Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Volume (vph)	227	183	72	286	329	151	77	878	196	74	270	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	0.95	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)	1577	3154	1411	1577	3154	1411	1577	3154	1411	1577	3154	1411
Flt Permitted	0.53	1.00	1.00	0.48	1.00	1.00	0.56	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	879	3154	1411	798	3154	1411	936	3154	1411	313	3154	1411
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	258	208	82	325	374	172	88	998	223	84	307	58
RTOR Reduction (vph)	0	0	71	0	0	140	0	0	74	0	0	31
Lane Group Flow (vph)	258	208	11	325	374	32	88	998	149	84	307	27
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.5	14.5	14.5	34.5	20.5	20.5	59.1	52.0	52.0	58.9	51.9	51.9
Effective Green, g (s)	24.5	14.5	14.5	34.5	20.5	20.5	59.1	52.0	52.0	58.9	51.9	51.9
Actuated g/C Ratio	0.22	0.13	0.13	0.31	0.19	0.19	0.54	0.47	0.47	0.54	0.47	0.47
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	5.0	4.0	4.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	259	416	186	364	588	263	544	1491	667	248	1488	666
v/s Ratio Prot	0.09	0.07		c0.13	0.12		0.01	c0.32		c0.02	0.10	
v/s Ratio Perm	0.13		0.01	c0.15		0.02	0.08		0.11	0.16		0.02
v/c Ratio	1.00	0.50	0.06	0.89	0.64	0.12	0.16	0.67	0.22	0.34	0.21	0.04
Uniform Delay, d1	40.9	44.4	41.8	33.7	41.3	37.3	12.5	22.4	17.1	14.3	17.0	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	54.6	1.3	0.2	24.3	2.5	0.3	0.1	2.4	0.8	0.8	0.3	0.1
Delay (s)	95.5	45.7	42.0	58.0	43.8	37.5	12.6	24.8	17.9	15.1	17.3	15.8
Level of Service	F	D	D	E	D	D	B	C	B	B	B	B
Approach Delay (s)		68.6			47.9			22.8			16.7	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM Average Control Delay	36.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	16	466	750	18	3	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	18	512	824	20	3	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)		366				
pX, platoon unblocked						
vC, conflicting volume	844				1040	422
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	844				1040	422
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	96
cM capacity (veh/h)	782				221	580

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	120	205	205	549	295	27
Volume Left	18	0	0	0	0	3
Volume Right	0	0	0	0	20	24
cSH	782	1700	1700	1700	1700	485
Volume to Capacity	0.02	0.12	0.12	0.32	0.17	0.06
Queue Length 95th (ft)	2	0	0	0	0	4
Control Delay (s)	1.6	0.0	0.0	0.0	0.0	12.9
Lane LOS	A					B
Approach Delay (s)	0.4			0.0		12.9
Approach LOS						B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	31.3%	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)	12	419	20	34	718	2	19	1	30	1	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	466	22	38	798	2	21	1	33	1	0	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)		572										
pX, platoon unblocked				0.99			0.99	0.99	0.99	0.99	0.99	
vC, conflicting volume	800			466			1374	1368	233	1134	1367	799
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	800			449			1364	1357	215	1122	1356	799
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			97			79	99	96	99	100	97
cM capacity (veh/h)	812			1094			99	139	785	146	140	328

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	13	233	233	22	38	800	56	10
Volume Left	13	0	0	0	38	0	21	1
Volume Right	0	0	0	22	0	2	33	9
cSH	812	1700	1700	1700	1094	1700	211	288
Volume to Capacity	0.02	0.14	0.14	0.01	0.03	0.47	0.26	0.03
Queue Length 95th (ft)	1	0	0	0	3	0	26	3
Control Delay (s)	9.5	0.0	0.0	0.0	8.4	0.0	28.1	17.9
Lane LOS	A				A		D	C
Approach Delay (s)	0.3				0.4		28.1	17.9
Approach LOS							D	C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: US 6 & 32 1/2 Rd

10/23/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	433	0	0	736	8	0	0	0	4	0	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	17	487	0	0	827	9	0	0	0	4	0	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		916										
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	
vC, conflicting volume	836			487			1374	1356	487	1352	1352	831
vC1, stage 1 conf vol							520	520		831	831	
vC2, stage 2 conf vol							854	836		520	520	
vCu, unblocked vol	836			409			1365	1345	409	1340	1340	831
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	100	100	99	100	93
cM capacity (veh/h)	794			1063			277	317	597	313	327	369

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	17	487	0	836	0	31
Volume Left	17	0	0	0	0	4
Volume Right	0	0	0	9	0	27
cSH	794	1700	1700	1700	1700	360
Volume to Capacity	0.02	0.29	0.00	0.49	0.00	0.09
Queue Length 95th (ft)	2	0	0	0	0	7
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	16.0
Lane LOS	A				A	C
Approach Delay (s)	0.3		0.0		0.0	16.0
Approach LOS					A	C

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	389	44	30	663	69	33
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	432	49	33	737	77	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1147			1196		
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			481		1260	457
vC1, stage 1 conf vol					457	
vC2, stage 2 conf vol					803	
vCu, unblocked vol			416		1245	390
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		80	94
cM capacity (veh/h)			1069		378	619

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	481	33	737	113
Volume Left	0	33	0	77
Volume Right	49	0	0	37
cSH	1700	1069	1700	432
Volume to Capacity	0.28	0.03	0.43	0.26
Queue Length 95th (ft)	0	2	0	26
Control Delay (s)	0.0	8.5	0.0	16.3
Lane LOS		A		C
Approach Delay (s)	0.0	0.4		16.3
Approach LOS				C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	47.4%	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)	7	416	0	0	699	1	0	0	0	1	0	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)	8	452	0	0	760	1	0	0	0	1	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					984							
pX, platoon unblocked												
vC, conflicting volume	761			452			1233	1228	452	1228	1228	760
vC1, stage 1 conf vol							467	467		760	760	
vC2, stage 2 conf vol							765	761		467	467	
vCu, unblocked vol	761			452			1233	1228	452	1228	1228	760
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	100	100	99
cM capacity (veh/h)	847			1103			336	355	607	346	359	406

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	8	452	0	761	0	7
Volume Left	8	0	0	0	0	1
Volume Right	0	0	0	1	0	5
cSH	847	1700	1700	1700	1700	394
Volume to Capacity	0.01	0.27	0.00	0.45	0.00	0.02
Queue Length 95th (ft)	1	0	0	0	0	1
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	14.3
Lane LOS	A				A	B
Approach Delay (s)	0.2		0.0		0.0	14.3
Approach LOS					A	B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	390	21	1	710	7	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	443	24	1	807	8	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				852		
pX, platoon unblocked						
vC, conflicting volume			467		1264	455
vC1, stage 1 conf vol					455	
vC2, stage 2 conf vol					809	
vCu, unblocked vol			467		1264	455
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1089		387	605

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	467	1	807	10
Volume Left	0	1	0	8
Volume Right	24	0	0	2
cSH	1700	1089	1700	420
Volume to Capacity	0.27	0.00	0.47	0.02
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	8.3	0.0	13.8
Lane LOS		A		B
Approach Delay (s)	0.0	0.0		13.8
Approach LOS				B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	47.4%	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)	18	354	0	0	631	11	0	0	0	10	0	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	20	398	0	0	709	12	0	0	0	11	0	99
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					716							
pX, platoon unblocked												
vC, conflicting volume	721			398			1246	1160	398	1153	1153	715
vC1, stage 1 conf vol							438	438		715	715	
vC2, stage 2 conf vol							808	721		438	438	
vCu, unblocked vol	721			398			1246	1160	398	1153	1153	715
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	100	100	97	100	77
cM capacity (veh/h)	876			1155			251	363	652	366	376	431

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	20	398	0	721	0	110
Volume Left	20	0	0	0	0	11
Volume Right	0	0	0	12	0	99
cSH	876	1700	1700	1700	1700	423
Volume to Capacity	0.02	0.23	0.00	0.42	0.00	0.26
Queue Length 95th (ft)	2	0	0	0	0	26
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	16.5
Lane LOS	A				A	C
Approach Delay (s)	0.4		0.0		0.0	16.5
Approach LOS					A	C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	355	5	0	616	10	1
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)	386	5	0	670	11	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				509		
pX, platoon unblocked						
vC, conflicting volume			391		1058	389
vC1, stage 1 conf vol					389	
vC2, stage 2 conf vol					670	
vCu, unblocked vol			391		1058	389
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1162		451	660

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	391	0	670	12
Volume Left	0	0	0	11
Volume Right	5	0	0	1
cSH	1700	1700	1700	464
Volume to Capacity	0.23	0.00	0.39	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	13.0
Lane LOS				B
Approach Delay (s)	0.0	0.0		13.0
Approach LOS				B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
16: US 6 & Holland St

10/23/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	360	0	0	601	2	0	0	0	1	0	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	400	0	0	668	2	0	0	0	1	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					374							
pX, platoon unblocked												
vC, conflicting volume	670			400			1091	1081	400	1080	1080	669
vC1, stage 1 conf vol							411	411		669	669	
vC2, stage 2 conf vol							680	670		411	411	
vCu, unblocked vol	670			400			1091	1081	400	1080	1080	669
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	100	100	97
cM capacity (veh/h)	916			1153			375	395	650	391	399	458

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	6	400	0	670	0	13
Volume Left	6	0	0	0	0	1
Volume Right	0	0	0	2	0	12
cSH	916	1700	1700	1700	1700	451
Volume to Capacity	0.01	0.24	0.00	0.39	0.00	0.03
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	13.2
Lane LOS	A				A	B
Approach Delay (s)	0.1		0.0		0.0	13.2
Approach LOS					A	B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	325	2	1	572	4	1	0	1	0	7	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	353	2	1	622	4	1	0	1	0	8	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					169							
pX, platoon unblocked												
vC, conflicting volume	626			355			1045	1039	354	1037	1038	624
vC1, stage 1 conf vol							411	411		626	626	
vC2, stage 2 conf vol							634	628		411	412	
vCu, unblocked vol	626			355			1045	1039	354	1037	1038	624
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	100	100	100	98	99
cM capacity (veh/h)	951			1198			377	393	689	404	408	485

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	28	355	1	626	2	14
Volume Left	28	0	1	0	1	0
Volume Right	0	2	0	4	1	7
cSH	951	1700	1198	1700	487	441
Volume to Capacity	0.03	0.21	0.00	0.37	0.00	0.03
Queue Length 95th (ft)	2	0	0	0	0	2
Control Delay (s)	8.9	0.0	8.0	0.0	12.4	13.4
Lane LOS	A		A		B	B
Approach Delay (s)	0.7		0.0		12.4	13.4
Approach LOS					B	B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	40.3%	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)	13	317	0	0	594	1	0	0	0	0	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	352	0	0	660	1	0	0	0	0	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		156			1152							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	661			352			1043	1042	352	1042	1042	661
vC1, stage 1 conf vol							381	381		661	661	
vC2, stage 2 conf vol							662	661		381	381	
vCu, unblocked vol	656			352			1040	1039	352	1039	1039	655
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	100	100	100	100	100
cM capacity (veh/h)	921			1201			388	397	691	399	405	463

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	14	352	0	661	0	2
Volume Left	14	0	0	0	0	0
Volume Right	0	0	0	1	0	2
cSH	921	1700	1700	1700	1700	463
Volume to Capacity	0.02	0.21	0.00	0.39	0.00	0.00
Queue Length 95th (ft)	1	0	0	0	0	0
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	12.8
Lane LOS	A				A	B
Approach Delay (s)	0.4		0.0		0.0	12.8
Approach LOS					A	B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
19: US 6 & 33 Rd

10/23/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	281	24	20	380	4	103	8	31	7	2	137
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		6.1			6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85		0.97			0.87	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			1.00	
Satd. Flow (prot)	1752	1823		1752	1845	1568		1728			1607	
Flt Permitted	0.49	1.00		0.56	1.00	1.00		0.76			0.98	
Satd. Flow (perm)	911	1823		1027	1845	1568		1369			1575	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	312	27	22	422	4	114	9	34	8	2	152
RTOR Reduction (vph)	0	5	0	0	0	2	0	21	0	0	118	0
Lane Group Flow (vph)	41	334	0	22	422	2	0	136	0	0	44	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	26.3	26.3		26.3	26.3	26.3		10.9			10.9	
Effective Green, g (s)	26.3	26.3		26.3	26.3	26.3		10.9			10.9	
Actuated g/C Ratio	0.53	0.53		0.53	0.53	0.53		0.22			0.22	
Clearance Time (s)	5.9	5.9		5.9	5.9	5.9		6.1			6.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2		3.0			3.0	
Lane Grp Cap (vph)	487	974		549	986	838		303			349	
v/s Ratio Prot		0.18			c0.23							
v/s Ratio Perm	0.04			0.02		0.00		c0.10			0.03	
v/c Ratio	0.08	0.34		0.04	0.43	0.00		0.45			0.13	
Uniform Delay, d1	5.6	6.5		5.4	6.9	5.3		16.6			15.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.3	1.0		0.0	0.1	0.0		1.1			0.2	
Delay (s)	5.9	7.5		5.5	7.0	5.3		17.6			15.5	
Level of Service	A	A		A	A	A		B			B	
Approach Delay (s)		7.3			6.9			17.6			15.5	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	49.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	310	422	1	1	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	352	480	1	1	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)		901				
pX, platoon unblocked						
vC, conflicting volume	481				832	480
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	481				832	480
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1077				339	586

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	352	481	3
Volume Left	0	0	1
Volume Right	0	1	2
cSH	1077	1700	471
Volume to Capacity	0.00	0.28	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	12.7
Lane LOS			B
Approach Delay (s)	0.0	0.0	12.7
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	162	330	174	247	290	114	179	285	411	159	618	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	0.95	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)	1577	3154	1411	1577	3154	1411	1577	3154	1411	1577	3154	1411
Flt Permitted	0.56	1.00	1.00	0.33	1.00	1.00	0.30	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	936	3154	1411	551	3154	1411	501	3154	1411	941	3154	1411
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	172	351	185	263	309	121	190	303	437	169	657	238
RTOR Reduction (vph)	0	0	154	0	0	95	0	0	260	0	0	123
Lane Group Flow (vph)	172	351	31	263	309	26	190	303	177	169	657	115
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	33.6	20.3	20.3	42.8	25.5	25.5	61.6	48.5	48.5	59.8	47.6	47.6
Effective Green, g (s)	33.6	20.3	20.3	42.8	25.5	25.5	61.6	48.5	48.5	59.8	47.6	47.6
Actuated g/C Ratio	0.28	0.17	0.17	0.36	0.21	0.21	0.51	0.40	0.40	0.50	0.40	0.40
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	5.0	4.0	4.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	333	534	239	355	670	300	375	1275	570	534	1251	560
v/s Ratio Prot	0.06	0.11		c0.11	0.10		c0.06	0.10		0.03	c0.21	
v/s Ratio Perm	0.09		0.02	c0.15		0.02	0.21		0.13	0.13		0.08
v/c Ratio	0.52	0.66	0.13	0.74	0.46	0.09	0.51	0.24	0.31	0.32	0.53	0.21
Uniform Delay, d1	34.9	46.6	42.4	30.3	41.3	37.9	17.0	23.6	24.4	16.9	27.6	23.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	3.2	0.3	9.6	0.7	0.2	1.1	0.4	1.4	0.3	1.6	0.8
Delay (s)	36.7	49.8	42.7	40.0	41.9	38.1	18.1	24.0	25.8	17.3	29.2	24.6
Level of Service	D	D	D	D	D	D	B	C	C	B	C	C
Approach Delay (s)		44.8			40.5			23.6			26.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	850	597	25	15	52
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	51	867	609	26	15	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		366				
pX, platoon unblocked						
vC, conflicting volume	635				1013	317
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	635				1013	317
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				93	92
cM capacity (veh/h)	938				222	678

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	224	347	347	406	229	68
Volume Left	51	0	0	0	0	15
Volume Right	0	0	0	0	26	53
cSH	938	1700	1700	1700	1700	465
Volume to Capacity	0.05	0.20	0.20	0.24	0.13	0.15
Queue Length 95th (ft)	4	0	0	0	0	13
Control Delay (s)	2.5	0.0	0.0	0.0	0.0	14.1
Lane LOS	A					B
Approach Delay (s)	0.6			0.0		14.1
Approach LOS						B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
42: US 6 & Car Wash

10/23/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	27	730	115	192	521	7	61	2	271	2	1	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	28	745	117	196	532	7	62	2	277	2	1	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		572										
pX, platoon unblocked				0.96			0.96	0.96	0.96	0.96	0.96	
vC, conflicting volume	539			745			1764	1731	372	1356	1727	535
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	539			660			1717	1683	274	1294	1679	535
tC, single (s)	4.2			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			78			0	97	60	96	99	92
cM capacity (veh/h)	1019			884			41	68	697	55	69	490

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	28	372	372	117	196	539	341	43
Volume Left	28	0	0	0	196	0	62	2
Volume Right	0	0	0	117	0	7	277	40
cSH	1019	1700	1700	1700	884	1700	176	322
Volume to Capacity	0.03	0.22	0.22	0.07	0.22	0.32	1.94	0.13
Queue Length 95th (ft)	2	0	0	0	21	0	640	11
Control Delay (s)	8.6	0.0	0.0	0.0	10.2	0.0	486.2	17.9
Lane LOS	A				B		F	C
Approach Delay (s)	0.3				2.7		486.2	17.9
Approach LOS							F	C

Intersection Summary			
Average Delay	84.0		
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	67	930	1	0	621	17	0	0	0	21	0	108
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	69	959	1	0	640	18	0	0	0	22	0	111
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		916										
pX, platoon unblocked				0.89			0.89	0.89	0.89	0.89	0.89	
vC, conflicting volume	658			960			1849	1755	959	1746	1747	649
vC1, stage 1 conf vol							1097	1097		649	649	
vC2, stage 2 conf vol							752	658		1097	1098	
vCu, unblocked vol	658			890			1894	1788	889	1778	1779	649
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			100	100	100	89	100	76
cM capacity (veh/h)	925			671			162	214	303	202	222	470

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	69	960	0	658	0	133
Volume Left	69	0	0	0	0	22
Volume Right	0	1	0	18	0	111
cSH	925	1700	1700	1700	1700	386
Volume to Capacity	0.07	0.56	0.00	0.39	0.00	0.34
Queue Length 95th (ft)	6	0	0	0	0	38
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	19.1
Lane LOS	A				A	C
Approach Delay (s)	0.6		0.0		0.0	19.1
Approach LOS					A	C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	750	205	38	534	65	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	765	209	39	545	66	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1147			1196		
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			974		1492	870
vC1, stage 1 conf vol					870	
vC2, stage 2 conf vol					622	
vCu, unblocked vol			910		1491	792
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			94		79	96
cM capacity (veh/h)			663		323	346

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	974	39	545	81
Volume Left	0	39	0	66
Volume Right	209	0	0	14
cSH	1700	663	1700	327
Volume to Capacity	0.57	0.06	0.32	0.25
Queue Length 95th (ft)	0	5	0	24
Control Delay (s)	0.0	10.8	0.0	19.6
Lane LOS		B		C
Approach Delay (s)	0.0	0.7		19.6
Approach LOS				C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: US 6 & Smallwood Ln

10/23/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			✣			✣	
Volume (veh/h)	11	750	0	0	581	4	4	0	20	1	0	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	11	781	0	0	605	4	4	0	21	1	0	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					984							
pX, platoon unblocked												
vC, conflicting volume	609			781			1427	1414	781	1432	1411	607
vC1, stage 1 conf vol							804	804		607	607	
vC2, stage 2 conf vol							623	609		825	804	
vCu, unblocked vol	609			781			1427	1414	781	1432	1411	607
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			99	100	95	100	100	96
cM capacity (veh/h)	964			832			297	321	395	290	323	496

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	781	0	609	25	19
Volume Left	11	0	0	0	4	1
Volume Right	0	0	0	4	21	18
cSH	964	1700	1700	1700	374	477
Volume to Capacity	0.01	0.46	0.00	0.36	0.07	0.04
Queue Length 95th (ft)	1	0	0	0	5	3
Control Delay (s)	8.8	0.0	0.0	0.0	15.3	12.9
Lane LOS	A				C	B
Approach Delay (s)	0.1		0.0		15.3	12.9
Approach LOS					C	B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	742	19	2	586	10	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	781	20	2	617	11	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				852		
pX, platoon unblocked						
vC, conflicting volume			801		1412	791
vC1, stage 1 conf vol					791	
vC2, stage 2 conf vol					621	
vCu, unblocked vol			801		1412	791
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	99
cM capacity (veh/h)			818		364	390

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	801	2	617	13
Volume Left	0	2	0	11
Volume Right	20	0	0	2
cSH	1700	818	1700	368
Volume to Capacity	0.47	0.00	0.36	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	9.4	0.0	15.1
Lane LOS		A		C
Approach Delay (s)	0.0	0.0		15.1
Approach LOS				C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	49	690	0	0	520	4	0	0	0	9	0	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	54	758	0	0	571	4	0	0	0	10	0	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					716							
pX, platoon unblocked												
vC, conflicting volume	576			758			1489	1442	758	1440	1440	574
vC1, stage 1 conf vol							866	866		574	574	
vC2, stage 2 conf vol							623	576		866	866	
vCu, unblocked vol	576			758			1489	1442	758	1440	1440	574
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			100	100	100	97	100	90
cM capacity (veh/h)	993			849			256	293	407	285	302	519

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	54	758	0	576	0	62
Volume Left	54	0	0	0	0	10
Volume Right	0	0	0	4	0	52
cSH	993	1700	1700	1700	1700	458
Volume to Capacity	0.05	0.45	0.00	0.34	0.00	0.13
Queue Length 95th (ft)	4	0	0	0	0	12
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	14.1
Lane LOS	A				A	B
Approach Delay (s)	0.6		0.0		0.0	14.1
Approach LOS					A	B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	680	12	4	525	9	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	731	13	4	565	10	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				509		
pX, platoon unblocked						
vC, conflicting volume			744		1311	738
vC1, stage 1 conf vol					738	
vC2, stage 2 conf vol					573	
vCu, unblocked vol			744		1311	738
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	99
cM capacity (veh/h)			859		388	418

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	744	4	565	14
Volume Left	0	4	0	10
Volume Right	13	0	0	4
cSH	1700	859	1700	397
Volume to Capacity	0.44	0.01	0.33	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	9.2	0.0	14.4
Lane LOS		A		B
Approach Delay (s)	0.0	0.1		14.4
Approach LOS				B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	14	660	0	0	500	0	0	0	0	1	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	733	0	0	556	0	0	0	0	1	0	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					374							
pX, platoon unblocked												
vC, conflicting volume	556			733			1333	1320	733	1320	1320	556
vC1, stage 1 conf vol							764	764		556	556	
vC2, stage 2 conf vol							569	556		764	764	
vCu, unblocked vol	556			733			1333	1320	733	1320	1320	556
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	100	100	100	100	97
cM capacity (veh/h)	1010			867			318	338	420	327	341	531

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	16	733	0	556	0	14
Volume Left	16	0	0	0	0	1
Volume Right	0	0	0	0	0	13
cSH	1010	1700	1700	1700	1700	507
Volume to Capacity	0.02	0.43	0.00	0.33	0.00	0.03
Queue Length 95th (ft)	1	0	0	0	0	2
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	12.3
Lane LOS	A				A	B
Approach Delay (s)	0.2		0.0		0.0	12.3
Approach LOS					A	B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	44.7%	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)	17	628	4	2	475	11	2	0	1	4	3	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	18	675	4	2	511	12	2	0	1	4	3	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					169							
pX, platoon unblocked												
vC, conflicting volume	523			680			1252	1241	677	1234	1237	517
vC1, stage 1 conf vol							714	714		521	521	
vC2, stage 2 conf vol							538	527		713	716	
vCu, unblocked vol	523			680			1252	1241	677	1234	1237	517
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			99	100	100	99	99	96
cM capacity (veh/h)	1039			908			335	356	453	348	359	559

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	18	680	2	523	3	29
Volume Left	18	0	2	0	2	4
Volume Right	0	4	0	12	1	22
cSH	1039	1700	908	1700	367	485
Volume to Capacity	0.02	0.40	0.00	0.31	0.01	0.06
Queue Length 95th (ft)	1	0	0	0	1	5
Control Delay (s)	8.5	0.0	9.0	0.0	14.9	12.9
Lane LOS	A		A		B	B
Approach Delay (s)	0.2		0.0		14.9	12.9
Approach LOS					B	B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.3%	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)	1	621	1	0	472	0	0	0	0	1	0	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	661	1	0	502	0	0	0	0	1	0	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)		156			1152							
pX, platoon unblocked												
vC, conflicting volume	502			662			1175	1165	661	1165	1166	502
vC1, stage 1 conf vol							663	663		502	502	
vC2, stage 2 conf vol							512	502		663	664	
vCu, unblocked vol	502			662			1175	1165	661	1165	1166	502
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	98
cM capacity (veh/h)	1057			922			369	383	462	375	383	569

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1	662	0	502	0	11
Volume Left	1	0	0	0	0	1
Volume Right	0	1	0	0	0	10
cSH	1057	1700	1700	1700	1700	541
Volume to Capacity	0.00	0.39	0.00	0.30	0.00	0.02
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	11.8
Lane LOS	A				A	B
Approach Delay (s)	0.0		0.0		0.0	11.8
Approach LOS					A	B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	42.7%	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)	144	379	95	20	327	2	52	11	17	4	8	92
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		6.1			6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.97		1.00	1.00	0.85		0.97			0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1752	1789		1752	1845	1568		1735			1621	
Flt Permitted	0.54	1.00		0.42	1.00	1.00		0.73			0.98	
Satd. Flow (perm)	1005	1789		783	1845	1568		1316			1599	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	160	421	106	22	363	2	58	12	19	4	9	102
RTOR Reduction (vph)	0	12	0	0	0	1	0	16	0	0	84	0
Lane Group Flow (vph)	160	515	0	22	363	1	0	73	0	0	31	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	25.9	25.9		25.9	25.9	25.9		8.1			8.1	
Effective Green, g (s)	25.9	25.9		25.9	25.9	25.9		8.1			8.1	
Actuated g/C Ratio	0.56	0.56		0.56	0.56	0.56		0.18			0.18	
Clearance Time (s)	5.9	5.9		5.9	5.9	5.9		6.1			6.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2		3.0			3.0	
Lane Grp Cap (vph)	566	1007		441	1039	883		232			282	
v/s Ratio Prot		c0.29			0.20							
v/s Ratio Perm	0.16			0.03		0.00		c0.06			0.02	
v/c Ratio	0.28	0.51		0.05	0.35	0.00		0.32			0.11	
Uniform Delay, d1	5.2	6.2		4.5	5.5	4.4		16.5			15.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	1.2	1.9		0.0	0.1	0.0		0.8			0.2	
Delay (s)	6.5	8.0		4.5	5.5	4.4		17.3			16.1	
Level of Service	A	A		A	A	A		B			B	
Approach Delay (s)		7.7			5.5			17.3			16.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	1	393	346	0	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	1	468	412	0	0	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)		901				
pX, platoon unblocked						
vC, conflicting volume	412				882	412
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	412				882	412
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)	1142				316	640

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	469	412	2
Volume Left	1	0	0
Volume Right	0	0	2
cSH	1142	1700	640
Volume to Capacity	0.00	0.24	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	10.6
Lane LOS	A		B
Approach Delay (s)	0.0	0.0	10.6
Approach LOS			B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		