Appendix P

Level of Service Calculation Worksheets – Alternate Project Access

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	1190	6	21	1238	6	18	5	60	1	1	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3536		1770	3468			1791	1583		1816	1561
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00		0.90	1.00
Satd. Flow (perm)	1770	3536		1770	3468			1496	1583		1675	1561
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Adj. Flow (vph)	19	1352	7	23	1360	7	20	5	65	1	1	227
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	19	1359	0	23	1367	0	0	25	65	0	2	227
Confl. Peds. (#/hr)	1					1				1		1
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	1.0	30.5		1.0	30.5			7.6	7.6		7.6	7.6
Effective Green, g (s)	1.0	30.5		1.0	30.5			7.6	7.6		7.6	7.6
Actuated g/C Ratio	0.02	0.60		0.02	0.60			0.15	0.15		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)	35	2111		35	2070			222	235		249	232
v/s Ratio Prot	0.01	0.38		c0.01	c0.39							
v/s Ratio Perm								0.02	0.04		0.00	c0.15
v/c Ratio	0.54	0.64		0.66	0.66			0.11	0.28		0.01	0.98
Uniform Delay, d1	24.8	6.7		24.9	6.9			18.8	19.3		18.5	21.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	16.1	0.7		36.6	0.8			0.2	0.6		0.0	52.4
Delay (s)	40.9	7.4		61.5	7.7			19.1	20.0		18.6	74.1
Level of Service	D	A		E	A			B	B		B	E
Approach Delay (s)		7.9			8.5			19.7			73.6	
Approach LOS		A			A			B			E	

Intersection Summary

HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1480	23	67	1330	42	14	2	38	2	4	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3531		1770	3523			1784	1583		1832	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.88	1.00		0.88	1.00
Satd. Flow (perm)	1770	3531		1770	3523			1631	1583		1643	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	1609	25	73	1446	46	15	2	41	2	4	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	66	1634	0	73	1492	0	0	17	41	0	6	47
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	3.1	31.7		4.4	33.0			4.3	4.3		4.3	4.3
Effective Green, g (s)	3.1	31.7		4.4	33.0			4.3	4.3		4.3	4.3
Actuated g/C Ratio	0.06	0.60		0.08	0.63			0.08	0.08		0.08	0.08
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	105	2136		149	2219			134	130		135	130
v/s Ratio Prot	0.04	c0.46		c0.04	0.42							
v/s Ratio Perm								0.01	0.03		0.00	c0.03
v/c Ratio	0.63	0.76		0.49	0.67			0.13	0.32		0.04	0.36
Uniform Delay, d1	24.1	7.6		22.9	6.2			22.3	22.7		22.2	22.8
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	11.2	1.7		2.5	0.8			0.4	1.4		0.1	1.7
Delay (s)	35.3	9.3		25.5	7.0			22.7	24.1		22.3	24.5
Level of Service	D	A		C	A			C	C		C	C
Approach Delay (s)		10.3			7.9			23.7			24.2	
Approach LOS		B			A			C			C	

Intersection Summary

HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	1190	6	21	1238	6	0	0	83	0	0	161
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Hourly flow rate (vph)	19	1352	7	23	1360	7	0	0	90	0	0	230
Pedestrians		1			1						1	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			0						0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1368			1359			2351	2808	680	2216	2808	686
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1368			1359			2351	2808	680	2216	2808	686
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			95			100	100	77	100	100	41
cM capacity (veh/h)	497			502			7	16	393	17	16	390

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	19	902	457	23	907	460	90	230
Volume Left	19	0	0	23	0	0	0	0
Volume Right	0	0	7	0	0	7	90	230
cSH	497	1700	1700	502	1700	1700	393	390
Volume to Capacity	0.04	0.53	0.27	0.05	0.53	0.27	0.23	0.59
Queue Length 95th (ft)	3	0	0	4	0	0	22	91
Control Delay (s)	12.5	0.0	0.0	12.5	0.0	0.0	16.9	26.7
Lane LOS	B			B			C	D
Approach Delay (s)	0.2			0.2			16.9	26.7
Approach LOS							C	D

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	61	1480	23	67	1330	42	0	0	54	0	0	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	1609	25	73	1446	46	0	0	59	0	0	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1491			1634			2676	3391	817	2610	3380	746
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1491			1634			2676	3391	817	2610	3380	746
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			81			100	100	82	100	100	85
cM capacity (veh/h)	446			393			7	5	320	7	5	356

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	66	1072	561	73	964	528	59	53
Volume Left	66	0	0	73	0	0	0	0
Volume Right	0	0	25	0	0	46	59	53
cSH	446	1700	1700	393	1700	1700	320	356
Volume to Capacity	0.15	0.63	0.33	0.19	0.57	0.31	0.18	0.15
Queue Length 95th (ft)	13	0	0	17	0	0	17	13
Control Delay (s)	14.5	0.0	0.0	16.2	0.0	0.0	18.8	16.9
Lane LOS	B			C			C	C
Approach Delay (s)	0.6			0.8			18.8	16.9
Approach LOS							C	C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	1190	6	21	1238	6	0	0	83	0	0	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00			1.00
Frpb, ped/bikes	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
Frt	1.00	1.00		1.00	1.00				0.86			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1770	3536		1770	3468				1611			1589
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1770	3536		1770	3468				1611			1589
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Adj. Flow (vph)	19	1352	7	23	1360	7	0	0	90	0	0	230
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	19	1359	0	23	1367	0	0	0	90	0	0	230
Confl. Peds. (#/hr)	1					1				1		1
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot					custom			custom
Protected Phases	7	4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)	1.0	26.0		1.0	26.0				7.3			7.3
Effective Green, g (s)	1.0	26.0		1.0	26.0				7.3			7.3
Actuated g/C Ratio	0.02	0.56		0.02	0.56				0.16			0.16
Clearance Time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0			3.0
Lane Grp Cap (vph)	38	1986		38	1947				254			251
v/s Ratio Prot	0.01	0.38		c0.01	c0.39							
v/s Ratio Perm									0.06			c0.14
v/c Ratio	0.50	0.68		0.61	0.70				0.35			0.92
Uniform Delay, d1	22.4	7.2		22.5	7.3				17.4			19.2
Progression Factor	1.00	1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2	10.0	1.0		24.3	1.2				0.9			34.9
Delay (s)	32.4	8.2		46.7	8.5				18.3			54.1
Level of Service	C	A		D	A				B			D
Approach Delay (s)		8.6			9.1			18.3			54.1	
Approach LOS		A			A			B			D	

Intersection Summary

HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	46.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1480	23	67	1330	42	0	0	54	0	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00			1.00
Frt	1.00	1.00		1.00	1.00				0.86			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1770	3531		1770	3523				1611			1611
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1770	3531		1770	3523				1611			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	1609	25	73	1446	46	0	0	59	0	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	66	1634	0	73	1492	0	0	0	59	0	0	53
Turn Type	Prot			Prot					custom			custom
Protected Phases	7	4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)	3.5	33.5		3.5	33.5				6.4			6.4
Effective Green, g (s)	3.5	33.5		3.5	33.5				6.4			6.4
Actuated g/C Ratio	0.06	0.60		0.06	0.60				0.12			0.12
Clearance Time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0			3.0
Lane Grp Cap (vph)	112	2135		112	2130				186			186
v/s Ratio Prot	0.04	c0.46		c0.04	0.42							
v/s Ratio Perm									c0.04			0.03
v/c Ratio	0.59	0.77		0.65	0.70				0.32			0.28
Uniform Delay, d1	25.3	8.1		25.4	7.5				22.5			22.4
Progression Factor	1.00	1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2	7.7	1.7		12.8	1.1				1.0			0.8
Delay (s)	33.0	9.7		38.1	8.6				23.5			23.3
Level of Service	C	A		D	A				C			C
Approach Delay (s)		10.6			9.9			23.5			23.3	
Approach LOS		B			A			C			C	

Intersection Summary

HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1207	6	21	1238	6	0	0	83	0	0	161
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Hourly flow rate (vph)	0	1372	7	23	1360	7	0	0	90	0	0	230
Pedestrians		1			1						1	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		0			0						0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1368			1378			2332	2789	690	2187	2789	686
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1368			1378			2332	2789	690	2187	2789	686
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			100	100	77	100	100	41
cM capacity (veh/h)	497			493			8	18	387	19	18	390

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	914	464	23	907	460	90	230
Volume Left	0	0	23	0	0	0	0
Volume Right	0	7	0	0	7	90	230
cSH	1700	1700	493	1700	1700	387	390
Volume to Capacity	0.54	0.27	0.05	0.53	0.27	0.23	0.59
Queue Length 95th (ft)	0	0	4	0	0	22	91
Control Delay (s)	0.0	0.0	12.6	0.0	0.0	17.1	26.7
Lane LOS			B			C	D
Approach Delay (s)	0.0		0.2			17.1	26.7
Approach LOS						C	D

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1541	23	67	1330	42	0	0	54	0	0	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1675	25	73	1446	46	0	0	59	0	0	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1491			1700			2609	3324	850	2510	3314	746
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1491			1700			2609	3324	850	2510	3314	746
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			80			100	100	81	100	100	85
cM capacity (veh/h)	446			371			9	7	304	10	7	356

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1117	583	73	964	528	59	53
Volume Left	0	0	73	0	0	0	0
Volume Right	0	25	0	0	46	59	53
cSH	1700	1700	371	1700	1700	304	356
Volume to Capacity	0.66	0.34	0.20	0.57	0.31	0.19	0.15
Queue Length 95th (ft)	0	0	18	0	0	18	13
Control Delay (s)	0.0	0.0	17.1	0.0	0.0	19.7	16.9
Lane LOS			C			C	C
Approach Delay (s)	0.0		0.8			19.7	16.9
Approach LOS						C	C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1207	6	21	1238	6	0	0	83	0	0	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0				4.0			4.0
Lane Util. Factor		0.95		1.00	0.95				1.00			1.00
Frpb, ped/bikes		1.00		1.00	1.00				1.00			0.99
Flpb, ped/bikes		1.00		1.00	1.00				1.00			1.00
Frt		1.00		1.00	1.00				0.86			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		3537		1770	3468				1611			1589
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		3537		1770	3468				1611			1589
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Adj. Flow (vph)	0	1372	7	23	1360	7	0	0	90	0	0	230
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1379	0	23	1367	0	0	0	90	0	0	230
Confl. Peds. (#/hr)	1					1				1		1
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Prot					custom			custom
Protected Phases		4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)		26.1		0.9	31.0				7.3			7.3
Effective Green, g (s)		26.1		0.9	31.0				7.3			7.3
Actuated g/C Ratio		0.56		0.02	0.67				0.16			0.16
Clearance Time (s)		4.0		4.0	4.0				4.0			4.0
Vehicle Extension (s)		3.0		3.0	3.0				3.0			3.0
Lane Grp Cap (vph)		1994		34	2322				254			251
v/s Ratio Prot		c0.39		0.01	c0.39							
v/s Ratio Perm									0.06			c0.14
v/c Ratio		0.69		0.68	0.59				0.35			0.92
Uniform Delay, d1		7.2		22.6	4.2				17.4			19.2
Progression Factor		1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2		1.1		42.2	0.4				0.9			34.9
Delay (s)		8.3		64.8	4.6				18.3			54.1
Level of Service		A		E	A				B			D
Approach Delay (s)		8.3			5.6			18.3			54.1	
Approach LOS		A			A			B			D	

Intersection Summary

HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	46.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1541	23	67	1330	42	0	0	54	0	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0				4.0			4.0
Lane Util. Factor		0.95		1.00	0.95				1.00			1.00
Frt		1.00		1.00	1.00				0.86			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		3531		1770	3523				1611			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		3531		1770	3523				1611			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1675	25	73	1446	46	0	0	59	0	0	53
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1700	0	73	1492	0	0	0	59	0	0	53
Turn Type				Prot					custom			custom
Protected Phases		4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)		36.0		4.0	44.0				6.5			6.5
Effective Green, g (s)		36.0		4.0	44.0				6.5			6.5
Actuated g/C Ratio		0.62		0.07	0.75				0.11			0.11
Clearance Time (s)		4.0		4.0	4.0				4.0			4.0
Vehicle Extension (s)		3.0		3.0	3.0				3.0			3.0
Lane Grp Cap (vph)		2173		121	2650				179			179
v/s Ratio Prot		c0.48		0.04	c0.42							
v/s Ratio Perm									c0.04			0.03
v/c Ratio		0.78		0.60	0.56				0.33			0.30
Uniform Delay, d1		8.3		26.5	3.1				24.0			23.9
Progression Factor		1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2		1.9		8.2	0.3				1.1			0.9
Delay (s)		10.2		34.7	3.4				25.1			24.8
Level of Service		B		C	A				C			C
Approach Delay (s)		10.2			4.9			25.1			24.8	
Approach LOS		B			A			C			C	

Intersection Summary

HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	1655	6	21	1700	6	18	5	60	3	1	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1770	3537		1770	3469			1791	1583		1789	1562
Flt Permitted	0.95	1.00		0.95	1.00			0.84	1.00		0.88	1.00
Satd. Flow (perm)	1770	3537		1770	3469			1558	1583		1644	1562
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Adj. Flow (vph)	22	1881	7	23	1868	7	20	5	65	4	1	299
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	22	1888	0	23	1875	0	0	25	65	0	5	299
Confl. Peds. (#/hr)	1					1				1		1
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	2.4	51.2		2.4	51.2			13.4	13.4		13.4	13.4
Effective Green, g (s)	2.4	51.2		2.4	51.2			13.4	13.4		13.4	13.4
Actuated g/C Ratio	0.03	0.65		0.03	0.65			0.17	0.17		0.17	0.17
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)	54	2292		54	2248			264	269		279	265
v/s Ratio Prot	0.01	0.53		c0.01	c0.54							
v/s Ratio Perm								0.02	0.04		0.00	c0.19
v/c Ratio	0.41	0.82		0.43	0.83			0.09	0.24		0.02	1.13
Uniform Delay, d1	37.6	10.5		37.6	10.6			27.7	28.4		27.3	32.8
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	4.9	2.5		5.3	2.8			0.2	0.5		0.0	94.3
Delay (s)	42.6	13.0		43.0	13.5			27.8	28.9		27.3	127.1
Level of Service	D	B		D	B			C	C		C	F
Approach Delay (s)		13.4			13.8			28.6			125.5	
Approach LOS		B			B			C			F	

Intersection Summary

HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	1956	23	67	1791	47	14	2	38	4	5	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3533		1770	3526			1784	1583		1822	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.75	1.00		0.88	1.00
Satd. Flow (perm)	1770	3533		1770	3526			1396	1583		1637	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	2126	25	73	1947	51	15	2	41	4	5	53
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	75	2151	0	73	1998	0	0	17	41	0	9	53
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	6.6	53.4		6.5	53.3			6.3	6.3		6.3	6.3
Effective Green, g (s)	6.6	53.4		6.5	53.3			6.3	6.3		6.3	6.3
Actuated g/C Ratio	0.08	0.68		0.08	0.68			0.08	0.08		0.08	0.08
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	149	2413		147	2403			112	128		132	128
v/s Ratio Prot	c0.04	c0.61		0.04	0.57							
v/s Ratio Perm								0.01	0.03		0.01	c0.03
v/c Ratio	0.50	0.89		0.50	0.83			0.15	0.32		0.07	0.41
Uniform Delay, d1	34.2	10.1		34.3	9.1			33.5	33.9		33.2	34.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.7	4.6		2.6	2.6			0.6	1.5		0.2	2.2
Delay (s)	36.9	14.7		36.9	11.8			34.1	35.4		33.5	36.4
Level of Service	D	B		D	B			C	D		C	D
Approach Delay (s)		15.4			12.6			35.0			35.9	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	78.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	19	1655	6	21	1700	6	0	0	83	0	0	213
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Hourly flow rate (vph)	22	1881	7	23	1868	7	0	0	90	0	0	304
Pedestrians											1	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1876			1887			3211	3849	944	2992	3848	938
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1876			1887			3211	3849	944	2992	3848	938
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			93			0	100	66	100	100	0
cM capacity (veh/h)	316			313			0	3	263	4	3	265

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	22	1254	633	23	1245	629	90	304
Volume Left	22	0	0	23	0	0	0	0
Volume Right	0	0	7	0	0	7	90	304
cSH	316	1700	1700	313	1700	1700	263	265
Volume to Capacity	0.07	0.74	0.37	0.07	0.73	0.37	0.34	1.15
Queue Length 95th (ft)	5	0	0	6	0	0	37	335
Control Delay (s)	17.2	0.0	0.0	17.4	0.0	0.0	25.6	141.7
Lane LOS	C			C			D	F
Approach Delay (s)	0.2			0.2			25.6	141.7
Approach LOS							D	F

Intersection Summary			
Average Delay	11.0		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	69	1956	23	67	1791	47	0	0	54	0	0	57
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	2126	25	73	1947	51	0	0	59	0	0	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1998			2151			3470	4432	1076	3390	4419	999
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1998			2151			3470	4432	1076	3390	4419	999
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	74			70			100	100	73	100	100	74
cM capacity (veh/h)	284			247			1	1	215	1	1	242

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	75	1417	734	73	1298	700	59	62
Volume Left	75	0	0	73	0	0	0	0
Volume Right	0	0	25	0	0	51	59	62
cSH	284	1700	1700	247	1700	1700	215	242
Volume to Capacity	0.26	0.83	0.43	0.30	0.76	0.41	0.27	0.26
Queue Length 95th (ft)	26	0	0	30	0	0	27	25
Control Delay (s)	22.2	0.0	0.0	25.6	0.0	0.0	27.9	24.9
Lane LOS	C			D			D	C
Approach Delay (s)	0.7			0.9			27.9	24.9
Approach LOS							D	C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	1655	6	21	1700	6	0	0	83	0	0	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00			1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	1.00		1.00	1.00				0.86			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1766	3537		1770	3469				1611			1611
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1766	3537		1770	3469				1611			1611
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Adj. Flow (vph)	22	1881	7	23	1868	7	0	0	90	0	0	304
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	22	1888	0	23	1875	0	0	0	90	0	0	304
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot					custom			custom
Protected Phases	7	4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)	0.7	38.2		1.5	39.0				11.1			11.1
Effective Green, g (s)	0.7	38.2		1.5	39.0				11.1			11.1
Actuated g/C Ratio	0.01	0.61		0.02	0.62				0.18			0.18
Clearance Time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0			3.0
Lane Grp Cap (vph)	20	2151		42	2154				285			285
v/s Ratio Prot	0.01	0.53		c0.01	c0.54							
v/s Ratio Perm									0.06			c0.19
v/c Ratio	1.10	0.88		0.55	0.87				0.32			1.07
Uniform Delay, d1	31.0	10.3		30.3	9.8				22.5			25.8
Progression Factor	1.00	1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2	234.8	4.4		13.8	4.2				0.6			72.1
Delay (s)	265.8	14.7		44.1	14.0				23.2			97.9
Level of Service	F	B		D	B				C			F
Approach Delay (s)		17.6			14.3			23.2			97.9	
Approach LOS		B			B			C			F	

Intersection Summary

HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	1956	23	67	1791	47	0	0	54	0	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00			1.00
Frt	1.00	1.00		1.00	1.00				0.86			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1770	3533		1770	3526				1611			1611
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1770	3533		1770	3526				1611			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	2126	25	73	1947	51	0	0	59	0	0	62
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	75	2151	0	73	1998	0	0	0	59	0	0	62
Turn Type	Prot			Prot					custom			custom
Protected Phases	7	4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)	5.1	52.9		5.1	52.9				6.4			6.4
Effective Green, g (s)	5.1	52.9		5.1	52.9				6.4			6.4
Actuated g/C Ratio	0.07	0.69		0.07	0.69				0.08			0.08
Clearance Time (s)	4.0	4.0		4.0	4.0				4.0			4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0				3.0			3.0
Lane Grp Cap (vph)	118	2446		118	2441				135			135
v/s Ratio Prot	c0.04	c0.61		0.04	0.57							
v/s Ratio Perm									0.04			c0.04
v/c Ratio	0.64	0.88		0.62	0.82				0.44			0.46
Uniform Delay, d1	34.7	9.2		34.7	8.3				33.3			33.4
Progression Factor	1.00	1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2	10.7	4.0		9.3	2.3				2.3			2.5
Delay (s)	45.4	13.2		44.0	10.6				35.5			35.8
Level of Service	D	B		D	B				D			D
Approach Delay (s)		14.3			11.8			35.5			35.8	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1674	6	21	1700	6	0	0	83	0	0	213
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Hourly flow rate (vph)	0	1902	7	23	1868	7	0	0	90	0	0	304
Pedestrians											1	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1876			1909			3190	3827	954	2959	3827	938
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1876			1909			3190	3827	954	2959	3827	938
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			0	100	65	100	100	0
cM capacity (veh/h)	316			307			0	3	259	4	3	265

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1268	641	23	1245	629	90	304
Volume Left	0	0	23	0	0	0	0
Volume Right	0	7	0	0	7	90	304
cSH	1700	1700	307	1700	1700	259	265
Volume to Capacity	0.75	0.38	0.07	0.73	0.37	0.35	1.15
Queue Length 95th (ft)	0	0	6	0	0	37	335
Control Delay (s)	0.0	0.0	17.7	0.0	0.0	26.1	141.7
Lane LOS			C			D	F
Approach Delay (s)	0.0		0.2			26.1	141.7
Approach LOS						D	F

Intersection Summary			
Average Delay	10.9		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2025	23	67	1791	47	0	0	54	0	0	57
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2201	25	73	1947	51	0	0	59	0	0	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1998			2226			3395	4357	1113	3277	4344	999
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1998			2226			3395	4357	1113	3277	4344	999
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			68			100	100	71	100	100	74
cM capacity (veh/h)	284			230			2	1	203	2	1	242

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1467	759	73	1298	700	59	62
Volume Left	0	0	73	0	0	0	0
Volume Right	0	25	0	0	51	59	62
cSH	1700	1700	230	1700	1700	203	242
Volume to Capacity	0.86	0.45	0.32	0.76	0.41	0.29	0.26
Queue Length 95th (ft)	0	0	32	0	0	29	25
Control Delay (s)	0.0	0.0	27.7	0.0	0.0	29.8	24.9
Lane LOS			D			D	C
Approach Delay (s)	0.0		1.0			29.8	24.9
Approach LOS						D	C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1674	6	21	1700	6	0	0	83	0	0	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0				4.0			4.0
Lane Util. Factor		0.95		1.00	0.95				1.00			1.00
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		1.00	1.00				0.86			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		3537		1770	3469				1611			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		3537		1770	3469				1611			1611
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.70	0.92	0.70
Adj. Flow (vph)	0	1902	7	23	1868	7	0	0	90	0	0	304
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1909	0	23	1875	0	0	0	90	0	0	304
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Prot					custom			custom
Protected Phases		4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)		42.0		2.2	48.2				11.1			11.1
Effective Green, g (s)		42.0		2.2	48.2				11.1			11.1
Actuated g/C Ratio		0.62		0.03	0.72				0.16			0.16
Clearance Time (s)		4.0		4.0	4.0				4.0			4.0
Vehicle Extension (s)		3.0		3.0	3.0				3.0			3.0
Lane Grp Cap (vph)		2207		58	2484				266			266
v/s Ratio Prot		c0.54		0.01	c0.54							
v/s Ratio Perm									0.06			c0.19
v/c Ratio		0.86		0.40	0.75				0.34			1.14
Uniform Delay, d1		10.3		31.9	5.9				24.9			28.1
Progression Factor		1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2		3.8		4.4	1.3				0.8			99.3
Delay (s)		14.1		36.3	7.2				25.6			127.4
Level of Service		B		D	A				C			F
Approach Delay (s)		14.1			7.6			25.6			127.4	
Approach LOS		B			A			C			F	

Intersection Summary

HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	2025	23	67	1791	47	0	0	54	0	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0				4.0			4.0
Lane Util. Factor		0.95		1.00	0.95				1.00			1.00
Frt		1.00		1.00	1.00				0.86			0.86
Flt Protected		1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)		3533		1770	3526				1611			1611
Flt Permitted		1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)		3533		1770	3526				1611			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2201	25	73	1947	51	0	0	59	0	0	62
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2226	0	73	1998	0	0	0	59	0	0	62
Turn Type				Prot					custom			custom
Protected Phases		4		3	8							
Permitted Phases									2			6
Actuated Green, G (s)		55.2		6.9	66.1				6.3			6.3
Effective Green, g (s)		55.2		6.9	66.1				6.3			6.3
Actuated g/C Ratio		0.69		0.09	0.82				0.08			0.08
Clearance Time (s)		4.0		4.0	4.0				4.0			4.0
Vehicle Extension (s)		3.0		3.0	3.0				3.0			3.0
Lane Grp Cap (vph)		2426		152	2899				126			126
v/s Ratio Prot		c0.63		0.04	c0.57							
v/s Ratio Perm									0.04			c0.04
v/c Ratio		0.92		0.48	0.69				0.47			0.49
Uniform Delay, d1		10.7		35.0	2.9				35.4			35.5
Progression Factor		1.00		1.00	1.00				1.00			1.00
Incremental Delay, d2		6.1		2.4	0.7				2.7			3.0
Delay (s)		16.7		37.4	3.6				38.2			38.5
Level of Service		B		D	A				D			D
Approach Delay (s)		16.7			4.8			38.2			38.5	
Approach LOS		B			A			D			D	

Intersection Summary

HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group