

APPENDIX K

TRANSPORTATION MITIGATION MEASURES

PROJECT CONDITION

A.M. Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (vph)	322	666	161	82	1057	145	164	151	28	106	169	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5	4.5	4.0	5.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.95	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	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4897		1770	5085	1509	1770	1813		1770	1643	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.13	1.00		0.64	1.00	
Satd. Flow (perm)	1770	4897		1770	5085	1509	244	1813		1184	1643	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	724	175	89	1149	158	178	164	30	115	184	380
RTOR Reduction (vph)	0	41	0	0	0	73	0	8	0	0	83	0
Lane Group Flow (vph)	350	858	0	89	1149	85	178	186	0	115	481	0
Confl. Peds. (#/hr)			6			7			7			14
Confl. Bikes (#/hr)			4			4			11			2
Turn Type	Prot			Prot		Perm	pm+pt			Perm		
Protected Phases	7	4		3	8		5	2				6
Permitted Phases						8	2			6		
Actuated Green, G (s)	19.3	31.1		7.9	19.7	19.7	37.0	37.0		26.5	26.5	
Effective Green, g (s)	19.3	31.1		7.9	19.7	19.7	37.0	37.0		27.5	27.5	
Actuated g/C Ratio	0.21	0.35		0.09	0.22	0.22	0.41	0.41		0.31	0.31	
Clearance Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	380	1692		155	1113	330	211	745		362	502	
v/s Ratio Prot	c0.20	0.18		0.05	c0.23		c0.06	0.10			c0.29	
v/s Ratio Perm						0.06	0.29			0.10		
v/c Ratio	0.92	0.51		0.57	1.03	0.26	0.84	0.25		0.32	0.96	
Uniform Delay, d1	34.6	23.4		39.4	35.2	29.1	22.0	17.4		24.0	30.7	
Progression Factor	1.00	1.00		0.82	1.46	2.01	1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.9	1.1		2.1	30.5	1.2	24.3	0.1		0.2	29.1	
Delay (s)	61.5	24.5		34.6	81.8	59.7	46.3	17.5		24.2	59.8	
Level of Service	E	C		C	F	E	D	B		C	E	
Approach Delay (s)		34.8			76.3			31.3			53.8	
Approach LOS		C			E			C			D	

Intersection Summary

HCM Average Control Delay	53.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

P.M. Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	410	953	195	30	1022	148	157	280	69	147	187	352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5	4.5	4.0	5.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.94	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	0.97		1.00	1.00	0.85	1.00	0.97		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4932		1770	5085	1484	1770	1798		1770	1647	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.13	1.00		0.54	1.00	
Satd. Flow (perm)	1770	4932		1770	5085	1484	237	1798		1000	1647	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	446	1036	212	33	1111	161	171	304	75	160	203	383
RTOR Reduction (vph)	0	25	0	0	0	71	0	9	0	0	67	0
Lane Group Flow (vph)	446	1223	0	33	1111	90	171	370	0	160	519	0
Confl. Peds. (#/hr)			2			8			5			13
Confl. Bikes (#/hr)			2			10			14			5
Turn Type	Prot			Prot		Perm	pm+pt			Perm		
Protected Phases	7	4		3	8		5	2				6
Permitted Phases						8	2			6		
Actuated Green, G (s)	23.0	40.5		4.5	22.0	22.0	41.0	41.0		27.4	27.4	
Effective Green, g (s)	23.0	40.5		4.5	22.0	22.0	41.0	41.0		28.4	28.4	
Actuated g/C Ratio	0.23	0.40		0.04	0.22	0.22	0.41	0.41		0.28	0.28	
Clearance Time (s)	4.0	4.5		4.0	4.5	4.5	4.0	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	407	1997		80	1119	326	244	737		284	468	
v/s Ratio Prot	c0.25	0.25		0.02	c0.22		c0.07	0.21			c0.32	
v/s Ratio Perm						0.06	0.22			0.16		
v/c Ratio	1.10	0.61		0.41	0.99	0.28	0.70	0.50		0.56	1.11	
Uniform Delay, d1	38.5	23.5		46.5	38.9	32.4	45.2	21.9		30.5	35.8	
Progression Factor	1.00	1.00		1.12	0.85	0.70	1.00	1.00		1.00	1.00	
Incremental Delay, d2	73.0	1.4		0.7	18.4	1.2	7.2	0.2		1.5	74.5	
Delay (s)	111.5	25.0		52.9	51.6	23.9	52.4	22.1		32.0	110.3	
Level of Service	F	C		D	D	C	D	C		C	F	
Approach Delay (s)		47.7			48.2			31.5			93.5	
Approach LOS		D			D			C			F	

Intersection Summary

HCM Average Control Delay	53.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

CUMULATIVE YEAR 2015 BASELINE
(WITH PROJECT) CONDITION

A.M. Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖		↖	↖	
Volume (vph)	255	808	170	79	1165	175	136	191	41	150	386	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	5.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		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	0.97		1.00	0.98		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4916		1770	4955		1770	1805		1770	1733	
Flt Permitted	0.95	1.00		0.95	1.00		0.13	1.00		0.60	1.00	
Satd. Flow (perm)	1770	4916		1770	4955		240	1805		1122	1733	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	878	185	86	1266	190	148	208	45	163	420	276
RTOR Reduction (vph)	0	33	0	0	21	0	0	9	0	0	26	0
Lane Group Flow (vph)	277	1030	0	86	1435	0	148	244	0	163	670	0
Confl. Peds. (#/hr)			6			7			7			14
Confl. Bikes (#/hr)			4			4			11			2
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	7	4		3	8		5	2				6
Permitted Phases							2			6		
Actuated Green, G (s)	17.2	30.8		7.7	21.3		37.5	37.5		27.0	27.0	
Effective Green, g (s)	17.2	30.8		7.7	21.3		37.5	37.5		28.0	28.0	
Actuated g/C Ratio	0.19	0.34		0.09	0.24		0.42	0.42		0.31	0.31	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	338	1682		151	1173		211	752		349	539	
v/s Ratio Prot	c0.16	0.21		0.05	c0.29		c0.05	0.14			c0.39	
v/s Ratio Perm							0.24			0.15		
v/c Ratio	0.82	0.61		0.57	1.22		0.70	0.32		0.47	1.24	
Uniform Delay, d1	34.9	24.6		39.6	34.4		42.3	17.7		25.0	31.0	
Progression Factor	1.00	1.00		0.94	1.26		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.6	1.7		1.2	103.7		8.3	0.1		0.4	124.3	
Delay (s)	48.5	26.3		38.5	147.1		50.6	17.8		25.3	155.3	
Level of Service	D	C		D	F		D	B		C	F	
Approach Delay (s)		30.9			141.0			29.9			130.6	
Approach LOS		C			F			C			F	

Intersection Summary

HCM Average Control Delay	92.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.7%	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												
Volume (vph)	313	402	61	126	738	327	86	498	93	261	812	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.0	5.5		4.0	5.5		4.0	5.5	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.95		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3446		1770	3343		1770	3421		1770	3391	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3446		1770	3343		1770	3421		1770	3391	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	340	437	66	137	802	355	93	541	101	284	883	183
RTOR Reduction (vph)	0	13	0	0	55	0	0	17	0	0	19	0
Lane Group Flow (vph)	340	490	0	137	1102	0	93	625	0	284	1047	0
Confl. Peds. (#/hr)			30			15			32			58
Confl. Bikes (#/hr)			7			3			16			21
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.6	29.1		9.9	27.4		7.7	23.0		11.0	26.3	
Effective Green, g (s)	10.6	28.6		9.4	26.9		7.2	22.5		10.5	25.8	
Actuated g/C Ratio	0.12	0.32		0.10	0.30		0.08	0.25		0.12	0.29	
Clearance Time (s)	3.5	5.0		3.5	5.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	404	1095		185	999		142	855		207	972	
v/s Ratio Prot	c0.10	0.14		0.08	c0.33		0.05	0.18		c0.16	c0.31	
v/s Ratio Perm												
v/c Ratio	0.84	0.45		0.74	1.10		0.65	0.73		1.37	1.08	
Uniform Delay, d1	38.9	24.4		39.1	31.6		40.2	31.0		39.8	32.1	
Progression Factor	1.41	0.50		1.00	1.00		1.00	1.00		1.15	0.89	
Incremental Delay, d2	11.9	0.1		13.0	60.9		8.0	5.5		186.5	47.5	
Delay (s)	66.6	12.2		52.1	92.5		48.2	36.4		232.3	76.2	
Level of Service	E	B		D	F		D	D		F	E	
Approach Delay (s)		34.2			88.2			37.9			109.0	
Approach LOS		C			F			D			F	

Intersection Summary

HCM Average Control Delay	75.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

P.M. Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖		↖	↖	
Volume (vph)	309	1117	154	90	1022	150	183	258	97	145	280	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	5.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4976		1770	4948		1770	1774		1770	1697	
Flt Permitted	0.95	1.00		0.95	1.00		0.13	1.00		0.53	1.00	
Satd. Flow (perm)	1770	4976		1770	4948		240	1774		994	1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	336	1214	167	98	1111	163	199	280	105	158	304	304
RTOR Reduction (vph)	0	15	0	0	18	0	0	14	0	0	36	0
Lane Group Flow (vph)	336	1366	0	98	1256	0	199	371	0	158	572	0
Confl. Peds. (#/hr)			2			8			5			13
Confl. Bikes (#/hr)			2			10			14			5
Turn Type	Prot			Prot		pm+pt			Perm			
Protected Phases	7	4		3	8	5	2				6	
Permitted Phases						2			6			
Actuated Green, G (s)	22.6	36.2		8.8	22.4	41.0	41.0		27.0	27.0		
Effective Green, g (s)	22.6	36.2		8.8	22.4	41.0	41.0		28.0	28.0		
Actuated g/C Ratio	0.23	0.36		0.09	0.22	0.41	0.41		0.28	0.28		
Clearance Time (s)	4.0	4.5		4.0	4.5	4.0	5.5		5.5	5.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0		
Lane Grp Cap (vph)	400	1801		156	1108	251	727		278	475		
v/s Ratio Prot	c0.19	0.27		0.06	c0.25	c0.08	0.21			c0.34		
v/s Ratio Perm						0.25			0.16			
v/c Ratio	0.84	0.76		0.63	1.13	0.79	0.51		0.57	1.20		
Uniform Delay, d1	37.0	28.1		44.0	38.8	45.6	22.0		30.8	36.0		
Progression Factor	1.00	1.00		1.15	0.88	1.00	1.00		1.00	1.00		
Incremental Delay, d2	14.1	3.0		4.1	68.8	14.7	0.3		1.6	110.5		
Delay (s)	51.0	31.1		54.8	103.0	60.3	22.3		32.4	146.5		
Level of Service	D	C		D	F	E	C		C	F		
Approach Delay (s)		35.0			99.5		35.2			123.0		
Approach LOS		D			F		D			F		

Intersection Summary

HCM Average Control Delay	70.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕↗		↖	↕↗		↖	↕↗		↖	↕↗	
Volume (vph)	356	680	62	126	537	305	86	844	249	202	605	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.0	5.5		4.0	5.5		4.0	5.5	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00		1.00	0.98		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	
Frt	1.00	0.99		1.00	0.95		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3480		1770	3281		1770	3336		1770	3468	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3480		1770	3281		1770	3336		1770	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	387	739	67	137	584	332	93	917	271	220	658	60
RTOR Reduction (vph)	0	7	0	0	79	0	0	28	0	0	7	0
Lane Group Flow (vph)	387	799	0	137	837	0	93	1160	0	220	711	0
Confl. Peds. (#/hr)			26			30			61			50
Confl. Bikes (#/hr)			6			2			19			25
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.9	27.5		10.5	24.1		5.0	33.0		12.0	40.0	
Effective Green, g (s)	12.9	27.0		10.0	23.6		4.5	32.5		11.5	39.5	
Actuated g/C Ratio	0.13	0.27		0.10	0.24		0.04	0.32		0.12	0.40	
Clearance Time (s)	3.5	5.0		3.5	5.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	443	940		177	774		80	1084		204	1370	
v/s Ratio Prot	c0.11	c0.23		0.08	c0.26		0.05	c0.35		c0.12	0.21	
v/s Ratio Perm												
v/c Ratio	0.87	0.85		0.77	1.08		1.16	1.07		1.08	0.52	
Uniform Delay, d1	42.7	34.6		43.9	38.2		47.8	33.8		44.2	23.0	
Progression Factor	1.09	1.53		1.00	1.00		1.00	1.00		1.19	0.66	
Incremental Delay, d2	12.2	5.1		17.3	56.8		151.0	48.3		80.4	1.2	
Delay (s)	58.9	58.0		61.2	95.0		198.8	82.0		133.3	16.3	
Level of Service	E	E		E	F		F	F		F	B	
Approach Delay (s)		58.3			90.6			90.5			43.8	
Approach LOS		E			F			F			D	

Intersection Summary

HCM Average Control Delay	72.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

CUMULATIVE YEAR 2030 BASELINE
(WITH PROJECT) CONDITION

A.M. Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖		↖	↖	
Volume (vph)	266	858	189	108	1496	225	139	201	49	170	396	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	5.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		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	0.97		1.00	0.98		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4910		1770	4955		1770	1799		1770	1729	
Flt Permitted	0.95	1.00		0.95	1.00		0.13	1.00		0.59	1.00	
Satd. Flow (perm)	1770	4910		1770	4955		240	1799		1104	1729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	289	933	205	117	1626	245	151	218	53	185	430	298
RTOR Reduction (vph)	0	36	0	0	22	0	0	10	0	0	28	0
Lane Group Flow (vph)	289	1102	0	117	1849	0	151	261	0	185	700	0
Confl. Peds. (#/hr)			6			7			7			14
Confl. Bikes (#/hr)			4			4			11			2
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	7	4		3	8		5	2				6
Permitted Phases							2			6		
Actuated Green, G (s)	17.7	29.6		8.9	20.8		37.5	37.5		27.0	27.0	
Effective Green, g (s)	17.7	29.6		8.9	20.8		37.5	37.5		28.0	28.0	
Actuated g/C Ratio	0.20	0.33		0.10	0.23		0.42	0.42		0.31	0.31	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	348	1615		175	1145		211	750		343	538	
v/s Ratio Prot	c0.16	0.22		0.07	c0.37		c0.05	0.15			c0.41	
v/s Ratio Perm							0.25			0.17		
v/c Ratio	0.83	0.68		0.67	1.62		0.72	0.35		0.54	1.30	
Uniform Delay, d1	34.7	26.1		39.1	34.6		42.3	17.9		25.7	31.0	
Progression Factor	1.00	1.00		0.95	1.20		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.7	2.4		0.7	277.2		9.2	0.1		0.8	149.0	
Delay (s)	49.4	28.5		37.8	318.8		51.6	18.0		26.5	180.0	
Level of Service	D	C		D	F		D	B		C	F	
Approach Delay (s)		32.7			302.2			30.0			148.9	
Approach LOS		C			F			C			F	

Intersection Summary

HCM Average Control Delay	167.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	586	100	255	0	0	197	0	183	11	13	1233	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0				3.0		4.0			4.0	
Lane Util. Factor	0.95	0.95				1.00		0.95			0.95	
Frbp, ped/bikes	1.00	0.99				0.98		1.00			1.00	
Flpb, ped/bikes	1.00	1.00				1.00		1.00			1.00	
Frt	1.00	0.92				0.86		0.99			1.00	
Flt Protected	0.95	0.99				1.00		1.00			1.00	
Satd. Flow (prot)	1681	1590				1584		3498			3537	
Flt Permitted	0.95	0.99				1.00		1.00			0.95	
Satd. Flow (perm)	1681	1590				1584		3498			3367	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	637	109	277	0	0	214	0	199	12	14	1340	0
RTOR Reduction (vph)	0	0	0	0	0	78	0	6	0	0	0	0
Lane Group Flow (vph)	529	494	0	0	0	136	0	205	0	0	1354	0
Confl. Peds. (#/hr)			4			8			15			1
Confl. Bikes (#/hr)			3			4			4			
Turn Type	Perm						custom		Perm			
Protected Phases	2						1		1			
Permitted Phases	2						2		1			
Actuated Green, G (s)	51.0	51.0					51.0	22.0	22.0			
Effective Green, g (s)	51.0	51.0					51.0	22.0	22.0			
Actuated g/C Ratio	0.64	0.64					0.64	0.28	0.28			
Clearance Time (s)	3.0	3.0					3.0	4.0	4.0			
Lane Grp Cap (vph)	1072	1014					1010	962	926			
v/s Ratio Prot							0.06					
v/s Ratio Perm	c0.31	0.31					0.09	c0.40				
v/c Ratio	0.49	0.49					0.14	0.21	1.46			
Uniform Delay, d1	7.7	7.6					5.8	22.3	29.0			
Progression Factor	1.00	1.00					1.00	1.00	1.00			
Incremental Delay, d2	1.6	1.7					0.3	0.5	214.0			
Delay (s)	9.3	9.3					6.0	22.8	243.0			
Level of Service	A	A					A	C	F			
Approach Delay (s)	9.3		6.0				22.8		243.0			
Approach LOS	A		A				C		F			

Intersection Summary

HCM Average Control Delay	123.0	HCM Level of Service	F
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↖	↖		↕		↖	↕	
Volume (vph)	10	10	10	361	341	486	7	819	171	103	1242	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor		1.00		0.95	0.95	1.00		0.95		1.00	0.95	
Frbp, ped/bikes		0.99		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	
Frt		0.96		1.00	1.00	0.85		0.97		1.00	0.96	
Flt Protected		0.98		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1740		1681	1761	1583		3438		1770	3328	
Flt Permitted		0.98		0.95	0.97	1.00		0.82		0.95	1.00	
Satd. Flow (perm)		1740		1681	1718	1583		2809		1770	3328	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	11	11	392	371	528	8	890	186	112	1350	471
RTOR Reduction (vph)	0	11	0	0	0	475	0	17	0	0	34	0
Lane Group Flow (vph)	0	22	0	353	410	53	0	1067	0	112	1787	0
Confl. Peds. (#/hr)						12			2			22
Confl. Bikes (#/hr)			1			2			1			16
Turn Type	Split			Prot		Over	Perm				Prot	
Protected Phases	7	7		8		1		2			1	6
Permitted Phases					8		2					
Actuated Green, G (s)		4.0		24.9	24.9	9.0		34.1		9.0	47.6	
Effective Green, g (s)		4.0		24.9	24.9	9.0		34.1		9.0	47.6	
Actuated g/C Ratio		0.04		0.28	0.28	0.10		0.38		0.10	0.53	
Clearance Time (s)		4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Lane Grp Cap (vph)		77		465	475	158		1064		177	1760	
v/s Ratio Prot		c0.01		0.21		0.03				0.06	c0.54	
v/s Ratio Perm					c0.24			0.38				
v/c Ratio		0.29		0.76	0.86	0.33		1.00		0.63	1.02	
Uniform Delay, d1		41.6		29.8	30.9	37.7		28.0		38.9	21.2	
Progression Factor		1.30		1.00	1.00	1.00		0.97		0.94	1.00	
Incremental Delay, d2		0.5		6.2	14.5	0.5		24.5		3.8	21.9	
Delay (s)		54.7		36.0	45.4	38.2		51.6		40.3	43.1	
Level of Service		D		D	D	D		D		D	D	
Approach Delay (s)		54.7			39.9			51.6			43.0	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	44.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

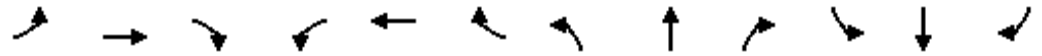


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↗		↖	↖↗	↖	↖	↖↗	↖	↖	↖↗	
Volume (vph)	323	456	77	147	859	335	95	512	110	303	1090	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.0	5.5	5.0	4.0	5.5	5.0	4.0	5.5	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.94	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	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3436		1770	3539	1532	1770	3539	1483	1770	3401	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3436		1770	3539	1532	1770	3539	1483	1770	3401	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	351	496	84	160	934	364	103	557	120	329	1185	227
RTOR Reduction (vph)	0	15	0	0	0	148	0	0	82	0	17	0
Lane Group Flow (vph)	351	565	0	160	934	216	103	557	38	329	1395	0
Confl. Peds. (#/hr)			30			15			32			58
Confl. Bikes (#/hr)			7			3			16			21
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	12.2	26.8		10.9	25.5	25.5	7.9	23.6	23.6	11.7	27.4	
Effective Green, g (s)	11.2	26.3		10.4	25.0	25.5	7.4	23.1	23.6	11.2	26.9	
Actuated g/C Ratio	0.12	0.29		0.12	0.28	0.28	0.08	0.26	0.26	0.12	0.30	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	3.5	5.0	5.0	3.5	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	427	1004		205	983	434	146	908	389	220	1017	
v/s Ratio Prot	c0.10	0.16		0.09	c0.26		0.06	0.16		c0.19	c0.41	
v/s Ratio Perm						0.14			0.03			
v/c Ratio	0.82	0.56		0.78	0.95	0.50	0.71	0.61	0.10	1.50	1.37	
Uniform Delay, d1	38.4	27.0		38.7	31.9	26.9	40.2	29.5	25.1	39.4	31.6	
Progression Factor	1.44	0.49		1.00	1.00	1.00	1.00	1.00	1.00	1.16	0.87	
Incremental Delay, d2	9.1	0.3		16.1	17.7	0.3	11.9	3.1	0.5	232.2	169.8	
Delay (s)	64.6	13.7		54.8	49.6	27.2	52.2	32.6	25.6	277.7	197.3	
Level of Service	E	B		D	D	C	D	C	C	F	F	
Approach Delay (s)		32.9			44.6			34.1			212.5	
Approach LOS		C			D			C			F	

Intersection Summary

HCM Average Control Delay	100.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

P.M. Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕↕↗		↖	↕↕↗		↖	↗		↖	↗	
Volume (vph)	319	1186	164	120	1072	170	213	267	107	166	290	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	5.5		4.5	4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4975		1770	4938		1770	1770		1770	1697	
Flt Permitted	0.95	1.00		0.95	1.00		0.13	1.00		0.52	1.00	
Satd. Flow (perm)	1770	4975		1770	4938		240	1770		975	1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	347	1289	178	130	1165	185	232	290	116	180	315	315
RTOR Reduction (vph)	0	16	0	0	20	0	0	14	0	0	36	0
Lane Group Flow (vph)	347	1451	0	130	1330	0	232	392	0	180	594	0
Confl. Peds. (#/hr)			2			8			5			13
Confl. Bikes (#/hr)			2			10			14			5
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	23.1	33.3		11.7	21.9		41.0	41.0		27.0	27.0	
Effective Green, g (s)	23.1	33.3		11.7	21.9		41.0	41.0		28.0	28.0	
Actuated g/C Ratio	0.23	0.33		0.12	0.22		0.41	0.41		0.28	0.28	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	409	1657		207	1081		251	726		273	475	
v/s Ratio Prot	c0.20	0.29		0.07	c0.27		c0.09	0.22			c0.35	
v/s Ratio Perm							0.29			0.18		
v/c Ratio	0.85	0.88		0.63	1.23		0.92	0.54		0.66	1.25	
Uniform Delay, d1	36.8	31.4		42.1	39.1		46.6	22.4		31.8	36.0	
Progression Factor	1.00	1.00		1.20	0.86		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.5	6.8		2.2	107.9		36.3	0.4		4.3	129.2	
Delay (s)	51.2	38.2		52.5	141.5		82.9	22.7		36.1	165.2	
Level of Service	D	D		D	F		F	C		D	F	
Approach Delay (s)		40.7			133.7			44.6			136.5	
Approach LOS		D			F			D			F	

Intersection Summary

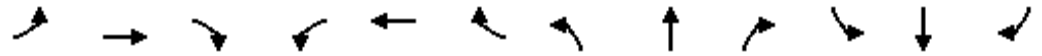
HCM Average Control Delay	86.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↖	↖		↕		↖	↕	
Volume (vph)	16	16	31	147	147	147	9	964	534	180	791	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor		1.00		0.95	0.95	1.00		0.95		1.00	0.95	
Frbp, ped/bikes		0.98		1.00	1.00	1.00		0.99		1.00	0.96	
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt		0.93		1.00	1.00	0.85		0.95		1.00	0.95	
Flt Protected		0.99		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1681		1681	1762	1583		3326		1770	3219	
Flt Permitted		0.99		0.95	0.97	1.00		0.94		0.95	1.00	
Satd. Flow (perm)		1681		1681	1719	1583		3141		1770	3219	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	17	34	160	160	160	10	1048	580	196	860	410
RTOR Reduction (vph)	0	32	0	0	0	136	0	64	0	0	45	0
Lane Group Flow (vph)	0	36	0	144	176	24	0	1574	0	196	1225	0
Confl. Peds. (#/hr)			4			24			5			41
Confl. Bikes (#/hr)			2			3			1			10
Turn Type	Split			Prot		Over	Perm			Prot		
Protected Phases	7	7		8		1		2		1	6	
Permitted Phases					8		2					
Actuated Green, G (s)		5.6		15.8	15.8	14.9		45.7		14.9	65.1	
Effective Green, g (s)		5.6		15.8	15.8	14.9		45.7		14.9	65.1	
Actuated g/C Ratio		0.06		0.16	0.16	0.15		0.46		0.15	0.65	
Clearance Time (s)		4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)		2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Lane Grp Cap (vph)		94		266	272	236		1435		264	2096	
v/s Ratio Prot		c0.02		0.09		0.02				c0.11	0.38	
v/s Ratio Perm					c0.10			c0.50				
v/c Ratio		0.38		0.54	0.65	0.10		1.10		0.74	0.58	
Uniform Delay, d1		45.5		38.8	39.5	36.8		27.1		40.7	9.8	
Progression Factor		1.87		1.00	1.00	1.00		0.55		0.75	1.67	
Incremental Delay, d2		0.7		1.2	3.9	0.1		50.1		7.7	1.0	
Delay (s)		85.8		40.0	43.4	36.8		65.1		38.3	17.3	
Level of Service		F		D	D	D		E		D	B	
Approach Delay (s)		85.8			40.2			65.1			20.1	
Approach LOS		F			D			E			C	

Intersection Summary

HCM Average Control Delay	44.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	363	733	102	167	606	365	96	896	337	277	619	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.0	5.5	5.0	4.0	5.5	5.0	4.0	5.5	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00	0.89	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	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3452		1770	3539	1498	1770	3539	1417	1770	3469	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3452		1770	3539	1498	1770	3539	1417	1770	3469	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	395	797	111	182	659	397	104	974	366	301	673	60
RTOR Reduction (vph)	0	11	0	0	0	158	0	0	128	0	7	0
Lane Group Flow (vph)	395	897	0	182	659	239	104	974	238	301	726	0
Confl. Peds. (#/hr)			26			30			61			50
Confl. Bikes (#/hr)			6			2			19			25
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	14.8	27.6		11.5	24.3	24.3	5.4	31.5	31.5	12.4	38.5	
Effective Green, g (s)	13.8	27.1		11.0	23.8	24.3	4.9	31.0	31.5	11.9	38.0	
Actuated g/C Ratio	0.14	0.27		0.11	0.24	0.24	0.05	0.31	0.32	0.12	0.38	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	3.5	5.0	5.0	3.5	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	474	935		195	842	364	87	1097	446	211	1318	
v/s Ratio Prot	c0.12	c0.26		0.10	0.19		0.06	c0.28		c0.17	0.21	
v/s Ratio Perm						0.16			0.17			
v/c Ratio	0.83	0.96		0.93	0.78	0.66	1.20	0.89	0.53	1.43	0.55	
Uniform Delay, d1	42.0	35.9		44.1	35.7	34.1	47.6	32.8	28.2	44.0	24.3	
Progression Factor	1.05	1.64		1.00	1.00	1.00	1.00	1.00	1.00	1.17	0.62	
Incremental Delay, d2	6.4	12.9		45.1	4.4	3.2	158.3	10.7	4.5	213.6	1.4	
Delay (s)	50.4	71.8		89.2	40.1	37.3	205.8	43.6	32.7	265.3	16.6	
Level of Service	D	E		F	D	D	F	D	C	F	B	
Approach Delay (s)		65.3			46.4			52.5			89.0	
Approach LOS		E			D			D			F	

Intersection Summary

HCM Average Control Delay	61.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

CUMULATIVE YEAR 2030 BASELINE
(WITH PROJECT – WITH BRT) CONDITION

A.M. Peak



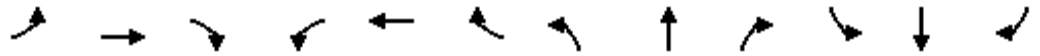
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	350	369	481	0	360	47	111	973	333
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor				0.95	0.95	1.00		0.95		1.00	1.00	
Frbp, ped/bikes				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	
Fr				1.00	1.00	0.85		0.98		1.00	0.96	
Flt Protected				0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)				1681	1762	1583		3472		1770	1754	
Flt Permitted				0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)				1681	1762	1583		3472		1770	1754	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	380	401	523	0	391	51	121	1058	362
RTOR Reduction (vph)	0	0	0	0	0	224	0	11	0	0	12	0
Lane Group Flow (vph)	0	0	0	342	439	299	0	431	0	121	1408	0
Confl. Peds. (#/hr)						12			2			22
Confl. Bikes (#/hr)			1			2			1			16
Turn Type				Prot		Over				Prot		
Protected Phases				3		1		2		1		6
Permitted Phases					8							
Actuated Green, G (s)				26.9	25.9	17.1		33.5		17.1	55.1	
Effective Green, g (s)				26.9	25.9	17.1		33.5		17.1	55.1	
Actuated g/C Ratio				0.30	0.29	0.19		0.37		0.19	0.61	
Clearance Time (s)				3.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)				3.0	2.0	2.0		2.0		2.0	2.0	
Lane Grp Cap (vph)				502	507	301		1292		336	1074	
v/s Ratio Prot				0.20		0.19		0.12		0.07	c0.80	
v/s Ratio Perm					c0.25							
v/c Ratio				0.68	0.87	0.99		0.33		0.36	1.31	
Uniform Delay, d1				27.8	30.4	36.4		20.2		31.7	17.4	
Progression Factor				1.00	1.00	1.00		0.62		1.14	0.70	
Incremental Delay, d2				3.8	13.9	49.5		0.6		0.2	144.7	
Delay (s)				31.6	44.3	85.8		13.1		36.4	157.0	
Level of Service				C	D	F		B		D	F	
Approach Delay (s)		0.0			57.6			13.1			147.5	
Approach LOS		A			E			B			F	

Intersection Summary

HCM Average Control Delay	93.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Oakland Creekside 5132 Telegraph TIA
7: 51ST St. & Telegraph Ave.

2030 PJ + BRT AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕↗		↖	↕↕	↗		↕↕	↗	↖	↗	
Volume (vph)	91	626	136	352	545	165	0	466	127	276	747	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.0	5.5	5.0		5.5	5.0	4.0	5.5	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00		0.95	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	0.98		1.00	1.00	0.97		1.00	0.94	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	0.97		1.00	1.00	0.85		1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3390		1770	3539	1533		3539	1482	1770	1769	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3390		1770	3539	1533		3539	1482	1770	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	680	148	383	592	179	0	507	138	300	812	217
RTOR Reduction (vph)	0	21	0	0	0	105	0	0	104	0	10	0
Lane Group Flow (vph)	99	807	0	383	592	74	0	507	34	300	1019	0
Confl. Peds. (#/hr)			30			15			32			58
Confl. Bikes (#/hr)			7			3			16			21
Turn Type	Prot			Prot		Perm			Perm		Prot	
Protected Phases	7	4		3	8			2			1	6
Permitted Phases						8			2			
Actuated Green, G (s)	6.0	25.6		11.5	31.1	31.1		22.3	22.3	13.6	39.4	
Effective Green, g (s)	5.0	25.1		11.0	30.6	31.1		21.8	22.3	13.1	38.9	
Actuated g/C Ratio	0.06	0.28		0.12	0.34	0.35		0.24	0.25	0.15	0.43	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0		5.0	5.0	3.5	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	191	945		216	1203	530		857	367	258	765	
v/s Ratio Prot	0.03	c0.24		c0.22	0.17			0.14		0.17	c0.58	
v/s Ratio Perm						0.05			0.02			
v/c Ratio	0.52	0.85		1.77	0.49	0.14		0.59	0.09	1.16	1.33	
Uniform Delay, d1	41.3	30.7		39.5	23.5	20.2		30.2	26.1	38.4	25.5	
Progression Factor	1.49	0.55		1.00	1.00	1.00		1.00	1.00	1.10	0.82	
Incremental Delay, d2	0.8	5.8		366.1	0.1	0.0		3.0	0.5	77.5	150.1	
Delay (s)	62.3	22.7		405.6	23.7	20.3		33.2	26.6	119.6	171.2	
Level of Service	E	C		F	C	C		C	C	F	F	
Approach Delay (s)		26.9			149.9			31.7			159.5	
Approach LOS		C			F			C			F	

Intersection Summary		
HCM Average Control Delay	106.1	HCM Level of Service F
HCM Volume to Capacity ratio	1.24	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	106.5%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		