			25.6			23.0			24.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	12.4
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	68	192	122	138	393	98	162	329	70	67	347	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.1	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	1754		1770	3433		1770	3446		1770	3469	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1754		1770	3433		1770	3446		1770	3469	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	209	133	150	427	107	176	358	76	73	377	57
RTOR Reduction (vph)	0	23	0	0	22	0	0	18	0	0	13	0
Lane Group Flow (vph)	74	319	0	150	512	0	176	416	0	73	421	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	7.2	20.7		11.9	25.4		12.7	24.6		7.3	19.2	
Effective Green, g (s)	7.2	20.7		11.9	25.4		12.7	24.6		7.3	19.2	
Actuated g/C Ratio	0.09	0.26		0.15	0.31		0.16	0.30		0.09	0.24	
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)	157	448		260	1075		277	1045		159	821	
v/s Ratio Prot	0.04	c0.18		c0.08	0.15		c0.10	0.12		0.04	c0.12	
v/s Ratio Perm												
v/c Ratio	0.47	0.71		0.58	0.48		0.64	0.40		0.46	0.51	
Uniform Delay, d1	35.1	27.5		32.3	22.5		32.0	22.4		35.0	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	6.5		3.1	0.7		4.7	0.5		2.1	1.1	
Delay (s)	37.4	34.0		35.3	23.2		36.7	22.9		37.1	28.0	
Level of Service	D	C		D	C		D	C		D	C	
Approach Delay (s)		34.6			25.8			26.9			29.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	16.6
Intersection Capacity Utilization	59.3%	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)	43	270	46	0	0	0	0	407	199	124	436	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)		5050	1583					3365		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.37	1.00	
Satd. Flow (perm)		5050	1583					3365		686	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	293	50	0	0	0	0	442	216	135	474	0
RTOR Reduction (vph)	0	0	33	0	0	0	0	101	0	0	0	0
Lane Group Flow (vph)	0	340	17	0	0	0	0	557	0	135	474	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)		1700	533					1756		358	1847	
v/s Ratio Prot		c0.07						0.17			0.13	
v/s Ratio Perm			0.01							c0.20		
v/c Ratio		0.20	0.03					0.32		0.38	0.26	
Uniform Delay, d1		14.0	13.2					8.1		8.5	7.8	
Progression Factor		1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0					0.0		0.2	0.0	
Delay (s)		14.0	13.2					8.2		8.7	7.9	
Level of Service		B	B					A		A	A	
Approach Delay (s)		13.9			0.0			8.2			8.1	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	51	213	40	0	0	0	0	464	137	54	446	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2	4.2					4.2		4.2	4.2	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.97		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5037	1583					3418		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.37	1.00	
Satd. Flow (perm)		5037	1583					3418		691	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	232	43	0	0	0	0	504	149	59	485	0
RTOR Reduction (vph)	0	0	29	0	0	0	0	46	0	0	0	0
Lane Group Flow (vph)	0	287	14	0	0	0	0	607	0	59	485	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					1784		361	1847	
v/s Ratio Prot		c0.06						c0.18			0.14	
v/s Ratio Perm			0.01							0.09		
v/c Ratio		0.17	0.03					0.34		0.16	0.26	
Uniform Delay, d1		13.9	13.2					8.3		7.4	7.9	
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		7.5	7.9	
Level of Service		B	B					A		A	A	
Approach Delay (s)		13.8			0.0			8.3			7.9	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.3	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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	50	149	36	40	313	0	0	609	105
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)					3764		1770	3539			3461	
Flt Permitted					0.99		0.30	1.00			1.00	
Satd. Flow (perm)					3764		552	3539			3461	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	54	162	39	43	340	0	0	662	114
RTOR Reduction (vph)	0	0	0	0	24	0	0	0	0	0	27	0
Lane Group Flow (vph)	0	0	0	0	231	0	43	340	0	0	749	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		253	1620			1584	
v/s Ratio Prot					c0.06			0.10			c0.22	
v/s Ratio Perm							0.08					
v/c Ratio					0.16		0.17	0.21			0.47	
Uniform Delay, d1					10.6		8.3	8.5			9.8	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					0.0		0.1	0.0			0.1	
Delay (s)					10.6		8.4	8.5			9.8	
Level of Service					B		A	A			A	
Approach Delay (s)		0.0			10.6			8.5			9.8	
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	48	334	103	58	584	0	0	389	81
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)					3751		1770	3539			3448	
Flt Permitted					1.00		0.45	1.00			1.00	
Satd. Flow (perm)					3751		836	3539			3448	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	52	363	112	63	635	0	0	423	88
RTOR Reduction (vph)	0	0	0	0	47	0	0	0	0	0	34	0
Lane Group Flow (vph)	0	0	0	0	480	0	63	635	0	0	477	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		383	1620			1578	
v/s Ratio Prot					c0.13			c0.18			0.14	
v/s Ratio Perm							0.08					
v/c Ratio					0.34		0.16	0.39			0.30	
Uniform Delay, d1					11.4		8.3	9.3			8.9	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					0.1		0.1	0.1			0.0	
Delay (s)					11.5		8.3	9.4			8.9	
Level of Service					B		A	A			A	
Approach Delay (s)		0.0			11.5			9.3			8.9	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	114	200	27	91	197	58	26	206	35	74	489	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)	4.5	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	0.55	1.00	1.00	0.62	1.00		0.42	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	1016	1863	1583	1146	1799		789	3539	1583	1140	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	217	29	99	214	63	28	224	38	80	532	176
RTOR Reduction (vph)	0	0	17	0	14	0	0	0	22	0	0	100
Lane Group Flow (vph)	124	217	12	99	263	0	28	224	16	80	532	76
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)	423	776	660	478	750		342	1534	686	494	1534	686
v/s Ratio Prot		0.12			c0.15			0.06			c0.15	
v/s Ratio Perm	0.12		0.01	0.09			0.04		0.01	0.07		0.05
v/c Ratio	0.29	0.28	0.02	0.21	0.35		0.08	0.15	0.02	0.16	0.35	0.11
Uniform Delay, d1	11.6	11.6	10.3	11.2	12.0		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)	11.8	11.6	10.3	11.3	12.1		10.0	10.3	9.7	10.4	11.4	10.1
Level of Service	B	B	B	B	B		B	B	A	B	B	B
Approach Delay (s)		11.6			11.8			10.2			11.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	164	250	43	85	235	103	47	587	89	61	325	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.5	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	1777		1770	3539	1583	1770	3539	1583
Flt Permitted	0.45	1.00	1.00	0.55	1.00		0.54	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	833	1863	1583	1027	1777		1007	3539	1583	664	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	272	47	92	255	112	51	638	97	66	353	123
RTOR Reduction (vph)	0	0	27	0	21	0	0	0	55	0	0	70
Lane Group Flow (vph)	178	272	20	92	346	0	51	638	42	66	353	53
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)	350	782	664	431	746		434	1526	683	286	1526	683
v/s Ratio Prot		0.15			0.19			c0.18			0.10	
v/s Ratio Perm	c0.21		0.01	0.09			0.05		0.03	0.10		0.03
v/c Ratio	0.51	0.35	0.03	0.21	0.46		0.12	0.42	0.06	0.23	0.23	0.08
Uniform Delay, d1	12.9	11.9	10.3	11.2	12.6		10.3	11.9	10.0	10.8	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	0.4	0.1	0.0	0.1	0.2		0.0	0.1	0.0	0.2	0.0	0.0
Delay (s)	13.3	12.0	10.3	11.2	12.8		10.3	12.0	10.0	11.0	10.9	10.1
Level of Service	B	B	B	B	B		B	B	B	B	B	B
Approach Delay (s)		12.3			12.5			11.6			10.7	
Approach LOS		B			B			B			B	

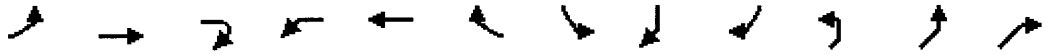
Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Volume (vph)	9	75	7	497	116	401	256	290	19	34	157	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1838		1681	1715	1583	1770	2787	1583	1770	3433	1583
Flt Permitted	0.39	1.00		0.70	0.76	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	730	1838		1236	1336	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	82	8	540	126	436	278	315	21	37	171	234
RTOR Reduction (vph)	0	5	0	0	0	296	0	0	12	0	0	184
Lane Group Flow (vph)	10	85	0	324	342	140	278	315	9	37	171	50
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	13.8	25.1	25.1	1.1	12.4	12.4
Effective Green, g (s)	18.6	18.6		18.6	18.6	18.6	13.8	25.1	25.1	1.1	12.4	12.4
Actuated g/C Ratio	0.32	0.32		0.32	0.32	0.32	0.24	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)	234	589		396	428	508	421	1206	685	34	734	338
v/s Ratio Prot		0.05					c0.16	c0.11		0.02	0.05	
v/s Ratio Perm	0.01			c0.26	0.26	0.09			0.01			0.03
v/c Ratio	0.04	0.14		0.82	0.80	0.28	0.66	0.26	0.01	1.09	0.23	0.15
Uniform Delay, d1	13.6	14.0		18.1	18.0	14.7	20.0	10.5	9.4	28.4	18.9	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	0.1	0.1		12.7	10.3	0.3	3.9	0.2	0.0	182.1	0.3	0.4
Delay (s)	13.6	14.1		30.8	28.3	15.0	23.8	10.7	9.4	210.5	19.2	18.9
Level of Service	B	B		C	C	B	C	B	A	F	B	B
Approach Delay (s)		14.1			23.8		16.6				35.1	
Approach LOS		B			C		B				D	

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.6
Intersection Capacity Utilization	54.5%	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	128	11	289	25	214	353	254	9	9	337	532
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	0.59	1.00		0.66	0.66	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1102	1841		1170	1165	1583	1770	2787	1583	1770	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	139	12	314	27	233	384	276	10	10	366	578
RTOR Reduction (vph)	0	5	0	0	0	181	0	0	4	0	0	266
Lane Group Flow (vph)	4	146	0	166	175	52	384	276	6	10	366	312
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)	14.3	14.3		14.3	14.3	14.3	17.1	36.5	36.5	0.4	19.8	19.8
Effective Green, g (s)	14.3	14.3		14.3	14.3	14.3	17.1	36.5	36.5	0.4	19.8	19.8
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.22	0.27	0.57	0.57	0.01	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)	245	409		260	259	352	470	1580	897	11	1055	487
v/s Ratio Prot		0.08					c0.22	0.10		0.01	0.11	
v/s Ratio Perm	0.00			0.14	c0.15	0.03			0.00			c0.20
v/c Ratio	0.02	0.36		0.64	0.68	0.15	0.82	0.17	0.01	0.91	0.35	0.64
Uniform Delay, d1	19.6	21.2		22.7	22.9	20.1	22.2	6.7	6.1	32.0	17.3	19.2
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	0.0	0.5		5.3	7.1	0.2	10.6	0.1	0.0	214.7	0.4	3.8
Delay (s)	19.6	21.7		28.0	30.0	20.4	32.7	6.8	6.1	246.7	17.7	23.0
Level of Service	B	C		C	C	C	C	A	A	F	B	C
Approach Delay (s)		21.7			25.5		21.7				23.3	
Approach LOS		C			C		C				C	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	64.4	Sum of lost time (s)	13.2
Intersection Capacity Utilization	60.1%	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)	8	4	70	0	0	91	302	32	0	88	16
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	1836			1863	1583
Flt Permitted		0.69	1.00			0.69	1.00			1.00	1.00
Satd. Flow (perm)		1420	1583			1294	1836			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	4	76	0	0	99	328	35	0	96	17
RTOR Reduction (vph)	0	0	58	0	0	0	4	0	0	0	7
Lane Group Flow (vph)	0	13	18	0	0	99	359	0	0	96	10
Turn Type	custom		custom			Perm					Perm
Protected Phases			4				2			6	
Permitted Phases	4	4				2					6
Actuated Green, G (s)		13.6	13.6			33.6	33.6			33.6	33.6
Effective Green, g (s)		13.6	13.6			33.6	33.6			33.6	33.6
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)		344	383			774	1098			1114	946
v/s Ratio Prot			c0.01				c0.20			0.05	
v/s Ratio Perm		0.01				0.08					0.01
v/c Ratio		0.04	0.05			0.13	0.33			0.09	0.01
Uniform Delay, d1		16.3	16.3			4.9	5.6			4.8	4.6
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	0.0
Delay (s)		16.3	16.4			4.9	5.7			4.8	4.6
Level of Service		B	B			A	A			A	A
Approach Delay (s)		16.3		0.0			5.5			4.8	
Approach LOS		B		A			A			A	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
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

Movement	WBL2	WBL	WBR	NBL	NBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations											
Volume (vph)	10	1	85	0	0	36	94	106	0	320	24
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	1715			1863	1583
Flt Permitted		0.73	1.00			0.54	1.00			1.00	1.00
Satd. Flow (perm)		1499	1583			1001	1715			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1	92	0	0	39	102	115	0	348	26
RTOR Reduction (vph)	0	0	70	0	0	0	46	0	0	0	10
Lane Group Flow (vph)	0	12	22	0	0	39	171	0	0	348	16
Turn Type	custom		custom			Perm					Perm
Protected Phases			4				2			6	
Permitted Phases	4	4				2					6
Actuated Green, G (s)		13.6	13.6			33.6	33.6			33.6	33.6
Effective Green, g (s)		13.6	13.6			33.6	33.6			33.6	33.6
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)		363	383			598	1025			1114	946
v/s Ratio Prot			c0.01				0.10			c0.19	
v/s Ratio Perm		0.01				0.04					0.01
v/c Ratio		0.03	0.06			0.07	0.17			0.31	0.02
Uniform Delay, d1		16.3	16.4			4.7	5.0			5.6	4.6
Progression Factor		1.00	1.00			1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0	0.0			0.0	0.0			0.1	0.0
Delay (s)		16.3	16.4			4.7	5.1			5.6	4.6
Level of Service		B	B			A	A			A	A
Approach Delay (s)		16.4		0.0			5.0			5.6	
Approach LOS		B		A			A			A	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	56.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.3%	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)	34	109	0	0	126	62	197	645	37	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)		3497			3365			4997				
Flt Permitted		0.85			1.00			0.99				
Satd. Flow (perm)		3020			3365			4997				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	118	0	0	137	67	214	701	40	0	0	0
RTOR Reduction (vph)	0	0	0	0	49	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	155	0	0	155	0	0	947	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			925			2628				
v/s Ratio Prot					0.05			c0.19				
v/s Ratio Perm		c0.05										
v/c Ratio		0.19			0.17			0.36				
Uniform Delay, d1		13.9			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			13.9			7.0				
Level of Service		B			B			A				
Approach Delay (s)		14.0			13.9			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	0.30		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	57.7%	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)	35	171	0	0	125	24	108	331	22	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			3454			4990				
Flt Permitted		0.89			1.00			0.99				
Satd. Flow (perm)		3149			3454			4990				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	186	0	0	136	26	117	360	24	0	0	0
RTOR Reduction (vph)	0	0	0	0	17	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	224	0	0	145	0	0	491	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)		1108			1215			2310				
v/s Ratio Prot					0.04			c0.10				
v/s Ratio Perm		c0.07										
v/c Ratio		0.20			0.12			0.21				
Uniform Delay, d1		12.2			11.8			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			8.7				
Level of Service		B			B			A				
Approach Delay (s)		12.2			11.9			8.7			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	0.21		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	118	106	0	0	14	9	57	540	56	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	1761			1863	1583		5061	1583			
Flt Permitted	0.95	0.99			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1681	1761			1863	1583		5061	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	115	0	0	15	10	62	587	61	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	10	0	0	31	0	0	0
Lane Group Flow (vph)	115	128	0	0	15	0	0	649	30	0	0	0
Turn Type	Split					Perm	Split		Perm			
Protected Phases	2	2			1		8	8				
Permitted Phases						1			8			
Actuated Green, G (s)	7.4	7.4			1.0	1.0		20.3	20.3			
Effective Green, g (s)	7.4	7.4			1.0	1.0		20.3	20.3			
Actuated g/C Ratio	0.18	0.18			0.02	0.02		0.49	0.49			
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)	298	313			45	38		2464	771			
v/s Ratio Prot	0.07	c0.07			c0.01			c0.13				
v/s Ratio Perm						0.00			0.02			
v/c Ratio	0.39	0.41			0.33	0.01		0.26	0.04			
Uniform Delay, d1	15.1	15.2			20.0	19.9		6.3	5.6			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	1.1	1.1			1.6	0.0		0.0	0.0			
Delay (s)	16.2	16.3			21.6	19.9		6.3	5.6			
Level of Service	B	B			C	B		A	A			
Approach Delay (s)		16.3			20.9			6.3			0.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	41.7	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)	69	32	0	0	68	40	32	259	32	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	1737			1863	1583		5057	1583			
Flt Permitted	0.95	0.98			1.00	1.00		0.99	1.00			
Satd. Flow (perm)	1681	1737			1863	1583		5057	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	35	0	0	74	43	35	282	35	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	20	0	0	0
Lane Group Flow (vph)	54	56	0	0	74	4	0	317	15	0	0	0
Turn Type	Split					Perm	Split		Perm			
Protected Phases	2	2			1		8	8				
Permitted Phases						1			8			
Actuated Green, G (s)	4.0	4.0			3.5	3.5		14.6	14.6			
Effective Green, g (s)	4.0	4.0			3.5	3.5		14.6	14.6			
Actuated g/C Ratio	0.11	0.11			0.10	0.10		0.42	0.42			
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			186	158		2103	658			
v/s Ratio Prot	0.03	c0.03			c0.04			c0.06				
v/s Ratio Perm						0.00			0.01			
v/c Ratio	0.28	0.28			0.40	0.03		0.15	0.02			
Uniform Delay, d1	14.2	14.2			14.8	14.3		6.4	6.0			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	1.0	1.0			0.5	0.0		0.0	0.0			
Delay (s)	15.3	15.3			15.3	14.3		6.4	6.0			
Level of Service	B	B			B	B		A	A			
Approach Delay (s)		15.3			14.9			6.4			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	35.1	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)	20	254	0	0	301	48	46	466	110	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	0.46	1.00			1.00			1.00				
Satd. Flow (perm)	855	1863			1828			4932				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	276	0	0	327	52	50	507	120	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	47	0	0	0	0
Lane Group Flow (vph)	22	276	0	0	370	0	0	630	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)	402	876			860			1890				
v/s Ratio Prot		0.15			c0.20			c0.13				
v/s Ratio Perm	0.03											
v/c Ratio	0.05	0.32			0.43			0.33				
Uniform Delay, d1	8.3	9.5			10.1			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	9.5			10.2			12.6				
Level of Service	A	A			B			B				
Approach Delay (s)		9.4			10.2			12.6			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	114	0	0	567	47	48	288	85	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			1844			4904				
Flt Permitted	0.21	1.00			1.00			0.99				
Satd. Flow (perm)	395	1863			1844			4904				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	124	0	0	616	51	52	313	92	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	58	0	0	0	0
Lane Group Flow (vph)	11	124	0	0	662	0	0	399	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			6		8	8				
Permitted Phases	2											
Actuated Green, G (s)	28.3	28.3			28.3			22.0				
Effective Green, g (s)	28.3	28.3			28.3			22.0				
Actuated g/C Ratio	0.48	0.48			0.48			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)	190	898			889			1838				
v/s Ratio Prot		0.07			c0.36			c0.08				
v/s Ratio Perm	0.03											
v/c Ratio	0.06	0.14			0.75			0.22				
Uniform Delay, d1	8.1	8.4			12.3			12.5				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.0	0.0			3.0			0.0				
Delay (s)	8.1	8.5			15.3			12.5				
Level of Service	A	A			B			B				
Approach Delay (s)		8.4			15.3			12.5			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	8.4
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	46	269	101	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	4877			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		1611	4877			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	50	292	110	0	0
RTOR Reduction (vph)	0	42	57	0	0	0
Lane Group Flow (vph)	0	8	345	0	0	0
Turn Type		custom				
Protected Phases			8			
Permitted Phases		2				
Actuated Green, G (s)		3.9	11.6			
Effective Green, g (s)		3.9	11.6			
Actuated g/C Ratio		0.16	0.49			
Clearance Time (s)		4.2	4.2			
Vehicle Extension (s)		0.2	6.0			
Lane Grp Cap (vph)		263	2367			
v/s Ratio Prot			c0.07			
v/s Ratio Perm		c0.01				
v/c Ratio		0.03	0.15			
Uniform Delay, d1		8.4	3.4			
Progression Factor		1.00	1.00			
Incremental Delay, d2		0.0	0.1			
Delay (s)		8.4	3.5			
Level of Service		A	A			
Approach Delay (s)	8.4		3.5			0.0
Approach LOS	A		A			A

Intersection Summary			
HCM Average Control Delay	4.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	23.9	Sum of lost time (s)	8.4
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	122	424	54	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	4999			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		1611	4999			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	133	461	59	0	0
RTOR Reduction (vph)	0	116	25	0	0	0
Lane Group Flow (vph)	0	17	495	0	0	0
Turn Type		custom				
Protected Phases			8			
Permitted Phases		2				
Actuated Green, G (s)		3.2	13.2			
Effective Green, g (s)		3.2	13.2			
Actuated g/C Ratio		0.13	0.53			
Clearance Time (s)		4.2	4.2			
Vehicle Extension (s)		0.2	6.0			
Lane Grp Cap (vph)		208	2661			
v/s Ratio Prot			c0.10			
v/s Ratio Perm		c0.01				
v/c Ratio		0.08	0.19			
Uniform Delay, d1		9.5	3.0			
Progression Factor		1.00	1.00			
Incremental Delay, d2		0.1	0.1			
Delay (s)		9.6	3.1			
Level of Service		A	A			
Approach Delay (s)	9.6		3.1			0.0
Approach LOS	A		A			A

Intersection Summary			
HCM Average Control Delay	4.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	24.8	Sum of lost time (s)	8.4
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)	0	128	136	20	287	0	0	0	0	27	247	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	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						5061	1583
Flt Permitted		1.00			0.91						1.00	1.00
Satd. Flow (perm)		3265			3217						5061	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	139	148	22	312	0	0	0	0	29	268	93
RTOR Reduction (vph)	0	108	0	0	0	0	0	0	0	0	0	78
Lane Group Flow (vph)	0	179	0	0	334	0	0	0	0	0	297	16
Turn Type				Perm						Split		Perm
Protected Phases		2			2					8	8	
Permitted Phases				2								8
Actuated Green, G (s)		5.2			5.2						3.2	3.2
Effective Green, g (s)		5.2			5.2						3.2	3.2
Actuated g/C Ratio		0.27			0.27						0.17	0.17
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)		884			871						844	264
v/s Ratio Prot		0.05									c0.06	
v/s Ratio Perm					c0.10							0.01
v/c Ratio		0.20			0.38						0.35	0.06
Uniform Delay, d1		5.4			5.7						7.1	6.7
Progression Factor		1.00			1.00						1.00	1.00
Incremental Delay, d2		0.0			0.1						0.1	0.0
Delay (s)		5.4			5.8						7.2	6.8
Level of Service		A			A						A	A
Approach Delay (s)		5.4			5.8			0.0			7.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	19.2	Sum of lost time (s)	10.8
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	154	369	46	174	0	0	0	0	43	791	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	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)		3164			3503						5072	1583
Flt Permitted		1.00			0.76						1.00	1.00
Satd. Flow (perm)		3164			2694						5072	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	167	401	50	189	0	0	0	0	47	860	100
RTOR Reduction (vph)	0	98	0	0	0	0	0	0	0	0	0	68
Lane Group Flow (vph)	0	470	0	0	239	0	0	0	0	0	907	32
Turn Type				Perm						Split		Perm
Protected Phases		2			2					8	8	
Permitted Phases				2								8
Actuated Green, G (s)		6.7			6.7						8.4	8.4
Effective Green, g (s)		6.7			6.7						8.4	8.4
Actuated g/C Ratio		0.26			0.26						0.32	0.32
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)		818			697						1645	513
v/s Ratio Prot		c0.15									c0.18	
v/s Ratio Perm					0.09							0.02
v/c Ratio		0.57			0.34						0.55	0.06
Uniform Delay, d1		8.4			7.8						7.2	6.0
Progression Factor		1.00			1.00						1.00	1.00
Incremental Delay, d2		0.6			0.1						0.2	0.0
Delay (s)		9.0			7.9						7.4	6.1
Level of Service		A			A						A	A
Approach Delay (s)		9.0			7.9			0.0			7.3	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	25.9	Sum of lost time (s)	10.8
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	122	48	5	40	0	0	0	0	126	258	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)		3390		1770	1863					1770	3539	1583
Flt Permitted		1.00		0.64	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3390		1183	1863					1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	133	52	5	43	0	0	0	0	137	280	3
RTOR Reduction (vph)	0	35	0	0	0	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	150	0	5	43	0	0	0	0	137	280	2
Turn Type				Perm						Split		Perm
Protected Phases		2			2					4	4	
Permitted Phases				2								4
Actuated Green, G (s)		19.0		19.0	19.0					31.0	31.0	31.0
Effective Green, g (s)		19.0		19.0	19.0					31.0	31.0	31.0
Actuated g/C Ratio		0.33		0.33	0.33					0.53	0.53	0.53
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)		1103		385	606					940	1879	840
v/s Ratio Prot		c0.04			0.02					0.08	c0.08	
v/s Ratio Perm				0.00								0.00
v/c Ratio		0.14		0.01	0.07					0.15	0.15	0.00
Uniform Delay, d1		13.9		13.3	13.6					7.0	7.0	6.4
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)		13.9		13.4	13.6					7.0	7.0	6.4
Level of Service		B		B	B					A	A	A
Approach Delay (s)		13.9			13.6			0.0			7.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	58.4	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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	48	83	82	50	0	0	0	0	33	582	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		3203		1770	1863					1770	3539	1583
Flt Permitted		1.00		0.66	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3203		1233	1863					1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	52	90	89	54	0	0	0	0	36	633	42
RTOR Reduction (vph)	0	67	0	0	0	0	0	0	0	0	0	17
Lane Group Flow (vph)	0	75	0	89	54	0	0	0	0	36	633	25
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)		820		316	477					1045	2090	935
v/s Ratio Prot		0.02			0.03					0.02	c0.18	
v/s Ratio Perm				c0.07								0.02
v/c Ratio		0.09		0.28	0.11					0.03	0.30	0.03
Uniform Delay, d1		15.5		16.3	15.6					4.7	5.6	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		16.5	15.6					4.7	5.6	4.7
Level of Service		B		B	B					A	A	A
Approach Delay (s)		15.5			16.2			0.0			5.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	156	5	82	262	0	0	0	0	117	212	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		1856		1770	1863						4980	
Flt Permitted		1.00		0.65	1.00						0.98	
Satd. Flow (perm)		1856		1205	1863						4980	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	170	5	89	285	0	0	0	0	127	230	9
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	173	0	89	285	0	0	0	0	0	362	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)		916		594	919						1826	
v/s Ratio Prot		0.09			c0.15						c0.07	
v/s Ratio Perm				0.07								
v/c Ratio		0.19		0.15	0.31						0.20	
Uniform Delay, d1		8.5		8.3	9.1						13.0	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.5		0.0	0.1						0.0	
Delay (s)		9.0		8.4	9.2						13.0	
Level of Service		A		A	A						B	
Approach Delay (s)		9.0			9.0			0.0			13.0	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.26		
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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	68	5	131	486	0	0	0	0	57	447	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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						0.99	
Satd. Flow (prot)		1847		1770	1863						5000	
Flt Permitted		1.00		0.71	1.00						0.99	
Satd. Flow (perm)		1847		1314	1863						5000	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	74	5	142	528	0	0	0	0	62	486	46
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	76	0	142	528	0	0	0	0	0	578	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)		911		648	919						1833	
v/s Ratio Prot		0.04			c0.28						c0.12	
v/s Ratio Perm				0.11								
v/c Ratio		0.08		0.22	0.57						0.32	
Uniform Delay, d1		8.0		8.6	10.7						13.6	
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	11.3						13.6	
Level of Service		A		A	B						B	
Approach Delay (s)		8.2			10.7			0.0			13.6	
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	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SBR2	SER	NWL	NWT	SWL	SWT
Lane Configurations								
Volume (vph)	183	663	2	10	25	51	106	112
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		1833	1770	3539
Flt Permitted	0.95	1.00		1.00		0.98	0.95	1.00
Satd. Flow (perm)	1770	2787		1611		1833	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	721	2	11	27	55	115	122
RTOR Reduction (vph)	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	199	723	0	0	0	82	115	122
Turn Type		Prot		custom	Split		Split	
Protected Phases	2	2		8	1	1	4	4
Permitted Phases								
Actuated Green, G (s)	18.3	18.3		0.9		6.6	7.6	7.6
Effective Green, g (s)	18.3	18.3		0.9		6.6	7.6	7.6
Actuated g/C Ratio	0.36	0.36		0.02		0.13	0.15	0.15
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)	634	998		28		237	263	526
v/s Ratio Prot	0.11	c0.26		c0.00		c0.04	c0.06	0.03
v/s Ratio Perm								
v/c Ratio	0.31	0.72		0.01		0.35	0.44	0.23
Uniform Delay, d1	11.9	14.2		24.7		20.3	19.8	19.2
Progression Factor	1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	2.8		0.0		0.3	1.6	0.3
Delay (s)	12.2	17.0		24.7		20.6	21.4	19.5
Level of Service	B	B		C		C	C	B
Approach Delay (s)	16.0					20.6		20.4
Approach LOS	B					C		C

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	17.7
Intersection Capacity Utilization	53.8%	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)	97	283	1	9	16	28	77	129
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	308	1	10	17	30	84	140
RTOR Reduction (vph)	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	105	309	0	0	0	47	84	140
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	6.8	6.8
Effective Green, g (s)	12.1	12.1		0.8		6.5	6.8	6.8
Actuated g/C Ratio	0.28	0.28		0.02		0.15	0.15	0.15
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)	488	768		29		271	274	548
v/s Ratio Prot	0.06	c0.11		c0.00		c0.03	c0.05	0.04
v/s Ratio Perm								
v/c Ratio	0.22	0.40		0.01		0.17	0.31	0.26
Uniform Delay, d1	12.2	13.0		21.2		16.4	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		0.1	0.9	0.3
Delay (s)	12.5	13.4		21.2		16.5	17.3	16.7
Level of Service	B	B		C		B	B	B
Approach Delay (s)	13.2					16.5		16.9
Approach LOS	B					B		B

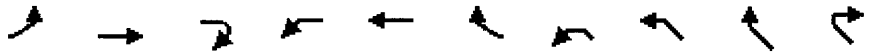
Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	43.9	Sum of lost time (s)	17.7
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NWL2	NWL	NWR	NWR2
Lane Configurations										
Volume (vph)	118	327	19	79	103	55	120	39	254	12
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	3510		1770	3354			1770	3610	
Flt Permitted	0.64	1.00		0.53	1.00			0.95	1.00	
Satd. Flow (perm)	1198	3510		985	3354			1770	3610	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	355	21	86	112	60	130	42	276	13
RTOR Reduction (vph)	0	7	0	0	36	0	0	0	7	0
Lane Group Flow (vph)	128	369	0	86	136	0	0	172	282	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)	489	1431		402	1368			722	1472	
v/s Ratio Prot		0.11			0.04			c0.10		
v/s Ratio Perm	c0.11			0.09					0.08	
v/c Ratio	0.26	0.26		0.21	0.10			0.24	0.19	
Uniform Delay, d1	11.1	11.1		10.8	10.3			11.0	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		10.9	10.3			11.0	10.8	
Level of Service	B	B		B	B			B	B	
Approach Delay (s)		11.1			10.5			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



Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NWL2	NWL	NWR	NWR2
Lane Configurations										
Volume (vph)	241	272	8	74	174	120	114	128	771	14
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	3323			1770	3610	
Flt Permitted	0.56	1.00		0.57	1.00			0.95	1.00	
Satd. Flow (perm)	1040	3524		1054	3323			1770	3610	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	262	296	9	80	189	130	124	139	838	15
RTOR Reduction (vph)	0	4	0	0	43	0	0	54	2	0
Lane Group Flow (vph)	262	301	0	80	276	0	0	209	851	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			23.0	23.0	
Effective Green, g (s)	23.4	23.4		23.4	23.4			23.0	23.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.40	0.40	
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)	428	1452		434	1369			717	1462	
v/s Ratio Prot		0.09			0.08			0.12		
v/s Ratio Perm	c0.25			0.08					c0.24	
v/c Ratio	0.61	0.21		0.18	0.20			0.29	0.58	
Uniform Delay, d1	13.1	10.7		10.6	10.7			11.4	13.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d2	1.8	0.0		0.1	0.0			0.1	0.4	
Delay (s)	15.0	10.8		10.7	10.7			11.5	13.5	
Level of Service	B	B		B	B			B	B	
Approach Delay (s)		12.7			10.7			13.1		
Approach LOS		B			B			B		

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	56.8	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	395	34	0	142	0	0	0	0	71	812	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5					4.9	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	429	37	0	154	0	0	0	0	77	883	132
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	454	0	0	154	0	0	0	0	77	883	60
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					0.04	c0.25	
v/s Ratio Perm												0.04
v/c Ratio		0.28			0.09					0.12	0.68	0.10
Uniform Delay, d1		9.1			8.3					11.6	14.8	11.5
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2			0.1					0.2	1.9	0.2
Delay (s)		9.3			8.3					11.7	16.7	11.7
Level of Service		A			A					B	B	B
Approach Delay (s)		9.3			8.3			0.0			15.7	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.4
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	415	17	0	302	0	0	0	0	101	355	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		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)		3519			3539					1770	3539	1583
Flt Permitted		1.00			1.00					0.95	1.00	1.00
Satd. Flow (perm)		3519			3539					1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	451	18	0	328	0	0	0	0	110	386	92
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	58
Lane Group Flow (vph)	0	464	0	0	328	0	0	0	0	110	386	34
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)		1632			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	0.30	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					12.1	12.7	11.4
Level of Service		A			A					B	B	B
Approach Delay (s)		9.3			8.8			0.0			12.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	483	66	3	5	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	525	72	3	5	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	75				609	73
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	75				609	73
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)	1524				457	988

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	530	75	9
Volume Left	5	0	5
Volume Right	0	3	3
cSH	1524	1700	572
Volume to Capacity	0.00	0.04	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.1	0.0	11.4
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	11.4
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	3	135	388	4	2	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	147	422	4	2	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	426				577	424
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	426				577	424
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)	1133				477	630

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	150	426	4
Volume Left	3	0	2
Volume Right	0	4	2
cSH	1133	1700	543
Volume to Capacity	0.00	0.25	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.2	0.0	11.7
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	11.7
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	30.7%	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 (vph)	10	322	140	8	184	16	2	12	15	14	63	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	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	1709		1770	1812	
Flt Permitted		0.95	1.00		0.94		0.70	1.00		0.74	1.00	
Satd. Flow (perm)		3350	1583		3293		1310	1709		1375	1812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	350	152	9	200	17	2	13	16	15	68	15
RTOR Reduction (vph)	0	0	58	0	7	0	0	13	0	0	12	0
Lane Group Flow (vph)	0	361	94	0	219	0	2	16	0	15	71	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)		32.4	32.4		32.4		9.4	9.4		9.4	9.4	
Effective Green, g (s)		32.4	32.4		32.4		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)		2063	975		2028		234	305		246	324	
v/s Ratio Prot								0.01			c0.04	
v/s Ratio Perm		c0.11	0.06		0.07		0.00			0.01		
v/c Ratio		0.17	0.10		0.11		0.01	0.05		0.06	0.22	
Uniform Delay, d1		4.3	4.1		4.2		17.8	17.9		17.9	18.5	
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)		4.4	4.1		4.2		17.8	17.9		18.0	18.6	
Level of Service		A	A		A		B	B		B	B	
Approach Delay (s)		4.3			4.2			17.9			18.5	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	52.6	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	253	36	5	371	33	20	22	24	16	22	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)		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	1747	
Flt Permitted		0.93	1.00		0.95		0.73	1.00		0.72	1.00	
Satd. Flow (perm)		3276	1583		3329		1360	1717		1349	1747	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	275	39	5	403	36	22	24	26	17	24	17
RTOR Reduction (vph)	0	0	15	0	8	0	0	21	0	0	14	0
Lane Group Flow (vph)	0	292	24	0	436	0	22	29	0	17	27	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)		2023	977		2055		242	306		240	311	
v/s Ratio Prot								c0.02			0.02	
v/s Ratio Perm		0.09	0.02		c0.13		0.02			0.01		
v/c Ratio		0.14	0.02		0.21		0.09	0.09		0.07	0.09	
Uniform Delay, d1		4.2	3.9		4.4		18.1	18.1		18.1	18.1	
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		0.0	0.0	
Delay (s)		4.3	3.9		4.5		18.2	18.2		18.1	18.2	
Level of Service		A	A		A		B	B		B	B	
Approach Delay (s)		4.2			4.5			18.2			18.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.19		
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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	458	63	3	34	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	498	68	3	37	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	72				579	70
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72				579	70
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				92	99
cM capacity (veh/h)	1528				476	993

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	503	72	45
Volume Left	5	0	37
Volume Right	0	3	8
cSH	1528	1700	522
Volume to Capacity	0.00	0.04	0.09
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.1	0.0	12.5
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	12.5
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	130	381	19	8	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	141	414	21	9	18
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	435				577	424
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	435				577	424
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	97
cM capacity (veh/h)	1125				476	630

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	147	435	27
Volume Left	5	0	9
Volume Right	0	21	18
cSH	1125	1700	571
Volume to Capacity	0.00	0.26	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.3	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	9	38	32	43	117	14	4	61	147	283	57	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		3295		1770	3483		1770	1863	1583	1770	1583	
Flt Permitted		0.93		0.71	1.00		0.66	1.00	1.00	0.70	1.00	
Satd. Flow (perm)		3161		1330	3483		1233	1863	1583	1303	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	41	35	47	127	15	4	66	160	308	62	66
RTOR Reduction (vph)	0	18	0	0	10	0	0	0	118	0	34	0
Lane Group Flow (vph)	0	68	0	47	132	0	4	66	42	308	94	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)		17.7		9.7	9.7		9.7	9.7	9.7	17.7	17.7	
Effective Green, g (s)		17.7		9.7	9.7		9.7	9.7	9.7	17.7	17.7	
Actuated g/C Ratio		0.48		0.26	0.26		0.26	0.26	0.26	0.48	0.48	
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)		1520		351	918		325	491	417	627	761	
v/s Ratio Prot					c0.04			0.04			0.06	
v/s Ratio Perm		0.02		0.04			0.00		0.03	c0.24		
v/c Ratio		0.04		0.13	0.14		0.01	0.13	0.10	0.49	0.12	
Uniform Delay, d1		5.1		10.3	10.4		10.0	10.3	10.3	6.5	5.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		0.2	0.1		0.0	0.2	0.1	1.3	0.2	
Delay (s)		5.1		10.6	10.5		10.0	10.5	10.4	7.8	5.4	
Level of Service		A		B	B		B	B	B	A	A	
Approach Delay (s)		5.1			10.5			10.4		7.1		
Approach LOS		A			B			B		A		

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	36.8	Sum of lost time (s)	9.4
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR	SWR2
Lane Configurations												
Volume (vph)	5	62	16	44	62	10	17	73	357	229	49	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		3374		1770	3464		1770	1863	1583	1770	1583	
Flt Permitted		0.94		0.71	1.00		0.70	1.00	1.00	0.70	1.00	
Satd. Flow (perm)		3317		1314	3464		1311	1863	1583	1299	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	67	17	48	67	11	18	79	388	249	53	60
RTOR Reduction (vph)	0	9	0	0	8	0	0	0	273	0	33	0
Lane Group Flow (vph)	0	80	0	48	70	0	18	79	115	249	80	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)		17.1		11.2	11.2		11.2	11.2	11.2	17.1	17.1	
Effective Green, g (s)		17.1		11.2	11.2		11.2	11.2	11.2	17.1	17.1	
Actuated g/C Ratio		0.45		0.30	0.30		0.30	0.30	0.30	0.45	0.45	
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)		1505		390	1029		389	553	470	589	718	
v/s Ratio Prot					0.02			0.04			0.05	
v/s Ratio Perm		0.02		0.04			0.01		c0.07	c0.19		
v/c Ratio		0.05		0.12	0.07		0.05	0.14	0.25	0.42	0.11	
Uniform Delay, d1		5.8		9.7	9.5		9.4	9.7	10.0	7.0	5.9	
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	1.0	0.1	
Delay (s)		5.8		9.9	9.5		9.5	9.9	10.4	8.0	6.1	
Level of Service		A		A	A		A	A	B	A	A	
Approach Delay (s)		5.8			9.7			10.3		7.4		
Approach LOS		A			A			B		A		

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	37.7	Sum of lost time (s)	9.4
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	127	2	147	82	1	302
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	138	2	160	89	1	328
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	490	160			249	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	490	160			249	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	74	100			100	
cM capacity (veh/h)	537	885			1317	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	140	160	89	329
Volume Left	138	0	0	1
Volume Right	2	0	89	0
cSH	540	1700	1700	1317
Volume to Capacity	0.26	0.09	0.05	0.00
Queue Length 95th (ft)	26	0	0	0
Control Delay (s)	14.0	0.0	0.0	0.0
Lane LOS	B			A
Approach Delay (s)	14.0	0.0		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	85	1	319	164	0	392
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	92	1	347	178	0	426
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	773	347			525	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	773	347			525	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	100			100	
cM capacity (veh/h)	367	696			1042	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	93	347	178	426
Volume Left	92	0	0	0
Volume Right	1	0	178	0
cSH	369	1700	1700	1042
Volume to Capacity	0.25	0.20	0.10	0.00
Queue Length 95th (ft)	25	0	0	0
Control Delay (s)	18.0	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	18.0	0.0		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	37.5%	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)	80	12	3	119	155	1	10	67	0	10	3	486
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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			1720	1504				3362	1583	1611	3273
Flt Permitted	1.00			1.00	1.00				0.95	1.00	1.00	0.96
Satd. Flow (perm)	1830			1720	1504				3362	1583	1611	3209
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	13	3	129	168	1	11	73	0	11	3	528
RTOR Reduction (vph)	6	0	0	0	1	0	0	0	0	10	3	0
Lane Group Flow (vph)	94	0	0	161	139	0	0	0	84	1	0	992
Turn Type			custom		custom		Perm	Perm		Perm	custom	
Protected Phases	6!		6!	6	2				4		8	5
Permitted Phases			6		6		4	4		4		2
Actuated Green, G (s)	20.7			20.7	27.9				6.5	6.5	6.9	25.8
Effective Green, g (s)	20.7			20.7	27.9				6.5	6.5	6.9	25.8
Actuated g/C Ratio	0.29			0.29	0.39				0.09	0.09	0.10	0.36
Clearance Time (s)	4.6			4.6	4.6				4.6	4.6	4.2	4.6
Vehicle Extension (s)	5.0			5.0	5.0				4.0	4.0	2.0	5.0
Lane Grp Cap (vph)	531			499	588				306	144	156	1176
v/s Ratio Prot	0.05			c0.09	0.02						0.00	c0.22
v/s Ratio Perm					0.07				0.02	0.00		c0.09
v/c Ratio	0.18			0.32	0.24				0.27	0.01	0.00	0.84
Uniform Delay, d1	19.0			19.9	14.6				30.3	29.5	29.1	19.6
Progression Factor	1.00			1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3			0.8	0.4				0.7	0.0	0.0	6.3
Delay (s)	19.3			20.6	15.0				30.9	29.5	29.1	25.8
Level of Service	B			C	B				C	C	C	C
Approach Delay (s)	19.3			18.0					30.8			25.8
Approach LOS	B			B					C			C

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	18.4
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	SER	SER2
Lane Configurations		
Volume (vph)	426	1
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	463	1
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
Intersection Summary		

Movement	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBR2	SEL2	SEL
Lane Configurations												
Volume (vph)	164	10	81	486	2	4	323	0	21	7	1	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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		0.96
Satd. Flow (perm)	1848		1578	1504				3362	1583	1611		3286
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	11	88	528	2	4	351	0	23	8	1	192
RTOR Reduction (vph)	3	0	0	0	0	0	0	0	20	7	0	0
Lane Group Flow (vph)	186	0	315	303	0	0	0	355	3	1	0	283
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)	21.4		21.4	33.5				11.8	11.8	12.2		30.1
Effective Green, g (s)	21.4		21.4	33.5				11.8	11.8	12.2		30.1
Actuated g/C Ratio	0.26		0.26	0.41				0.14	0.14	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)	484		413	617				486	229	241		1220
v/s Ratio Prot	0.10		c0.20	c0.07						0.00		c0.05
v/s Ratio Perm				0.13				0.11	0.00			0.03
v/c Ratio	0.38		0.76	0.49				1.39dl	0.01	0.00		0.23
Uniform Delay, d1	24.7		27.8	17.8				33.4	30.0	29.6		21.1
Progression Factor	1.00		1.00	1.00				1.00	1.00	1.00		1.00
Incremental Delay, d2	1.1		9.5	1.3				6.0	0.0	0.0		0.2
Delay (s)	25.8		37.3	19.1				39.4	30.0	29.6		21.3
Level of Service	C		D	B				D	C	C		C
Approach Delay (s)	25.8		28.4					38.8				21.3
Approach LOS	C		C					D				C

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	81.7	Sum of lost time (s)	18.4
Intersection Capacity Utilization	61.9%	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)	82	1
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	89	1
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	19	421	73	11	267	17	39	54	15	11	22	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		0.99		1.00	0.97		1.00	0.96	
Flt Protected		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3531	1583		3503		1770	1803		1770	1793	
Flt Permitted		0.94	1.00		0.94		0.74	1.00		0.71	1.00	
Satd. Flow (perm)		3315	1583		3290		1372	1803		1319	1793	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	458	79	12	290	18	42	59	16	12	24	8
RTOR Reduction (vph)	0	0	34	0	7	0	0	13	0	0	6	0
Lane Group Flow (vph)	0	479	45	0	313	0	42	62	0	12	26	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)		24.0	24.0		24.0		8.5	8.5		8.5	8.5	
Effective Green, g (s)		24.0	24.0		24.0		8.5	8.5		8.5	8.5	
Actuated g/C Ratio		0.58	0.58		0.58		0.20	0.20		0.20	0.20	
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)		1908	911		1894		280	368		269	365	
v/s Ratio Prot								c0.03			0.01	
v/s Ratio Perm		c0.14	0.03		0.10		0.03			0.01		
v/c Ratio		0.25	0.05		0.17		0.15	0.17		0.04	0.07	
Uniform Delay, d1		4.4	3.9		4.2		13.6	13.7		13.3	13.4	
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		0.1	0.1		0.0	0.0	
Delay (s)		4.4	3.9		4.2		13.7	13.8		13.4	13.4	
Level of Service		A	A		A		B	B		B	B	
Approach Delay (s)		4.3			4.2			13.8			13.4	
Approach LOS		A			A			B			B	

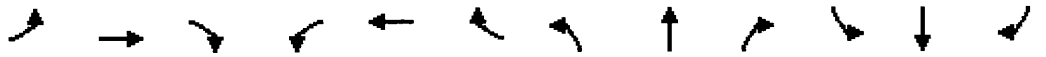
Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	41.7	Sum of lost time (s)	9.2
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	24	246	32	5	439	59	28	20	21	89	93	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		3176	1583		3312		1278	1720		1356	1840	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	267	35	5	477	64	30	22	23	97	101	9
RTOR Reduction (vph)	0	0	17	0	19	0	0	17	0	0	6	0
Lane Group Flow (vph)	0	293	18	0	527	0	30	28	0	97	104	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)		1637	816		1707		359	483		381	517	
v/s Ratio Prot								0.02			0.06	
v/s Ratio Perm		0.09	0.01		c0.16		0.02			c0.07		
v/c Ratio		0.18	0.02		0.31		0.08	0.06		0.25	0.20	
Uniform Delay, d1		5.8	5.4		6.3		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)		5.9	5.4		6.3		12.0	11.9		12.7	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	0.29		
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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	516	20	9	147	0	10	0	17	255	552	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)		4.5			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	3420	
Flt Permitted		1.00			0.92		0.28		1.00	0.95	1.00	
Satd. Flow (perm)		3519			3268		519		1583	1770	3420	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	561	22	10	160	0	11	0	18	277	600	173
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	10	0	45	0
Lane Group Flow (vph)	0	578	0	0	170	0	11	0	8	277	728	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		24.3		24.3	24.3	24.3	
Effective Green, g (s)		25.0			25.0		24.3		24.3	24.3	24.3	
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)		1509			1401		216		660	738	1425	
v/s Ratio Prot		c0.16							0.00		c0.21	
v/s Ratio Perm					0.05		0.02			0.16		
v/c Ratio		0.38			0.12		0.05		0.01	0.38	0.51	
Uniform Delay, d1		11.4			10.0		10.1		10.0	11.8	12.6	
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	0.1	0.1	
Delay (s)		11.4			10.0		10.2		10.0	11.9	12.7	
Level of Service		B			B		B		A	B	B	
Approach Delay (s)		11.4			10.0			10.0			12.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	58.3	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	259	24	8	394	0	13	0	33	119	242	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)		4.5			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	3403	
Flt Permitted		1.00			0.95		0.54		1.00	0.95	1.00	
Satd. Flow (perm)		3494			3355		1006		1583	1770	3403	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	282	26	9	428	0	14	0	36	129	263	91
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	21	0	53	0
Lane Group Flow (vph)	0	297	0	0	437	0	14	0	15	129	301	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			1446		416		655	732	1408	
v/s Ratio Prot		0.08							0.01		c0.09	
v/s Ratio Perm					c0.13		0.01			0.07		
v/c Ratio		0.20			0.30		0.03		0.02	0.18	0.21	
Uniform Delay, d1		10.3			10.8		10.1		10.1	10.7	10.9	
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)		10.3			10.8		10.1		10.1	10.8	11.0	
Level of Service		B			B		B		B	B	B	
Approach Delay (s)		10.3			10.8			10.1			10.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.26		
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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	44	509	173	7	127	47	34	137	16	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		0.96			0.96			0.99				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3402			3395			3463				
Flt Permitted		0.93			0.93			0.99				
Satd. Flow (perm)		3164			3160			3463				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	553	188	8	138	51	37	149	17	0	0	0
RTOR Reduction (vph)	0	41	0	0	24	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	748	0	0	173	0	0	191	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)		1658			1656			1068				
v/s Ratio Prot								c0.06				
v/s Ratio Perm		c0.24			0.05							
v/c Ratio		0.45			0.10			0.18				
Uniform Delay, d1		7.7			6.2			13.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.1			0.0			0.0				
Delay (s)		7.8			6.2			13.2				
Level of Service		A			A			B				
Approach Delay (s)		7.8			6.2			13.2			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Volume (vph)	168	242	52	10	335	115	135	531	19	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)		3417			3403			3490				
Flt Permitted		0.66			0.94			0.99				
Satd. Flow (perm)		2301			3214			3490				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	263	57	11	364	125	147	577	21	0	0	0
RTOR Reduction (vph)	0	16	0	0	52	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	487	0	0	448	0	0	741	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			22.0				
Effective Green, g (s)		25.5			25.5			22.0				
Actuated g/C Ratio		0.45			0.45			0.39				
Clearance Time (s)		4.5			4.5			4.2				
Vehicle Extension (s)		0.2			0.2			0.2				
Lane Grp Cap (vph)		1044			1458			1366				
v/s Ratio Prot								c0.21				
v/s Ratio Perm		c0.21			0.14							
v/c Ratio		0.47			0.31			0.54				
Uniform Delay, d1		10.6			9.7			13.2				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.1			0.0			0.2				
Delay (s)		10.8			9.8			13.5				
Level of Service		B			A			B				
Approach Delay (s)		10.8			9.8			13.5			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	56.2	Sum of lost time (s)	8.7
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	144	0	3	1	0	0	1	914	265	26	194	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		0.84	
Satd. Flow (perm)	1410	1583			1408			3379	1583		2961	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	0	3	1	0	0	1	993	288	28	211	1
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	132	0	0	0
Lane Group Flow (vph)	157	1	0	0	1	0	0	994	156	0	240	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)	19.3	19.3			19.3			30.5	30.5		30.5	
Effective Green, g (s)	19.3	19.3			19.3			30.5	30.5		30.5	
Actuated g/C Ratio	0.33	0.33			0.33			0.52	0.52		0.52	
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)	464	521			464			1759	824		1541	
v/s Ratio Prot		0.00										
v/s Ratio Perm	c0.11				0.00			c0.29	0.10		0.08	
v/c Ratio	0.34	0.00			0.00			0.57	0.19		0.16	
Uniform Delay, d1	14.8	13.2			13.2			9.5	7.5		7.3	
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.9	0.0			0.0			0.5	0.2		0.1	
Delay (s)	15.7	13.2			13.2			10.1	7.6		7.4	
Level of Service	B	B			B			B	A		A	
Approach Delay (s)		15.7			13.2			9.5			7.4	
Approach LOS		B			B			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)	58.6	Sum of lost time (s)	8.8
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	261	0	2	0	1	0	1	295	191	17	671	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)	1410	1583			1863			3375	1583		3340	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	0	2	0	1	0	1	321	208	18	729	1
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	121	0	0	0
Lane Group Flow (vph)	284	1	0	0	1	0	0	322	87	0	748	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			26.6	26.6		26.6	
Effective Green, g (s)	28.2	28.2			28.2			26.6	26.6		26.6	
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)	625	702			826			1412	662		1397	
v/s Ratio Prot		0.00			0.00							
v/s Ratio Perm	c0.20							0.10	0.05		c0.22	
v/c Ratio	0.45	0.00			0.00			0.23	0.13		0.54	
Uniform Delay, d1	12.3	9.9			9.9			11.9	11.4		13.9	
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2	1.1	0.0			0.0			0.1	0.1		0.5	
Delay (s)	13.4	9.9			9.9			12.0	11.5		14.4	
Level of Service	B	A			A			B	B		B	
Approach Delay (s)		13.4			9.9			11.8			14.4	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	8.8
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	57	30	36	38	0	0	0	0	89	1046	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2			4.2						4.9	
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)		1775			1818						5036	
Flt Permitted		1.00			0.80						1.00	
Satd. Flow (perm)		1775			1485						5036	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	62	33	39	41	0	0	0	0	97	1137	51
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	68	0	0	80	0	0	0	0	0	1278	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)		303			254						2988	
v/s Ratio Prot		0.04									c0.25	
v/s Ratio Perm					c0.05							
v/c Ratio		0.22			0.31						0.43	
Uniform Delay, d1		13.8			14.0						4.3	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.5			1.0						0.2	
Delay (s)		14.3			15.0						4.5	
Level of Service		B			B						A	
Approach Delay (s)		14.3			15.0			0.0			4.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	38.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	70	42	43	65	0	0	0	0	52	604	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)		4.2			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)		1768			1826						5007	
Flt Permitted		1.00			0.82						1.00	
Satd. Flow (perm)		1768			1524						5007	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	76	46	47	71	0	0	0	0	57	657	61
RTOR Reduction (vph)	0	37	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	85	0	0	118	0	0	0	0	0	759	0
Turn Type				Perm						Split		
Protected Phases		8			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		7.4			7.4						20.8	
Effective Green, g (s)		7.4			7.4						20.8	
Actuated g/C Ratio		0.20			0.20						0.56	
Clearance Time (s)		4.2			4.2						4.9	
Vehicle Extension (s)		4.0			4.0						5.0	
Lane Grp Cap (vph)		351			302						2792	
v/s Ratio Prot		0.05									c0.15	
v/s Ratio Perm					c0.08							
v/c Ratio		0.24			0.39						0.27	
Uniform Delay, d1		12.6			13.0						4.3	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.5			1.1						0.1	
Delay (s)		13.1			14.1						4.4	
Level of Service		B			B						A	
Approach Delay (s)		13.1			14.1			0.0			4.4	
Approach LOS		B			B			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)	37.3	Sum of lost time (s)	9.1
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)	45	98	0	0	55	54	19	438	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)		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)		1591			1738			5036				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	107	0	0	60	59	21	476	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	45	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	156	0	0	74	0	0	513	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		7.1			7.1			13.0				
Effective Green, g (s)		7.1			7.1			13.0				
Actuated g/C Ratio		0.24			0.24			0.45				
Clearance Time (s)		4.2			4.2			4.9				
Vehicle Extension (s)		4.0			4.0			0.2				
Lane Grp Cap (vph)		387			423			2242				
v/s Ratio Prot					0.04			c0.10				
v/s Ratio Perm		c0.10										
v/c Ratio		0.40			0.18			0.23				
Uniform Delay, d1		9.3			8.7			5.0				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.9			0.3			0.0				
Delay (s)		10.2			9.0			5.0				
Level of Service		B			A			A				
Approach Delay (s)		10.2			9.0			5.0			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	29.2	Sum of lost time (s)	9.1
Intersection Capacity Utilization	37.7%	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)	56	70	0	0	85	119	22	1108	26	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		0.76			1.00			1.00				
Satd. Flow (perm)		1417			1716			5063				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	76	0	0	92	129	24	1204	28	0	0	0
RTOR Reduction (vph)	0	0	0	0	18	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	137	0	0	203	0	0	1252	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		8.5			8.5			19.8				
Effective Green, g (s)		8.5			8.5			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)		322			390			2680				
v/s Ratio Prot					c0.12			c0.25				
v/s Ratio Perm		0.10										
v/c Ratio		0.43			0.52			0.47				
Uniform Delay, d1		12.4			12.7			5.5				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.2			1.6			0.0				
Delay (s)		13.6			14.3			5.5				
Level of Service		B			B			A				
Approach Delay (s)		13.6			14.3			5.5			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	37.4	Sum of lost time (s)	9.1
Intersection Capacity Utilization	52.1%	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)	0	213	155	0	0	0	0	0	0	375	913	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)		3316									3488	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		3316									3488	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	232	168	0	0	0	0	0	0	408	992	0
RTOR Reduction (vph)	0	46	0	0	0	0	0	0	0	0	58	0
Lane Group Flow (vph)	0	354	0	0	0	0	0	0	0	0	1342	0
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		15.8									30.5	
Effective Green, g (s)		15.8									30.5	
Actuated g/C Ratio		0.29									0.55	
Clearance Time (s)		4.2									4.6	
Vehicle Extension (s)		6.4									5.6	
Lane Grp Cap (vph)		951									1931	
v/s Ratio Prot		c0.11										
v/s Ratio Perm											0.38	
v/c Ratio		0.37									0.70	
Uniform Delay, d1		15.7									8.9	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.8									1.6	
Delay (s)		16.5									10.5	
Level of Service		B									B	
Approach Delay (s)		16.5			0.0			0.0			10.5	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	8.8
Intersection Capacity Utilization	54.3%	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)	0	240	119	0	0	0	0	0	0	388	345	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	261	129	0	0	0	0	0	0	422	375	0
RTOR Reduction (vph)	0	86	0	0	0	0	0	0	0	0	227	0
Lane Group Flow (vph)	0	304	0	0	0	0	0	0	0	0	570	0
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		14.0									19.5	
Effective Green, g (s)		14.0									19.5	
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)		1113									1590	
v/s Ratio Prot		c0.09										
v/s Ratio Perm											0.17	
v/c Ratio		0.27									0.36	
Uniform Delay, d1		10.4									7.4	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.4									0.4	
Delay (s)		10.8									7.7	
Level of Service		B									A	
Approach Delay (s)		10.8			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)	42.3	Sum of lost time (s)	8.8
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	217	371	0	0	167	105	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.95	1.00					
Frt	1.00	1.00			1.00	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3539	1583					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3539	1583					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	236	403	0	0	182	114	0	0	0	0	0
RTOR Reduction (vph)	130	0	0	0	0	86	0	0	0	0	0
Lane Group Flow (vph)	106	403	0	0	182	28	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	13.8	13.8			7.6	7.6					
Effective Green, g (s)	13.8	13.8			7.6	7.6					
Actuated g/C Ratio	0.45	0.45			0.25	0.25					
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)	798	798			879	393					
v/s Ratio Prot	0.06	c0.23			c0.05						
v/s Ratio Perm						0.02					
v/c Ratio	0.13	0.51			0.21	0.07					
Uniform Delay, d1	4.9	6.0			9.1	8.8					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.2	1.1			0.2	0.1					
Delay (s)	5.1	7.0			9.3	8.9					
Level of Service	A	A			A	A					
Approach Delay (s)		6.3			9.2			0.0		0.0	
Approach LOS		A			A			A		A	

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	30.6	Sum of lost time (s)	9.2
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	206	394	0	0	428	397	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.6	4.6			4.6	4.6					
Lane Util. Factor	1.00	1.00			0.95	1.00					
Frt	1.00	1.00			1.00	0.85					
Flt Protected	0.95	0.95			1.00	1.00					
Satd. Flow (prot)	1770	1770			3539	1583					
Flt Permitted	0.95	0.95			1.00	1.00					
Satd. Flow (perm)	1770	1770			3539	1583					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	224	428	0	0	465	432	0	0	0	0	0
RTOR Reduction (vph)	144	0	0	0	0	125	0	0	0	0	0
Lane Group Flow (vph)	80	428	0	0	465	307	0	0	0	0	0
Turn Type	Split					Perm					
Protected Phases	4	4			2						
Permitted Phases						2					
Actuated Green, G (s)	14.3	14.3			16.5	16.5					
Effective Green, g (s)	14.3	14.3			16.5	16.5					
Actuated g/C Ratio	0.36	0.36			0.41	0.41					
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)	633	633			1460	653					
v/s Ratio Prot	0.05	c0.24			0.13						
v/s Ratio Perm						c0.19					
v/c Ratio	0.13	0.68			0.32	0.47					
Uniform Delay, d1	8.6	10.9			7.9	8.6					
Progression Factor	1.00	1.00			1.00	1.00					
Incremental Delay, d2	0.2	3.7			0.2	0.9					
Delay (s)	8.8	14.6			8.2	9.5					
Level of Service	A	B			A	A					
Approach Delay (s)		12.6			8.8			0.0		0.0	
Approach LOS		B			A			A		A	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	303	616	4	29	0	0	0	0	0	711	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.7	3.7		3.7						4.1	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frt		1.00	0.85		1.00						0.98	
Flt Protected		1.00	1.00		0.99						1.00	
Satd. Flow (prot)		1863	1583		1852						3451	
Flt Permitted		1.00	1.00		0.97						1.00	
Satd. Flow (perm)		1863	1583		1812						3451	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	329	670	4	32	0	0	0	0	0	773	154
RTOR Reduction (vph)	0	0	72	0	0	0	0	0	0	0	28	0
Lane Group Flow (vph)	0	329	598	0	36	0	0	0	0	0	899	0
Turn Type			Perm	Perm								
Protected Phases		4			8						6	
Permitted Phases			4	8								
Actuated Green, G (s)		25.9	25.9		25.9						25.5	
Effective Green, g (s)		25.9	25.9		25.9						25.5	
Actuated g/C Ratio		0.44	0.44		0.44						0.43	
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)		815	693		793						1486	
v/s Ratio Prot		0.18									c0.26	
v/s Ratio Perm			c0.38		0.02							
v/c Ratio		0.40	0.86		0.05						0.61	
Uniform Delay, d1		11.4	15.0		9.6						13.0	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		0.7	11.7		0.0						0.9	
Delay (s)		12.1	26.8		9.6						13.9	
Level of Service		B	C		A						B	
Approach Delay (s)		21.9			9.6			0.0			13.9	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	7.8
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)	0	358	191	8	62	0	0	0	0	0	546	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	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		1852						3437	
Flt Permitted		1.00	1.00		0.96						1.00	
Satd. Flow (perm)		1863	1583		1780						3437	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	389	208	9	67	0	0	0	0	0	593	142
RTOR Reduction (vph)	0	0	124	0	0	0	0	0	0	0	35	0
Lane Group Flow (vph)	0	389	84	0	76	0	0	0	0	0	700	0
Turn Type			Perm	Perm								
Protected Phases		4			8						6	
Permitted Phases			4	8								
Actuated Green, G (s)		18.5	18.5		18.5						19.6	
Effective Green, g (s)		18.5	18.5		18.5						19.6	
Actuated g/C Ratio		0.40	0.40		0.40						0.43	
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)		751	638		717						1468	
v/s Ratio Prot		c0.21									c0.20	
v/s Ratio Perm			0.05		0.04							
v/c Ratio		0.52	0.13		0.11						0.48	
Uniform Delay, d1		10.3	8.6		8.5						9.5	
Progression Factor		1.00	1.00		1.00						1.00	
Incremental Delay, d2		1.2	0.2		0.1						0.4	
Delay (s)		11.5	8.8		8.7						9.9	
Level of Service		B	A		A						A	
Approach Delay (s)		10.6			8.7			0.0			9.9	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	45.9	Sum of lost time (s)	7.8
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	315	0	47	375	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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	0	51	408	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	342	0	0	459	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	12.4			13.5		
Effective Green, g (s)	12.4			13.5		
Actuated g/C Ratio	0.35			0.38		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	625			1354		
v/s Ratio Prot	c0.19			c0.13		
v/s Ratio Perm						
v/c Ratio	0.55			0.34		
Uniform Delay, d1	9.1			7.6		
Progression Factor	1.00			1.00		
Incremental Delay, d2	1.0			0.3		
Delay (s)	10.1			7.9		
Level of Service	B			A		
Approach Delay (s)	10.1			7.9	0.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	35.1	Sum of lost time (s)	9.2
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	355	0	70	616	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			3521		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	1770			3521		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	386	0	76	670	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	386	0	0	746	0	0
Turn Type			Split			
Protected Phases	4		2	2		
Permitted Phases						
Actuated Green, G (s)	15.9			20.7		
Effective Green, g (s)	15.9			20.7		
Actuated g/C Ratio	0.35			0.45		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.3			4.9		
Lane Grp Cap (vph)	614			1591		
v/s Ratio Prot	c0.22			c0.21		
v/s Ratio Perm						
v/c Ratio	0.63			0.47		
Uniform Delay, d1	12.5			8.7		
Progression Factor	1.00			1.00		
Incremental Delay, d2	2.1			0.4		
Delay (s)	14.6			9.2		
Level of Service	B			A		
Approach Delay (s)	14.6			9.2	0.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	45.8	Sum of lost time (s)	9.2
Intersection Capacity Utilization	46.4%	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	310	52	97	197	0	0	0	0	163	1052	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		3462		1770	3539						4982	
Flt Permitted		1.00		0.95	1.00						0.99	
Satd. Flow (perm)		3462		1770	3539						4982	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	337	57	105	214	0	0	0	0	177	1143	140
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	379	0	105	214	0	0	0	0	0	1447	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		17.7		7.0	28.4						24.1	
Effective Green, g (s)		17.7		7.0	28.4						24.1	
Actuated g/C Ratio		0.29		0.11	0.46						0.39	
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)		995		201	1632						1949	
v/s Ratio Prot		c0.11		c0.06	0.06						c0.29	
v/s Ratio Perm												
v/c Ratio		0.38		0.52	0.13						0.74	
Uniform Delay, d1		17.6		25.7	9.5						16.1	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.8		1.1	0.1						1.4	
Delay (s)		18.4		26.9	9.6						17.5	
Level of Service		B		C	A						B	
Approach Delay (s)		18.4			15.3			0.0			17.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	12.8
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)	0	492	36	91	324	0	0	0	0	187	600	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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						4928	
Flt Permitted		1.00		0.95	1.00						0.99	
Satd. Flow (perm)		3503		1770	3539						4928	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	535	39	99	352	0	0	0	0	203	652	140
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	569	0	99	352	0	0	0	0	0	969	0
Turn Type				Prot						Split		
Protected Phases		4		3	8					6	6	
Permitted Phases												
Actuated Green, G (s)		21.5		6.6	31.8						20.0	
Effective Green, g (s)		21.5		6.6	31.8						20.0	
Actuated g/C Ratio		0.35		0.11	0.52						0.33	
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)		1237		192	1848						1618	
v/s Ratio Prot		c0.16		c0.06	0.10						c0.20	
v/s Ratio Perm												
v/c Ratio		0.46		0.52	0.19						0.60	
Uniform Delay, d1		15.2		25.6	7.7						17.1	
Progression Factor		1.00		1.00	1.00						1.00	
Incremental Delay, d2		0.9		1.0	0.2						0.4	
Delay (s)		16.1		26.6	7.9						17.5	
Level of Service		B		C	A						B	
Approach Delay (s)		16.1			12.0			0.0			17.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	12.8
Intersection Capacity Utilization	54.3%	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)	136	338	0	0	268	109	25	467	27	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	148	367	0	0	291	118	27	508	29	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	89	0	0	18	0	0	0
Lane Group Flow (vph)	148	367	0	0	291	29	0	535	11	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	7.4	24.2			13.1	13.1		19.6	19.6			
Effective Green, g (s)	7.4	24.2			13.1	13.1		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)	248	1619			876	392		1879	587			
v/s Ratio Prot	c0.08	0.10			c0.08			c0.11				
v/s Ratio Perm						0.02			0.01			
v/c Ratio	0.60	0.23			0.33	0.07		0.28	0.02			
Uniform Delay, d1	21.3	8.7			16.3	15.3		11.7	10.6			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	2.6	0.2			0.5	0.2		0.0	0.0			
Delay (s)	23.9	8.8			16.8	15.4		11.7	10.6			
Level of Service	C	A			B	B		B	B			
Approach Delay (s)		13.2			16.4			11.7			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	0.36		
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	12.8
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)	143	536	0	0	373	101	36	1265	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)	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	155	583	0	0	405	110	39	1375	25	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	81	0	0	15	0	0	0
Lane Group Flow (vph)	155	583	0	0	405	29	0	1414	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)	10.6	31.1			16.8	16.8		23.4	23.4			
Effective Green, g (s)	10.6	31.1			16.8	16.8		23.4	23.4			
Actuated g/C Ratio	0.17	0.49			0.26	0.26		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)	295	1731			935	418		1868	582			
v/s Ratio Prot	c0.09	0.16			c0.11			c0.28				
v/s Ratio Perm						0.02			0.01			
v/c Ratio	0.53	0.34			0.43	0.07		0.76	0.02			
Uniform Delay, d1	24.2	9.9			19.4	17.5		17.6	12.8			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.8	0.3			0.7	0.2		1.6	0.0			
Delay (s)	25.0	10.2			20.1	17.7		19.2	12.8			
Level of Service	C	B			C	B		B	B			
Approach Delay (s)		13.3			19.6			19.1			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	12.8
Intersection Capacity Utilization	54.3%	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)	60	225	37	111	323	42	34	200	25	74	386	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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	3465		1770	3478		1770	3480		1770	3462	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3465		1770	3478		1770	3480		1770	3462	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	245	40	121	351	46	37	217	27	80	420	71
RTOR Reduction (vph)	0	15	0	0	11	0	0	10	0	0	13	0
Lane Group Flow (vph)	65	270	0	121	386	0	37	234	0	80	478	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	15.5		7.2	18.2		3.7	14.5		6.3	27.1	
Effective Green, g (s)	4.5	15.5		7.2	18.2		3.7	14.5		6.3	27.1	
Actuated g/C Ratio	0.06	0.22		0.10	0.26		0.05	0.21		0.09	0.38	
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)	113	760		180	895		93	714		158	1327	
v/s Ratio Prot	0.04	0.08		c0.07	c0.11		0.02	0.07		c0.05	c0.14	
v/s Ratio Perm												
v/c Ratio	0.58	0.36		0.67	0.43		0.40	0.33		0.51	0.36	
Uniform Delay, d1	32.2	23.4		30.6	21.9		32.4	23.9		30.7	15.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	0.6		7.5	0.7		1.0	0.6		0.9	0.4	
Delay (s)	36.5	24.0		38.1	22.6		33.4	24.5		31.6	15.9	
Level of Service	D	C		D	C		C	C		C	B	
Approach Delay (s)		26.3			26.3			25.7			18.1	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	17.2
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	485	58	91	402	90	58	433	83	112	254	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	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	3442		1770	3454		1770	3406	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3483		1770	3442		1770	3454		1770	3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	527	63	99	437	98	63	471	90	122	276	92
RTOR Reduction (vph)	0	10	0	0	20	0	0	16	0	0	31	0
Lane Group Flow (vph)	85	580	0	99	515	0	63	545	0	122	337	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	6.9	22.2		7.3	22.6		6.1	18.7		7.8	30.4	
Effective Green, g (s)	6.9	22.2		7.3	22.6		6.1	18.7		7.8	30.4	
Actuated g/C Ratio	0.08	0.27		0.09	0.27		0.07	0.22		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)	147	929		155	935		130	776		166	1245	
v/s Ratio Prot	0.05	c0.17		c0.06	0.15		0.04	c0.16		c0.07	0.10	
v/s Ratio Perm												
v/c Ratio	0.58	0.62		0.64	0.55		0.48	0.70		0.73	0.27	
Uniform Delay, d1	36.7	26.8		36.7	25.9		37.0	29.7		36.7	18.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.4	1.9		6.2	1.2		1.0	3.6		13.5	0.2	
Delay (s)	40.1	28.7		42.9	27.1		38.1	33.3		50.2	18.8	
Level of Service	D	C		D	C		D	C		D	B	
Approach Delay (s)		30.1			29.6			33.8			26.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	30.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	27.2
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	237	81	101	314	100	126	367	43	86	424	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	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	3411		1770	3483		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3411		1770	3483		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	258	88	110	341	109	137	399	47	93	461	90
RTOR Reduction (vph)	0	0	67	0	38	0	0	10	0	0	0	67
Lane Group Flow (vph)	73	258	21	110	412	0	137	436	0	93	461	23
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)	5.8	15.3	15.3	6.7	16.2		7.3	17.5		6.3	16.5	16.5
Effective Green, g (s)	5.8	15.3	15.3	6.7	16.2		7.3	17.5		6.3	16.5	16.5
Actuated g/C Ratio	0.09	0.24	0.24	0.11	0.25		0.11	0.28		0.10	0.26	0.26
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	851	381	186	869		203	958		175	918	411
v/s Ratio Prot	0.04	0.07		c0.06	c0.12		c0.08	0.13		0.05	c0.13	
v/s Ratio Perm			0.01									0.01
v/c Ratio	0.45	0.30	0.06	0.59	0.47		0.67	0.45		0.53	0.50	0.06
Uniform Delay, d1	27.4	19.8	18.6	27.1	20.1		27.0	19.1		27.2	20.1	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	0.7	0.3	0.1	3.3	0.7		6.8	0.7		1.6	0.9	0.1
Delay (s)	28.1	20.1	18.7	30.5	20.8		33.8	19.8		28.8	21.0	17.8
Level of Service	C	C	B	C	C		C	B		C	C	B
Approach Delay (s)		21.2			22.7			23.1			21.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	12.9
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	497	139	122	404	167	119	623	57	143	470	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)	4.0	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	3384		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	3384		1770	3495		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	540	151	133	439	182	129	677	62	155	511	91
RTOR Reduction (vph)	0	0	96	0	55	0	0	8	0	0	0	66
Lane Group Flow (vph)	145	540	55	133	566	0	129	731	0	155	511	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)	9.7	22.1	22.1	8.1	20.5		8.0	19.2		10.0	21.2	21.2
Effective Green, g (s)	9.7	22.1	22.1	8.1	20.5		8.0	19.2		10.0	21.2	21.2
Actuated g/C Ratio	0.13	0.29	0.29	0.10	0.27		0.10	0.25		0.13	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)	222	1013	453	186	899		183	869		229	972	435
v/s Ratio Prot	c0.08	0.15		0.08	c0.17		0.07	c0.21		c0.09	0.14	
v/s Ratio Perm			0.03									0.02
v/c Ratio	0.65	0.53	0.12	0.72	0.63		0.70	0.84		0.68	0.53	0.06
Uniform Delay, d1	32.1	23.2	20.4	33.4	25.0		33.5	27.5		32.1	23.7	20.6
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	5.2	0.8	0.2	10.3	1.8		9.6	8.1		6.1	1.0	0.1
Delay (s)	37.3	24.0	20.6	43.8	26.8		43.1	35.7		38.2	24.7	20.8
Level of Service	D	C	C	D	C		D	D		D	C	C
Approach Delay (s)		25.7			29.8			36.8			27.0	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	77.2	Sum of lost time (s)	17.8
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	140	0	0	0	189	1211
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					5051
Flt Permitted	0.95					0.99
Satd. Flow (perm)	1770					5051
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	0	0	0	205	1316
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	152	0	0	0	0	1521
Turn Type					Split	
Protected Phases	8				6	6
Permitted Phases						
Actuated Green, G (s)	8.9					30.4
Effective Green, g (s)	8.9					30.4
Actuated g/C Ratio	0.18					0.63
Clearance Time (s)	4.2					4.9
Vehicle Extension (s)	4.8					5.4
Lane Grp Cap (vph)	325					3173
v/s Ratio Prot	c0.09					c0.30
v/s Ratio Perm						
v/c Ratio	0.47					0.48
Uniform Delay, d1	17.6					4.8
Progression Factor	1.00					1.00
Incremental Delay, d2	2.1					0.3
Delay (s)	19.7					5.1
Level of Service	B					A
Approach Delay (s)	19.7		0.0			5.1
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	9.1
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	108	0	0	0	269	817
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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	0	0	0	292	888
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	117	0	0	0	0	1180
Turn Type					Split	
Protected Phases	8				6	6
Permitted Phases						
Actuated Green, G (s)	7.8					27.7
Effective Green, g (s)	7.8					27.7
Actuated g/C Ratio	0.17					0.62
Clearance Time (s)	4.2					4.9
Vehicle Extension (s)	4.8					5.4
Lane Grp Cap (vph)	310					3120
v/s Ratio Prot	c0.07					c0.23
v/s Ratio Perm						
v/c Ratio	0.38					0.38
Uniform Delay, d1	16.3					4.2
Progression Factor	1.00					1.00
Incremental Delay, d2	1.5					0.2
Delay (s)	17.8					4.4
Level of Service	B					A
Approach Delay (s)	17.8		0.0			4.4
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	9.1
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	186	0	0	140	237	2	441	271	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	0.66	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	1230	1863			1863	1583		5084	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	202	0	0	152	258	2	479	295	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	161	0	0	173	0	0	0
Lane Group Flow (vph)	9	202	0	0	152	97	0	481	122	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	16.3	16.3			16.3	16.3		17.8	17.8			
Effective Green, g (s)	16.3	16.3			16.3	16.3		17.8	17.8			
Actuated g/C Ratio	0.38	0.38			0.38	0.38		0.41	0.41			
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)	464	703			703	597		2095	652			
v/s Ratio Prot		c0.11			0.08			c0.09				
v/s Ratio Perm	0.01					0.06			0.08			
v/c Ratio	0.02	0.29			0.22	0.16		0.23	0.19			
Uniform Delay, d1	8.4	9.4			9.1	8.9		8.2	8.1			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.0	0.6			0.4	0.3		0.1	0.3			
Delay (s)	8.5	10.0			9.5	9.3		8.4	8.4			
Level of Service	A	A			A	A		A	A			
Approach Delay (s)		9.9			9.4			8.4			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	43.2	Sum of lost time (s)	9.1
Intersection Capacity Utilization	42.6%	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)	19	255	0	0	107	210	0	905	611	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)	1271	1863			1863	1583		5085	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	277	0	0	116	228	0	984	664	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	43	0	0	217	0	0	0
Lane Group Flow (vph)	21	277	0	0	116	185	0	984	447	0	0	0
Turn Type	Perm					Perm	Split		Perm			
Protected Phases		4			4		2	2				
Permitted Phases	4					4			2			
Actuated Green, G (s)	19.0	19.0			19.0	19.0		29.4	29.4			
Effective Green, g (s)	19.0	19.0			19.0	19.0		29.4	29.4			
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)	420	616			616	523		2600	809			
v/s Ratio Prot		c0.15			0.06			0.19				
v/s Ratio Perm	0.02					0.12			c0.28			
v/c Ratio	0.05	0.45			0.19	0.35		0.38	0.55			
Uniform Delay, d1	13.1	15.1			13.7	14.6		8.5	9.6			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	0.1	1.4			0.4	1.1		0.2	1.5			
Delay (s)	13.2	16.5			14.1	15.7		8.7	11.0			
Level of Service	B	B			B	B		A	B			
Approach Delay (s)		16.3			15.2			9.7			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	9.1
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	352	724	5	79	0	0	0	0	3	682	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.2		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)		1694		1770	1863						3539	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1694		1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	383	787	5	86	0	0	0	0	3	741	132
RTOR Reduction (vph)	0	68	0	0	0	0	0	0	0	0	0	82
Lane Group Flow (vph)	0	1102	0	5	86	0	0	0	0	0	744	50
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						24.6	24.6
Effective Green, g (s)		26.2		1.0	30.9						24.6	24.6
Actuated g/C Ratio		0.41		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)		687		27	891						1348	603
v/s Ratio Prot		c0.65		0.00	c0.05						c0.21	
v/s Ratio Perm												0.03
v/c Ratio		1.60		0.19	0.10						0.55	0.08
Uniform Delay, d1		19.2		31.4	9.2						15.7	12.8
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		278.4		1.2	0.1						0.9	0.1
Delay (s)		297.6		32.6	9.3						16.6	12.9
Level of Service		F		C	A						B	B
Approach Delay (s)		297.6			10.6			0.0			16.0	
Approach LOS		F			B			A			B	

Intersection Summary			
HCM Average Control Delay	169.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	13.3
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	212	309	14	132	0	0	0	0	3	752	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	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)		1713		1770	1863						3539	1583
Flt Permitted		1.00		0.95	1.00						1.00	1.00
Satd. Flow (perm)		1713		1770	1863						3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	230	336	15	143	0	0	0	0	3	817	190
RTOR Reduction (vph)	0	50	0	0	0	0	0	0	0	0	0	114
Lane Group Flow (vph)	0	516	0	15	143	0	0	0	0	0	820	76
Turn Type				Prot						Split		Perm
Protected Phases		4		3	8					6	6	
Permitted Phases												6
Actuated Green, G (s)		26.1		1.1	30.9						26.8	26.8
Effective Green, g (s)		26.1		1.1	30.9						26.8	26.8
Actuated g/C Ratio		0.39		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)		669		29	862						1420	635
v/s Ratio Prot		c0.30		c0.01	0.08						c0.23	
v/s Ratio Perm												0.05
v/c Ratio		0.77		0.52	0.17						0.58	0.12
Uniform Delay, d1		17.7		32.6	10.4						15.6	12.6
Progression Factor		1.00		1.00	1.00						1.00	1.00
Incremental Delay, d2		6.4		6.3	0.2						1.0	0.2
Delay (s)		24.1		38.9	10.6						16.5	12.8
Level of Service		C		D	B						B	B
Approach Delay (s)		24.1			13.3			0.0			15.8	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	12.8
Intersection Capacity Utilization	58.6%	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 (veh/h)	8	137	12	2	19	7	1	15	1	10	26	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	149	13	2	21	8	1	16	1	11	28	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1300										
pX, platoon unblocked												
vC, conflicting volume	28			162			219	205	81	130	208	24
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			162			219	205	81	130	208	24
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	98	100	99	96	100
cM capacity (veh/h)	1583			1414			690	685	963	809	683	1046

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	83	88	30	18	42
Volume Left	9	0	2	1	11
Volume Right	0	13	8	1	3
cSH	1583	1700	1414	697	732
Volume to Capacity	0.01	0.05	0.00	0.03	0.06
Queue Length 95th (ft)	0	0	0	2	5
Control Delay (s)	0.8	0.0	0.6	10.3	10.2
Lane LOS	A		A	B	B
Approach Delay (s)	0.4		0.6	10.3	10.2
Approach LOS				B	B

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	17.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	3	66	13	5	103	0	8	20	1	11	7	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	72	14	5	112	0	9	22	1	12	8	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)		1300										
pX, platoon unblocked												
vC, conflicting volume	112			86			217	208	43	177	215	112
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	112			86			217	208	43	177	215	112
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			99	97	100	98	99	99
cM capacity (veh/h)	1476			1508			707	684	1018	746	677	920

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	39	50	117	32	25
Volume Left	3	0	5	9	12
Volume Right	0	14	0	1	5
cSH	1476	1700	1508	698	754
Volume to Capacity	0.00	0.03	0.00	0.05	0.03
Queue Length 95th (ft)	0	0	0	4	3
Control Delay (s)	0.6	0.0	0.4	10.4	9.9
Lane LOS	A		A	B	A
Approach Delay (s)	0.3		0.4	10.4	9.9
Approach LOS				B	A

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	19.5%	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)	4	136	8	3	24	5	0	7	5	9	8	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	148	9	3	26	5	0	8	5	10	9	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)					1008							
pX, platoon unblocked												
vC, conflicting volume	32			157			203	199	78	127	201	29
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			157			203	199	78	127	201	29
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	99	99	99	99	100
cM capacity (veh/h)	1579			1421			726	692	967	819	691	1039

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	78	83	35	13	21
Volume Left	4	0	3	0	10
Volume Right	0	9	5	5	2
cSH	1579	1700	1421	785	776
Volume to Capacity	0.00	0.05	0.00	0.02	0.03
Queue Length 95th (ft)	0	0	0	1	2
Control Delay (s)	0.4	0.0	0.7	9.7	9.8
Lane LOS	A		A	A	A
Approach Delay (s)	0.2		0.7	9.7	9.8
Approach LOS				A	A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	10	69	4	5	98	4	1	22	2	15	10	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	75	4	5	107	4	1	24	2	16	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)					1008							
pX, platoon unblocked												
vC, conflicting volume	111			79			233	221	40	193	221	109
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	111			79			233	221	40	193	221	109
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	96	100	98	98	99
cM capacity (veh/h)	1477			1517			682	669	1023	721	669	924

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	48	42	116	27	36
Volume Left	11	0	5	1	16
Volume Right	0	4	4	2	9
cSH	1477	1700	1517	689	743
Volume to Capacity	0.01	0.02	0.00	0.04	0.05
Queue Length 95th (ft)	1	0	0	3	4
Control Delay (s)	1.7	0.0	0.4	10.4	10.1
Lane LOS	A		A	B	B
Approach Delay (s)	0.9		0.4	10.4	10.1
Approach LOS				B	B

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
83: F St & Fresno

6/8/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	9	10	4	16	13	1	84	893	13	23	281	7
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	3885		1947	3878	
Flt Permitted	0.75	1.00	1.00	0.75	1.00	1.00	0.56	1.00		0.29	1.00	
Satd. Flow (perm)	1533	2049	1742	1538	2049	1742	1151	3885		590	3878	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	11	4	17	14	1	91	971	14	25	305	8
RTOR Reduction (vph)	0	0	3	0	0	1	0	2	0	0	4	0
Lane Group Flow (vph)	10	11	1	17	14	0	91	983	0	25	309	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)	5.9	5.9	5.9	5.9	5.9	5.9	13.9	13.9		13.9	13.9	
Effective Green, g (s)	5.9	5.9	5.9	5.9	5.9	5.9	13.9	13.9		13.9	13.9	
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.50	0.50		0.50	0.50	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	325	435	370	326	435	370	576	1943		295	1939	
v/s Ratio Prot		0.01			0.01			c0.25			0.08	
v/s Ratio Perm	0.01		0.00	c0.01		0.00	0.08			0.04		
v/c Ratio	0.03	0.03	0.00	0.05	0.03	0.00	0.16	0.51		0.08	0.16	
Uniform Delay, d1	8.7	8.7	8.6	8.7	8.7	8.6	3.8	4.7		3.6	3.8	
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	0.0	0.0	0.1	0.0	0.0	0.1	0.2		0.1	0.0	
Delay (s)	8.7	8.7	8.6	8.8	8.7	8.6	3.9	4.9		3.8	3.8	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		8.7			8.8			4.8			3.8	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	27.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
83: F Street & Fresno

6/8/2011

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	31	24	46	42	5	78	413	30	35	865	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	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	3853		1947	3880	
Flt Permitted	0.73	1.00	1.00	0.73	1.00	1.00	0.29	1.00		0.48	1.00	
Satd. Flow (perm)	1490	2049	1742	1506	2049	1742	590	3853		977	3880	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	34	26	50	46	5	85	449	33	38	940	21
RTOR Reduction (vph)	0	0	20	0	0	4	0	11	0	0	3	0
Lane Group Flow (vph)	17	34	6	50	46	1	85	471	0	38	958	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	13.9	13.9		13.9	13.9	
Effective Green, g (s)	6.5	6.5	6.5	6.5	6.5	6.5	13.9	13.9		13.9	13.9	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.49	0.49		0.49	0.49	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	341	469	399	345	469	399	289	1886		478	1899	
v/s Ratio Prot		0.02			0.02			0.12			c0.25	
v/s Ratio Perm	0.01		0.00	c0.03		0.00	0.14			0.04		
v/c Ratio	0.05	0.07	0.01	0.14	0.10	0.00	0.29	0.25		0.08	0.50	
Uniform Delay, d1	8.5	8.6	8.5	8.7	8.6	8.4	4.3	4.2		3.9	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)	8.6	8.7	8.5	8.9	8.7	8.5	4.9	4.3		3.9	5.1	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		8.6			8.8			4.4			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	0.39		
Actuated Cycle Length (s)	28.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.1%	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 (veh/h)	7	101	2	2	142	10	1	3	7	8	1	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	110	2	2	154	11	1	3	8	9	1	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	165			112			295	296	111	299	291	160
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	165			112			295	296	111	299	291	160
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	99	100	100
cM capacity (veh/h)	1413			1478			650	612	942	642	615	885

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	120	167	12	14
Volume Left	8	2	1	9
Volume Right	2	11	8	4
cSH	1413	1478	793	698
Volume to Capacity	0.01	0.00	0.02	0.02
Queue Length 95th (ft)	0	0	1	2
Control Delay (s)	0.5	0.1	9.6	10.3
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	0.1	9.6	10.3
Approach LOS			A	B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	5	122	0	1	177	4	4	4	14	16	4	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	133	0	1	192	4	4	4	15	17	4	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)												
pX, platoon unblocked												
vC, conflicting volume	197			133			352	342	133	358	340	195
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	197			133			352	342	133	358	340	195
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)	1376			1452			590	577	917	582	579	847

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	138	198	24	32
Volume Left	5	1	4	17
Volume Right	0	4	15	10
cSH	1376	1452	759	644
Volume to Capacity	0.00	0.00	0.03	0.05
Queue Length 95th (ft)	0	0	2	4
Control Delay (s)	0.3	0.0	9.9	10.9
Lane LOS	A	A	A	B
Approach Delay (s)	0.3	0.0	9.9	10.9
Approach LOS			A	B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	20.6%	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)	32	67	10	3	136	5	8	4	2	1	5	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	73	11	3	148	5	9	4	2	1	5	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	153			84			336	308	78	309	310	151
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	153			84			336	308	78	309	310	151
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			99	99	100	100	99	97
cM capacity (veh/h)	1427			1513			582	590	982	625	588	896

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	118	157	15	35
Volume Left	35	3	9	1
Volume Right	11	5	2	28
cSH	1427	1513	621	818
Volume to Capacity	0.02	0.00	0.02	0.04
Queue Length 95th (ft)	2	0	2	3
Control Delay (s)	2.4	0.2	10.9	9.6
Lane LOS	A	A	B	A
Approach Delay (s)	2.4	0.2	10.9	9.6
Approach LOS			B	A

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	78	114	9	2	50	8	4	10	2	1	15	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	85	124	10	2	54	9	4	11	2	1	16	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)												
pX, platoon unblocked												
vC, conflicting volume	63			134			379	366	129	369	366	59
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	63			134			379	366	129	369	366	59
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	98	100	100	97	99
cM capacity (veh/h)	1540			1451			535	531	921	552	530	1007

Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	218	65	17	27
Volume Left	85	2	4	1
Volume Right	10	9	2	10
cSH	1540	1451	562	641
Volume to Capacity	0.06	0.00	0.03	0.04
Queue Length 95th (ft)	4	0	2	3
Control Delay (s)	3.2	0.3	11.6	10.9
Lane LOS	A	A	B	B
Approach Delay (s)	3.2	0.3	11.6	10.9
Approach LOS			B	B

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	27.5%	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)	33	17	32	19	10	2	78	616	11	3	417	114
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	18	35	21	11	2	85	670	12	3	453	124
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1034	1373	289	1122	1429	341	577			682		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1034	1373	289	1122	1429	341	577			682		
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 %	78	86	95	84	91	100	91			100		
cM capacity (veh/h)	162	132	708	127	122	655	992			907		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	89	34	85	446	235	3	302	275
Volume Left	36	21	85	0	0	3	0	0
Volume Right	35	2	0	0	12	0	0	124
cSH	217	132	992	1700	1700	907	1700	1700
Volume to Capacity	0.41	0.25	0.09	0.26	0.14	0.00	0.18	0.16
Queue Length 95th (ft)	47	24	7	0	0	0	0	0
Control Delay (s)	32.8	41.3	9.0	0.0	0.0	9.0	0.0	0.0
Lane LOS	D	E	A			A		
Approach Delay (s)	32.8	41.3	1.0			0.1		
Approach LOS	D	E						

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	35.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	74	9	78	15	9	11	46	522	15	2	631	47
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	10	85	16	10	12	50	567	16	2	686	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1116	1399	368	1112	1417	292	737			584		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1116	1399	368	1112	1417	292	737			584		
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 %	44	93	87	87	92	98	94			100		
cM capacity (veh/h)	143	131	629	127	128	705	865			987		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	175	38	50	378	205	2	457	280
Volume Left	80	16	50	0	0	2	0	0
Volume Right	85	12	0	0	16	0	0	51
cSH	227	172	865	1700	1700	987	1700	1700
Volume to Capacity	0.77	0.22	0.06	0.22	0.12	0.00	0.27	0.16
Queue Length 95th (ft)	137	20	5	0	0	0	0	0
Control Delay (s)	59.6	31.9	9.4	0.0	0.0	8.7	0.0	0.0
Lane LOS	F	D	A			A		
Approach Delay (s)	59.6	31.9	0.7			0.0		
Approach LOS	F	D						

Intersection Summary				
Average Delay	7.7			
Intersection Capacity Utilization	44.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBL	SBR	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Sign Control	Stop		Stop			Stop			Stop	
Volume (vph)	23	13	0	116	0	0	0	234	109	608
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	14	0	126	0	0	0	254	118	661

Direction, Lane #	SB 1	NW 1	NE 1	SW 1	SW 2
Volume Total (vph)	39	126	0	373	661
Volume Left (vph)	0	0	0	254	0
Volume Right (vph)	14	0	0	0	661
Hadj (s)	-0.18	0.03	0.00	0.17	-0.57
Departure Headway (s)	4.8	4.9	4.8	4.5	3.2
Degree Utilization, x	0.05	0.17	0.00	0.47	0.59
Capacity (veh/h)	681	685	715	776	1118
Control Delay (s)	8.1	8.9	7.8	11.3	10.6
Approach Delay (s)	8.1	8.9	0.0	10.9	
Approach LOS	A	A	A	B	

Intersection Summary			
Delay	10.6		
HCM Level of Service	B		
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBL	SBR	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Sign Control	Stop		Stop			Stop			Stop	
Volume (vph)	120	26	0	243	0	0	7	231	19	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	28	0	264	0	0	8	251	21	161

Direction, Lane #	SB 1	NW 1	NE 1	SW 1	SW 2
Volume Total (vph)	159	264	8	272	161
Volume Left (vph)	0	0	0	251	0
Volume Right (vph)	28	0	8	0	161
Hadj (s)	-0.07	0.03	-0.57	0.22	-0.57
Departure Headway (s)	5.0	4.9	4.9	5.2	3.2
Degree Utilization, x	0.22	0.36	0.01	0.39	0.14
Capacity (veh/h)	675	696	640	652	1121
Control Delay (s)	9.4	10.7	7.9	11.5	6.7
Approach Delay (s)	9.4	10.7	7.9	9.7	
Approach LOS	A	B	A	A	

Intersection Summary			
Delay	9.9		
HCM Level of Service	A		
Intersection Capacity Utilization	35.5%	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)	78	103	0	0	0	187	0	118	12	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	85	112	0	0	0	203	0	128	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			112			383	282	56	303	282	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			112			383	282	56	303	282	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			1476			528	593	999	496	593	1084

Direction, Lane #	SE 1	SE 2	SE 3	NW 1	NE 1	NE 2
Volume Total	85	56	56	203	86	56
Volume Left	85	0	0	0	0	0
Volume Right	0	0	0	203	0	13
cSH	1622	1700	1700	1700	593	655
Volume to Capacity	0.05	0.03	0.03	0.12	0.14	0.09
Queue Length 95th (ft)	4	0	0	0	13	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	29.5%	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)	605	109	0	0	0	275	0	160	34	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	658	118	0	0	0	299	0	174	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			118			1583	1434	59	1498	1434	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			118			1583	1434	59	1498	1434	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 %	59			100			100	0	96	0	100	100
cM capacity (veh/h)	1622			1467			50	79	994	0	79	1084

Direction, Lane #	SE 1	SE 2	SE 3	NW 1	NE 1	NE 2
Volume Total	658	59	59	299	116	95
Volume Left	658	0	0	0	0	0
Volume Right	0	0	0	299	0	37
cSH	1622	1700	1700	1700	79	123
Volume to Capacity	0.41	0.03	0.03	0.18	1.47	0.77
Queue Length 95th (ft)	50	0	0	0	233	112
Control Delay (s)	8.7	0.0	0.0	0.0	359.2	96.0
Lane LOS	A				F	F
Approach Delay (s)	7.4			0.0	240.7	
Approach LOS					F	

Intersection Summary				
Average Delay	43.9			
Intersection Capacity Utilization	56.4%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	86	265	3	4	68	38	3	5	13	40	5	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	93	288	3	4	74	41	3	5	14	43	5	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	115			291			603	601	146	451	582	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115			291			603	601	146	451	582	95
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 %	94			100			99	99	98	90	99	98
cM capacity (veh/h)	1471			1267			352	385	875	454	395	944

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	238	147	120	23	70
Volume Left	93	0	4	3	43
Volume Right	0	3	41	14	21
cSH	1471	1700	1267	577	530
Volume to Capacity	0.06	0.09	0.00	0.04	0.13
Queue Length 95th (ft)	5	0	0	3	11
Control Delay (s)	3.3	0.0	0.3	11.5	12.8
Lane LOS	A		A	B	B
Approach Delay (s)	2.0		0.3	11.5	12.8
Approach LOS				B	B

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	35	143	0	2	40	23	1	3	4	17	30	33
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	155	0	2	43	25	1	3	4	18	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)												
pX, platoon unblocked												
vC, conflicting volume	68			155			344	304	78	220	292	56
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68			155			344	304	78	220	292	56
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			100			100	99	100	97	95	96
cM capacity (veh/h)	1531			1422			531	592	967	696	601	999

Direction, Lane #	SE 1	SE 2	NW 1	NE 1	SW 1
Volume Total	116	78	71	9	87
Volume Left	38	0	2	1	18
Volume Right	0	0	25	4	36
cSH	1531	1700	1422	721	745
Volume to Capacity	0.02	0.05	0.00	0.01	0.12
Queue Length 95th (ft)	2	0	0	1	10
Control Delay (s)	2.6	0.0	0.2	10.1	10.5
Lane LOS	A		A	B	B
Approach Delay (s)	1.5		0.2	10.1	10.5
Approach LOS				B	B

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	22.7%	ICU Level of Service		A
Analysis Period (min)	15			

HANFORD CONSTRUCTION CONDITIONS
SYNCHRO OUTPUT

HCM Unsignalized Intersection Capacity Analysis
1: SR 198 & 9 th Ave

11/10/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	52	731	28	29	955	10	0	0	42	0	0	68
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	57	795	30	32	1038	11	0	0	46	0	0	74
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1049			825			1579	2035	412	1662	2045	524
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1049			825			1579	2035	412	1662	2045	524
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 %	91			96			100	100	92	100	100	85
cM capacity (veh/h)	659			801			57	49	589	53	49	498

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	57	530	295	32	692	357	46	74
Volume Left	57	0	0	32	0	0	0	0
Volume Right	0	0	30	0	0	11	46	74
cSH	659	1700	1700	801	1700	1700	589	498
Volume to Capacity	0.09	0.31	0.17	0.04	0.41	0.21	0.08	0.15
Queue Length 95th (ft)	7	0	0	3	0	0	6	13
Control Delay (s)	11.0	0.0	0.0	9.7	0.0	0.0	11.6	13.5
Lane LOS	B			A			B	B
Approach Delay (s)	0.7			0.3			11.6	13.5
Approach LOS							B	B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: SR 198 & 9 th Ave

11/10/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	114	1043	30	39	753	9	0	0	44	0	0	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	124	1134	33	42	818	10	0	0	48	0	0	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	828			1166			1977	2311	583	1771	2322	414
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	828			1166			1977	2311	583	1771	2322	414
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 %	84			93			100	100	90	100	100	86
cM capacity (veh/h)	799			595			26	29	456	39	29	587

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	124	756	411	42	546	283	48	85
Volume Left	124	0	0	42	0	0	0	0
Volume Right	0	0	33	0	0	10	48	85
cSH	799	1700	1700	595	1700	1700	456	587
Volume to Capacity	0.16	0.44	0.24	0.07	0.32	0.17	0.10	0.14
Queue Length 95th (ft)	14	0	0	6	0	0	9	13
Control Delay (s)	10.3	0.0	0.0	11.5	0.0	0.0	13.8	12.2
Lane LOS	B			B			B	B
Approach Delay (s)	1.0			0.6			13.8	12.2
Approach LOS							B	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	39.8%	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)	43	0	149	0	287	0	0	389	83	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	47	0	162	0	312	0	0	423	90	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	780	825	312	513			312			861	780
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	780	825	312	513			312			861	780
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	78	100			100			100	100
cM capacity (veh/h)	313	308	728	1052			1248			214	327

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	209	312	513
Volume Left	47	0	0
Volume Right	162	0	90
cSH	938	1700	1700
Volume to Capacity	0.22	0.18	0.30
Queue Length 95th (ft)	21	0	0
Control Delay (s)	13.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.0	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (veh/h)	23	0	157	0	452	0	0	348	136	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	0	171	0	491	0	0	378	148	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	943	1017	491	526			491			1029	943
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	943	1017	491	526			491			1029	943
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 %	90	100	70	100			100			100	100
cM capacity (veh/h)	242	237	577	1041			1072			149	262

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	196	491	526
Volume Left	25	0	0
Volume Right	171	0	148
cSH	662	1700	1700
Volume to Capacity	0.30	0.29	0.31
Queue Length 95th (ft)	31	0	0
Control Delay (s)	14.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.8	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	40.2%	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)	63	0	99	0	293	38	0	324	0	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	0	108	0	318	41	0	352	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	691	712	352	352			360			745	691
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	691	712	352	352			360			745	691
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5
tC, 2 stage (s)											
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0
p0 queue free %	81	100	84	100			100			100	100
cM capacity (veh/h)	359	358	691	1207			1199			279	368

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	176	360	352
Volume Left	68	0	0
Volume Right	108	41	0
cSH	922	1700	1700
Volume to Capacity	0.19	0.21	0.21
Queue Length 95th (ft)	18	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	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (veh/h)	86	0	92	0	468	62	0	197	0	0	0
Sign Control		Stop			Free			Free		Yield	
Grade		0%			0%			0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	93	0	100	0	509	67	0	214	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	757	790	214	214			576			807	757
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	757	790	214	214			576			807	757
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 %	71	100	88	100			100			100	100
cM capacity (veh/h)	324	322	826	1356			997			264	337

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	193	576	214
Volume Left	93	0	0
Volume Right	100	67	0
cSH	572	1700	1700
Volume to Capacity	0.34	0.34	0.13
Queue Length 95th (ft)	37	0	0
Control Delay (s)	14.5	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.5	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	103	593	6	9	889	12	6	13	9	10	11	107
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	112	645	7	10	966	13	7	14	10	11	12	116
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	979			651			1980	1871	648	1878	1867	973
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	979			651			1980	1871	648	1878	1867	973
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	84			99			69	76	98	72	80	62
cM capacity (veh/h)	705			935			21	60	470	38	60	306

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	112	651	10	979	30	139
Volume Left	112	0	10	0	7	11
Volume Right	0	7	0	13	10	116
cSH	705	1700	935	1700	54	161
Volume to Capacity	0.16	0.38	0.01	0.58	0.56	0.86
Queue Length 95th (ft)	14	0	1	0	55	149
Control Delay (s)	11.1	0.0	8.9	0.0	136.4	94.4
Lane LOS	B		A		F	F
Approach Delay (s)	1.6		0.1		136.4	94.4
Approach LOS					F	F

Intersection Summary				
Average Delay	9.7			
Intersection Capacity Utilization	71.7%	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)	38	1063	14	5	828	1	6	3	2	4	3	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	1155	15	5	900	1	7	3	2	4	3	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	901			1171			2181	2158	1163	2153	2165	901
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	901			1171			2181	2158	1163	2153	2165	901
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			76	93	99	86	93	93
cM capacity (veh/h)	754			597			28	45	237	31	44	337

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	41	1171	5	901	12	30
Volume Left	41	0	5	0	7	4
Volume Right	0	15	0	1	2	23
cSH	754	1700	597	1700	38	108
Volume to Capacity	0.05	0.69	0.01	0.53	0.32	0.28
Queue Length 95th (ft)	4	0	1	0	26	27
Control Delay (s)	10.0	0.0	11.1	0.0	139.9	51.0
Lane LOS	B		B		F	F
Approach Delay (s)	0.3		0.1		139.9	51.0
Approach LOS					F	F

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	66.8%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	580	4	4	849	4	6	5	6	4	9	67
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	630	4	4	923	4	7	5	7	4	10	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)												
pX, platoon unblocked												
vC, conflicting volume	927			635			1709	1636	633	1641	1636	925
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	927			635			1709	1636	633	1641	1636	925
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			100			87	94	99	94	90	78
cM capacity (veh/h)	737			948			49	96	480	73	96	326

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	34	635	4	927	18	87
Volume Left	34	0	4	0	7	4
Volume Right	0	4	0	4	7	73
cSH	737	1700	948	1700	91	226
Volume to Capacity	0.05	0.37	0.00	0.55	0.20	0.39
Queue Length 95th (ft)	4	0	0	0	18	43
Control Delay (s)	10.1	0.0	8.8	0.0	54.2	30.6
Lane LOS	B		A		F	D
Approach Delay (s)	0.5		0.0		54.2	30.6
Approach LOS					F	D

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	1003	10	3	739	11	0	11	4	2	3	54
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	1090	11	3	803	12	0	12	4	2	3	59
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			1101			2205	2157	1096	2155	2156	809
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	815			1101			2205	2157	1096	2155	2156	809
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			99			100	70	98	91	92	85
cM capacity (veh/h)	812			634			22	40	260	23	41	380

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	120	1101	3	815	16	64
Volume Left	120	0	3	0	0	2
Volume Right	0	11	0	12	4	59
cSH	812	1700	634	1700	52	195
Volume to Capacity	0.15	0.65	0.01	0.48	0.31	0.33
Queue Length 95th (ft)	13	0	0	0	27	34
Control Delay (s)	10.2	0.0	10.7	0.0	102.6	32.2
Lane LOS	B		B		F	D
Approach Delay (s)	1.0		0.0		102.6	32.2
Approach LOS					F	D

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	4	563	4	5	838	4	5	3	3	2	8	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	612	4	5	911	4	5	3	3	2	9	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	915			616			1572	1549	614	1552	1549	913
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	915			616			1572	1549	614	1552	1549	913
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			93	97	99	98	92	94
cM capacity (veh/h)	745			964			78	113	492	89	113	331

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	621	921	12	32
Volume Left	4	5	5	2
Volume Right	4	4	3	21
cSH	745	964	114	192
Volume to Capacity	0.01	0.01	0.11	0.16
Queue Length 95th (ft)	0	0	9	14
Control Delay (s)	0.2	0.2	40.3	27.4
Lane LOS	A	A	E	D
Approach Delay (s)	0.2	0.2	40.3	27.4
Approach LOS			E	D

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	57.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	23	955	9	2	726	9	1	8	2	3	6	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	1038	10	2	789	10	1	9	2	3	7	18
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	799			1048			1913	1896	1043	1898	1896	794
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	799			1048			1913	1896	1043	1898	1896	794
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			98	87	99	93	90	95
cM capacity (veh/h)	824			664			44	67	279	46	67	388

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1073	801	12	28
Volume Left	25	2	1	3
Volume Right	10	10	2	18
cSH	824	664	74	131
Volume to Capacity	0.03	0.00	0.16	0.22
Queue Length 95th (ft)	2	0	14	19
Control Delay (s)	1.0	0.1	62.9	39.9
Lane LOS	A	A	F	E
Approach Delay (s)	1.0	0.1	62.9	39.9
Approach LOS			F	E

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	24	71	55	13	22	70	250	183	19	510	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	26	77	60	14	24	76	272	199	21	554	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	1059	1227	562	1132	1135	371	571			471		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1059	1227	562	1132	1135	371	571			471		
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	84	85	52	92	96	92			98		
cM capacity (veh/h)	171	162	526	125	183	675	1002			1091		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	120	98	76	471	21	571
Volume Left	16	60	76	0	21	0
Volume Right	77	24	0	199	0	16
cSH	296	166	1002	1700	1091	1700
Volume to Capacity	0.40	0.59	0.08	0.28	0.02	0.34
Queue Length 95th (ft)	47	79	6	0	1	0
Control Delay (s)	25.1	53.8	8.9	0.0	8.4	0.0
Lane LOS	D	F	A		A	
Approach Delay (s)	25.1	53.8	1.2		0.3	
Approach LOS	D	F				

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	53.4%	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)	28	13	77	168	27	42	104	508	60	14	254	41
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	14	84	183	29	46	113	552	65	15	276	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1167	1172	298	1124	1162	585	321			617		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1167	1172	298	1124	1162	585	321			617		
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 %	76	92	89	0	83	91	91			98		
cM capacity (veh/h)	125	172	741	140	174	511	1239			963		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	128	258	113	617	15	321
Volume Left	30	183	113	0	15	0
Volume Right	84	46	0	65	0	45
cSH	292	165	1239	1700	963	1700
Volume to Capacity	0.44	1.57	0.09	0.36	0.02	0.19
Queue Length 95th (ft)	53	431	8	0	1	0
Control Delay (s)	26.7	332.1	8.2	0.0	8.8	0.0
Lane LOS	D	F	A		A	
Approach Delay (s)	26.7	332.1	1.3		0.4	
Approach LOS	D	F				

Intersection Summary				
Average Delay	62.0			
Intersection Capacity Utilization	63.7%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	166	63	83	75	30	42	193	47	125	342	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	1783		1770	1808		1770	1860	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1786		1770	1783		1770	1808		1770	1860	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	180	68	90	82	33	46	210	51	136	372	4
RTOR Reduction (vph)	0	16	0	0	15	0	0	10	0	0	1	0
Lane Group Flow (vph)	5	232	0	90	100	0	46	251	0	136	375	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	1.0	15.0		6.9	20.9		4.2	17.3		8.2	21.3	
Effective Green, g (s)	1.0	15.0		6.9	20.9		4.2	17.3		8.2	21.3	
Actuated g/C Ratio	0.02	0.24		0.11	0.33		0.07	0.27		0.13	0.34	
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)	28	423		193	588		117	493		229	625	
v/s Ratio Prot	0.00	c0.13		c0.05	0.06		0.03	0.14		c0.08	c0.20	
v/s Ratio Perm												
v/c Ratio	0.18	0.55		0.47	0.17		0.39	0.51		0.59	0.60	
Uniform Delay, d1	30.8	21.2		26.5	15.1		28.4	19.5		26.0	17.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	1.5		1.8	0.1		2.2	0.8		4.1	1.6	
Delay (s)	33.8	22.7		28.3	15.2		30.6	20.3		30.1	19.1	
Level of Service	C	C		C	B		C	C		C	B	
Approach Delay (s)		22.9			21.0			21.8			22.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.1%	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)	4	79	40	73	93	47	118	408	56	40	198	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	0.95		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	1770		1770	1769		1770	1829		1770	1858	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1770		1770	1769		1770	1829		1770	1858	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	86	43	79	101	51	128	443	61	43	215	4
RTOR Reduction (vph)	0	24	0	0	22	0	0	5	0	0	1	0
Lane Group Flow (vph)	4	105	0	79	130	0	128	499	0	43	218	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	8.4		4.5	12.0		7.5	23.7		2.5	18.7	
Effective Green, g (s)	0.9	8.4		4.5	12.0		7.5	23.7		2.5	18.7	
Actuated g/C Ratio	0.02	0.15		0.08	0.22		0.14	0.43		0.05	0.34	
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	270		145	385		241	787		80	631	
v/s Ratio Prot	0.00	0.06		c0.04	c0.07		c0.07	c0.27		0.02	0.12	
v/s Ratio Perm												
v/c Ratio	0.14	0.39		0.54	0.34		0.53	0.63		0.54	0.35	
Uniform Delay, d1	26.7	21.0		24.3	18.2		22.2	12.3		25.7	13.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.9		4.1	0.5		2.2	1.7		6.8	0.3	
Delay (s)	28.9	22.0		28.5	18.7		24.4	14.0		32.5	14.0	
Level of Service	C	C		C	B		C	B		C	B	
Approach Delay (s)		22.2			22.0			16.1			17.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

BAKERSFIELD CONSTRUCTION CONDITIONS SYNCHRO OUTPUT

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

11/10/2010

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1308	381	0	2407	1461	385
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	4926	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	4926	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1422	414	0	2616	1588	418
RTOR Reduction (vph)	0	22	0	0	63	0
Lane Group Flow (vph)	1422	392	0	2616	1943	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	2962	
v/s Ratio Prot	c0.80			c0.51	0.39	
v/s Ratio Perm		0.25				
v/c Ratio	2.90	0.89		0.86	0.66	
Uniform Delay, d1	27.1	26.0		12.3	9.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	858.8	19.8		2.6	0.6	
Delay (s)	885.9	45.8		14.9	10.4	
Level of Service	F	D		B	B	
Approach Delay (s)	696.5			14.9	10.4	
Approach LOS	F			B	B	

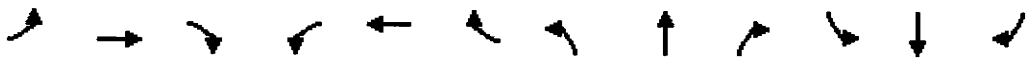
Intersection Summary			
HCM Average Control Delay	207.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	126.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

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

11/10/2010

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	367	174	0	1210	1231	208
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	4975	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	4975	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	399	189	0	1315	1338	226
RTOR Reduction (vph)	0	40	0	0	32	0
Lane Group Flow (vph)	399	149	0	1315	1532	0
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.3	18.3		38.6	38.6	
Effective Green, g (s)	18.3	18.3		38.6	38.6	
Actuated g/C Ratio	0.28	0.28		0.58	0.58	
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		2974	2910	
v/s Ratio Prot	c0.23			0.26	c0.31	
v/s Ratio Perm		0.09				
v/c Ratio	0.81	0.34		0.44	0.53	
Uniform Delay, d1	22.3	19.0		7.7	8.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.9	0.5		0.1	0.2	
Delay (s)	32.2	19.5		7.8	8.4	
Level of Service	C	B		A	A	
Approach Delay (s)	28.1			7.8	8.4	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	9.1
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	597	2	472	0	0	0	0	294	55	143	394	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6						5.3	5.3	3.7	5.3	
Lane Util. Factor	0.95	0.95						0.95	1.00	1.00	0.95	
Frt	1.00	0.87						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1526						3539	1583	1770	3539	
Flt Permitted	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1526						3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	649	2	513	0	0	0	0	320	60	155	428	0
RTOR Reduction (vph)	0	251	0	0	0	0	0	0	47	0	0	0
Lane Group Flow (vph)	584	329	0	0	0	0	0	320	13	155	428	0
Turn Type	Split								Perm	Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	25.6	25.6						13.2	13.2	9.8	26.7	
Effective Green, g (s)	25.6	25.6						13.2	13.2	9.8	26.7	
Actuated g/C Ratio	0.41	0.41						0.21	0.21	0.16	0.43	
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)	692	628						751	336	279	1519	
v/s Ratio Prot	c0.35	0.22						c0.09		c0.09	0.12	
v/s Ratio Perm									0.01			
v/c Ratio	0.84	0.52						0.43	0.04	0.56	0.28	
Uniform Delay, d1	16.5	13.7						21.2	19.5	24.2	11.5	
Progression Factor	1.00	1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.5	1.0						0.7	0.1	1.4	0.2	
Delay (s)	26.0	14.7						21.9	19.5	25.6	11.7	
Level of Service	C	B						C	B	C	B	
Approach Delay (s)		20.4			0.0			21.5			15.4	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	13.6
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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

11/10/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	659	3	78	0	0	0	0	306	74	167	75	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	716	3	85	0	0	0	0	333	80	182	82	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	62	0	0	0
Lane Group Flow (vph)	408	387	0	0	0	0	0	333	18	182	82	0
Turn Type	Split								Perm	Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases									6			
Actuated Green, G (s)	22.5	22.5						13.9	13.9	10.9	28.5	
Effective Green, g (s)	22.5	22.5						13.9	13.9	10.9	28.5	
Actuated g/C Ratio	0.37	0.37						0.23	0.23	0.18	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)	621	609						808	361	317	1656	
v/s Ratio Prot	c0.24	0.23						c0.09		c0.10	0.02	
v/s Ratio Perm									0.01			
v/c Ratio	0.66	0.63						0.41	0.05	0.57	0.05	
Uniform Delay, d1	16.0	15.8						20.0	18.3	22.9	8.8	
Progression Factor	1.00	1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.7	2.4						0.6	0.1	1.6	0.0	
Delay (s)	18.7	18.2						20.6	18.4	24.4	8.8	
Level of Service	B	B						C	B	C	A	
Approach Delay (s)		18.4			0.0			20.2			19.6	
Approach LOS		B			A			C			B	

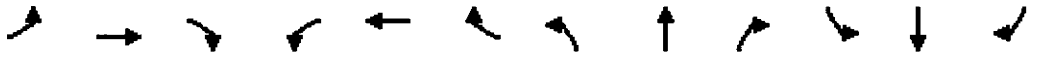
Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	13.6
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	254	185	114	202	71	136	448	188	39	232	117
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	276	201	124	220	77	148	487	204	42	252	127
RTOR Reduction (vph)	0	0	165	0	26	0	0	0	143	0	0	106
Lane Group Flow (vph)	114	276	36	124	271	0	148	487	61	42	252	21
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)	7.2	10.5	10.5	9.6	12.9		11.6	17.8	17.8	3.4	9.6	9.6
Effective Green, g (s)	7.2	10.5	10.5	9.6	12.9		11.6	17.8	17.8	3.4	9.6	9.6
Actuated g/C Ratio	0.12	0.18	0.18	0.16	0.22		0.20	0.30	0.30	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)	215	627	280	287	740		346	1062	475	101	573	256
v/s Ratio Prot	0.06	c0.08		c0.07	c0.08		c0.08	c0.14		0.02	0.07	
v/s Ratio Perm			0.02						0.04			0.01
v/c Ratio	0.53	0.44	0.13	0.43	0.37		0.43	0.46	0.13	0.42	0.44	0.08
Uniform Delay, d1	24.5	21.8	20.5	22.4	19.7		20.9	16.8	15.1	27.0	22.4	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	1.3	0.2	0.1	0.4	0.1		0.3	0.1	0.0	1.0	0.2	0.0
Delay (s)	25.7	22.0	20.6	22.8	19.8		21.2	17.0	15.2	28.0	22.6	21.2
Level of Service	C	C	C	C	B		C	B	B	C	C	C
Approach Delay (s)		22.2			20.7			17.3			22.7	
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)	59.3	Sum of lost time (s)	19.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

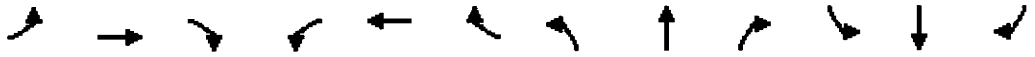
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	235	336	346	234	307	112	163	436	197	97	674	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Lane Util. 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	3397		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	3397		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	365	376	254	334	122	177	474	214	105	733	151
RTOR Reduction (vph)	0	0	311	0	28	0	0	0	171	0	0	90
Lane Group Flow (vph)	255	365	65	254	428	0	177	474	43	105	733	61
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)	20.0	17.1	17.1	21.4	18.5		14.4	19.8	19.8	22.7	28.1	28.1
Effective Green, g (s)	20.0	17.1	17.1	21.4	18.5		14.4	19.8	19.8	22.7	28.1	28.1
Actuated g/C Ratio	0.20	0.17	0.17	0.22	0.19		0.15	0.20	0.20	0.23	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)	358	611	273	383	635		257	708	317	406	1005	449
v/s Ratio Prot	c0.14	0.10		c0.14	0.13		c0.10	0.13		0.06	c0.21	
v/s Ratio Perm			0.04						0.03			0.04
v/c Ratio	0.71	0.60	0.24	0.66	0.67		0.69	0.67	0.14	0.26	0.73	0.14
Uniform Delay, d1	36.8	37.8	35.3	35.5	37.4		40.2	36.6	32.6	31.3	32.0	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	1.1	0.2	3.3	2.2		6.0	1.9	0.1	0.1	2.3	0.1
Delay (s)	42.3	38.8	35.5	38.8	39.7		46.2	38.4	32.6	31.4	34.3	26.5
Level of Service	D	D	D	D	D		D	D	C	C	C	C
Approach Delay (s)		38.5			39.4			38.6			32.8	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	37.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	67.7%	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)	165	340	100	57	270	28	92	573	85	31	233	80
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	3490		1770	3471		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	3490		1770	3471		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	370	109	62	293	30	100	623	92	34	253	87
RTOR Reduction (vph)	0	0	47	0	6	0	0	7	0	0	0	64
Lane Group Flow (vph)	179	370	62	62	317	0	100	708	0	34	253	23
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	19.5	19.5	5.6	13.3		6.8	20.8		3.3	17.3	17.3
Effective Green, g (s)	11.8	19.5	19.5	5.6	13.3		6.8	20.8		3.3	17.3	17.3
Actuated g/C Ratio	0.18	0.30	0.30	0.09	0.20		0.10	0.32		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)	321	1062	475	152	714		185	1111		90	942	421
v/s Ratio Prot	c0.10	0.10		0.04	c0.09		c0.06	c0.20		0.02	0.07	
v/s Ratio Perm			0.04									0.01
v/c Ratio	0.56	0.35	0.13	0.41	0.44		0.54	0.64		0.38	0.27	0.06
Uniform Delay, d1	24.2	17.8	16.6	28.1	22.6		27.6	18.9		29.9	18.8	17.8
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	1.2	0.1	0.0	0.7	0.2		1.7	0.9		1.0	0.1	0.0
Delay (s)	25.4	17.9	16.6	28.8	22.8		29.3	19.8		30.8	18.9	17.8
Level of Service	C	B	B	C	C		C	B		C	B	B
Approach Delay (s)		19.7			23.7			20.9			19.7	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

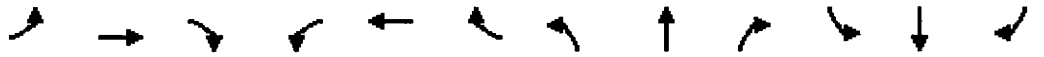


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	319	95	98	416	57	86	401	62	74	677	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.4	4.4	3.5	4.4		3.5	4.4		3.5	4.4	4.4
Lane Util. Factor	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	3469		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	3469		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	161	347	103	107	452	62	93	436	67	80	736	203
RTOR Reduction (vph)	0	0	49	0	7	0	0	8	0	0	0	135
Lane Group Flow (vph)	161	347	54	107	507	0	93	495	0	80	736	68
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)	12.7	21.7	21.7	10.1	19.1		7.3	26.6		6.7	26.0	26.0
Effective Green, g (s)	12.7	21.7	21.7	10.1	19.1		7.3	26.6		6.7	26.0	26.0
Actuated g/C Ratio	0.16	0.27	0.27	0.12	0.24		0.09	0.33		0.08	0.32	0.32
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	949	425	221	820		160	1141		147	1137	509
v/s Ratio Prot	c0.09	c0.10		0.06	c0.15		c0.05	0.14		0.05	c0.21	
v/s Ratio Perm			0.03									0.04
v/c Ratio	0.58	0.37	0.13	0.48	0.62		0.58	0.43		0.54	0.65	0.13
Uniform Delay, d1	31.6	24.0	22.4	33.0	27.6		35.3	21.3		35.6	23.5	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	0.1	0.0	0.6	1.0		3.4	0.1		2.2	1.0	0.0
Delay (s)	33.4	24.1	22.5	33.6	28.6		38.8	21.4		37.8	24.5	19.5
Level of Service	C	C	C	C	C		D	C		D	C	B
Approach Delay (s)		26.3			29.5			24.1			24.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	20.2
Intersection Capacity Utilization	59.2%	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)	67	241	33	48	256	43	43	139	61	36	78	44
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	3462		1770	1863	1583	1770	1762	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3475		1770	3462		1406	1863	1583	1406	1762	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	262	36	52	278	47	47	151	66	39	85	48
RTOR Reduction (vph)	0	9	0	0	12	0	0	0	55	0	20	0
Lane Group Flow (vph)	73	289	0	52	313	0	47	151	11	39	113	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	2.9	11.1		1.8	10.0		5.3	5.3	5.3	5.3	5.3	
Effective Green, g (s)	2.9	11.1		1.8	10.0		5.3	5.3	5.3	5.3	5.3	
Actuated g/C Ratio	0.09	0.34		0.06	0.31		0.16	0.16	0.16	0.16	0.16	
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)	159	1198		99	1075		231	307	261	231	290	
v/s Ratio Prot	c0.04	0.08		0.03	c0.09			c0.08			0.06	
v/s Ratio Perm							0.03		0.01	0.03		
v/c Ratio	0.46	0.24		0.53	0.29		0.20	0.49	0.04	0.17	0.39	
Uniform Delay, d1	13.9	7.5		14.8	8.4		11.6	12.2	11.3	11.6	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.0		2.3	0.1		0.2	0.5	0.0	0.1	0.3	
Delay (s)	14.7	7.6		17.1	8.5		11.8	12.7	11.3	11.7	12.3	
Level of Service	B	A		B	A		B	B	B	B	B	
Approach Delay (s)		9.0			9.7			12.2			12.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	32.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

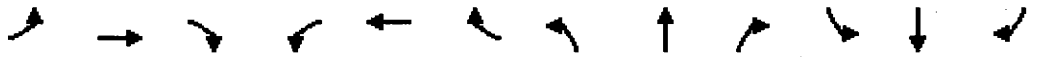


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	381	55	84	446	47	30	121	78	38	186	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.99		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	3472		1770	3489		1770	1863	1583	1770	1814	
Flt Permitted	0.95	1.00		0.95	1.00		0.60	1.00	1.00	0.67	1.00	
Satd. Flow (perm)	1770	3472		1770	3489		1124	1863	1583	1253	1814	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	414	60	91	485	51	33	132	85	41	202	43
RTOR Reduction (vph)	0	10	0	0	7	0	0	0	65	0	7	0
Lane Group Flow (vph)	33	464	0	91	529	0	33	132	20	41	238	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	13.1		5.0	16.3		10.1	10.1	10.1	10.1	10.1	
Effective Green, g (s)	1.8	13.1		5.0	16.3		10.1	10.1	10.1	10.1	10.1	
Actuated g/C Ratio	0.04	0.31		0.12	0.39		0.24	0.24	0.24	0.24	0.24	
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)	75	1078		210	1348		269	446	379	300	434	
v/s Ratio Prot	0.02	0.13		c0.05	c0.15			0.07			c0.13	
v/s Ratio Perm							0.03		0.01	0.03		
v/c Ratio	0.44	0.43		0.43	0.39		0.12	0.30	0.05	0.14	0.55	
Uniform Delay, d1	19.7	11.6		17.3	9.4		12.6	13.1	12.4	12.6	14.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.1		0.5	0.1		0.1	0.1	0.0	0.1	0.8	
Delay (s)	21.2	11.7		17.8	9.4		12.7	13.3	12.4	12.7	14.8	
Level of Service	C	B		B	A		B	B	B	B	B	
Approach Delay (s)		12.3			10.7			12.9			14.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	42.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

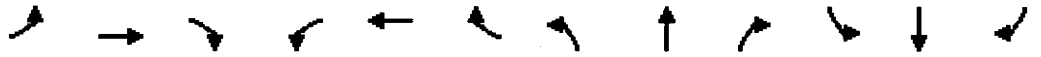
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	119	71	280	244	317	107	1348	211	103	841	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.9	3.7	4.9	4.9	3.7	4.9		3.7	4.9	
Lane Util. 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	4982		1770	5030	
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	4982		1770	5030	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	129	77	304	265	345	116	1465	229	112	914	71
RTOR Reduction (vph)	0	0	68	0	0	266	0	13	0	0	6	0
Lane Group Flow (vph)	129	129	9	304	265	79	116	1681	0	112	979	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)	11.7	11.9	11.9	22.0	22.2	22.2	11.0	35.6		10.8	35.4	
Effective Green, g (s)	11.7	11.9	11.9	22.0	22.2	22.2	11.0	35.6		10.8	35.4	
Actuated g/C Ratio	0.12	0.12	0.12	0.23	0.23	0.23	0.11	0.37		0.11	0.36	
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)	212	432	193	399	806	360	200	1819		196	1826	
v/s Ratio Prot	0.07	0.04		c0.17	c0.07		c0.07	c0.34		0.06	0.19	
v/s Ratio Perm			0.01			0.05						
v/c Ratio	0.61	0.30	0.05	0.76	0.33	0.22	0.58	0.92		0.57	0.54	
Uniform Delay, d1	40.7	39.0	37.8	35.3	31.4	30.6	41.1	29.7		41.2	24.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.4	0.9	0.3	7.6	0.6	0.7	2.5	8.7		2.5	0.6	
Delay (s)	44.1	39.9	38.1	42.9	32.0	31.3	43.6	38.3		43.6	25.1	
Level of Service	D	D	D	D	C	C	D	D		D	C	
Approach Delay (s)		41.1			35.3			38.7			27.0	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	35.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	7.4
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



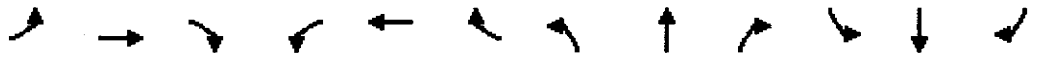
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	213	149	261	308	246	121	947	292	112	1272	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9	4.9	3.7	4.9	4.9	3.7	4.9		3.7	4.9	
Lane Util. 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	4906		1770	5040	
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	4906		1770	5040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	232	162	284	335	267	132	1029	317	122	1383	87
RTOR Reduction (vph)	0	0	137	0	0	204	0	36	0	0	5	0
Lane Group Flow (vph)	137	232	25	284	335	63	132	1310	0	122	1465	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)	12.5	15.5	15.5	20.9	23.9	23.9	12.2	36.2		11.6	35.6	
Effective Green, g (s)	12.5	15.5	15.5	20.9	23.9	23.9	12.2	36.2		11.6	35.6	
Actuated g/C Ratio	0.12	0.15	0.15	0.21	0.24	0.24	0.12	0.36		0.11	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)	218	541	242	365	834	373	213	1751		202	1769	
v/s Ratio Prot	0.08	0.07		c0.16	c0.09		c0.07	0.27		0.07	c0.29	
v/s Ratio Perm			0.02			0.04						
v/c Ratio	0.63	0.43	0.10	0.78	0.40	0.17	0.62	0.75		0.60	0.83	
Uniform Delay, d1	42.2	38.9	37.0	38.1	32.7	30.8	42.4	28.6		42.7	30.1	
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	4.0	1.3	0.4	9.2	0.7	0.5	3.7	2.0		3.5	3.8	
Delay (s)	46.3	40.2	37.4	47.2	33.4	31.3	46.1	30.6		46.2	33.9	
Level of Service	D	D	D	D	C	C	D	C		D	C	
Approach Delay (s)		40.9			37.2			32.0			34.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	35.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	12.3
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)	21	373	34	70	302	4	496	24	13	2	44	36
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	3533		1770	1765			1751	
Flt Permitted	0.55	1.00	1.00	0.51	1.00		0.95	1.00			1.00	
Satd. Flow (perm)	1027	3539	1583	945	3533		1770	1765			1751	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	405	37	76	328	4	539	26	14	2	48	39
RTOR Reduction (vph)	0	0	28	0	1	0	0	8	0	0	35	0
Lane Group Flow (vph)	23	405	9	76	331	0	539	32	0	0	54	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)	15.5	15.5	15.5	15.5	15.5		25.6	25.6			5.5	
Effective Green, g (s)	15.5	15.5	15.5	15.5	15.5		25.6	25.6			5.5	
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25		0.42	0.42			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)	261	901	403	241	899		744	742			158	
v/s Ratio Prot		c0.11			0.09		c0.30	0.02			c0.03	
v/s Ratio Perm	0.02		0.01	0.08								
v/c Ratio	0.09	0.45	0.02	0.32	0.37		0.72	0.04			0.34	
Uniform Delay, d1	17.3	19.1	17.0	18.4	18.7		14.7	10.4			26.0	
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	1.0	0.4		3.8	0.0			0.5	
Delay (s)	17.5	19.6	17.1	19.4	19.0		18.5	10.5			26.5	
Level of Service	B	B	B	B	B		B	B			C	
Approach Delay (s)		19.3			19.1			17.9			26.5	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	14.3
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	504	45	85	440	4	308	32	23	3	59	63
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	3535		1770	1746			1734	
Flt Permitted	0.46	1.00	1.00	0.41	1.00		0.95	1.00			1.00	
Satd. Flow (perm)	862	3539	1583	761	3535		1770	1746			1734	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	548	49	92	478	4	335	35	25	3	64	68
RTOR Reduction (vph)	0	0	33	0	1	0	0	17	0	0	47	0
Lane Group Flow (vph)	71	548	16	92	481	0	335	43	0	0	88	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)	18.6	18.6	18.6	18.6	18.6		18.6	18.6			6.4	
Effective Green, g (s)	18.6	18.6	18.6	18.6	18.6		18.6	18.6			6.4	
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32		0.32	0.32			0.11	
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)	277	1137	509	244	1136		569	561			192	
v/s Ratio Prot		c0.15			0.14		c0.19	0.02			c0.05	
v/s Ratio Perm	0.08		0.01	0.12								
v/c Ratio	0.26	0.48	0.03	0.38	0.42		0.59	0.08			0.46	
Uniform Delay, d1	14.5	15.8	13.5	15.2	15.4		16.4	13.7			24.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.7	0.4	0.0	1.3	0.3		1.8	0.1			0.6	
Delay (s)	15.2	16.2	13.5	16.5	15.8		18.3	13.8			24.8	
Level of Service	B	B	B	B	B		B	B			C	
Approach Delay (s)		15.9			15.9			17.6			24.8	
Approach LOS		B			B			B			C	

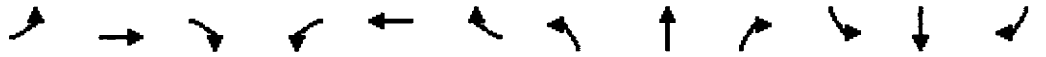
Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	14.3
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	104	75	212	150	49	65	624	160	50	645	96
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	3431		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	3431		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	113	82	230	163	53	71	678	174	54	701	104
RTOR Reduction (vph)	0	29	0	0	12	0	0	22	0	0	0	71
Lane Group Flow (vph)	86	166	0	230	204	0	71	830	0	54	701	33
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	5.9	13.1		11.7	18.9		5.5	24.2		3.8	22.5	22.5
Effective Green, g (s)	5.9	13.1		11.7	18.9		5.5	24.2		3.8	22.5	22.5
Actuated g/C Ratio	0.08	0.18		0.16	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)	146	320		290	475		136	1163		94	1115	499
v/s Ratio Prot	0.05	c0.10		c0.13	0.11		c0.04	c0.24		0.03	0.20	
v/s Ratio Perm												0.02
v/c Ratio	0.59	0.52		0.79	0.43		0.52	0.71		0.57	0.63	0.07
Uniform Delay, d1	31.6	26.3		28.7	21.8		31.7	20.6		33.0	20.9	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.9	0.7		13.0	0.2		1.7	1.8		5.2	0.8	0.0
Delay (s)	35.5	27.0		41.6	22.0		33.4	22.3		38.2	21.7	17.1
Level of Service	D	C		D	C		C	C		D	C	B
Approach Delay (s)		29.6			32.1			23.2			22.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	13.3
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)	151	226	75	115	191	43	84	704	138	61	654	190
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	1811		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	1811		1770	3452		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	164	246	82	125	208	47	91	765	150	66	711	207
RTOR Reduction (vph)	0	12	0	0	9	0	0	15	0	0	0	140
Lane Group Flow (vph)	164	316	0	125	246	0	91	900	0	66	711	67
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	10.9	19.5		9.4	18.0		6.3	26.5		5.6	25.8	25.8
Effective Green, g (s)	10.9	19.5		9.4	18.0		6.3	26.5		5.6	25.8	25.8
Actuated g/C Ratio	0.14	0.24		0.12	0.23		0.08	0.33		0.07	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)	242	439		209	410		140	1149		125	1147	513
v/s Ratio Prot	c0.09	c0.18		0.07	0.14		c0.05	c0.26		0.04	0.20	
v/s Ratio Perm												0.04
v/c Ratio	0.68	0.72		0.60	0.60		0.65	0.78		0.53	0.62	0.13
Uniform Delay, d1	32.7	27.5		33.3	27.6		35.6	24.0		35.7	22.8	19.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.8	4.7		3.1	1.7		8.0	3.3		1.9	0.7	0.0
Delay (s)	38.5	32.2		36.4	29.3		43.5	27.2		37.6	23.5	19.0
Level of Service	D	C		D	C		D	C		D	C	B
Approach Delay (s)		34.3			31.6			28.7			23.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.6%	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)	60	120	17	58	92	38	23	666	48	30	271	25
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	1829		1770	1781		1770	3504		1770	3495	
Flt Permitted	0.67	1.00		0.66	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1243	1829		1235	1781		1770	3504		1770	3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	130	18	63	100	41	25	724	52	33	295	27
RTOR Reduction (vph)	0	5	0	0	14	0	0	4	0	0	5	0
Lane Group Flow (vph)	65	143	0	63	127	0	25	772	0	33	317	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	6.8	6.8		6.8	6.8		0.8	17.1		1.6	17.9	
Effective Green, g (s)	6.8	6.8		6.8	6.8		0.8	17.1		1.6	17.9	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.02	0.44		0.04	0.46	
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)	216	318		215	310		36	1532		72	1600	
v/s Ratio Prot		c0.08			0.07		0.01	c0.22		c0.02	0.09	
v/s Ratio Perm	0.05			0.05								
v/c Ratio	0.30	0.45		0.29	0.41		0.69	0.50		0.46	0.20	
Uniform Delay, d1	14.1	14.5		14.1	14.4		19.0	7.9		18.3	6.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.4		0.3	0.3		37.6	0.1		1.7	0.0	
Delay (s)	14.4	14.8		14.3	14.7		56.7	8.0		20.0	6.3	
Level of Service	B	B		B	B		E	A		C	A	
Approach Delay (s)		14.7			14.6			9.6			7.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	39.1	Sum of lost time (s)	13.6
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	82	32	64	107	37	34	550	25	33	862	46
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	1784		1770	1791		1770	3516		1770	3512	
Flt Permitted	0.66	1.00		0.68	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1226	1784		1262	1791		1770	3516		1770	3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	89	35	70	116	40	37	598	27	36	937	50
RTOR Reduction (vph)	0	13	0	0	12	0	0	2	0	0	3	0
Lane Group Flow (vph)	36	111	0	70	144	0	37	623	0	36	984	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	9.9	9.9		9.9	9.9		1.9	19.8		1.8	19.7	
Effective Green, g (s)	9.9	9.9		9.9	9.9		1.9	19.8		1.8	19.7	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.04	0.44		0.04	0.44	
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	392		277	393		75	1544		71	1534	
v/s Ratio Prot		0.06			c0.08		c0.02	0.18		0.02	c0.28	
v/s Ratio Perm	0.03			0.06								
v/c Ratio	0.13	0.28		0.25	0.37		0.49	0.40		0.51	0.64	
Uniform Delay, d1	14.2	14.6		14.5	14.9		21.1	8.6		21.2	9.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.2	0.2		1.9	0.1		2.1	0.7	
Delay (s)	14.2	14.8		14.7	15.2		23.0	8.7		23.3	10.6	
Level of Service	B	B		B	B		C	A		C	B	
Approach Delay (s)		14.7			15.0			9.5			11.1	
Approach LOS		B			B			A			B	

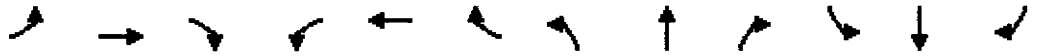
Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	45.1	Sum of lost time (s)	13.6
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	63	23	35	71	31	19	231	24	27	253	24
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	1837		1770	1839	
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	0.60	1.00		0.60	1.00	
Satd. Flow (perm)	1863	1863	1583	1863	1863	1583	1112	1837		1112	1839	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	68	25	38	77	34	21	251	26	29	275	26
RTOR Reduction (vph)	0	0	21	0	0	29	0	5	0	0	5	0
Lane Group Flow (vph)	25	68	4	38	77	5	21	272	0	29	296	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	6.7	6.7		6.7	6.7	
Effective Green, g (s)	2.9	2.9	2.9	2.9	2.9	2.9	6.7	6.7		6.7	6.7	
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)	284	284	242	284	284	242	392	648		392	648	
v/s Ratio Prot		0.04			c0.04			0.15			c0.16	
v/s Ratio Perm	0.01		0.00	0.02		0.00	0.02			0.03		
v/c Ratio	0.09	0.24	0.02	0.13	0.27	0.02	0.05	0.42		0.07	0.46	
Uniform Delay, d1	6.9	7.1	6.8	7.0	7.1	6.8	4.1	4.7		4.1	4.7	
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	0.0	0.2	0.0	0.1	0.2	0.0	0.0	0.2		0.0	0.2	
Delay (s)	7.0	7.2	6.8	7.0	7.3	6.9	4.1	4.8		4.1	4.9	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		7.1			7.1			4.8			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)	19.0	Sum of lost time (s)	9.4
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)	24	114	20	37	137	22	21	95	44	35	164	37
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	1811	
Flt Permitted	0.82	1.00	1.00	0.82	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)	1521	1863	1583	1521	1863	1583	1331	1774		1331	1811	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	124	22	40	149	24	23	103	48	38	178	40
RTOR Reduction (vph)	0	0	17	0	0	18	0	27	0	0	13	0
Lane Group Flow (vph)	26	124	5	40	149	6	23	124	0	38	205	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)	4.9	4.9	4.9	4.9	4.9	4.9	5.6	5.6		5.6	5.6	
Effective Green, g (s)	4.9	4.9	4.9	4.9	4.9	4.9	5.6	5.6		5.6	5.6	
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.25	0.28	0.28		0.28	0.28	
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)	375	459	390	375	459	390	375	499		375	510	
v/s Ratio Prot		0.07			c0.08			0.07			c0.11	
v/s Ratio Perm	0.02		0.00	0.03		0.00	0.02			0.03		
v/c Ratio	0.07	0.27	0.01	0.11	0.32	0.02	0.06	0.25		0.10	0.40	
Uniform Delay, d1	5.8	6.1	5.7	5.8	6.1	5.7	5.2	5.5		5.3	5.8	
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	0.1	0.0	0.0	0.2	0.0	0.0	0.1		0.0	0.2	
Delay (s)	5.8	6.2	5.7	5.9	6.3	5.7	5.3	5.6		5.3	6.0	
Level of Service	A	A	A	A	A	A	A	A		A	A	
Approach Delay (s)		6.0			6.1			5.6			5.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	19.9	Sum of lost time (s)	9.4
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

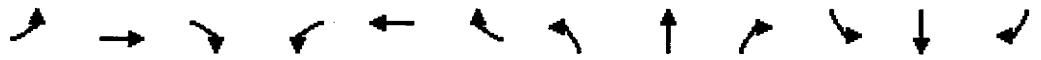


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	75	59	36	62	23	72	1709	42	43	1121	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.2		3.7	4.9		3.7	4.9	
Lane Util. Factor	1.00	1.00			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	5067		1770	5018	
Flt Permitted	0.73	1.00			0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1356	1740			1538		1770	5067		1770	5018	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	82	64	39	67	25	78	1858	46	47	1218	117
RTOR Reduction (vph)	0	46	0	0	14	0	0	3	0	0	12	0
Lane Group Flow (vph)	65	100	0	0	117	0	78	1901	0	47	1323	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	6.3	6.3			6.6		4.1	28.9		2.5	27.3	
Effective Green, g (s)	6.3	6.3			6.6		4.1	28.9		2.5	27.3	
Actuated g/C Ratio	0.12	0.12			0.13		0.08	0.57		0.05	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)	168	216			200		143	2883		87	2697	
v/s Ratio Prot		0.06					c0.04	c0.38		0.03	0.26	
v/s Ratio Perm	0.05				c0.08							
v/c Ratio	0.39	0.47			0.59		0.55	0.66		0.54	0.49	
Uniform Delay, d1	20.5	20.7			20.8		22.5	7.6		23.6	7.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.6			2.8		2.3	0.8		3.6	0.4	
Delay (s)	21.0	21.3			23.6		24.7	8.4		27.2	7.7	
Level of Service	C	C			C		C	A		C	A	
Approach Delay (s)		21.2			23.6			9.0			8.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	7.9
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

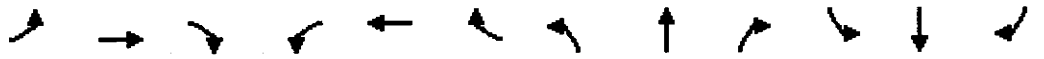
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	84	100	39	67	59	36	81	1212	40	94	1696	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.2		3.7	4.9		3.7	4.9	
Lane Util. Factor	1.00	1.00			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	1785			1770		1770	5061		1770	5052	
Flt Permitted	0.61	1.00			0.80		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1139	1785			1440		1770	5061		1770	5052	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	109	42	73	64	39	88	1317	43	102	1843	84
RTOR Reduction (vph)	0	22	0	0	16	0	0	4	0	0	5	0
Lane Group Flow (vph)	91	129	0	0	160	0	88	1356	0	102	1922	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	7.4	7.4			7.7		5.8	27.0		6.1	27.3	
Effective Green, g (s)	7.4	7.4			7.7		5.8	27.0		6.1	27.3	
Actuated g/C Ratio	0.14	0.14			0.14		0.11	0.50		0.11	0.51	
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)	157	246			207		192	2549		201	2573	
v/s Ratio Prot		0.07					0.05	0.27		c0.06	c0.38	
v/s Ratio Perm	0.08				c0.11							
v/c Ratio	0.58	0.53			0.77		0.46	0.53		0.51	0.75	
Uniform Delay, d1	21.6	21.5			22.1		22.4	9.0		22.3	10.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.2	0.9			14.9		0.6	0.5		0.7	1.6	
Delay (s)	24.8	22.4			37.0		23.1	9.5		23.1	12.0	
Level of Service	C	C			D		C	A		C	B	
Approach Delay (s)		23.3			37.0			10.3			12.6	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	7.9
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



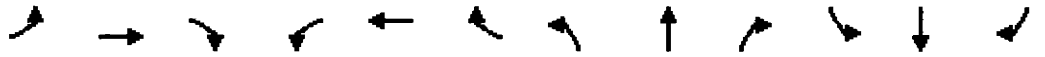
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	28	5	23	28	31	2	773	30	20	314	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	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	1823		1770	1714		1770	3519		1770	3524	
Flt Permitted	1.00	1.00		1.00	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1863	1823		1863	1714		1770	3519		1770	3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	30	5	25	30	34	2	840	33	22	341	10
RTOR Reduction (vph)	0	5	0	0	31	0	0	2	0	0	2	0
Lane Group Flow (vph)	8	30	0	25	33	0	2	871	0	22	349	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	3.1	3.1		3.1	3.1		1.6	15.4		0.7	14.5	
Effective Green, g (s)	3.1	3.1		3.1	3.1		1.6	15.4		0.7	14.5	
Actuated g/C Ratio	0.09	0.09		0.09	0.09		0.05	0.47		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)	176	172		176	162		86	1652		38	1558	
v/s Ratio Prot		0.02			c0.02		0.00	c0.25		0.01	c0.10	
v/s Ratio Perm	0.00			0.01								
v/c Ratio	0.05	0.18		0.14	0.21		0.02	0.53		0.58	0.22	
Uniform Delay, d1	13.5	13.7		13.6	13.7		14.9	6.1		15.9	5.7	
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		0.1	0.2		0.0	0.1		12.6	0.0	
Delay (s)	13.5	13.9		13.8	13.9		14.9	6.3		28.5	5.7	
Level of Service	B	B		B	B		B	A		C	A	
Approach Delay (s)		13.8			13.9			6.3			7.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	32.8	Sum of lost time (s)	14.6
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)	12	42	20	63	30	31	16	665	30	22	782	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		4.0	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	3516		1770	3532	
Flt Permitted	0.71	1.00		0.71	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1331	1772		1331	1721		1770	3516		1770	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	46	22	68	33	34	17	723	33	24	850	12
RTOR Reduction (vph)	0	17	0	0	29	0	0	2	0	0	1	0
Lane Group Flow (vph)	13	51	0	68	38	0	17	754	0	24	861	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	5.6	5.6		5.6	5.6		0.7	15.7		0.7	15.7	
Effective Green, g (s)	5.6	5.6		5.6	5.6		0.7	15.7		0.7	15.7	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.02	0.44		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)	209	279		209	271		35	1551		35	1558	
v/s Ratio Prot		0.03			0.02		c0.01	0.21		0.01	c0.24	
v/s Ratio Perm	0.01			c0.05								
v/c Ratio	0.06	0.18		0.33	0.14		0.49	0.49		0.69	0.55	
Uniform Delay, d1	12.8	13.0		13.3	12.9		17.3	7.1		17.3	7.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.1		0.3	0.1		3.8	0.1		36.1	0.2	
Delay (s)	12.8	13.1		13.7	13.0		21.1	7.2		53.5	7.6	
Level of Service	B	B		B	B		C	A		D	A	
Approach Delay (s)		13.1			13.3			7.5			8.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	35.6	Sum of lost time (s)	13.6
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	17	38	3	10	50	15	14	193	12	14	190	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	41	3	11	54	16	15	210	13	15	207	2

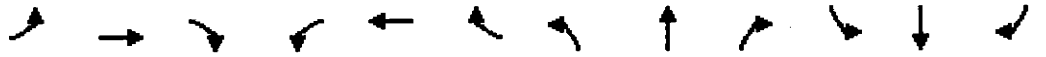
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	63	82	15	223	15	209
Volume Left (vph)	18	11	15	0	15	0
Volume Right (vph)	3	16	0	13	0	2
Hadj (s)	0.06	-0.06	0.53	-0.01	0.53	0.03
Departure Headway (s)	5.2	5.1	5.6	5.1	5.7	5.1
Degree Utilization, x	0.09	0.11	0.02	0.32	0.02	0.30
Capacity (veh/h)	625	644	614	682	610	675
Control Delay (s)	8.7	8.7	7.6	9.2	7.6	9.1
Approach Delay (s)	8.7	8.7	9.1		9.0	
Approach LOS	A	A	A		A	

Intersection Summary				
Delay	9.0			
HCM Level of Service	A			
Intersection Capacity Utilization	24.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	22	63	23	35	71	31	19	230	24	27	255	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	68	25	38	77	34	21	250	26	29	277	26

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	117	149	21	276	29	303
Volume Left (vph)	24	38	21	0	29	0
Volume Right (vph)	25	34	0	26	0	26
Hadj (s)	-0.05	-0.05	0.53	-0.03	0.53	-0.03
Departure Headway (s)	5.8	5.7	6.3	5.7	6.2	5.7
Degree Utilization, x	0.19	0.24	0.04	0.44	0.05	0.48
Capacity (veh/h)	548	561	545	603	549	610
Control Delay (s)	10.2	10.5	8.3	11.9	8.4	12.5
Approach Delay (s)	10.2	10.5	11.6		12.2	
Approach LOS	B	B	B		B	

Delay	11.5			
HCM Level of Service	B			
Intersection Capacity Utilization	39.2%	ICU Level of Service		A
Analysis Period (min)	15			

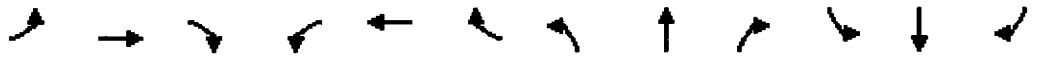


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	1238	63	127	1005	214	85	67	299	318	155	829
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.3		3.7	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. 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	5049		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	5049		1770	5085	1583	1770	1863	2787	1770	1586	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1346	68	138	1092	233	92	73	325	346	168	901
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	275	0	85	378
Lane Group Flow (vph)	136	1408	0	138	1092	233	92	73	50	346	461	145
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		10.1	25.9	85.0	13.0	13.0	13.0	19.1	19.1	19.1
Effective Green, g (s)	10.0	25.8		10.1	25.9	85.0	13.0	13.0	13.0	19.1	19.1	19.1
Actuated g/C Ratio	0.12	0.30		0.12	0.30	1.00	0.15	0.15	0.15	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)	208	1533		210	1549	1583	271	285	426	398	356	338
v/s Ratio Prot	0.08	c0.28		0.08	c0.21		c0.05	0.04		0.20	c0.29	
v/s Ratio Perm						0.15			0.02			0.10
v/c Ratio	0.65	0.92		0.66	0.70	0.15	0.34	0.26	0.12	0.87	1.30	0.43
Uniform Delay, d1	35.8	28.6		35.8	26.2	0.0	32.2	31.7	31.0	31.7	32.9	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	5.5	9.3		5.6	1.7	0.2	1.3	0.8	0.2	20.8	152.7	3.2
Delay (s)	41.4	37.9		41.3	27.9	0.2	33.5	32.6	31.3	52.6	185.6	31.4
Level of Service	D	D		D	C	A	C	C	C	D	F	C
Approach Delay (s)		38.2			24.7			31.9			96.1	
Approach LOS		D			C			C			F	

Intersection Summary			
HCM Average Control Delay	50.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	291	1568	118	206	1254	666	81	56	236	266	226	738
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	316	1704	128	224	1363	724	88	61	257	289	246	802
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	221	0	46	383
Lane Group Flow (vph)	316	1823	0	224	1363	724	88	61	36	289	497	122
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	25.7		12.3	25.7	86.1	12.1	12.1	12.1	19.0	19.0	19.0
Effective Green, g (s)	12.3	25.7		12.3	25.7	86.1	12.1	12.1	12.1	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)	253	1502		253	1518	1583	249	262	392	391	358	332
v/s Ratio Prot	0.18	c0.36		0.13	c0.27		0.05	0.03		0.16	c0.31	
v/s Ratio Perm						c0.46			0.01			0.08
v/c Ratio	1.25	1.21		0.89	0.90	0.46	0.35	0.23	0.09	0.74	1.39	0.37
Uniform Delay, d1	36.9	30.2		36.2	28.9	0.0	33.5	32.9	32.2	31.2	33.6	28.5
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	140.5	102.5		27.9	7.7	1.0	1.5	0.8	0.2	10.9	191.2	2.5
Delay (s)	177.4	132.7		64.2	36.7	1.0	35.0	33.7	32.4	42.1	224.7	31.0
Level of Service	F	F		E	D	A	C	C	C	D	F	C
Approach Delay (s)		139.3			28.2			33.1			112.1	
Approach LOS		F			C			C			F	

Intersection Summary			
HCM Average Control Delay	85.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	9.3
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

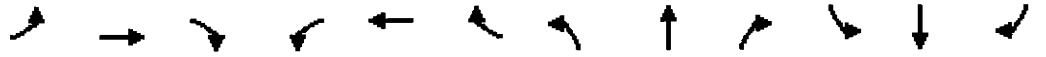


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	1361	494	0	1100	13	524	17	732	19	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			5.3	5.3	4.6	4.6	4.6	3.7		3.7
Lane Util. Factor	1.00	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	4882			5085	1583	1681	1690	1583	1770		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.96	1.00	0.83		1.00
Satd. Flow (perm)	1770	4882			5085	1583	1681	1690	1583	1552		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1479	537	0	1196	14	570	18	796	21	0	34
RTOR Reduction (vph)	0	43	0	0	0	4	0	0	253	0	0	32
Lane Group Flow (vph)	12	1973	0	0	1196	10	296	292	543	21	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)	1.2	58.3			53.0	53.0	25.5	25.5	25.5	4.8		4.8
Effective Green, g (s)	1.2	58.3			53.0	53.0	25.5	25.5	25.5	4.8		4.8
Actuated g/C Ratio	0.01	0.57			0.52	0.52	0.25	0.25	0.25	0.05		0.05
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)	21	2796			2647	824	421	423	397	73		75
v/s Ratio Prot	0.01	c0.40			0.24	0.01	0.18	0.17				
v/s Ratio Perm									c0.34	c0.01		0.00
v/c Ratio	0.57	0.71			0.45	0.01	0.70	0.69	1.37	0.29		0.02
Uniform Delay, d1	50.0	15.6			15.3	11.8	34.7	34.6	38.2	46.8		46.3
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	21.2	1.1			0.2	0.0	6.6	6.1	181.4	0.8		0.0
Delay (s)	71.3	16.7			15.5	11.8	41.3	40.6	219.5	47.6		46.3
Level of Service	E	B			B	B	D	D	F	D		D
Approach Delay (s)		17.0			15.4			143.7			46.8	
Approach LOS		B			B			F			D	

Intersection Summary			
HCM Average Control Delay	54.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	13.2
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

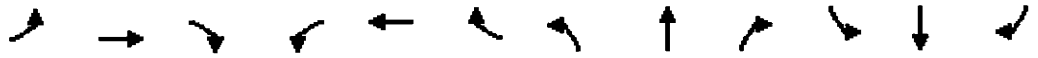
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	1235	750	0	2017	34	329	10	366	20	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			5.3	5.3	4.6	4.6	4.6	3.7		3.7
Lane Util. Factor	1.00	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	0.65		1.00
Satd. Flow (perm)	1770	4797			5085	1583	1681	1690	1583	1202		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1342	815	0	2192	37	358	11	398	22	0	72
RTOR Reduction (vph)	0	70	0	0	0	6	0	0	268	0	0	67
Lane Group Flow (vph)	82	2087	0	0	2192	31	183	186	130	22	0	5
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)	7.5	56.6			45.0	45.0	20.3	20.3	20.3	6.2		6.2
Effective Green, g (s)	7.5	56.6			45.0	45.0	20.3	20.3	20.3	6.2		6.2
Actuated g/C Ratio	0.08	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)	138	2819			2376	740	354	356	334	77		102
v/s Ratio Prot	0.05	c0.44			c0.43	0.02	0.11	c0.11				
v/s Ratio Perm									0.08	c0.02		0.00
v/c Ratio	0.59	0.74			0.92	0.04	0.52	0.52	0.39	0.29		0.05
Uniform Delay, d1	42.9	14.5			24.0	13.9	33.7	33.7	32.7	42.9		42.3
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	4.5	1.3			6.8	0.0	2.5	2.6	1.6	0.7		0.1
Delay (s)	47.4	15.8			30.8	14.0	36.2	36.3	34.2	43.7		42.3
Level of Service	D	B			C	B	D	D	C	D		D
Approach Delay (s)		17.0			30.5			35.2			42.7	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	96.3	Sum of lost time (s)	18.5
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



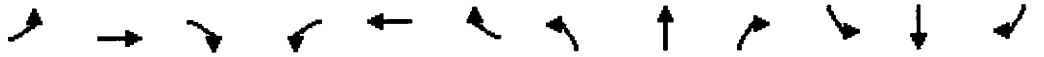
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	837	1121	127	54	574	129	250	530	84	98	230	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.9	4.9	4.6	4.9	4.9	5.3	5.3		5.3	5.3	5.3
Lane Util. 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	4981		1770	3204	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	4981		1770	3204	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	910	1218	138	59	624	140	272	576	91	107	250	323
RTOR Reduction (vph)	0	0	50	0	0	83	0	16	0	0	58	149
Lane Group Flow (vph)	910	1218	88	59	624	57	272	651	0	107	337	29
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	35.8	35.8	4.7	24.8	24.8	18.9	18.9		15.3	15.3	15.3
Effective Green, g (s)	15.7	35.8	35.8	4.7	24.8	24.8	18.9	18.9		15.3	15.3	15.3
Actuated g/C Ratio	0.17	0.38	0.38	0.05	0.26	0.26	0.20	0.20		0.16	0.16	0.16
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)	569	1336	598	170	1330	414	684	993		286	517	233
v/s Ratio Prot	c0.27	c0.34		0.02	c0.12		0.08	c0.13		0.06	c0.11	
v/s Ratio Perm			0.06			0.04						0.02
v/c Ratio	1.60	0.91	0.15	0.35	0.47	0.14	0.40	0.66		0.37	0.65	0.12
Uniform Delay, d1	39.6	28.0	19.4	43.6	29.5	26.8	33.0	35.0		35.5	37.3	34.0
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	277.9	9.4	0.0	0.4	0.1	0.1	0.1	1.2		0.3	2.3	0.1
Delay (s)	317.4	37.4	19.5	44.0	29.6	26.9	33.1	36.2		35.8	39.5	34.1
Level of Service	F	D	B	D	C	C	C	D		D	D	C
Approach Delay (s)		148.8			30.1			35.3			37.5	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM Average Control Delay	89.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	94.8	Sum of lost time (s)	15.2
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)	540	834	225	188	1061	114	293	417	61	147	647	676
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	4988		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	4988		1770	3240	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	587	907	245	204	1153	124	318	453	66	160	703	735
RTOR Reduction (vph)	0	0	138	0	0	39	0	15	0	0	29	213
Lane Group Flow (vph)	587	907	107	204	1153	85	318	504	0	160	968	228
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	35.2	35.2	13.3	33.1	33.1	18.0	18.0		34.8	34.8	34.8
Effective Green, g (s)	15.4	35.2	35.2	13.3	33.1	33.1	18.0	18.0		34.8	34.8	34.8
Actuated g/C Ratio	0.13	0.29	0.29	0.11	0.27	0.27	0.15	0.15		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)	435	1026	459	376	1386	432	509	740		507	929	413
v/s Ratio Prot	c0.17	c0.26		0.06	c0.23		0.09	c0.10		0.09	c0.30	
v/s Ratio Perm			0.07			0.05						0.16
v/c Ratio	1.35	0.88	0.23	0.54	0.83	0.20	0.62	0.68		0.32	1.04	0.55
Uniform Delay, d1	53.0	41.2	32.8	51.2	41.5	33.9	48.5	49.0		34.0	43.3	36.7
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	171.9	8.9	0.1	0.9	4.2	0.1	1.7	2.1		0.1	41.2	0.9
Delay (s)	224.9	50.1	32.9	52.0	45.8	34.0	50.3	51.0		34.1	84.5	37.6
Level of Service	F	D	C	D	D	C	D	D		C	F	D
Approach Delay (s)		106.7			45.6			50.7			66.5	
Approach LOS		F			D			D			E	

Intersection Summary			
HCM Average Control Delay	71.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	121.4	Sum of lost time (s)	15.2
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

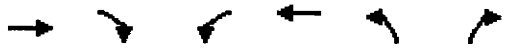


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	311	988	54	55	530	49	60	72	104	14	44	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3		4.0	5.3		4.0	4.5		4.5	4.5	
Lane Util. Factor	1.00	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	3512		1770	5021		1770	1697		1770	1641	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3512		1770	5021		1770	1697		1770	1641	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	338	1074	59	60	576	53	65	78	113	15	48	185
RTOR Reduction (vph)	0	3	0	0	12	0	0	52	0	0	155	0
Lane Group Flow (vph)	338	1130	0	60	617	0	65	139	0	15	78	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	16.8	33.3		3.8	20.3		8.5	15.4		0.9	8.3	
Effective Green, g (s)	16.8	33.3		3.8	20.3		8.5	15.4		0.9	8.3	
Actuated g/C Ratio	0.23	0.46		0.05	0.28		0.12	0.21		0.01	0.12	
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)	415	1631		94	1422		210	364		22	190	
v/s Ratio Prot	c0.19	c0.32		0.03	0.12		0.04	c0.08		0.01	c0.05	
v/s Ratio Perm												
v/c Ratio	0.81	0.69		0.64	0.43		0.31	0.38		0.68	0.41	
Uniform Delay, d1	26.0	15.2		33.3	21.0		28.9	24.1		35.3	29.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.1	1.0		10.0	0.1		0.3	0.2		52.0	0.5	
Delay (s)	37.0	16.2		43.3	21.1		29.2	24.3		87.2	30.0	
Level of Service	D	B		D	C		C	C		F	C	
Approach Delay (s)		21.0			23.0			25.6			33.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	71.7	Sum of lost time (s)	8.5
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

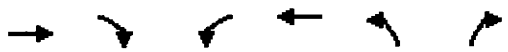
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	827	37	93	1259	11	20	12	62	3	27	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3		4.0	5.3		4.0	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		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	3517		1770	5079		1770	1629		1770	1670	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3517		1770	5079		1770	1629		1770	1670	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	899	40	101	1368	12	22	13	67	3	29	64
RTOR Reduction (vph)	0	3	0	0	1	0	0	59	0	0	58	0
Lane Group Flow (vph)	85	936	0	101	1379	0	22	21	0	3	35	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	5.5	24.5		5.7	24.7		2.8	6.3		0.8	4.8	
Effective Green, g (s)	5.5	24.5		5.7	24.7		2.8	6.3		0.8	4.8	
Actuated g/C Ratio	0.10	0.44		0.10	0.44		0.05	0.11		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)	175	1550		181	2256		89	185		25	144	
v/s Ratio Prot	0.05	0.27		c0.06	c0.27		c0.01	c0.01		0.00	c0.02	
v/s Ratio Perm												
v/c Ratio	0.49	0.60		0.56	0.61		0.25	0.11		0.12	0.24	
Uniform Delay, d1	23.7	11.9		23.8	11.8		25.4	22.1		27.1	23.7	
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		2.1	0.3		0.5	0.1		0.8	0.3	
Delay (s)	24.5	12.3		25.9	12.1		25.9	22.2		27.8	24.0	
Level of Service	C	B		C	B		C	C		C	C	
Approach Delay (s)		13.3			13.1			23.0			24.1	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	55.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1165	21	107	537	49	66
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)	5072		1770	5085	1682	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	5072		1770	5085	1682	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1266	23	116	584	53	72
RTOR Reduction (vph)	1	0	0	0	52	0
Lane Group Flow (vph)	1288	0	116	584	73	0
Turn Type			Prot			
Protected Phases	2		1	6	4	
Permitted Phases						
Actuated Green, G (s)	33.6		6.4	44.0	5.8	
Effective Green, g (s)	33.6		6.4	44.0	5.8	
Actuated g/C Ratio	0.57		0.11	0.75	0.10	
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)	2898		193	3805	166	
v/s Ratio Prot	c0.25		c0.07	0.11	c0.04	
v/s Ratio Perm						
v/c Ratio	0.44		0.60	0.15	0.44	
Uniform Delay, d1	7.2		25.0	2.1	25.0	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.1		3.6	0.0	0.7	
Delay (s)	7.4		28.6	2.1	25.6	
Level of Service	A		C	A	C	
Approach Delay (s)	7.4			6.5	25.6	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	828	74	75	1262	38	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	0.99		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	5023		1770	5085	1676	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	5023		1770	5085	1676	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	900	80	82	1372	41	65
RTOR Reduction (vph)	7	0	0	0	58	0
Lane Group Flow (vph)	973	0	82	1372	48	0
Turn Type			Prot			
Protected Phases	2		1	6	4	
Permitted Phases						
Actuated Green, G (s)	23.4		5.0	32.4	5.0	
Effective Green, g (s)	23.4		5.0	32.4	5.0	
Actuated g/C Ratio	0.50		0.11	0.70	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)	2533		191	3551	181	
v/s Ratio Prot	0.19		0.05	c0.27	c0.03	
v/s Ratio Perm						
v/c Ratio	0.38		0.43	0.39	0.27	
Uniform Delay, d1	7.1		19.4	2.9	19.0	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.1		0.6	0.1	0.3	
Delay (s)	7.2		19.9	3.0	19.3	
Level of Service	A		B	A	B	
Approach Delay (s)	7.2			3.9	19.3	
Approach LOS	A			A	B	

Intersection Summary				
HCM Average Control Delay	5.8	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.37			
Actuated Cycle Length (s)	46.4	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	38.4%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	981	66	48	508	34	98	512	125	88	241	117
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	5037		1770	5037		1770	3435		1770	3366	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5037		1770	5037		1770	3435		1770	3366	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	1066	72	52	552	37	107	557	136	96	262	127
RTOR Reduction (vph)	0	7	0	0	7	0	0	24	0	0	69	0
Lane Group Flow (vph)	129	1131	0	52	582	0	107	669	0	96	320	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	10.0	23.9		4.4	18.3		11.6	20.9		6.8	16.1	
Effective Green, g (s)	10.0	23.9		4.4	18.3		11.6	20.9		6.8	16.1	
Actuated g/C Ratio	0.14	0.32		0.06	0.25		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)	240	1631		106	1249		278	973		163	734	
v/s Ratio Prot	0.07	c0.22		0.03	c0.12		0.06	c0.19		c0.05	0.10	
v/s Ratio Perm												
v/c Ratio	0.54	0.69		0.49	0.47		0.38	0.69		0.59	0.44	
Uniform Delay, d1	29.7	21.8		33.6	23.6		27.9	23.5		32.2	24.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	1.0		1.3	0.1		0.3	1.6		3.5	0.2	
Delay (s)	30.9	22.8		34.9	23.7		28.2	25.2		35.6	25.1	
Level of Service	C	C		C	C		C	C		D	C	
Approach Delay (s)		23.6			24.6			25.6			27.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	18.7
Intersection Capacity Utilization	66.7%	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)	168	950	89	156	1032	73	84	537	125	95	632	122
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	5035		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	5035		1770	3439		1770	3453	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	1033	97	170	1122	79	91	584	136	103	687	133
RTOR Reduction (vph)	0	10	0	0	7	0	0	22	0	0	17	0
Lane Group Flow (vph)	183	1120	0	170	1194	0	91	698	0	103	803	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	11.8	22.5		11.0	21.7		9.1	26.6		7.3	24.8	
Effective Green, g (s)	11.8	22.5		11.0	21.7		9.1	26.6		7.3	24.8	
Actuated g/C Ratio	0.14	0.26		0.13	0.25		0.11	0.31		0.09	0.29	
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)	245	1326		229	1282		189	1074		152	1005	
v/s Ratio Prot	0.10	c0.22		0.10	c0.24		0.05	c0.20		0.06	c0.23	
v/s Ratio Perm												
v/c Ratio	0.75	0.84		0.74	0.93		0.48	0.65		0.68	0.80	
Uniform Delay, d1	35.3	29.7		35.7	31.0		35.8	25.3		37.8	27.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.3	4.9		10.8	12.0		0.7	1.0		9.0	4.2	
Delay (s)	45.6	34.6		46.5	43.0		36.5	26.3		46.9	32.1	
Level of Service	D	C		D	D		D	C		D	C	
Approach Delay (s)		36.1			43.4			27.5			33.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	36.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	9.8
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	387	730	49	69	395	63	86	536	163	81	212	80
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	3506		3433	4981		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	3506		3433	4981		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	421	793	53	75	429	68	93	583	177	88	230	87
RTOR Reduction (vph)	0	3	0	0	17	0	0	0	66	0	0	73
Lane Group Flow (vph)	421	843	0	75	480	0	93	583	111	88	230	14
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)	19.5	29.5		4.5	14.5		15.1	21.3	21.3	7.0	13.2	13.2
Effective Green, g (s)	19.5	29.5		4.5	14.5		15.1	21.3	21.3	7.0	13.2	13.2
Actuated g/C Ratio	0.24	0.37		0.06	0.18		0.19	0.27	0.27	0.09	0.17	0.17
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)	839	1296		194	905		335	945	423	155	585	262
v/s Ratio Prot	0.12	c0.24		0.02	c0.10		0.05	c0.16		c0.05	0.06	
v/s Ratio Perm									0.07			0.01
v/c Ratio	0.50	0.65		0.39	0.53		0.28	0.62	0.26	0.57	0.39	0.05
Uniform Delay, d1	26.0	20.9		36.3	29.6		27.7	25.7	23.1	34.9	29.7	28.0
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	0.2	0.9		0.5	0.3		0.2	0.8	0.1	2.8	0.2	0.0
Delay (s)	26.1	21.8		36.8	29.9		27.8	26.5	23.2	37.8	29.9	28.1
Level of Service	C	C		D	C		C	C	C	D	C	C
Approach Delay (s)		23.2			30.8			26.0			31.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	18.1
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	310	749	84	231	1012	97	81	491	149	71	422	113
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	3486		3433	5019		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	3486		3433	5019		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	337	814	91	251	1100	105	88	534	162	77	459	123
RTOR Reduction (vph)	0	5	0	0	7	0	0	0	69	0	0	97
Lane Group Flow (vph)	337	900	0	251	1198	0	88	534	93	77	459	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)	14.3	34.9		11.6	32.2		8.9	21.5	21.5	6.9	19.5	19.5
Effective Green, g (s)	14.3	34.9		11.6	32.2		8.9	21.5	21.5	6.9	19.5	19.5
Actuated g/C Ratio	0.15	0.38		0.13	0.35		0.10	0.23	0.23	0.07	0.21	0.21
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)	531	1317		431	1749		170	823	368	132	747	334
v/s Ratio Prot	0.10	c0.26		0.07	c0.24		c0.05	c0.15		0.04	0.13	
v/s Ratio Perm									0.06			0.02
v/c Ratio	0.63	0.68		0.58	0.68		0.52	0.65	0.25	0.58	0.61	0.08
Uniform Delay, d1	36.6	24.1		38.1	25.8		39.7	32.0	28.9	41.4	33.0	29.2
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	1.8	1.2		1.3	0.9		1.1	1.3	0.1	4.2	1.1	0.0
Delay (s)	38.4	25.3		39.4	26.7		40.8	33.4	29.0	45.5	34.1	29.3
Level of Service	D	C		D	C		D	C	C	D	C	C
Approach Delay (s)		28.9			28.9			33.3			34.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	30.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	92.4	Sum of lost time (s)	9.5
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	755	5	19	505	12	4	2	1	7	7	15
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	0.95		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	5081		1770	5068		1770	1770		1770	1668	1504
Flt Permitted	0.95	1.00		0.95	1.00		1.00	1.00		1.00	1.00	1.00
Satd. Flow (perm)	1770	5081		1770	5068		1863	1770		1863	1668	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	821	5	21	549	13	4	2	1	8	8	16
RTOR Reduction (vph)	0	1	0	0	2	0	0	1	0	0	5	10
Lane Group Flow (vph)	41	825	0	21	560	0	4	2	0	8	8	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)	0.7	12.3		0.6	12.2		1.3	1.3		1.3	1.3	1.3
Effective Green, g (s)	0.7	12.3		0.6	12.2		1.3	1.3		1.3	1.3	1.3
Actuated g/C Ratio	0.03	0.45		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)	46	2306		39	2282		89	85		89	80	72
v/s Ratio Prot	c0.02	c0.16		0.01	0.11			0.00			c0.00	
v/s Ratio Perm							0.00			0.00		0.00
v/c Ratio	0.89	0.36		0.54	0.25		0.04	0.02		0.09	0.10	0.01
Uniform Delay, d1	13.2	4.8		13.1	4.6		12.3	12.3		12.3	12.3	12.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	90.4	0.0		7.0	0.0		0.1	0.0		0.2	0.2	0.0
Delay (s)	103.5	4.9		20.1	4.6		12.4	12.3		12.5	12.5	12.3
Level of Service	F	A		C	A		B	B		B	B	B
Approach Delay (s)		9.5			5.2			12.4			12.4	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	27.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.6%	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)	56	867	11	13	963	14	1	37	12	8	26	25
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	5075		1770	1794		1770	1744	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	5075		1863	1794		1863	1744	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	942	12	14	1047	15	1	40	13	9	28	27
RTOR Reduction (vph)	0	1	0	0	1	0	0	12	0	0	3	22
Lane Group Flow (vph)	61	953	0	14	1061	0	1	41	0	9	28	2
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	2.8	20.4		0.6	18.2		2.7	2.7		2.7	2.7	2.7
Effective Green, g (s)	2.8	20.4		0.6	18.2		2.7	2.7		2.7	2.7	2.7
Actuated g/C Ratio	0.08	0.56		0.02	0.50		0.07	0.07		0.07	0.07	0.07
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)	135	2829		29	2524		137	132		137	129	111
v/s Ratio Prot	c0.03	0.19		0.01	c0.21			c0.02			0.02	
v/s Ratio Perm							0.00			0.00		0.00
v/c Ratio	0.45	0.34		0.48	0.42		0.01	0.31		0.07	0.22	0.02
Uniform Delay, d1	16.2	4.4		17.8	5.8		15.7	16.1		15.8	16.0	15.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.0		4.5	0.0		0.0	0.5		0.1	0.3	0.0
Delay (s)	17.0	4.4		22.4	5.9		15.7	16.6		15.8	16.3	15.7
Level of Service	B	A		C	A		B	B		B	B	B
Approach Delay (s)		5.2			6.1			16.5			16.0	
Approach LOS		A			A			B			B	

Intersection Summary					
HCM Average Control Delay	6.2	HCM Level of Service		A	
HCM Volume to Capacity ratio	0.40				
Actuated Cycle Length (s)	36.6	Sum of lost time (s)		12.9	
Intersection Capacity Utilization	39.6%	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)	192	538	27	37	448	45	34	161	47	22	98	60
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	5049		1770	5016		1770	1800		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	5049		1770	5016		1770	1800		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	209	585	29	40	487	49	37	175	51	24	107	65
RTOR Reduction (vph)	0	3	0	0	8	0	0	7	0	0	0	51
Lane Group Flow (vph)	209	611	0	40	528	0	37	219	0	24	107	14
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	7.7	19.2		3.2	14.7		2.0	12.0		1.7	11.7	11.7
Effective Green, g (s)	7.7	19.2		3.2	14.7		2.0	12.0		1.7	11.7	11.7
Actuated g/C Ratio	0.14	0.36		0.06	0.27		0.04	0.22		0.03	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)	492	1805		105	1373		66	402		56	406	345
v/s Ratio Prot	c0.06	c0.12		0.02	0.11		c0.02	c0.12		0.01	0.06	
v/s Ratio Perm												0.01
v/c Ratio	0.42	0.34		0.38	0.38		0.56	0.54		0.43	0.26	0.04
Uniform Delay, d1	21.0	12.6		24.3	15.8		25.4	18.4		25.5	17.4	16.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0		0.8	0.1		6.3	0.8		1.9	0.1	0.0
Delay (s)	21.2	12.6		25.1	15.9		31.8	19.2		27.4	17.6	16.6
Level of Service	C	B		C	B		C	B		C	B	B
Approach Delay (s)		14.8			16.5			21.0			18.4	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.5%	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)	259	578	31	54	763	92	30	184	36	44	164	213
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	5003		1770	1817		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	5003		1770	1817		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	282	628	34	59	829	100	33	200	39	48	178	232
RTOR Reduction (vph)	0	4	0	0	10	0	0	5	0	0	0	179
Lane Group Flow (vph)	282	658	0	59	919	0	33	234	0	48	178	53
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	10.9	28.1		5.4	22.6		3.2	15.6		3.7	16.1	16.1
Effective Green, g (s)	10.9	28.1		5.4	22.6		3.2	15.6		3.7	16.1	16.1
Actuated g/C Ratio	0.15	0.40		0.08	0.32		0.05	0.22		0.05	0.23	0.23
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)	532	2014		136	1606		80	403		93	426	362
v/s Ratio Prot	c0.08	0.13		0.03	c0.18		0.02	c0.13		c0.03	0.10	
v/s Ratio Perm												0.03
v/c Ratio	0.53	0.33		0.43	0.57		0.41	0.58		0.52	0.42	0.15
Uniform Delay, d1	27.4	14.6		31.0	19.9		32.7	24.5		32.5	23.2	21.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0		0.8	0.3		1.3	1.4		2.0	0.2	0.1
Delay (s)	27.9	14.6		31.8	20.2		33.9	25.9		34.5	23.4	21.7
Level of Service	C	B		C	C		C	C		C	C	C
Approach Delay (s)		18.6			20.9			26.8			23.7	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.4	Sum of lost time (s)	17.6
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)	213	302	69	175	307	146	127	1247	156	173	760	210
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	4943		3433	4839		1770	5000		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	4943		3433	4839		1770	5000		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	328	75	190	334	159	138	1355	170	188	826	228
RTOR Reduction (vph)	0	28	0	0	68	0	0	10	0	0	0	115
Lane Group Flow (vph)	232	375	0	190	425	0	138	1515	0	188	826	113
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	11.3	19.2		10.1	18.0		12.3	36.1		15.1	38.9	38.9
Effective Green, g (s)	11.3	19.2		10.1	18.0		12.3	36.1		15.1	38.9	38.9
Actuated g/C Ratio	0.12	0.20		0.10	0.18		0.13	0.37		0.15	0.40	0.40
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)	395	966		353	887		222	1838		272	2014	627
v/s Ratio Prot	c0.07	0.08		0.06	c0.09		0.08	c0.30		c0.11	0.16	
v/s Ratio Perm												0.07
v/c Ratio	0.59	0.39		0.54	0.48		0.62	0.82		0.69	0.41	0.18
Uniform Delay, d1	41.2	34.4		41.8	35.9		40.7	28.2		39.3	21.4	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	1.4	0.6		0.8	0.9		3.9	3.6		6.0	0.3	0.3
Delay (s)	42.7	35.0		42.6	36.8		44.6	31.7		45.3	21.7	19.6
Level of Service	D	C		D	D		D	C		D	C	B
Approach Delay (s)		37.8			38.4			32.8			24.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	98.2	Sum of lost time (s)	17.7
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	371	159	340	456	141	126	962	126	200	1251	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.4		5.2	4.4		3.7	4.4		3.7	4.4	4.4
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.95		1.00	0.96		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4856		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	4856		3433	4905		1770	4997		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	403	173	370	496	153	137	1046	137	217	1360	363
RTOR Reduction (vph)	0	60	0	0	41	0	0	11	0	0	0	117
Lane Group Flow (vph)	284	516	0	370	608	0	137	1172	0	217	1360	246
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	13.8	21.8		16.5	24.5		13.2	35.7		17.9	40.4	40.4
Effective Green, g (s)	13.8	21.8		16.5	24.5		13.2	35.7		17.9	40.4	40.4
Actuated g/C Ratio	0.13	0.20		0.15	0.22		0.12	0.33		0.16	0.37	0.37
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)	432	966		517	1096		213	1628		289	1874	584
v/s Ratio Prot	0.08	0.11		c0.11	c0.12		0.08	c0.23		0.12	c0.27	
v/s Ratio Perm												0.16
v/c Ratio	0.66	0.53		0.72	0.55		0.64	0.72		0.75	0.73	0.42
Uniform Delay, d1	45.6	39.3		44.3	37.7		46.0	32.5		43.7	29.8	25.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.7	1.1		3.9	1.1		4.9	2.0		9.4	1.8	1.1
Delay (s)	48.4	40.5		48.2	38.8		50.9	34.5		53.1	31.6	27.0
Level of Service	D	D		D	D		D	C		D	C	C
Approach Delay (s)		43.1			42.2			36.2			33.2	
Approach LOS		D			D			D			C	

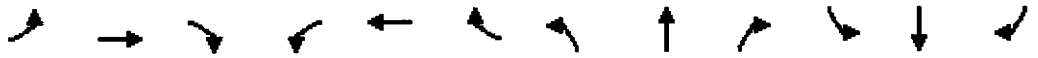
Intersection Summary			
HCM Average Control Delay	37.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	109.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	358	43	74	492	10	115	42	67	26	20	32
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	5003		1770	5070			1797	1583		1812	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	5003		1770	5070			1797	1583		1812	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	389	47	80	535	11	125	46	73	28	22	35
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	59	0	0	32
Lane Group Flow (vph)	38	426	0	80	545	0	0	171	14	0	50	3
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			9.9	9.9		4.5	4.5
Effective Green, g (s)	2.0	13.1		5.0	16.7			9.9	9.9		4.5	4.5
Actuated g/C Ratio	0.04	0.26		0.10	0.33			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	1280		173	1654			347	306		159	139
v/s Ratio Prot	0.02	0.09		c0.05	c0.11			c0.10			c0.03	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.55	0.33		0.46	0.33			0.49	0.05		0.31	0.02
Uniform Delay, d1	24.2	15.5		21.8	13.0			18.4	16.8		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)	29.5	15.5		22.5	13.1			18.8	16.8		22.3	21.4
Level of Service	C	B		C	B			B	B		C	C
Approach Delay (s)		16.7			14.3			18.2			21.9	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	51.2	Sum of lost time (s)	18.7
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

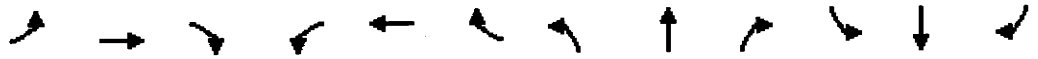
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	598	44	60	527	7	75	14	81	5	3	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9		4.6	4.9			4.6	4.6		4.6	4.6
Lane Util. Factor	1.00	0.91		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	5033		1770	5075			1787	1583		1806	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	5033		1770	5075			1787	1583		1806	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	650	48	65	573	8	82	15	88	5	3	28
RTOR Reduction (vph)	0	5	0	0	1	0	0	0	77	0	0	27
Lane Group Flow (vph)	38	693	0	65	580	0	0	97	11	0	8	1
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	1.7	15.5		3.2	17.6			5.8	5.8		1.4	1.4
Effective Green, g (s)	1.7	15.5		3.2	17.6			5.8	5.8		1.4	1.4
Actuated g/C Ratio	0.04	0.35		0.07	0.39			0.13	0.13		0.03	0.03
Clearance Time (s)	4.0	4.9		4.6	4.9			4.6	4.6		4.6	4.6
Vehicle Extension (s)	1.0	2.0		1.0	2.0			1.5	1.5		1.5	1.5
Lane Grp Cap (vph)	67	1749		127	2003			232	206		57	50
v/s Ratio Prot	0.02	c0.14		c0.04	0.11			c0.05			c0.00	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.57	0.40		0.51	0.29			0.42	0.06		0.14	0.02
Uniform Delay, d1	21.1	11.0		19.9	9.2			17.8	17.0		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	6.4	0.1		1.4	0.0			0.4	0.0		0.4	0.1
Delay (s)	27.5	11.1		21.4	9.3			18.3	17.0		21.4	21.0
Level of Service	C	B		C	A			B	B		C	C
Approach Delay (s)		11.9			10.5			17.7			21.1	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	18.7
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	304	33	13	487	0	34	28	2	3	45	8
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	5010		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	5010		1770	5085			1807			1857	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	330	36	14	529	0	37	30	2	3	49	9
RTOR Reduction (vph)	0	14	0	0	0	0	0	1	0	0	0	9
Lane Group Flow (vph)	10	352	0	14	529	0	0	68	0	0	52	0
Turn Type	Prot			Prot			Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases												4
Actuated Green, G (s)	0.4	12.8		0.6	13.0			1.6			1.6	1.6
Effective Green, g (s)	0.4	12.8		0.6	13.0			1.6			1.6	1.6
Actuated g/C Ratio	0.01	0.38		0.02	0.39			0.05			0.05	0.05
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)	21	1909		32	1967			86			88	75
v/s Ratio Prot	0.01	0.07		c0.01	c0.10			c0.04			c0.03	
v/s Ratio Perm												0.00
v/c Ratio	0.48	0.18		0.44	0.27			0.79			0.59	0.01
Uniform Delay, d1	16.5	6.9		16.3	7.0			15.8			15.7	15.2
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	6.1	0.0		3.5	0.0			35.7			6.9	0.0
Delay (s)	22.6	6.9		19.8	7.1			51.5			22.6	15.3
Level of Service	C	A		B	A			D			C	B
Approach Delay (s)		7.4			7.4			51.5			21.5	
Approach LOS		A			A			D			C	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	33.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

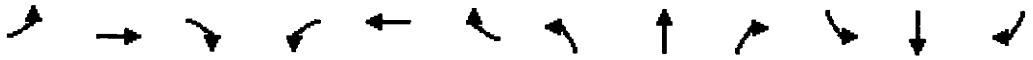


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	526	98	27	451	10	75	32	33	7	31	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	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	4965		1770	5069			1757			1845	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.99	1.00
Satd. Flow (perm)	1770	4965		1770	5069			1757			1845	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	572	107	29	490	11	82	35	36	8	34	50
RTOR Reduction (vph)	0	29	0	0	3	0	0	12	0	0	0	46
Lane Group Flow (vph)	33	650	0	29	498	0	0	141	0	0	42	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	14.7		0.7	14.3			6.0			3.0	3.0
Effective Green, g (s)	1.1	14.7		0.7	14.3			6.0			3.0	3.0
Actuated g/C Ratio	0.03	0.36		0.02	0.35			0.14			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)	47	1763		30	1751			255			134	115
v/s Ratio Prot	c0.02	c0.13		0.02	0.10			c0.08			c0.02	
v/s Ratio Perm												0.00
v/c Ratio	0.70	0.37		0.97	0.28			0.55			0.31	0.03
Uniform Delay, d1	20.0	9.9		20.3	9.8			16.5			18.2	17.8
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	32.1	0.0		148.3	0.0			1.5			0.5	0.0
Delay (s)	52.0	10.0		168.6	9.9			17.9			18.7	17.9
Level of Service	D	A		F	A			B			B	B
Approach Delay (s)		11.9			18.6			17.9			18.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	41.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.7%	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)	24	276	67	36	287	8	73	71	73	10	49	16
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	5064		1770	1863	1583	1770	1795	
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	5064		1325	1863	1583	1317	1795	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	300	73	39	312	9	79	77	79	11	53	17
RTOR Reduction (vph)	0	36	0	0	3	0	0	0	64	0	11	0
Lane Group Flow (vph)	26	337	0	39	318	0	79	77	15	11	59	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	10.9		0.8	11.0		5.9	5.9	5.9	5.9	5.9	
Effective Green, g (s)	0.7	10.9		0.8	11.0		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	1724		45	1785		251	352	299	249	339	
v/s Ratio Prot	0.01	c0.07		c0.02	0.06			0.04			0.03	
v/s Ratio Perm							c0.06		0.01	0.01		
v/c Ratio	0.65	0.20		0.87	0.18		0.31	0.22	0.05	0.04	0.17	
Uniform Delay, d1	15.1	7.1		15.1	7.0		10.9	10.7	10.4	10.3	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	25.2	0.0		82.1	0.0		0.3	0.1	0.0	0.0	0.1	
Delay (s)	40.3	7.1		97.3	7.0		11.2	10.8	10.4	10.4	10.7	
Level of Service	D	A		F	A		B	B	B	B	B	
Approach Delay (s)		9.3			16.8			10.8			10.6	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	31.2	Sum of lost time (s)	13.6
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



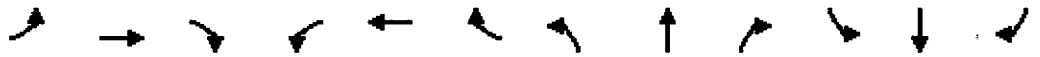
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	440	60	61	453	19	77	92	78	8	65	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0		4.6	4.6	4.6	4.6	4.6	
Lane Util. Factor	1.00	0.91		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	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4994		1770	5054		1770	1863	1583	1770	1817	
Flt Permitted	0.95	1.00		0.95	1.00		0.70	1.00	1.00	0.69	1.00	
Satd. Flow (perm)	1770	4994		1770	5054		1307	1863	1583	1290	1817	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	478	65	66	492	21	84	100	85	9	71	14
RTOR Reduction (vph)	0	15	0	0	4	0	0	0	70	0	7	0
Lane Group Flow (vph)	17	528	0	66	509	0	84	100	15	9	78	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	12.4		1.9	13.6		6.1	6.1	6.1	6.1	6.1	
Effective Green, g (s)	0.7	12.4		1.9	13.6		6.1	6.1	6.1	6.1	6.1	
Actuated g/C Ratio	0.02	0.36		0.06	0.40		0.18	0.18	0.18	0.18	0.18	
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)	36	1821		99	2022		234	334	284	231	326	
v/s Ratio Prot	0.01	c0.11		c0.04	0.10			0.05			0.04	
v/s Ratio Perm							c0.06		0.01	0.01		
v/c Ratio	0.47	0.29		0.67	0.25		0.36	0.30	0.05	0.04	0.24	
Uniform Delay, d1	16.5	7.7		15.7	6.8		12.2	12.1	11.6	11.5	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.5	0.0		12.4	0.0		0.3	0.2	0.0	0.0	0.1	
Delay (s)	20.0	7.7		28.1	6.8		12.6	12.3	11.6	11.6	12.1	
Level of Service	B	A		C	A		B	B	B	B	B	
Approach Delay (s)		8.1			9.3			12.2			12.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	34.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	35.5%	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)	189	73	57	44	86	86	98	747	32	79	649	250
Ideal Flow (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	3306		3433	3274		3433	3517		3891	3391	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3306		3433	3274		3433	3517		3891	3391	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	79	62	48	93	93	107	812	35	86	705	272
RTOR Reduction (vph)	0	47	0	0	77	0	0	2	0	0	27	0
Lane Group Flow (vph)	205	94	0	48	109	0	107	845	0	86	950	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.5	16.8		3.5	11.8		5.4	24.9		4.9	24.4	
Effective Green, g (s)	8.5	16.8		3.5	11.8		5.4	24.9		4.9	24.4	
Actuated g/C Ratio	0.12	0.24		0.05	0.17		0.08	0.35		0.07	0.35	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	414	789		171	549		263	1244		271	1175	
v/s Ratio Prot	c0.06	0.03		0.01	c0.03		c0.03	0.24		0.02	c0.28	
v/s Ratio Perm												
v/c Ratio	0.50	0.12		0.28	0.20		0.41	0.68		0.32	0.81	
Uniform Delay, d1	28.9	21.0		32.2	25.2		31.0	19.4		31.2	20.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.0		0.3	0.1		0.4	1.2		0.2	3.9	
Delay (s)	29.3	21.0		32.6	25.3		31.3	20.5		31.4	24.8	
Level of Service	C	C		C	C		C	C		C	C	
Approach Delay (s)		25.9			26.8			21.7			25.4	
Approach LOS		C			C			C			C	

HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	70.4	Sum of lost time (s)	20.3
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	385	158	139	56	85	95	139	801	34	127	825	369
Ideal Flow (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	3291		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	3291		3433	3259		3433	3518		3891	3375	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	418	172	151	61	92	103	151	871	37	138	897	401
RTOR Reduction (vph)	0	113	0	0	88	0	0	2	0	0	36	0
Lane Group Flow (vph)	418	210	0	61	107	0	151	906	0	138	1262	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.6	19.5		5.1	11.0		7.9	24.8		7.2	24.1	
Effective Green, g (s)	13.6	19.5		5.1	11.0		7.9	24.8		7.2	24.1	
Actuated g/C Ratio	0.18	0.25		0.07	0.14		0.10	0.32		0.09	0.31	
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)	607	835		228	466		353	1135		364	1058	
v/s Ratio Prot	c0.12	c0.06		0.02	0.03		c0.04	0.26		0.04	c0.37	
v/s Ratio Perm												
v/c Ratio	0.69	0.25		0.27	0.23		0.43	0.80		0.38	1.19	
Uniform Delay, d1	29.7	22.9		34.1	29.2		32.4	23.8		32.7	26.4	
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	3.7		0.2	96.1	
Delay (s)	32.3	22.9		34.4	29.3		32.7	27.5		33.0	122.5	
Level of Service	C	C		C	C		C	C		C	F	
Approach Delay (s)		28.2			30.5			28.2			113.9	
Approach LOS		C			C			C			F	

Intersection Summary			
HCM Average Control Delay	65.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	14.3
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1	1	2	390	194	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	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	1	2	424	211	4
RTOR Reduction (vph)	0	1	0	0	0	3
Lane Group Flow (vph)	1	0	2	424	211	1
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	0.4	0.4	0.4	12.4	8.0	8.0
Effective Green, g (s)	0.4	0.4	0.4	12.4	8.0	8.0
Actuated g/C Ratio	0.02	0.02	0.02	0.58	0.37	0.37
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)	33	30	33	2051	1323	592
v/s Ratio Prot	c0.00		0.00	c0.12	0.06	
v/s Ratio Perm		0.00				0.00
v/c Ratio	0.03	0.00	0.06	0.21	0.16	0.00
Uniform Delay, d1	10.3	10.3	10.3	2.2	4.5	4.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.3	0.0	0.0	0.0
Delay (s)	10.4	10.3	10.6	2.2	4.5	4.2
Level of Service	B	B	B	A	A	A
Approach Delay (s)	10.4			2.2	4.5	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	3.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	21.4	Sum of lost time (s)	8.6
Intersection Capacity Utilization	21.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	10	20	498	432	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.6	4.6	4.6
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	11	22	541	470	27
RTOR Reduction (vph)	0	11	0	0	0	9
Lane Group Flow (vph)	24	0	22	541	470	18
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	15.8	11.3	11.3
Effective Green, g (s)	0.5	0.5	0.5	15.8	11.3	11.3
Actuated g/C Ratio	0.02	0.02	0.02	0.63	0.45	0.45
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	2246	1606	718
v/s Ratio Prot	c0.01		0.01	c0.15	0.13	
v/s Ratio Perm		0.00				0.01
v/c Ratio	0.67	0.01	0.61	0.24	0.29	0.03
Uniform Delay, d1	12.1	12.0	12.1	2.0	4.3	3.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	30.6	0.0	19.6	0.0	0.0	0.0
Delay (s)	42.7	12.0	31.7	2.0	4.3	3.8
Level of Service	D	B	C	A	A	A
Approach Delay (s)	33.0			3.1	4.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	4.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	24.9	Sum of lost time (s)	8.6
Intersection Capacity Utilization	27.1%	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)	3	0	2	145	0	20	42	1444	114	168	980	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	12	12
Total Lost time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	0.85		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1794		1681	1905	1583	1770	5029		1770	5085	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1794		1681	1905	1583	1770	5029		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	0	2	158	0	22	46	1570	124	183	1065	55
RTOR Reduction (vph)	0	2	0	0	0	19	0	6	0	0	0	13
Lane Group Flow (vph)	3	0	0	79	79	3	46	1688	0	183	1065	42
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)	1.3	1.3		9.1	9.1	9.1	4.0	33.4		11.6	41.0	41.0
Effective Green, g (s)	1.3	1.3		9.1	9.1	9.1	4.0	33.4		11.6	41.0	41.0
Actuated g/C Ratio	0.02	0.02		0.13	0.13	0.13	0.06	0.46		0.16	0.57	0.57
Clearance Time (s)	3.7	3.7		4.2	4.2	4.2	3.7	4.9		3.7	4.9	4.9
Vehicle Extension (s)	5.5	5.5		5.5	5.5	5.5	2.0	5.2		2.0	5.2	5.2
Lane Grp Cap (vph)	32	32		213	241	200	98	2336		286	2900	903
v/s Ratio Prot	c0.00	0.00		c0.05	0.04		0.03	c0.34		c0.10	0.21	
v/s Ratio Perm						0.00						0.03
v/c Ratio	0.09	0.00		0.37	0.33	0.01	0.47	0.72		0.64	0.37	0.05
Uniform Delay, d1	34.7	34.7		28.8	28.6	27.5	32.9	15.5		28.2	8.4	6.8
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	3.1	0.0		2.7	2.0	0.1	1.3	1.4		3.4	0.2	0.0
Delay (s)	37.8	34.7		31.4	30.6	27.5	34.2	16.9		31.6	8.6	6.9
Level of Service	D	C		C	C	C	C	B		C	A	A
Approach Delay (s)		36.6			30.6			17.4			11.7	
Approach LOS		D			C			B			B	

HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	16.5
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	8	40	246	8	114	49	1322	11	38	1484	13
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	1849		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	1849		1681	1916	1583	1770	5079		1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	9	43	267	9	124	53	1437	12	41	1613	14
RTOR Reduction (vph)	0	38	0	0	0	99	0	1	0	0	0	3
Lane Group Flow (vph)	74	14	0	139	137	25	53	1448	0	41	1613	11
Turn Type	Split			Split		Perm	Prot			Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	9.0	9.0		15.4	15.4	15.4	4.3	32.3		3.9	31.9	31.9
Effective Green, g (s)	9.0	9.0		15.4	15.4	15.4	4.3	32.3		3.9	31.9	31.9
Actuated g/C Ratio	0.12	0.12		0.20	0.20	0.20	0.06	0.42		0.05	0.41	0.41
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)	207	216		336	383	316	99	2128		90	2104	655
v/s Ratio Prot	c0.04	0.01		c0.08	0.07		c0.03	0.29		0.02	c0.32	
v/s Ratio Perm						0.02						0.01
v/c Ratio	0.36	0.06		0.41	0.36	0.08	0.54	0.68		0.46	0.77	0.02
Uniform Delay, d1	31.4	30.3		26.9	26.6	25.1	35.4	18.2		35.6	19.4	13.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.6	0.3		2.0	1.4	0.3	2.8	1.2		1.3	2.1	0.0
Delay (s)	34.0	30.6		28.9	28.0	25.3	38.2	19.4		36.9	21.5	13.4
Level of Service	C	C		C	C	C	D	B		D	C	B
Approach Delay (s)		32.6			27.5			20.1			21.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

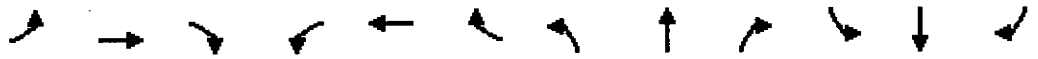
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1189	1126	148	145	423	46	439	682	459	109	288	453
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1292	1224	161	158	460	50	477	741	499	118	313	492
RTOR Reduction (vph)	0	0	49	0	0	41	0	0	188	0	0	302
Lane Group Flow (vph)	1292	1224	112	158	460	9	477	741	311	118	313	190
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)	33.2	44.0	44.0	8.8	19.6	19.6	16.4	29.3	29.3	8.4	21.3	21.3
Effective Green, g (s)	33.2	44.0	44.0	8.8	19.6	19.6	16.4	29.3	29.3	8.4	21.3	21.3
Actuated g/C Ratio	0.31	0.40	0.40	0.08	0.18	0.18	0.15	0.27	0.27	0.08	0.20	0.20
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)	1049	1433	641	278	638	285	518	954	427	265	693	310
v/s Ratio Prot	c0.38	c0.35		0.05	0.13		c0.14	c0.21		0.03	0.09	
v/s Ratio Perm			0.07			0.01			0.20			c0.12
v/c Ratio	1.23	0.85	0.18	0.57	0.72	0.03	0.92	0.78	0.73	0.45	0.45	0.61
Uniform Delay, d1	37.8	29.4	20.7	48.1	42.0	36.7	45.5	36.7	36.1	47.9	38.5	39.9
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	112.7	5.0	0.0	1.6	3.4	0.0	21.6	3.7	5.2	0.4	0.2	2.5
Delay (s)	150.4	34.4	20.8	49.7	45.4	36.7	67.1	40.4	41.2	48.4	38.7	42.4
Level of Service	F	C	C	D	D	D	E	D	D	D	D	D
Approach Delay (s)		89.6			45.8			48.0			41.9	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM Average Control Delay	65.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	12.9
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)	754	724	362	489	1131	79	310	659	245	50	772	596
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	820	787	393	532	1229	86	337	716	266	54	839	648
RTOR Reduction (vph)	0	0	224	0	0	43	0	0	191	0	0	226
Lane Group Flow (vph)	820	787	169	532	1229	43	337	716	75	54	839	422
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	36.7	36.7	24.5	35.1	35.1	14.6	36.3	36.3	13.8	35.5	35.5
Effective Green, g (s)	26.1	36.7	36.7	24.5	35.1	35.1	14.6	36.3	36.3	13.8	35.5	35.5
Actuated g/C Ratio	0.20	0.28	0.28	0.19	0.27	0.27	0.11	0.28	0.28	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)	692	1003	449	649	959	429	387	992	444	366	970	434
v/s Ratio Prot	c0.24	0.22		0.15	c0.35		c0.10	0.20		0.02	0.24	
v/s Ratio Perm			0.11			0.03			0.05			c0.27
v/c Ratio	1.18	0.78	0.38	0.82	1.28	0.10	0.87	0.72	0.17	0.15	0.86	0.97
Uniform Delay, d1	51.7	42.8	37.2	50.4	47.2	35.4	56.5	42.0	35.2	52.5	44.7	46.5
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	97.5	3.8	0.2	7.6	134.7	0.0	18.3	2.2	0.1	0.1	7.9	35.4
Delay (s)	149.2	46.5	37.4	58.0	181.9	35.4	74.8	44.3	35.3	52.6	52.6	81.9
Level of Service	F	D	D	E	F	D	E	D	D	D	D	F
Approach Delay (s)		86.8			139.4			50.2			64.9	
Approach LOS		F			F			D			E	

Intersection Summary			
HCM Average Control Delay	89.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	129.5	Sum of lost time (s)	14.2
Intersection Capacity Utilization	98.1%	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)	104	1318	8	12	498	51	17	37	1	91	84	71
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	3490		1770	1856		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	3490		1770	1856		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	1433	9	13	541	55	18	40	1	99	91	77
RTOR Reduction (vph)	0	0	0	0	7	0	0	1	0	0	0	67
Lane Group Flow (vph)	113	1442	0	13	589	0	18	40	0	99	91	10
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	5.9	35.4		0.7	30.2		0.8	2.9		5.8	7.9	7.9
Effective Green, g (s)	5.9	35.4		0.7	30.2		0.8	2.9		5.8	7.9	7.9
Actuated g/C Ratio	0.10	0.58		0.01	0.50		0.01	0.05		0.10	0.13	0.13
Clearance Time (s)	4.0	4.2		4.0	4.2		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	171	2052		20	1728		23	88		168	241	205
v/s Ratio Prot	c0.06	c0.41		0.01	0.17		0.01	0.02		c0.06	c0.05	
v/s Ratio Perm												0.01
v/c Ratio	0.66	0.70		0.65	0.34		0.78	0.46		0.59	0.38	0.05
Uniform Delay, d1	26.6	9.1		30.0	9.4		30.0	28.3		26.5	24.3	23.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.2	0.9		45.4	0.0		88.7	1.4		3.4	0.4	0.0
Delay (s)	33.8	10.0		75.4	9.4		118.7	29.6		29.8	24.7	23.3
Level of Service	C	A		E	A		F	C		C	C	C
Approach Delay (s)		11.7			10.8			56.8			26.2	
Approach LOS		B			B			E			C	

Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	106	723	20	40	1047	68	86	103	11	199	70	107
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	3507		1770	1836		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3525		1770	3507		1770	1836		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	786	22	43	1138	74	93	112	12	216	76	116
RTOR Reduction (vph)	0	2	0	0	5	0	0	4	0	0	0	95
Lane Group Flow (vph)	115	806	0	43	1207	0	93	120	0	216	76	21
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	35.2		3.4	32.0		6.0	7.7		12.1	13.8	13.8
Effective Green, g (s)	6.6	35.2		3.4	32.0		6.0	7.7		12.1	13.8	13.8
Actuated g/C Ratio	0.09	0.47		0.05	0.43		0.08	0.10		0.16	0.18	0.18
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)	157	1663		81	1504		142	190		287	345	293
v/s Ratio Prot	c0.06	c0.23		0.02	c0.34		0.05	c0.07		c0.12	0.04	
v/s Ratio Perm												0.01
v/c Ratio	0.73	0.48		0.53	0.80		0.65	0.63		0.75	0.22	0.07
Uniform Delay, d1	33.1	13.5		34.8	18.5		33.3	32.1		29.8	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		3.3	3.0		8.0	4.6		9.5	0.1	0.0
Delay (s)	47.2	13.6		38.1	21.6		41.3	36.7		39.3	25.9	25.2
Level of Service	D	B		D	C		D	D		D	C	C
Approach Delay (s)		17.8			22.1			38.7			32.8	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	74.6	Sum of lost time (s)	20.4
Intersection Capacity Utilization	64.8%	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)	104	1201	114	73	411	24	121	453	103	21	221	24
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	3510		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	3510		1770	3441		1770	3487	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	1305	124	79	447	26	132	492	112	23	240	26
RTOR Reduction (vph)	0	3	0	0	2	0	0	13	0	0	6	0
Lane Group Flow (vph)	113	1426	0	79	471	0	132	591	0	23	260	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	9.3	47.6		6.5	44.8		10.4	23.2		2.8	15.6	
Effective Green, g (s)	9.3	47.6		6.5	44.8		10.4	23.2		2.8	15.6	
Actuated g/C Ratio	0.10	0.50		0.07	0.47		0.11	0.25		0.03	0.17	
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)	174	1761		122	1666		195	846		53	576	
v/s Ratio Prot	c0.06	c0.41		0.04	0.13		c0.07	c0.17		0.01	0.07	
v/s Ratio Perm												
v/c Ratio	0.65	0.81		0.65	0.28		0.68	0.70		0.43	0.45	
Uniform Delay, d1	41.0	19.6		42.8	15.0		40.4	32.4		45.0	35.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.1	2.7		8.5	0.0		7.1	2.1		2.1	0.2	
Delay (s)	47.1	22.3		51.4	15.1		47.5	34.5		47.1	35.7	
Level of Service	D	C		D	B		D	C		D	D	
Approach Delay (s)		24.1			20.3			36.8			36.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	9.9
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	867	14	49	1018	16	68	318	10	36	520	56
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	3531		1770	3523		1770	3487	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3531		1770	3531		1770	3523		1770	3487	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	942	15	53	1107	17	74	346	11	39	565	61
RTOR Reduction (vph)	0	1	0	0	1	0	0	1	0	0	5	0
Lane Group Flow (vph)	60	956	0	53	1123	0	74	356	0	39	621	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	45.1		5.1	44.8		6.1	24.4		4.3	22.6	
Effective Green, g (s)	5.4	45.1		5.1	44.8		6.1	24.4		4.3	22.6	
Actuated g/C Ratio	0.06	0.48		0.05	0.48		0.07	0.26		0.05	0.24	
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)	103	1709		97	1697		116	922		82	846	
v/s Ratio Prot	c0.03	0.27		0.03	c0.32		c0.04	0.10		0.02	c0.18	
v/s Ratio Perm												
v/c Ratio	0.58	0.56		0.55	0.66		0.64	0.39		0.48	0.73	
Uniform Delay, d1	42.8	17.0		42.9	18.4		42.5	28.2		43.4	32.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.3	0.2		3.3	0.8		8.2	0.1		1.6	2.9	
Delay (s)	48.1	17.2		46.3	19.2		50.6	28.3		44.9	35.4	
Level of Service	D	B		D	B		D	C		D	D	
Approach Delay (s)		19.1			20.4			32.2			35.9	
Approach LOS		B			C			C			D	

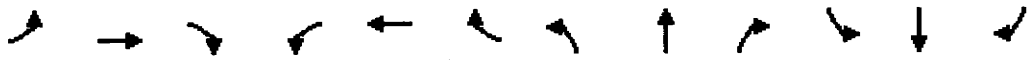
Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	14.3
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	864	68	105	469	57	116	623	287	138	255	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.4	4.4	4.0	4.4	4.4	4.0	3.5	3.5	4.0	3.5	3.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	939	74	114	510	62	126	677	312	150	277	140
RTOR Reduction (vph)	0	0	18	0	0	45	0	0	164	0	0	99
Lane Group Flow (vph)	137	939	56	114	510	17	126	677	148	150	277	41
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)	11.7	25.5	25.5	10.8	24.6	24.6	24.9	25.4	25.4	12.5	13.0	13.0
Effective Green, g (s)	11.7	25.5	25.5	10.8	24.6	24.6	24.9	25.4	25.4	12.5	13.0	13.0
Actuated g/C Ratio	0.13	0.28	0.28	0.12	0.27	0.27	0.28	0.28	0.28	0.14	0.14	0.14
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)	230	1439	448	212	966	432	489	998	446	246	511	228
v/s Ratio Prot	c0.08	c0.18		0.06	0.14		0.07	c0.19		c0.08	0.08	
v/s Ratio Perm			0.04			0.01			0.09			0.03
v/c Ratio	0.60	0.65	0.13	0.54	0.53	0.04	0.26	0.68	0.33	0.61	0.54	0.18
Uniform Delay, d1	37.0	28.4	24.0	37.3	27.8	24.1	25.4	28.7	25.6	36.5	35.8	33.9
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	2.7	0.8	0.0	1.3	0.2	0.0	0.1	1.5	0.2	2.9	0.6	0.1
Delay (s)	39.7	29.2	24.1	38.6	28.1	24.1	25.5	30.2	25.8	39.4	36.4	34.0
Level of Service	D	C	C	D	C	C	C	C	C	D	D	C
Approach Delay (s)		30.1			29.5			28.4			36.6	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

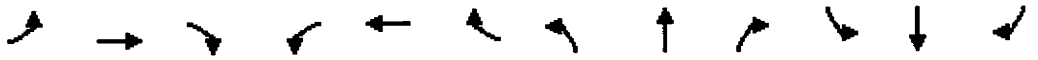
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	609	80	207	887	114	76	507	94	67	567	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.4	4.4	4.0	4.4	4.4	4.0	3.5	3.5	4.0	3.5	3.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	142	662	87	225	964	124	83	551	102	73	616	174
RTOR Reduction (vph)	0	0	29	0	0	58	0	0	67	0	0	48
Lane Group Flow (vph)	142	662	58	225	964	66	83	551	35	73	616	126
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)	12.6	31.0	31.0	17.8	36.2	36.2	7.6	25.8	25.8	6.7	24.9	24.9
Effective Green, g (s)	12.6	31.0	31.0	17.8	36.2	36.2	7.6	25.8	25.8	6.7	24.9	24.9
Actuated g/C Ratio	0.13	0.32	0.32	0.18	0.37	0.37	0.08	0.27	0.27	0.07	0.26	0.26
Clearance Time (s)	4.0	4.4	4.4	4.0	4.4	4.4	4.0	3.5	3.5	4.0	3.5	3.5
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.5	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	229	1622	505	324	1318	590	138	939	420	122	907	406
v/s Ratio Prot	0.08	0.13		c0.13	c0.27		0.05	c0.16		0.04	c0.17	
v/s Ratio Perm			0.04			0.04			0.02			0.08
v/c Ratio	0.62	0.41	0.12	0.69	0.73	0.11	0.60	0.59	0.08	0.60	0.68	0.31
Uniform Delay, d1	40.0	25.9	23.4	37.2	26.3	20.0	43.3	31.1	26.8	43.9	32.6	29.2
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	3.7	0.1	0.0	5.1	1.8	0.0	5.0	0.6	0.0	5.2	1.6	0.2
Delay (s)	43.8	26.0	23.4	42.3	28.1	20.0	48.3	31.7	26.9	49.1	34.2	29.4
Level of Service	D	C	C	D	C	B	D	C	C	D	C	C
Approach Delay (s)		28.6			29.8			32.9			34.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	97.2	Sum of lost time (s)	7.5
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	209	596	486	152	451	19	38	32	43	26	257	44
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	4743		1770	5054		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	4743		1770	5054		1770	1863	1583	1770	1822	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	227	648	528	165	490	21	41	35	47	28	279	48
RTOR Reduction (vph)	0	92	0	0	3	0	0	0	35	0	4	0
Lane Group Flow (vph)	227	1084	0	165	508	0	41	35	12	28	323	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)	27.3	29.6		13.3	15.6		3.6	22.5	22.5	3.1	22.0	
Effective Green, g (s)	27.3	29.6		13.3	15.6		3.6	22.5	22.5	3.1	22.0	
Actuated g/C Ratio	0.32	0.35		0.16	0.18		0.04	0.26	0.26	0.04	0.26	
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)	568	1650		277	926		75	493	419	64	471	
v/s Ratio Prot	0.13	c0.23		0.09	c0.10		c0.02	0.02		0.02	c0.18	
v/s Ratio Perm									0.01			
v/c Ratio	0.40	0.66		0.60	0.55		0.55	0.07	0.03	0.44	0.69	
Uniform Delay, d1	22.5	23.5		33.4	31.6		40.0	23.5	23.2	40.1	28.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.7		2.3	0.4		4.3	0.0	0.0	1.7	3.3	
Delay (s)	22.7	24.2		35.7	31.9		44.3	23.5	23.2	41.9	31.7	
Level of Service	C	C		D	C		D	C	C	D	C	
Approach Delay (s)		23.9			32.8			30.3			32.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	85.1	Sum of lost time (s)	17.2
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	572	40	25	766	31	193	215	66	52	82	232
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	5036		1770	5055		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	5036		1770	5055		1770	1863	1583	1770	1656	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	182	622	43	27	833	34	210	234	72	57	89	252
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	48	0	70	0
Lane Group Flow (vph)	182	661	0	27	864	0	210	234	24	57	271	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)	16.9	38.1		3.2	24.4		17.5	32.5	32.5	5.9	20.9	
Effective Green, g (s)	16.9	38.1		3.2	24.4		17.5	32.5	32.5	5.9	20.9	
Actuated g/C Ratio	0.18	0.40		0.03	0.25		0.18	0.34	0.34	0.06	0.22	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	1.5	1.5	1.0	1.5	
Lane Grp Cap (vph)	311	1992		59	1281		322	629	534	108	359	
v/s Ratio Prot	c0.10	0.13		0.02	c0.17		c0.12	0.13		0.03	c0.16	
v/s Ratio Perm									0.02			
v/c Ratio	0.59	0.33		0.46	0.67		0.65	0.37	0.05	0.53	0.76	
Uniform Delay, d1	36.5	20.2		45.7	32.4		36.6	24.2	21.5	43.8	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	1.8	0.0		2.0	1.1		3.6	0.1	0.0	2.1	7.8	
Delay (s)	38.3	20.3		47.7	33.5		40.2	24.3	21.5	46.0	43.1	
Level of Service	D	C		D	C		D	C	C	D	D	
Approach Delay (s)		24.1			33.9			30.4			43.5	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	96.3	Sum of lost time (s)	16.6
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	464	72	49	602	10	23	42	36	25	39	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5073		1770	1863	1583	1770	1779	
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	1779	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	504	78	53	654	11	25	46	39	27	42	18
RTOR Reduction (vph)	0	0	44	0	1	0	0	0	36	0	12	0
Lane Group Flow (vph)	135	504	34	53	664	0	25	46	3	27	48	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)	6.3	17.3	17.3	5.3	16.3		1.5	3.1	3.1	1.5	3.1	
Effective Green, g (s)	6.3	17.3	17.3	5.3	16.3		1.5	3.1	3.1	1.5	3.1	
Actuated g/C Ratio	0.14	0.39	0.39	0.12	0.37		0.03	0.07	0.07	0.03	0.07	
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)	252	1986	618	212	1867		60	130	111	60	124	
v/s Ratio Prot	c0.08	0.10		0.03	c0.13		0.01	0.02		c0.02	c0.03	
v/s Ratio Perm			0.02						0.00			
v/c Ratio	0.54	0.25	0.05	0.25	0.36		0.42	0.35	0.02	0.45	0.39	
Uniform Delay, d1	17.6	9.1	8.4	17.7	10.2		21.0	19.6	19.2	21.0	19.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.0	0.0	0.2	0.0		1.7	0.6	0.0	1.9	0.7	
Delay (s)	18.7	9.2	8.4	17.9	10.2		22.7	20.3	19.2	22.9	20.4	
Level of Service	B	A	A	B	B		C	C	B	C	C	
Approach Delay (s)		10.9			10.8			20.4			21.2	
Approach LOS		B			B			C			C	

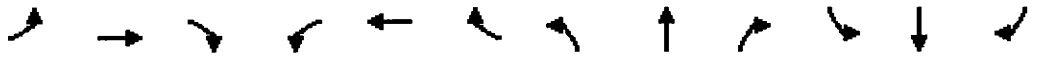
Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	44.3	Sum of lost time (s)	17.1
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	576	33	17	713	15	47	33	43	19	17	34
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	5070		1770	1863	1583	1770	1675	
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	5070		1770	1863	1583	1770	1675	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	626	36	18	775	16	51	36	47	21	18	37
RTOR Reduction (vph)	0	0	14	0	1	0	0	0	41	0	34	0
Lane Group Flow (vph)	73	626	22	18	790	0	51	36	6	21	21	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)	4.8	22.3	22.3	1.4	18.9		2.8	5.9	5.9	0.8	3.9	
Effective Green, g (s)	4.8	22.3	22.3	1.4	18.9		2.8	5.9	5.9	0.8	3.9	
Actuated g/C Ratio	0.10	0.47	0.47	0.03	0.40		0.06	0.12	0.12	0.02	0.08	
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)	179	2387	743	52	2017		104	231	197	30	138	
v/s Ratio Prot	c0.04	0.12		0.01	c0.16		c0.03	c0.02		0.01	0.01	
v/s Ratio Perm			0.01						0.00			
v/c Ratio	0.41	0.26	0.03	0.35	0.39		0.49	0.16	0.03	0.70	0.15	
Uniform Delay, d1	20.0	7.6	6.8	22.6	10.2		21.7	18.6	18.3	23.2	20.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.0	0.0	1.5	0.0		1.3	0.1	0.0	46.0	0.2	
Delay (s)	20.6	7.6	6.8	24.1	10.2		23.0	18.7	18.3	69.2	20.5	
Level of Service	C	A	A	C	B		C	B	B	E	C	
Approach Delay (s)		8.9			10.6			20.2			33.9	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	12.6
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												
Volume (vph)	107	367	91	73	537	16	70	213	129	17	139	46
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	4934		1770	5064		1770	1863	1583	1770	1793	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4934		1770	5064		1770	1863	1583	1770	1793	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	399	99	79	584	17	76	232	140	18	151	50
RTOR Reduction (vph)	0	30	0	0	2	0	0	0	93	0	7	0
Lane Group Flow (vph)	116	468	0	79	599	0	76	232	47	18	194	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)	6.6	15.2		5.4	14.0		5.3	19.5	19.5	0.8	15.0	
Effective Green, g (s)	6.6	15.2		5.4	14.0		5.3	19.5	19.5	0.8	15.0	
Actuated g/C Ratio	0.11	0.26		0.09	0.24		0.09	0.33	0.33	0.01	0.26	
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.6	4.6	4.0	4.6	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)	200	1284		164	1214		161	622	529	24	461	
v/s Ratio Prot	c0.07	0.09		0.04	c0.12		c0.04	c0.12		0.01	0.11	
v/s Ratio Perm									0.03			
v/c Ratio	0.58	0.36		0.48	0.49		0.47	0.37	0.09	0.75	0.42	
Uniform Delay, d1	24.6	17.7		25.2	19.1		25.2	14.8	13.3	28.7	18.1	
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	0.1		0.8	0.1		0.8	0.1	0.0	73.5	0.2	
Delay (s)	27.1	17.7		26.0	19.3		26.0	14.9	13.4	102.2	18.3	
Level of Service	C	B		C	B		C	B	B	F	B	
Approach Delay (s)		19.5			20.0			16.3			25.2	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	12.9
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)	100	603	60	113	494	39	43	177	122	48	202	39
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	5030		1770	1863	1583	1770	1818	
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	5030		1770	1863	1583	1770	1818	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	655	65	123	537	42	47	192	133	52	220	42
RTOR Reduction (vph)	0	8	0	0	6	0	0	0	99	0	4	0
Lane Group Flow (vph)	109	712	0	123	573	0	47	192	34	52	258	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)	9.2	16.8		7.4	15.0		3.4	15.6	15.6	3.5	15.7	
Effective Green, g (s)	9.2	16.8		7.4	15.0		3.4	15.6	15.6	3.5	15.7	
Actuated g/C Ratio	0.15	0.28		0.12	0.25		0.06	0.26	0.26	0.06	0.26	
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	4.6	4.6	4.0	4.6	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)	268	1386		215	1241		99	478	406	102	469	
v/s Ratio Prot	0.06	c0.14		c0.07	0.11		0.03	0.10		c0.03	c0.14	
v/s Ratio Perm									0.02			
v/c Ratio	0.41	0.51		0.57	0.46		0.47	0.40	0.08	0.51	0.55	
Uniform Delay, d1	23.3	18.6		25.2	19.5		27.8	18.7	17.2	27.8	19.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.1		2.3	0.1		1.3	0.2	0.0	1.5	0.7	
Delay (s)	23.7	18.7		27.5	19.6		29.1	18.9	17.2	29.3	20.2	
Level of Service	C	B		C	B		C	B	B	C	C	
Approach Delay (s)		19.3			21.0			19.6			21.7	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	12.9
Intersection Capacity Utilization	50.2%	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)	0	300	135	143	403	38	195	75	0	17	49	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	0.99	
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	3493	
Flt Permitted		1.00	1.00	0.95	1.00	1.00	0.72	1.00		0.70	1.00	
Satd. Flow (perm)		3539	1583	1770	5085	1583	1336	3539		1306	3493	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	326	147	155	438	41	212	82	0	18	53	5
RTOR Reduction (vph)	0	0	107	0	0	22	0	0	0	0	4	0
Lane Group Flow (vph)	0	326	40	155	438	19	212	82	0	18	54	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)		10.6	10.6	4.0	18.6	18.6	10.6	10.6		10.6	10.6	
Effective Green, g (s)		10.6	10.6	4.0	18.6	18.6	10.6	10.6		10.6	10.6	
Actuated g/C Ratio		0.27	0.27	0.10	0.47	0.47	0.27	0.27		0.27	0.27	
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)		952	426	180	2401	747	359	952		351	940	
v/s Ratio Prot		c0.09	0.02	c0.09	0.09			0.02			0.02	
v/s Ratio Perm						0.01	c0.16			0.01		
v/c Ratio		0.34	0.09	0.86	0.18	0.03	0.59	0.09		0.05	0.06	
Uniform Delay, d1		11.6	10.8	17.4	6.0	5.6	12.5	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	31.0	0.0	0.0	1.7	0.0		0.0	0.0	
Delay (s)		11.7	10.8	48.4	6.0	5.6	14.2	10.8		10.7	10.7	
Level of Service		B	B	D	A	A	B	B		B	B	
Approach Delay (s)		11.4			16.4			13.3			10.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	39.4	Sum of lost time (s)	14.2
Intersection Capacity Utilization	45.6%	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)	0	592	298	182	407	42	91	77	0	34	115	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	0.67	1.00		0.70	1.00	
Satd. Flow (perm)		3539	1583	1770	5085	1583	1253	3539		1303	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	643	324	198	442	46	99	84	0	37	125	0
RTOR Reduction (vph)	0	0	203	0	0	19	0	0	0	0	0	0
Lane Group Flow (vph)	0	643	121	198	442	27	99	84	0	37	125	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)		14.8	14.8	4.3	23.1	23.1	6.4	6.4		6.4	6.4	
Effective Green, g (s)		14.8	14.8	4.3	23.1	23.1	6.4	6.4		6.4	6.4	
Actuated g/C Ratio		0.37	0.37	0.11	0.58	0.58	0.16	0.16		0.16	0.16	
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)		1319	590	192	2959	921	202	571		210	571	
v/s Ratio Prot		c0.18	0.08	c0.11	0.09			0.02			0.04	
v/s Ratio Perm						0.02	c0.08			0.03		
v/c Ratio		0.49	0.20	1.03	0.15	0.03	0.49	0.15		0.18	0.22	
Uniform Delay, d1		9.5	8.5	17.7	3.8	3.5	15.2	14.3		14.4	14.5	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1	0.1	73.4	0.0	0.0	0.7	0.0		0.1	0.1	
Delay (s)		9.6	8.5	91.1	3.8	3.5	15.8	14.3		14.5	14.5	
Level of Service		A	A	F	A	A	B	B		B	B	
Approach Delay (s)		9.3			29.0			15.2			14.5	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	39.7	Sum of lost time (s)	14.2
Intersection Capacity Utilization	50.0%	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)	5	37	9	9	43	15	4	256	10	16	196	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		4.6	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)		1809			1795		1770	1852		1770	1863	1583
Flt Permitted		0.97			0.95		0.62	1.00		0.58	1.00	1.00
Satd. Flow (perm)		1762			1726		1164	1852		1086	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	40	10	10	47	16	4	278	11	17	213	11
RTOR Reduction (vph)	0	7	0	0	12	0	0	2	0	0	0	6
Lane Group Flow (vph)	0	48	0	0	61	0	4	287	0	17	213	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		12.7	12.7		12.7	12.7	12.7
Effective Green, g (s)		7.6			7.6		12.7	12.7		12.7	12.7	12.7
Actuated g/C Ratio		0.26			0.26		0.43	0.43		0.43	0.43	0.43
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)		454			445		501	797		468	802	681
v/s Ratio Prot								c0.16			0.11	
v/s Ratio Perm		0.03			c0.04		0.00			0.02		0.00
v/c Ratio		0.10			0.14		0.01	0.36		0.04	0.27	0.01
Uniform Delay, d1		8.4			8.4		4.8	5.7		4.9	5.4	4.8
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	0.6		0.1	0.4	0.0
Delay (s)		8.6			8.7		4.8	6.2		4.9	5.8	4.8
Level of Service		A			A		A	A		A	A	A
Approach Delay (s)		8.6			8.7			6.2			5.7	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	29.5	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)	9	80	22	20	81	31	7	268	22	19	238	12
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)		1805			1790		1770	1841		1770	1863	1583
Flt Permitted		0.97			0.95		0.60	1.00		0.57	1.00	1.00
Satd. Flow (perm)		1764			1707		1116	1841		1060	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	87	24	22	88	34	8	291	24	21	259	13
RTOR Reduction (vph)	0	11	0	0	14	0	0	4	0	0	0	7
Lane Group Flow (vph)	0	110	0	0	130	0	8	311	0	21	259	6
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		6
Actuated Green, G (s)		12.3			12.3		18.6	18.6		18.6	18.6	18.6
Effective Green, g (s)		12.3			12.3		18.6	18.6		18.6	18.6	18.6
Actuated g/C Ratio		0.31			0.31		0.46	0.46		0.46	0.46	0.46
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)		541			524		518	854		492	864	734
v/s Ratio Prot								c0.17			0.14	
v/s Ratio Perm		0.06			c0.08		0.01			0.02		0.00
v/c Ratio		0.20			0.25		0.02	0.36		0.04	0.30	0.01
Uniform Delay, d1		10.3			10.4		5.8	6.9		5.9	6.7	5.8
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.4			0.5		0.0	0.6		0.1	0.4	0.0
Delay (s)		10.7			11.0		5.8	7.5		6.0	7.1	5.8
Level of Service		B			B		A	A		A	A	A
Approach Delay (s)		10.7			11.0			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	0.32		
Actuated Cycle Length (s)	40.1	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)	83	200	24	12	105	23	7	255	15	44	495	79
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			3459	
Flt Permitted	0.67	1.00	1.00	0.62	1.00			0.94			0.92	
Satd. Flow (perm)	1245	1863	1583	1160	1812			3289			3177	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	217	26	13	114	25	8	277	16	48	538	86
RTOR Reduction (vph)	0	0	17	0	15	0	0	8	0	0	24	0
Lane Group Flow (vph)	90	217	9	13	124	0	0	293	0	0	648	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			13.9			13.9	
Effective Green, g (s)	11.8	11.8	11.8	11.8	11.8			13.9			13.9	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34			0.41			0.41	
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)	428	641	545	399	623			1333			1287	
v/s Ratio Prot		c0.12			0.07							
v/s Ratio Perm	0.07		0.01	0.01				0.09			c0.20	
v/c Ratio	0.21	0.34	0.02	0.03	0.20			0.22			0.50	
Uniform Delay, d1	8.0	8.4	7.4	7.5	7.9			6.7			7.6	
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)	8.0	8.5	7.4	7.5	8.0			6.7			7.7	
Level of Service	A	A	A	A	A			A			A	
Approach Delay (s)		8.3			7.9			6.7			7.7	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	8.6
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	236	27	21	182	41	20	451	27	40	416	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6	4.6	4.6	4.6			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			0.95			0.95	
Frt	1.00	1.00	0.85	1.00	0.97			0.99			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1811			3504			3463	
Flt Permitted	0.61	1.00	1.00	0.60	1.00			0.92			0.88	
Satd. Flow (perm)	1132	1863	1583	1118	1811			3234			3077	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	257	29	23	198	45	22	490	29	43	452	66
RTOR Reduction (vph)	0	0	16	0	13	0	0	10	0	0	25	0
Lane Group Flow (vph)	82	257	13	23	230	0	0	531	0	0	536	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)	17.1	17.1	17.1	17.1	17.1			11.2			11.2	
Effective Green, g (s)	17.1	17.1	17.1	17.1	17.1			11.2			11.2	
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46			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)	525	863	734	518	839			982			934	
v/s Ratio Prot		c0.14			0.13							
v/s Ratio Perm	0.07		0.01	0.02				0.16			c0.17	
v/c Ratio	0.16	0.30	0.02	0.04	0.27			0.54			0.57	
Uniform Delay, d1	5.7	6.2	5.4	5.4	6.1			10.7			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			0.3			0.5	
Delay (s)	5.8	6.2	5.4	5.4	6.2			11.0			11.4	
Level of Service	A	A	A	A	A			B			B	
Approach Delay (s)		6.1			6.1			11.0			11.4	
Approach LOS		A			A			B			B	

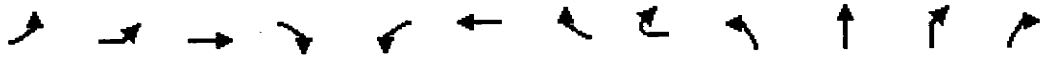
Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	36.9	Sum of lost time (s)	8.6
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	67	12	14	143	15	14	272	11	13	190	12
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	1837		1770	1852		1770	1846	
Flt Permitted	0.65	1.00		0.70	1.00		0.62	1.00		0.57	1.00	
Satd. Flow (perm)	1209	1821		1306	1837		1156	1852		1067	1846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	73	13	15	155	16	15	296	12	14	207	13
RTOR Reduction (vph)	0	8	0	0	5	0	0	2	0	0	3	0
Lane Group Flow (vph)	15	78	0	15	166	0	15	306	0	14	217	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	12.3	12.3		12.3	12.3		18.1	18.1		18.1	18.1	
Effective Green, g (s)	12.3	12.3		12.3	12.3		18.1	18.1		18.1	18.1	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.46	0.46		0.46	0.46	
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)	376	566		406	571		528	846		488	844	
v/s Ratio Prot		0.04			c0.09			c0.17			0.12	
v/s Ratio Perm	0.01			0.01			0.01			0.01		
v/c Ratio	0.04	0.14		0.04	0.29		0.03	0.36		0.03	0.26	
Uniform Delay, d1	9.5	9.8		9.5	10.3		5.9	7.0		5.9	6.6	
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		0.0	0.2		0.0	0.4		0.0	0.2	
Delay (s)	9.6	9.9		9.5	10.6		5.9	7.4		5.9	6.8	
Level of Service	A	A		A	B		A	A		A	A	
Approach Delay (s)		9.9			10.5			7.3			6.8	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	39.6	Sum of lost time (s)	9.2
Intersection Capacity Utilization	36.8%	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)	32	122	11	10	83	11	14	318	4	7	221	7
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	1860		1770	1854	
Flt Permitted	0.69	1.00		0.66	1.00		0.61	1.00		0.53	1.00	
Satd. Flow (perm)	1287	1840		1238	1830		1127	1860		996	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	133	12	11	90	12	15	346	4	8	240	8
RTOR Reduction (vph)	0	4	0	0	6	0	0	1	0	0	2	0
Lane Group Flow (vph)	35	141	0	11	96	0	15	349	0	8	246	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		18.7	18.7		18.7	18.7	
Effective Green, g (s)	12.2	12.2		12.2	12.2		18.7	18.7		18.7	18.7	
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)	392	560		377	557		526	867		464	865	
v/s Ratio Prot		c0.08			0.05			c0.19			0.13	
v/s Ratio Perm	0.03			0.01			0.01			0.01		
v/c Ratio	0.09	0.25		0.03	0.17		0.03	0.40		0.02	0.28	
Uniform Delay, d1	10.0	10.5		9.8	10.2		5.8	7.0		5.8	6.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.0	0.1		0.0	0.4		0.0	0.2	
Delay (s)	10.0	10.7		9.8	10.3		5.8	7.5		5.8	6.8	
Level of Service	B	B		A	B		A	A		A	A	
Approach Delay (s)		10.6			10.3			7.4			6.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	40.1	Sum of lost time (s)	9.2
Intersection Capacity Utilization	38.8%	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	20	16	29	10	21	7	28	46	298	743	24
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	1680		1770	1689			1770	5085	2787	
Flt Permitted		0.72	1.00		0.73	1.00			0.95	1.00	1.00	
Satd. Flow (perm)		1336	1680		1351	1689			1770	5085	2787	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	22	17	32	11	23	8	30	50	324	808	26
RTOR Reduction (vph)	0	0	29	0	0	27	0	0	0	0	1	0
Lane Group Flow (vph)	0	25	20	0	11	34	0	0	50	324	833	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			3.9	14.5	21.4	
Effective Green, g (s)		6.0	6.0		6.0	6.0			3.9	14.5	21.4	
Actuated g/C Ratio		0.09	0.09		0.09	0.09			0.06	0.22	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	154		124	154			105	1124	909	
v/s Ratio Prot			0.01			c0.02			0.03	c0.06	c0.30	
v/s Ratio Perm		0.02			0.01							
v/c Ratio		0.20	0.13		0.09	0.22			0.48	0.29	0.92	
Uniform Delay, d1		27.6	27.4		27.3	27.6			29.9	21.3	21.2	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.1		0.1	0.3			1.2	0.5	15.4	
Delay (s)		27.9	27.5		27.4	27.9			31.1	21.7	36.6	
Level of Service		C	C		C	C			C	C	D	
Approach Delay (s)			27.7			27.8				32.4		
Approach LOS			C			C				C		

Intersection Summary			
HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	19.6
Intersection Capacity Utilization	59.8%	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)	9	44	233	5	963	110	74
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	5071		4920		
Flt Permitted		0.95	1.00		0.96		
Satd. Flow (perm)		1770	5071		4920		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	48	253	5	1047	120	80
RTOR Reduction (vph)	0	0	2	0	5	0	0
Lane Group Flow (vph)	0	58	256	0	1242	0	0
Turn Type	Prot	Prot					
Protected Phases	1	1	6		7		
Permitted Phases							
Actuated Green, G (s)		4.1	14.7		21.4		
Effective Green, g (s)		4.1	14.7		21.4		
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)		111	1136		1605		
v/s Ratio Prot		c0.03	0.05		0.25		
v/s Ratio Perm							
v/c Ratio		0.52	0.23		0.77		
Uniform Delay, d1		29.8	20.8		19.9		
Progression Factor		1.00	1.00		1.00		
Incremental Delay, d2		2.0	0.3		3.5		
Delay (s)		31.8	21.1		23.4		
Level of Service		C	C		C		
Approach Delay (s)			23.1		23.4		
Approach LOS			C		C		

Intersection Summary

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Volume (vph)	9	78	25	33	21	12	5	54	47	364	904	19
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	1703		1770	1631			1770	5085	2787	
Flt Permitted		0.71	1.00		0.72	1.00			0.95	1.00	1.00	
Satd. Flow (perm)		1317	1703		1334	1631			1770	5085	2787	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	85	27	36	23	13	5	59	51	396	983	21
RTOR Reduction (vph)	0	0	32	0	0	53	0	0	0	0	1	0
Lane Group Flow (vph)	0	95	31	0	23	24	0	0	51	396	1003	0
Turn Type	Perm	Perm			Perm				Prot		Over	
Protected Phases			8			8			5	2	7	
Permitted Phases	8	8			8							
Actuated Green, G (s)		7.2	7.2		7.2	7.2			4.0	16.4	21.6	
Effective Green, g (s)		7.2	7.2		7.2	7.2			4.0	16.4	21.6	
Actuated g/C Ratio		0.10	0.10		0.10	0.10			0.06	0.24	0.31	
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)		138	179		140	171			103	1216	878	
v/s Ratio Prot			0.02			0.01			c0.03	c0.08	c0.36	
v/s Ratio Perm		c0.07			0.02							
v/c Ratio		0.69	0.17		0.16	0.14			0.50	0.33	1.14	
Uniform Delay, d1		29.6	28.0		28.0	27.9			31.3	21.5	23.5	
Progression Factor		1.00	1.00		1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2		10.8	0.2		0.2	0.1			1.4	0.5	77.8	
Delay (s)		40.4	28.1		28.2	28.0			32.7	22.1	101.3	
Level of Service		D	C		C	C			C	C	F	
Approach Delay (s)			35.5			28.1				77.3		
Approach LOS			D			C				E		

Intersection Summary			
HCM Average Control Delay	49.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	14.5
Intersection Capacity Utilization	60.9%	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)	35	4	320	5	1	891	34	15
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	5074			4976		
Flt Permitted		0.95	1.00			0.92		
Satd. Flow (perm)		1770	5074			4792		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	4	348	5	1	968	37	16
RTOR Reduction (vph)	0	0	2	0	0	1	0	0
Lane Group Flow (vph)	0	42	351	0	0	1021	0	0
Turn Type	Prot	Prot						
Protected Phases	1	1	6			7		
Permitted Phases								
Actuated Green, G (s)		3.8	16.2			21.6		
Effective Green, g (s)		3.8	16.2			21.6		
Actuated g/C Ratio		0.06	0.24			0.31		
Clearance Time (s)		4.7	5.1			4.7		
Vehicle Extension (s)		2.0	6.8			8.0		
Lane Grp Cap (vph)		98	1198			1509		
v/s Ratio Prot		0.02	0.07					
v/s Ratio Perm						0.21		
v/c Ratio		0.43	0.29			26.50dr		
Uniform Delay, d1		31.3	21.5			20.5		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		1.1	0.5			2.5		
Delay (s)		32.4	22.0			22.9		
Level of Service		C	C			C		
Approach Delay (s)			23.1			22.9		
Approach LOS			C			C		

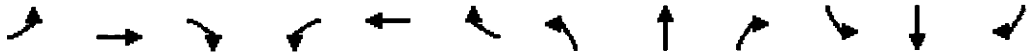
Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↑↑↕						↑↑↕		↰	↑↑	
Volume (vph)	156	2261	27	0	0	0	0	250	95	147	571	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)		5061						3393		1770	3539	
Flt Permitted		1.00						1.00		0.95	1.00	
Satd. Flow (perm)		5061						3393		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	2458	29	0	0	0	0	272	103	160	621	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	51	0	0	0	0
Lane Group Flow (vph)	0	2656	0	0	0	0	0	324	0	160	621	0
Turn Type	Split									Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases												
Actuated Green, G (s)		29.5						11.8		9.4	25.4	
Effective Green, g (s)		29.5						11.8		9.4	25.4	
Actuated g/C Ratio		0.45						0.18		0.14	0.38	
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)		2259						606		252	1360	
v/s Ratio Prot		c0.52						0.10		c0.09	c0.18	
v/s Ratio Perm												
v/c Ratio		1.18						0.53		0.63	0.46	
Uniform Delay, d1		18.3						24.7		26.7	15.2	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		84.1						1.0		3.8	0.4	
Delay (s)		102.4						25.6		30.5	15.6	
Level of Service		F						C		C	B	
Approach Delay (s)		102.4			0.0			25.6			18.6	
Approach LOS		F			A			C			B	

Intersection Summary			
HCM Average Control Delay	77.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	66.1	Sum of lost time (s)	9.8
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	2039	49	0	0	0	0	416	153	184	479	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						3397		1770	3539	
Flt Permitted		1.00						1.00		0.95	1.00	
Satd. Flow (perm)		5056						3397		1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	2216	53	0	0	0	0	452	166	200	521	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	31	0	0	0	0
Lane Group Flow (vph)	0	2379	0	0	0	0	0	587	0	200	521	0
Turn Type	Split									Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases												
Actuated Green, G (s)		29.5						18.8		10.4	33.4	
Effective Green, g (s)		29.5						18.8		10.4	33.4	
Actuated g/C Ratio		0.40						0.25		0.14	0.45	
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)		2013						862		248	1595	
v/s Ratio Prot		c0.47						c0.17		c0.11	0.15	
v/s Ratio Perm												
v/c Ratio		1.18						0.68		0.81	0.33	
Uniform Delay, d1		22.3						24.9		30.9	13.1	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		87.3						2.3		16.3	0.2	
Delay (s)		109.6						27.2		47.2	13.3	
Level of Service		F						C		D	B	
Approach Delay (s)		109.6			0.0			27.2			22.7	
Approach LOS		F			A			C			C	

Intersection Summary			
HCM Average Control Delay	79.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	74.1	Sum of lost time (s)	15.4
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	2068	35	0	0	0	0	393	144	122	553	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	282	2248	38	0	0	0	0	427	157	133	601	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	61	0	0	0
Lane Group Flow (vph)	0	2566	0	0	0	0	0	427	96	133	601	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		c0.51						c0.12		c0.08	0.17	
v/s Ratio Perm									0.06			
v/c Ratio		1.20						0.47	0.24	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		96.2						0.9	0.7	11.2	0.2	
Delay (s)		116.7						23.2	21.6	42.1	14.7	
Level of Service		F						C	C	D	B	
Approach Delay (s)		116.7			0.0			22.8			19.6	
Approach LOS		F			A			C			B	

Intersection Summary			
HCM Average Control Delay	84.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	15.4
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑	↱	↰	↑↑	
Volume (vph)	235	2139	49	0	0	0	0	686	241	186	747	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)		5046						3539	1583	1770	3539	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		5046						3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	2325	53	0	0	0	0	746	262	202	812	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	29	0	0	0
Lane Group Flow (vph)	0	2630	0	0	0	0	0	746	233	202	812	0
Turn Type	Split								Perm	Prot		
Protected Phases	2	2						8		7	4	
Permitted Phases									8			
Actuated Green, G (s)		29.4						23.8	23.8	10.5	38.5	
Effective Green, g (s)		29.4						23.8	23.8	10.5	38.5	
Actuated g/C Ratio		0.37						0.30	0.30	0.13	0.49	
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)		1876						1065	476	235	1723	
v/s Ratio Prot		c0.52						c0.21		c0.11	0.23	
v/s Ratio Perm									0.15			
v/c Ratio		1.40						0.70	0.49	0.86	0.47	
Uniform Delay, d1		24.8						24.5	22.7	33.6	13.5	
Progression Factor		1.00						1.00	1.00	1.00	1.00	
Incremental Delay, d2		184.3						2.8	1.8	24.6	0.3	
Delay (s)		209.1						27.3	24.5	58.2	13.8	
Level of Service		F						C	C	E	B	
Approach Delay (s)		209.1			0.0			26.5			22.6	
Approach LOS		F			A			C			C	

Intersection Summary			
HCM Average Control Delay	129.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	15.4
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	9	3	8	5	2	8	5	255	4	4	221	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	3	9	5	2	9	5	277	4	4	240	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												
vC, conflicting volume	553	545	244	553	547	279	248			282		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	553	545	244	553	547	279	248			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 %	98	99	99	99	100	99	100			100		
cM capacity (veh/h)	435	442	795	434	441	759	1318			1281		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	16	287	252
Volume Left	10	5	5	4
Volume Right	9	9	4	8
cSH	533	564	1318	1281
Volume to Capacity	0.04	0.03	0.00	0.00
Queue Length 95th (ft)	3	2	0	0
Control Delay (s)	12.0	11.6	0.2	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	12.0	11.6	0.2	0.2
Approach LOS	B	B		

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	26.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (veh/h)	4	0	3	9	3	8	4	370	2	5	230	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	3	10	3	9	4	402	2	5	250	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)								722			817	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95	1.00	0.95			1.00		
vC, conflicting volume	686	677	253	679	678	403	255			404		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	640	630	184	632	632	403	187			404		
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	100	100	97	99	99	100			100		
cM capacity (veh/h)	358	375	814	369	374	647	1315			1154		

Direction, Lane #	EB	WB	NB	SB
Volume Total	8	22	409	261
Volume Left	4	10	4	5
Volume Right	3	9	2	5
cSH	472	446	1315	1154
Volume to Capacity	0.02	0.05	0.00	0.00
Queue Length 95th (ft)	1	4	0	0
Control Delay (s)	12.8	13.5	0.1	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	12.8	13.5	0.1	0.2
Approach LOS	B	B		

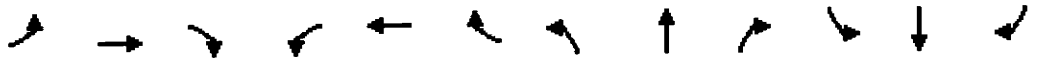
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑					↰	✥	
Volume (vph)	0	1538	802	0	1686	668	0	0	0	187	0	177
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)		4697	1362		4869					1681	1522	
Flt Permitted		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (perm)		4697	1362		4869					1681	1522	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1672	872	0	1833	726	0	0	0	203	0	192
RTOR Reduction (vph)	0	21	212	0	67	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	1947	364	0	2492	0	0	0	0	183	208	0
Turn Type			Perm							Prot		
Protected Phases		2			6					4		
Permitted Phases			2									
Actuated Green, G (s)		35.7	35.7		35.7					12.3	12.3	
Effective Green, g (s)		35.7	35.7		35.7					12.3	12.3	
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)		2968	861		3077					366	331	
v/s Ratio Prot		0.41			c0.51					0.11	0.14	
v/s Ratio Perm			0.27									
v/c Ratio		0.66	0.42		0.81					0.50	0.63	
Uniform Delay, d1		6.5	5.2		7.8					19.4	20.0	
Progression Factor		1.00	1.00		1.00					1.00	1.00	
Incremental Delay, d2		0.6	0.6		1.9					1.5	4.3	
Delay (s)		7.2	5.8		9.7					20.9	24.3	
Level of Service		A	A		A					C	C	
Approach Delay (s)		6.9			9.7			0.0			22.8	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	56.5	Sum of lost time (s)	8.4
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑					↰	↕	
Volume (vph)	0	1391	959	0	2333	673	0	0	0	196	0	269
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1512	1042	0	2536	732	0	0	0	213	0	292
RTOR Reduction (vph)	0	51	217	0	49	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	1919	367	0	3219	0	0	0	0	192	312	0
Turn Type			Perm							Prot		
Protected Phases		2			6					4		
Permitted Phases			2									
Actuated Green, G (s)		35.7	35.7		35.7					12.6	12.6	
Effective Green, g (s)		35.7	35.7		35.7					12.6	12.6	
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)		2915	856		3089					373	337	
v/s Ratio Prot		0.41			c0.66					0.11	0.21	
v/s Ratio Perm			0.27									
v/c Ratio		0.66	0.43		1.04					0.51	0.93	
Uniform Delay, d1		6.7	5.4		10.5					19.4	21.6	
Progression Factor		1.00	1.00		1.00					1.00	1.00	
Incremental Delay, d2		0.7	0.6		28.5					1.7	31.0	
Delay (s)		7.3	6.0		39.1					21.1	52.6	
Level of Service		A	A		D					C	D	
Approach Delay (s)		7.0			39.1			0.0			40.6	
Approach LOS		A			D			A			D	

Intersection Summary			
HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	8.4
Intersection Capacity Utilization	80.8%	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)	330	1409	0	0	1270	419	792	0	0	217	0	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.9			4.9	5.9	5.9			5.9		5.2
Lane Util. Factor	0.97	0.91			0.91	1.00	0.97			0.97		1.00
Frt	1.00	1.00			1.00	0.85	1.00			1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95			0.95		1.00
Satd. Flow (prot)	3433	5085			5085	1583	3433			3433		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95			0.95		1.00
Satd. Flow (perm)	3433	5085			5085	1583	3433			3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	1532	0	0	1380	455	861	0	0	236	0	320
RTOR Reduction (vph)	0	0	0	0	0	327	0	0	0	0	0	9
Lane Group Flow (vph)	359	1532	0	0	1380	128	861	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	27.8	27.8			27.8		19.8
Effective Green, g (s)	19.8	60.1			35.1	27.8	27.8			27.8		19.8
Actuated g/C Ratio	0.20	0.61			0.36	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)	689	3096			1808	446	967			967		318
v/s Ratio Prot	0.10	0.30			c0.27	0.08	c0.25			0.07		c0.20
v/s Ratio Perm												
v/c Ratio	0.52	0.49			0.76	0.29	0.89			0.24		0.98
Uniform Delay, d1	35.2	10.8			28.1	27.7	34.0			27.3		39.2
Progression Factor	1.00	1.00			1.00	1.00	1.00			1.00		1.00
Incremental Delay, d2	0.3	0.2			2.2	0.6	10.4			0.2		44.0
Delay (s)	35.5	11.0			30.3	28.3	44.4			27.6		83.2
Level of Service	D	B			C	C	D			C		F
Approach Delay (s)		15.7			29.8			44.4			59.6	
Approach LOS		B			C			D			E	

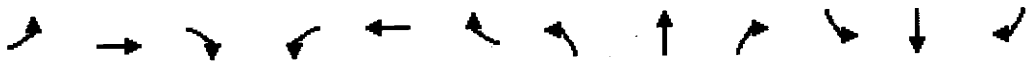
Intersection Summary			
HCM Average Control Delay	30.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	98.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	425	1214	0	0	2002	396	774	0	0	481	0	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	4.9			4.9	5.9	5.9			5.9		5.2
Lane Util. Factor	0.97	0.91			0.91	1.00	0.97			0.97		1.00
Frt	1.00	1.00			1.00	0.85	1.00			1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95			0.95		1.00
Satd. Flow (prot)	3433	5085			5085	1583	3433			3433		1583
Flt Permitted	0.95	1.00			1.00	1.00	0.95			0.95		1.00
Satd. Flow (perm)	3433	5085			5085	1583	3433			3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	462	1320	0	0	2176	430	841	0	0	523	0	516
RTOR Reduction (vph)	0	0	0	0	0	217	0	0	0	0	0	8
Lane Group Flow (vph)	462	1320	0	0	2176	213	841	0	0	523	0	508
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	27.5	27.5			27.5		19.8
Effective Green, g (s)	19.8	60.1			35.1	27.5	27.5			27.5		19.8
Actuated g/C Ratio	0.20	0.61			0.36	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)	691	3106			1814	442	959			959		319
v/s Ratio Prot	0.13	0.26			c0.43	0.13	c0.24			0.15		c0.32
v/s Ratio Perm												
v/c Ratio	0.67	0.42			1.20	0.48	0.88			0.55		1.59
Uniform Delay, d1	36.3	10.1			31.6	29.5	33.8			30.1		39.3
Progression Factor	1.00	1.00			1.00	1.00	1.00			1.00		1.00
Incremental Delay, d2	1.9	0.2			95.4	1.4	9.2			1.0		281.0
Delay (s)	38.2	10.2			127.1	31.0	43.1			31.1		320.3
Level of Service	D	B			F	C	D			C		F
Approach Delay (s)		17.5			111.2			43.1			174.7	
Approach LOS		B			F			D			F	

Intersection Summary			
HCM Average Control Delay	85.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	98.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	1929	473	611	1307	4	329	9	485	15	17	16
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	3538		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	3538		1681	1690	1583		1751	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	2097	514	664	1421	4	358	10	527	16	18	17
RTOR Reduction (vph)	0	0	117	0	0	0	0	0	410	0	14	0
Lane Group Flow (vph)	30	2097	397	664	1425	0	183	185	117	0	37	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	56.2	56.2	19.9	66.2		20.2	20.2	19.9		5.6	
Effective Green, g (s)	11.9	56.2	56.2	19.9	66.2		20.2	20.2	19.9		5.6	
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	1613	722	554	1900		275	277	255		80	
v/s Ratio Prot	0.02	c0.59		c0.19	0.40		0.11	c0.11	0.07		c0.02	
v/s Ratio Perm			0.25									
v/c Ratio	0.18	1.30	0.55	1.20	0.75		0.67	0.67	0.46		0.46	
Uniform Delay, d1	51.2	33.6	24.4	51.7	22.1		48.4	48.4	46.8		57.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.2	139.7	1.8	105.9	2.2		8.7	8.7	0.5		1.5	
Delay (s)	51.4	173.3	26.2	157.6	24.3		57.0	57.1	47.3		58.9	
Level of Service	D	F	C	F	C		E	E	D		E	
Approach Delay (s)		143.2			66.7			51.3			58.9	
Approach LOS		F			E			D			E	

Intersection Summary			
HCM Average Control Delay	99.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	123.3	Sum of lost time (s)	21.4
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	1688	463	542	1790	13	622	10	478	21	22	19
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	1835	503	589	1946	14	676	11	520	23	24	21
RTOR Reduction (vph)	0	0	136	0	1	0	0	0	403	0	12	0
Lane Group Flow (vph)	42	1835	367	589	1959	0	345	342	117	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)	16.3	55.2	55.2	19.8	60.7		24.1	24.1	19.8		6.7	
Effective Green, g (s)	16.3	55.2	55.2	19.8	60.7		24.1	24.1	19.8		6.7	
Actuated g/C Ratio	0.13	0.43	0.43	0.16	0.48		0.19	0.19	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)	227	1536	687	534	1687		318	320	246		92	
v/s Ratio Prot	0.02	c0.52		0.17	c0.55		c0.21	0.20	0.07		c0.03	
v/s Ratio Perm			0.23									
v/c Ratio	0.19	1.19	0.53	1.10	1.16		1.08	1.07	0.48		0.61	
Uniform Delay, d1	49.5	36.0	26.5	53.7	33.2		51.6	51.6	49.0		59.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	94.3	1.8	70.2	79.7		75.0	69.7	0.5		7.5	
Delay (s)	49.7	130.3	28.3	123.9	112.9		126.6	121.3	49.5		66.4	
Level of Service	D	F	C	F	F		F	F	D		E	
Approach Delay (s)		107.3			115.5			91.9			66.4	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM Average Control Delay	107.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	127.2	Sum of lost time (s)	21.1
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	299	1646	108	84	399	0	0	471	69
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	325	1789	117	91	434	0	0	512	75
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	0	0	0	2225	0	91	434	0	0	574	0
Turn Type				Split			Prot					
Protected Phases				6	6		3	8			4	
Permitted Phases												
Actuated Green, G (s)					31.1		6.8	30.8			20.3	
Effective Green, g (s)					31.1		6.8	30.8			20.3	
Actuated g/C Ratio					0.44		0.10	0.43			0.29	
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)					2191		169	1533			991	
v/s Ratio Prot					c0.44		c0.05	0.12			c0.17	
v/s Ratio Perm												
v/c Ratio					1.02		0.54	0.28			0.58	
Uniform Delay, d1					20.0		30.7	13.0			21.7	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					23.2		1.7	0.1			1.3	
Delay (s)					43.2		32.3	13.1			23.1	
Level of Service					D		C	B			C	
Approach Delay (s)		0.0			43.2			16.4			23.1	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	12.9
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰↑↑↱		↰	↑↑			↑↑↱	
Volume (vph)	0	0	0	230	1917	63	129	386	0	0	410	115
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	250	2084	68	140	420	0	0	446	125
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	0	0	0	2399	0	140	420	0	0	542	0
Turn Type				Split			Prot					
Protected Phases				6	6		3	8			4	
Permitted Phases												
Actuated Green, G (s)					30.7		10.3	34.5			20.5	
Effective Green, g (s)					30.7		10.3	34.5			20.5	
Actuated g/C Ratio					0.41		0.14	0.46			0.28	
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)					2078		245	1641			943	
v/s Ratio Prot					c0.48		c0.08	0.12			c0.16	
v/s Ratio Perm												
v/c Ratio					1.15		0.57	0.26			0.57	
Uniform Delay, d1					21.8		30.0	12.1			23.2	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					75.5		2.0	0.1			1.4	
Delay (s)					97.3		32.0	12.2			24.6	
Level of Service					F		C	B			C	
Approach Delay (s)		0.0			97.3			17.2			24.6	
Approach LOS		A			F			B			C	

Intersection Summary			
HCM Average Control Delay	72.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	12.9
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	191	2176	67	107	574	0	0	544	138
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)					5044		1770	3539			3539	1583
Flt Permitted					1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)					5044		1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	208	2365	73	116	624	0	0	591	150
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	0	0	0	2643	0	116	624	0	0	591	78
Turn Type				Split			Prot					Prot
Protected Phases				6	6		3	8			4	4
Permitted Phases												
Actuated Green, G (s)					31.1		7.8	33.9			21.9	21.9
Effective Green, g (s)					31.1		7.8	33.9			21.9	21.9
Actuated g/C Ratio					0.42		0.11	0.46			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)					2114		186	1617			1045	467
v/s Ratio Prot					c0.52		c0.07	0.18			c0.17	0.05
v/s Ratio Perm												
v/c Ratio					1.25		0.62	0.39			0.57	0.17
Uniform Delay, d1					21.6		31.8	13.3			22.1	19.4
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					116.7		4.6	0.2			1.2	0.4
Delay (s)					138.3		36.4	13.4			23.3	19.8
Level of Service					F		D	B			C	B
Approach Delay (s)		0.0			138.3			17.0			22.6	
Approach LOS		A			F			B			C	

Intersection Summary			
HCM Average Control Delay	95.8	HCM Level of Service	F
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	13.4
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	174	1949	100	200	732	0	0	740	176
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	189	2118	109	217	796	0	0	804	191
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	0	67
Lane Group Flow (vph)	0	0	0	0	2411	0	217	796	0	0	804	124
Turn Type				Split			Prot					Prot
Protected Phases				6	6		3	8			4	4
Permitted Phases												
Actuated Green, G (s)					30.5		14.4	43.5			24.9	24.9
Effective Green, g (s)					30.5		14.4	43.5			24.9	24.9
Actuated g/C Ratio					0.37		0.17	0.52			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)					1844		306	1850			1059	474
v/s Ratio Prot					c0.48		c0.12	0.22			c0.23	0.08
v/s Ratio Perm												
v/c Ratio					1.31		0.71	0.43			0.76	0.26
Uniform Delay, d1					26.4		32.4	12.2			26.4	22.2
Progression Factor					1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2					142.4		6.0	0.2			3.9	0.7
Delay (s)					168.7		38.5	12.4			30.3	22.8
Level of Service					F		D	B			C	C
Approach Delay (s)		0.0			168.7			18.0			28.9	
Approach LOS		A			F			B			C	

Intersection Summary			
HCM Average Control Delay	102.8	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	13.4
Intersection Capacity Utilization	89.3%	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)	23	165	8	2	349	152	67	605	20	17
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)		5017			3368	1441	1770	3522		1611
Flt Permitted		0.99			1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)		5017			3368	1441	1770	3522		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	179	9	2	379	165	73	658	22	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	14
Lane Group Flow (vph)	0	215	0	0	396	148	73	680	0	4
Turn Type	Perm					Perm	Prot			custom
Protected Phases		4			2		1	6		
Permitted Phases	4					2				8
Actuated Green, G (s)		12.4			20.3	20.3	4.3	21.3		12.4
Effective Green, g (s)		12.4			20.3	20.3	4.3	21.3		12.4
Actuated g/C Ratio		0.24			0.40	0.40	0.08	0.42		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)		1225			1346	576	150	1477		393
v/s Ratio Prot					c0.12		0.04	c0.19		
v/s Ratio Perm		0.04				0.10				0.00
v/c Ratio		0.18			0.29	0.26	0.49	0.46		0.01
Uniform Delay, d1		15.2			10.4	10.2	22.2	10.6		14.6
Progression Factor		1.00			1.00	1.00	1.15	0.51		1.00
Incremental Delay, d2		0.0			0.0	0.1	2.5	0.1		0.0
Delay (s)		15.2			10.4	10.3	28.0	5.5		14.6
Level of Service		B			B	B	C	A		B
Approach Delay (s)		15.2			10.4			7.7		
Approach LOS		B			B			A		

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	9.8
Intersection Capacity Utilization	37.8%	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)	60	358	10	16	572	260	61	551	17	21
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			3368	1441	1770	3524		1611
Flt Permitted		0.99			1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)		5007			3368	1441	1770	3524		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	389	11	17	622	283	66	599	18	23
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	17
Lane Group Flow (vph)	0	482	0	0	650	255	66	617	0	6
Turn Type	Perm					Perm	Prot			custom
Protected Phases		4			2		1	6		
Permitted Phases	4					2				8
Actuated Green, G (s)		13.3			22.4	22.4	3.6	19.8		13.3
Effective Green, g (s)		13.3			22.4	22.4	3.6	19.8		13.3
Actuated g/C Ratio		0.25			0.42	0.42	0.07	0.37		0.25
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)		1254			1421	608	120	1314		404
v/s Ratio Prot					c0.19		0.04	c0.18		
v/s Ratio Perm		0.10				0.18				0.00
v/c Ratio		0.38			0.46	0.42	0.55	0.47		0.01
Uniform Delay, d1		16.5			11.0	10.8	24.0	12.7		15.0
Progression Factor		1.00			1.00	1.00	1.30	0.44		1.00
Incremental Delay, d2		0.1			0.1	0.2	3.0	0.1		0.0
Delay (s)		16.6			11.1	11.0	34.2	5.7		15.0
Level of Service		B			B	B	C	A		B
Approach Delay (s)		16.6			11.0			8.5		
Approach LOS		B			B			A		

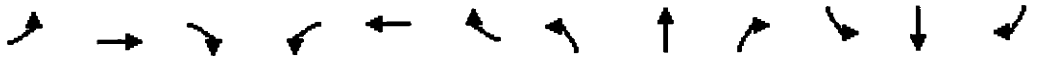
Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	9.8
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	103	956	58	0	298	72	35	188	37	94	152	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Lane Util. Factor	1.00	0.91			0.91		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.99			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	5042			4937		1770	3452		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	5042			4937		1770	3452		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	1039	63	0	324	78	38	204	40	102	165	55
RTOR Reduction (vph)	0	8	0	0	45	0	0	20	0	0	0	45
Lane Group Flow (vph)	112	1094	0	0	357	0	38	224	0	102	165	10
Turn Type	Prot						Split			Split		Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases												8
Actuated Green, G (s)	7.1	29.6			18.8		11.1	11.1		12.0	12.0	12.0
Effective Green, g (s)	7.1	29.6			18.8		11.1	11.1		12.0	12.0	12.0
Actuated g/C Ratio	0.11	0.44			0.28		0.17	0.17		0.18	0.18	0.18
Clearance Time (s)	3.7	4.9			4.9		4.6	4.6		4.6	4.6	4.6
Vehicle Extension (s)	1.5	4.5			4.5		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	188	2234			1389		294	574		318	335	284
v/s Ratio Prot	c0.06	c0.22			0.07		0.02	c0.06		0.06	c0.09	
v/s Ratio Perm												0.01
v/c Ratio	0.60	0.49			0.26		0.13	0.39		0.32	0.49	0.03
Uniform Delay, d1	28.5	13.2			18.6		23.7	24.8		23.9	24.7	22.6
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.4	0.3			0.2		0.2	0.4		0.6	1.1	0.1
Delay (s)	31.8	13.5			18.8		23.9	25.3		24.4	25.8	22.7
Level of Service	C	B			B		C	C		C	C	C
Approach Delay (s)		15.2			18.8			25.1			24.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	12.9
Intersection Capacity Utilization	48.2%	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)	105	1337	59	0	411	90	73	207	82	87	201	57
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			4948		1770	3389		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			4948		1770	3389		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	1453	64	0	447	98	79	225	89	95	218	62
RTOR Reduction (vph)	0	5	0	0	34	0	0	52	0	0	0	51
Lane Group Flow (vph)	114	1512	0	0	511	0	79	262	0	95	218	11
Turn Type	Prot						Split			Split		Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases												8
Actuated Green, G (s)	7.8	39.1			27.6		12.1	12.1		13.4	13.4	13.4
Effective Green, g (s)	7.8	39.1			27.6		12.1	12.1		13.4	13.4	13.4
Actuated g/C Ratio	0.10	0.50			0.35		0.15	0.15		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)	175	2510			1735		272	521		301	317	270
v/s Ratio Prot	0.06	c0.30			0.10		0.04	c0.08		0.05	c0.12	
v/s Ratio Perm												0.01
v/c Ratio	0.65	0.60			0.29		0.29	0.50		0.32	0.69	0.04
Uniform Delay, d1	34.1	14.2			18.5		29.5	30.5		28.6	30.7	27.3
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.5	0.5			0.2		0.6	0.8		0.6	6.1	0.1
Delay (s)	40.6	14.8			18.7		30.1	31.3		29.2	36.8	27.3
Level of Service	D	B			B		C	C		C	D	C
Approach Delay (s)		16.6			18.7			31.1			33.3	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	78.7	Sum of lost time (s)	14.1
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	218	30	0	0	0	0	589	154	168	1199	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	4992						4927		1770	5085	
Flt Permitted	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (perm)	1770	4992						4927		1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	237	33	0	0	0	0	640	167	183	1303	0
RTOR Reduction (vph)	0	21	0	0	0	0	0	54	0	0	0	0
Lane Group Flow (vph)	283	249	0	0	0	0	0	753	0	183	1303	0
Turn Type	Split									Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.0	15.0						18.9		10.8	33.4	
Effective Green, g (s)	15.0	15.0						18.9		10.8	33.4	
Actuated g/C Ratio	0.26	0.26						0.33		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)	467	1316						1637		336	2985	
v/s Ratio Prot	c0.16	0.05						0.15		c0.10	c0.26	
v/s Ratio Perm												
v/c Ratio	0.61	0.19						0.46		0.54	0.44	
Uniform Delay, d1	18.4	16.2						15.0		20.8	6.5	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.1						0.3		1.0	0.1	
Delay (s)	20.6	16.3						15.3		21.8	6.7	
Level of Service	C	B						B		C	A	
Approach Delay (s)		18.5			0.0			15.3			8.5	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	56.9	Sum of lost time (s)	7.8
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	245	31	0	0	0	0	823	397	318	794	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	4999						4837		1770	5085	
Flt Permitted	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (perm)	1770	4999						4837		1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	266	34	0	0	0	0	895	432	346	863	0
RTOR Reduction (vph)	0	21	0	0	0	0	0	95	0	0	0	0
Lane Group Flow (vph)	214	279	0	0	0	0	0	1232	0	346	863	0
Turn Type	Split									Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.1	14.1						25.4		17.4	46.5	
Effective Green, g (s)	14.1	14.1						25.4		17.4	46.5	
Actuated g/C Ratio	0.20	0.20						0.37		0.25	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)	361	1020						1778		446	3422	
v/s Ratio Prot	c0.12	0.06						c0.25		c0.20	0.17	
v/s Ratio Perm												
v/c Ratio	0.59	0.27						0.69		0.78	0.25	
Uniform Delay, d1	24.9	23.2						18.5		24.0	4.5	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.1						1.3		7.5	0.1	
Delay (s)	27.5	23.3						19.8		31.6	4.5	
Level of Service	C	C						B		C	A	
Approach Delay (s)		25.1			0.0			19.8			12.3	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	69.1	Sum of lost time (s)	12.2
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	254	241	47	48	321	0	0	448	22
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	276	262	51	52	349	0	0	487	24
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	193	386	0	52	349	0	0	508	0
Turn Type				Perm			Prot					
Protected Phases					8		5	2			6	
Permitted Phases				8								
Actuated Green, G (s)				12.4	12.4		3.3	20.3			21.3	
Effective Green, g (s)				12.4	12.4		3.3	20.3			21.3	
Actuated g/C Ratio				0.24	0.24		0.06	0.40			0.42	
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)				393	803		115	1414			1473	
v/s Ratio Prot							c0.03	0.10			c0.14	
v/s Ratio Perm				c0.12	0.12							
v/c Ratio				0.49	0.48		0.45	0.25			0.34	
Uniform Delay, d1				16.5	16.4		22.9	10.2			10.0	
Progression Factor				1.00	1.00		0.60	0.76			1.00	
Incremental Delay, d2				0.4	0.2		1.0	0.0			0.1	
Delay (s)				16.8	16.6		14.8	7.7			10.1	
Level of Service				B	B		B	A			B	
Approach Delay (s)		0.0			16.7			8.6			10.1	
Approach LOS		A			B			A			B	

HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	13.8
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)	0	0	0	221	245	66	43	584	0	0	401	39
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	3275		1770	3539			3493	
Flt Permitted				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (perm)				1610	3275		1770	3539			3493	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	240	266	72	47	635	0	0	436	42
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	192	370	0	47	635	0	0	472	0
Turn Type				Perm			Prot					
Protected Phases					8		5	2			6	
Permitted Phases				8								
Actuated Green, G (s)				13.3	13.3		6.2	22.4			19.8	
Effective Green, g (s)				13.3	13.3		6.2	22.4			19.8	
Actuated g/C Ratio				0.25	0.25		0.12	0.42			0.37	
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)				403	820		207	1493			1302	
v/s Ratio Prot							0.03	c0.18			c0.14	
v/s Ratio Perm				c0.12	0.11							
v/c Ratio				0.48	0.45		0.23	0.43			0.36	
Uniform Delay, d1				16.9	16.8		21.3	10.8			12.1	
Progression Factor				1.00	1.00		0.50	0.49			1.00	
Incremental Delay, d2				0.3	0.1		0.2	0.1			0.1	
Delay (s)				17.3	17.0		10.8	5.3			12.1	
Level of Service				B	B		B	A			B	
Approach Delay (s)		0.0			17.1			5.7			12.1	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	14.7
Intersection Capacity Utilization	37.4%	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	284	1	0	520	10	0	0	48	0	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	309	1	0	565	11	0	0	52	0	0	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		471										
pX, platoon unblocked												
vC, conflicting volume	576			310			592	885	155	725	880	288
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	576			310			592	885	155	725	880	288
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	94	100	100	98
cM capacity (veh/h)	993			1248			382	282	863	294	284	709

Direction, Lane #	EB	EB	EB	WB	WB	SB
Volume Total	206	104	377	198	52	15
Volume Left	0	0	0	0	0	0
Volume Right	0	1	0	11	52	15
cSH	1700	1700	1700	1700	863	709
Volume to Capacity	0.12	0.06	0.22	0.12	0.06	0.02
Queue Length 95th (ft)	0	0	0	0	5	2
Control Delay (s)	0.0	0.0	0.0	0.0	9.4	10.2
Lane LOS					A	B
Approach Delay (s)	0.0		0.0		9.4	10.2
Approach LOS					A	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	24.7%	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)	0	553	2	0	587	22	0	0	45	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	601	2	0	638	24	0	0	49	0	0	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		471										
pX, platoon unblocked												
vC, conflicting volume	662			603			921	1264	302	951	1253	331
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	662			603			921	1264	302	951	1253	331
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	93	100	100	97
cM capacity (veh/h)	923			970			218	168	694	199	171	665

Volume Total	EB 1	EB 2	NB	WB 1	WB 2	SB 1
Volume Total	401	203	425	297	49	23
Volume Left	0	0	0	0	0	0
Volume Right	0	2	0	24	49	23
cSH	1700	1700	1700	1700	694	665
Volume to Capacity	0.24	0.12	0.25	0.14	0.07	0.03
Queue Length 95th (ft)	0	0	0	0	6	3
Control Delay (s)	0.0	0.0	0.0	0.0	10.6	10.6
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		10.6	10.6
Approach LOS					B	B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	26.9%	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)	66	198	106	248	362	97	149	742	34	138	481	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	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	215	115	270	393	105	162	807	37	150	523	63
RTOR Reduction (vph)	0	81	0	0	26	0	0	4	0	0	9	0
Lane Group Flow (vph)	72	249	0	270	472	0	162	840	0	150	577	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.6	11.7		9.8	15.9		7.0	18.7		6.9	18.6	
Effective Green, g (s)	5.6	11.7		9.8	15.9		7.0	18.7		6.9	18.6	
Actuated g/C Ratio	0.09	0.18		0.15	0.24		0.11	0.29		0.11	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)	152	601		515	834		368	1141		363	1124	
v/s Ratio Prot	0.04	0.07		c0.08	c0.14		0.05	c0.21		0.04	c0.15	
v/s Ratio Perm												
v/c Ratio	0.47	0.41		0.52	0.57		0.44	0.74		0.41	0.51	
Uniform Delay, d1	28.4	23.8		25.6	21.7		27.3	21.1		27.3	19.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.2		0.4	0.5		0.3	2.2		0.3	0.2	
Delay (s)	29.3	23.9		26.0	22.2		27.6	23.2		27.6	19.7	
Level of Service	C	C		C	C		C	C		C	B	
Approach Delay (s)		24.9			23.6			23.9			21.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	9.1
Intersection Capacity Utilization	61.4%	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)	93	411	142	284	347	125	229	795	61	206	754	32
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	3398		3433	3968		3433	3986	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3403		3433	3398		3433	3968		3433	3986	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	447	154	309	377	136	249	864	66	224	820	35
RTOR Reduction (vph)	0	37	0	0	37	0	0	6	0	0	3	0
Lane Group Flow (vph)	101	564	0	309	476	0	249	924	0	224	852	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.7	16.7		10.8	20.8		8.9	19.2		8.9	19.2	
Effective Green, g (s)	6.7	16.7		10.8	20.8		8.9	19.2		8.9	19.2	
Actuated g/C Ratio	0.09	0.23		0.15	0.28		0.12	0.26		0.12	0.26	
Clearance Time (s)	3.1	6.0		3.1	6.0		3.1	6.0		3.1	6.0	
Vehicle Extension (s)	1.0	2.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	161	770		502	958		414	1032		414	1037	
v/s Ratio Prot	0.06	c0.17		c0.09	0.14		0.07	c0.23		0.07	c0.21	
v/s Ratio Perm												
v/c Ratio	0.63	0.73		0.62	0.50		0.60	0.90		0.54	0.82	
Uniform Delay, d1	32.3	26.5		29.6	22.1		30.8	26.3		30.5	25.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.4	3.1		1.6	0.1		1.7	9.9		0.8	5.1	
Delay (s)	37.7	29.6		31.1	22.3		32.5	36.2		31.3	30.8	
Level of Service	D	C		C	C		C	D		C	C	
Approach Delay (s)		30.8			25.6			35.4			30.9	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM Average Control Delay	31.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	21.1	
Intersection Capacity Utilization	70.5%	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	8	12	1	3	32	21	22	3	21	7	9
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			0.94		
Flt Protected		0.95	1.00				0.98			1.00		
Satd. Flow (prot)		1770	1583				1986			1988		
Flt Permitted		0.95	1.00				0.84			0.98		
Satd. Flow (perm)		1770	1583				1696			1947		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	9	13	1	3	35	23	24	3	23	8	10
RTOR Reduction (vph)	0	0	1	0	0	0	10	0	0	7	0	0
Lane Group Flow (vph)	0	13	13	0	0	0	75	0	0	37	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)		3.0	3.0				8.6			8.6		
Effective Green, g (s)		3.0	3.0				8.6			8.6		
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)		63	57				174			199		
v/s Ratio Prot		0.01										
v/s Ratio Perm			c0.01				c0.04			0.02		
v/c Ratio		0.21	0.23				0.43			0.19		
Uniform Delay, d1		39.3	39.4				35.4			34.5		
Progression Factor		1.00	1.00				1.00			1.00		
Incremental Delay, d2		0.6	0.7				3.0			0.8		
Delay (s)		39.9	40.1				38.4			35.3		
Level of Service		D	D				D			D		
Approach Delay (s)		40.0					38.4			35.3		
Approach LOS		D					D			D		

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations								
Volume (vph)	26	1151	107	17	27	42	1262	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12
Total Lost time (s)	5.2	5.9				5.2	5.9	
Lane Util. Factor	1.00	0.91				1.00	0.91	
Frt	1.00	0.99				1.00	1.00	
Flt Protected	0.95	1.00				0.95	1.00	
Satd. Flow (prot)	1770	5011				1770	5080	
Flt Permitted	0.95	1.00				0.95	1.00	
Satd. Flow (perm)	1770	5011				1770	5080	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	1251	116	18	29	46	1372	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	28	1385	0	0	0	75	1381	0
Turn Type	Prot				Prot	Prot		
Protected Phases	1	6			5	5	2	
Permitted Phases								
Actuated Green, G (s)	3.4	44.1				6.8	47.5	
Effective Green, g (s)	3.4	44.1				6.8	47.5	
Actuated g/C Ratio	0.04	0.52				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)	72	2631				143	2873	
v/s Ratio Prot	0.02	c0.28				c0.04	c0.27	
v/s Ratio Perm								
v/c Ratio	0.39	0.53				0.52	0.48	
Uniform Delay, d1	39.3	13.1				37.0	10.9	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	1.3	0.2				1.6	0.2	
Delay (s)	40.6	13.3				38.6	11.1	
Level of Service	D	B				D	B	
Approach Delay (s)		13.9					12.5	
Approach LOS		B					B	

Intersection Summary

Lane Configurations												
Volume (vph)	30	8	31	131	17	21	8	31	2	5	21	1402
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		1998			2053			1770	5065
Flt Permitted		0.95	1.00		0.76			0.94			0.95	1.00
Satd. Flow (perm)		1770	1583		1569			1957			1770	5065
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	9	34	142	18	23	9	34	2	5	23	1524
RTOR Reduction (vph)	0	0	0	0	3	0	0	2	0	0	0	1
Lane Group Flow (vph)	0	42	34	0	180	0	0	48	0	0	23	1565
Turn Type	Split		Perm	Perm			Perm				Prot	
Protected Phases	3	3			4			4			1	6
Permitted Phases			3	4			4					
Actuated Green, G (s)		5.7	5.7		19.8			19.8			3.6	51.4
Effective Green, g (s)		5.7	5.7		19.8			19.8			3.6	51.4
Actuated g/C Ratio		0.05	0.05		0.19			0.19			0.03	0.49
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		295			368			60	2470
v/s Ratio Prot		c0.02									0.01	c0.31
v/s Ratio Perm			0.02		c0.11			0.02				
v/c Ratio		0.44	0.40		0.61			0.13			0.38	0.63
Uniform Delay, d1		48.3	48.2		39.3			35.6			49.8	20.0
Progression Factor		1.00	1.00		1.00			1.00			1.00	1.00
Incremental Delay, d2		1.2	1.1		4.6			0.3			1.5	0.6
Delay (s)		49.5	49.3		43.9			35.9			51.3	20.6
Level of Service		D	D		D			D			D	C
Approach Delay (s)		49.4			43.9			35.9				21.0
Approach LOS		D			D			D				C

HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	105.4	Sum of lost time (s)	27.4
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations						
Volume (vph)	31	7	42	19	1308	17
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	5076	
Flt Permitted				0.95	1.00	
Satd. Flow (perm)				1770	5076	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	8	46	21	1422	18
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	67	1440	0
Turn Type			Prot	Prot		
Protected Phases			5	5	2	
Permitted Phases						
Actuated Green, G (s)				7.0	54.8	
Effective Green, g (s)				7.0	54.8	
Actuated g/C Ratio				0.07	0.52	
Clearance Time (s)				5.2	5.9	
Vehicle Extension (s)				2.0	4.3	
Lane Grp Cap (vph)				118	2639	
v/s Ratio Prot				c0.04	c0.28	
v/s Ratio Perm						
v/c Ratio				0.57	0.55	
Uniform Delay, d1				47.7	17.0	
Progression Factor				1.00	1.00	
Incremental Delay, d2				3.7	0.3	
Delay (s)				51.4	17.3	
Level of Service				D	B	
Approach Delay (s)					18.8	
Approach LOS					B	

Intersection Summary

Movement	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations								
Volume (vph)	43	497	222	105	54	840	978	91
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	540	241	114	59	913	1063	99
RTOR Reduction (vph)	0	7	30	0	0	0	12	0
Lane Group Flow (vph)	0	288	617	0	59	913	1150	0
Turn Type	Split	Split			Prot			
Protected Phases	8	8	8		5	2	6	
Permitted Phases								
Actuated Green, G (s)		16.7	16.7		3.8	25.0	17.5	
Effective Green, g (s)		16.7	16.7		3.8	25.0	17.5	
Actuated g/C Ratio		0.33	0.33		0.08	0.50	0.35	
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)		574	1522		134	2532	1750	
v/s Ratio Prot		c0.17	0.13		0.03	c0.18	c0.23	
v/s Ratio Perm								
v/c Ratio		0.50	0.41		0.44	0.36	0.66	
Uniform Delay, d1		13.4	12.9		22.2	7.7	13.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.7	0.2		0.8	0.0	0.7	
Delay (s)		14.1	13.1		23.0	7.7	14.5	
Level of Service		B	B		C	A	B	
Approach Delay (s)			13.4			8.7	14.5	
Approach LOS			B			A	B	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	12.9
Intersection Capacity Utilization	50.1%	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)	22	266	393	265	108	923	851	172
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	289	427	288	117	1003	925	187
RTOR Reduction (vph)	0	3	103	0	0	0	36	0
Lane Group Flow (vph)	0	258	664	0	117	1003	1076	0
Turn Type	Split	Split			Prot			
Protected Phases	8	8	8		5	2	6	
Permitted Phases								
Actuated Green, G (s)		16.7	16.7		6.8	27.8	17.3	
Effective Green, g (s)		16.7	16.7		6.8	27.8	17.3	
Actuated g/C Ratio		0.32	0.32		0.13	0.52	0.33	
Clearance Time (s)		4.1	4.1		3.7	4.4	4.4	
Vehicle Extension (s)		3.0	3.0		2.0	0.2	0.2	
Lane Grp Cap (vph)		544	1424		227	2667	1618	
v/s Ratio Prot		c0.15	0.15		c0.07	0.20	c0.22	
v/s Ratio Perm								
v/c Ratio		0.47	0.47		0.52	0.38	0.67	
Uniform Delay, d1		14.6	14.6		21.6	7.5	15.4	
Progression Factor		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		0.7	0.2		0.8	0.0	0.8	
Delay (s)		15.3	14.8		22.4	7.5	16.2	
Level of Service		B	B		C	A	B	
Approach Delay (s)			14.9			9.1	16.2	
Approach LOS			B			A	B	

HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	53.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	51.2%	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)	34	97	21	121	85	56	39	196	68	110	492	80
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	1813		1770	1751		1770	3402		1770	3465	
Flt Permitted	0.66	1.00		0.67	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1229	1813		1257	1751		1770	3402		1770	3465	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	105	23	132	92	61	42	213	74	120	535	87
RTOR Reduction (vph)	0	7	0	0	22	0	0	31	0	0	10	0
Lane Group Flow (vph)	37	121	0	132	131	0	42	256	0	120	612	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)	9.9	9.9		9.9	9.9		2.0	13.8		5.8	17.6	
Effective Green, g (s)	9.9	9.9		9.9	9.9		2.0	13.8		5.8	17.6	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.05	0.32		0.13	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)	282	415		288	401		82	1087		238	1412	
v/s Ratio Prot		0.07			0.08		c0.02	0.08		0.07	c0.18	
v/s Ratio Perm	0.03			c0.10								
v/c Ratio	0.13	0.29		0.46	0.33		0.51	0.24		0.50	0.43	
Uniform Delay, d1	13.2	13.8		14.3	13.9		20.1	10.8		17.4	9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.4	0.2		2.2	0.0		0.6	0.1	
Delay (s)	13.3	13.9		14.8	14.1		22.4	10.9		18.0	9.3	
Level of Service	B	B		B	B		C	B		B	A	
Approach Delay (s)		13.8			14.4			12.3			10.7	
Approach LOS		B			B			B			B	

HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	43.2	Sum of lost time (s)	13.7
Intersection Capacity Utilization	48.2%	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)	105	115	57	129	119	119	46	482	84	119	405	72
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	3461		1770	3459	
Flt Permitted	0.55	1.00		0.64	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1020	1770		1192	1723		1770	3461		1770	3459	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	125	62	140	129	129	50	524	91	129	440	78
RTOR Reduction (vph)	0	16	0	0	31	0	0	13	0	0	12	0
Lane Group Flow (vph)	114	171	0	140	227	0	50	602	0	129	506	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4			4								
Actuated Green, G (s)	13.2	13.2		13.2	13.2		6.1	17.0		6.6	17.5	
Effective Green, g (s)	13.2	13.2		13.2	13.2		6.1	17.0		6.6	17.5	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.12	0.34		0.13	0.35	
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)	267	463		312	450		214	1165		231	1199	
v/s Ratio Prot		0.10			c0.13		0.03	c0.17		c0.07	0.15	
v/s Ratio Perm	0.11			0.12								
v/c Ratio	0.43	0.37		0.45	0.50		0.23	0.52		0.56	0.42	
Uniform Delay, d1	15.5	15.3		15.6	15.9		20.1	13.5		20.6	12.6	
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		0.4	0.3		0.2	0.2		1.7	0.1	
Delay (s)	15.9	15.4		16.0	16.2		20.3	13.6		22.2	12.7	
Level of Service	B	B		B	B		C	B		C	B	
Approach Delay (s)		15.6			16.1			14.1			14.6	
Approach LOS		B			B			B			B	

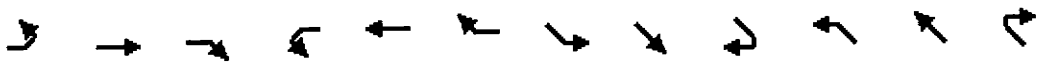
Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	13.7
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	140	42	97	116	254	34	213	129	82	365	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	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	1798		1770	1671		1770	3339		1770	3463	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1798		1770	1671		1770	3339		1770	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	152	46	105	126	276	37	232	140	89	397	67
RTOR Reduction (vph)	0	18	0	0	124	0	0	104	0	0	20	0
Lane Group Flow (vph)	8	180	0	105	278	0	37	268	0	89	444	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.5	13.5		3.7	16.7		1.2	12.6		2.9	14.3	
Effective Green, g (s)	0.5	13.5		3.7	16.7		1.2	12.6		2.9	14.3	
Actuated g/C Ratio	0.01	0.28		0.08	0.34		0.02	0.26		0.06	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)	18	498		134	573		44	864		105	1017	
v/s Ratio Prot	0.00	0.10		c0.06	c0.17		0.02	0.08		c0.05	c0.13	
v/s Ratio Perm												
v/c Ratio	0.44	0.36		0.78	0.49		0.84	0.31		0.85	0.44	
Uniform Delay, d1	24.0	14.1		22.1	12.6		23.7	14.5		22.7	13.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.5	0.4		25.2	0.7		77.3	0.2		43.4	0.3	
Delay (s)	40.5	14.6		47.3	13.3		101.0	14.8		66.1	14.2	
Level of Service	D	B		D	B		F	B		E	B	
Approach Delay (s)		15.6			20.3			22.6			22.6	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	48.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

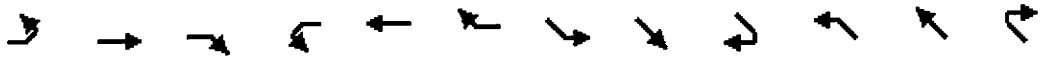
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	166	28	127	108	313	31	377	231	78	279	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	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	1823		1770	1655		1770	3338		1770	3483	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1823		1770	1655		1770	3338		1770	3483	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	180	30	138	117	340	34	410	251	85	303	36
RTOR Reduction (vph)	0	11	0	0	167	0	0	140	0	0	13	0
Lane Group Flow (vph)	16	199	0	138	290	0	34	521	0	85	326	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	11.6		6.0	17.0		1.3	15.3		2.9	16.9	
Effective Green, g (s)	0.6	11.6		6.0	17.0		1.3	15.3		2.9	16.9	
Actuated g/C Ratio	0.01	0.22		0.12	0.33		0.03	0.30		0.06	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)	21	408		205	543		44	986		99	1136	
v/s Ratio Prot	0.01	0.11		c0.08	c0.18		0.02	c0.16		c0.05	0.09	
v/s Ratio Perm												
v/c Ratio	0.76	0.49		0.67	0.53		0.77	0.53		0.86	0.29	
Uniform Delay, d1	25.5	17.5		22.0	14.2		25.1	15.2		24.2	13.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	92.1	0.9		8.4	1.0		57.0	0.5		47.9	0.1	
Delay (s)	117.6	18.4		30.4	15.2		82.1	15.8		72.1	13.1	
Level of Service	F	B		C	B		F	B		E	B	
Approach Delay (s)		25.5			18.7			19.0			24.9	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	51.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	175	12	46	11	15	23	36	1444	625	138	1224	14
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		1725		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		1725		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	13	50	12	16	25	39	1570	679	150	1330	15
RTOR Reduction (vph)	0	0	44	0	24	0	0	0	154	0	0	2
Lane Group Flow (vph)	101	102	6	0	29	0	39	1570	525	150	1330	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)	14.0	14.0	14.0		6.8		6.0	61.5	61.5	14.3	69.8	69.8
Effective Green, g (s)	14.0	14.0	14.0		6.8		6.0	61.5	61.5	14.3	69.8	69.8
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)	202	203	190		101		91	1865	834	217	2117	947
v/s Ratio Prot	0.06	c0.06			c0.02		0.02	c0.44		c0.08	0.38	
v/s Ratio Perm			0.00						0.33			0.01
v/c Ratio	0.50	0.50	0.03		0.29		0.43	0.84	0.63	0.69	0.63	0.01
Uniform Delay, d1	48.1	48.1	45.4		52.6		53.7	23.5	19.5	49.1	15.1	9.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	3.4	0.1		1.6		1.2	4.0	2.1	7.4	0.8	0.0
Delay (s)	51.4	51.4	45.5		54.2		54.9	27.5	21.6	56.5	15.9	9.5
Level of Service	D	D	D		D		D	C	C	E	B	A
Approach Delay (s)		50.3			54.2			26.2			19.9	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	116.7	Sum of lost time (s)	20.1
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	560	22	95	26	25	27	19	1320	337	163	1595	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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	609	24	103	28	27	29	21	1435	366	177	1734	5
RTOR Reduction (vph)	0	0	78	0	14	0	0	0	104	0	0	0
Lane Group Flow (vph)	317	316	25	0	70	0	21	1435	262	177	1734	5
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		11.1		4.1	61.5	61.5	17.6	75.0	75.0
Effective Green, g (s)	24.6	24.6	24.6		11.1		4.1	61.5	61.5	17.6	75.0	75.0
Actuated g/C Ratio	0.18	0.18	0.18		0.08		0.03	0.46	0.46	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)	307	308	289		144		54	1613	722	231	1968	880
v/s Ratio Prot	c0.19	0.19			c0.04		0.01	0.41		c0.10	c0.49	
v/s Ratio Perm			0.02						0.17			0.00
v/c Ratio	1.03	1.03	0.09		0.49		0.39	0.89	0.36	0.77	0.88	0.01
Uniform Delay, d1	55.2	55.2	45.8		59.2		64.2	33.6	23.9	56.7	26.1	13.3
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	60.0	58.1	0.2		2.6		1.7	6.9	0.6	12.8	5.4	0.0
Delay (s)	115.2	113.3	46.1		61.8		65.9	40.5	24.6	69.4	31.4	13.3
Level of Service	F	F	D		E		E	D	C	E	C	B
Approach Delay (s)		104.7			61.8			37.6			34.9	
Approach LOS		F			E			D			C	

Intersection Summary			
HCM Average Control Delay	47.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	134.9	Sum of lost time (s)	20.1
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	216	0	57	0	296	0	0	107	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	235	0	62	0	322	0	0	116	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	339	438	58	380	438	161	116			322		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	339	438	58	380	438	161	116			322		
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	58	100	93	100			100		
cM capacity (veh/h)	548	511	996	553	511	856	1470			1235		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	157	140	161	151	78	39
Volume Left	157	78	0	0	0	0
Volume Right	0	62	0	0	0	0
cSH	553	655	1700	1700	1700	1700
Volume to Capacity	0.28	0.21	0.09	0.09	0.05	0.02
Queue Length 95th (ft)	29	20	0	0	0	0
Control Delay (s)	14.1	12.0	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	13.1		0.0		0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	22.6%	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)	0	0	0	84	4	46	0	560	0	0	188	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	91	4	50	0	609	0	0	204	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)								857				
pX, platoon unblocked												
vC, conflicting volume	563	815	104	711	817	304	209			609		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	563	815	104	711	817	304	209			609		
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	71	99	93	100			100		
cM capacity (veh/h)	375	310	930	320	309	692	1359			966		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	61	85	304	304	136	72
Volume Left	61	30	0	0	0	0
Volume Right	0	50	0	0	0	4
cSH	320	467	1700	1700	1700	1700
Volume to Capacity	0.19	0.18	0.18	0.18	0.08	0.04
Queue Length 95th (ft)	17	16	0	0	0	0
Control Delay (s)	18.9	14.4	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	16.3		0.0		0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	26.0%	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 (vph)	0	1	9	332	1	43	34	468	526	109	761	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		4.5	4.5	4.5	4.0	5.0	5.0	4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.88		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1634		1681	1686	1583	1770	3539	1583	1770	3538	
Flt Permitted		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1634		1681	1686	1583	1770	3539	1583	1770	3538	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	10	361	1	47	37	509	572	118	827	2
RTOR Reduction (vph)	0	10	0	0	0	37	0	0	388	0	0	0
Lane Group Flow (vph)	0	1	0	180	182	10	37	509	184	118	829	0
Turn Type	Split			Split		Perm	Prot		Perm	Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases						3			2			
Actuated Green, G (s)		0.7		12.1	12.1	12.1	3.1	18.2	18.2	7.0	22.1	
Effective Green, g (s)		0.7		12.1	12.1	12.1	3.1	18.2	18.2	7.0	22.1	
Actuated g/C Ratio		0.01		0.21	0.21	0.21	0.05	0.32	0.32	0.12	0.39	
Clearance Time (s)		5.0		4.5	4.5	4.5	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)		2.0		1.5	1.5	1.5	1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)		20		360	361	339	97	1140	510	219	1384	
v/s Ratio Prot		c0.00		0.11	c0.11		0.02	0.14		c0.07	c0.23	
v/s Ratio Perm						0.01			0.12			
v/c Ratio		0.06		0.50	0.50	0.03	0.38	0.45	0.36	0.54	0.60	
Uniform Delay, d1		27.6		19.5	19.6	17.6	25.8	15.2	14.7	23.2	13.7	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.4		0.4	0.4	0.0	0.9	0.1	0.2	1.3	0.5	
Delay (s)		28.0		19.9	20.0	17.6	26.7	15.3	14.9	24.5	14.1	
Level of Service		C		B	B	B	C	B	B	C	B	
Approach Delay (s)		28.0			19.7			15.4			15.4	
Approach LOS		C			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)	56.5	Sum of lost time (s)	18.5
Intersection Capacity Utilization	53.6%	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)	7	9	26	577	4	75	23	746	256	68	564	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)		1695		1681	1686	1583	1770	3539	1583	1770	3536	
Flt Permitted		0.99		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1695		1681	1686	1583	1770	3539	1583	1770	3536	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	10	28	627	4	82	25	811	278	74	613	4
RTOR Reduction (vph)	0	26	0	0	0	56	0	0	122	0	0	0
Lane Group Flow (vph)	0	20	0	313	318	26	25	811	156	74	617	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)		4.5		26.9	26.9	26.9	2.1	27.8	27.8	6.1	31.8	
Effective Green, g (s)		4.5		26.9	26.9	26.9	2.1	27.8	27.8	6.1	31.8	
Actuated g/C Ratio		0.05		0.32	0.32	0.32	0.03	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)		91		540	541	508	44	1174	525	129	1342	
v/s Ratio Prot		c0.01		0.19	c0.19		0.01	c0.23		c0.04	c0.17	
v/s Ratio Perm						0.02			0.10			
v/c Ratio		0.21		0.58	0.59	0.05	0.57	0.69	0.30	0.57	0.46	
Uniform Delay, d1		38.0		23.7	23.8	19.6	40.4	24.3	20.8	37.6	19.5	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.4		0.9	1.1	0.0	9.6	1.4	0.1	3.8	0.1	
Delay (s)		38.4		24.7	24.9	19.7	50.0	25.7	20.9	41.4	19.6	
Level of Service		D		C	C	B	D	C	C	D	B	
Approach Delay (s)		38.4			24.2			25.0			22.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	23.5
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)	40	119	118	104	170	43	388	731	80	95	819	57
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	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	129	128	113	185	47	422	795	87	103	890	62
RTOR Reduction (vph)	0	0	106	0	0	36	0	7	0	0	5	0
Lane Group Flow (vph)	43	129	22	113	185	11	422	875	0	103	947	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	11.5	24.0	24.0	26.2	49.5		10.9	34.2	
Effective Green, g (s)	6.1	18.0	18.0	11.5	24.0	24.0	26.2	49.5		10.9	34.2	
Actuated g/C Ratio	0.06	0.17	0.17	0.11	0.22	0.22	0.24	0.46		0.10	0.32	
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)	101	595	266	190	793	355	433	2316		180	1608	
v/s Ratio Prot	0.02	0.04		c0.06	c0.05		c0.24	0.17		0.06	c0.19	
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.43	0.22	0.08	0.59	0.23	0.03	0.97	0.38		0.57	0.59	
Uniform Delay, d1	48.8	38.5	37.6	45.6	34.0	32.5	40.1	18.8		45.9	30.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.4	0.3	3.3	0.1	0.0	36.2	0.2		2.7	0.9	
Delay (s)	49.9	38.8	37.8	48.9	34.1	32.5	76.3	19.0		48.6	31.4	
Level of Service	D	D	D	D	C	C	E	B		D	C	
Approach Delay (s)		40.0			38.7			37.5			33.1	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	36.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	107.1	Sum of lost time (s)	12.6
Intersection Capacity Utilization	72.9%	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)	97	261	281	177	137	79	163	734	170	110	527	32
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	5041	
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	5041	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	284	305	192	149	86	177	798	185	120	573	35
RTOR Reduction (vph)	0	0	243	0	0	63	0	24	0	0	4	0
Lane Group Flow (vph)	105	284	62	192	149	23	177	959	0	120	604	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)	11.1	20.6	20.6	16.4	26.5	26.5	15.4	34.9		12.0	31.5	
Effective Green, g (s)	11.1	20.6	20.6	16.4	26.5	26.5	15.4	34.9		12.0	31.5	
Actuated g/C Ratio	0.11	0.20	0.20	0.16	0.26	0.26	0.15	0.35		0.12	0.31	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.0	4.0	4.0	4.6		4.0	4.6	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	2.5	2.5	2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	194	721	323	287	928	415	270	1706		210	1571	
v/s Ratio Prot	0.06	c0.08		c0.11	0.04		c0.10	c0.19		0.07	0.12	
v/s Ratio Perm			0.04			0.01						
v/c Ratio	0.54	0.39	0.19	0.67	0.16	0.05	0.66	0.56		0.57	0.38	
Uniform Delay, d1	42.6	34.8	33.4	39.8	28.7	27.9	40.4	26.9		42.1	27.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.7	0.6	4.5	0.1	0.0	4.3	0.7		2.3	0.3	
Delay (s)	44.2	35.6	34.0	44.3	28.8	28.0	44.7	27.6		44.4	27.5	
Level of Service	D	D	C	D	C	C	D	C		D	C	
Approach Delay (s)		36.2			35.6			30.2			30.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	101.1	Sum of lost time (s)	17.2
Intersection Capacity Utilization	62.4%	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)	265	143	0	259	160	207	572
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		0.49	1.00
Satd. Flow (perm)	3420	1441		3337		911	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	288	155	0	282	174	225	622
RTOR Reduction (vph)	12	107	0	82	0	0	0
Lane Group Flow (vph)	295	29	0	374	0	225	622
Turn Type		Perm	Perm			Perm	
Protected Phases	8			2			6
Permitted Phases		8	2			6	
Actuated Green, G (s)	6.5	6.5		16.1		16.1	16.1
Effective Green, g (s)	6.5	6.5		16.1		16.1	16.1
Actuated g/C Ratio	0.21	0.21		0.53		0.53	0.53
Clearance Time (s)	4.0	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	726	306		1756		479	1862
v/s Ratio Prot	c0.09			0.11			0.18
v/s Ratio Perm		0.02				c0.25	
v/c Ratio	0.41	0.09		0.21		0.47	0.33
Uniform Delay, d1	10.4	9.7		3.9		4.6	4.2
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.4	0.1		0.1		0.7	0.1
Delay (s)	10.8	9.8		3.9		5.3	4.3
Level of Service	B	A		A		A	A
Approach Delay (s)	10.5			3.9			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	0.45		
Actuated Cycle Length (s)	30.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.8%	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)	160	300	0	606	197	254	442
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		3409		1770	3539
Flt Permitted	0.97	1.00		1.00		0.31	1.00
Satd. Flow (perm)	3267	1441		3409		571	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	326	0	659	214	276	480
RTOR Reduction (vph)	131	131	0	41	0	0	0
Lane Group Flow (vph)	206	32	0	832	0	276	480
Turn Type		Perm	Perm			Perm	
Protected Phases	8			2			6
Permitted Phases		8	2			6	
Actuated Green, G (s)	7.8	7.8		25.1		25.1	25.1
Effective Green, g (s)	7.8	7.8		25.1		25.1	25.1
Actuated g/C Ratio	0.19	0.19		0.61		0.61	0.61
Clearance Time (s)	4.0	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	623	275		2092		350	2172
v/s Ratio Prot	c0.06			0.24			0.14
v/s Ratio Perm		0.02				c0.48	
v/c Ratio	0.33	0.12		0.40		0.79	0.22
Uniform Delay, d1	14.3	13.7		4.0		5.9	3.5
Progression Factor	1.00	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.3	0.2		0.1		11.2	0.1
Delay (s)	14.6	13.9		4.2		17.1	3.6
Level of Service	B	B		A		B	A
Approach Delay (s)	14.4			4.2			8.5
Approach LOS	B			A			A

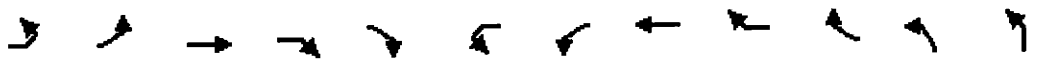
Intersection Summary			
HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	40.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	128	72	259	257	131	113	546	139	174	606	127
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	4953	
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	4953	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	139	78	282	279	142	123	593	151	189	659	138
RTOR Reduction (vph)	0	67	0	0	65	0	0	44	0	0	31	0
Lane Group Flow (vph)	126	150	0	282	356	0	123	700	0	189	766	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.0	10.6		17.3	18.9		9.9	18.4		11.2	19.7	
Effective Green, g (s)	9.0	10.6		17.3	18.9		9.9	18.4		11.2	19.7	
Actuated g/C Ratio	0.12	0.14		0.24	0.26		0.13	0.25		0.15	0.27	
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)	217	483		417	864		238	1234		270	1328	
v/s Ratio Prot	0.07	0.04		c0.16	c0.11		0.07	0.14		c0.11	c0.15	
v/s Ratio Perm												
v/c Ratio	0.58	0.31		0.68	0.41		0.52	0.57		0.70	0.58	
Uniform Delay, d1	30.5	28.2		25.6	22.7		29.6	24.1		29.6	23.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.4		4.3	0.3		1.9	0.6		7.9	0.6	
Delay (s)	34.4	28.5		29.9	23.0		31.5	24.7		37.5	23.9	
Level of Service	C	C		C	C		C	C		D	C	
Approach Delay (s)		30.7			25.8			25.6			26.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	73.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	224	118	87	153	90	132	592	96	166	395	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	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	3342		1770	4979		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	3342		1770	4979		1770	4973	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	243	128	95	166	98	143	643	104	180	429	74
RTOR Reduction (vph)	0	72	0	0	83	0	0	22	0	0	23	0
Lane Group Flow (vph)	158	299	0	95	181	0	143	725	0	180	480	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.3	14.0		7.7	10.4		10.3	17.0		11.2	17.9	
Effective Green, g (s)	11.3	14.0		7.7	10.4		10.3	17.0		11.2	17.9	
Actuated g/C Ratio	0.17	0.21		0.12	0.16		0.16	0.26		0.17	0.27	
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)	304	713		207	527		277	1284		301	1351	
v/s Ratio Prot	c0.09	c0.09		0.05	0.05		0.08	c0.15		c0.10	0.10	
v/s Ratio Perm												
v/c Ratio	0.52	0.42		0.46	0.34		0.52	0.57		0.60	0.36	
Uniform Delay, d1	24.8	22.4		27.2	24.7		25.5	21.2		25.3	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	0.4		1.6	0.4		1.6	0.6		3.2	0.2	
Delay (s)	26.3	22.8		28.8	25.1		27.1	21.8		28.5	19.5	
Level of Service	C	C		C	C		C	C		C	B	
Approach Delay (s)		23.9			26.1			22.7			21.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.3%	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)	20	106	98	46	25	50	23	85	63	90	40	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	115	107	50	27	54	25	92	68	98	43	53
Approach Volume (veh/h)			321					338				
Crossing Volume (veh/h)			1021					936				
High Capacity (veh/h)			612					656				
High v/c (veh/h)			0.52					0.52				
Low Capacity (veh/h)			474					512				
Low v/c (veh/h)			0.68					0.66				

Intersection Summary					
Maximum v/c High		0.96			
Maximum v/c Low		1.17			
Intersection Capacity Utilization		117.2%	ICU Level of Service		H

Movement	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	SEL2	SEL	SET	SER
Right Turn Channelized												
Volume (veh/h)	385	58	5	5	52	411	253	199	261	40	7	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	418	63	5	5	57	447	275	216	284	43	8	98
Approach Volume (veh/h)	584					1000					437	
Crossing Volume (veh/h)	745					359					999	
High Capacity (veh/h)	767					1045					623	
High v/c (veh/h)	0.76					0.96					0.70	
Low Capacity (veh/h)	608					854					483	
Low v/c (veh/h)	0.96					1.17					0.90	

Intersection Summary

Movement	SER2
Right Turn Channelized	
Volume (veh/h)	4
Peak Hour Factor	0.92
Hourly flow rate (vph)	4
Approach Volume (veh/h)	
Crossing Volume (veh/h)	
High Capacity (veh/h)	
High v/c (veh/h)	
Low Capacity (veh/h)	
Low v/c (veh/h)	

Intersection Summary

Movement	EBL2	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	WBR2	NBL2	NBL
Right Turn Channelized												
Volume (veh/h)	55	164	74	56	30	52	38	114	57	112	80	129
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	178	80	61	33	57	41	124	62	122	87	140
Approach Volume (veh/h)			412					405				
Crossing Volume (veh/h)			1267#					1267#				
High Capacity (veh/h)			499					499				
High v/c (veh/h)			0.83					0.81				
Low Capacity (veh/h)			378					378				
Low v/c (veh/h)			1.09					1.07				

Intersection Summary				
Maximum v/c High	1.61			
Maximum v/c Low	2.00			
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)	523	48	12	7	69	611	277	340	215	22	3	149
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	568	52	13	8	75	664	301	370	234	24	3	162
Approach Volume (veh/h)	861					1417					597	
Crossing Volume (veh/h)	779					571					1357#	
High Capacity (veh/h)	745					882					463	
High v/c (veh/h)	1.15					1.61					1.29	
Low Capacity (veh/h)	589					709					348	
Low v/c (veh/h)	1.46					2.00					1.72	

Intersection Summary

Movement	SER2
Right Turn Channelized	
Volume (veh/h)	160
Peak Hour Factor	0.92
Hourly flow rate (vph)	174
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)	36	908	12	20	503	11	8	5	3	11	13	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	
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	0.94		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	5069		1770	1758		1770	1686	
Flt Permitted	0.43	1.00		0.29	1.00		1.00	1.00		1.00	1.00	
Satd. Flow (perm)	805	5075		536	5069		1863	1758		1863	1686	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	987	13	22	547	12	9	5	3	12	14	24
RTOR Reduction (vph)	0	2	0	0	4	0	0	3	0	0	22	0
Lane Group Flow (vph)	39	998	0	22	555	0	9	5	0	12	16	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.9	13.9		13.9	13.9		1.8	1.8		1.8	1.8	
Effective Green, g (s)	13.9	13.9		13.9	13.9		1.8	1.8		1.8	1.8	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.08	0.08		0.08	0.08	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	472	2976		314	2973		141	134		141	128	
v/s Ratio Prot		c0.20			0.11			0.00			c0.01	
v/s Ratio Perm	0.05			0.04			0.00			0.01		
v/c Ratio	0.08	0.34		0.07	0.19		0.06	0.04		0.09	0.12	
Uniform Delay, d1	2.1	2.5		2.1	2.3		10.2	10.1		10.2	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	0.1		0.1	0.0		0.2	0.1		0.3	0.4	
Delay (s)	2.2	2.6		2.2	2.3		10.4	10.3		10.4	10.7	
Level of Service	A	A		A	A		B	B		B	B	
Approach Delay (s)		2.6			2.3			10.3			10.6	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	2.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	23.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	928	13	20	1233	18	9	44	15	12	25	33
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	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5075		1770	5074		1770	1793		1770	1703	
Flt Permitted	0.24	1.00		0.27	1.00		1.00	1.00		1.00	1.00	
Satd. Flow (perm)	444	5075		499	5074		1863	1793		1863	1703	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	1009	14	22	1340	20	10	48	16	13	27	36
RTOR Reduction (vph)	0	2	0	0	2	0	0	15	0	0	11	0
Lane Group Flow (vph)	74	1021	0	22	1358	0	10	49	0	13	52	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.8	16.8		16.8	16.8		2.2	2.2		2.2	2.2	
Effective Green, g (s)	16.8	16.8		16.8	16.8		2.2	2.2		2.2	2.2	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		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)	276	3158		310	3157		152	146		152	139	
v/s Ratio Prot		0.20			c0.27			0.03			c0.03	
v/s Ratio Perm	0.17			0.04			0.01			0.01		
v/c Ratio	0.27	0.32		0.07	0.43		0.07	0.34		0.09	0.37	
Uniform Delay, d1	2.3	2.4		2.0	2.6		11.5	11.7		11.5	11.7	
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	2.5		2.1	2.7		11.6	13.1		11.7	13.4	
Level of Service	A	A		A	A		B	B		B	B	
Approach Delay (s)		2.5			2.7			12.9			13.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	3.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	27.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			