Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00		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)	3433	4938		3433	5069		3433	5085	1560	3433	4947	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4938		3433	5069		3433	5085	1560	3433	4947	
Volume (vph)	390	879	188	473	1042	21	70	879	243	17	1108	221
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	415	935	200	503	1109	22	75	945	261	18	1179	235
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	415	1135	0	503	1131	0	75	945	251	18	1414	0
Confl. Peds. (#/hr)			2			2			2			2
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	15.2	33.0		18.2	36.0		4.8	37.8	37.8	2.4	35.4	
Effective Green, g (s)	15.2	34.3		18.2	37.3		4.8	39.1	39.1	2.4	36.7	
Actuated g/C Ratio	0.14	0.31		0.17	0.34		0.04	0.36	0.36	0.02	0.33	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	
Lane Grp Cap (vph)	474	1540		568	1719		150	1807	555	75	1650	
v/s Ratio Prot	0.12	c0.23		c0.15	0.22		c0.02	0.19		0.01	c0.29	
v/s Ratio Perm									0.17			
v/c Ratio	0.88	0.74		0.89	0.66		0.50	0.52	0.45	0.24	0.86	
Uniform Delay, d1	46.5	33.8		44.9	30.9		51.4	28.1	27.2	52.9	34.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.9	3.2		14.9	2.0		1.9	0.1	0.2	0.6	4.5	
Delay (s)	62.4	37.0		59.8	32.9		52.4	28.2	27.4	53.5	38.7	
Level of Service	E	D		E	C		D	C	C	D	D	
Approach Delay (s)		43.8			41.2			29.5			38.8	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.8%	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												
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	0.97	*0.90		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	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)	3433	4982		3400	4988	1546	3433	3539	1546	3433	3539	1560
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)	3433	4982		3400	4988	1546	3433	3539	1546	3433	3539	1560
Volume (vph)	108	1550	95	429	1521	274	178	333	547	345	371	158
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor (vph)	100%	100%	100%	100%	130%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	114	1632	100	452	2081	288	191	358	588	371	399	170
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	109	0	0	39
Lane Group Flow (vph)	114	1732	0	452	2081	244	191	358	479	371	399	131
Confl. Peds. (#/hr)			2			2			2			2
Heavy Vehicles (%)	2%	2%	2%	3%	4%	3%	2%	2%	3%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	5.0	37.1		11.0	43.1	43.1	26.3	33.9	33.9	9.0	16.6	16.6
Effective Green, g (s)	5.0	38.8		11.0	44.8	44.8	26.3	35.2	35.2	9.0	17.9	17.9
Actuated g/C Ratio	0.05	0.35		0.10	0.41	0.41	0.24	0.32	0.32	0.08	0.16	0.16
Clearance Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	156	1757		340	2031	630	821	1132	495	281	576	254
v/s Ratio Prot	0.03	c0.35		c0.13	c0.42		0.06	0.10		c0.11	0.11	
v/s Ratio Perm						0.19			0.38			0.11
v/c Ratio	0.73	0.99		1.33	1.02	0.39	0.23	0.32	0.97	1.32	0.69	0.52
Uniform Delay, d1	51.8	35.3		49.5	32.6	22.9	33.7	28.3	36.8	50.5	43.5	42.1
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	14.0	18.4		167.2	26.5	1.8	0.1	0.1	31.8	166.9	2.9	0.7
Delay (s)	65.9	53.7		216.7	59.1	24.7	33.8	28.4	68.7	217.4	46.4	42.8
Level of Service	E	D		F	E	C	C	C	E	F	D	D
Approach Delay (s)		54.4			80.8			50.1			113.2	
Approach LOS		D			F			D			F	

Intersection Summary			
HCM Average Control Delay	72.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.86	1.00		0.91					0.97		0.88
Frpb, ped/bikes		1.00	1.00		0.99					1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00
Frt		1.00	0.85		0.95					1.00		0.85
Flt Protected		1.00	1.00		1.00					0.95		1.00
Satd. Flow (prot)		6346	1583		4747					3433		2760
Flt Permitted		1.00	1.00		1.00					0.95		1.00
Satd. Flow (perm)		6346	1583		4747					3433		2760
Volume (vph)	0	1993	450	0	918	495	0	0	0	714	0	1306
Peak-hour factor, PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	150%
Adj. Flow (vph)	0	2098	474	0	977	527	0	0	0	752	0	2062
RTOR Reduction (vph)	0	0	186	0	108	0	0	0	0	0	0	7
Lane Group Flow (vph)	0	2098	288	0	1396	0	0	0	0	752	0	2055
Confl. Peds. (#/hr)						2						
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	3%
Turn Type			Perm							custom		custom
Protected Phases		2			6					4		
Permitted Phases			2							4		4
Actuated Green, G (s)		23.7	23.7		23.7					54.4		54.4
Effective Green, g (s)		26.0	26.0		26.0					56.0		56.0
Actuated g/C Ratio		0.29	0.29		0.29					0.62		0.62
Clearance Time (s)		6.3	6.3		6.3					5.6		5.6
Vehicle Extension (s)		4.3	4.3		4.9					3.4		3.4
Lane Grp Cap (vph)		1833	457		1371					2136		1717
v/s Ratio Prot		c0.33			0.32					0.22		
v/s Ratio Perm			0.30									0.75
v/c Ratio		1.14	0.63		1.02					0.35		1.20
Uniform Delay, d1		32.0	27.8		32.0					8.2		17.0
Progression Factor		1.00	1.00		1.00					1.00		1.00
Incremental Delay, d2		72.1	3.3		29.0					0.1		94.6
Delay (s)		104.1	31.1		61.0					8.3		111.6
Level of Service		F	C		E					A		F
Approach Delay (s)		90.6			61.0			0.0			84.0	
Approach LOS		F			E			A			F	

Intersection Summary			
HCM Average Control Delay	81.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	104.1%	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												
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		0.86	0.86		0.91	1.00	1.00		1.00			
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00		1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00		1.00			
Frt		0.96	0.85		1.00	0.85	1.00		0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (prot)		4568	1335		5085	1550	1752		1538			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		4568	1335		5085	1550	1752		1538			
Volume (vph)	0	1237	1470	0	976	585	437	0	253	0	0	0
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1289	1531	0	1038	622	475	0	275	0	0	0
RTOR Reduction (vph)	0	122	0	0	0	0	0	0	19	0	0	0
Lane Group Flow (vph)	0	1703	995	0	1038	622	475	0	256	0	0	0
Confl. Peds. (#/hr)						2						
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%	3%	2%	5%	2%	2%	2%
Turn Type			Free			Free	Prot		custom			
Protected Phases		2			6		8					
Permitted Phases			Free			Free			8			
Actuated Green, G (s)		28.2	58.5		28.2	58.5	20.2		20.2			
Effective Green, g (s)		29.1	58.5		29.1	58.5	21.4		21.4			
Actuated g/C Ratio		0.50	1.00		0.50	1.00	0.37		0.37			
Clearance Time (s)		4.9			4.9		5.2		5.2			
Vehicle Extension (s)		5.7			5.7		5.3		5.3			
Lane Grp Cap (vph)		2272	1335		2529	1550	641		563			
v/s Ratio Prot		0.40			0.20		0.27					
v/s Ratio Perm			0.75			0.40			0.18			
v/c Ratio		0.75	0.75		0.41	0.40	0.74		0.45			
Uniform Delay, d1		11.8	0.0		9.3	0.0	16.1		14.1			
Progression Factor		1.00	1.00		1.00	1.00	1.00		1.00			
Incremental Delay, d2		1.8	3.8		0.3	0.8	5.7		1.3			
Delay (s)		13.6	3.8		9.6	0.8	21.9		15.5			
Level of Service		B	A		A	A	C		B			
Approach Delay (s)		10.2			6.3			19.5			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	0.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
65: White Lane & Hughes Lane

7/23/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4913		1770	5002		1770	3539	1553	1770	3157	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4913		1770	5002		1770	3539	1553	1770	3157	
Volume (vph)	276	943	243	126	945	103	229	183	94	131	191	365
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	294	1003	259	135	1016	111	249	199	102	142	208	397
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	294	1262	0	135	1127	0	249	199	98	142	605	0
Confl. Peds. (#/hr)			2			3			5			3
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	20.0	40.7		11.5	32.2		16.9	27.3	27.3	11.9	22.3	
Effective Green, g (s)	20.0	42.0		11.5	33.5		16.9	28.6	28.6	11.9	23.6	
Actuated g/C Ratio	0.18	0.38		0.10	0.30		0.15	0.26	0.26	0.11	0.21	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3	5.3	4.0	5.3	
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)	322	1876		185	1523		272	920	404	191	677	
v/s Ratio Prot	c0.17	0.26		0.08	c0.23		c0.14	0.06		0.08	c0.19	
v/s Ratio Perm									0.07			
v/c Ratio	0.91	0.67		0.73	0.74		0.92	0.22	0.24	0.74	1.19dr	
Uniform Delay, d1	44.1	28.3		47.7	34.3		45.8	31.9	32.2	47.6	42.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	28.5	1.9		11.5	3.3		32.4	0.0	0.1	12.8	13.9	
Delay (s)	72.6	30.2		59.3	37.6		78.3	32.0	32.3	60.4	55.9	
Level of Service	E	C		E	D		E	C	C	E	E	
Approach Delay (s)		38.2			39.9			53.0			56.7	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	44.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.3%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.86		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	3398		1770	3492		1770	3017		1770	3539	1559
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3398		1770	3492		1770	3017		1770	3539	1559
Volume (vph)	91	805	136	274	882	77	215	16	149	77	19	146
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	98	866	146	295	948	83	239	18	166	88	22	166
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	12
Lane Group Flow (vph)	98	1012	0	295	1031	0	239	184	0	88	22	154
Confl. Peds. (#/hr)			2			3			2			2
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases		4										6
Actuated Green, G (s)	8.0	34.5		19.3	45.8		16.8	29.9		7.7	20.8	20.8
Effective Green, g (s)	8.0	35.8		19.3	47.1		16.8	31.2		7.7	22.1	22.1
Actuated g/C Ratio	0.07	0.33		0.18	0.43		0.15	0.28		0.07	0.20	0.20
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	4.0		1.0	4.0		1.0	4.0		1.0	4.0	4.0
Lane Grp Cap (vph)	129	1106		311	1495		270	856		124	711	313
v/s Ratio Prot	0.06	c0.30		c0.17	0.30		c0.14	0.06		c0.05	0.01	
v/s Ratio Perm												0.11
v/c Ratio	0.76	0.92		0.95	0.69		0.89	0.21		0.71	0.03	0.49
Uniform Delay, d1	50.1	35.6		44.9	25.5		45.7	30.1		50.1	35.3	39.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.1	11.7		36.8	1.5		26.6	0.6		14.1	0.1	5.4
Delay (s)	70.1	47.4		81.6	27.0		72.3	30.6		64.1	35.4	44.4
Level of Service	E	D		F	C		E	C		E	D	D
Approach Delay (s)		49.4			39.1			54.1			50.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	45.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		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)	1752	3396		1752	3513		1719	3461		1770	3539	1560
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1752	3396		1752	3513		1719	3461		1770	3539	1560
Volume (vph)	353	554	107	147	724	28	81	534	58	52	805	390
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	380	596	115	158	778	30	88	580	63	56	866	419
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	14
Lane Group Flow (vph)	380	711	0	158	808	0	88	643	0	56	866	405
Confl. Peds. (#/hr)			2			5			4			2
Heavy Vehicles (%)	3%	3%	6%	3%	2%	5%	5%	2%	8%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases					6							4
Actuated Green, G (s)	27.1	48.4		13.8	35.1		7.0	33.4		6.2	32.6	32.6
Effective Green, g (s)	27.1	49.3		13.8	36.0		7.0	34.7		6.2	33.9	33.9
Actuated g/C Ratio	0.23	0.41		0.12	0.30		0.06	0.29		0.05	0.28	0.28
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	5.3		4.0	5.3	5.3
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)	396	1395		201	1054		100	1001		91	1000	441
v/s Ratio Prot	c0.22	0.21		0.09	c0.23		c0.05	0.19		0.03	0.24	
v/s Ratio Perm												0.27
v/c Ratio	0.96	0.51		0.79	0.77		0.88	0.64		0.62	0.87	0.92
Uniform Delay, d1	45.9	26.3		51.7	38.2		56.1	37.2		55.7	40.9	41.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	34.1	1.3		16.8	5.3		52.5	1.1		8.4	7.7	23.4
Delay (s)	80.0	27.7		68.5	43.5		108.6	38.3		64.1	48.6	65.1
Level of Service	F	C		E	D		F	D		E	D	E
Approach Delay (s)		45.9			47.6			46.8			54.4	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	49.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

2038 ALTERNATIVE B

AM Peak

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
1. I-5 SB Ramps @ Stockdale Hwy						
SB - I-5 SB Off ramp - STOP Control	322	317	98%	5.7	A	
EB - Stockdale Hwy	45	44	98%	0.0	A	A
WB - Stockdale Hwy	137	129	94%	0.1	A	
Intersection Total	*504*	*490*	*97%*			
2. I-5 NB Ramps @ Stockdale Hwy						
NB - I-5 NB Off Ramp - STOP Control	61	60	98%	6.1	A	
EB - Stockdale Hwy	364	359	99%	0.0	A	A
WB - Stockdale Hwy	557	478	86%	0.0	A	
Intersection Total	*982*	*915*	*93%*	*0.5*		
4. Enos Ln @ Stockdale Hwy						
NB - Enos Ln	193	191	99%	21.7	C	
SB - Enos Ln	306	305	100%	15.9	B	B
EB - Stockdale Hwy	373	383	103%	14.5	B	
WB - Stockdale Hwy	734	691	94%	17.5	B	
Intersection Total	*1,606*	*1,570*	*98%*	*17.0*		
5. SR- 43 @ I-5 NB Ramps						
NB - SR- 43	212	195	92%	0.4	A	
SB - SR-43	746	744	100%	0.0	A	A
WB - I-5 NB Off Ramp - STOP Control	68	59	87%	3.7	A	
Intersection Total	*1,026*	*998*	*97%*			
6. SR-43 @ I-5 SB Ramps						
NB - SR- 43	192	189	98%	0.0	A	
SB - SR-43	576	549	95%	0.2	A	A
EB - I-5 SB Ramp - STOP Control	33	18	55%	3.9	A	
Intersection Total	*801*	*756*	*94%*			
7. Nord Rd @ Stockdale Hwy						
NB - Nord Rd	470	466	99%	7.9	A	
SB - Nord Rd	115	113	98%	35.1	D	C
EB - Stockdale Hwy	449	438	98%	44.0	D	
WB - Stockdale Hwy	988	973	98%	37.3	D	
Intersection Total	*2,022*	*1,990*	*98%*	*31.8*		
9. Heath Rd @ Stockdale Rd						
NB - Heath Rd	851	851	100%	22.8	C	
SB - Heath Rd	348	345	99%	48.8	D	C
EB - Stockdale Hwy	1,455	1,426	98%	21.5	C	
WB - Stockdale Hwy	1,847	1,761	95%	25.5	C	
Intersection Total	*4,501*	*4,383*	*97%*	*25.5*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
10. WSP @ Stockdale Off/ On						
NB - Stockdale Hwy	487	485	100%	24.0	C	
EB - Stockdale Hwy	2,469	2,428	98%	7.4	A	A
WB - WSP	1,674	1,585	95%	5.3	A	
Intersection Total	*4,630*	*4,498*	*97%*	*8.4*		
11. West Beltway @ WSP WB Ramps						
NB - West Beltway	1,533	1,533	100%	7.9	A	
SB - West Beltway	2,618	2,618	100%	6.3	A	A
WB - WSP WB Off Ramp	1,485	1,394	94%	8.9	A	
Intersection Total	*5,636*	*5,545*	*98%*	*7.4*		
12. West Beltway @ WSP EB Ramps						
NB - West Beltway	1,813	1,810	100%	4.7	A	
SB - West Beltway	1,223	1,192	97%	5.9	A	A
EB - WSP EB off Ramp	725	728	100%	23.6	C	
Intersection Total	*3,761*	*3,730*	*99%*	*8.8*		
14. Allen Rd @ Brihmall Rd						
NB - Allen Rd	1,243	1,149	92%	18.9	B	
SB - Allen Rd	1,437	1,433	100%	28.5	C	C
EB - Brihmall Rd	765	767	100%	17.8	B	
WB - Brihmall Rd	330	330	100%	26.2	C	
Intersection Total	*3,775*	*3,679*	*97%*	*23.1*		
15. Allen Rd @ WSP WB Ramps						
NB - Allen Rd	752	735	98%	47.0	D	
SB - Allen Rd	1,801	1,829	102%	8.2	A	B
WB - Off Ramp/On Ramp WSP WB	1,126	998	89%	11.8	B	
Intersection Total	*3,679*	*3,562*	*97%*	*17.2*		
16. Allen Rd @ WSP EB Ramps						
NB - Allen Rd	1,717	1,717	100%	3.5	A	
SB - Allen Rd	2,056	2,014	98%	14.7	B	B
EB - WSP EB off Ramp	375	372	99%	17.0	B	
Intersection Total	*4,148*	*4,103*	*99%*	*10.2*		
18. Allen Rd @ Stockdale Hwy						
NB - Allen Rd	1,239	1,248	101%	30.3	C	
SB - Allen Rd	1,211	1,119	92%	26.1	C	C
EB - Stockdale Hwy	1,316	1,299	99%	36.7	D	
WB - Stockdale Hwy	872	862	99%	24.3	C	
Intersection Total	*4,638*	*4,528*	*98%*	*30.0*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
20. Calloway Dr @ Brimhall Rd						
NB - Calloway Dr	1,694	1,642	97%	36.5	D	C
SB - Calloway Dr	1,612	1,611	100%	35.4	D	
EB - Brimhall Rd	1,317	1,317	100%	34.3	C	
WB - Brimhall Rd	964	965	100%	31.9	C	
Intersection Total	*5,587*	*5,535*	*99%*	*34.9*		
21. Calloway Dr @ WSP WB Ramps						
NB - Calloway Dr	1,303	1,296	99%	10.6	B	B
SB - Calloway Dr	2,083	2,058	99%	7.5	A	
EB - WSP WB on Ramp	760	773	102%	16.1	B	
WB - WSP WB Off Ramp	600	556	93%	9.5	A	
Intersection Total	*4,746*	*4,683*	*99%*	*13.1*		
22. Calloway Dr @ WSP EB Ramps						
NB - Calloway Dr	951	946	99%	19.3	B	B
SB - Calloway Dr	1,507	1,525	101%	14.3	B	
EB - WSP EB off Ramp	950	980	103%	15.1	B	
Intersection Total	*3,408*	*3,451*	*101%*	*15.9*		
23. Calloway Dr @ Stockdale Hwy						
NB - Calloway Dr	1,662	1,657	100%	29.5	C	D
SB - Calloway Dr	2,105	2,105	100%	45.8	D	
EB - Stockdale Hwy	1,695	1,699	100%	26.7	C	
WB - Stockdale Hwy	652	649	100%	44.2	D	
Intersection Total	*6,114*	*6,150*	*100%*	*44.9*		
25. Coffee Rd @ Brimhall Rd						
NB - Coffee Rd	1,481	1,480	100%	35.4	D	C
SB - Coffee Rd	1,698	1,694	99%	26.2	C	
EB - Brimhall Rd	793	792	100%	22.9	C	
WB - Brimhall Rd	2,175	2,160	102%	33.9	C	
Intersection Total	*6,147*	*6,126*	*100%*	*30.9*		
27. Coffee Rd @ WSP EB Ramp						
NB - Coffee Rd	2,110	2,110	100%	26.3	C	B
SB - Coffee Rd	2,479	2,537	102%	11.9	B	
EB - WSP EB off Ramp	1,076	1,074	100%	16.6	B	
Intersection Total	*5,665*	*5,721*	*101%*	*18.1*		
28. Coffee Rd @ Truxtun Ave						
NB - Coffee Rd	2,633	2,633	100%	8.4	A	B
SB - Coffee Rd	1,963	2,059	105%	17.0	B	
WB - Truxtun Ave	572	576	101%	23.4	C	
Intersection Total	*5,168*	*5,268*	*102%*	*13.4*		
31. Mohawk St @ WSP WB Ramps						

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
NB - Mohawk St	1,122	1,087	97%	13.9	B	
SB - Mohawk St	1,774	1,714	97%	7.6	A	B
WB - WSP WB Off Ramp	880	885	101%	13.7	B	
Intersection Total	*3,776*	*3,686*	*98%*	*10.9*		
32. Mohawk St @ WSP EB Ramps						
NB - Mohawk St	1,129	1,107	98%	32.8	C	
SB - Mohawk St	1,305	1,259	96%	16.6	B	B
EB - WSP EB off Ramp	1,820	1,759	97%	10.4	B	
Intersection Total	*4,254*	*4,125*	*97%*	*18.3*		
33. Mohawk St @ Truxtun Ave						
NB - Mohawk St	1,623	1,597	98%	27.1	C	
SB - Mohawk St	1,961	1,837	94%	42.4	D	C
EB - Truxtun Ave	719	725	101%	18.7	B	
WB - Truxtun Ave	709	686	97%	41.1	D	
Intersection Total	*5,012*	*4,845*	*97%*	*33.6*		
36. Airport Dr & State Rd/SR204 WB Ramp						
NB - Airport Dr	1,592	1,581	99%	18.2	B	
SB - Airport Dr	1,691	1,676	99%	22.1	C	C
EB - State Rd	245	245	100%	20.1	C	
WB - SR204 WB Off Ramp	920	951	103%	28.2	C	
Intersection Total	*4,448*	*4,453*	*100%*	*21.9*		
37. Buck Owens Blvd & SR99 NB Ramp						
NB - SR99 NB Off Ramp	1,720	1,718	100%	9.7	A	A
WB - Buck Owens Blvd	507	494	97%	6.8	A	
Intersection Total	*2,227*	*2,212*	*99%*	*9.1*		
38. Rio Mirada Dr & Buck Owens Blvd						
NB - Buck Owens Blvd	514	514	100%	36.3	D	
SB - Buck Owens Blvd	117	112	96%	38.8	D	C
EB - Rio Mirada Dr	829	848	102%	27.0	C	
WB - Rio Mirada Dr	161	160	99%	28.6	C	
Intersection Total	*1,621*	*1,634*	*101%*	*30.9*		
39. SR99 NB Ramps/Sillect Ave & Buck Owens Blvd						
NB - Buck Owens Blvd	1,205	1,110	92%	50.6	D	
SB - Buck Owens Blvd	472	464	98%	50.4	D	D
EB - SR99 NB Off Ramp	820	817	100%	37.2	D	
WB - Sillect Ave	250	254	102%	39.2	D	
Intersection Total	*2,747*	*2,645*	*96%*	*45.3*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
40. Rosedale Hwy & Camino del Rio Ct						
NB - Camino del Rio Ct	268	264	99%	35.6	D	C
SB - Camino del Rio Ct	152	147	97%	49.4	D	
EB - Rosedale Hwy	2,426	2,403	99%	20.2	C	
WB - Rosedale Hwy	2,791	2,788	100%	24.2	C	
Intersection Total	*5,637*	*5,602*	*99%*	*33.7*		
41. Rosedale Hwy & SR99 SB Ramp						
SB - SR99 SB Off Ramp	1,350	1,374	102%	27.9	C	C
EB - Rosedale Hwy	1,978	1,949	99%	10.5	B	
WB - Rosedale Hwy	1,933	1,916	99%	21.7	C	
Intersection Total	*5,261*	*5,239*	*100%*	*20.5*		
42. Rosedale Hwy & SR99 NB Ramp/Buck Owens Blvd						
NB - SR99 NB Off Ramp	1,740	1,724	99%	48.0	D	C
SB - Buck Owens Blvd	506	520	103%	17.2	B	
EB - Rosedale Hwy	2,470	2,431	98%	19.4	B	
WB - 24th St	2,558	2,531	99%	14.0	B	
Intersection Total	*7,274*	*7,206*	*99%*	*24.2*		
43. 24th St & Oak St						
NB - Oak St	1,250	1,257	101%	33.4	C	C
SB - Oak St	85	85	100%	54.6	D	
EB - 24th St	3,136	3,100	99%	42.8	D	
WB - 24th St	3,363	3,318	99%	23.5	C	
Intersection Total	*7,834*	*7,760*	*99%*	*33.2*		
45. Oak St @ Truxtun Ave						
NB - Oak St	1,662	1,613	97%	51.9	D	D
SB - Oak St	1,367	1,360	99%	29.8	C	
EB - Truxtun Ave	2,026	1,885	93%	73.0	E	
WB - Truxtun Ave	950	963	101%	46.9	D	
Intersection Total	*6,005*	*5,821*	*97%*	*52.7*		
46. California Ave & Chester Ln						
NB - Chester Ln	169	166	98%	31.3	C	C
SB - Chester Ln	164	164	100%	30.9	C	
EB - California Ave	1,464	1,472	101%	22.2	C	
WB - California Ave	1,728	1,842	107%	33.5	C	
Intersection Total	*3,525*	*3,644*	*103%*	*28.7*		
47. California Ave & SR99 SB Ramps/Real Rd						
NB - Real Rd	568	665	117%	63.6	E	E
SB - SR99 SB Off Ramp	1,455	1,457	100%	58.2	E	
EB - California Ave	1,705	1,651	97%	35.9	D	
WB - California Ave	1,101	1,217	111%	73.0	E	
Intersection Total	*4,829*	*4,990*	*103%*	*60.1*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
48. California Ave & SR99 NB Ramps						
NB - SR99 NB Off Ramp	1,100	1,124	102%	16.3	B	C
SB - Extended Stay Hotel	63	61	97%	19.9	B	
EB - California Ave	1,188	1,227	103%	16.3	B	
WB - California Ave	1,487	1,448	97%	47.5	D	
Intersection Total	*3,838*	*3,860*	*101%*	*28.1*		
49. California Ave & Oak St						
NB - Oak St	1,151	1,160	101%	39.2	D	C
SB - Oak St	983	990	101%	16.4	B	
EB - California Ave	1,902	1,922	101%	25.5	C	
WB - California Ave	873	862	99%	29.1	C	
Intersection Total	*4,909*	*4,934*	*101%*	*27.5*		
51. Stockdale Hwy & Real Rd						
NB - Real Rd	345	345	100%	37.4	D	D
SB - Real Rd	561	563	100%	29.8	C	
EB - Stockdale Hwy	1,206	1,203	100%	35.7	D	
WB - Stockdale Hwy	1,091	1,106	101%	58.8	E	
Intersection Total	*3,203*	*3,217*	*100%*	*42.8*		
53. Stockdale Hwy & Oak St/Wible Rd						
NB - Wible Rd	559	562	101%	31.8	C	C
SB - Oak St	408	411	101%	25.4	C	
EB - Stockdale Hwy	1,199	1,166	97%	18.5	B	
WB - Stockdale Hwy	988	987	100%	29.7	C	
Intersection Total	*3,154*	*3,126*	*99%*	*25.3*		
57. Ming Ave & Real Rd						
NB - Real Rd	405	404	100%	25.0	C	C
SB - Real Rd	490	486	99%	35.5	D	
EB - Ming Ave	1,924	1,922	100%	26.7	C	
WB - Ming Ave	1,572	1,539	98%	35.0	D	
Intersection Total	*4,391*	*4,351*	*99%*	*30.5*		
58. Ming Ave & SR99 SB Ramps						
EB - Ming Ave	2,233	2,238	100%	9.8	A	A
WB - Ming Ave	982	1,006	102%	3.7	A	
Intersection Total	*3,215*	*3,244*	*101%*	*7.9*		
59. Ming Ave & Wible Rd						
NB - Wible Rd	728	728	100%	21.0	C	C
SB - Wible Rd	322	322	100%	28.9	C	
EB - Ming Ave	2,309	2,260	98%	24.1	C	
WB - Ming Ave	1,185	1,211	102%	14.3	B	
Intersection Total	*4,544*	*4,521*	*99%*	*26.3*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
60. Ming Ave & SR99 NB Ramps						
NB - Sears	65	64	98%	29.7	C	
SB - SR99 SB Off Ramp	875	876	100%	19.3	B	C
EB - Ming Ave	2,192	2,243	102%	37.0	D	
WB - Ming Ave	899	905	101%	12.9	B	
Intersection Total	*4,031*	*4,088*	*101%*	*27.8*		
61. Ming Ave & Castro Ln						
NB - Castro Ln	121	121	100%	15.0	B	
SB - Castro Ln	233	232	100%	17.5	B	C
EB - Ming Ave	1,358	1,374	101%	25.1	C	
WB - Ming Ave	778	777	100%	41.3	D	
Intersection Total	*2,490*	*2,504*	*101%*	*28.9*		
66. Brundage Ln & H St						
NB - H St	1,159	1,138	98%	19.9	B	
SB - H St	464	463	100%	30.4	C	C
EB - Brundage Ln	960	961	100%	29.1	C	
WB - Brundage Ln	780	811	104%	32.3	C	
Intersection Total	*3,363*	*3,373*	*100%*	*26.9*		
67. SR58 WB Ramp & H St						
NB - H St	1,258	1,256	100%	6.1	A	
SB - H St	649	664	102%	21.4	C	B
WB - Richland St	686	682	99%	19.4	B	
Intersection Total	*2,593*	*2,602*	*100%*	*13.5*		
68. SR58 EB Ramp & H St						
NB - H St	1,357	1,356	100%	30.2	C	
SB - H St	734	741	101%	7.0	A	C
EB - SR58 EB Off Ramp	655	649	99%	33.5	C	
Intersection Total	*2,746*	*2,746*	*100%*	*24.7*		
70. Brundage Ln & Chester Ave						
NB - Chester Ave	972	956	98%	41.0	D	
SB - Chester Ave	571	570	100%	29.3	C	C
EB - Brundage Ln	836	847	101%	10.2	B	
WB - Brundage Ln	694	695	100%	24.7	C	
Intersection Total	*3,073*	*3,068*	*100%*	*26.9*		
71. SR58 WB Ramp & Chester Ave						
NB - Chester Ave	821	775	94%	3.7	A	
SB - Chester Ave	631	595	94%	38.5	D	C
WB - Richland St	1,095	1,104	101%	22.8	C	
Intersection Total	*2,547*	*2,474*	*97%*	*20.6*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
72. SR58 EB Ramp & Chester Ave						
NB - Chester Ave	1,073	1,070	100%	27.7	C	
SB - Chester Ave	870	829	95%	10.6	B	C
EB - Frontage Rd	762	660	87%	48.7	D	
Intersection Total	*2,705*	*2,559*	*95%*	*28.6*		
74. Brundage Ln & Union Ave						
NB - Union Ave	1,935	1,877	97%	54.8	D	
SB - Union Ave	1,773	1,770	100%	33.3	C	D
EB - Brundage Ln	439	439	100%	28.9	C	
WB - Brundage Ln	1,424	1,407	99%	15.0	B	
Intersection Total	*5,571*	*5,493*	*99%*	*45.6*		
75. Brundage Ln & SR58 WB Ramps (Union Ave)						
NB - SR58 WB Off Ramp	1,114	1,100	99%	10.5	B	
SB - Liggett St	83	81	98%	32.2	C	C
EB - Brundage Ln	523	505	97%	21.8	C	
WB - Brundage Ln	457	454	99%	41.5	D	
Intersection Total	*2,177*	*2,140*	*98%*	*23.6*		
76. SR58 EB Ramp & Union Ave						
NB - Union Ave	1,630	1,621	99%	18.6	B	
SB - Union Ave	1,189	1,221	103%	11.6	B	B
EB - SR58 EB Off Ramp	1,050	1,002	95%	12.6	B	
Intersection Total	*3,869*	*3,844*	*99%*	*19.8*		
77.Cottonwood Rd & Brundage Ln						
NB - Cottonwood Rd	825	772	94%	18.5	B	
SB - Cottonwood Rd	229	230	100%	30.0	C	C
EB - Brundage Ln	216	215	100%	34.9	C	
WB - Brundage Ln	571	535	94%	23.6	C	
Intersection Total	*1,841*	*1,752*	*95%*	*23.6*		
78. Brundage Ln & SR58 WB Ramps (Cottonwood Rd)						
NB - SR58 WB Off Ramp	205	162	79%	17.7	B	
SB - Driveway	8	7	88%	14.2	B	C
EB - Brundage Ln	602	580	96%	17.9	B	
WB - Brundage Ln	510	512	100%	26.1	C	
Intersection Total	*1,325*	*1,261*	*95%*	*21.2*		
79. Cottonwood Rd & SR 58 EB Off Ramp						
NB - Cottonwood Rd	708	701	99%	12.3	B	
SB - Cottonwood Rd	512	474	93%	6.2	A	B
EB - SR-58 EB off Ramp	635	611	96%	12.5	B	
Intersection Total	*1,855*	*1,786*	*96%*	*10.7*		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.99		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.95	
Satd. Flow (prot)		3501		1770	3539						1770	
Flt Permitted		1.00		0.72	1.00						0.95	
Satd. Flow (perm)		3501		1339	3539						1770	
Volume (vph)	0	42	3	10	127	0	0	0	0	322	0	0
Peak-hour factor, PHF	0.80	0.80	0.80	0.84	0.84	0.84	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	52	4	12	151	0	0	0	0	358	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	53	0	12	151	0	0	0	0	0	358	0
Turn Type				Perm						Split		
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		7.5		7.5	7.5						44.5	
Effective Green, g (s)		7.5		7.5	7.5						44.5	
Actuated g/C Ratio		0.12		0.12	0.12						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)		438		167	442						1313	
v/s Ratio Prot		0.02			c0.04						c0.20	
v/s Ratio Perm				0.01								
v/c Ratio		0.12		0.07	0.34						0.27	
Uniform Delay, d1		23.3		23.2	24.0						2.5	
Progression Factor		1.00		1.15	1.09						1.00	
Incremental Delay, d2		0.1		0.2	0.5						0.5	
Delay (s)		23.4		26.8	26.6						3.0	
Level of Service		C		C	C						A	
Approach Delay (s)		23.4			26.6			0.0			3.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.5%	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												
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	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1717	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1717	
Volume (vph)	5	907	20	185	994	89	10	10	350	187	10	11
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	5	975	22	199	1069	96	11	11	398	212	11	12
RTOR Reduction (vph)	0	0	6	0	0	11	0	0	37	0	5	0
Lane Group Flow (vph)	5	975	16	199	1069	85	11	11	361	212	18	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	0.8	35.9	35.9	20.4	55.5	55.5	7.2	31.0	31.0	16.7	40.5	
Effective Green, g (s)	0.8	35.9	35.9	20.4	55.5	55.5	7.2	31.0	31.0	16.7	40.5	
Actuated g/C Ratio	0.01	0.30	0.30	0.17	0.46	0.46	0.06	0.26	0.26	0.14	0.34	
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)	12	1059	474	301	1637	732	106	481	409	246	579	
v/s Ratio Prot	0.00	c0.28		c0.11	c0.30		0.01	0.01		c0.12	0.01	
v/s Ratio Perm			0.01			0.06			0.25			
v/c Ratio	0.42	0.92	0.03	0.66	0.65	0.12	0.10	0.02	0.88	0.86	0.03	
Uniform Delay, d1	59.4	40.7	29.8	46.6	24.8	18.3	53.3	33.2	42.7	50.5	26.6	
Progression Factor	0.74	0.66	0.65	0.56	0.24	0.11	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.8	10.7	0.0	3.7	0.6	0.0	0.4	0.1	23.0	25.2	0.1	
Delay (s)	61.7	37.5	19.5	29.6	6.6	2.1	53.8	33.3	65.8	75.7	26.7	
Level of Service	E	D	B	C	A	A	D	C	E	E	C	
Approach Delay (s)		37.2			9.6			64.6			70.9	
Approach LOS		D			A			E			E	

Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91		0.97	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)	3433	4759	1524	3213	3167	1468	3273	4750		3183	4992	
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)	3433	4759	1524	3213	3167	1468	3273	4750		3183	4992	
Volume (vph)	112	711	131	206	432	179	126	664	228	277	1052	46
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	120	765	141	222	465	192	135	714	245	295	1119	49
RTOR Reduction (vph)	0	0	10	0	0	19	0	0	0	0	0	0
Lane Group Flow (vph)	120	765	131	222	465	173	135	959	0	295	1168	0
Heavy Vehicles (%)	2%	9%	6%	9%	14%	10%	7%	4%	8%	10%	3%	9%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	6.0	31.8	31.8	6.0	31.8	31.8	6.0	26.4		7.1	27.5	
Effective Green, g (s)	7.3	34.8	34.8	7.3	34.8	34.8	6.9	29.4		8.0	30.5	
Actuated g/C Ratio	0.08	0.36	0.36	0.08	0.36	0.36	0.07	0.31		0.08	0.32	
Clearance Time (s)	5.3	7.0	7.0	5.3	7.0	7.0	4.9	7.0		4.9	7.0	
Vehicle Extension (s)	2.0	6.0	6.0	2.0	5.3	5.3	2.0	3.1		2.0	2.4	
Lane Grp Cap (vph)	262	1734	555	246	1154	535	236	1462		267	1594	
v/s Ratio Prot	0.03	c0.16		c0.07	0.15		0.04	0.20		c0.09	c0.23	
v/s Ratio Perm			0.09			0.13						
v/c Ratio	0.46	0.44	0.24	0.90	0.40	0.32	0.57	0.66		1.10	0.73	
Uniform Delay, d1	42.2	23.0	21.1	43.7	22.6	21.9	42.9	28.7		43.8	28.9	
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	0.5	0.8	1.0	32.1	1.0	1.6	2.1	1.1		86.1	1.6	
Delay (s)	42.7	23.8	22.1	75.8	23.7	23.5	44.9	29.7		129.9	30.5	
Level of Service	D	C	C	E	C	C	D	C		F	C	
Approach Delay (s)		25.8			36.8			31.6			50.6	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM Average Control Delay	37.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	95.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.95		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1722		1770	1584		1770	5085	1583	1770	5085	1583
Flt Permitted		0.38		0.65	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		683		1216	1584		1770	5085	1583	1770	5085	1583
Volume (vph)	100	1	50	67	1	213	50	1404	80	224	1095	81
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	119	1	60	76	1	242	53	1494	85	238	1165	86
RTOR Reduction (vph)	0	18	0	0	192	0	0	0	13	0	0	6
Lane Group Flow (vph)	0	162	0	76	51	0	53	1494	72	238	1165	80
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		22.9		22.9	22.9		6.3	53.6	53.6	21.5	68.8	68.8
Effective Green, g (s)		22.9		22.9	22.9		6.3	53.6	53.6	21.5	68.8	68.8
Actuated g/C Ratio		0.21		0.21	0.21		0.06	0.49	0.49	0.20	0.63	0.63
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)		142		253	330		101	2478	771	346	3180	990
v/s Ratio Prot					0.15		0.03	c0.29		c0.13	0.23	
v/s Ratio Perm		c0.26		0.06					0.05			0.05
v/c Ratio		1.14		0.30	0.16		0.52	0.60	0.09	0.69	0.37	0.08
Uniform Delay, d1		43.5		36.8	35.6		50.4	20.5	15.2	41.1	10.0	8.1
Progression Factor		1.00		1.00	1.00		1.07	0.42	0.41	1.04	0.87	0.81
Incremental Delay, d2		117.9		0.7	0.2		3.2	0.7	0.2	5.1	0.3	0.1
Delay (s)		161.4		37.5	35.9		57.2	9.3	6.4	47.9	9.0	6.7
Level of Service		F		D	D		E	A	A	D	A	A
Approach Delay (s)		161.4			36.2			10.7			15.1	
Approach LOS		F			D			B			B	

Intersection Summary

HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.8%	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												
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	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		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)	3367	4673	1509	3155	4550	1429	3019	4591		3242	4940	1455
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)	3367	4673	1509	3155	4550	1429	3019	4591		3242	4940	1455
Volume (vph)	152	1393	233	309	627	115	214	801	285	479	1058	101
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	160	1466	245	332	674	124	228	852	303	510	1126	107
RTOR Reduction (vph)	0	0	24	0	0	15	0	0	0	0	0	10
Lane Group Flow (vph)	160	1466	221	332	674	109	228	1155	0	510	1126	97
Heavy Vehicles (%)	4%	11%	7%	11%	14%	13%	16%	8%	10%	8%	5%	11%
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)	19.8	39.1	39.1	11.7	31.0	31.0	14.0	34.0		18.8	38.8	38.8
Effective Green, g (s)	22.1	42.0	42.0	14.0	33.9	33.9	16.2	37.0		21.0	41.8	41.8
Actuated g/C Ratio	0.17	0.32	0.32	0.11	0.26	0.26	0.12	0.28		0.16	0.32	0.32
Clearance Time (s)	6.3	6.9	6.9	6.3	6.9	6.9	6.2	7.0		6.2	7.0	7.0
Vehicle Extension (s)	2.0	5.9	5.9	2.0	6.5	6.5	2.0	4.3		2.0	4.3	4.3
Lane Grp Cap (vph)	572	1510	488	340	1187	373	376	1307		524	1588	468
v/s Ratio Prot	0.05	c0.31		c0.11	0.15		0.08	c0.25		c0.16	c0.23	
v/s Ratio Perm			0.16			0.09						0.07
v/c Ratio	0.28	0.97	0.45	0.98	0.57	0.29	0.61	0.88		0.97	0.71	0.21
Uniform Delay, d1	47.0	43.4	34.9	57.8	41.7	38.5	53.9	44.4		54.2	38.8	32.1
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	17.0	1.8	41.9	1.4	1.4	1.9	8.9		32.2	2.7	1.0
Delay (s)	47.1	60.4	36.7	99.8	43.1	39.8	55.8	53.4		86.4	41.5	33.1
Level of Service	D	E	D	F	D	D	E	D		F	D	C
Approach Delay (s)		56.1			59.4			53.8			54.1	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	55.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.94	0.91	1.00	0.97	0.91	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)	3183	4759	1468	3213	4673	1495	4586	4988	1495	3303	4940	1392
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)	3183	4759	1468	3213	4673	1495	4586	4988	1495	3303	4940	1392
Volume (vph)	227	1436	520	313	801	136	570	1017	549	295	949	50
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	239	1512	547	337	861	146	600	1071	578	314	1010	53
RTOR Reduction (vph)	0	0	39	0	0	17	0	0	46	0	0	7
Lane Group Flow (vph)	239	1512	508	337	861	129	600	1071	532	314	1010	46
Heavy Vehicles (%)	10%	9%	10%	9%	11%	8%	11%	4%	8%	6%	5%	16%
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)	9.6	38.5	38.5	7.7	36.6	36.6	9.8	37.7	37.7	9.1	37.0	37.0
Effective Green, g (s)	11.9	41.5	41.5	10.0	39.6	39.6	12.0	41.2	41.2	11.3	40.5	40.5
Actuated g/C Ratio	0.10	0.35	0.35	0.08	0.33	0.33	0.10	0.34	0.34	0.09	0.34	0.34
Clearance Time (s)	6.3	7.0	7.0	6.3	7.0	7.0	6.2	7.5	7.5	6.2	7.5	7.5
Vehicle Extension (s)	2.0	4.6	4.6	2.0	4.9	4.9	2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)	316	1646	508	268	1542	493	459	1713	513	311	1667	470
v/s Ratio Prot	0.08	0.32		c0.10	0.18		c0.13	0.21		0.10	0.20	
v/s Ratio Perm			0.37			0.10			0.39			0.04
v/c Ratio	0.76	0.92	1.00	1.26	0.56	0.26	1.31	0.63	1.04	1.01	0.61	0.10
Uniform Delay, d1	52.6	37.6	39.2	55.0	33.0	29.5	54.0	32.9	39.4	54.4	33.1	27.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.62	0.65	1.00	1.00	1.00
Incremental Delay, d2	8.8	9.7	39.8	142.5	1.5	1.3	151.2	1.5	46.5	53.5	1.6	0.4
Delay (s)	61.5	47.4	79.1	197.5	34.5	30.8	202.4	22.0	72.1	107.8	34.7	27.7
Level of Service	E	D	E	F	C	C	F	C	E	F	C	C
Approach Delay (s)		56.4			75.0			83.0			51.1	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM Average Control Delay	67.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	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	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4988	1495	3367	4940	1495	3433	5014		3400	4988	1553
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	4988	1495	3367	4940	1495	3433	5014		3400	4988	1553
Volume (vph)	529	1068	70	247	515	318	290	1744	169	382	1221	495
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	563	1136	74	266	554	342	305	1836	178	402	1285	521
RTOR Reduction (vph)	0	0	9	0	0	27	0	0	0	0	0	37
Lane Group Flow (vph)	563	1136	65	266	554	315	305	2014	0	402	1285	484
Heavy Vehicles (%)	2%	4%	8%	4%	5%	8%	2%	2%	3%	3%	4%	4%
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)	18.0	29.8	29.8	13.4	25.2	25.2	13.0	43.8		13.0	43.8	43.8
Effective Green, g (s)	18.0	31.8	31.8	13.4	27.2	27.2	13.0	45.8		13.0	45.8	45.8
Actuated g/C Ratio	0.15	0.27	0.27	0.11	0.23	0.23	0.11	0.38		0.11	0.38	0.38
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	515	1322	396	376	1120	339	372	1914		368	1904	593
v/s Ratio Prot	c0.16	c0.23		0.08	0.11		0.09	c0.40		c0.12	0.26	
v/s Ratio Perm			0.05			0.23						0.34
v/c Ratio	1.09	0.86	0.16	0.71	0.49	0.93	0.82	1.05		1.09	0.67	0.82
Uniform Delay, d1	51.0	42.0	33.9	51.4	40.4	45.5	52.4	37.1		53.5	30.9	33.3
Progression Factor	0.74	0.70	0.66	1.00	1.00	1.00	1.00	1.00		0.86	0.75	0.71
Incremental Delay, d2	65.1	4.9	0.1	4.9	0.1	30.5	12.6	35.9		71.6	1.7	10.7
Delay (s)	102.8	34.3	22.5	56.3	40.5	75.9	64.9	73.0		117.8	24.8	34.4
Level of Service	F	C	C	E	D	E	E	E		F	C	C
Approach Delay (s)		55.6			54.6			71.9			44.0	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM Average Control Delay	57.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
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	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	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)	3155	4940	1429	3183	4803	1429	3273	4803	1417	3273	4803	1455
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)	3155	4940	1429	3183	4803	1429	3273	4803	1417	3273	4803	1455
Volume (vph)	57	1675	504	617	1280	118	453	627	563	146	668	43
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	60	1763	531	649	1347	124	482	667	599	155	711	46
RTOR Reduction (vph)	0	0	40	0	0	14	0	0	33	0	0	5
Lane Group Flow (vph)	60	1763	491	649	1347	110	482	667	566	155	711	41
Heavy Vehicles (%)	11%	5%	13%	10%	8%	13%	7%	8%	14%	7%	8%	11%
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)	4.8	42.5	42.5	19.0	56.7	56.7	21.0	43.8	43.8	6.0	28.8	28.8
Effective Green, g (s)	7.1	44.8	44.8	21.3	59.0	59.0	23.2	46.0	46.0	8.2	31.0	31.0
Actuated g/C Ratio	0.05	0.33	0.33	0.16	0.43	0.43	0.17	0.34	0.34	0.06	0.23	0.23
Clearance Time (s)	6.3	6.3	6.3	6.3	6.3	6.3	6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	1624	470	497	2079	619	557	1621	478	197	1092	331
v/s Ratio Prot	0.02	0.36		c0.20	0.28		c0.15	0.14		0.05	0.15	
v/s Ratio Perm			0.37			0.09			0.42			0.03
v/c Ratio	0.37	1.09	1.04	1.31	0.65	0.18	0.87	0.41	1.18	0.79	0.65	0.12
Uniform Delay, d1	62.4	45.8	45.8	57.5	30.5	23.7	55.0	34.7	45.2	63.2	47.7	41.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	49.5	53.5	151.7	0.7	0.1	13.2	0.2	102.3	18.4	1.4	0.2
Delay (s)	63.8	95.2	99.2	209.2	31.2	23.9	68.3	34.9	147.5	81.6	49.1	42.0
Level of Service	E	F	F	F	C	C	E	C	F	F	D	D
Approach Delay (s)		95.3			85.2			82.7			54.3	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM Average Control Delay	84.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	136.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	103.2%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	0.88	0.95	0.95		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1685	2787	1665	1695		3433	5025		1770	4988	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1685	2787	1665	1695		3433	5025		1770	4988	1583
Volume (vph)	619	182	765	39	49	13	1007	1122	96	82	770	403
Peak-hour factor, PHF	0.94	0.94	0.94	0.84	0.84	0.84	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	659	194	814	46	58	15	1060	1181	101	87	819	429
RTOR Reduction (vph)	0	0	53	0	0	0	0	0	0	0	0	26
Lane Group Flow (vph)	426	427	761	46	73	0	1060	1282	0	87	819	403
Heavy Vehicles (%)	2%	7%	2%	3%	2%	8%	2%	2%	2%	2%	4%	2%
Turn Type	Split		pm+ov	Split			Prot			Prot		Perm
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	26.3	26.3	60.0	5.9	5.9		33.7	52.1		7.4	25.8	25.8
Effective Green, g (s)	27.6	27.6	61.3	5.9	5.9		33.7	53.1		7.4	26.8	26.8
Actuated g/C Ratio	0.25	0.25	0.56	0.05	0.05		0.31	0.48		0.07	0.24	0.24
Clearance Time (s)	5.3	5.3	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	1.0	1.5	1.5		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	422	423	1654	89	91		1052	2426		119	1215	386
v/s Ratio Prot	c0.25	0.25	0.15	0.03	c0.04		c0.31	0.26		0.05	0.16	
v/s Ratio Perm			0.14									0.27
v/c Ratio	1.01	1.01	0.46	0.52	0.80		1.01	0.53		0.73	0.67	1.04
Uniform Delay, d1	41.2	41.2	14.5	50.7	51.5		38.1	19.8		50.3	37.6	41.6
Progression Factor	1.08	1.08	1.05	1.00	1.00		0.54	0.38		0.54	0.87	0.90
Incremental Delay, d2	38.7	38.7	0.1	2.1	36.4		24.2	0.5		15.3	2.5	53.5
Delay (s)	83.3	83.2	15.3	52.8	87.9		44.8	8.0		42.7	35.3	91.1
Level of Service	F	F	B	D	F		D	A		D	D	F
Approach Delay (s)		50.1			74.3			24.7			53.7	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	40.6	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.2%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	0.98		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)	3433	4951		3273	4759	1583	3400	5037		3303	4893	1495
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4951		3273	4759	1583	3400	5037		3303	4893	1495
Volume (vph)	600	1062	125	111	925	87	261	1381	83	256	837	332
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	632	1118	132	119	995	94	278	1469	88	272	890	353
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	0	0	0	28
Lane Group Flow (vph)	632	1250	0	119	995	49	278	1557	0	272	890	325
Heavy Vehicles (%)	2%	3%	4%	7%	9%	2%	3%	2%	4%	6%	6%	8%
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	20.8	40.0		7.8	27.0	27.0	10.9	33.7		9.9	32.7	32.7
Effective Green, g (s)	20.8	41.3		7.8	28.3	28.3	10.9	35.0		9.9	34.0	34.0
Actuated g/C Ratio	0.19	0.38		0.07	0.26	0.26	0.10	0.32		0.09	0.31	0.31
Clearance Time (s)	4.0	5.3		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	0.5	2.0		0.5	2.0	2.0	0.5	2.0		0.5	2.0	2.0
Lane Grp Cap (vph)	649	1859		232	1224	407	337	1603		297	1512	462
v/s Ratio Prot	c0.18	0.25		0.04	c0.21		0.08	c0.31		c0.08	0.18	
v/s Ratio Perm						0.06						0.24
v/c Ratio	0.97	0.67		0.51	0.81	0.12	0.82	0.97		0.92	0.59	0.70
Uniform Delay, d1	44.3	28.7		49.3	38.4	31.3	48.6	37.0		49.6	32.1	33.6
Progression Factor	1.00	1.00		1.20	1.37	2.25	1.00	1.00		0.71	0.50	0.47
Incremental Delay, d2	28.5	2.0		0.7	5.3	0.5	14.4	16.6		27.9	1.5	7.7
Delay (s)	72.9	30.7		59.9	57.8	71.1	63.0	53.6		63.0	17.5	23.5
Level of Service	E	C		E	E	E	E	D		E	B	C
Approach Delay (s)		44.8			59.1			55.0			27.1	
Approach LOS		D			E			E			C	

Intersection Summary			
HCM Average Control Delay	46.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.95	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	0.86		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1770	5081		1770	5052		1770	1593		1681	1568	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1770	5081		1770	5052		1770	1593		1681	1568	
Volume (vph)	120	2060	10	40	1734	80	28	3	91	46	3	25
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	126	2168	11	42	1825	84	33	4	108	55	4	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	126	2179	0	42	1909	0	33	112	0	46	43	0
Turn Type	Prot			Prot			Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	13.1	65.4		5.6	57.9		17.0	17.0		16.0	16.0	
Effective Green, g (s)	13.1	65.4		5.6	57.9		17.0	17.0		16.0	16.0	
Actuated g/C Ratio	0.11	0.55		0.05	0.48		0.14	0.14		0.13	0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	193	2769		83	2438		251	226		224	209	
v/s Ratio Prot	c0.07	c0.43		0.02	0.38		0.02	c0.07		0.03	c0.03	
v/s Ratio Perm												
v/c Ratio	0.65	0.79		0.51	0.78		0.13	0.50		0.21	0.21	
Uniform Delay, d1	51.3	21.7		55.8	25.8		45.0	47.5		46.3	46.3	
Progression Factor	1.00	1.00		0.93	0.93		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.7	1.5		1.6	0.6		1.1	7.6		2.1	2.2	
Delay (s)	59.0	23.3		53.5	24.5		46.1	55.1		48.4	48.6	
Level of Service	E	C		D	C		D	E		D	D	
Approach Delay (s)		25.2			25.2			53.1			48.5	
Approach LOS		C			C			D			D	

Intersection Summary

HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.1%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.98	
Satd. Flow (prot)	1770	3413		1770	3386			1819	1568		1772	
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00		0.98	
Satd. Flow (perm)	1770	3413		1770	3386			1819	1568		1772	
Volume (vph)	19	1063	68	156	966	51	81	121	152	77	85	37
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	20	1143	73	168	1039	55	90	134	169	88	97	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	20	1216	0	168	1094	0	0	224	152	0	227	0
Heavy Vehicles (%)	2%	5%	2%	2%	6%	2%	3%	2%	3%	3%	2%	3%
Turn Type	Prot			Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	2.2	45.6		15.6	59.0			16.7	16.7		17.1	
Effective Green, g (s)	1.7	46.1		15.1	59.5			16.2	16.2		16.6	
Actuated g/C Ratio	0.02	0.42		0.14	0.54			0.15	0.15		0.15	
Clearance Time (s)	3.5	4.5		3.5	4.5			3.5	3.5		3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	27	1430		243	1832			268	231		267	
v/s Ratio Prot	0.01	c0.36		c0.09	0.32			c0.12			c0.13	
v/s Ratio Perm									0.11			
v/c Ratio	0.74	0.85		0.69	0.60			0.84	0.66		0.85	
Uniform Delay, d1	53.9	28.8		45.2	17.1			45.6	44.3		45.5	
Progression Factor	0.81	0.37		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	60.9	5.4		8.2	1.4			19.7	6.6		21.9	
Delay (s)	104.7	16.1		53.4	18.6			65.3	50.9		67.4	
Level of Service	F	B		D	B			E	D		E	
Approach Delay (s)		17.6			23.2			59.1			67.4	
Approach LOS		B			C			E			E	

Intersection Summary			
HCM Average Control Delay	28.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.4%	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												
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	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98		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)	3433	5010		3433	4956		3433	5085	1561	3433	4831	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5010		3433	4956		3433	5085	1561	3433	4831	
Volume (vph)	526	1507	149	115	851	156	299	1308	90	83	469	206
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	554	1586	157	124	915	168	318	1391	96	89	504	222
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	554	1743	0	124	1083	0	318	1391	86	89	726	0
Confl. Peds. (#/hr)			2			2			2			2
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	16.0	37.8		4.7	26.5		9.0	28.4	28.4	4.7	24.1	
Effective Green, g (s)	16.0	39.1		4.7	27.8		9.0	29.7	29.7	4.7	25.4	
Actuated g/C Ratio	0.17	0.42		0.05	0.30		0.10	0.32	0.32	0.05	0.27	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	
Lane Grp Cap (vph)	583	2080		171	1463		328	1603	492	171	1303	
v/s Ratio Prot	c0.16	c0.35		0.04	0.22		c0.09	c0.27		0.03	0.15	
v/s Ratio Perm									0.06			
v/c Ratio	0.95	0.84		0.73	0.74		0.97	0.87	0.17	0.52	0.56	
Uniform Delay, d1	38.7	24.7		44.1	29.9		42.5	30.4	23.4	43.7	29.6	
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	4.2		12.1	3.4		40.8	5.1	0.1	1.3	0.3	
Delay (s)	63.9	28.9		56.3	33.4		83.2	35.5	23.4	45.0	29.9	
Level of Service	E	C		E	C		F	D	C	D	C	
Approach Delay (s)		37.4			35.7			43.2			31.5	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	38.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	94.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
62: White Lane & Wible Road

7/25/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.97	*0.90		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	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)	3367	4810		3400	4848	1561	2968	3505	1546	3242	3374	1487
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)	3367	4810		3400	4848	1561	2968	3505	1546	3242	3374	1487
Volume (vph)	120	1907	98	430	1642	207	83	285	447	302	203	97
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	126	2007	103	453	1728	218	89	306	481	328	221	105
RTOR Reduction (vph)	0	0	0	0	0	36	0	0	81	0	0	8
Lane Group Flow (vph)	126	2110	0	453	1728	182	89	306	400	328	221	97
Confl. Peds. (#/hr)			2			2			2			2
Heavy Vehicles (%)	4%	6%	2%	3%	7%	2%	18%	3%	3%	8%	7%	7%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	5.0	42.5		10.0	47.5	47.5	20.5	29.7	29.7	8.8	18.0	18.0
Effective Green, g (s)	5.0	44.2		10.0	49.2	49.2	20.5	31.0	31.0	8.8	19.3	19.3
Actuated g/C Ratio	0.05	0.40		0.09	0.45	0.45	0.19	0.28	0.28	0.08	0.18	0.18
Clearance Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	153	1933		309	2168	698	553	988	436	259	592	261
v/s Ratio Prot	0.04	c0.44		c0.13	0.36		0.03	0.09		c0.10	0.07	
v/s Ratio Perm						0.14			0.31			0.07
v/c Ratio	0.82	1.09		1.47	0.80	0.26	0.16	0.31	0.92	1.27	0.37	0.37
Uniform Delay, d1	52.1	32.9		50.0	26.1	19.0	37.5	31.1	38.3	50.6	40.0	40.0
Progression Factor	1.00	1.00		1.03	1.03	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.6	50.3		219.9	1.9	0.5	0.0	0.1	23.5	146.9	0.1	0.3
Delay (s)	79.6	83.2		271.5	28.7	19.2	37.6	31.1	61.7	197.5	40.2	40.3
Level of Service	E	F		F	C	B	D	C	E	F	D	D
Approach Delay (s)		83.0			73.7			48.6			119.1	
Approach LOS		F			E			D			F	

Intersection Summary			
HCM Average Control Delay	78.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.1%	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												
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		0.86	1.00		0.91					0.97		0.88
Frpb, ped/bikes		1.00	1.00		1.00					1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00		1.00
Frt		1.00	0.85		0.97					1.00		0.85
Flt Protected		1.00	1.00		1.00					0.95		1.00
Satd. Flow (prot)		6225	1509		4649					3433		2707
Flt Permitted		1.00	1.00		1.00					0.95		1.00
Satd. Flow (perm)		6225	1509		4649					3433		2707
Volume (vph)	0	2220	435	0	1134	240	0	0	0	556	0	1144
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	0	2312	453	0	1206	255	0	0	0	591	0	1217
RTOR Reduction (vph)	0	0	129	0	29	0	0	0	0	0	0	19
Lane Group Flow (vph)	0	2312	324	0	1432	0	0	0	0	591	0	1198
Confl. Peds. (#/hr)						2						
Heavy Vehicles (%)	2%	5%	7%	2%	8%	9%	2%	2%	2%	2%	2%	5%
Turn Type			Perm							custom		custom
Protected Phases		2			6					4		
Permitted Phases			2							4		4
Actuated Green, G (s)		45.3	45.3		45.3					52.8		52.8
Effective Green, g (s)		47.6	47.6		47.6					54.4		54.4
Actuated g/C Ratio		0.43	0.43		0.43					0.49		0.49
Clearance Time (s)		6.3	6.3		6.3					5.6		5.6
Vehicle Extension (s)		4.3	4.3		4.9					3.4		3.4
Lane Grp Cap (vph)		2694	653		2012					1698		1339
v/s Ratio Prot		c0.37			0.31					0.17		
v/s Ratio Perm			0.30									0.45
v/c Ratio		0.86	0.50		0.71					0.35		0.89
Uniform Delay, d1		28.2	22.5		25.6					17.0		25.2
Progression Factor		1.03	1.31		1.23					1.00		1.00
Incremental Delay, d2		0.4	0.2		1.6					0.1		8.2
Delay (s)		29.3	29.7		33.0					17.1		33.4
Level of Service		C	C		C					B		C
Approach Delay (s)		29.3			33.0			0.0			28.1	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
64: White Lane & SR-99 NB Ramps

7/25/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.86	0.86		0.91	1.00	1.00		1.00			
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00		1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00		1.00			
Frt		0.95	0.85		1.00	0.85	1.00		0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (prot)		4365	1286		4848	1492	1703		1455			
Flt Permitted		1.00	1.00		1.00	1.00	0.95		1.00			
Satd. Flow (perm)		4365	1286		4848	1492	1703		1455			
Volume (vph)	0	1145	1630	0	685	705	690	0	390	0	0	0
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	0	1193	1698	0	729	750	742	0	419	0	0	0
RTOR Reduction (vph)	0	80	0	0	0	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	1713	1098	0	729	750	742	0	403	0	0	0
Confl. Peds. (#/hr)						2						
Heavy Vehicles (%)	2%	6%	8%	2%	7%	6%	6%	2%	11%	2%	2%	2%
Turn Type			Free			Free	Prot		custom			
Protected Phases		2			6		8					
Permitted Phases			Free			Free			8			
Actuated Green, G (s)		48.7	110.0		48.7	110.0	51.2		51.2			
Effective Green, g (s)		49.6	110.0		49.6	110.0	52.4		52.4			
Actuated g/C Ratio		0.45	1.00		0.45	1.00	0.48		0.48			
Clearance Time (s)		4.9			4.9		5.2		5.2			
Vehicle Extension (s)		5.7			5.7		5.3		5.3			
Lane Grp Cap (vph)		1968	1286		2186	1492	811		693			
v/s Ratio Prot		0.41			0.15		0.44					
v/s Ratio Perm			0.85			0.50			0.29			
v/c Ratio		0.87	0.85		0.33	0.50	0.91		0.58			
Uniform Delay, d1		27.3	0.0		19.5	0.0	26.7		20.9			
Progression Factor		1.27	1.00		0.64	1.00	1.00		1.00			
Incremental Delay, d2		4.5	3.8		0.3	0.9	15.6		2.1			
Delay (s)		39.2	3.8		12.8	0.9	42.3		22.9			
Level of Service		D	A		B	A	D		C			
Approach Delay (s)		25.8			6.8			35.3			0.0	
Approach LOS		C			A			D			A	

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4720		1752	4787		1752	3471	1389	1736	3095	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4720		1752	4787		1752	3471	1389	1736	3095	
Volume (vph)	277	967	228	103	832	50	304	211	60	62	117	224
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	295	1029	243	111	895	54	330	229	65	69	130	249
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	3	0	0	0
Lane Group Flow (vph)	295	1272	0	111	949	0	330	229	62	69	379	0
Confl. Peds. (#/hr)			2			3			5			3
Heavy Vehicles (%)	4%	7%	4%	3%	7%	13%	3%	4%	14%	4%	6%	3%
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	20.0	41.2		10.0	31.2		22.0	33.6	33.6	6.6	18.2	
Effective Green, g (s)	20.0	42.5		10.0	32.5		22.0	34.9	34.9	6.6	19.5	
Actuated g/C Ratio	0.18	0.39		0.09	0.30		0.20	0.32	0.32	0.06	0.18	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3	5.3	4.0	5.3	
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)	316	1824		159	1414		350	1101	441	104	549	
v/s Ratio Prot	c0.17	c0.27		0.06	c0.20		c0.19	0.07		0.04	c0.12	
v/s Ratio Perm									0.05			
v/c Ratio	0.93	0.70		0.70	0.67		0.94	0.21	0.14	0.66	0.95dr	
Uniform Delay, d1	44.3	28.3		48.5	34.1		43.4	27.4	26.8	50.6	42.4	
Progression Factor	0.85	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.9	1.3		10.3	2.6		33.1	0.0	0.1	11.7	3.0	
Delay (s)	60.5	29.5		58.8	36.6		76.5	27.5	26.9	62.3	45.4	
Level of Service	E	C		E	D		E	C	C	E	D	
Approach Delay (s)		35.4			38.9			53.3			48.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.3%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		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	3334		1736	3180		1703	3362		1770	3471	1500
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3334		1736	3180		1703	3362		1770	3471	1500
Volume (vph)	149	597	37	134	409	94	52	657	176	53	379	109
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	160	642	40	146	445	102	56	706	189	58	412	118
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	9
Lane Group Flow (vph)	160	682	0	146	547	0	56	895	0	58	412	109
Confl. Peds. (#/hr)			2			3			2			2
Heavy Vehicles (%)	2%	7%	11%	4%	10%	10%	6%	3%	6%	2%	4%	6%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases		4										6
Actuated Green, G (s)	12.9	27.1		11.9	26.1		6.1	46.6		5.8	46.3	46.3
Effective Green, g (s)	12.9	28.4		11.9	27.4		6.1	47.9		5.8	47.6	47.6
Actuated g/C Ratio	0.12	0.26		0.11	0.25		0.06	0.44		0.05	0.43	0.43
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	4.0		1.0	4.0		1.0	4.0		1.0	4.0	4.0
Lane Grp Cap (vph)	208	861		188	792		94	1464		93	1502	649
v/s Ratio Prot	0.09	c0.20		0.08	c0.17		c0.03	c0.27		0.03	0.12	
v/s Ratio Perm												0.08
v/c Ratio	0.77	0.79		0.78	0.69		0.60	0.61		0.62	0.27	0.17
Uniform Delay, d1	47.1	38.0		47.8	37.5		50.7	23.9		51.0	20.1	19.1
Progression Factor	1.00	1.00		0.70	0.63		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.2	5.3		14.6	2.4		6.6	1.9		9.0	0.5	0.6
Delay (s)	61.3	43.4		47.9	26.2		57.3	25.8		60.0	20.5	19.7
Level of Service	E	D		D	C		E	C		E	C	B
Approach Delay (s)		46.8			30.7			27.7			24.3	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.3%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.98		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)	1736	3228		1719	3158		1626	3388		1736	3471	1474
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1736	3228		1719	3158		1626	3388		1736	3471	1474
Volume (vph)	299	426	106	71	406	50	142	568	35	29	323	147
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	322	458	114	77	441	54	154	617	38	32	351	160
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	16
Lane Group Flow (vph)	322	572	0	77	495	0	154	655	0	32	351	144
Confl. Peds. (#/hr)			2			5			4			2
Heavy Vehicles (%)	4%	7%	13%	5%	13%	6%	11%	5%	14%	4%	4%	8%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases					6							4
Actuated Green, G (s)	21.8	53.6		7.0	38.8		11.0	27.4		3.8	20.2	20.2
Effective Green, g (s)	21.8	54.5		7.0	39.7		11.0	28.7		3.8	21.5	21.5
Actuated g/C Ratio	0.20	0.50		0.06	0.36		0.10	0.26		0.03	0.20	0.20
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	344	1599		109	1140		163	884		60	678	288
v/s Ratio Prot	c0.19	0.18		c0.04	c0.16		c0.09	c0.19		0.02	0.10	
v/s Ratio Perm												0.11
v/c Ratio	0.94	0.36		0.71	0.43		0.94	0.74		0.53	0.52	0.50
Uniform Delay, d1	43.4	17.0		50.5	26.6		49.2	37.2		52.2	39.6	39.5
Progression Factor	0.90	0.73		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	25.7	0.5		15.6	1.2		53.5	3.0		4.5	0.3	0.5
Delay (s)	64.6	12.9		66.1	27.8		102.7	40.2		56.7	39.9	40.0
Level of Service	E	B		E	C		F	D		E	D	D
Approach Delay (s)		31.5			33.0			52.1			40.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	39.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

2038 ALTERNATIVE B

PM Peak

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
1. I-5 SB Ramps @ Stockdale Hwy						
SB - I-5 SB Off ramp - STOP Control	568	528	93%	69.0	F	
EB - Stockdale Hwy	193	193	100%	0.0	A	E
WB - Stockdale Hwy	75	64	85%	0.6	A	
Intersection Total	*836*	*785*	*94%*			
2. I-5 NB Ramps @ Stockdale Hwy						
NB - I-5 NB Off Ramp - STOP Control	58	51	88%	19.9	A	
EB - Stockdale Hwy	732	689	94%	0.0	A	A
WB - Stockdale Hwy	413	362	88%	0.0	A	
Intersection Total	*1,203*	*1,102*	*92%*			
4. Enos Ln @ Stockdale Hwy						
NB - Enos Ln	451	447	99%	30.6	C	
SB - Enos Ln	260	258	99%	19.9	B	C
EB - Stockdale Hwy	788	732	93%	24.8	C	
WB - Stockdale Hwy	487	459	94%	17.4	B	
Intersection Total	*1,986*	*1,896*	*95%*	*23.7*		
5. SR- 43 @ I-5 NB Ramps						
NB - SR- 43	758	762	101%	0.1	A	
SB - SR-43	472	470	100%	0.0	A	A
WB - I-5 NB Off Ramp - STOP Control	97	96	99%	14.6	C	
Intersection Total	*1,327*	*1,328*	*100%*			
6. SR-43 @ I-5 SB Ramps						
NB - SR- 43	546	546	100%	0.0	A	
SB - SR-43	387	368	95%	1.1	A	A
EB - I-5 SB Ramp - STOP Control	236	231	98%	21.9	C	
Intersection Total	*1,169*	*1,145*	*98%*	*4.8*		
7. Nord Rd @ Stockdale Hwy						
NB - Nord Rd	434	438	101%	13.0	B	
SB - Nord Rd	122	122	100%	35.2	D	C
EB - Stockdale Hwy	947	839	89%	46.1	D	
WB - Stockdale Hwy	1,159	1,138	98%	20.0	C	
Intersection Total	*2,662*	*2,537*	*95%*	*28.2*		
9. Heath Rd @ Stockdale Rd						
NB - Heath Rd	819	814	99%	27.6	C	
SB - Heath Rd	247	248	100%	43.9	D	C
EB - Stockdale Hwy	1,812	1,662	92%	27.5	C	
WB - Stockdale Hwy	2,428	2,326	96%	23.8	C	
Intersection Total	*5,306*	*5,050*	*95%*	*28.6*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
10. WSP @ Stockdale Off/ On						
NB - Stockdale Hwy	377	376	100%	21.3	C	
EB - Stockdale Hwy	2,605	2,446	94%	6.9	A	A
WB - WSP	2,319	2,213	95%	6.4	A	
Intersection Total	*5,301*	*5,035*	*95%*	*7.8*		
11. West Beltway @ WSP WB Ramps						
NB - West Beltway	1,698	1,686	99%	19.2	B	
SB - West Beltway	2,753	2,729	99%	28.2	C	B
WB - WSP WB Off Ramp	2,190	2,069	94%	8.4	A	
Intersection Total	*6,641*	*6,484*	*98%*	*19.5*		
12. West Beltway @ WSP EB Ramps						
NB - West Beltway	2,023	2,021	100%	11.1	B	
SB - West Beltway	1,754	1,721	98%	10.4	B	B
EB - WSP EB off Ramp	865	811	94%	27.1	C	
Intersection Total	*4,642*	*4,553*	*98%*	*13.7*		
14. Allen Rd @ Brihmall Rd						
NB - Allen Rd	1,952	1,836	94%	32.8	C	
SB - Allen Rd	1,537	1,538	100%	39.1	D	C
EB - Brihmall Rd	427	428	100%	17.5	B	
WB - Brihmall Rd	796	797	100%	30.6	C	
Intersection Total	*4,712*	*4,599*	*98%*	*33.1*		
15. Allen Rd @ WSP WB Ramps						
NB - Allen Rd	982	954	97%	42.5	D	
SB - Allen Rd	1,778	1,781	100%	46.5	D	C
WB - Off Ramp/On Ramp WSP WB	2,126	1,973	93%	9.3	A	
Intersection Total	*4,886*	*4,708*	*96%*	*30.1*		
16. Allen Rd @ WSP EB Ramps						
NB - Allen Rd	1,939	1,890	97%	9.0	A	
SB - Allen Rd	2,498	2,413	97%	9.2	A	B
EB - WSP EB off Ramp	300	286	95%	15.6	B	
Intersection Total	*4,737*	*4,589*	*97%*	*12.3*		
18. Allen Rd @ Stockdale Hwy						
NB - Allen Rd	1,113	1,109	100%	36.5	D	
SB - Allen Rd	1,606	1,471	92%	32.7	C	C
EB - Stockdale Hwy	1,031	1,033	100%	40.7	D	
WB - Stockdale Hwy	1,615	1,613	100%	28.3	C	
Intersection Total	*5,365*	*5,226*	*97%*	*33.7*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
20. Calloway Dr @ Brimhall Rd						
NB - Calloway Dr	2,313	2,313	100%	36.0	D	C
SB - Calloway Dr	1,983	1,983	100%	31.1	C	
EB - Brimhall Rd	770	768	100%	26.0	C	
WB - Brimhall Rd	1,714	1,706	100%	35.2	D	
Intersection Total	*6,780*	*6,770*	*100%*	*33.2*		
21. Calloway Dr @ WSP WB Ramps						
NB - Calloway Dr	1,811	1,786	99%	23.6	C	C
SB - Calloway Dr	2,502	2,499	100%	37.4	D	
EB - WSP WB on Ramp	1,245	1,179	95%	13.5	B	
WB - WSP WB Off Ramp	925	976	106%	13.8	B	
Intersection Total	*6,483*	*6,440*	*99%*	*25.6*		
22. Calloway Dr @ WSP EB Ramps						
NB - Calloway Dr	1,410	1,410	100%	7.8	A	A
SB - Calloway Dr	2,144	2,117	99%	8.2	A	
EB - WSP EB off Ramp	815	788	97%	12.9	B	
Intersection Total	*4,369*	*4,315*	*99%*	*8.9*		
23. Calloway Dr @ Stockdale Hwy						
NB - Calloway Dr	1,935	1,921	99%	39.3	D	D
SB - Calloway Dr	2,559	2,479	97%	38.7	D	
EB - Stockdale Hwy	1,869	1,858	99%	44.0	D	
WB - Stockdale Hwy	1,404	1,403	100%	28.1	C	
Intersection Total	*7,767*	*7,661*	*99%*	*38.2*		
25. Coffee Rd @ Brimhall Rd						
NB - Coffee Rd	1,865	1,904	102%	31.9	C	C
SB - Coffee Rd	2,160	2,160	100%	30.3	C	
EB - Brimhall Rd	1,144	1,145	100%	28.6	C	
WB - Brimhall Rd	2,031	1,993	98%	34.3	C	
Intersection Total	*7,200*	*7,202*	*100%*	*31.9*		
27. Coffee Rd @ WSP EB Ramp						
NB - Coffee Rd	2,893	2,938	102%	19.9	B	B
SB - Coffee Rd	2,384	2,456	103%	9.4	A	
EB - WSP EB off Ramp	875	875	100%	9.6	A	
Intersection Total	*6,152*	*6,269*	*102%*	*14.3*		
28. Coffee Rd @ Truxtun Ave						
NB - Coffee Rd	2,796	2,788	100%	14.4	B	B
SB - Coffee Rd	1,842	1,909	104%	11.0	B	
WB - Truxtun Ave	1,418	1,416	100%	28.9	C	
Intersection Total	*6,056*	*6,113*	*101%*	*16.7*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
31. Mohawk St @ WSP WB Ramps						
NB - Mohawk St	1,337	1,323	99%	8.1	A	
SB - Mohawk St	2,562	2,512	98%	7.7	A	A
WB - WSP WB Off Ramp	746	701	94%	14.5	B	
Intersection Total	*4,645*	*4,536*	*98%*	*8.9*		
32. Mohawk St @ WSP EB Ramps						
NB - Mohawk St	2,176	2,125	98%	12.1	B	
SB - Mohawk St	1,793	1,746	97%	9.6	A	B
EB - WSP EB off Ramp	1,650	1,563	95%	15.7	B	
Intersection Total	*5,619*	*5,434*	*97%*	*12.3*		
33. Mohawk St @ Truxtun Ave						
NB - Mohawk St	2,045	2,058	101%	27.0	C	
SB - Mohawk St	1,937	1,885	97%	32.4	C	C
EB - Truxtun Ave	874	865	99%	22.9	C	
WB - Truxtun Ave	1,149	1,130	98%	30.6	C	
Intersection Total	*6,005*	*5,938*	*99%*	*28.8*		
36. Airport Dr & State Rd/SR204 WB Ramp						
NB - Airport Dr	1,959	1,844	94%	26.1	C	
SB - Airport Dr	1,796	1,814	101%	22.1	C	C
EB - State Rd	238	241	101%	22.9	C	
WB - SR204 WB Off Ramp	1,368	1,386	101%	34.1	C	
Intersection Total	*5,361*	*5,285*	*99%*	*26.7*		
37. Buck Owens Blvd & SR99 NB Ramp						
NB - SR99 NB Off Ramp	1,405	1,227	87%	15.1	B	A
WB - Buck Owens Blvd	889	917	103%	9.8	A	
Intersection Total	*2,294*	*2,144*	*93%*	*12.0*		
38. Rio Mirada Dr & Buck Owens Blvd						
NB - Buck Owens Blvd	827	832	101%	33.1	C	
SB - Buck Owens Blvd	65	61	94%	30.3	C	C
EB - Rio Mirada Dr	573	352	61%	18.0	B	
WB - Rio Mirada Dr	400	392	98%	31.8	C	
Intersection Total	*1,865*	*1,637*	*88%*	*29.4*		
39. SR99 NB Ramps/Sillect Ave & Buck Owens Blvd						
NB - Buck Owens Blvd	1,264	1,226	97%	37.3	D	
SB - Buck Owens Blvd	646	652	101%	46.6	D	D
EB - SR99 NB Off Ramp	370	332	90%	42.6	D	
WB - Sillect Ave	635	631	99%	47.6	D	
Intersection Total	*2,915*	*2,841*	*97%*	*42.3*		

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
40. Rosedale Hwy & Camino del Rio Ct						
NB - Camino del Rio Ct	427	415	97%	68.1	E	D
SB - Camino del Rio Ct	494	484	98%	84.3	F	
EB - Rosedale Hwy	2,463	2,397	97%	36.8	D	
WB - Rosedale Hwy	3,214	3,118	97%	22.1	C	
Intersection Total	*6,598*	*6,414*	*97%*	*45.3*		
41. Rosedale Hwy & SR99 SB Ramp						
SB - SR99 SB Off Ramp	1,290	1,307	101%	30.1	C	C
EB - Rosedale Hwy	1,905	1,867	98%	8.9	A	
WB - Rosedale Hwy	2,299	2,193	95%	23.1	C	
Intersection Total	*5,494*	*5,367*	*98%*	*20.9*		
42. Rosedale Hwy & SR99 NB Ramp/Buck Owens Blvd						
NB - SR99 NB Off Ramp	1,630	1,515	93%	45.9	D	C
SB - Buck Owens Blvd	1,083	1,030	95%	28.6	C	
EB - Rosedale Hwy	2,280	2,253	99%	26.6	C	
WB - 24th St	2,974	2,972	100%	17.9	B	
Intersection Total	*7,967*	*7,770*	*98%*	*36.3*		
43. 24th St & Oak St						
NB - Oak St	1,671	1,642	98%	37.9	D	D
SB - Oak St	103	103	100%	53.2	D	
EB - 24th St	2,977	2,915	98%	30.9	C	
WB - 24th St	3,103	3,112	100%	31.8	C	
Intersection Total	*7,854*	*7,772*	*99%*	*39.0*		
45. Oak St @ Truxtun Ave						
NB - Oak St	1,270	1,167	92%	39.0	D	D
SB - Oak St	1,913	1,897	99%	42.8	D	
EB - Truxtun Ave	2,478	2,372	96%	44.4	D	
WB - Truxtun Ave	2,004	1,998	100%	52.5	D	
Intersection Total	*7,665*	*7,434*	*97%*	*45.3*		
46. California Ave & Chester Ln						
NB - Chester Ln	207	164	79%	281.8	F	F
SB - Chester Ln	579	139	24%	574.2	F	
EB - California Ave	1,820	1,399	77%	188.2	F	
WB - California Ave	1,849	1,942	105%	31.5	C	
Intersection Total	*4,455*	*3,644*	*82%*	*123.6*		
47. California Ave & SR99 SB Ramps/Real Rd						
NB - Real Rd	670	665	99%	51.0	D	F
SB - SR99 SB Off Ramp	1,660	1,713	103%	21.7	C	
EB - California Ave	2,298	1,414	62%	150.8	F	
WB - California Ave	1,362	1,452	107%	104.8	F	
Intersection Total	*5,990*	*5,244*	*88%*	*83.2*		

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YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
48. California Ave & SR99 NB Ramps						
NB - SR99 NB Off Ramp	685	765	112%	23.8	C	C
SB - Extended Stay Hotel	107	109	102%	34.6	C	
EB - California Ave	1,460	1,199	82%	15.4	B	
WB - California Ave	2,524	2,369	94%	22.6	C	
Intersection Total	*4,776*	*4,442*	*93%*	*21.2*		
49. California Ave & Oak St						
NB - Oak St	1,310	1,286	98%	48.5	D	E
SB - Oak St	1,787	1,756	98%	62.3	E	
EB - California Ave	1,787	1,578	88%	40.7	D	
WB - California Ave	1,551	1,475	95%	78.8	E	
Intersection Total	*6,435*	*6,095*	*95%*	*57.9*		
51. Stockdale Hwy & Real Rd						
NB - Real Rd	416	416	100%	47.1	D	D
SB - Real Rd	792	787	99%	55.0	E	
EB - Stockdale Hwy	1,539	1,536	100%	54.2	D	
WB - Stockdale Hwy	1,369	1,422	104%	38.8	D	
Intersection Total	*4,116*	*4,161*	*101%*	*50.7*		
53. Stockdale Hwy & Oak St/Wible Rd						
NB - Wible Rd	751	751	100%	31.4	C	C
SB - Oak St	953	953	100%	29.5	C	
EB - Stockdale Hwy	1,608	1,563	97%	32.3	C	
WB - Stockdale Hwy	1,115	1,119	100%	31.9	C	
Intersection Total	*4,427*	*4,386*	*99%*	*31.4*		
57. Ming Ave & Real Rd						
NB - Real Rd	469	467	100%	25.2	C	C
SB - Real Rd	785	778	99%	49.7	D	
EB - Ming Ave	2,082	2,088	100%	29.6	C	
WB - Ming Ave	2,312	2,154	93%	25.8	C	
Intersection Total	*5,648*	*5,487*	*97%*	*30.6*		
58. Ming Ave & SR99 SB Ramps						
EB - Ming Ave	2,379	2,379	100%	17.3	B	B
WB - Ming Ave	1,595	1,529	96%	14.6	B	
Intersection Total	*3,974*	*3,908*	*98%*	*15.2*		
59. Ming Ave & Wible Rd						
NB - Wible Rd	847	843	100%	29.2	C	C
SB - Wible Rd	877	869	99%	39.2	D	
EB - Ming Ave	2,647	2,506	95%	24.2	C	
WB - Ming Ave	1,727	1,675	97%	13.7	B	
Intersection Total	*6,098*	*5,893*	*97%*	*24.1*		

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YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
60. Ming Ave & SR99 NB Ramps						
NB - Sears	323	326	101%	30.6	C	C
SB - SR99 SB Off Ramp	860	777	90%	17.9	B	
EB - Ming Ave	2,394	2,367	99%	36.0	D	
WB - Ming Ave	1,495	1,494	100%	40.8	D	
Intersection Total	*5,072*	*4,964*	*98%*	*34.3*		
61. Ming Ave & Castro Ln						
NB - Castro Ln	457	457	100%	29.7	C	D
SB - Castro Ln	327	331	101%	24.8	C	
EB - Ming Ave	1,575	1,525	97%	39.3	D	
WB - Ming Ave	1,195	1,197	100%	39.7	D	
Intersection Total	*3,554*	*3,510*	*99%*	*36.8*		
66. Brundage Ln & H St						
NB - H St	778	787	101%	22.6	C	D
SB - H St	1,027	1,027	100%	39.3	D	
EB - Brundage Ln	1,169	1,156	99%	68.7	E	
WB - Brundage Ln	1,009	1,035	103%	52.5	D	
Intersection Total	*3,983*	*4,005*	*101%*	*47.9*		
67. SR58 WB Ramp & H St						
NB - H St	945	921	97%	21.0	C	D
SB - H St	1,205	1,208	100%	39.6	D	
WB - Richland St	634	613	97%	48.8	D	
Intersection Total	*2,784*	*2,742*	*98%*	*36.0*		
68. SR58 EB Ramp & H St						
NB - H St	1,149	1,149	100%	31.1	C	C
SB - H St	1,291	1,190	92%	14.4	B	
EB - SR58 EB Off Ramp	776	705	91%	17.8	B	
Intersection Total	*3,216*	*3,044*	*95%*	*27.5*		
70. Brundage Ln & Chester Ave						
NB - Chester Ave	904	910	101%	52.7	D	D
SB - Chester Ave	1,449	1,448	100%	46.5	D	
EB - Brundage Ln	982	990	101%	42.2	D	
WB - Brundage Ln	806	804	100%	32.7	C	
Intersection Total	*4,141*	*4,152*	*100%*	*47.9*		
71. SR58 WB Ramp & Chester Ave						
NB - Chester Ave	768	751	98%	18.2	B	C
SB - Chester Ave	1,440	1,411	98%	29.8	C	
WB - Richland St	1,099	1,055	96%	30.9	C	
Intersection Total	*3,307*	*3,217*	*97%*	*27.5*		

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YR2038 Alt.B INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
72. SR58 EB Ramp & Chester Ave						
NB - Chester Ave	1,045	1,042	100%	25.2	C	
SB - Chester Ave	1,746	1,681	96%	18.2	B	C
EB - Frontage Rd	710	709	100%	35.9	D	
Intersection Total	*3,501*	*3,432*	*98%*	*29.1*		
74. Brundage Ln & Union Ave						
NB - Union Ave	2,139	2,142	100%	52.4	D	
SB - Union Ave	2,334	2,329	100%	44.4	D	D
EB - Brundage Ln	610	607	100%	42.5	D	
WB - Brundage Ln	1,319	1,294	98%	27.2	C	
Intersection Total	*6,402*	*6,372*	*100%*	*49.4*		
75. Brundage Ln & SR58 WB Ramps (Union Ave)						
NB - SR58 WB Off Ramp	990	963	97%	13.6	B	
SB - Liggett St	77	78	101%	31.1	C	D
EB - Brundage Ln	802	781	97%	43.9	D	
WB - Brundage Ln	485	483	100%	65.7	E	
Intersection Total	*2,354*	*2,305*	*98%*	*43.4*		
76. SR58 EB Ramp & Union Ave						
NB - Union Ave	2,162	2,151	99%	23.3	C	
SB - Union Ave	1,977	1,345	68%	19.3	B	B
EB - SR58 EB Off Ramp	1,020	1,072	105%	16.6	B	
Intersection Total	*5,159*	*4,568*	*89%*	*20.0*		
77.Cottonwood Rd & Brundage Ln						
NB - Cottonwood Rd	1,124	1,105	98%	26.2	C	
SB - Cottonwood Rd	446	442	99%	35.6	D	C
EB - Brundage Ln	388	387	100%	31.5	C	
WB - Brundage Ln	678	696	103%	27.5	C	
Intersection Total	*2,636*	*2,630*	*100%*	*28.9*		
78. Brundage Ln & SR58 WB Ramps (Cottonwood Rd)						
NB - SR58 WB Off Ramp	295	313	106%	28.9	C	
SB - Driveway	37	36	97%	25.5	C	C
EB - Brundage Ln	856	796	93%	27.2	C	
WB - Brundage Ln	638	633	99%	29.6	C	
Intersection Total	*1,826*	*1,778*	*97%*	*30.3*		
79. Cottonwood Rd & SR 58 EB Off Ramp						
NB - Cottonwood Rd	771	771	100%	19.0	B	
SB - Cottonwood Rd	777	811	104%	28.4	C	B
EB - SR-58 EB off Ramp	940	914	97%	12.4	B	
Intersection Total	*2,488*	*2,496*	*100%*	*19.6*		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.98		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.95	
Satd. Flow (prot)		3459		1770	3539						1774	
Flt Permitted		1.00		0.61	1.00						0.95	
Satd. Flow (perm)		3459		1145	3539						1774	
Volume (vph)	0	164	29	17	58	0	0	0	0	567	0	1
Peak-hour factor, PHF	0.88	0.88	0.88	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	186	33	20	69	0	0	0	0	616	0	1
RTOR Reduction (vph)	0	28	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	191	0	20	69	0	0	0	0	0	617	0
Turn Type				Perm						Split		
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		9.4		9.4	9.4						42.6	
Effective Green, g (s)		9.4		9.4	9.4						42.6	
Actuated g/C Ratio		0.16		0.16	0.16						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)		542		179	554						1260	
v/s Ratio Prot		c0.06			0.02						c0.35	
v/s Ratio Perm				0.02								
v/c Ratio		0.35		0.11	0.12						0.49	
Uniform Delay, d1		22.6		21.7	21.8						3.9	
Progression Factor		1.00		1.23	1.09						1.00	
Incremental Delay, d2		0.4		0.3	0.1						1.4	
Delay (s)		23.0		26.9	23.9						5.2	
Level of Service		C		C	C						A	
Approach Delay (s)		23.0			24.5			0.0			5.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1748	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1748	
Volume (vph)	5	1312	20	252	1135	142	20	20	325	155	20	14
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	5	1396	21	268	1207	151	23	23	369	176	23	16
RTOR Reduction (vph)	0	0	4	0	0	8	0	0	41	0	7	0
Lane Group Flow (vph)	5	1396	17	268	1207	143	23	23	328	176	32	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	0.8	48.0	48.0	22.2	69.4	69.4	15.9	21.8	21.8	12.0	17.9	
Effective Green, g (s)	0.8	48.0	48.0	22.2	69.4	69.4	15.9	21.8	21.8	12.0	17.9	
Actuated g/C Ratio	0.01	0.40	0.40	0.18	0.58	0.58	0.13	0.18	0.18	0.10	0.15	
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)	12	1416	633	327	2047	916	235	338	288	177	261	
v/s Ratio Prot	0.00	c0.39		c0.15	0.34		0.01	0.01		c0.10	0.02	
v/s Ratio Perm			0.01			0.10			0.23			
v/c Ratio	0.42	0.99	0.03	0.82	0.59	0.16	0.10	0.07	1.14	0.99	0.12	
Uniform Delay, d1	59.4	35.7	21.8	47.0	16.2	11.7	45.7	40.7	49.1	54.0	44.2	
Progression Factor	1.27	0.21	0.10	0.43	0.12	0.06	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	4.5	0.0	6.5	0.2	0.0	0.2	0.4	96.0	65.7	1.0	
Delay (s)	77.5	12.0	2.2	26.7	2.1	0.7	45.9	41.1	145.1	119.6	45.2	
Level of Service	E	B	A	C	A	A	D	D	F	F	D	
Approach Delay (s)		12.1			6.0			133.8			106.1	
Approach LOS		B			A			F			F	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.5%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		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)	3433	4759	1524	3213	3167	1468	3273	4834		3183	4920	
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)	3433	4759	1524	3213	3167	1468	3273	4834		3183	4920	
Volume (vph)	137	675	135	375	850	411	219	1115	219	317	1049	132
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	147	726	145	403	914	442	233	1186	233	337	1116	140
RTOR Reduction (vph)	0	0	14	0	0	32	0	0	0	0	0	0
Lane Group Flow (vph)	147	726	131	403	914	411	233	1419	0	337	1256	0
Heavy Vehicles (%)	2%	9%	6%	9%	14%	10%	7%	4%	8%	10%	3%	9%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	6.0	31.6	31.6	12.1	37.7	37.7	9.4	31.0		11.1	32.7	
Effective Green, g (s)	7.3	34.6	34.6	13.4	40.7	40.7	10.3	34.0		12.0	35.7	
Actuated g/C Ratio	0.07	0.31	0.31	0.12	0.37	0.37	0.09	0.31		0.11	0.32	
Clearance Time (s)	5.3	7.0	7.0	5.3	7.0	7.0	4.9	7.0		4.9	7.0	
Vehicle Extension (s)	2.0	6.0	6.0	2.0	5.3	5.3	2.0	3.1		2.0	2.4	
Lane Grp Cap (vph)	228	1497	479	391	1172	543	306	1494		347	1597	
v/s Ratio Prot	0.04	c0.15		c0.13	0.29		0.07	c0.29		c0.11	0.26	
v/s Ratio Perm			0.10			0.30						
v/c Ratio	0.64	0.48	0.27	1.03	0.78	0.76	0.76	0.95		0.97	0.79	
Uniform Delay, d1	50.1	30.5	28.3	48.3	30.7	30.3	48.7	37.2		48.8	33.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	1.1	1.4	53.6	5.2	9.5	9.6	13.1		40.3	2.5	
Delay (s)	54.7	31.6	29.7	101.9	35.9	39.8	58.3	50.2		89.1	36.2	
Level of Service	D	C	C	F	D	D	E	D		F	D	
Approach Delay (s)		34.7			52.0			51.4			47.4	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	47.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.3%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1733		1770	1584		1770	5085	1583	1770	5085	1583
Flt Permitted		0.38		0.66	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		680		1228	1584		1770	5085	1583	1770	5085	1583
Volume (vph)	139	1	50	87	1	268	50	1532	78	289	1469	147
Peak-hour factor, PHF	0.88	0.88	0.88	0.90	0.90	0.90	0.94	0.94	0.94	0.95	0.95	0.95
Adj. Flow (vph)	158	1	57	97	1	298	53	1630	83	304	1546	155
RTOR Reduction (vph)	0	11	0	0	212	0	0	0	6	0	0	16
Lane Group Flow (vph)	0	205	0	97	87	0	53	1630	77	304	1546	139
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		34.5		34.5	34.5		6.9	49.5	49.5	24.0	66.6	66.6
Effective Green, g (s)		34.5		34.5	34.5		6.9	49.5	49.5	24.0	66.6	66.6
Actuated g/C Ratio		0.29		0.29	0.29		0.06	0.41	0.41	0.20	0.55	0.55
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		196		353	455		102	2098	653	354	2822	879
v/s Ratio Prot					0.19		0.03	c0.32		c0.17	0.30	
v/s Ratio Perm		c0.32		0.08					0.05			0.10
v/c Ratio		1.04		0.27	0.19		0.52	0.78	0.12	0.86	0.55	0.16
Uniform Delay, d1		42.8		33.1	32.2		54.9	30.5	21.8	46.4	17.1	13.0
Progression Factor		1.00		1.00	1.00		1.09	0.48	0.48	0.99	0.80	0.82
Incremental Delay, d2		76.3		0.4	0.2		2.6	1.7	0.2	16.2	0.7	0.3
Delay (s)		119.0		33.5	32.4		62.5	16.3	10.6	61.9	14.3	11.0
Level of Service		F		C	C		E	B	B	E	B	B
Approach Delay (s)		119.0			32.7			17.4			21.3	
Approach LOS		F			C			B			C	

Intersection Summary

HCM Average Control Delay	25.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
19: Rosedale Hwy & Calloway Drive

7/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91		0.97	0.91	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)	3367	4673	1509	3155	4550	1429	3019	4637		3242	4940	1455
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)	3367	4673	1509	3155	4550	1429	3019	4637		3242	4940	1455
Volume (vph)	189	962	275	400	1580	483	289	1321	342	240	1249	160
Peak-hour factor, PHF	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	201	1023	293	421	1663	508	304	1391	360	255	1329	170
RTOR Reduction (vph)	0	0	20	0	0	19	0	0	0	0	0	12
Lane Group Flow (vph)	201	1023	273	421	1663	489	304	1751	0	255	1329	158
Heavy Vehicles (%)	4%	11%	7%	11%	14%	13%	16%	8%	10%	8%	5%	11%
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)	6.0	35.2	35.2	13.1	42.3	42.3	10.9	38.0		7.3	34.4	34.4
Effective Green, g (s)	8.3	38.1	38.1	15.4	45.2	45.2	13.1	41.0		9.5	37.4	37.4
Actuated g/C Ratio	0.07	0.32	0.32	0.13	0.38	0.38	0.11	0.34		0.08	0.31	0.31
Clearance Time (s)	6.3	6.9	6.9	6.3	6.9	6.9	6.2	7.0		6.2	7.0	7.0
Vehicle Extension (s)	2.0	5.9	5.9	2.0	6.5	6.5	2.0	4.3		2.0	4.3	4.3
Lane Grp Cap (vph)	233	1484	479	405	1714	538	330	1584		257	1540	453
v/s Ratio Prot	0.06	0.22		c0.13	c0.37		c0.10	c0.38		0.08	0.27	
v/s Ratio Perm			0.19			0.36						0.12
v/c Ratio	0.86	0.69	0.57	1.04	0.97	0.91	0.92	1.11		0.99	0.86	0.35
Uniform Delay, d1	55.3	35.8	34.1	52.3	36.7	35.5	52.9	39.5		55.2	38.9	31.9
Progression Factor	1.00	1.00	1.00	1.28	1.39	1.41	0.85	0.72		1.00	1.00	1.00
Incremental Delay, d2	25.7	2.6	4.8	25.2	2.6	2.8	23.2	54.7		53.7	6.6	2.1
Delay (s)	80.9	38.4	38.9	92.3	53.6	52.9	68.3	83.1		108.9	45.5	34.0
Level of Service	F	D	D	F	D	D	E	F		F	D	C
Approach Delay (s)		44.2			59.8			80.9			53.6	
Approach LOS		D			E			F			D	

Intersection Summary			
HCM Average Control Delay	60.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
24: Rosedale Hwy & Coffee Road

7/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.94	0.91	1.00	0.97	0.91	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)	3183	4759	1468	3213	4673	1495	4586	4988	1495	3303	4940	1392
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)	3183	4759	1468	3213	4673	1495	4586	4988	1495	3303	4940	1392
Volume (vph)	162	1362	548	655	1345	293	818	1228	550	193	893	251
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	171	1434	577	689	1416	308	852	1279	573	205	950	267
RTOR Reduction (vph)	0	0	40	0	0	26	0	0	38	0	0	13
Lane Group Flow (vph)	171	1434	537	689	1416	282	852	1279	535	205	950	254
Heavy Vehicles (%)	10%	9%	10%	9%	11%	8%	11%	4%	8%	6%	5%	16%
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)	6.8	37.5	37.5	9.7	40.4	40.4	8.8	39.8	39.8	6.0	37.0	37.0
Effective Green, g (s)	9.1	40.5	40.5	12.0	43.4	43.4	11.0	43.3	43.3	8.2	40.5	40.5
Actuated g/C Ratio	0.08	0.34	0.34	0.10	0.36	0.36	0.09	0.36	0.36	0.07	0.34	0.34
Clearance Time (s)	6.3	7.0	7.0	6.3	7.0	7.0	6.2	7.5	7.5	6.2	7.5	7.5
Vehicle Extension (s)	2.0	4.6	4.6	2.0	4.9	4.9	2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)	241	1606	495	321	1690	541	420	1800	539	226	1667	470
v/s Ratio Prot	0.05	0.30		c0.21	0.30		c0.19	0.26		0.06	0.19	
v/s Ratio Perm			0.39			0.21			0.38			0.19
v/c Ratio	0.71	0.89	1.09	2.15	0.84	0.52	2.03	0.71	0.99	0.91	0.57	0.54
Uniform Delay, d1	54.2	37.7	39.8	54.0	35.1	30.1	54.5	33.0	38.2	55.5	32.6	32.2
Progression Factor	0.92	1.21	1.23	1.08	1.11	1.15	0.86	0.76	0.76	1.00	1.00	1.00
Incremental Delay, d2	6.0	6.5	61.1	519.3	1.8	1.2	468.8	1.7	30.9	34.8	1.4	4.4
Delay (s)	55.7	52.0	110.1	577.7	40.6	36.0	515.9	26.7	60.1	90.3	34.0	36.6
Level of Service	E	D	F	F	D	D	F	C	E	F	C	D
Approach Delay (s)		67.7			193.4			187.9			42.6	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM Average Control Delay	135.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.1%	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												
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	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91		0.97	0.91	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)	3433	4988	1495	3367	4940	1495	3433	4985		3400	4988	1553
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	4988	1495	3367	4940	1495	3433	4985		3400	4988	1553
Volume (vph)	681	839	120	253	991	453	209	1629	229	404	1698	362
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	724	893	128	269	1054	482	220	1715	241	425	1787	381
RTOR Reduction (vph)	0	0	15	0	0	30	0	0	0	0	0	19
Lane Group Flow (vph)	724	893	113	269	1054	452	220	1956	0	425	1787	363
Heavy Vehicles (%)	2%	4%	8%	4%	5%	8%	2%	2%	3%	3%	4%	4%
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)	19.0	29.5	29.5	18.5	29.0	29.0	8.0	40.0		12.0	44.0	44.0
Effective Green, g (s)	19.0	31.5	31.5	18.5	31.0	31.0	8.0	42.0		12.0	46.0	46.0
Actuated g/C Ratio	0.16	0.26	0.26	0.15	0.26	0.26	0.07	0.35		0.10	0.38	0.38
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	544	1309	392	519	1276	386	229	1745		340	1912	595
v/s Ratio Prot	c0.21	0.18		0.08	0.21		0.06	c0.39		c0.13	0.36	
v/s Ratio Perm			0.09			0.32						0.25
v/c Ratio	1.33	0.68	0.29	0.52	0.83	1.17	0.96	1.12		1.25	0.93	0.61
Uniform Delay, d1	50.5	39.8	35.3	46.7	42.0	44.5	55.8	39.0		54.0	35.6	29.8
Progression Factor	0.69	0.86	0.82	1.00	1.00	1.00	1.00	1.00		0.88	0.90	0.91
Incremental Delay, d2	160.3	1.1	0.1	0.4	4.3	101.5	48.0	62.7		130.1	8.1	3.5
Delay (s)	195.2	35.1	29.2	47.0	46.2	146.0	103.8	101.7		177.6	40.0	30.6
Level of Service	F	D	C	D	D	F	F	F		F	D	C
Approach Delay (s)		101.1			73.0			101.9			61.2	
Approach LOS		F			E			F			E	

Intersection Summary			
HCM Average Control Delay	82.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.0%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.94	0.91	1.00	0.94	0.91	1.00	0.97	0.91	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)	3155	4940	1429	4627	4803	1429	4757	4803	1417	3273	4803	1455
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)	3155	4940	1429	4627	4803	1429	4757	4803	1417	3273	4803	1455
Volume (vph)	96	1710	851	614	1742	120	511	852	499	192	1017	65
Peak-hour factor, PHF	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	100	1781	886	646	1834	126	538	897	525	204	1082	69
RTOR Reduction (vph)	0	0	38	0	0	16	0	0	29	0	0	4
Lane Group Flow (vph)	100	1781	848	646	1834	110	538	897	496	204	1082	65
Heavy Vehicles (%)	11%	5%	13%	10%	8%	13%	7%	8%	14%	7%	8%	11%
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)	6.0	42.3	42.3	6.7	43.0	43.0	14.3	40.0	40.0	6.0	31.7	31.7
Effective Green, g (s)	8.3	44.6	44.6	9.0	45.3	45.3	16.5	42.2	42.2	8.2	33.9	33.9
Actuated g/C Ratio	0.07	0.37	0.37	0.08	0.38	0.38	0.14	0.35	0.35	0.07	0.28	0.28
Clearance Time (s)	6.3	6.3	6.3	6.3	6.3	6.3	6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	218	1836	531	347	1813	539	654	1689	498	224	1357	411
v/s Ratio Prot	0.03	0.36		c0.14	0.38		c0.11	0.19		0.06	0.23	
v/s Ratio Perm			0.62			0.09			0.37			0.05
v/c Ratio	0.46	0.97	1.60	1.86	1.01	0.20	0.82	0.53	1.00	0.91	0.80	0.16
Uniform Delay, d1	53.7	37.0	37.7	55.5	37.4	25.2	50.3	31.0	38.8	55.5	39.9	32.3
Progression Factor	1.15	0.98	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	11.4	274.7	398.7	24.0	0.9	8.2	0.3	38.9	36.7	3.4	0.2
Delay (s)	62.9	47.8	311.2	454.2	61.4	26.1	58.6	31.3	77.8	92.2	43.2	32.5
Level of Service	E	D	F	F	E	C	E	C	E	F	D	C
Approach Delay (s)		132.7			157.0			51.2			50.1	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM Average Control Delay	108.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	0.88	0.95	0.95		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1685	2787	1665	1733		3433	5053		1770	4988	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1685	2787	1665	1733		3433	5053		1770	4988	1583
Volume (vph)	466	104	1088	104	153	17	1028	1157	51	88	1394	554
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	496	111	1157	118	174	19	1082	1218	54	93	1467	583
RTOR Reduction (vph)	0	0	66	0	0	0	0	0	0	0	0	24
Lane Group Flow (vph)	303	304	1091	118	193	0	1082	1272	0	93	1467	559
Heavy Vehicles (%)	2%	7%	2%	3%	2%	8%	2%	2%	2%	2%	4%	2%
Turn Type	Split		pm+ov	Split			Prot			Prot		Perm
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	21.0	21.0	47.9	10.0	10.0		26.9	53.0		7.7	33.8	33.8
Effective Green, g (s)	22.3	22.3	49.2	10.0	10.0		26.9	54.0		7.7	34.8	34.8
Actuated g/C Ratio	0.20	0.20	0.45	0.09	0.09		0.24	0.49		0.07	0.32	0.32
Clearance Time (s)	5.3	5.3	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	1.0	1.5	1.5		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	341	342	1348	151	158		840	2481		124	1578	501
v/s Ratio Prot	0.18	0.18	c0.21	0.07	c0.11		c0.32	0.25		0.05	0.29	
v/s Ratio Perm			0.21									0.37
v/c Ratio	0.89	0.89	0.81	0.78	1.22		1.29	0.51		0.75	0.93	1.12
Uniform Delay, d1	42.6	42.6	26.3	48.9	50.0		41.5	19.0		50.2	36.4	37.6
Progression Factor	0.95	0.95	0.90	1.00	1.00		0.67	0.52		0.79	0.66	0.65
Incremental Delay, d2	18.0	17.9	2.6	21.1	143.4		136.1	0.5		15.1	8.6	70.7
Delay (s)	58.4	58.3	26.2	70.0	193.4		163.8	10.4		54.8	32.7	95.2
Level of Service	E	E	C	E	F		F	B		D	C	F
Approach Delay (s)		37.2			146.6			80.9			50.6	
Approach LOS		D			F			F			D	

Intersection Summary			
HCM Average Control Delay	62.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	0.97		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)	3433	4896		3273	4759	1583	3400	5012		3303	4893	1495
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4896		3273	4759	1583	3400	5012		3303	4893	1495
Volume (vph)	594	1137	239	175	1293	127	384	1234	116	328	1580	607
Peak-hour factor, PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.96	0.96	0.96
Adj. Flow (vph)	625	1197	252	186	1376	135	409	1313	123	342	1646	632
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	27
Lane Group Flow (vph)	625	1449	0	186	1376	91	409	1436	0	342	1646	605
Heavy Vehicles (%)	2%	3%	4%	7%	9%	2%	3%	2%	4%	6%	6%	8%
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	16.0	36.7		8.0	28.7	28.7	11.0	33.7		13.0	35.7	35.7
Effective Green, g (s)	16.0	38.0		8.0	30.0	30.0	11.0	35.0		13.0	37.0	37.0
Actuated g/C Ratio	0.15	0.35		0.07	0.27	0.27	0.10	0.32		0.12	0.34	0.34
Clearance Time (s)	4.0	5.3		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	0.5	2.0		0.5	2.0	2.0	0.5	2.0		0.5	2.0	2.0
Lane Grp Cap (vph)	499	1691		238	1298	432	340	1595		390	1646	503
v/s Ratio Prot	c0.18	0.30		0.06	c0.29		c0.12	0.29		0.10	0.34	
v/s Ratio Perm						0.09						0.42
v/c Ratio	1.25	0.86		0.78	1.06	0.21	1.20	0.90		0.88	1.00	1.20
Uniform Delay, d1	47.0	33.5		50.1	40.0	30.9	49.5	35.8		47.7	36.5	36.5
Progression Factor	1.00	1.00		0.54	0.82	0.85	1.00	1.00		0.67	0.23	0.18
Incremental Delay, d2	129.3	5.8		3.9	32.2	0.3	116.0	8.6		2.2	6.7	93.5
Delay (s)	176.3	39.3		30.8	65.2	26.6	165.5	44.4		34.2	15.0	100.0
Level of Service	F	D		C	E	C	F	D		C	B	F
Approach Delay (s)		80.6			58.3			71.2			38.0	
Approach LOS		F			E			E			D	

Intersection Summary			
HCM Average Control Delay	60.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	96.7%	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												
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		0.95	0.95	
Frt	1.00	1.00		1.00	1.00		1.00	0.85		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1770	5084		1770	5071		1770	1583		1681	1526	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1770	5084		1770	5071		1770	1583		1681	1526	
Volume (vph)	51	2413	3	31	2815	52	13	0	33	219	1	158
Peak-hour factor, PHF	0.95	0.95	0.95	0.96	0.96	0.96	0.80	0.80	0.80	0.90	0.90	0.90
Adj. Flow (vph)	54	2540	3	32	2932	54	16	0	41	243	1	176
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	54	2543	0	32	2986	0	16	41	0	222	198	0
Turn Type	Prot			Prot			Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	5.6	61.2		2.4	58.0		14.4	14.4		16.0	16.0	
Effective Green, g (s)	5.6	61.2		2.4	58.0		14.4	14.4		16.0	16.0	
Actuated g/C Ratio	0.05	0.56		0.02	0.53		0.13	0.13		0.15	0.15	
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)	90	2829		39	2674		232	207		245	222	
v/s Ratio Prot	0.03	c0.50		0.02	c0.59		0.01	c0.03		c0.13	0.13	
v/s Ratio Perm												
v/c Ratio	0.60	0.90		0.82	1.12		0.07	0.20		0.91	0.89	
Uniform Delay, d1	51.1	21.7		53.6	26.0		41.9	42.6		46.3	46.2	
Progression Factor	1.00	1.00		0.99	0.67		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.3	4.3		11.8	53.1		0.6	2.1		37.5	37.7	
Delay (s)	61.4	25.9		64.6	70.4		42.5	44.8		83.8	83.8	
Level of Service	E	C		E	E		D	D		F	F	
Approach Delay (s)		26.7			70.3			44.1			83.8	
Approach LOS		C			E			D			F	

Intersection Summary

HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.8%	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												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1770	3413		1770	3379			1812	1568		1788	
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00		0.99	
Satd. Flow (perm)	1770	3413		1770	3379			1812	1568		1788	
Volume (vph)	21	1314	83	377	1280	95	83	95	252	71	135	40
Peak-hour factor, PHF	0.94	0.94	0.94	0.95	0.95	0.95	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	22	1398	88	397	1347	100	92	106	280	81	153	45
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	22	1486	0	397	1447	0	0	198	263	0	279	0
Heavy Vehicles (%)	2%	5%	2%	2%	6%	2%	3%	2%	3%	3%	2%	3%
Turn Type	Prot			Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	1.8	40.5		20.5	59.2			17.5	17.5		16.5	
Effective Green, g (s)	1.3	41.0		20.0	59.7			17.0	17.0		16.0	
Actuated g/C Ratio	0.01	0.37		0.18	0.54			0.15	0.15		0.15	
Clearance Time (s)	3.5	4.5		3.5	4.5			3.5	3.5		3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	21	1272		322	1834			280	242		260	
v/s Ratio Prot	0.01	c0.44		c0.22	0.43			0.11			c0.16	
v/s Ratio Perm									0.18			
v/c Ratio	1.05	1.17		1.23	0.79			0.71	1.09		1.07	
Uniform Delay, d1	54.4	34.5		45.0	20.1			44.1	46.5		47.0	
Progression Factor	0.77	0.65		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	176.3	81.9		128.9	3.5			7.9	83.0		76.6	
Delay (s)	218.0	104.4		173.9	23.7			52.0	129.5		123.6	
Level of Service	F	F		F	C			D	F		F	
Approach Delay (s)		106.1			56.0			97.4			123.6	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	83.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group